Routledge History of Philosophy
Volume I

From the Beginning to Plato

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Routledge History of Philosophy

Volume I

Volume I of the Routledge History of Philosophy covers one of the most remarkable periods in human thought. In the space of two and a half centuries, philosophy developed from quasi-mythological speculation to a state in which many of the most fundamental questions about the universe, the mind and human conduct had been vigorously pursued and some of the most enduring masterworks of Western thought had been written.

The essays present the fundamental approaches and thinkers of Greek philosophy in chronological order. Each is written by a recognized authority in the particular field, and takes account of the large amount of high-quality work done in the last few decades on Platonic and pre-Platonic philosophy. All write in an accessible style, meeting the needs of the non-specialist without loss of scholarly precision. Topics covered range from early Greek speculative thought and its cultural and social setting, to the Sophists and Socrates, culminating in three chapters on Plato's lasting contribution to all central areas of philosophy.

Supplemented with a chronology, a glossary of technical terms and an extensive bibliography, this volume will prove an invaluable and comprehensive guide to the beginnings of philosophy.

C.C.W.Taylor is Reader in Philosophy in the University of Oxford and a Fellow of Corpus Christi College. He is the author of *Plato, Protagoras* (1976) and co-editor of *Human Agency: Philosophical Essays in Honor of J.O.Urmson* (1988). Currently, he is the editor of *Oxford Studies in Ancient Philosophy*.

Routledge History of Philosophy

General Editors—G.H.R.Parkinson and S.G.Shanker

The *Routledge History of Philosophy* provides a chronological survey of the history of Western philosophy, from its beginnings in the sixth century BC to the present time. It discusses all major philosophical developments in depth. Most space is allocated to those individuals who, by common consent, are regarded as great philosophers. But lesser figures have not been neglected, and together the ten volumes of the *History* include basic and critical information about every significant philosopher of the past and present. These philosophers are clearly situated within the cultural and, in particular, the scientific context of their time.

The *History* is intended not only for the specialist, but also for the student and the general reader. Each chapter is by an acknowledged authority in the field. The chapters are written in an accessible style and a glossary of technical terms is provided in each volume.

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Each volume contains 10–15 chapters by different contributors

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Volume I

From the Beginning to Plato

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General editors' preface

The history of philosophy, as its name implies, represents a union of two very different disciplines, each of which imposes severe constraints upon the other. As an exercise in the history of ideas, it demands that one acquire a 'period eye': a thorough understanding of how the thinkers whom it studies viewed the problems which they sought to resolve, the conceptual frameworks in which they addressed these issues, their assumptions and objectives, their blind spots and miscues. But as an exercise in philosophy, we are engaged in much more than simply a descriptive task. There is a crucial critical aspect to our efforts: we are looking for the cogency as much as the development of an argument, for its bearing on questions which continue to preoccupy us as much as the impact which it may have had on the evolution of philosophical thought.

The history of philosophy thus requires a delicate balancing act from its practitioners. We read these writings with the full benefit of historical hindsight. We can see why the minor contributions remained minor and where the grand systems broke down: sometimes as a result of internal pressures, sometimes because of a failure to overcome an insuperable obstacle, sometimes because of a dramatic technological or sociological change and, quite often, because of nothing more than a shift in intellectual fashion or interests. Yet, because of our continuing philosophical concern with many of the same problems, we cannot afford to look dispassionately at these works. We want to know what lessons are to be learnt from the inconsequential or the glorious failures; many times we want to plead for a contemporary relevance in the overlooked theory or to reconsider whether the 'glorious failure' was indeed such or simply ahead of its time: perhaps even ahead of its author.

We find ourselves, therefore, much like the mythical 'radical translator' who has so fascinated modern philosophers, trying to understand an author's ideas in his and his culture's eyes, and at the same time, in our own. It can be a formidable task. Many times we fail in the historical undertaking because our philosophical interests are so strong, or lose sight of the latter because we are so enthralled by the former. But the nature of philosophy is such that we are compelled to master both techniques. For learning about the history of philosophy is not just a challenging and engaging pastime: it is an essential

element in learning about the nature of philosophy—in grasping how philosophy is intimately connected with and yet distinct from both history and science.

The *Routledge History of Philosophy* provides a chronological survey of the history of Western philosophy, from its beginnings up to the present time. Its aim is to discuss all major philosophical developments in depth, and with this in mind, most space has been allocated to those individuals who, by common consent, are regarded as great philosophers. But lesser figures have not been neglected, and it is hoped that the reader will be able to find, in the ten volumes of the *History*, at least basic information about any significant philosopher of the past or present.

Philosophical thinking does not occur in isolation from other human activities, and this *History* tries to situate philosophers within the cultural, and in particular the scientific, context of their time. Some philosophers, indeed, would regard philosophy as merely ancillary to the natural sciences; but even if this view is rejected, it can hardly be denied that the sciences have had a great influence on what is now regarded as philosophy, and it is important that this influence should be set forth clearly. Not that these volumes are intended to provide a mere record of the factors that influenced philosophical thinking; philosophy is a discipline with its own standards of argument, and the presentation of the ways in which these arguments have developed is the main concern of this *History*.

In speaking of 'what is now regarded as philosophy', we may have given the impression that there now exists a single view of what philosophy is. This is certainly not the case; on the contrary, there exist serious differences of opinion, among those who call themselves philosophers, about the nature of their subject. These differences are reflected in the existence at the present time of two main schools of thought, usually described as 'analytic' and 'continental' philosophy. It is not our intention, as general editors of this *History*, to take sides in this dispute. Our attitude is one of tolerance, and our hope is that these volumes will contribute to an understanding of how philosophers have reached the positions which they now occupy.

One final comment. Philosophy has long been a highly technical subject, with its own specialized vocabulary. This *History* is intended not only for the specialist but also for the general reader. To this end, we have tried to ensure that each chapter is written in an accessible style; and since technicalities are unavoidable, a glossary of technical terms is provided in each volume. In this way these volumes will, we hope, contribute to a wider understanding of a subject which is of the highest importance to all thinking people.

G.H.R.Parkinson
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C.C.W.Taylor is Reader in Philosophy in the University of Oxford and a Fellow of Corpus Christi College. He is the author of *Plato, Protagoras* (Clarendon Plato Series (1976, revised edn. 1991), World's Classics (1996)), co-author (with J.C.B.Gosling) of *The Greeks on Pleasure* (1982), and co-editor (with J.Dancy and J.M.E.Moravcsik) of *Human Agency: Philosophical Essays in Honor of J.O.Urmson* (1988). He is currently the editor of *Oxford Studies in Ancient Philosophy*.

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Chronology

C.C.W.Taylor and Robin Osborne

We have comparatively few precise and reliable dates for the biography of individuals (including birth, death and composition of individual works). In some cases approximate dates can be given, but in others all that can be said is that the person was active during a certain period, e.g. in the first third or half of a particular century. Dramatic works are dated by the year of their performance at one of the Athenian dramatic festivals, of which official records were preserved.

All dates are BC. Dates of the form 462/1 designate years of the official Athenian calendar, in which the year began in June. (Hence 462/1 is the year from June 462 BC to June 461 BC.) Dates of the form 750–700 designate periods of several years.

Politics and religion		**The arts**	
776	First Olympiad	800	Geometric pottery produced throughout Greece
*c.*750–*c.*700	Foundation of Greek colonies in S. Italy and Sicily		
		c. mid-cent.	Earliest Greek alphabetic inscriptions
		2nd half of cent.	Figurative decoration developed on Late Geometric pottery
			Composition of Homeric poems
		*c.*700	Hesiod active
			Earliest certain scenes of myths on Greek pottery

Politics and religion		**The arts**	
		*c.*700–*c.*650	Oriental influence manifest in Greek pottery and metalwork
		*c.*650	Archilochus, Semonides, Tyrtaeus active
*c.*650–*c.*600	Age of tyrants and lawgivers Laws of Draco at Athens 621	630–600	Alcman active
		*c.*610–*c.*600	Earliest black-figure vase painting at Athens
		*c.*600	First monumental *kouroi* Sappho, Alcaeus active
594/3	Archonship of Solon at Athens	*c.*600–*c.*550	Earliest Doric temples (Olympia, Corinth, Syracuse, Corcyra, Selinus)
		*c.*560	Earliest Ionic temples (Samos, Ephesus)
		*c.*550	Theognis active Mythological cosmogony of Pherecydes of Syros Amasis Painter and Exekias active at Athens
*c.*550–*c.*500	Earliest Orphic poems written		
546	Persian conquest of Lydia		
*c.*540–*c.*522	Tyranny of Polycrates at Samos	540–520	Anacreon active Temple of Hera at Samos
		535	Traditional date of first dramatic competition at Athens
		520–10	Invention of red-figure technique of

Politics and religion		The arts	
			vase painting at Athens
		c.510–480	Technique for making large hollow-cast bronze statues perfected
508/7	Reforms of Cleisthenes: full democracy established at Athens		
500–494	Ionian revolt against Persia	*c*.500	Kleophrades Painter and Berlin Painter active at Athens
		500–490	Temple of Athena Aphaia, Aegina

Science and technology		Philosophy	
early 6th cent.	Geometrical discoveries attributed to Thales (see Ch. 8) Anaximander's world map	585	Eclipse allegedly predicted by Thales Anaximander, Anaximenes active
c.575–560	Earliest electrum coins minted in Ionia	*c*.570–*c*.550	Birth of Pythagoras
		546 (?)	Xenophanes goes into exile
c.540–*c*.522	Polycrates' tunnel	*c*.540–*c*.520	Foundation of Pythagorean community at Croton
c.520	Earliest Athenian owl coinage	*c*.540	Foundation of Elea
		c.515	Birth of Parmenides
Late 6th-early 5th cent.	Hecataeus, *Journey Round the World*, world map and work on mythology and genealogy	*c*.500	Heraclitus active Birth of Anaxagoras Birth of Protagoras

Politics and religion		The arts	
		494	Phrynichus, *Capture of Miletus*
490	First Persian invasion: Battle of Marathon (Aeschylus a combatant)	500–440	Pindar (d.438) active Bacchylides active Simonides (d.468) active Building of temples at Acragas
		485	Comedy added to City Dionysia
		484	Aeschylus' first victory
480–79	Second Persian invasion: Battles of Thermopylae, Salamis and Plataea Battle of Himera: Carthaginian invasion of Sicily defeated	*c*.480	Critian boy
		472	Aeschylus, *Persians*
470	Sophocles' first victory		
468	Aeschylus, *Seven Against Thebes*		
c.465	Battle of Eurymedon	470–60	Painted Stoa at Athens: paintings by Polygnotus and others
c.463	Establishment of democracy at Syracuse		
462/1	Ostracism of Kimon Reforms of Ephialtes at Athens		
459–4	Athenian expedition to Egypt		
		458	Aeschylus, *Oresteia*
		456	Death of Aeschylus Completion of Temple of Zeus at Olympia
454	Tranfer of treasury of Delian League to Athens: beginning of Athenian empire Pericles elected general for first time		

Politics and religion		The arts	
		*c.*450	Piraeus replanned by Hippodamus of Miletus
		450–30	Polyclitus active
		447	Parthenon begun
448	Pericles re-elected general (and annually thereafter till his death)		
443	Foundation of Thurii		Herodotus among the colonists of Thurii: city laid out by Hippodamus
	Ostracism of Thucydides son of Melesias		Sophocles, *Antigone*
441	Revolt of Samos from Athens	441	Euripides' first victory
		438	Euripides, *Alcestis*
			Phidias, statue of Athena in Parthenon

Science and technology		Philosophy	
		469	Birth of Socrates
		467	Fall of meteorite at Aegospotamoi said to have been predicted by Anaxagoras
		*c.*460	Birth of Democritus
5th cent.	Pythagorean discovery of mathematical basis of musical intervals		
		454	Destruction of Pythagorean communities in S. Italy
2nd half of 5th cent.	Hippocrates of Chios, *Elements*	450	Dramatic date of Plato, *Parmenides*
	Hippocrates of Cos active		Parmenides *c.*65 yrs old, Zeno *c.*40 yrs old
	Early Hippocratic treatises		
		443	Protagoras writes laws for Thurii.

Science and technology	Philosophy
	Anaxagoras active in Athens
441	Melissus commands Samian fleet against Athens.
mid 5th. cent.	Empedocles, Leucippus, Alcmaeon of Croton active

Politics and religion	The arts
432 Outbreak of Peloponnesian War	*c*.432 Parthenon sculptures completed Zeuxis at outset of his career Thucydides begins his history.
	431 Euripides, *Medea*
	c.430 Sophocles, *Oedipus Tyrannus* Phidias, statue of Zeus at Olympia Birth of Xenophon
429 Plague at Athens: death of Pericles	
	428 Euripides, *Hippolytus*
427 Leontinoi seeks help from Athens against Syracuse, (Gorgias an ambassador)	
	425 Aristophanes, *Acharnians*
424 Battle of Delium (Socrates distinguishes himself.) Capture of Amphipolis by Brasidas: exile of Thucydides	424 Aristophanes, *Knights*
	423 Aristophanes, *Clouds*
	422 Aristophanes, *Wasps*
421 Peace of Nicias	421 Aristophanes, *Peace* Eupolis, *Flatterers*
420 Alcibiades elected general Introduction of cult of Asclepius to Athens	*c*.420 Herodotus active
418 Renewal of war between Athens and Sparta	

Politics and religion

416	Destruction of Melos by Athens
415	Sicilian expedition: Mutilation of the Hermai: Alcibiades goes over to Sparta
413	Defeat of Sicilian expedition
413/12	Introduction of cult of Bendis to Athens (mentioned at beginning of Plato, *Republic*)

The arts

416	Agathon's first victory (celebrated by Plato, *Symposium*)
415	Euripides, *Trojan Women*
414	Aristophanes, *Birds*
412	Euripides, *Helen*

Science and technology

late 5th cent.	Hippias discovers quadratrix, compiles list of Olympic victors
late 5th cent.	Democritus, Philolaus active
2nd half of 5th cent.	Democritus states without proof that volumes of cone and pyramid are 1/3 respectively of volumes of cylinder and prism.

Philosophy

c.433	Dramatic date of Plato, *Protagoras*
	Protagoras, Hippias, Prodicus active
c.430	Anaxagoras exiled from Athens
c.428	Death of Anaxagoras
427	Birth of Plato
423	Diogenes of Apollonia active (doctrines caricatured in *Clouds*).
c.420	Death of Protagoras

Politics and religion		The arts	
411	Rule of 400 at Athens		Aristophanes, *Lysistrata* and *Thesmophoriazusai*
		409	Sophocles, *Philoctetes*
		408	Euripides, *Orestes*
407	Return of Alcibiades to Athens Spartan treaty with Persia		
406	Battle of Arginusai and trial of generals (Socrates a member of presiding board) Carthaginian invasion of Sicily	406	Death of Sophocles Death of Euripides
405	Defeat of Athenian fleet at Aegospotamoi Dionysius I establishes tyranny at Syracuse	405	Aristophanes, *Frogs* Euripides, *Bacchae* and *Iphigenia in Aulis* (produced posthumously)
405–4	Siege of Athens		
404	Surrender of Athens		
404–3	Rule of Thirty Tyrants at Athens: Lysias goes into exile: Socrates refuses to take part in arrest of Leon of Salamis Death of Alcibiades		
403	Restoration of democracy at Athens: death of Critias		
		401	Sophocles, *Oedipus at Colonus* (produced posthumously)
		*c.*400	Death of Thucydides Temple of Apollo, Bassai
395–3	Rebuilding of Long Walls at Athens	1st, half of 4th cent.	Lysias active (d.*c.*380) Xenophon active (d.*c.* 354)

Politics and religion		The arts	
			Isocrates active (d. 338)
		392	Aristophanes, *Ecclesiazusai*
		389	Aristophanes, *Plutus*
386	King's Peace		

Science and technology		Philosophy	
late 5th cent.	Basic work on irrationals by Theodorus of Cyrene		
1st half of 4th cent.	Theaetetus (d. 369) generalizes Theodorus' work on irrationals and describes five regular solids.	399	Trial and death of Socrates
	Eudoxus (d. *c.* 340) invents general theory of proportion and proves Democritus' discoveries of volumes of cone and pyramid; invents mathematical model of cosmos as set of nested spheres to explain movements of heavenly bodies.	1st half of 4th cent.	Associates of Socrates active: Antisthenes (d. *c.* 360) Aristippus (reputed founder of Cyrenaic school) Aeschines Eucleides (d. *c.* 380: founder of Megarian school) Phaedo
	Archytas solves problem of duplication of the cube, carries further Pythagorean work on mathematical		

Science and technology

determination of musical intervals and is first to apply mathematical principles to mechanics.

Philosophy

387 Plato's first visit to Sicily Foundation of Academy

Politics and religion

377 Foundation of Second Athenian Confederacy
371 Battle of Leuctra
370–69 Liberation of Messenia
367 Death of Dionysius I of Syracuse: succession of Dionysius II
360 Accession of Philip II of Macedon: beginning of rise of Macedon to hegemony in Greece
351 Demosthenes, *First Philippic*

The arts

*c.*356 Praxiteles, altar of Artemis at Ephesus
352–1 Mausoleum at Halicarnassus

Science and technology

Philosophy

384 Birth of Aristotle
367 Plato's second visit to Sicily Aristotle joins Academy
361 Plato's third visit to Sicily
*c.*360 Birth of Pyrrho, founder of Scepticism
c. mid-cent. Diogenes the Cynic comes to Athens.
347 Death of Plato: Speusippus succeeds as head of Academy: Aristotle leaves Athens.

List of Sources

The following ancient authors and works are cited as sources, chiefly for pre-Socratic philosophy, in this volume. Many of these works are available in original language editions only; details of these may be found (for Greek authors) in Liddell and Scott, *A Greek-English Lexicon*, 9th edn, revised H.S.Jones and R.McKenzie, Oxford, Clarendon Press, 1940 (many reprints), pp. xvi–xli. This list indicates English translations where available; (L) indicates that the works cited are available, in the original with facing English translation, in the Loeb Classical Library (Harvard University Press). Where details of a translation are given in the bibliography of any chapter, the appropriate reference is given. There is a helpful discussion of the sources for pre-Socratic philosophy in G.S.Kirk, J.E.Raven and M.Schofield, *The Presocratic Philosophers*, 2nd edn, Cambridge, Cambridge University Press, 1983 ([1.6], pp. 1–6.

Achilles. Astronomer; 3rd c. AD.

Aetius. Conjectured author of a history of philosophy, believed to have lived 1st or 2nd c. AD. His work survives in two summaries, the *Epitome* of [Plutarch] (1) (q.v.) and the *Selections* of Stobaeus (q.v.), with some excerpts also preserved by Theodoretus (q.v.); these versions are edited by H.Diels in *Doxographi Graeci* [2.1].

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Alexander of Aphrodisias. Philosopher and Aristotelian commentator; 2nd–3rd c. AD. Works cited; *On Fate* (trans. R.Sharples, London, Duckworth, 1983), commentaries on *Meteorology* and *Topics*.

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Cicero. Roman statesman and philosopher; 1st c. BC. Works cited; *Academica, On the Nature of the Gods, Tusculan Disputations* (L).

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Columella. Roman writer on agriculture; 1st c. AD. Work cited: *On Agriculture* (L).

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Heraclitus. Interpreter of Homer; 1st c. AD.

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Iamblichus. Neoplatonist philosopher; 4th c. AD. See [8.52].

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Lucretius. Epicurean philosopher and poet; 1st c. BC. Work cited: *De Rerum Natura* (L).

Marcus Auretius. Roman emperor and Stoic philosopher; 2nd c. AD. Work cited: *Meditations* (L).

Maximus of Tyre. Moralist and lecturer; 2nd c. AD.

Nicomachus of Gerasa. Mathematician; 1st–2nd c. AD. See [8.55–8].

Olympiodorus. Neoplatonist philosopher; 6th c. AD. Work cited: commentary on Aristotle's *Categories*.

Origen. Theologian; 2nd–3rd c. AD. Work cited: *Against Celsus,* trans. H.Chadwick, Oxford, Clarendon Press, 1953.

Pappus. Mathematician; 4th c. AD. See [8.60].

Pausanias. Geographer and antiquarian; 2nd c. AD. Work cited: *Description of Greece* (L).

Philoponus (John). Aristotelian commentator; 6th c. AD. Works cited: commentaries on *Physics* and on *On Generation and Corruption.*

Philostratus. Biographer; 2nd–3rd c. AD. Work cited: *Lives of the Sophists* (L).

Plotinus. Neoplatonist philosopher; 3rd. c. AD. Work cited: *Enneads* (L).

Plutarch. Philosopher, historian and essayist; 1st–2nd c. AD. The various works cited, apart from the *Lives,* are all included in his collected works, entitled *Moralia* (L). (*Lives* also (L)).

[Plutarch] (1) *Epitome,* a summary of philosophical history; 2nd c. AD. See Aetius.

[Plutarch] (2) *Miscellanies,* a collection of miscellaneous scientific information preserved by Eusebius (q.v.).

[Plutarch] (3) *Consolation to Apollonius.* Date uncertain.

Porphyry. Philosopher and polymath; 3rd c. AD. Works cited: *Homeric Questions,* commentary on Ptolemy *Harmonics* (see [8.73]).

Proclus. Neoplatonist philosopher; 3rd c. AD. Works cited: commentary on Euclid *Elements* Book 1 (see [8.75]), commentary on Plato *Parmenides,* commentary on Plato, *Alcibiades I.*

scholium (pl. **scholia**). A marginal note in an ancient manuscript. **Scholiast.** A writer of scholia.

Sextus Empiricus. Sceptical philosopher; 2nd c. AD. Works cited: *Outlines of Pyrrhonism, Adversus Mathematicos* (L).

Simplicius. Aristotelian commentator; 6th c. AD. Works cited: commentaries on *On the Heavens* and *Physics*.

Stobaeus (John of Stobi). Anthologist; 5th c. AD.

Suda, The (also known as Suidas). 10th c. AD Greek lexicon. See [8.87].

Themistius. Rhetorician and Aristotelian commentator; 4th c. AD. Works cited: *Orations,* commentary on *Physics*.

Theodoretus. Ecclesiastical writer; 5th c. AD.

Theodorus Prodromos. Polymath; 12th c. AD.

Theon of Smyrna. Mathematician; 1st c. AD. See [8.93].

Theophrastus. Aristotle's successor as head of the Lyceum; 4th–3rd c. BC. Work cited: *On the Senses,* Trans. in G.M.Stratum, *Theophrastus and the Greek Physiological Psychology Before Aristotle,* London, Allen and Unwin, 1917, repr. Bonset/P.Schippers, Amsterdam, 1964 [2.43].

Tzetzes (John). Commentator on Homer and polymath; 12th c. AD.

Introduction

C.C.W.Taylor

In the two and a half centuries covered by this volume, from the beginning of the sixth century BC to the death of Plato in 347, Western philosophy developed from infancy to adulthood, from the earliest stage at which it can be recognized as an intellectual activity in its own right to a state in which most of its principal branches had been articulated from one another, major advances had been made in some of those branches, and some enduring masterpieces had already been written. The several chapters in this volume describe this astonishing process in detail; it is the task of this introduction to attempt an overview of the main developments.

The tradition of beginning the history of Western philosophy with the Ionian theorists of the sixth century (see Chapter 2) is as old as the history of philosophy itself; Aristotle, the earliest historian of philosophy whose work survives, describes Thales (*Metaphysics* 983b20–1) as 'the founder of that kind of philosophy', i.e. the enquiry into the basic principles of the physical world. Yet in the same passage Aristotle admits some uncertainty as to whether 'the men of very ancient times who first told stories about the gods' should not be counted as pioneers of that kind of enquiry (b27–30). This brings out the fact that Ionian speculation about the nature and origins of the physical world itself arises from an older tradition of cosmology, represented in Greek thought by Homer, Hesiod and the so-called 'Orphic' poems, a tradition which has considerable affinities with the mythological systems of Egypt and the Near Eastern civilizations (see Chapter 1, and, for detailed discussion KRS [1.6], ch. 1). While it is traditional to contrast the 'mythological' thought of the poets, who explained the genesis and nature of the world via the activities of divinities, with the 'physical' or 'materialistic' thought of the Ionians, who appealed to observable stuffs such as water or air, that contrast is somewhat misleading, since on the one hand many of the divinities of the poets were themselves identified with components of the world such as the sea or the earth, while on the other the Ionians appear to have regarded their basic components as alive, and to have given them some of the attributes of divinity, such as immortality. None the less there are certain features of Ionian cosmological speculation which justify the traditional claim that it marks an unprecedented step in human thought. While the mythical cosmologies

mix up the cosmic deities with fairy-tale figures such as giants, Titans and monsters without distinction, and have no explanatory resources beyond the sexual and other psychological motivations of these beings, the Ionians eliminate the purely personal element, seeking to explain the world in terms of a minimum number of basic stuffs (e.g. water, air) and processes (e.g. condensation and rarefaction), and subjecting these accounts to the control both of primitive observation (as in Aristotle's account of Thales' reasons for identifying his principle with water) and of a priori reasoning (e.g. in Anaximander's treatment of the problem of the stability of the earth). Their speculations were thus subjected to norms of rationality, as those of their mythologizing precedessors were not, and in satisfying those norms they pioneered the crucial concepts of a theoretical entity (Anaximander's *apeiron*) and of a world organized in accordance with natural law (in the single fragment of Anaximander). (For a fuller discussion see Hussey [2.36].)

The Ionian cosmological tradition was an active element in the development of philosophy throughout the period covered by this volume, and beyond. But other strands soon become discernible in the fabric. The fragments of the poet Xenophanes, an Ionian writing later in the sixth century and probably well into the fifth, contain, in addition to some cosmological material, a number of criticisms of traditional theology. One element in this criticism is the rejection, on moral grounds, of the traditional tales of quarrels, adultery and other misdeeds on the part of the gods; the demand for a conception of the divine which represents it as a paradigm of moral perfection is from Xenophanes onwards a recurrent theme in Greek thought, particularly important in Plato, and is one of the elements which was taken over in the Christianization of Greek philosophy. More radical was Xenophanes' ridicule of anthropomorphic representations of gods, which looks forward to the cultural relativism of the fifth century and thereby to an important aspect of the thought of the sophists. But Xenophanes' contribution to theological speculation was not wholly negative; the fragments also provide evidence of belief in a non-anthropomorphic, perhaps incorporeal deity, which undertakes no physical activity, but controls everything by the power of thought. While there is disagreement among scholars as to whether Xenophanes was a monotheist, and whether he identified the deity with the cosmos, there can be no doubt that he is a pioneer of a theological tradition whose influence can be discerned in thinkers as diverse as Anaxagoras, Aristotle and the Stoics. He is also the earliest thinker who provides evidence of engagement with epistemological problems, initiating a tradition which was developed in different ways by the Eleatics, Plato and the Hellenistic schools.

The Ionian tradition was further diversified in the later sixth century by Pythagoreanism and by Heraclitus. The former movement, which had at least as much of the character of an esoteric religion as of a philosophical or scientific system, might appear altogether remote from the Ionians, but Aristotle's evidence suggests that the early Pythagoreans thought of themselves rather as offering alternative answers to the same fundamental questions about the

physical world as the Ionians had posed than as taking an altogether new direction. Their fundamental insight, which was to have a profound influence on Plato and thereby on later developments, was that understanding of the physical world was to be attained by grasping the mathematical principles of its organization, but those principles do not appear to have been, at this early stage, clearly distinguished from the physical principles which the Ionians had posited. Another important aspect of early Pythagoreanism was its development of a theory of the nature of the soul, and in particular of the view that the soul is akin to the world as a whole, and therefore to be explained via the application of the same mathematical conceptions as make the world intelligible. While Heraclitus' thought was closer to that of his Ionian predecessors, lacking the peculiarly mathematical slant of the Pythagoreans, it none the less has certain affinities with the latter. He too seeks to identify an intelligible structure underlying the apparent chaos of phenomena, and thinks that that structure has to be ascertained by the intellect, rather than directly by observation. He too is interested in the nature of the soul, and stresses its continuity with the rest of the physical world. He shows greater consciousness than the Pythagoreans of epistemological questions, including the relation of theory to observation, and is the first thinker to show an interest in the nature of language and its relation to reality, a set of problems which came to dominate much fifth-century thought, which were central to the thought of Plato, Aristotle and their successors, and which, it is no exaggeration to say, have remained at the centre of philosophical enquiry to the present day.

Undoubtedly the two most significant figures in the thought of the fifth century were Parmenides and Socrates, each of whom not only reshaped his immediate philosophical environment but influenced, indirectly yet decisively, the whole subsequent development of western thought. In his total rejection, not merely of Ionian cosmology, but of the senses as sources of knowledge, Parmenides initiated the conception of a purely a priori investigation of reality, and may thus be said to have begun the debate between empiricism and rationalism which has been central to much subsequent philosophy. More immediately, he challenged those who accepted the reality of the observable world to show how plurality, change, coming-to-be and ceasing-to-be are possible, and the subsequent history of fifth-century cosmology, represented by Empedocles, Anaxagoras and the Atomists, is that of a series of attempts to meet that challenge. Plato's response to Parmenides was more complex. While the fifth-century pluraliste sought to defend the reality of the observable world against the challenge of Parmenidean monism, Plato accepted one of Parmenides' fundamental theses, that only the objects of thought, as distinct from perceptible things, are fully real. But rather than drawing the conclusion that the observable world is mere illusion, with the corollary that the language that we apply to that world is mere empty sound, he sought to show how the observable world is an approximation to, or imperfect copy of, the intelligible world, and to develop an appropriate account of language, in which words whose primary application is to

the intelligible world apply derivatively to the sensible. An important part of that enterprise was to show how, *contra* Parmenides, it is possible to speak intelligibly of what is not. Holding that strict monism is self-refuting, Plato was committed to positing a plurality of intelligible natures constituting the intelligible world, to describing the structure of that world and to defending that construction against Parmenidean arguments against the possibility of non-being. Some of the central themes of Platonic metaphysics and philosophy of language can thus be seen to have developed at least partially in response to the challenge of Parmenides' logic.

In one way the influence of Socrates on subsequent philosophy is incalculable. Had Socrates not lived, and more particularly had he not died as he did, it is doubtful if Plato would have become a philosopher rather than a statesman, and had Plato not become a philosopher the whole development of Western philosophy would have been unimaginably different. (For a start, Aristotle would not have been trained in the Academy; hence his philosophical development, assuming it to have occurred at all, would have been altogether different, and so on.) Aside from the general influence of his personality on Plato, Socrates' principal contribution to philosophy seems to have been twofold, first in focusing on fundamental questions of conduct, as distinct from physical speculation, and second in applying to those questions a rigorous agumentative method. The effect of the application of this method to that subject-matter was the creation of ethics as a distinct area of philosophy. It would, however, be quite misleading to think of Socrates as having single-handedly given philosophy this new direction,for in concentrating on questions of conduct and treating them with his characteristic method of argument he was responding in part to developments instituted by certain of his contemporaries, known collectively as 'The Sophists'.

The so-called 'Sophistic Movement' was a complex phenomenon. In the fifth century BC the increasing intellectual sophistication, economic prosperity and political development of a number of Greek states, particularly Athens, created a demand for education going beyond the traditional elementary grounding in music and literature (especially poetry), arithmetic and physical training which was all that was then available. To a certain extent this took the form of the popularization of the Ionian tradition of cosmological speculation, which was extended into areas such as history, geography and the origins of civilization. The demand for success in forensic and political oratory, fostered by the increase in participatory democracy which was a feature of political life, especially in Athens, led to the development of specialized techniques of persuasion and argument, associated in particular with the names of Gorgias and Protagoras. Finally, the sophists were associated with a rationalistic and critical attitude to things in general, with implications, unwelcome to those of conservative views, for matters of morality and religion. One feature of this attitude was cultural relativism, leading to a view of moral and religious beliefs as tied to the particular norms of different peoples, with no claim to universal validity. Beliefs of this kind were said to arise purely by convention *(nomos)*, and hence to lack

the objective authority that was supposed to reside in nature *(phusis);* a typical example of the use of this contrast was the claim (maintained by Callicles in Plato's *Gorgias*) that since by nature the strong prevail over the weak (as can be observed, for example, from the behaviour of animals), that is how things should be, and that conventional rules constraining the aggression of the strong lack any legitimacy. This complex of activities and attitudes was transmitted throughout the Greek world by a new profession, that of itinerant teachers who travelled from city to city lecturing and giving other kinds of instruction to those who were prepared to pay. It was essentially an individualistic activity, an extension to new areas of the older tradition of the itinerant rhapsode (i.e. reciter of poems). The sophists belonged to no organization, nor did they all share a common body of specific belief (though the attitudes mentioned above were sufficiently widespread to be regarded as characteristic of them), and they founded no schools, either in the sense of academic institutions or in that of groups of individuals committed to the promulgation of specific philosophical doctrines.

None of these aspects of the sophists' activity was without some impact on Socrates, according to Plato's portrayal of him. He was at one time deeply interested in physical speculation, though he appears to have abandoned it in favour of concentration on ethical questions. This shift of interest seems to have been motivated by the rationalistic assumption that mechanistic explanations are in general inadequate, since they can provide no account of the reasons for which things happen. For that it is necessary to show how things happen as a rational agent would arrange them, i.e. for the best. An application of that rationalistic assumption is at the heart of Plato's version of Socratic morality. Every rational agent is uniformly motivated to seek what is best, understood in self-interested terms as what is best for the agent; given that constant motivation, understanding of what is in fact for the best is sufficient to guarantee conduct designed to achieve it. But rather than leading to the abandonment of conventional morality, as in the case of some of his sophistic opponents, this rationalism presents Plato's Socrates with the task of showing that adherence to the traditional virtues of courage, self-control, etc. are in fact beneficial to the agent. In so doing Socrates rejects the antithesis between *nomos* and *phusis;* so far from conflicting with the promptings of nature, morality is necessary for humans to achieve what nature (i.e. rational organization) has designed them to seek, namely, what is best for them. As regards techniques of argument, Socrates indeed relied on a technique which was one of those pioneered by the sophists, that of subjection of a hypothesis, proposed by a participant in debate, to critical questioning, with a view to eliciting a contradiction in the set of beliefs held by the proponent of the hypothesis. In this case the difference was not in method, but in aim. Plato consistently represents the sophists as treating argument as a competitive game in which victory was achieved by reducing one's opponent to self-contradiction, whereas Socrates regarded argument as a co-operative enterprise in which the participants are not opponents but partners in the search for truth. Reduction of

one's interlocutor to self-contradiction is not the end of the game, as it is for the sophists, but a necessary stage on the path of discovery.

Inevitably, discussion of the role of Socrates in the development of philosophy in the fifth century has merged insensibly into discussion of Plato. This reflects the fact that Plato's earliest writings take the form of imaginative representations of conversations between Socrates and others, which, while remaining faithful to the personality of Socrates and the spirit of his philosophizing, present him as the ideal philosopher. At this stage it is not possible to draw any clear line between doctrines maintained, possibly in inchoate form, by the historical Socrates and those developed by Plato under the stimulus of Socratic argumentation. Gradually Plato develops his independent voice, both in widening the range of his interests from Socrates' concentration on ethics and in articulating his own doctrines, in particular the Theory of Forms (see Chapter 10). The range of Plato's interests is formidable, including virtually all the areas dealt with by his predecessors, as well as areas in which his pioneering ventures set the agenda for future generations. His cosmology in the *Timaeus* blends a basically Pythagorean conception of the organization of the cosmos with a great deal of detail derived from Empedocles and others; his metaphysics, which includes pioneering work in the theory of language and of definition and classification (primarily in the *Sophist* and *Statesman*), is a sustained dialogue with Parmenides (and to a lesser extent Heraclitus) and his ethics is in large part a response to the challenge of the sophists. In many areas the depth and comprehensiveness of his vision takes him beyond his predecessors to make new connections and develop new fields. For instance, taking over from the Pythagoreans and Empedocles the theory of the survival of the soul through a series of embodiments, he applies it not merely in the context of arguments for immortality, but in a novel account of a priori knowledge (in the *Meno*) and of the ability to apply universal concepts (in the *Phaedo*). Again, while in the early dialogues he had followed Socrates in arguing that observance of morality is in accordance with the natural drive towards self-interest, he had provided no convincing argument to show that the social goods promoted by morality always coincide with the individual's own good. In the *Republic* he seeks to bridge that gap by nothing less than the integration of psychology with political theory; the individual personality is itself organized on a social model and its best state consists in a certain form of social organization which mirrors that of the good society. Finally, while the sophists and their younger contemporary Democritus had indeed touched on some of the political implications of ethical questions, it was Plato who, in systematically exploring these connections in a series of major works, not only created political philosophy but in the *Republic* wrote what is still acknowledged to be one of the masterpieces of that subject, and indeed of philosophy as a whole.

That work more than any exhibits the synoptic character of Plato's genius. In addition to the attempted integration of politics and psychology just mentioned, it encompasses virtually all the major areas of philosophy. A well-organized society must be founded on knowledge of what is best for its citizens; hence the

dialogue embraces the nature of knowledge and its relation to belief. Knowledge is a grasp of reality, and in particular of the reality of goodness; hence basic metaphysics is included. The account of the training of the rulers to achieve that knowledge constitutes a fundamental treatment of the philosophy of education, literature and art. Some of these topics are explored by Plato in other dialogues, some of which individually excel the *Republic* in their particular fields (see the discussions in Chapters 10–12). No single work, however, better encapsulates Plato's unique contribution to the development of Western philosophy.

CHAPTER 1
The polis and its culture

Robin Osborne

INTRODUCTION

'We love wisdom without becoming soft', Thucydides has the Athenian politician Pericles claim, using the verb *philosophein*.[1] Claims to, and respect for, wisdom in archaic Greece were by no means restricted to those whom the western tradition, building on Aristotle's review of past thinkers in *Metaphysics* Book 1, has effectively canonized as 'philosophers'. This chapter has two functions: to reveal something of the social, economic and political conditions of the world in which Greek philosophy, as we define it, was created; and to indicate some of the ways in which issues which we would classify as 'philosophical', or which have clear philosophical implications, were raised and discussed by those whose work is nowadays classed as 'literature' or 'art' rather than 'philosophy', and thus to put *philosophia* back into the wider context of *sophia*—'wisdom'.

Discussions of the background to early Greek philosophy frequently stress the intimate link between philosophical and political developments.[2] Part of my aim in this chapter is to make the case for the importance of other factors, and to stress the extent to which self-conscious articulation of ethical, political, epistemological and indeed metaphysical questions precedes the development of large-scale political participation in practice. It is for this reason, as well as because of their subsequent importance as texts universally familiar throughout the Greek world, that the longest section of this chapter is devoted to a detailed discussion of certain themes in the works of Homer and Hesiod. Greek philosophy as we define it is, I argue, simply one remarkable fruit of a cultural sophistication which is the product of the rich contacts between Greece and the world of the eastern Mediterranean and of the somewhat precarious conditions of human life within Greece itself, conditions which demanded both determined independence and access to, and relations with, others.

The Greece of the archaic and classical polis belonged to, and was intimately linked with, a wider eastern and central Mediterranean world. The Minoan and Mycenaean palaces of the late Bronze Age had had strong links with Cyprus and

with southern Italy; it is increasingly clear that during the period which we know as the Dark Ages, from *c.*1100 to *c.*800 BC, when archaeological evidence suggests that human activity in Greece was restricted to a very small number of sites, those wider contacts were maintained, albeit at a rather low level of intensity. During the eighth century that contact seems to have focused upon the exchange of goods, whether by trade or by what might rather be termed piracy, but during the following centuries Greeks were persistently involved in direct hostilities in the eastern Mediterranean, hostilities which culminated, but by no means ended, with the 'Persian Wars' of the early fifth century. Contact with that wider world played a major part during the eighth and seventh centuries in stimulating many essential features of the culture of the Greek polis, including alphabetic writing and the development of narrative and figurative art; during the period from 600 to 370 BC direct borrowings from the East are more difficult to detect, but the perceived need for self-definition in the face of the 'barbarian' came to be one of the most important factors in shaping the nature and ideology of the Greek city and was an undeniable ingredient in late-sixth and fifth century sensitivity to cultural relativism.

But the Greek polis and its culture were also shaped by conditions that were closely bound up with the lands where Greeks lived, Mediter-ranean lands which are marginal for the cultivation of some cereals and many vegetable crops, but which also enjoy widely varying ecological conditions within restricted geographical areas. To farm is to run serious risks of crop failure, and the farmer who isolates himself ends by starving himself.[3] These, then, are lands which compel people to move and make contact with others if they are to survive, but they are also lands (and this is particularly true of the Greek mainland itself) in which mountainous terrain renders movement difficult. The political history of Greece is marked by a constant tension between isolation and independence on the one hand—the Greek world as a world made up of hundreds of self-governing cities tiny in area and in population -and a sense of a common identity and dependence on the other—a world where cities are linked for survival, in empires, leagues, and confederacies which are often at war with one another. This tension between independence and common identity also marks the cultural history of Greece.

GREEKS AND THE EAST

Greeks of the late Bronze Age wrote in a syllabary, known as Linear B, the decipherment of which in the 1950s has enormously increased our knowledge of the political and social organization of Mycenaean palace society, of the Mycenaean economy, and of Mycenaean religion. Linear B was, however, a means by which scribes could keep detailed records rather than a means of general, let alone mass, communication. Like all syllabaries it required a large number of separate symbols; with the fall of the palaces the motivation for record-keeping disappeared, and Linear B disappeared with it, although a

(different) syllabary is found in use in classical Cyprus. As far as we know, between *c.*1200 and a little after 800 BC Greeks possessed no means of written communication. Then in the eighth century writing reappears in the Greek world, but now it is alphabetic rather than syllabic and the letters of the alphabet are largely those of the Semitic alphabet used by the Phoenicians. There is no doubt that Greeks borrowed not only the idea but the very means of alphabetic writing from the East. However, the Greek alphabet differs crucially from its eastern Mediterranean model: Greek from the beginning represents vowels, as well as consonants, with full letters. The invention of the vowel made Greek writing both more flexible and more straightforward than Phoenician, but it did not, as is sometimes claimed, mean that there was a different symbol for every different sound; the earliest alphabets do not, for instance, distinguish between long and short vowels. Given this limitation, it is unclear whether representing vowels was a stroke of individual genius on the part of the Greek who first took up the idea of an alphabet, or was simply a happy accident of someone who translated the initial sounds of some Phoenician letter names into Greek vowel sounds.[4]

The distinction between Phoenician and Greek alphabets rests not simply on the representation of vowels, but also on what the alphabet was used for. Many of the earliest examples of writing in Greek are metrical, their purpose more to entertain than to inform. So a graffito on a pottery jug from Athens of *c.*750 BC declares that jug to be a prize for the person 'who dances most friskily', another, of slightly later date, on a cup found in a grave of the Greek community on Ischia, plays on the epic tradition about Nestor and declares itself to be Nestor's cup, expressing the wish that whoever drinks from it might be visited with desire by the goddess of love, Aphrodite. The frequency with which verse occurs in early Greek writing has led some to suggest that it was the desire to make a permanent record of oral epic poetry that led to the invention of the Greek alphabet.[5] That the script local to Ionia, the homeland of epic poetry, was the earliest to distinguish long and short vowels might be held to suggest that the first Greek scripts needed adaptation to be truly useful for quantitative verse. But in any case it is clear that early Greek uses of writing were not at all limited by Phoenician practice.

Early Greek writing illustrates well the unity and at the same time the diversity of the Greek world. Writing is early attested from a very large number of cities in the Greek world, and always the fundamental character of the alphabet, the representation of vowel sounds, is the same; indeed the use of the Greek alphabet served as one way of defining who was and who was not Greek (Crete is, Cyprus not). But the symbols that were added to the core of twenty-two symbols borrowed directly from Phoenician, and the symbols adopted for particular sounds, differ, showing particular localized groupings. What is more, the purposes to which writing was put varied from area to area: written laws (on which see below) figure prominently in Crete, for example, but not at all in Attica. Greek cities had common interests, but they also had differing priorities

and were as little constrained by what neighbours were doing as by what Phoenicians did.[6]

A similar picture can be painted with regard to artistic innovation. That archaic and classical Greek art owed a great deal to the Near East there can be no doubt. One of the skills lost at the end of the Mycenaean era was figurative art. We have little Dark Age sculpture (all we have are small bronzes) and decoration on pottery vessels took the form of geometric decoration, initially dominated by circular motifs against a dark background and then increasingly dominated by rectilinear patterns over the whole surface of the pot. When animal and human figures made their appearance they too took on very geometric shapes. Near-Eastern art of this period had no such devotion to geometric patterns: it was rich in motifs drawn from the natural world. These natural motifs, and with them a much more curvilinear and living approach to the depiction of animal and human figures, came to take the place of the geometric in Greek art, but they were not adopted wholesale and they were adopted in different media and in different places at different times. Purely geometric designs were first supplemented and then largely replaced with motifs drawn from the natural world by the potters of Crete in the second half of the ninth century BC, plausibly under the influence of the Phoenician goldsmiths for whose products and residence on Crete there is some evidence; on the Greek mainland too, at Athens, metalwork showed oriental borrowings, and perhaps oriental presence, by the middle of the eighth century, although it was another fifty years before potters found a use for and took up the possibilities offered by the eastern artists.

With the motifs which Greek artists took up from the East came whole new possibilities for art as a means of communication. The geometric figures of eighth-century pottery from the Greek mainland could very satisfactorily conjure up scenes of a particular type, with many figures involved in identical or similar activities, and were used in particular to conjure up funerary scenes and battle scenes. But the stick figures were not well adapted to telling a particular story or highlighting individual roles in group activities. The richer evocation of natural forms in Near-Eastern art made possible the portrayal of particular stories, stories which can be followed by the viewer even in the absence of guidance from a text. With the adoption of such richer forms the Greek artist took on this possibility of creating a sense of the particular unique combination of circumstances. But again, the Near-Eastern means were not used simply to replicate Near-Eastern narrative techniques, rather the most ambitious of seventh-century Greek artists chose to exploit the fact that invoking a story by pictorial means demands the viewer's interpretative involvement and to juxtapose quite different scenes in ways which challenge the viewer to make, or to resist making, a particular interpretation. Even when we may suspect that particular compositional gambits have been taken over wholesale from Near-Eastern precedents, the application of the gambit to a different story context produces very different effects.

One further, striking, instance of Greek adaptation of ideas from the East deserves mention because of its religious significance. At the end of the seventh century the Greeks began, for the first time, to produce monumental sculpture in stone. There can be no doubt, from analysis of the proportions of these statues, that the ancient tradition that Greek sculptures of standing male figures were based on Egyptian prototypes is correct.[7] But where the Egyptian figures which serve as models are figures of rulers and are clothed in loin cloths, the Greek male figures, known as *kouroi,* are from the beginning naked, and beardless, and stand in no simply representative relationship to any particular man. And from the beginning too, Greeks sculpt figures of (clothed) women *(korai)* as well as men. *Kouroi* and *korai* are primarily found in sanctuaries and although (or perhaps better because) they do not themselves simply represent either the gods or their worshippers, there is little doubt that they came to be a way of thinking about relations between men and gods: the variable scale of these statues (some *kouroi* are monumental, reaching 3, 6, or almost 10 metres in height) drew attention to human inability to determine their own physical bulk; the unvarying appearance of the statues raised issues of human, and divine, mutability; the way their frontal gaze mirrored that of the viewer insistently turned these general questions of the limits of human, and divine, power back on the individual viewer, and, in the case of *korai,* their nubile status and gestures of offering served to query whether exchanges of women and of fruitfulness within human society were images for men's proper relationship with the gods. Such questions about the form of the gods and the ways in which men relate to them are questions which exercised such thinkers as Heraclitus and Xenophanes also. Both *kouroi* and *korai,* in versions of human scale, came to be used also in cemeteries, figuring the life that had been lost, sometimes with epitaphs explicitly inviting the viewer whose gaze met that of the statue to 'stand and mourn', using the mirroring gaze of the statue to emphasize the life shared by viewer and deceased. Conventions which in Egypt translated political power into permanent images of domination were thus adapted in the Greek world to stir up reflection about what people shared with each other and with the gods, and about how people should relate to gods.[8]

This consistent pattern in which Greeks borrow the means from the East but use those means to distinctly different ends, is one that can be seen in the realm of the history of ideas also, where a case can be made for Ionian thinkers taking advantage of the new proximity of the Iranian world with the Persian conquest of Lydia in order to take up ideas and use them in their arguments against each other. Extensive cosmological and cosmogonical writings are known from various peoples in the Near East which can plausibly be held to date from the early first millennium BC or before. The case for taking up eastern ideas is perhaps clearest in the work of Pherecydes of Syros, active in the middle of the sixth century, who wrote a book obscurely entitled 'Seven (or Five) Recesses' (*Heptamukhos* or *Pentemukbos*). His account of creation and of struggles for mastery among the gods, although in some ways in the tradition of Hesiod's *Theogony* (see below),

differs crucially in the order of presentation of material and may have been directly indebted to oriental sources.[9] Similar claims have also been made for the Milesian Anaximander whose order of the heavenly bodies, with the stars nearest to the earth, is found in the East but not otherwise in Greece, and whose view of the heavenly bodies as turning on wheels has similarities with the visions of the Old Testament prophet Ezekiel. Pherecydes was individualist in his treatment of traditional stories, Anaximander highly eclectic in any borrowings; such eclectic, individualist, and often directly critical, attitudes towards the ideas of others, other Greeks as well as non-Greeks, is indeed a remarkable feature of the Greek world.[10] But this is not to suggest that transformation in the borrowing is unique to Greeks: it is found too in what later cultures have done with the Greeks themselves. Milton's epics, to take but one example, depend upon the classical epic tradition yet use that tradition to convey a religious and theological world entirely alien to that tradition; so too the cultural achievements of archaic and classical Greece are unthinkable without Near Eastern resources to draw upon, but the different economic, social and political circumstances of the Greek world bring about transformations which result in something entirely different.[11]

This critical assimilation of ideas is only comprehensible against a pattern of extraordinary mobility. It is often unclear from the archaeological record who carried eastern goods to Greece or Greek goods to other parts of the Mediterranean, but that Greeks were themselves frequently on the move, even during the Dark Ages, there can be no doubt. The culture of the Greek polis is not a culture found simply within the boundaries of what is present-day Greece, nor is it limited to those places described by the second century AD traveller Pausanias in his 'Guide to Greece'; it is a culture which grew up as much in communities found on the coasts of Asia Minor, the Black Sea, Italy, Sicily, southern France, Spain and Cyrenaica as in mainland Greece itself. Historians sometimes talk of the 'age of Greek colonization', but the truth of the matter is that Greeks migrated to, and formed or took over settlements in, coastal districts of other parts of the mainland at every period known to us. Greek presence in coastal Asia Minor seems to have been established, or in some places perhaps rather reinforced, during the early Dark Ages, at the same time as other Greeks founded settlements in the northern part of the Aegean. Settlement on the coasts of Sicily and Italy began in the eighth century, the Black Sea and Africa followed in the seventh. Scope for Greek settlement in the eastern Mediterranean was more limited, but there is no doubt that Greek enclaves existed at a number of settlements in the Levant, and the town of Naukratis was set aside for Greeks in Egypt.

Greek settlements abroad generally laid claim not just to a particular 'founder' but also to a particular 'mother city' but models of colonization drawn from the Roman or the modern world are unhelpful for an understanding of what was happening. The population of the new settlements abroad was almost invariably drawn from a number of cities. Movement across the Greek world in the archaic

period seems to have been easy: the poet Hesiod tells us that his father moved back from the 'new' Greek world of Asia Minor to mainland Boiotia, craftsmen migrated, temporarily or permanently, from Athens to Corinth, from Corinth to Etruria, and so on. Economic opportunities were one factor causing men to move, local crises, as frequently of a political as of an economic nature, were another. Underpopulation was at least as common a worry for cities as was overpopulation and newcomers were often welcome. Intermarriage with non-Greeks was frequent: the philosopher Thales is said by Herodotus to have had Phoenician ancestry; Pherecydes' father seems to have come from southern Anatolia; the historian Herodotus himself came from Halikarnassos, a mixed Greek and Carian community within the Persian empire; the historian Thucydides' father's line came from Thrace. Sparta, perhaps already in the archaic period, and Athens, from the mid fifth century, were unusual in the way in which they prevented men or women from other Greek cities from acquiring the same rights as, or even marrying, existing members of the community.

HESIOD AND HOMER

Greek literature starts with a bang with the monumental *Theogony* and *Works and Days* of Hesiod and the *Iliad* and *Odyssey* ascribed to 'Homer'. All four works are the products of oral traditions with long histories of which traces remain, but the nature of the oral traditions behind the works of Hesiod is rather less clear than that behind 'Homer', and Hesiod may owe his unique position in part to being able to plug in to both mainland, and, perhaps through his father, Aeolian traditions. That it is these poems that survive to represent the oral traditions may be connected not just to their high quality but to the way in which they gave a pan-Hellenic appeal to what had previously been local traditions, at the moment when the Greek world was significantly expanding its horizons.[12] Hesiod's works are not epic adventure stories but didactic poems aiming directly to teach: morality and practical wisdom in the case of the *Works and Days*, and the structure of the world of the gods in the case of the *Theogony*. Neither of Hesiod's poems has any real successor extant in the corpus of Greek literature or any obvious impact on the imagination of visual artists, but comments and complaints in later writers, both philosophers and others, make it clear that knowledge of his works was widespread and that public views of the gods owed much to them. Herodotus (II.53.1–2) wrote that,

> It was only the day before yesterday, so to speak, that the Greeks came to understand where the gods originated from, whether they all existed always, and what they were like in their visible forms. For Hesiod and Homer, I think, lived not more than four hundred years ago. These are they who composed a theogony for the Greeks, gave epithets to the gods, distinguished their spheres of influence and of activity, and indicated their visible forms.

Hesiod's influence on poets is clearest not in the immediately succeeding period but in Hellenistic times.

The *Works and Days* belongs to the genre of wisdom literature familiar from Near Eastern examples and well represented in the Old Testament. The end of the poem consists of a succession of maxims about what to do, or not do, and when ('Don't piss standing and facing the sun'; 'On the eighth of the month geld the boar and loud-bellowing bull, but hard-working mules on the twelfth'). But the beginning of the poem structures its advice on how to live around a more specific situation, a dispute, whether real or invented, between Hesiod and his brother Perses over sharing out the land inherited from their father. Not only does this introduce us to Hesiod's expectations about dispute settlement—it is clear that local rulers, 'bribe-devouring princes', decide such matters—and about agricultural life,[13] but it gives scope for a mythological explanation of the need for labour in terms of two separate myths, the myth of the 'five ages' and that of Prometheus and Pandora. Through these myths Hesiod ties issues of justice to theological issues, and attempts to make the arbitrary features of the natural world, so manifest in the collection of maxims with which this poem ends, comprehensible within a systematic structure. In doing so Hesiod actually takes over the function of the king as the authority who by his judgements determines what is and what is not right, implicitly raising the issue of how, and by whom, political decisions should be made.[14]

The myth of the five ages (*Works and Days*, lines 109–201) explains both the current state of the world and also the existence of beings between humans and gods. It tells how once the gods made a race of gold, who lived in happiness, plenty and leisure, but when this generation died it was replaced by a race of silver who respected neither each other nor the gods, to whom they did not sacrifice as they should, and were short-lived; these two generations have become two orders of *daimones*. The third generation was a strong race of bronze, smitten with war and destroyed by their own hands, which was replaced by a more just, godlike, race of heroes, including the heroes who fought at Troy, demigods who were taken to dwell in the isles of the blest. After the heroes came the current generation, the race of iron, marked by the disappearance of youth and destined itself for destruction after lives marked by injustice. The interest of this myth lies in the way in which it is not simply a story of decline from a golden age: Hesiod's picture of the race of silver is extremely negative, that of the race of heroes rather more positive. What is more, the neat sequence of metals in order of value is upset by the introduction of the generation of heroes. Hesiod exploits the structures offered by the ageing processes of the natural world and the value-system of exchange of metal to provide a model for a hierarchy of powers between humanity and gods, but at the same time he introduces systematic contrasts between just and unjust behaviour, between good competition and evil strife, which tie this myth into the overall concerns of his poem. He is doing ethics as well as theology.[15]

Hesiod's concern not just with theology but, as it were, with its practical consequences, emerges still more clearly in the myth of Prometheus and Pandora, a myth which he explores not only in *Works and Days* (lines 42–105) but also in the *Theogony* (lines 507–616). In *Works and Days* Hesiod tells how Prometheus (whose name means 'Forethought') stole fire from the gods, hiding it in a fennel stalk, and Zeus in punishment had the other gods fashion Pandora who is given as wife to Prometheus' brother Epimetheus (Afterthought); with her she brings a jar from which comes all the mischief in the world. In the *Theogony* Hesiod tells how when gods and mortals were separated from one another at Mekone Prometheus divided up an ox unequally and tricked Zeus into taking the pan consisting merely of fat and bones. In revenge Zeus withholds fire from humanity (so rendering possession of meat useless), but Prometheus then steals fire and Zeus has Pandora, and through her the race of women, made as a punishment (no mention of a jar or of Epimetheus), and Prometheus himself is fastened in torment, his liver perpetually devoured by a bird, until Zeus agrees to have Herakles free him in order to glorify Herakles, his bastard son. Both these stories turn on concealment and trickery: Prometheus makes Zeus take a worthless gift that looks good, and then runs away with a good gift (fire) that looks worthless (a fennel stalk); Zeus makes men take a gift that looks good (woman in her finery) but turns out to be full of trouble.

In the context of the *Works and Days* Hesiod's telling of the myth emphasizes that there are no free gifts in this world and no avoiding hard labour. In the context of the *Theogony* his telling of the myth not only explains Greek sacrificial practice but emphasizes both the parallelism and the divide between humanity and the gods. Human life as we know it depends on women and on the fact that men, like Epimetheus, find them desirable and only think about the consequences later; in that way human life depends on men's 'bad faith' in giving the gods the worthless portion of the sacrifice. At the same time human life as we know it also depends upon sharing all the gifts of the gods, including the fire which makes tricking the gods out of meat worthwhile. The deceitful relationship of humans to gods itself mirrors the deceitful relationship of humans to beasts which is required by arable agriculture, which needs the labour input of oxen but must reduce to a minimum the number of appetites satisfied during the winter, and which is most dramatically demonstrated in feeding up domestic animals for sacrificial slaughter: human life both depends on perpetuating, but also concealing, acts of bad faith to beasts, and suffers from the gods' concealment of good things (the grain concealed in the ground) and from their bad faith (producing irregular fruitfulness in plant and beast).[16]

The use of these myths by Hesiod reveals a concern to find some way of understanding how humanity relates to the world and some reason behind human ritual activities. The course of the mythical narrative assumes that actions are reasonably responded to by like actions, assumes the principle of reciprocity, while recognizing also that bad faith may be ongoing. The place of the myth in the *Works and Days*, in particular, constitutes an argument that recognition of the

way reciprocity operates involves a commitment to labour, as well as a commitment to justice. Although never spelt out by Hesiod in those terms, the whole structure of his account of the gods presupposes that justice is a principle respected among gods as well as mortals.

Hesiod generally appears in histories of early Greek philosophy for his cosmogony and cosmology, and indeed the account near the beginning of the *Theogony* (lines 116ff.) of 'Chaos' ('Gap') coming to be first and then Earth, Tartaros (Hell), Eros (Desire), Night and Day, etc. being successively created does seem to represent an important conceptual leap by comparison with Near Eastern cosmologies or indeed with the highly anthropomorphic succession myth which follows in the *Theogony*.[17] I have dwelt here, at some length and in some detail, on rather different aspects of Hesiod's poetry in order to bring out something of the importance of his overall enterprise in the history of Greek thought. Hesiod's poems are not simply rag-bags in which genealogies and maxims are collected, they employ genealogical myths in order to support not just maxims but a set of social priorities.[18] The struggles between successive generations of gods, in the *Theogony*, struggles which have been argued to owe something, perhaps at some rather earlier stage of the oral tradition, to Near Eastern succession myths, are used to put both order and hierarchy into the divine pantheon. The *Works and Days* constitutes an argument that the struggle between Hesiod and Perses should be settled in the light of the principles which emerge from the Prometheus myth. The congruence of human and divine worlds, which is implicit within any anthropomorphic religion, is here being used to establish consequences for human society. This mode of argument, not to be found in the Near Eastern literature, is an important forerunner for some early Ionian philosophy, one might note in particular Anaximander's claim that things in the material world 'pay penalty and retribution to each other for their injustice according to the assessment of time'.

Homer's place in and influence on the culture of the Greek polis is more manifest than that of Hesiod, no doubt in part because the *Iliad* and *Odyssey* had an institutionalized place in the Greek city through their festival performance by rhapsodes. Although neither artists nor dramatists choose, on the whole, to make their works dependent on the details of Homer's texts, the spirit of the Homeric poems comes to pervade classical Athenian art and drama. The extent to which modes of thought and argument characteristic of later philosophical thought, and particularly arguments about ethical and moral values on the one hand and self-conscious analysis of the means of persuasion on the other, are also anticipated in the Homeric poems has, however, frequently been underestimated, and it is to those aspects of the Homeric poems that most attention will be given in what follows.

Much work on Homer during this century has been devoted to exploring the oral tradition out of which *Iliad* and *Odyssey* were created. This work has made it clear, on the one hand, that the techniques and building blocks required to create these monumental poems were forged over a long period. The *Iliad* and

Odyssey are built upon a skeleton of repeated name-epithet combinations and repeated scenes, which constitute about a third of the poems, which enabled a poet to reconstruct, rather than simply repeat from memory, a poem in performing it. Those repeated phrases and scenes made possible monumental composition, and to some extent shaped the subject-matter, personnel, and the sorts of things said about them; but they did not foreclose on the poet's free choice at any point or determine the order of scenes or development of the narrative. It is likely that many of the stories told in *Iliad* and *Odyssey* were stories that had been told before, but telling them in the particular context in which *Iliad* and *Odyssey* (re)tell them is the decision of the monumental composer(s) responsible for these poems.

As strife is at the centre of *Theogony* and *Works and Days* so also it is at the centre of *Iliad* and *Odyssey*. The *Iliad* relates the quarrel between Achilles and Agamemnon, the commander of the Greek expedition against Troy, over whether Agamemnon had the right to claim a captive girl, Briseis, who had initially been awarded to Achilles, when the girl awarded to himself had been reclaimed by her father. Achilles withdraws his labour from the battlefield in protest at Agamemnon's seizure of the girl, and is deaf to an appeal made to him to rejoin the fray after the Greeks have proceeded to have the worst of it. Finally he agrees to let his companion Patroclus enter battle, wearing his armour, Patroclus is killed by the Trojan champion Hector and Achilles himself re-enters battle to take revenge on Hector whom he kills and mercilessly drags round the walls of Troy. The poem ends with Achilles agreeing to ransom the body of Hector to his aged father Priam who comes alone to the Greek camp for the purpose. The *Odyssey* tells the story of Odysseus' homecoming to Ithaca, with its many violent and remarkable encounters with fabulous creatures, both vicious and virtuous, on the way, and his violent resolution of the struggle for control in Ithaca between his son Telemachus and the suitors assembled to claim the hand of Odysseus' wife Penelope.

The *Iliad* is not the story of a war and its topic is not the sack of Troy. The struggle upon which it focuses is not the struggle between Greeks and Trojans—indeed it has recently been stressed that the *Iliad* does not treat Trojans as barbarians, as a people inferior in nature or morals to the Greeks[19]—but that between Achilles and Agamemnon. This struggle raises issues of authority, allegiance, of conflict between different virtues, and of glory as a zero-sum game: one man's glory is bought at the cost of others' suffering and death. Although scholars have often written as if the *Iliad* simply illustrates the 'heroic code' of behaviour, in fact the struggle between Agamemnon and Achilles is based on a disagreement about ethics and value, and both in the case of the attempts to persuade Achilles to change his mind and in the case of his final agreement to ransom the body of Hector issues of ethics and value are argued about and decisions are made on the basis of changing judgements about them.[20] But the poem is not simply about morality; basic political and theological issues are

subject to debate too. In what follows I will indicate briefly some of the major issues that are raised.

The quarrel between Agamemnon and Achilles questions the limits of Agamemnon's authority: Achilles has come to Troy to please Agamemnon and with the promise of honour to be won, and the question is what Agamemnon can do without forfeiting that loyalty, without outweighing the honour with dishonour. Early in the quarrel Achilles raises the question of Agamemnon's own abilities in war, claiming that he never goes out to fight, with the implication that his claims to leadership and booty are thereby compromised: status and office, on this view, are not enough. The aged Nestor responds to this by urging Agamemnon not to pull rank and Achilles to respect Agamemnon's office, on the grounds that their dispute does good only to their enemies, as if office should command authority even if it is unable to assert itself. Nestor himself is heard but ignored. The issue of who has and who speaks with authority is sharply raised again in Book II: when Thersites joins in the attack on Agamemnon, using terms which are generally milder than those employed by Achilles, he is smartly treated to physical punishment by Odysseus, who goes on to call for loyalty not because of who Agamemnon is but because to depart from Troy empty-handed would be to lose face. In Book IX the issue of Agamemnon's authority is once more raised, over his shortcomings as a deviser of counsel revealed in his desire to abandon the expedition: Diomedes questions Agamemnon's authority on the grounds that Agamemnon lacks courage—so turning back on Agamemnon an allegation he had once made about Diomedes—only to have Nestor, once more, intervene with rival advice which he presses on the grounds that his age gives him authority. Nestor goes on to urge that Agamemnon's authority requires that he be prepared to receive as well as give advice.

Exploration of the techniques of persuasion is closely tied into the issue of authority.[21] When, in Book IX, Nestor again urges Agamemnon to placate Achilles he adopts a formal mode of address: 'Most glorious son of Atreus, lord of men Agamemnon, I will finish with you and start from you because you are lord of many men and Zeus has entrusted you with the sceptre and power to decide what is law, in order that you might take counsel for them.' This rhetoric successfully softens the critical sentiments which follow, and makes it possible for Agamemnon to admit that he was wrong. When, as a result, an embassy is sent to Achilles, the opening speech of Odysseus is marked by arguments deployed in a sequence showing consummate skill. He begins by explaining the dire need that the Greeks have of him, and goes on to appeal to Achilles' father's advice to and expectations of his son, and to enumerate the immediate and prospective rewards Achilles will receive if he re-enters battle, including the prospect of political authority back in Greece, before reiterating the appeal to pity the Greeks, this time adding the imminent prospect of killing Hector. Achilles' response is very different in kind, an outpouring whose effect is created not by any carefully reasoned sequence of points but by vivid similes ('I have been like a bird bringing her unfledged nestlings every morsel that she takes,

however badly off she is herself), by urgent rhetorical questions, by the increasingly direct and passionate way in which he reacts to what Odysseus has said, and by the way in which he spells out himself what Odysseus diplomatically left unsaid. The tension between logic and passion, and indeed the impossibility of ethical argument which does not involve both, is brilliantly highlighted by this interchange, and further explored in the exchanges which follow between Achilles and his old tutor, Phoenix.

Gods frequently intervene directly in the course of events throughout the *Iliad*, and issues of the powers and morality of the gods are repeatedly in play. Human characters express the view that the gods support morality, but the debates and decisions on Olympus reveal no such moral imperative; so Menelaus (*Iliad* XIII. 620–22) assumes that Zeus will destroy Troy because of Paris's abuse of hospitality, but Zeus shows no awareness of this responsibility in the Council of the Gods in *Iliad* IV. Indeed what debates on Olympus reveal is that divine interests are in conflict and that there is a constant bargaining between gods as to whose interest is to prevail. Disputes among the gods are conducted much as are human disputes, although in the *Iliad* trickery is predominantly a divine attribute. But gods differ from mortals in two important respects: first, among gods there *is* an all powerful figure who can insist that his will be done; Agamemnon may be better than other men (*Iliad* I.281) but Zeus is best (*Iliad* I.581) and when Zeus warns that the consequences of resisting him are terrible (*Iliad* I.563) we know that that means something rather different from when Agamemnon says the same thing (*Iliad* I.325); second, gods are immortal and the divine perspective is longer than the human perspective, so that major events in human life can be seen to be resolved over the longer course of time. Through conflicting divine interests and powerful divine oversight the *Iliad* explores and explains the existence of evil and moral dilemmas.[22]

The struggle at the heart of the *Odyssey* also raises issues of authority and theology, but it raises further issues too upon which I wish to focus here.[23] Plato has Socrates quote the father of his friend Eudicus as saying that 'the *Iliad* is a finer poem than the *Odyssey* by as much as Achilles is a better man than Odysseus' (*Hippias Minor* 363b), and it is Odysseus' cautious, secretive and deceitful behaviour that introduces a whole new set of issues into the *Odyssey*.

The poem traces Odysseus' return from his long enforced residence with the nymph Calypso to his eventual triumph, against all the odds, over the suitors on Ithaca to reclaim his wife and his political control—although we are told of further wanderings to come. The story of how Odysseus came to be stranded with Calypso, which Odysseus tells to the Phaeacians with whom he is next washed up, the stories of the homecomings of other Greek heroes told in the course of the epic, and the episode of the slaughter of the suitors are all strongly moral: in every case before disaster strikes warnings are given about the consequences of behaviour which breaks the rules. Although magic plays a larger part in this poem than in the *Iliad*, it is the logic of morality rather than any supernatural force or arbitrary intervention of the gods that governs events. Even

Odysseus brings disaster upon himself and his companions by ignoring wise advice or by arrogant behaviour—as in the foolish bravado which reveals his identity to the Cyclops when he mocks him as he departs. By the end of the poem Odysseus himself is generally more circumspect, but he retains a tendency to be so excessively cautious about revealing more than he has to that, as his failure to reveal what was in the bag of winds led his companions to ruin by opening it, so his reluctance to reveal his identity to his own father Laertes leads to Laertes' unnecessary grief. Reticence as well as rashness can be a fault, and getting it right in every circumstance demands powers of foresight which are greater than even Odysseus' accumulated experience of human feelings and motives can supply.

Odysseus' deception of others, as he spins false tales of his identity to all he meets, not only raises moral issues, it also raises issues about language and representation. Odysseus' briefest deceptive tale is also the most famous: his claim to the Cyclops Polyphemos that 'No One is my name; my mother and father and all other companions call me No One' (IX.366–7), a claim which leads Polyphemos to tell the other Cyclopes that 'No One is killing me'. There are two jokes here, not just one, for according to the rules of Greek syntax 'No One' appears in two forms, *Ou tis* and *Me tis*, and the latter form is indistinguishable from the word *me tis*, meaning 'guile' or 'deceit' (as also in the repeated phrase *Polyme tis Odysseus*, 'Odysseus of the many wiles'). This brief demonstration of the way in which to name is to tell or imply a story, and not simply to refer to some object, of the way in which the name is 'inscribed in the network of differences which makes up social discourse'[24] paves the way to the repeated deceptive tales of the second half of the *Odyssey*.

Six times in the second half of the *Odyssey* Odysseus spins long false tales about his past, in all but the last to Laertes claiming to be a Cretan. These tales, which are closely akin to the tales told of their own past by such figures as Eumaios and Theoclymenos, themselves tell of acts of deception. They draw from those who hear them concrete reactions, reactions which reveal the qualities of listener (as Penelope's deceitful tale to Odysseus about their bed is what draws Odysseus to reveal himself), and also concrete actions (Odysseus gets a cloak out of Eumaios for one of his tales, having failed to get the promise of one out of an earlier tale). But they also reveal Odysseus himself: the tales are not merely 'like the truth' (XIX.203), they are telling about Odysseus, literally (the fictive characters he claims to be claim various things about Odysseus), in the sense that the fictive characters do resemble Odysseus, and in the sense that part of what it is to be Odysseus is to be a teller of tales. But Odysseus' fictions do something still more dramatic: they raise the question of how we distinguish truth and falsehood. If Odysseus' tales in the second half of the *Odyssey* are deceptive, how can we be sure that the tale he tells in Phaeacia, the tale of his wanderings, of Circe, the Cyclops, Calypso and the rest, is not also partly or wholly deceptive? In raising this question, the boundary between fact and fiction, and the role which fiction, including works such as the *Odyssey* itself, plays, are themselves opened up for scrutiny. It is impossible to read the *Odyssey* without

having your attention drawn to the way in which people create themselves by creating their own past, by telling their own story, and without appreciating the power which stories about the past have to determine action in the present. It is perhaps not surprising that while it is hard to find a Greek before Alexander the Great who had a life-story modelled on Achilles, many politicians, perhaps most notably Themistocles, seem to have had one modelled on Odysseus.

To grow up with Hesiod and Homer, as the children of the Greek polis did from the seventh century onwards, was to grow up familiar, among other things, with moral dilemmas, with questions of how political authority is earned and jeopardized, with issues of the relationship between individual and group, with sensitivity to the theological basis for human action, and with an awareness of the tricky way in which language creates people and events even as it represents them. Although in their course these poems tell many 'myths', it is not as a repository of myths that they made their mark on later generations, but as introductions to modes of thought and of argument, and to the ways in which language represents issues. Such discussions of what sort of life a person should lead continue to dominate Greek poetry (and drama) from Homer and Hesiod onwards, in a culture where the poet both aspired to, and was expected to, offer moral instruction.[25]

RELIGION: RITUALS, FESTIVALS AND IMAGES OF THE GODS

Concentration on the Homeric poems as exemplary explorations of moral, ethical and rhetorical problems can make it seem as if moral and ethical issues arose only out of struggles for power. As we will see, struggles for political power were indeed important in the archaic city, but it would be wrong to imagine the political to be the only context for debate. To grow up in the Greek city was to grow up in a world where life was shaped from the beginning by rituals, rituals in which encountering the gods was regular and important. The entry for the year 776 BC in Eusebius' *Chronology* notes both that this was the year of the first Olympiad and that, 'From this time Greek history is believed accurate in the matter of chronology. For before this, as anyone can see, they hand down various opinions.' That the history of the Greek city should be deemed to be reliable from the time of the first Olympic games is highly appropriate, for it was indeed festal events which gave cultured regularity to the natural seasons of the year, and festal events even claimed priority over the irregular events of war and politics; wars between Greek cities respected truces for the Olympic games, meetings of the Athenian citizen body avoided festival days. Cities and groups within cities produced and displayed calendars of their ritual activities, and the conflicting claims of traditional piety and of economy might give scope for political argument.

Greek religious life was markedly communal.[26] The sacrifice of an animal to a god was not a solitary action, but involved—created, reflected, and defined—a

group, the group of those who shared the meat. Processions, and every act of sacrifice involved at least a minimal procession, displayed the sacrificing group. In many cities the markers of growing up were ceremonies at festivals at which the young person was formally enrolled in the celebrating group. Competitions, which honoured the god for whom the festival was held by displaying the best of physical or mental prowess, as often glorified the group to which the winner belonged (his city if the victory was pan-Hellenic, his tribe in an event limited to local competitors) as the individual himself. In its festival life a city displayed itself and its divisions and citizens observed their own social as well as political place in it. It is not by chance that for many cities the surviving records are dominated by sacred laws and other records to do with sanctuaries and their running of festivals.

Festivals displayed the city at leisure, however. It was not just that to compete in pan-Hellenic competitions at Olympia demanded the leisure to spare the compulsory thirty days before the event when all had to be at the site training; the competitive events, in local as well as pan-Hellenic festivals, although large in number and wide in variety, all involved achievements of little direct practical value: chariot-racing, running, physical beauty, singing and dancing, etc. There were indeed beneficial consequences of an indirect sort from such events, and even more obviously from such things as armed dancing, but neither craft skills nor mainstream fighting skills were ever displayed or tested: the drinking competition at the Athenian Anthesteria, for instance, was about speed of consumption, not quality of production. At the Olympic games victory brought honour but no tangible rewards beyond an olive wreath, but in other places there might be considerable profits to be had from victory, or even from coming second or third in an event. And the home city might add to the honours both marks of respect (Spartan Olympic victors fought next to the king in war) and further material rewards, in particular free meals.[27] These rewards constituted a recognition that there was more to the city than the practical skills that directly sustained it.

If their festivals dominated the calendar of the city, their temples, which housed the gods and the dedications which they attracted, dominated its buildings and often, given prominent placing on an acropolis, its skyline. In a city such as Sparta, which did not go in for monumental buildings for public business, it is the temples in and around the town which dominate the archaeological record. Cities devoted enormous resources of money and energy to temples and to the cult statues which they housed, and competition between cities is visible in the competing dimensions of temples (the Athenian Parthenon just outdoes the temple of Zeus at Olympia, for instance). Unlike festivals, temples were permanent; when the glorious processions or elaborate dramas were gone the temples remained as symbols of the devotion of resources to the gods. But not just the temples. Sanctuaries also accumulated dedications, many of them humble but others precious gold and silver plate, marble and bronze statues. Victors, and this is particularly a mark of the classical city, dedicated sculptures

of athletes either at the sanctuary which was the scene of their victory, as with Gelon's monument at Delphi, known as the Delphic Charioteer, or in their home city.

It is easy to make Greek religious activities seem essentially political, contrived to enable elite groups to show off to each other and to those effectively subject to them their wealth and the prowess acquired in leisure. Festivals, on this view, sugared the pill of elite political domination by promoting solidarity through their processions, by inducing feelings of well-being through their pomp, and by rewarding attendance through nourishing with a meat meal those who gathered. But there was another side. Modern sensibilities may find it hard to see scope for religious feeling in the ritual cutting of a domestic animal's throat, but the symbolic importance of this slaughter in an agrarian economy, where animal labour is vital but where draught animals threaten to eat up all too much of the harvest, is considerable, and the combination of elaborate ritual with the smell of fresh blood is likely to have made this a memorable and evocative sensory experience.[28] More accessible to us, perhaps, is the other side of cult activity, the confrontation with the god involved in viewing the cult statue. Cult statues, and this is true of statues such as the Herms (pillars with stump arms, erect phalluses and heads of the god Hermes) found in places other than temples as well as of statues in temples, regularly stare straight forward towards viewer/worshipper, and some temples certainly used external sculpture or other devices to enhance the revelation of the god. So, at Lykosoura in Arcadia, Pausanias tells us that as you come out of the temple of Despoina and Demeter 'there is a mirror fitted to the wall; when you look into this mirror you see yourself very dimly or not at all, but you have a clear view of the goddesses and their throne' (VIII.37.7).[29] This stress on revelation is something which seems to have been further developed in certain 'mystery' cults into which, unlike normal sacrificial cult, specific initiation was required, though what was revealed seems not normally to have been images of the deity. Without awareness of this intensity of religious experience, the theological speculations of Empedocles or of the Pythagoreans (see Chapters 4, 5) can only seem inexplicably eccentric.

It is likely that animal sacrifice was a feature of cult in the Greek world from an early date, but the presentation of the god in sculptural form developed, along with the canonical schemes of Greek temple architecture, during the archaic period. Clay figurines that may have functioned as cult statues in Crete are known from the Dark Ages, and from the eighth century the Cretan site of Dreros has yielded some hammered bronze statues that may have been cult images. But the nature of the divine presence in the temple changed markedly with the development of monumental stone sculpture in the late seventh and the sixth centuries, and the gold and ivory excesses of the Athenian Parthenon and the temple of Zeus at Olympia took yet further advantage of the overpowering force of large-scale sculpture. Even more liable to change were the dedications with which the gods and their temples were surrounded: the nature of dedications in any single sanctuary changes over time (so at Olympia dedications of animal

figurines are extremely common during the eighth century but decrease dramatically in number in the seventh century), and one sanctuary differs from another even within the confines of the same city.[30] Certain differences in dedicatory assemblage seem determined by the identity and interests of the deity involved, but it is clear that even within a polytheistic system there was no neat compartmentalization of interests restricting the invocation of specific deities to specific areas of life. Not that the influence of political factors can be ruled out, even here: that 'exclusive' Sparta has many dedications at the sanctuary of Artemis Orthia that are influenced by oriental products but few actual oriental dedications seems more than coincidental.

POLITICS, CONSTITUTIONS, LAWS: THE CONSEQUENCES OF LITERACY?

It is exclusive Sparta that provides some of our earliest detailed data about constitutional arrangements. In the world of Homer and Hesiod the basis for the power of particular rulers may be disputed and the way they carry out their rule despised but there is no sign that there are formal rules within which they operate. Beginning from the seventh century, however, there is epigraphic and literary evidence for quite widespread concern to define and limit the role of those in authority.[31] The Spartan evidence is literary: Plutarch quotes, almost certainly from Aristotle's work *The Constitution of the Lakedaimonians*, an enactment known as the Great Rhetra which, having referred rather obscurely to two subdivisions of the citizen body, tribes and obes, enjoins that the Kings and Council of Elders are to hold a regular assembly at a specified site and that the people in the assembly should have the right to speak and to decide to do or not to do things; crooked decisions by the people, however, may be laid aside by the kings and elders. The antiquity of this enactment seems guaranteed because the seventh-century poet Tyrtaeus paraphrases it in an elegy also quoted by Plutarch. The precise circumstances in which these rules were formulated are irrecoverable, as is the manner in which they were preserved in a city which later prided itself on not writing down laws, but despite this uncertainty the Great Rhetra is of central importance because of its concern with the authority of offices and the role it grants the people as a whole.

A similar concern with defining the authority of named office holders appears on laws preserved on stone from other parts of the Greek world in the seventh century. At Dreros, in Crete, a single enactment was passed stipulating that when a man had held the (annual) office of *kosmos* he could not hold it again for ten years, and that if he did arrogate to himself the judicial powers of the *kosmos* after the end of his term of office then he should be punished with a double fine, loss of the right to hold office again, and the invalidation of his actions. At Tiryns in the Argolid recently discovered fragments of a series of injunctions reveal a whole network of officials: *platiwoinoi*, who are perhaps pourers of libations of wine, *platiwoinarchoi*, the officials in charge of the *platiwoinoi*, a

hieromnemon or sacred remem-brancer, who is a man with powers to impose fines and not just a repository of traditional knowledge, a popular court and an *epignomon*, who has authority to order the whole people about.[32]

Without the onset of literacy we would not have all this evidence about detailed legal arrangements. But was literacy actually a factor in enabling law to happen in the first place? It has certainly been suggested in the past that literacy encourages, if it does not require, certain intellectual operations which an oral culture manages to do without: logical deduction and exercises in classification, it is claimed, feed upon, if they do not rely upon, written lists, and writing allows more thorough analysis of the modes of communication.[33] The ancients themselves certainly thought that writing, and in particular the writing down of law, made a difference. Euripides has Theseus in the *Suppliant Women* (lines 433–4) say, 'When the laws have been written down, both the weak and the rich have equal justice', a view echoed by Aristotle. No one would argue for widespread ability either to write or to read in archaic Greece, so how plausible are these views that the *existence* of writing changed how people thought or how they interacted with each other? Whether or not one believes that the Homeric poems, which only once refer to writing (*Iliad* VI.168–9), were themselves written down shortly after 700 BC, they reveal that the oral culture in which they were created was distinctly capable of analysing techniques of communication and making play with subtle variations in wording. Equally, it is clear that law did not have to be written to be fixed: 'remembrancers', who continue to exist even when law is written, seem to have been charged with the precise recall of enactments, and references to early law being sung suggest that music was one means by which precision of memory was ensured. Nor does the fixing of law at all guarantee 'equal justice', for, as the procedural emphasis of so much early written law itself emphasizes, power remains with the interpreters of the law.[34] What writing does enable is communication *at a distance*, something with considerable consequences for the general dissemination of information. Even once writing was available, much that might have been written down continued to be unwritten, and it is not clear that communications which were of their nature dependent upon writing developed before the invention of the architectural treatise, giving the precise 'rules' according to which a particular building was created, in the sixth century BC

There might be a stronger case for believing that law codes, rather than simply law itself, were literacy dependent, but although later tradition talks of early lawgivers inventing whole codes of laws for cities, the earliest laws look to have been single enactments brought in to deal with particular problems. And it is significant that while the disputes to be settled in *Iliad* XVIII, where Achilles' new shield's scene of city life includes a dispute being settled, and in Hesiod's *Works and Days* are personal, disputes over property and homicide, these early laws are dominated by broadly 'constitutional' issues.

Other evidence too suggests that political arrangements were very much under discussion in the seventh century, and that the question of the authority of

particular offices and officials was a crucial one. The situation which is imagined in the Dreros law, that a magistrate takes advantage of the possibilities for popular support which an office with a judicial role offers in order to ignore the time limit set upon the holding of that office, is precisely the situation which one late source alleges enabled Cypselos to become tyrant in Corinth: he gained popular support by the way in which he settled the cases which came to him as polemarch and then refused to hand on the office. Such seizures of power by individuals are a mark of the archaic period in the Greek cities, but tyrants were not at all restricted to the archaic period; they can be found, and not just in Sicily, throughout the classical period. Greek tyrants were not necessarily despotic, though most later accumulated some tales about a 'reign of terror', and they did not necessarily take all powers into their own hands, many simply overseeing the continued functioning of the existing constitution but controlling access to and the execution of magistracies.[35]

It was not simply magisterial authority which gave the opportunity to the ambitious individual to seize power. Disputes between groups within a city might equally give an individual a chance to insert himself as a person who could bring stability. At Athens factional disputes, fuelled by popular discontent with the unequal distribution of resources, not only produced an attempted *coup* in the late seventh century, when an Olympic victor endeavoured to cash in that glory for political power, but led in the first decade of the sixth century to the granting of extraordinary powers to one man, Solon, to reform the laws and the constitution. So much is later falsely ascribed to Solon that it is unclear what exactly the limits of his legal reforms were, but there is no reason to doubt that he not only took a stand on major social and economic issues such as debt-bondage, but also reformed legal procedure to make recourse to law more practical, and regulated all aspects of citizens' lives, including agricultural practice, verbal abuse, testamentary disposition, and funerals. Although even in the case of Solon it is probably an exaggeration to talk of a 'law code', he seems to have attempted to deal with sources of discontent over a very wide range. Without success. Within a few years one magistrate had attempted to keep his powers beyond their allotted span, and within half a century protracted factional disputes gave an opportunity for Peisistratos, backed by mercenary troops, to establish himself as tyrant.

Possession of overriding power by a particular individual was rarely popular with all, and much of the continued foundation of settlements elsewhere by Greeks should probably be seen as prompted by dissatisfaction with the regime in the home city, if it was not occasioned by actual expulsion of a group. Two episodes of colonization by Sparta, the colonization of Taras in south Italy *c.*700 and the two attempts to found a city by Dorieus at the end of the sixth century, are traditionally held to belong to these categories. Taras was founded by a group called the Partheniai whom the Spartans had expelled; Dorieus went off to colonize of his own accord to get away from his half-brother Cleomenes when the latter succeeded to the throne.

Although one early tyrant, Pheidon of Argos, was later associated with military reform, most tyrants seem to have left war on one side, not seeking to create empires for themselves, and to have devoted more time and resources to the buildings and institutions of the city. It was indeed during the period of the Cypselids at Corinth that Corinth acquired one of the earliest Doric temples and that Corinthian pottery became most elaborate in design and reached its widest market. But the outstanding example of the tyrant who monumentalized his city is Polycrates of Samos who was reputedly responsible for a massive mole protecting the harbour, a great tunnel more than a kilometre long dug nderneath a mountain, and an enormous temple, never completed, measuring 55 by 112 metres. Other tyrants concentrated on enterprises which more directly involved the citizens as a whole. Cleisthenes of Sikyon insisted on altering the whole internal organization of the citizen body, thereby breaking up traditional groupings and destroying old associations. The Peisistratids in Athens devoted considerable resources to the development of civic festivals, being particularly concerned with putting the performance of the Homeric poems at the Panathenaic festival in order, inviting poets from other Greek cities to their court, and perhaps developing dramatic festivities at the festival of the Great Dionysia.[36]

Individual cities, once they had removed their tyrants, tended to remember them as repressive, perhaps in part to cover the truth about widespread collaboration with a regime no longer regarded as politically correct.[37] But one of those subject to the nastiest tales, Periander son of Cypselos and tyrant of Corinth, came, along with certain men now regarded as philosophers and such mediator figures as Solon, to be regarded as a ‘sage’ and found his way on to a list of ‘seven sages’ (in fact seventeen men figure on some list or other of seven sages in antiquity). A variety of anecdotes accumulated around these figures, but the source of their reputation for wisdom seems to lie with their poetic compositions (even Periander is said to have written a didactic poem of some 2, 000 lines), their reputation for political astuteness (Thales is said to have advised the Milesians not to ally themselves with Croesus the king of Lydia), and their prominence as performers of effective practical gestures (Bias of Priene got good terms for his city from Alyattes of Lydia by producing fat donkeys and sand heaps covered in grain to suggest enormous prosperity).[38] The probable falsity of most of the stories, and indeed the quasi-fictional nature of some of the sages themselves, is unimportant: what these stories show is the particular characterization of worldly wisdom in the culture of the Greek polis. In many of the stories, the sage does not himself say anything but simply points to the relevance of an everyday scene: in a single transferable anecdote one tyrant is said to have advised another on how to control his city by walking into a cornfield and slashing off the ears of those stalks of grain that grew taller than the rest. It is the ability to take advantage of ambiguity and deceptive appearance and to see the parallelism between disparate situations that marks out the wise man.

The admiration for the 'practical joker' embodied in Homer's image of Odysseus and in the tradition of the seven sages is a central feature of that characteristic aristocratic form of association, the symposium. From the classical period we have selective descriptions of symposia from both Xenophon and Plato but our knowledge of the archaic symposium is largely dependent on the literature and pottery produced for it.[39] It was a setting for performance both formal and extemporized (where song passed round the circle of guests and each was expected to cap the previous singer's lines), accompanied by the *aulos*. A favourite ploy of the singer is to imagine himself as a character, not necessarily male, in a particular situation which has some analogical relevance to the actual situation; the listeners are invited to see their environment as if it were another, and so to see it with new eyes. Much sympotic poetry is explicitly political, with storms and shipwrecks proving images as appropriate to turmoil within the city as to inebriation, much also is personal and concerned in particular with the life of love, and much is self-reflexive. The personal side dominated the games of the symposium, such as the game of *kottabos* in which the last drops of wine were flung from the flat cup and aimed at or dedicated to one's lover, and that side is most evident in sympotic pottery. Sympotic pottery reflects the symposium both directly, with images of reclined symposiasts, singers at the symposium, and so on, and also indirectly: it is full of jokes. There are explicitly joke vases, vases with hidden compartments which enable them to be filled as if by magic, dribble vases, and so on. Many cups have eyes painted on them, but some take the analogy with the body further, replacing the standard round foot, which the drinker grips to raise the cup for drinking, by male genitalia. The images on the vases take the jokes further, extending the sea imagery of the poetry by having ships or sea creatures swimming on the wine, concealing images of inebriation at the bottom of the cup, or exploring the limits of acceptable sympotic behaviour by representing satyrs behaving unacceptably.

The cultural importance of the symposium lies in part in the context which it provided for poetic and artistic creativity: almost all surviving archaic elegaic poetry, including the poetry of the 'philosopher' Xenophanes, was written for the symposium; and whether or not directly made for use at symposia, the imagery of much archaic Athenian pottery presupposes and exploits the sympotic context. But the symposium is important too for the way in which it provided a microcosm of the city itself in which the issues of city life were explored in an intensely self-critical milieu. Drinking at the symposium was strictly regulated by rule and convention, political positions were explored, personal relations were exposed and the boundary between private and public behaviour both tested and patrolled. As there was no room for inhibitions, so also there was no room for pomposity. Dominated by the elite, and often closely linked with official or religious events, the symposium was nevertheless always oppositional, a forum for disagreement rather than laudation. In the symposium the competitive ethos encouraged in religious festivals was internalized and intellectualized.

MYTHOLOGY: INVENTION, MANIPULATION

The world of sympotic poetry is largely the present world of everyday experience; the world of epic and of temple sculpture is a world of the mythological past; archaic painted pottery shares in each of these worlds, and also in the timeless world of the fantastic. The observed world of shipwrecks, of political struggles, and of wolves surrounded by hunting dogs, and the fabulous world inhabited by centaurs and the heroes of epic tales, are taken up by writers and artists of the archaic age as equally good to think with. Solon finds an image for his own political stance in the battlefield: 'I threw a strong shield around both parties and did not allow either unjustly to get the upper hand' (fr. 5 West); Sappho finds an image for the power of desire in Helen's desertion of Menelaus (fr. 27 Diehl);[40] Pindar repeatedly invokes the world of myth to promote thinking about the glorious achievements of the athletes whom his victory odes celebrate. What is notable is that the immediate past, what we would call 'history', has little or no exemplary role in archaic Greek art or literature.

The distinction between 'myth' and 'history' with which we operate is not a distinction made by any Greek writer before the late fifth century.[41] The terms which come, in the hands of Thucydides, Plato and others, to stand for the opposing poles of 'myth' and 'reason', *muthos* and *logos*, are used virtually interchangeably by earlier writers. Even Herodotus, 'the father of history', writing in the 430s or 420s BC happily regards Homer, Hesiod, and the Trojan War as having the same status. This is important not because it shows how 'unsophisticated' even fifth-century Greeks continued to be, but because it reveals that despite the possibilities of written records, the past had not yet become something fixed. Pindar's First Olympian Ode, with its explicit rejection of one version of the story of Pelops for another less gruesome one, shows that different 'versions' of the 'same' myth coexisted; and so too different versions of the past. Herodotus' *Histories* are distinguished from most later histories in the ancient world (as well as from what most modern historians write) by their willingness to give more than one version of a past event—we have the Theran and the Cyrenaean version of the colonization of Cyrene from Thera—and by Herodotus' declared indifference to the truth of the versions he relates: 'It is my duty to record what is said, but not my duty to give it complete credence' (VII. 152.3). Aristotle calls Herodotus a 'mythologist', a teller of exemplary tales (*On the Generation of Animals* 756b6).

Many subsequent readers of Herodotus have found his apparent indifference to the truth of the stories which he repeats incomprehensible or even scandalous. In doing so they have followed the lead given by Thucydides who points to the lack of *muthos* in his account of the war between Athens and Sparta, which dominated the last thirty years of the fifth century, and claims that his carefully researched account of what actually happened will be a surer guide to the future than the 'easier listening' which traditional story-telling produced.[42] The invention of 'mythology' and the invention of 'history' went together, together

with each other but also together with the invention of the category of metaphor and the scientific and philosophical revolution which that entailed.[43] They also went together with a new attitude towards stories detectable in both an and literature: in art, where previously it had been the general story that had been evoked, particular texts are now illustrated; in literature, explorations of the dilemmas of myth characteristic of tragedy go out of fashion and in Hellenistic poetry (very little poetry survives from between 390 and 330) myths are now told in ways which draw attention to the art of the teller and play with a reader who is assumed to be learned enough to detect and respond to copious allusions to earlier literature.

The separation of 'myth' from 'history' and the insistence that 'metaphor' has a distinct status can both be seen as part of a move to be more precise about the status of comparisons by directing attention at the effect of context. The issues of truth and falsehood, already explored in the *Odyssey* and enthusiastically taken up by the sophists as part of their interest in rhetoric, are now relentlessly pursued in the course of an attempt to find the undeceptive 'truth', and not merely to be aware of the ever deceptive nature of words and images. But it is tempting to see the creation of mythology as political, too.

Herodotus begins his work by stating that his aim is to ensure that past events do not grow faint, to record the great achievements of Greek and barbarian, and in particular to explain how they came to fight each other. Herodotus treats the conflict between Greeks and Persians broadly, not concentrating simply on the actual battles of 490 and 480–79 BC, but taking every opportunity to delve back into the past history of the Greek cities. He ends his work, however, at the end of the Persian invasion of the Greek mainland, at a point when armed conflict between Greeks and Persians to remove the Persians from the Aegean and Asia Minor had many years still to run, years during which he himself had been alive and with whose story he must himself have been particularly familiar. By ending in 479 BC Herodotus limited himself to that part of the conflict between Greece and Persia when Greece could be presented as pursuing a broadly united course of action; from the point at which he stops the Athenians took over the leadership of the campaign, to increasingly divided reactions among other cities, and, within relatively few years, turned the pan-Hellenic 'crusade' into what was, they admitted, blatant imperial rule.

The Persian wars, and the imperialism which they brought in their wake, changed history. This is most graphically illustrated by the contrasting role which stories of the past play in Herodotus and Thucydides. Characters in Herodotus do, from time to time at least, invoke examples from the past in order to influence present action, but they do so in a way which is only in the broadest sense political. So, Socles the Corinthian tries to discourage the Spartans from restoring tyranny to Athens by telling of the increasingly terrifying rule of the Cypselids at Corinth (Herodotus V.92): any story will do, it is the aptness of the analogy that matters, not the particular example chosen. When characters in Thucydides invoke the past it is in order to justify a present claim or excuse a

past blemish, in order to determine others' attitudes to themselves in the present, and the failures of the past are visited upon the present. So the Plataeans, when they succumb to the Spartan siege, are asked at their trial what good they have done Sparta in the past, and when they cannot come up with anything are executed: any story won't do, it is what (you can convince others) actually happened that matters.

In the archaic world of the independent city-state it was possible to live in the present. Reputations were established, friends and political power won and lost. Appeal might be made to the achievements of ancestors, and the misdeeds of ancestors used against current opponents, but few owed their current position entirely to parading past actions. Cities threatened by their neighbours tended to come to battle once a generation, and when peace was made it was for an equally short term. Persia's intervention in Greek affairs changed that. The resistance to Persian invasion showed that uniting the military resources of many cities could give previously unimagined power; the continued threat of Persian return, reinforced by the determined 'barbarization' of the Persians, especially on the stage (another trend which Herodotus equally determinedly resists), prevented cities from opting out of collective action against Persia for long enough to enable the Athenians to transform the earlier voluntary union into their own empire. Sparta too, who in the sixth century had built up her Peloponnesian League by treaties of mutual advantage, found herself in the twenty years after the Persian invasion repeatedly at war with her allies; for them too independence was no option. Unlike individuals' histories, those of cities lasted more than a generation; what actually happened, whose citizen actually betrayed the mountain path to the Persians (cf. Herodotus VII.213–14), now mattered. Where previously different people might happily tell different versions of the same events —the Therans telling one version of the colonization of Cyrene in order to keep their claims to a stake in the colony alive, the Cyrenaeans telling another to reinforce their own independence and their monarchy (Herodotus IV.150–6)[44]— now, getting your version accepted as true was likely to be of considerable political importance. Herodotean history focused on how Greeks constructed themselves and others through the stories they told; that sort of history of events after 479 BC was impossible, and Thucydides' insistence that there was a single true version was inevitable in an Athenian. Not surprisingly, it is the Athenian version of events after 479 BC that Thucydides gives.

The role which the essentially transferable story about the past plays in Herodotus came to be left to the now distinct world of 'myth' and to be at the centre of tragic drama, not prose histories.[45] Aeschylus did write about the historical battle of Salamis in his *Persians*, and got away with it, but even before that Phrynichus, attempting to replay the Persian capture of Miletus on stage, was fined for 'recalling to the Athenians their own misfortunes' (Herodotus VI. 21). Otherwise fifth-century tragedy exploits a rather limited selection of myths, myths predominantly centred not on Athens but on other cities, and particularly on Thebes. Political issues are aired in these plays in generalized terms and

specific items of domestic or foreign policy are rarely alluded to (scholars debate the extent to which Aeschylus' *Eumenides* is an exception to this rule). Although tragedy avoids replaying Homeric stories, its explorations of clash between individual and group, of religious duty and political expediency, of deceptive means to worthwhile ends, and of representation, blindness, and the problems of communication, are very much extensions of the Homeric task.[46] Tragedy takes further the self-analysis present already in the Homeric poems, with extensive exploration of the way in which people are persuaded and of the power and problems of linguistic communication. Like the Homeric poems, tragedy was for a mass audience in a festival context, as thousands of Athenians sat through three days of tragic drama, each day featuring three tragedies and a satyr play by a single playwright, possibly followed by a comedy—some eight hours or more of performance. Even once divorced from 'history' it was myth that continued to dominate the cultural life of the polis.

POLITICAL AND CULTURAL IMPERIALISM

Both Athens and Sparta engaged in imperialistic activities in the wake of the Persian Wars, so creating the possibility of what Thucydides, with some justification, regarded as the greatest war ever to have engulfed the Greek world, the long struggle which eventually reduced Athens, if only briefly, to being tied to Spartan foreign policy, no stronger than any other Greek city. But it was Athens, not Sparta nor any other Greek city, which was the home of Thucydides, of the great tragedians Aeschylus, Sophocles and Euripides, of Socrates and of Plato. Although a leading centre of the visual arts in the sixth century, Athens can boast only one significant literary figure before the fifth century-Solon. I have suggested above that we should not neglect the importance of the Persian Wars in changing the way in which cities related one to another and changing how cities related to their own past, but the Persian invasions and their consequences will not of themselves explain the way in which Athens became the cultural centre of the Greek world, both attracting leading intellectuals from elsewhere—men like Anaxagoras or Protagoras in the fifth century, Aristotle and Theophrastus in the fourth—and also herself nurturing innovative thinkers.

Contemporary observers had little doubt about the secret of Athenian success: Herodotus (V.78) observes that the military transformation of Athens which followed the expulsion of the tyrant Hippias in 510 demonstrates what an important thing it is that people should have an equal say in the running of their city. The Athenians themselves turned the annual ceremony to mark those who had died in war into the occasion for a heavily stylized speech in praise of Athenian democracy and liberty, attributing Athenian foreign policy successes and cultural hegemony alike to her constitution[47] 'Democracy' currently carries with it a self-satisfied glow very like that which Athenian funeral orations for the war dead evoked, yet historically Athens has more frequently been held up as an example of how not to run a constitution than how to do so, and the principles

upon which Athenian democracy was constructed and the principles on which modern western democracies are founded have relatively little in common.[48] How justified are claims that Athens's constitution had a transformative effect upon her cultural life and, through it, upon the history of philosophy?

Herodotus is unusual among ancient writers in the importance which he ascribes to the reforms introduced by Cleisthenes in 508/7 BC. The Athenians themselves were more inclined to claim that their democratic constitution was owed to Solon, or even to Theseus.[49] Cleisthenes left much unchanged, and his reforms were in any case very much in the tradition of earlier Greek constitutions. Strict controls on the duration and powers of magistracies, insistence on one magistrate checking another, the existence of popular courts and a large council, are all features that can be paralleled in the early laws and constitutions discussed above.[50] The power of the mass of the people, both in assembly and in riot, is likely to have played an important part both in Peisistratos' success in factional politics, paving the way for his tyranny, and in Cleisthenes' own ability to bring in major reforms. Nor did Cleisthenes significantly increase the range of those in fact participating in politics. It was only in the fifth century that property qualifications for office were almost all lifted, that magistrates came to be chosen largely by lot, and that pay was introduced for those serving in Council and Courts. Cleisthenes' achievement was not to invent new principles, or even to apply old principles more rigorously, it was to change the way Athenians related to one another.

Athenian politics in the sixth century had frequently been marked by divisions on family and local lines, and Cleisthenes himself belonged to one of the families with the longest continuous history of political involvement at the highest level, the Alcmaeonidae. Cleisthenes added a whole new network of citizen groupings to the existing network, and ensured that his new groups could not be dominated by family or local ties, as the old had been. Where citizenship had previously effectively been controlled by the kin group known as the phratry, now it depended on being registered in a village community or deme; each deme returned a fixed number of representatives to the Council; the men of each deme fought in war as part of one of ten new tribal units which were made up of men from demes drawn from three different areas of Athens' territory; villages bound to their neighbours in cult units were frequently ascribed to different tribes. The old phratries, old tribes, and old cult units were not abolished, but they could no longer dominate the lives of individuals.[51] Individuals found themselves part of many different groups, there was no common denominator between the level of the individual citizen and the level of the city as a whole. Together with this removal of the individual from the dominance of the kin group went the deliverance of the city from structures founded upon the gods. Modern scholars have stressed how Cleisthenes' demes, unlike the phratries, were not primarily cult groups, how laws now came to be regarded not as 'given' but as 'made' (*nomoi* rather than *thesmoi*) and how a whole new, secular, calendar, dividing the year into ten equal periods, was

developed to run alongside the sacred calendar.[52] Cleisthenes' aims in making these changes may have been narrowly political—destroying existing power bases in order to give himself more chance of lasting political influence—but the effect was far from narrow: the citizen was effectively empowered as a rational individual.

Athens's cultural achievements were not, however, simply the product of Cleisthenic social engineering; the success of Athenian democracy was also dependent on social and economic factors, and prime among them, slavery. Just as the precocious constitutional developments in Sparta are inseparable from her exploitation of a subject population of helots who were responsible for all agricultural production, so the democratic equality of citizens in Athens was sustained only because it was possible to get 'dirty jobs', tasks which clearly showed up the worker's dependent status, performed by slaves.[53] Outstanding among those jobs was the mining at Laurium of the silver; this silver enabled Athens to build, in the first decades of the fifth century, the fleet by which the Persian threat was repulsed, and that *victory* bolstered the self-confidence vital to individual political participation, to a willingness to allow critical and speculative thought, and to the maintenance of democracy itself.

The practice of democracy further stimulated critical thought.[54] One measure of this is the way in which classical Greek political thought is dominated by works critical of democracy. The process of turning issues over to a mass meeting of some 6,000 or so people for debate and immediate decision raised very sharply epistemological issues of the place of expertise and of how right answers could be reached; it also raised more generally the question of natural and acquired skills. The ways in which officials carried out their duties and the reactions of the people to this raised questions about responsibility and the relationship of individual and group interests. The importance of not simply saying the right thing but saying it in the right way raised questions of rhetoric and persuasion and the ethics of dressing up bad arguments well.

Critical reaction to, and exploitation of, the world in which they lived had been characteristic of the Greeks of both archaic and classical periods. Both the natural conditions of life in an area marginal for agriculture and the accident of contact with sophisticated peoples in the eastern Mediterranean can be seen to stimulate Greek cultural products from the eighth century onwards. Theological speculation in Homer, Hesiod, and embodied in the sculptural presentation of divinities, tries to make sense of the arbitrariness of human fortunes and the nature of human experience in terms of the nature of the gods; ethical issues concerning the place of the individual in the community and political issues concerning the basis of and limits to authority in *Iliad* and *Odyssey* seem directly related to cities' concern with self-determination and constitutional experimentation; those constitutional experiments themselves show a willingness to tackle problems by emphasizing the question rather than the answer. It is in this cultural milieu that western philosophy, that the conscious asking of 'second order questions', is born and it is by the transformations of this milieu, as a result

of the developments in internal and external politics in the Greek city, that the Sophistic Movement and the Socratic revolution grew. Just as the Greeks themselves saw poets, statesmen, and those whom we call philosophers as all 'wise men' *(sophoi)* so, I have tried to demonstrate in this chapter, it is a mistake to think that it was some particular feature of the Greek city that gave rise to 'philosophers', for asking philosophical questions was never the exclusive prerogative of philosophers, and it is only in the context of the culture of the Greek city as a whole that we can properly understand the development of philosophical discourse.[55]

NOTES

1 Thucydides II.40.1, part of the Funeral Oration.
2 So the pioneering work of Vernant [1.14]. For a classic statement see Lloyd [1.7], ch. 4 and compare [1.9], 60–7.
3 Osborne [1.12].
4 Thomas [1.59].
5 Powell [1.20].
6 On the invention of the Greek alphabet see Jeffery [1.18], which contains the definitive study of the local scripts of archaic Greece.
7 See Guralnick [1.17].
8 See generally Hurwit [1.4].
9 See especially West [1.21], and, on Pherecydes also KRS [1.6], 50–71.
10 See Lloyd [1.7], 229–34; [1.8], ch. 2.
11 Much work on relations between Greece and the East has been stimulated in recent years by Martin Bernal's books. For two different approaches to the problem see Morris [1.19] and Burkert [1.16].
12 See particularly the work of Nagy [1.30, 1.31, 1.32].
13 Millett [1.29].
14 Nagy [1.31].
15 My treatment here closely follows J.-P. Vernant [1.38], chs 1–2.
16 Again the pioneering analysis of the myth is by Vernant in Gordon [1.25], chs 3–4.
17 KRS 34–46. At p. 45 n. 1 the authors aptly draw attention to the similar double succession myth in Genesis: 1 and 2.
18 See West [1.41], ch. 1, [1.39], 31–9.
19 See Hall [1.27].
20 For the view that the 'heroic code' is simple and unambiguous see Finley [1.23], and cf. Adkins [1.22], Against, among many, Schofield [1.36], Taplin [1.37].
21 I take the examples which follow from Rutherford [1.35]; 60–1.
22 On the gods in the *Iliad* see Griffin [1.26], Redfield [1.33].
23 For what follows see Rutherford [1.34] and [1.35].
24 Goldhill [1.24], 36. My discussion of deception in the *Odyssey* owes much to Goldhill.
25 See Aristophanes *Frogs* 1008–112, Plato *Protagoras* 325e, and Heath [1.28], ch. 2.
26 On Greek religion in general see Burkert [1.43], and Bruit Zaidman and Schmitt Pantel [1.42].

27 See Kurke [1.44].
28 Osborne [1.12], ch. 8.
29 In general see Gordon [1.45]. For another example of elaborate preparation of the worshipper see Osborne [1.47].
30 Morgan [1.46], esp. ch. 6.
31 On early Greek law see Gagarin [1.51] and Hölkeskamp [1.54].
32 The Dreros law is Meiggs and Lewis [1.10], no. 2, the Tiryns laws *SEG (Supplementum Epigraphicum Graecum)* 30 (1980): 380.
33 For this view see Goody and Watt [1.53], modified somewhat in Goody's later work (e.g. Goody [1.52]). For critiques of Goody's position see Lloyd [1.7], Thomas [1.59].
34 On written law see Thomas [1.60],
35 On tyranny Andrewes [1.48] is still classic.
36 Shapiro [1.58].
37 For this case argued in detail for Athens see Lavelle [1.55].
38 On the sages see Martin [1.57].
39 For what follows see Bowie [1.49] and [1.50], Lissarrague [1.56].
40 The standard numbering of the fragments of Solon follows M.L. West *Iambi et Elegi Graeci* II, Oxford, 1972. Likewise, the now-usual numbering of Sappho follows E.Diehl *Anthologia Lyrica Graeca,* I. Leipzig, 1922.
41 For what follows see Detienne [1.62].
42 For an introduction to Herodots see Gould [1.64]; for Thucydides, Hornblower [1. 65].
43 On the invention of metaphor see Lloyd [1.8], esp. ch. 4. See also Padel [1.67], esp. 9–19.
44 See Davies [1.61].
45 See generally Goldhill [1.63], Winkler and Zeitlin [1.68].
46 Knox [1.66], ch. 1.
47 Loraux [1.75].
48 See Hansen [1.72], Dunn [1.69], [1.70], Roberts [1.79].
49 Hansen [1.72].
50 Cf.Hornblower [1.73], 1, 'The history of European democracy begins, arguably, not in Athens but in Sparta.'
51 The classic exposition of Cleisthenes' reforms is Lewis [1.74]. See also Ostwald [1. 77].
52 Ostwald [1.77], Vidal-Naquet and Levêque [1.80].
53 Osborne [1.76].
54 See Farrar [1.71], Raaflaub [1.78].
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CHAPTER 2
The Ionians

Malcolm Schofield

THALES AND OTHERS

The Greeks agreed that philosophy had begun with Thales. However they did not know much about his views.[1]

What survives is mostly a potent legend. Herodotus tells stories of his practical ingenuity, political vision and most famously the skill and learning which enabled him to predict a solar eclipse datable to 585 BC. This feat has been doubted by some modern scholars, but it was not an impossible one for someone familiar with the use of eclipse cycles and fondness for prediction among Babylonian astronomers, as an inhabitant of Miletus on the coast of Asia Minor might have become. In Aristophanes the astronomer and inventor Meton—introduced as a character in the drama—dreams up a hare-brained scheme for employing mathematical instruments to measure the air which inspires the comment, 'the man's a Thales' (*Birds* 1009).[2]

The use of instruments in determining the behaviour of heavenly bodies constitutes in fact Thales' best-documented claim to a place in the history of rational enquiry about the natural world. He was believed to have worked out the variable period of the solstices, and to have calculated the height of the pyramids from their shadows and the distance of ships out at sea. Callimachus credits him with 'measuring' the Little Bear, as a navigational aid. The name of his associate Anaximander is likewise associated with the 'discovery' of the equinox and solstices, or more plausibly with the use of a *gnomon* or stable vertical rod to mark them, as also with that of 'hour-markers'. Anaximander is also said to have published the first map of the earth. Some of the accounts supplying this information may embellish or distort. For example, Eudemus' attempts to attribute knowledge of particular geometrical theorems to Thales on the strength of his efforts at mensuration probably represent (under the guise of Aristotelian history) nothing more than a determination to furnish the geometry of his own day with a suitably ancient and distinguished intellectual pedigree. But the reports on Thales' and Anaximander's endeavours in this field are numerous and various enough in date and provenance, and in their gist sufficiently unfanciful,

for it to be unreasonable to press doubts about the truth of the picture they convey. These two thinkers were evidently fascinated with measurement, and with the idea of putting to nature— and more especially the heavens—questions which instruments could be employed to answer.[3]

One other scientific puzzle (as we might now term it) which Thales is reported to have tried to solve is the behaviour of the magnet. Here his style of enquiry was very different. He claimed that magnets have soul: they have the power of moving other bodies without themselves being moved by anything—but that is a characteristic only of things that have soul, i.e. are alive. Heady speculation, not ingenious observation, is now the order of the day. Perhaps the phenomenon of magnetism was presented as one piece of evidence for the more general thesis, 'All things are full of gods', which Aristotle at any rate is inclined to interpret in terms of the proposition that there is soul in the universe (i.e. not just in animals).[4]

In cosmological speculation Thales is presented by Aristotle as a champion of the primacy of water as an explanatory principle. Aristotle writes as though Thales meant by this that water was the material substrate of everything that exists. But the authority on whom he relies for his information, the sophist Hippias of Elis, seems to have mentioned Thales' view in the context of a survey of opinions about the *origin* of things. With one exception, to be discussed at length shortly, Aristotle knows nothing else about the water principle. He contents himself with the guess that Thales opted for it because warmth, sperm, nutriment and the life they foster or represent are all functions of moisture.[5]

The most definite claim Aristotle makes in this connection appears in *On the Heavens* (II. 13, 294a28–32 [KRS 84]).

> Others say that the earth rests on water. For this is the most ancient account we have received, which they say was given by Thales the Milesian, that it stays put through floating like a log or some other such thing.

To come to terms with this unappealing version of flat-earthism we need to consider two pieces of information relating to Thales' intellectual grandchild Anaximenes, pupil of Anaximander, both also of Miletus:

> Anaximenes and Anaxagoras and Democritus say that its [the earth's] flatness is responsible for it staying put: for it does not cut the air beneath but covers it like a lid, which is evidently what those bodies characterized by flatness do.
>
> (Aristotle *On the Heavens* II.13, 294b13ff. [KRS 150])

> The earth is flat, riding upon air; and similarly also sun, moon and the other stars, although they are all fiery, ride upon air on account of their flatness.

(Hippolytus *Refutation* I.7.4 [KRS 151])

Anaximenes is usually reckoned one of the least interesting of the pre-Socratics. What we are told of his cosmological system indicates a theorist deaf to the imaginative a priori reasonings which appear to have motivated many of the ideas of his mentor Anaximander; and Anaximander's own mentor, Thales, was —as we have been seeing— the pioneer who initiated the whole Ionian tradition of physical speculation, so far as we can tell from the inadequate surviving evidence of his views. Yet in some respects at least Anaximenes was a more influential figure than either of his two predecessors. And this is of crucial importance for our evaluation of the evidence relating to them. Hence the decision to start our enquiry into Thales' flat-earthism with what we are told about Anaximenes.

Anaximenes' influence is apparent from Aristotle's testimony about his account of the earth. The two great Ionian cosmologies of the fifth century were propounded by Anaxagoras and the atomists Leucippus and Democritus. There are radical and systematic differences in the explanatory foundations of the two theories. But despite their sophistication in responding to metaphysical and epistemological challenges posed by Parmenides and (at least in the atomists' case) Zeno, both endeavour to account for a world conceived in terms defined by Anaximenes, as Aristotle's report (KRS 150, quoted above) makes clear. It is a world in which (a) the earth is taken to be a flat body surrounded by air above and below, (b) bodies fall through the air unless there is some special cause of their not doing so, and (c) flatness is just such a cause. This is a picture of the world far removed from our own heliocentric model, where the earth is (roughly speaking) a spherical object spinning in an elliptical orbit round the sun. In Anaximenes' version it is not even a geocentric model, because while he imagines the earth as occupying a position between above and below, there is no implication that it is at the centre of a system: the heavenly bodies do not revolve about it, but turn in a circle above it.[6]

There can be little doubt of the importance Anaximenes attached to theses (a) to (c). As Hippolytus' evidence in KRS 151 suggests, he applied the same kind of reasoning to account for the appearance of the sun and moon in the heavens. Just as the earth does not fall downwards, so they too are supported by air and hence stay aloft— even when they are not apparent:

> He says that the stars do not move under the earth, as others have supposed, but round it, just as if a felt cap is being turned round our head; and that the sun is hidden not by passing under the earth, but through being covered by the higher parts of the earth and through its increased distance from us.
>
> (Hippolytus *Refutation* I.7.6 [KRS 156])

Probably the sun and moon at least are conceived of by Anaximenes *as* bodies.[7] That is, though fiery they are forms of earth, just as in Anaxagoras: Anaxagoras

notoriously claimed that sun, moon and stars were themselves bodies made of compressed earth, fiery stones (Hippolytus *Refutation* 1.8.6 [KRS 502]), while the atomists make them ignited complexes of atoms and void (Diogenes Laertius IX. 3 2 [KRS 563]). However these later thinkers agreed in finding in the vortex a mechanism to explain projected revolutions of these bodies, and so without abandoning Anaximenes' assumption (b) about downward motion could unlike him account for their passing below the earth.[8]

Another piece of information about Anaximenes' views on the sun indicates how he supported his thesis (c) that their flatness keeps flat things from falling:[9] 'Anaximenes says that the sun is flat like a leaf (Aetius II.22.1 [KRS 155]). Floating leaves, of course, move about, just as Anaximenes' sun does. Their flatness prevents not lateral but downward movement. Why the sun, moon and stars rotate but the earth does not is not discussed in the surviving evidence.

Now back to Thales: his reported view on the stability of the earth has to be seen within the context of the general theoretical framework we have been describing. Two features of the state of the evidence dictate this conclusion. First, Aristotle's citation of Thales' idea comes in a chapter which represents him, Anaximenes, Anaxagoras and Democritus as all upholding one side of the argument in a pre-Socratic debate about the subject (Anaximenes' ultimate achievement is to have persuaded Aristotle that it *was* a key subject for the pre-Socratics and his stance the standard one taken by them). Second, Thales himself seems not to have written a book. So the likeliest way for his opinion to have survived will be via a reference to it in the writings of someone close to him in time: presumably either a member of his own circle such as Anaximander or Anaximenes, or—as I shall be suggesting later—a critic such as Xenophanes.[10] To put the point a bit more sharply, we can perceive how Thales' view about the earth was received, both around his own time and in the pages of Aristotle, a lot better than we can form reliable conjectures as to how it fitted into whatever intellectual schemes he himself elaborated. In large part this is a function of the elusiveness in history of the merely oral.

One guess might be that Thales had already anticipated Anaximenes in conceiving of the earth and the sun, moon and stars as comparable phenomena requiring to have their differing patterns of motion and stability explained by the same sorts of physical mechanisms. At the other extreme he might be interpreted as a figure much closer to the myth-tellers of the ancient Near East, preoccupied as they were with the origin of the earth and its physical relationship with primeval water, but not seeing a need to ask analogous physical questions about the heavenly bodies, despite his intense interest in determining and measuring their behaviour.[11] The psalmist believes that Jahweh 'stretched out the earth above the waters' (136:6), 'founded it upon the seas, and established it upon the floods' (24:2). Similarly, in the epic of Gilgamesh Marduk builds a raft on the surface of the original waters, and on it in turn a hut of reeds, which is what the earth is. Perhaps Thales' originality consisted only in introducing an opinion borrowed from sources such as these into Greece, Homer having had the earth

surrounded by the river Oceanos but stretching down into murky Tartarus, and Hesiod being certain that its creation as 'firm seat of all things for ever' (*Theogony* 117 [KRS 31]) precedes that of heaven and sea.

It is not clear on this second construction of Thales' view how much relative importance he himself need have attached to the issue of the stability of the earth. His main concern might well have been the general primacy of water in the explanation of things, with the suggestion that it is what supports the earth simply one among several consequential proposals, and conceivably accorded no special significance. Certainly the broad idea of water as first principle is what Aristotle focuses on in his more fundamental presentation of pre-Socratic physical theories in *Metaphysics* A, following a tradition of interpretation already visible in Plato and apparently established by the sophist Hippias.[12]

The evidence is rather stronger that Anaximander took the question of the stability of the earth to be a major problem. It consists principally of an extraordinarily interesting but frustratingly controversial passage of Aristotle from the same chapter of *On the Heavens* that we have been exploiting already. Aristotle takes Anaximander to be a proponent of an entirely different kind of position from that represented in different ways by Thales and Anaximenes:

> There are some who say, like Anaximander among the ancients, that it [the earth] stays put because of likeness. For it is appropriate for that which is established in the middle and is related all alike to the extremities not to move up rather than down or sideways; but it is impossible for it to make a motion in opposite directions; so of necessity it stays put.
>
> (Aristotle *On the Heavens* II.13, 295b10ff. [KRS 123])

The theory Aristotle ascribes to Anaximander has been described as 'a brilliant leap into the realms of the mathematical and the *a priori*' [KRS p. 134]. It is often taken to constitute the first recorded appeal to a Principle of Sufficient Reason. There is apparently no preoccupation with the propensity of bodies to fall, or with the conditions—flatness, buoyancy of the medium—under which that propensity can be counter-acted. It looks instead as though Anaximander subscribes to a fully-fledged geocentric conception of the universe, and in appealing to a sophisticated indifference principle makes the explicit and equally sophisticated assumption that any body at the centre of a sphere will have no propensity to move from it in any particular direction. The result—if we can trust what Aristotle says—was a highly ingenious and original solution to what must presumably have been perceived as an important puzzle.[13]

But doubt has been cast on Aristotle's reliability on this occasion.[14] There are two principal reasons for the doubt. First is that Anaximander was, like Thales and Anaximenes, a flat-earther. Although he abandoned Thales' log analogy, he compared the shape of the earth to the drum of a column, much wider than it is deep, emphasizing—presumably against the Homeric picture—that it has both an upper and a lower surface.[15] But the hypothesis of a *spherical* earth is what

would fit much more comfortably with the theory Aristotle is reporting.[16] Flat-earthism more naturally presupposes the flat earth dynamics expressed in Anaximenes' theses (a) to (c). Second, Aristotle makes it clear that it was not just Anaximander who subscribed to the indifference theory. On one guess only the initial claim that the earth stays put because of 'likeness' reflects Anaximander's own formulation. Attention is often drawn to the probability that Aristotle also has in mind a much later and no doubt more readily accessible text, namely the account of the earth put in Socrates' mouth at the end of Plato's *Phaedo*. Socrates is there made to claim that he has been convinced by 'someone': presumably a tacit acknowledgement of a pre-Socratic source, although scholars have never been able to agree on the likeliest candidate. The key sentences are these:

> Well, I have been persuaded first that, if it is in the middle of the heavens, being round in shape, then it has no need of air to prevent it from falling, nor of any other similar necessity. The likeness of the heaven itself to itself everywhere and the equal balance of the earth itself are sufficient to hold it fast. For something equally balanced, set in the middle of something all alike, will be unable to tilt any more or any less in any direction, but being all alike it will stay put untilted.
>
> (Plato *Phaedo* 108e–109a)

Should we accept that Aristotle is mostly drawing on Plato, not Anaximander?

These arguments against ascribing the indifference theory—and with it rejection of the dynamics of flat-earthism—to Anaximander are to be resisted. I consider first the idea that Aristotle's formulation of the theory derives largely from the *Phaedo* text.

There are clearly similarities in language and thought between it and Aristotle's account of the indifference theory, notably the stress on 'likeness' as a cause. There is equally a striking divergence. Plato makes the stability of the earth a function of two things, its position at the centre of a spherical heaven and its equilibrium in that position. Aristotle by contrast speaks only of the earth's position relative to the extremities, but makes what in Plato functions as an indifference inference from equilibrium serve as the argument that it cannot move position.

At first sight it may look as though the lack of fit between the two formulations has no effect on the character or cogency of the reasoning, with Aristotle simply extracting its essentials in economical fashion. There is in fact a very significant difference.

Consider first the Platonic argument from equilibrium. This makes crucial appeal to the *weight* of the earth. It supposes that a rigid body which is 'like'—in the sense that its weight is equally distributed throughout its mass—will stay put in balance under certain conditions, namely if poised about a central fulcrum. Then its weight on one side of the fulcrum will give it the same reason to tilt in

that direction as its weight on the other side to tilt in the other direction. It cannot tilt in both directions at once. So it cannot tilt at all. Plato's claim is that the earth is just such a body, and that because it occupies a position at the centre of a symmetrical cosmos, it is indeed poised about a central fulcrum. He infers that it will not tilt.

So Plato is clearly presenting a *physical* argument. Aristotle's version of the indifference theory, by contrast, is abstractly conceived, and makes no specific physical assumptions. It assumes only something equidistant from its extremities; and then claims that such a thing could have no sufficient reason to travel in one plane towards the extremities that was not a sufficient reason for it to travel there in the same plane in the opposite direction. Nothing is said about what sort of reason might count as a sufficient reason. We might think of physical reasons, e.g. gravitational attraction of the heavens; but nothing precludes the possibility that something purely mathematical, e.g. asymmetry, is envisaged. Perhaps this possibility is positively favoured by the mathematical language in which the assumption underpinning this version of the theory is couched and by the absence of reference to physical considerations.

If Aristotle is basing himself principally on the *Phaedo* passage, he can only be offering a vague and general summary of Plato's reasoning. It is more plausible to supposed that he is actually relying more on a quite different formulation of the indifference theory—in Anaximander's book. At this point it is appropriate to mention an important further piece of evidence about Anaximander's view of why the earth stays put:

> The earth is in mid-air [lit. 'aloft', *meteo ron*] not controlled by anything,[17] but staying put because of its like distance from all things.
>
> (Hippolytus *Refutation* I.6.3 [KRS 124])

Scholars are in agreement that Hippolytus in this part of his work is following Theophrastus' account of early Greek physics, and that Theophrastus' treatment of the subject follows Aristotle in general approach. Theophrastus was often more accurate, however, when it came to details. In the present instance it is clear that Hippolytus' testimony broadly supports Aristotle's interpretation. It suggests that Anaximander spoke not just of 'likeness' in general terms, which might be compatible with *either* an argument from symmetry *or* an equilibrium argument. The more specific expression 'like distance from all things' definitely favours the Aristotelian account. Its similarity to Aristotle's phrase 'related all alike to the extremities' suggests that at this point Aristotle was recalling something in Anaximander rather than in Plato. And while it does not preclude the possibility that Anaximander appealed to equilibrium, it gives it no support. (Equally Hippolytus does not attest explicit use of indifference reasoning on his part; perhaps this was one element in Aristotle's report derived from Plato alone, even if it was reasonable to think it implicit in what Anaximander said.)

Against the testimony of Aristotle and Hippolytus there is some actual counter-evidence. It consists in a claim apparently deriving from the Aristotelian commentator Alexander of Aphrodisias which implies that Anaximander did indeed subscribe to flat-earthist dynamics:

> But Anaximander was of the opinion that the earth stays put both because of the air that holds it up and because of equal balance and likeness.
>
> (Simplicius *On the Heavens* 532.13–14)

This comment, at the end of Simplicius' discussion of Aristotle's introduction of the indifference theory, is usually taken as representing his own account of Anaximander. But the context suggests rather a tendentious bit of argumentation by Alexander in support of his view that Plato is Aristotle's main target in this passage of the *Physics*. There is no reason to think that Alexander's claim has any real authority.[18]

None the less from his representation of Anaximander an ingenious account of why the earth stays put could be constructed. An Alexandrian Anaximander shares the view natural to flat-earthers that the earth must rest on something. He conceives reasons for thinking that it must also be positioned mid-air. And he infers that so positioned it must be in equilibrium. The difficulty is then to explain how a heavy body, the earth, *can* be supported by a light body, the air. The idea of the fulcrum of a balance gives an elegant solution to the problem. For a fulcrum can support a body many times heavier than itself.[19]

How are we to choose between Aristotle's more radical indifference theorist, who abandons the idea of a support for the earth in favour of the mathematics of symmetry, and the mainstream Ionian physicist I have just reconstructed on the basis of Alexander via Plato's equilibrium theory?

A single sentence in Hippolytus is little enough to help decide the issue of whether it was Anaximander's flat-earthism or his fascination with symmetry and a priori thinking which determined his view on what kept the earth stable. But follow Hippolytus we should. Of course, Anaximander ought on this story to have seen that a spherical, not a cylindrical, earth was what suited his position. This does not however constitute much of an objection to the truth of the story. We have simply to concede that Anaximander is a revolutionary who carries some old-fashioned baggage with him. That is the general way with revolutions.

ANAXIMANDER

Anaximander wrote a book in prose—one of the first books in prose ever composed—which contained an ambitious narrative of the origins of the world, beginning with the earth and the heavens, and ending with the emergence of animal and particularly human life. It was evidently conceived as a sort of naturalistic version of Hesiod's *Theogony*. His act of committing his thoughts to papyrus was enormously influential. It effectively defined the shape and contents

of Greek philosophical cosmology for centuries to come, establishing a tradition which might be regarded as culminating in Plato's *Timaeus* or—translated to Rome —in Lucretius' *On the Nature of Things*.[20]

Anaximander made the originating principle of things something he called the *apeiron*, the boundless or (as some would prefer to translate) the indefinite. His possible reasons for selecting the *apeiron* for this role were the one Anaximandrian topic which really interested Aristotle.[21] Aristotle's influence on Theophrastus and through him on subsequent ancient accounts of Anaximander's views was, as on so many other topics, enormous; so the issue dominates important parts of the doxography also.[22] Much modern scholarship in its turn has responded by making the *apeiron* the principal focus of its own struggles to understand Anaximander and the one surviving fragment of his work. What has been amassed is largely a tapestry of unrewarding and controversial guesswork—unsurprisingly, when as likely as not Aristotle himself was just guessing.

There is accordingly a lot to be said for beginning (or rather continuing) an account of Anaximander's thought by looking at evidence which offers a more direct insight into his characteristic intellectual style. Two reports that pay particular dividends in this regard are the following:

> He says that something capable of generating hot and cold from the eternal was separated off at the genesis of this world, and that a sphere of flame grew round the air surrounding the earth, like bark round a tree. When this was torn off and closed off into certain circles, the sun and the moon and the stars were constituted.
>
> (Eusebius' extract 2 from [Plutarch] *Miscellanies* [KRS 121])

> Anaximander says the first animals were born in moisture, enclosed in thorny barks; but as their age increased they came out on the drier part, and when the bark had broken all round they lived a different kind of life for a short time.
>
> (Aetius V.19.4 [KRS 133])

These texts, by different late authors, are thought to depend ultimately on Theophrastus. They contain much that is obscure, but exhibit a patent similarity, which must be due to Anaximander himself.[23] Although one concerns happenings at the beginning of his story, the other a process near its end, both exploit a common analogy: the formation of bark round a tree. Moreover the production of two significant but utterly different features of the world—sun, moon and stars in the heavens, and animal life on earth—is explained by essentially the same mechanism. First one kind of stuff encloses another in the manner of bark, then the bark-like material breaks off or around and new forms develop or appear. Despite the biological character of the analogy, the explanatory pattern itself appears to be conceived in terms of the interplay of elemental *physical* forces.[24] At the origins of the world the hot (in the form of

flame) encases the cold (air), and the breaking of the casing is presumably to be understood as due to the pressure caused by the expansion of a gas increasing in temperature. Whether the actual designation of the forces in question in abstract language as hot and cold derives from Anaximander himself or (more probably) is the work of Peripatetic commentary does not much affect the diagnosis. It is not so clear from the Aetius passage that the emergence of animals in their mature forms is the outcome of a similar process. But fortunately another text (Hippolytus *Refutation*, I.6.6 [KRS 136]) informs us that the sun's activity in evaporating moisture is what brings animals into being. If as seems likely this relates to the phenomenon described by Aetius, we are perhaps to think of the drying out of the casing in which animals are first enclosed. The claim will be that this physical effect of heat then makes it break up all around.

From the evidence of KRS 121 and 133 we can already infer that Anaximander sees the world as a systematic unity sustained by dynamic transformations that are thoroughly intelligible to the human mind. This must be why he assumes that momentous events, veiled in obscurity, such as the origins of the cosmos itself and of life within it, can be reconstructed as versions of the more local physical processes with which we are familiar from our own experience. This too must be why he expects two such different sorts of originating event to exhibit similar patterns; and why he believes not just that the transformations involved will be aptly illustrated by analogy, but that one and the same analogy, albeit differently treated in the two cases, will provide that illumination.

Consideration of further evidence confirms the picture of Anaximander's *Weltanschauung* that is beginning to emerge. Here are two texts which give more details of the circles that account for the sun, moon and stars:

> The stars come into being as a circle of fire separated off from the fire in the world, and enclosed by air. There are breathing-holes, certain pipe-like passages, at which the stars show themselves. So when the breathing-holes are blocked off eclipses occur; and the moon appears now to be waxing, now waning, according to the blocking or opening of the passages. The circle of the sun is 27 times the earth, that of the moon 18 times. The sun is highest, the circles of the fixed stars lowest.
>
> (Hippolytus *Refutation* I.6.4–5 [KRS 125])

> Anaximander says there is a circle 28 times the earth, like a chariot wheel, with its rim hollow and full of fire. It lets the fire appear through an orifice at one point, as through the nozzle of a bellows; and this is the sun.
>
> (Aetius II.20.1 [KRS 126])

Again there is much that is opaque and puzzling in these reports, as well as a number of features that by now will not be unexpected.

The search for system is immediately evident in the ingenious hypothesis of a nested sequence of concentric circles, which reduces the apparently chaotic variety

of the heavens to the simplest scheme of geometrical and arithmetical relationships: circles and multiples of the number 9. Once again the idea of one stuff (air) enclosing another (fire) is fundamental to explanation of the transformations Hippolytus mentions, namely eclipses and the phases of the moon. Making the sun and moon functions of *circles* of air and fire is, of course, designed primarily to account for their diurnal revolutions and the alternation of day and night. Making them circles of *air and fire*, not bodies, enables Anaximander to avoid the puzzle of why they do not fall, which Anaximenes and his successors were obliged to address. All in all it is a beautifully economical theory. As with his account of origins, Anaximander recommends it by vivid analogy, taken in this case from the familiar contexts of forge and stadium: a bellows and its nozzle, the wheel and its rim.

The physical if not the mathematical patterns Anaximander has so far invoked are specified also in his accounts of wind, rain (deficiently preserved), thunder and lightning:

> Winds come about when the finest vapours of the air are separated off, and move when massed together; rains from the vapour sent up from the earth, as a result of [?] their being [?] [melted] by the sun; lightnings when wind breaks out and divides the clouds.
>
> (Hippolytus *Refutation* I.6.7 [KRS 129])

> Anaximander says wind is a flow of air, when the finest and the wettest parts of it are set in motion or melted [producing rain] by the sun.
>
> (Aetius III.7.1)

> On thunder, lightning, thunderbolts, whirlwinds and typhoons: Anaximander says these all occur as a result of the wind. When it is enclosed in thick cloud and bursts out forcibly because of its fineness and lightness, then the tearing makes the noise and the rift the flash, in contrast to the blackness of the cloud.
>
> (Aetius III.1.2 [KRS 130])

Fundamental to this explanatory scheme is once again the interaction of fire (here in particular the sun) and air (conceived of as moist vapour). The process of separation off had earlier been identified as the cause of the formation from the *apeiron* of an air-enclosing ball of fire, which then in turn separated off to be enclosed in rings of air. Now it is made responsible for the production of winds. They are themselves taken to be the root cause of a further range of meteorological phenomena, involving further enveloping and subsequent rupturing of envelopes. If as we would expect analogies were introduced to reinforce the persuasiveness of the explanations, these are now lost to us. The action of wind, conceived of as fine dry air bursting through the wet dark air of cloud to generate the bright flash of lightning, has understandably provoked the

comment that, in Anaximander's system, the sun and moon resemble a lightning flash of indefinite duration.[25]

More generally, Anaximander's ideas tend to prompt in Whiggish readers a reaction compounded of admiration and incredulity. For example, his conjectures about the origins of life (on which more later) are regularly felt to be 'brilliant' or 'remarkable'.[26] By contrast his meteorology now seems merely quaint, while it is his astronomical system which strikes the modern mind as more grandly and perversely inadequate.

Some of the gaps or implausibilities in Anaximander's explanations in this area are no doubt due to the deficiencies of the surviving evidence. Thus given the efforts he and Thales seem to have made to measure the solstices, it is improbable that he had nothing to say about the annual movement of the sun in the ecliptic (to use a later vocabulary).[27] We do in fact have a report going back to Theophrastus, but queried by some scholars, which suggests that he attributed the solstices to the sun-circle's need for replenishment from rising vapours: when these become now too dense in the north, now too depleted in the south, then—we may imagine—periodic changes of direction occur in the motion of the circle.[28] Anaximander's views on the 'stars' other than the sun and moon are incompletely and inconsistently recorded. For example, one text talks implausibly, in terms reminiscent of Aristotelian astronomy, of *spheres* carrying stars, not just of circles; another suggests that the circles nearest the earth accounted for the planets as well as the fixed stars. It is obscure what Anaximander had in mind by talking of circles in the plural with regard to the fixed stars. One attractive interpretation proposes, for example, three celestial belts or zones dividing up the night sky, as in Baylonian astronomy. There is difficulty, however, in understanding how he could accommodate the circumpolar stars—which do not set—in his scheme, where all circles are to be construed as revolving round the earth. This may be one of the reasons why Anaximenes preferred his 'felt cap' model of the heavens.[29]

It is a feature of Anaximander's system itself, not lacunae in the doxography, which inflicts the most dramatic damage to his standing as even a primitive astronomer. This is his decision to put the fixed stars closer to earth than the moon and the sun. It is not an unintelligible position. The sequence sun-moon-stars-earth is found in Persian religious texts perhaps roughly contemporaneous in origin. In the Avesta the soul of an infant comes down from the 'beginningless lights' through a series of lights decreasing in size and intensity to be born on earth.[30] This corresponds with the implications of Anaximander's own view of physical process as a constant interaction between fire and cold moisture: if the earth is the principal location of one of these forces, it makes sense that the sun, as the main concentration of the other, should be positioned further from the earth than the lesser fires of the stars. Yet how can Anaximander account for the fact that the moon hides any constellation it passes across? Charitable answers have been attempted by scholars on his behalf, but perhaps it is better just to recall

that speculation's negotiations with experience have always been a tricky and often an embarrassing matter for science.

The biggest disputed and unanswered questions in Anaximander's system are those to do with his identification of the *apeiron* as first principle and its relationship with the world. His silences here do him rather more credit. Caution about the big bang and what preceded it seems a thoroughly rational stance. I guess that Anaximander conceives the *apeiron* as the beyond: what necessarily lies outside our experience of space and time, pictured as stretching away boundlessly outside the limits of the cosmos which it encloses.[31] If that cosmos came into being, the natural supposition would be that it did so *from* the *apeiron*. How and why are another matter, on which—as also on the essential nature of the *apeiron* itself—it would inevitably be more difficult to find reasonable things to say.

None the less it is clear that Anaximander did say something on these issues. On one of the rare occasions when Aristotle mentions Anaximander by name he attributes to him the thesis that the *apeiron* is immortal and indestructible. These were traditionally the attributes of divinity, and in fact the same passage strongly implies that the *apeiron* not only encloses but also governs (literally 'steers') all things:

> The infinite is thought to be principle of the rest, and to enclose all things and steer all, as all those say who do not postulate other causes over and above the infinite, such as mind or love. This is the divine. For it is immortal and indestructible, as Anaximander says and most of the physicists.
>
> (Aristotle *Physics* 203b7ff. [KRS 108])

Presumably Anaximander relies on the inference: no cosmic order without an ordering intelligence. On *how* it exercises its directive role he seems to have made no guesses.

From Theophrastan sources we learn further that there is eternal motion in or of the *apeiron*, which is what causes the separation from it of opposite physical forces (namely those forces that are invoked in the astronomy, meteorology, etc.). Again we may detect an inference to the best explanation: no creation without activity before creation. Aristotle finds here a clue to the nature of the *apeiron*. If opposites are separated from it, then it must itself be something intermediate in character, and indeed on that account a suitable choice of first principle. This is a conclusion dictated by Aristotle's enthusiasm for pigeon-holing his predecessors' opinions. It is not attested as Anaximander's view by the more careful Theophrastus.[32]

The thesis about eternal motion is sometimes formulated in the sources as the proposition that it causes the separation off of the world, or rather of worlds in the plural; in Theophrastus' words, probably reproducing Anaximander's own language: 'the worlds *(ouranoi)* and the orderings *(kosmoi)* within them'. The doxographers assimilate his view to the atomist theory of an infinity of worlds

all subject to destruction as well as creation. This is probably anachronistic, but—contrary to what some interpreters have argued—right in general thrust.[33] We should suppose that the hypothesis of eternal motion generates in its turn a further bold conjecture, exploiting indifference reasoning of just the kind the atomists were to make their own speciality:

1 Eternal motion in the *apeiron* is necessary to generate a universe.
2 But its activity provides no more reason for a universe to be generated here and now than for one to be generated there and then.
3 So if it generates a universe here and now, it also generates a universe there and then.
4 Therefore it generates a plurality of universes.

One strain in the doxography suggests that Anaximander did not merely say that the first principle *is* the infinite, but that it *must* be the infinite—otherwise coming into being would give out. This carries conviction: Aetius introduces the report as his *evidence* for the more far-reaching and dubious claim that Anaximander posited (like the atomists) the birth and death of an infinite number of worlds. Without mentioning Anaximander, Aristotle too cites the need for an infinite supply as one of the reasons people give for introducing the infinite as a principle. He objects:

> Nor, in order that coming into being may not give out, is it necessary for perceptible body to be *actually* infinite. It is possible for the destruction of one thing to be the generation of another, the sum of things being limited.
>
> (Aristotle *Physics* 208a8ff. [KRS 107])

This excellent point ought to tell *against* the idea, parroted by the doxographers, that Anaximander envisaged the *destruction* of worlds as well as their generation, at any rate if he did endorse the infinite supply argument. Only if worlds are *not* recycled is there a requirement for the *apeiron* to meet an infinite need.

It looks in fact as if Theophrastus, in assimilating Anaximander to the atomists, specifically searched for evidence that he like them believed in the ultimate destruction of all worlds, and found it hard to discover any. His citation of the famous surviving fragment of Anaximander's book is best interpreted as a misguided attempt to produce such evidence. The relevant passage of Simplicius, reproducing his account, runs as follows:

> He says that the principle is neither water nor any other of the so-called elements, but some different boundless nature, from which all the worlds come to be and the orderings within them. And out of those things from which the generation is for existing things, into these again their destruction comes about 'according to what is right and due, for they pay

> penalty and retribution to each other for their injustice, according to the ordinance of time'—using these rather poetical terms to speak of them.
>
> (Simplicius *Physics* 24–16ff. [KRS 101, 110])

A great deal of scholarly ink has been spilled over this text, and there is little to show by way of definitive results. The one important thing the best critical work has established is that the fragment (indicated above by the quotation marks) refers to a stable *reciprocal* relationship between opposites *within* a developed or developing cosmos, not to the cataclysmic reabsorption of a world or its constituents back into the *apeiron*.[34] Most interpreters also believe that Theophrastus, however, vainly attempts to *make* the fragment serve just such a cataclysmic function, so as to be applicable to the relationship between a world and the *apeiron*. Quite how he hoped to work the trick is less clear. The diagnosis I am suggesting notes that whereas Simplicius' first sentence concerns generation of worlds from the *apeiron*, the second is introduced by a remark focused on *destruction*, which despite its plurals ('out of those…into these') looks designed to furnish a balancing comment on the death of worlds. Yet the plurals give the game away: the only evidence Theophrastus can actually offer to support the implication of cosmic destruction is a statement of Anaximander about the effect of opposites on *each other*.[35]

No one who has worked their way through Anaximander's astronomy, meteorology and biology will have any difficulty in identifying the forces which 'pay retribution to each other for their injustice'. Simplicius takes it that these are the four elements. This Aristotelian analysis is, as often, anachronistic and over-schematic. What Anaximander must principally have in mind is the alternating domination of moisture over fire and fire over moisture which he makes the key to his account of origins, and which he probably thought exemplified above all by the regular pattern of the seasons in the world as it has now developed. This essentially stable pattern, while giving no basis for expectation of cosmic destruction, can accommodate the possibility of further fundamental changes, as it has admitted of them in the past. The clearest example is supplied by Anaximander's less than satisfactorily documented views on the changing relationship of land and sea.

In his *Meteorology* Aristotle sketches a theory of the gradual evaporation of the moisture on the earth's surface by the sun (353b6ff. [KRS 132]). Originally the whole surface of the earth was wet. Then the drying action of the sun produced the present state of things: part of the surface remains wet and constitutes sea, but the moisture elsewhere is subject to evaporation into the atmosphere. In future the same process will cause the sea to shrink in extent and eventually to dry up completely. Alexander's commentary on the *Meteorology* tells us (67.11) that Theophrastus attributed this theory to Anaximander (and subsequently Diogenes of Apollonia), so making him look to a Whiggish eye like a precursor of modern geology. It is tempting to connect the account of the

original state of the earth with Anaximander's conjectures about the beginnings of animal life in general and human life in particular:

> Anaximander of Miletus gave it as his view that, when water and earth had been heated, there arose from them fish or animals very like fish. In these men were formed and kept within as embryos until puberty. Then at last the creatures burst open, and out came men and women who were already able to feed themselves.
>
> (Censorinus *On the Day of Birth* 4.7 [KRS 135])

As in the science of our day, the hypotheses of geology and evolutionary biology seem to reinforce each other. Indeed like Xenophanes after him, Anaximander may have based his geological inferences in part on the fossil record. What matters for present purposes, however, is that the whole geological process envisaged by Anaximander constitutes an 'injustice' committed by one elemental force upon another, and as such will presumably, 'according to the ordinance of time', win compensation by 'retribution' in the form of a new inundation of the earth, again as explicitly attested for Xenophanes (unfortunately no similar prediction by Anaximander survives). We can only speculate on whether the language of justice the fragment uses to describe this kind of process is trying to capture the directive operation of the *apeiron*, or whether it is a metaphor for an entirely physical self-regulatory process, or whether Anaximander would have thought that a false dichotomy.

Anaximander's all-embracing vision of the natural world is the first and for many readers the most unforgettable of the pre-Socratic physical systems. Despite its individuality, it established the framework of a common world picture, shared (although sometimes transformed) by them all. This is above all due to its very invention of the idea of a cosmos, a world ordered by law, which was then worked out along lines that guided both the substance and the method of future enquiry. The cosmos and its major features, including life on earth, are conceived as the outcome of evolving interactions between two fundamental but opposed physical forces. It emerges somehow from something infinite and eternal which surrounds and controls it. Despite the welter of specific detail about this world supplied by Anaximander, he sets a high premium on general explanatory patterns, which he couches exclusively in mathematical and naturalistic terms—except for the overarching conception of cosmic justice. Subsequent pre-Socratics will vary or challenge the recipe in one way or another. But his is the theme, theirs the variations.

ANAXIMENES

Anaximander's theoretical silences evidently grated on Anaximenes' ear.[36] His inability to say what sort of thing the *apeiron* is, and his failure to explain how or why opposite forces emerge from it, contrast with Anaximenes' explicitness on

both issues, and may be supposed to be what prompted the junior thinker to engage with them. In any event the result is a cosmology resembling Anaximander's in many respects, but at these key points advancing substantive theses. It is succinctly summed up by Simplicius in a passage deriving from Theophrastus:

> Anaximenes son of Eurystratus, of Miletus, a companion of Anaximander, also says, like him, that the underlying nature is one and infinite, yet not indefinite as Anaximander said, but determinate—for he identifies it as air. It differs in thinness and thickness according to the substances which it constitutes, and if thinned becomes fire, if thickened wind, then cloud, then (thickened further) water, then earth, then stones. Other things come from these. He, too, makes motion eternal, and says that change, as well, comes about because of it.
>
> (Simplicius *Physics* 24.26ff. [KRS 140])

The hypothesis that the first principle is air in eternal motion enables Anaximenes to fill both the principal lacunae in Anaximander's theory. It ventures a definite characterization of the *apeiron;* and in so doing it facilitates an explanation of the emergence of the chief phenomena studied by natural philosophy: the opposite processes of thinning and thickening to which air is subject are what produce fire, on the one hand, and a series—to become canonical in subsequent Ionian thought —of more and more condensed forms of matter, on the other.

It has often been thought that a text of Aetius reports an analogical argument presented by Anaximenes for the claim that air is the first principle. The passage in question begins with the information that this was his principle, and then, on the traditional interpretation, continues with the words:

> As *(hoion)* our soul, he says, being air controls us, so *(kai) pneuma* and air enclose the whole world. (Air and *pneuma* are synonymous here.)
>
> (Aetius I.3.4 [KRS 160])

This statement has usually been given prominence in reconstructions of Anaximenes' philosophy. It has even been taken as an actual fragment of his book. Its precise logic and overall point have been much discussed, but (assuming always that the translation given above is correct) the context would favour an interpretation which finds some kind of inference from microcosm to macrocosm: as air is the principle of human life, so it is the principle of the cosmos at large.

On further examination Aetius' sentence proves unable to bear such a weight of interpretation. To begin with, it cannot be an actual quotation from Anaximenes. His book was written 'in simple and economical Ionic'. Aetius' sentence is not in Ionic. It also includes at least one word coined much later than

the sixth century BC. The Greek is very likely corrupt, too. It looks as if *'pneuma'*, as 'breath', should be substituted for 'air' in the first clause and omitted in the second. Most important of all, a more probable translation of the sentence (so emended) would run:

> For example *(hoion)*, it is as breath, he says, that our soul controls us, and *(kai)* air encloses the whole world.

The only expressions here which can be inferred to be authentically Anaximenes' are the two Aetius specifically mentions: 'air' and 'breath', although there is no reason to doubt that he talked of 'soul' in this context.[37]

What on this alternative reading was Aetius' point in making the remark? It will have been to furnish two independent grounds for believing that Anaximenes did indeed, as he has just contended, make air the principle. The clause about the cosmos will then not express the conclusion of any inference, but simply express a version of that fundamental Anaximenian thesis: the *apeiron* (as what encloses the world) is air. The first clause is more interesting. Even though it no longer launches an argument from analogy, it may still suggest that Anaximenes himself appealed to the physiological role of *pneuma* as *evidence* that air is the principle. Certainly the claim about human physiology would then parallel some evidence, again from the phenomenon of breath, which he is said to have adduced for the connected idea that thinnings and thickenings of air are what cause the appearance of *other* properties or things:

> He says that matter which is compressed and condensed is cold, while that which is thin and 'relaxed' (he used this very word) is hot. This is why it is not unreasonable to say that a person releases both hot and cold from the mouth. The breath is chilled when it is pressed and condensed by the lips, but when the mouth is loosened it escapes and becomes hot because of its thinness. This opinion Aristotle puts down to the man's ignorance.
>
> (Plutarch *The Primary Cold* 947F [KRS 143])[38]

What is most interesting in these texts is the attempt to use familiar features of human existence to think about the cosmos at large. Anaximander had had a penchant for analogy and discussed the origins of man, but there is no sign that his theorizing accorded any similar primacy to consideration of things human for this purpose. It seems unlikely, however, that Anaximenes got close to formulating a conception of man as microcosm. It is just as doubtful how far his cosmology was vitalist. There is some evidence, unfortunately rather vague and of doubtful authority, that Anaximenes laid more stress on the divinity of the *apeiron* than Anaximander did. Hippolytus, for instance, says that from air were generated *inter alia* 'gods and things divine' (*Refutation* I.7.1 [KRS 141]). Is this a recrudescence of Thales' notion that 'all things are full of gods'? Or is it an

insistence that everything popularly recognized as divine is in one way or another a form of the one true divinity, the infinite air?

If we continue the comparison of Anaximenes with Anaximander, we find much less evidence of an interest on his part in speculative evolutionary hypotheses, whether cosmological or biological, than there is for Anaximander, although he too propounded a cosmogony. We catch little sense of the world as a theatre occupied by opposing powers acting reciprocally on one another, despite the importance accorded to the contrary processes of compression and expansion. Nor does indifference reasoning or mathematical schematism seem to belong in Anaximenes' explanatory repertoire. What the doxography mostly records is firstly the detail of his astronomical system, which was at once closer to the primitive Homeric picture of the heavens and also more influential on subsequent Ionian thinkers like Anaxagoras, the atomists, and Diogenes of Apollonia; and then information about his explanations of meteorological phenomena, where he seems largely to have followed Anaximander. There are some apparently new topics, such as the rainbow, but even here Anaximenes' view is reminiscent of Anaximander's explanation of lightning (to which he too subscribes): the rays of the sun strike against thick, dark cloud, and being unable to penetrate it are reflected off it, the different colours consequences of different interactions between light and cloud.[39]

The major general idea which the surviving reports make their focus, however, is Anaximenes' proposal that progressive stages of thickening or compression account for the formation of different sorts of bodies and other stuffs. There are traces of an alternative interpretation (as with Anaximander) which tries to make hot and cold the primary explanatory categories for Anaximenes, more as they are in Aristotle.[40] Plutarch's passage on breath suggests that Anaximenes was certainly interested in this pair of opposites; but at the same time it clearly indicates the primacy of thick and thin. A basic statement of the theory has already been quoted [KRS 140]. Some further applications occur in the following passage, where incidentally it is noteworthy how there is no reference to cold in the analyses of hail and snow; compression is evidently responsible for their coldness:

> Anaximenes says that clouds occur when the air is further thickened [more so than it is in wind]. When it is compressed further rain is squeezed out. Hail occurs when the descending water coalesces, snow when something windy is caught up with the moisture.
>
> (Aetius II.4.1 [KRS 158])

At some points air is treated as occurring in a relatively dense form while still remaining just air. This is referred to in some sources as 'felting', a word which conceivably goes back to Anaximenes himself. One instance is the air that supports the flat earth, another that forcing the sun to change direction at the solstice.[41]

It is hard from our perspective to understand how anyone should have found the compression theory or its many particular applications credible. Yet it is taken for granted as the standard physical account by Melissus a century later, when he says, 'We think that earth and stone are made out of water' (fragment [KRS 557]), probably recalling Anaxagoras's restatement in his fragment 16 [KRS 490]. Slightly later in the fifth century Diogenes of Apollonia would give an even more thoroughgoing re-endorsement of Anaximenes' original version of the idea. What attracted cosmologists to it was doubtless the core thought that the transformations different forms of matter undergo are intelligible only if those transformations are really just variants of one and the same pair of contrary processes, and if what is transformed is ultimately just a single matter. This is a profound thought. It seems to be Anaximenes' achievement, not that of the shadowy Thales nor of Anaximander. For Anaximander the *apeiron* is the source of things, not what they are made of. Anaximenes appears to have been the first to have had the simplifying and unifying notion that their source *is* what they are made of.[42]

XENOPHANES

Xenophanes presents us with a new phenomenon: lots of actual extracts of pre-Socratic writing. We know the sound of Xenophanes' voice.[43]

Interpretation is not therefore plain sailing. In fact Xenophanes is the subject of more disagreement than Anaximander or Anaximenes. The disputes are not just over what specific positions he took nor what his key problems were, but on whether he should count as a substantial thinker at all, or merely as an intellectual gadfly without a systematic set of ideas of his own. One of the difficulties is that the scraps of Xenophanes which are preserved are mostly just that: isolated lines or pairs of lines or quatrains torn from their original context by a quoting authority. Another is that he was to become the focus of different kinds of interest by a variety of later writers. Thus while Heraclitus speaks of him as a typical practitioner of fruitless Ionian curiosity, Plato and Aristotle (followed by the faithful Theophrastus) see him as an obscure precursor of Parmenides, and Timon of Phlius as more than half anticipating the scepticism he attributed to Pyrrho. In subsequent periods the story gets still more complicated, with Xenophanes portrayed, for example, as an exponent of an elaborate Eleatic negative theology. Excavating the real Xenophanes from the *mélange* of different versions of his thought preserved in the sources is accordingly a good deal trickier than reconstructing Milesian cosmology, which never enjoyed comparable resurrection.[44]

Xenophanes wrote verse, not prose, and that too made him more durable. Diogenes Laertius sums up his output in these words:

> He wrote in epic metre, also elegiacs and iambics, against Hesiod and Homer, reproving them for what they said about the gods. But he himself

> also recited his own poems. He is said to have held contrary opinions to Thales and Pythagoras, and to have rebuked Epimenides too.
>
> (Diogenes Laertius IX.18 [KRS 161])

This account corresponds pretty much with the surviving fragments. Many of them are indeed clearly satirical, and the poems from which these are taken—in all three metres mentioned by Diogenes—were known in antiquity as *silloi*: 'squints' or lampoons. It has been conjectured that even fragments dealing with physical phenomena belonged not to a philosophical poem on nature like Empedocles' (as is implied in some unconvincing very late sources), but to his critique of the traditional theology of Homer and Hesiod, which is well represented among the fragments in any case.[45] Among the other butts of his wit Pythagoras is the certain target of some surviving verses:

> On the subject of reincarnation Xenophanes bears witness in an elegy which begins: 'Now I will turn to another tale and show the way.' What he says about Pythagoras runs thus: 'Once they say that he was passing by when a puppy was being whipped, and he took pity and said: "Stop, do not beat it; for it is the soul of a friend that I recognised when I heard it giving tongue."'
>
> (Diogenes Laertius VIII.36: fr. 7 [KRS 260])

But it may also be that Xenophanes' attack on Thales was the original home of the following snippet:

> Of the earth this is the upper limit, seen by our feet neighbouring the air. But its underneath reaches on indefinitely.
>
> (Achilles *Introduction* 4: fr. 28 [KRS 180])

Aristotle refers to this passage in his chapter on the different explanations theorists have given for the stability of the earth. He accuses Xenophanes of not trying hard enough. We may think his revulsion from speculation on this question gives him the better of the argument with Thales.[46]

Diogenes seems to suggest that the lampoons, in the fashion of lampoons, mostly had their effect by being circulated and repeated by others. By contrast Xenophanes himself performed his own non-satirical poems, evidently as a travelling entertainer at festivals and other aristocratic gatherings. We are told that after exile from his native city of Colophon he emigrated to Sicily. The 'exile' is generally associated by scholars with the capture of the city by the Persians in 546/5 BC, an event to which he himself refers in some verses where he speaks of the coming of the Mede (fr. 22). This probably occurred when he was 25 years of age, if we may so interpret some further verses which boast of an extraordinarily long life, and which incidentally indicate a career pursued all over Greece:

> Already there are seven and sixty years tossing my thought up and down the land of Greece. And from my birth there were another twenty five to add to these, if I know how to speak truly about these things.
>
> (Diogenes Laertius IX.18: fr. 8 [KRS 161])[47]

We possess two substantial elegiac poems, each a little over twenty lines long, representing Xenophanes' activity as performer at dinner parties and the like. Both contain a critical strain. One (fr. 2) begins with a famous assault on the Olympic games and the conventional view that victory in any of its athletic events brings a benefit to the victor's city which rightly entitles him to great honours from it. No, says Xenophanes: such a person 'is not my equal in worth—better than the strength of men and horses is my wisdom'. For athletic prowess does not contribute to the good government of the city, nor does it fill the city's coffers. Xenophanes implies that his own moral teaching, on virtue and piety (fr. 1) and against luxury (fr. 3), is by contrast oriented towards the public good. The other poem (fr. 1) is about the proper conduct of a symposium. Its main focus is on the nature of true piety. The first half stresses physical preparations: everything must be clean and pure, fragrant with flowers and incense, with pure water to hand. The wine is to be served with the simplest of foods: bread, cheeses, honey. Then Xenophanes gives instructions about what is to be said. 'Reverent words and pure speech' hymning the god is to precede talk of virtue, of right and noble deeds—not tales of giants, Titans and centaurs, nor of conflicts between men in which there is no profit: nothing, presumably, at all like the *Theogony* or the *Iliad*.[48]

Xenophanes' explicit attacks on Homer and Hesiod in his lampoons are not merely critical but—in a sense I shall explain—self-critical. The Milesians had implicitly questioned traditional assumptions about the natural world. In subjecting what the great poets say about the gods to overt scrutiny and condemnation Xenophanes' focus is not reality but how we conceive of it. Philosophy, one might say, now for the first time takes a reflexive turn.

This is immediately apparent from the key fragments on anthropomorphic theology, which constitute Xenophanes' principal claim to a significant niche in the history of philosophy:

> Homer and Hesiod have attributed to the gods everything that is a shame and reproach among men, stealing and committing adultery and deceiving one another.
>
> (Sextus Empiricus *Adversus Mathematicos* IX.193: fr. 11 [KRS 166])

> But mortals consider that the gods are born, and that they have clothes and speech and bodies like their own.
>
> (Clement *Miscellanies* V.109.2: fr. 14 [KRS 167])

> The Ethiopians say that their gods are snub-nosed and black, the Thracians that theirs have light blue eyes and red hair.
>
> (Clement *Miscellanies* VII.22.1: fr. 16 [KRS 168])

> But if horses or cattle or lions had hands, or were able to draw with their hands and do the works that men can do, horses would draw the forms of the gods like horses, and cattle like cattle, and they would make their bodies such as they had themselves.
>
> (Clement *Miscellanies* V.109.3: fr. 15 [KRS 169])

We could already have guessed from fragment 1 that Xenophanes would have found the picture of the gods in Homer and Hesiod unacceptable because inconsistent with 'reverent words and pure speech', i.e. with the requirements of proper worship. The passages quoted above indicate two separate grounds for such a view. First, in fragment 11, Xenophanes objects that they make the gods immoral, or more particularly liars and cheats, a line of objection borrowed by Plato in *his* critique of Homer in *Republic* II. Second and more fundamentally, fragment 14 implies that the poets are just like men in general in casting the gods in their own image: self-projection is the basis for their conceptions of divinity. This charge is then brilliantly substantiated in fragments 15 and 16. Fragment 16 reflects the Ionian fascination with ethnography which reaches its fullest expression in Herodotus and fuels the cultural relativism developed by the sophists with the help of the famous nature/ culture *(nomos/phusis)* polarity. On its own fragment 16 would not get Xenophanes far enough towards his eventual destination. From the premiss that what *particular* human features we ascribe to the gods is a function of what features different ones among us happen to possess ourselves, it is still some way to the conclusion that the very idea of god's possessing human features of *any* kind is nothing but a projection by humans of their own characteristics on to the divine. This conclusion is mediated by the thought-experiment of fragment 15, which is simply a counter-factual extension of the argument of fragment 16: if the conception of god varies among men according to race, it is reasonable to conjecture that, if *other* animals could conceive of god, their conceptions would vary according to species. So our idea of what god is like is nothing but a similarly speciesist exercise in self-projection.

The account of Xenophanes' thought presented so far has discussed those parts of the remains of his oeuvre whose interpretation is not controversial. When we move beyond them fierce disagreement breaks out. On each of the three main areas covered by the rest of the fragments—god as he *should* be conceived, the natural world, the prospects for knowledge—the evidence is evaluated very differently by scholars of different casts of mind.

A small group of fragments explains what god is really like. Xenophanes does not argue the case. He simply declares the truth as he sees it:

> One god is greatest among gods and men, in no way similar to mortals either in body or thought.
>
> (Clement *Miscellanies* V.109.1: fr. 23 [KRS 170])

> All of him sees, all thinks, all hears.
>
> (Sextus Empiricus *Adversus Mathematicos* IX. 144: fr. 24 [KRS 172])

> Always he remains in the same place, moving not at all; nor is it fitting for him to go to different places at different times, but without toil he shakes all things with the thought of his mind.
>
> (Simplicius *Physics* 23. 11 and 20: frs 26 and 25 [KRS 171])

Is fragment 23 an enunciation of monotheism, the first in Western thought? Views are divided.[49] The best comparison with Xenophanes' couplet is a line of Homer:

> One omen is best, to defend the fatherland.
>
> (Homer *Iliad* XII.243)

Here Hector is rejecting a warning against fighting from his adviser Polydamas, who has inferred a bad omen from the appearance of an eagle to the left, flying with a snake in its beak which it then savaged and dropped into the midst of the Trojan host. Hector's memorably sceptical reply does two things. It *says* that there is only one good omen, much better than all the rest, namely patriotic action. But in suggesting that the other sorts of omens, on which the likes of Polydamas rely, are worthless as a basis for decision and action, it *implies* a radical reinterpretation of the very idea of an omen, removing from it any connotation of divine revelation, and reducing—or elevating—it to a human moral imperative. So Hector's assertion is in effect much stronger: not just that there is only one *good* omen, but that there is only one *real* omen, which is obeying the appropriate human imperative. Xenophanes' thesis works in exactly the same way. It *says* there is only one supreme god. It *implies* there is only one *real* god. For the very idea of god has to be reconceived. Fragments 23–6 show what this theoretical revolution is to consist in. We must rid ourselves of the notion that a god needs limbs and sense organs like a human being (cf. fragments 14–16). He can cause things to happen by thought alone, without moving a muscle; all of him sees, hears, thinks. Is he then a pure bodiless mind? Xenophanes writes as though the issue is not whether but *how* to think of god's body. So while it is tempting to diagnose a further radical implication, questioning whether god needs a body at all, interpretation is probably not justified in going that far. This is to find some measure of agreement with Aristotle (*Metaphysics* 986b22–3) that Xenophanes made nothing clear about 'the one' (i.e. the Eleatic one, which is what Aristotle took his god to be).

Did fragments 23–6 belong to the satirical attack on the views of Homer and Hesiod which constituted the context of fragments 11 and 14–16? Or were they extracted from a quite different poem devoted to philosophy of nature, as Diels supposed? Diels' conjecture seems an improbable one. Leaving aside the vexed issue of whether there *was* a separate poem about nature, we should note: (a) Clement quotes fragments 23, 14 and 15 consecutively in that order, as though they were all part of the same piece of writing. Certainly it is more plausible and economical to postulate reliance on an excerptor plundering *one* original source, not two. (b) The idea that gods make journeys, rejected at fragment 26, exactly matches the conception of the gods in Homer, (c) Fragments 23–6 are interested in exactly the same general question about the divine as fragments 11 and 14–16: how should it be conceived? They say nothing on the other hand about the cosmic role of god. Theophrastus, who thought with Aristotle that Xenophanes might be meaning to identify god with the universe, none the less observed that mention of Xenophanes' view is not appropriate in an enquiry into nature, but is a subject for another branch of philosophy, presumably 'first philosophy' or metaphysics. No doubt he made this comment because he could find in Xenophanes no actual *discussion* of god's relation to the universe. This assessment is pretty well irresistible given his professed inability to decide whether Xenophanes held that the sum of things is one or alternatively that there is a single principle of things.[50]

I infer that Xenophanes said all that he said about god in his lampoon against Homer and Hesiod, and that not unexpectedly his instructions there on how we *should* think of god did not extend very much beyond the few lines which survive as fragments 23–6. Later doxographical reports are confident that Xenophanes claimed much more: notably that god is spherical in shape. We know the ultimate source of these reports. It is a remarkable reconstruction of Xenophanes as an Eleatic monist, employing metaphysical argumentation in the style of Melissus and Gorgias, and known to us in a version preserved in the pseudo-Aristotelian treatise *On Melissus, Xenophanes and Gorgias*. The important thing about this presentation of Xenophanes for our present concerns is precisely that it *is* a reconstruction, in a later idiom involving techniques and assumptions unthinkable before Parmenides.[51]

The basis of the proposition that Xenophanes made god a sphere is clear enough. It derives its main inspiration from Parmenides' lines arguing that what is is 'perfected, like the bulk of a ball *(sphaire)* wellrounded on every side, equally balanced in every direction from the centre' (fr. 8. 42–4). The actual piece of argument ascribed to Xenophanes goes as follows:

> Being one, it is like all over, seeing and hearing and having the other senses all over. Otherwise if there were parts of god they would control and be controlled by each other, which is impossible. But being like all over, it is spherical: for it is not such here but not there, but all over.
>
> ([Aristotle] *On Melissus, Xenophanes and Gorgias* 977a36–b2)

This extract gives a good impression of how the writer works. It looks very unlikely that he has any more to go on in his construction of Xenophanes' reasoning than fragments 23 and 24. He gets the unity of god from fragment 23 (cf. 977a23–4). That Xenophanes believes god is like all over is inferred from fragment 24, and then made the consequence of his unity, in line with a similar inference attributed to Melissus by this same author (974a12–14). The key move to the conclusion that god is therefore spherical is finally worked out by application of reasoning borrowed from fragment 8.22–4, 42–5 of Parmenides.[52]

Despite the preoccupation of many of our sources for Xenophanes with his theology, there is little doubt that his discussions of questions about the heavenly bodies and meteorological phenomena were in fact more extensive. As well as a number of fragments on these topics, a considerable amount of information about his views relating to them is preserved in the doxography. What is missing, however, is evidence of a cosmogony, or of the associated drive towards a comprehensive narrative characteristic for example of Anaximander. Thus the general survey of his thought in the *Miscellanies* attributed to Plutarch sticks mostly to a summary of the pseudo-Aristotelian Xenophanes, interrupted and then completed by a disjointed sequence of reports about specific theses of Xenophanes' physics or epistemology. Hippolytus' overview is better organized, but on physical questions very brief and selective until a final section on large-scale changes in the relation of earth and sea.[53]

We should therefore conclude that there probably never was a single poem devoted to natural philosophy. It is less easy to conjecture what form Xenophanes' writing on the various natural questions which interested him would have taken. Indeed we are in a position of total ignorance on the issue. One thing clear from the few surviving fragments, however, is that many of his verses echoed lines of Homer and Hesiod, invariably to subvert the picture of the natural world they conveyed.

Consider for example the following pair of lines attributed to Xenophanes:

> All things that come to be and grow are earth and water.
>
> (Simplicius *Physics* 189.1: fr. 29 [KRS 181])

> For we have all come to be from earth and water.
>
> (Sextus Empiricus *Adversus Mathematico* IX.34:fr.33 [KRS 182])

These verses recall Menelaus' words in the *Iliad*, cursing the Achaeans:

> May you all become earth and water.
>
> (Homer *Iliad* VII.99)

Perhaps Xenophanes' point against Homer would have been that everything alive already *is* earth and water. Whether or not that is how he began his presentation of the idea, his further development of it probably included his remarkable

argument for the cyclical process of alternate domination of the earth's surface by earth and sea:

> Xenophanes thinks that a mixture of the earth with the sea is going on, and that in time the earth is dissolved by the moist. He says that he has demonstrations of the following kind: shells are found inland and in the mountains, and in the quarries in Syracuse he says that an imprint of a fish and seals were found; and in Paros an imprint of coral in the depth of the rock, and in Malta slabs of rock containing all sorts of sea creatures. These, he says, were produced when everything was long ago covered with mud, and the imprint was dried in the mud. All mankind is destroyed whenever the earth is carried down into the sea and becomes mud; then there is another beginning of coming into being, and this is the foundation for all worlds.
>
> (Hippolytus *Refutation* I.14.5 [KRS 184])

The idea of a cycle of this kind had probably been anticipated by Anaximander, who certainly held that the earth was once much wetter than it is now. But Xenophanes thought the world was at a different phase of the cycle: the earth is not drying out, but reverting to sea. And although Anaximander may have appealed to the evidence of fossils, this is actually attested only for Xenophanes. Whether Xenophanes collected the evidence himself or relied on the reports of others, his assemblage of examples and conception of their significance constitute one of the high points of Ionian *historiē* (enquiry).

The longest physical fragment is also about the sea:

> Sea is the source of water, and source of wind. For neither <would there be the force of wind blowing forth from> inside clouds without the great ocean, nor streams of rivers nor shower water from the air above: but the great ocean is begetter of clouds and winds and rivers.
>
> (Geneva scholium on the *Iliad* XXI.196: fr.30 [KRS 183])

These lines may have belonged to the same poem as did the verses about earth and water. On the other hand there is reason to conjecture a separate poem directed explicitly or implicitly against traditional conceptions of the heavenly bodies as divinities with marvellous properties.[54]

The striking description of the ocean *(pontos)* as 'begetter' already recalls, yet simultaneously rationalizes, Hesiod's account of how it 'begat' Nereus, the old man of the sea, and other mythical figures (*Theogony* 233–9). But the mention of clouds among the offspring of ocean is particularly significant, for the doxographical evidence makes it clear that Xenophanes explained virtually all astronomical and meteorological phenomena in terms of cloud. On these subjects his thinking was both relentlessly systematic and at the same time satirical: the object was to reduce mystery and grandeur to something familiar and homely.[55]

Thus the moon is a compressed ('felted') cloud that is on fire. But it 'does no work in the boat', i.e. unlike the sun it does not sustain life.[56] Comets, shooting stars and meteors are groups or movements of burning clouds. St Elmo's fire occurs when cloudlets glimmer owing to a particular sort of movement, and lightning is very similar. A fragment survives which explains that,

> What they call Iris, this too is cloud: purple and red and yellow to behold.
> (Scholium bT on the *Iliad* XI.27: fr. 32 [KRS 178])

Here Xenophanes is undoubtedly attempting to demystify and demythologize the rainbow. Iris is no goddess, nor is it a 'marvel to behold' (*thauma idesthai*, in Homeric language), merely a variety of colours 'to behold' *(idesthai)*.

The most intriguing of Xenophanes' astronomical explanations are those he gives for the stars and the sun. Here the basic identification as burning cloud is reiterated. But much more detail is given by the doxography. The stars are quenched each morning but flicker again at night like coals. The sun is generated anew each day by the collection of widely scattered flaming particles. This extraordinary idea was probably supported with the claim that the phenomenon can actually be observed at dawn from the heights of Mount Ida above Homer's Troy, when rays originally separate are seen to coalesce into a single ball.[57] It would seem to follow that the process of coalescence must happen again and again every day at different longitudes. Xenophanes was not afraid to draw the logical and undignified conclusion:

> Xenophanes says that there are many suns and moons according to regions, sections and zones of the earth, and that at a particular moment the disc is banished into some section of the earth not inhabited by us—and so, tumbling into a hole, as it were, produces the phenomenon of an eclipse. He also says that the sun goes onward indefinitely, but is thought to move in a circle because of the distance.
> (Aetius II.24.9 [KRS 179])

We have specific reason to think that Xenophanes' account of the sun occurred in the same poem as fragment 30: it is quoted by a doxographer who explains that the vapour from the sea which turns eventually into clouds, showers and winds is drawn up by the action of the sun (Aetius III.4.4 [DK 21 A 46]).

What epistemological status did Xenophanes accord to these speculations? A famous and much discussed quatrain gives us his answer, which sounds as though it might have served as a prologue to one of the physical poems:

> No man knows, or ever will know, the clear truth about the gods and about all the things I speak of. For even if someone happened to say something exactly so, he himself none the less does not know it, but opinion is what is the outcome [lit. 'is constructed'] in all cases.

> (Sextus Empiricus *Advenus Mathematical* VII.49 and 110: fr. 34 [KRS 186])

These are the lines which later writers fastened upon in their determination to find ancient antecedents for a radically sceptical stance on the prospects for human knowledge.[58] Certainly Xenophanes is claiming that there is *something* that man does not nor ever will know. But the claim is qualified in two ways. First, the subject-matter is restricted to truths about the gods and 'all the things I speak of: presumably astronomical and meteorological phenomena. Second, when Xeno-phanes says that no human will ever know the *clear* truth about them, he appears to allow that a person might attain the *truth* on these matters. This idea is amplified in the final clause of the fragment, where translation is unfortunately disputed. On the version given here, Xenophanes states that *opinion* is what is the outcome for everyone. Opinion must therefore be precisely a state of belief (true or false) that does *not* put a person in the position of knowing the truth. The claim is then that no human can be in any other condition so far as concerns the nature of gods and of the heavens.

Xenophanes does not say *why* this is so. There are a number of different ingredients in his concept of knowledge which may indicate the explanation he envisages. First, what the gods or the heavens are like is something inaccessible to direct human experience. Second, when he suggests that someone might 'happen' to say what is true on this subject, he implies that humans have no unfailingly reliable means of establishing the truth—as would be required if knowledge were to be achieved. Finally, the introduction of the notion of clarity suggests that Xenophanes thinks knowledge would be transparent: a knower would know that he knows.[59]

So interpreted Xenophanes' scepticism is limited to a denial that in theology, astronomy and meteorology there can ever be a direct, unfailingly reliable or transparent grasp of the truth even on the part of a person who is in fact in possession of it. On this reading (indeed on most readings) fragment 34 constitutes another instance of the relexive, self-critical turn philosophy takes in his hands. Its point is doubtless to indicate that the claims he is advancing about nature and the divine are modest so far as regards their epistemological status. Other evidence tends to confirm that the object is not to imply any actual *doubt* that those claims are true. The other principal surviving remark on knowledge attributed to Xenophanes says:

> Yet the gods have not revealed all things to mortals from the beginning; but by seeking they find out better with time.
>
> (Stobaeus I.8.2: fr. 18 [KRS 188])

This fragment is optimistic about the prospects for discovering the truth. Take the question: is the sea gradually inundating the earth? The gods have not revealed to us the answer just like that—but fragment 18 indicates that by

observing for example the fossil record we can find out what it is reasonable to regard as the truth of the matter.[60] The first words of an injunction of Xenophanes (unfortunately truncated) ran:

> Let these be accepted, certainly, as like the realities…
> (Plutarch *Symposium* 746B: fr. 35 [KRS 187])

This might be interpreted as saying: you are justified in your belief that this is what reality is like (…even if you cannot know it).

For Heraclitus Xenophanes was one of those thinkers whose farflung learning had not brought them understanding. Yet Heraclitus' own ideas about god and knowledge and the heavenly bodies seem to owe much to Xenophanes'. Nor were Plato and Aristotle wrong to perceive his influence on Parmenides, even if he was no Eleatic monist. Without our evidence relating to Xenophanes it would in fact be difficult to understand how philosophy made the transition from Milesian cosmology to the metaphysical and epistemological orientation shared by Heraclitus and Parmenides. Some of his speculations look naïve beyond belief. But he had witty and subtle things to say on all manner of topics. He cherished a healthy regard for evidence: the naïveté is in good part the consequence of his rigour in refusing to go much beyond it. And so far as western thought is concerned, he invented both monotheism and critical theology.

NOTES

1 A good general account of Thales: KRS ch. 2. For a more ambitious view of what we may reasonably conjecture about his cosmology see West [2.59].
2 Cf. Herodotus I.74–5, 170 [KRS 74, 66, 65]. Solar eclipse: best discussion still Heath [2.33], ch. 3; also e.g. Panchenko [2.53]. That any eclipse Thales predicted was visible in Asia Minor must have been due to luck. Probably it is largely on account of this feat that he came to be credited with views on the causes of eclipses, the nature of the heavenly bodies, and the zones of the heavens [DK 11 A 13c, 17, 17a and b].
3 Texts and discussion: KRS, pp. 81–6, 100–5. On the map see Kahn [2.49], 82–4; on early Greek astronomical knowledge Dicks [2.47]; Kahn [2.50]; Burkert [2.25], ch. 4, sect. 1.
4 See Aristotle *On the Soul* 405a19–21, 411a7–8, Diogenes Laertius I.24, with discussion in KRS pp. 95–8.
5 See Aristotle *Metaphysics* 983b6–984a3. Discussion in KRS, pp. 89–95 On Hippias: Snell [2.57]; Mansfeld [2.40], chs 3, 5.
6 On the physics of flat-earthism see Furley [2.32], chs 1, 2, 18.
7 The doxographical evidence is confused. One source ([Plutarch] *Miscellanies* 3 [KRS 148]) states explicitly that the sun is earth; and Hippolytus' evidence that it is flat and rides on air makes sense only on that assumption (KRS 150, quoted above). However the doxography seems generally to have understood 'fiery' as '*composed* of fire' (cf. Runia [2.67]); and one suspect passage (Hippolytus

Refutation I.7.5 [KRS 149]) is explicit on the point. Perhaps the ambiguity of 'stars' as heavenly bodies in general or the fixed stars in particular added to the confusion.

8 Anaximenes also posited earthy bodies in the region of the 'stars', envisaged as being carried round with them (Hippolytus *Refutation* I.7.5; Aetius II.13.10 [KRS 152]). These were presumably introduced to account for eclipses: (cf. Hippolytus *Refutation* 1.8.6, 9 on Anaxagoras [KRS 502]).

9 Aristotle's comparison with a lid probably derives not from Anaximenes but from Anaxagoras' version of flat-earthism. Note the reference in the sequel to the *clepsydra* (294b18–21), elsewhere associated by him with Anaxagoras (*Physics* 213a22–7 [KRS 470]).

10 Pre-Socratics seem not to have mentioned predecessors or contemporaries by name except to attack them. An explicit critique of Thales is not attested nor likely for Anaximander or Anaximenes, but is attributed to Xenophanes (Diogenes Laertius IX. 18 [KRS 161]). No book: various writings are ascribed to Thales, notably a 'Nautical star-guide' (Simplicius *Physics* 23.25–9, Diogenes Laertius I.23 [KRS 81–2]). But already in antiquity their authenticity was doubted: for a cautiously sceptical review of the evidence see KRS, pp. 86–8.

11 The few mentions in the doxography of physical theses about the constitution and behaviour of the heavenly bodies which Thales is supposed to have advanced (texts at DK 11 A 17a and b) are either inconsistent with better evidence or merely isolated assertions. E.g. the claim that Thales knew the moon derived its light from the sun is at odds with the strong evidence that Anaximander and Anaximenes did not. Such knowledge is first credibly associated with Parmenides (fr. 14, KRS 308) or Anaxagoras (Plato *Cratylus* 409a–b; Hippolytus *Refutation* 1.8.8 [KRS 502]) among philosophers.

12 See Mansfeld [2.40], ch. 5.

13 Geocentric conception: Anaximander famously located the earth in the middle of a symmetrical cosmos, with the sun, moon and stars conceived as circling round it in a sequence of concentric rings. For a treatment of Anaximander's logic as represented by Aristotle see Barnes [2.8], 23–9; also Makin [2.52].

14 So Robinson [2.55]; Furley [2.32], ch. 2. Their views are very effectively criticized by Panchenko [2.54].

15 Texts on the shape of the earth and the celestial rings are collected and discussed in KRS, pp. 133–7.

16 Interestingly, a claim that Anaximander's earth 'moves round the middle of the cosmos' is ascribed to Eudemus (Theon of Smyrna p. 198H [DK 12 A 26]). Its truth and provenance are generally doubted: Kahn [2.49], 54–5. But it may originate from an attempt to work out what would be the behaviour of a *cylinder* in unstable equilibrium at the centre of the universe: this would be rotation about its own axis.

17 'Not controlled by anything' is unclear. Perhaps a contrast with the sun, moon and stars is intended: their behaviour *is* controlled by the misty rings which envelope the fire which constitutes them.

18 The sentence about Anaximander seems unmotivated in context, unless seen as completing Alexander's argument that he is not the primary focus of the Aristotelian passage which names him (Simplicius *On the Heavens* 532.7–12). So construed its point will be to suggest that because the theory Aristotle mentions

does not really represent Anaximander's position, he must actually have another proponent of it in mind.

19 Simplicius complains that Alexander's presentation of the indifference theory substitutes considerations about equilibrium (derived from Plato) for an argument from likeness (which is what Aristotle's text actually gives us): *On the Heavens* 535.4–8.

20 The major study of Anaximander: Kahn [2.49]. On Anaximander's book and its significance: Kahn [2.49], 6–8, 199–208; Burkert [2.25], 239–40. Although he is said to have been the first to write 'on nature' (see KRS, pp. 102–3), the claim of the strange Pherecydes of Syros to be the first prose author is stronger if not overwhelming: evidence in KRS, pp. 51–2; discussion e.g. in Kahn [2.49], 240; Schibli [2.56], 4.

21 See especially *Physics* III.4, 5. Modern discussions of the *apeiron*: KRS, pp. 105–17, Kahn [2.49], App. II; Guthrie [2.13] I: 83–9.

22 See in general Diels [2.1]; for Anaximander in particular Kahn [2.49], 11–71. A brief statement in KRS, pp. 1–6.

23 Often observed by readers, but particularly well discussed by Kahn [2.49], 112 n.1.

24 For a contrary view see e.g. Guthrie [2.13] I ch. 3 (esp. pp. 89–91), who holds that Anaximander conceived of the emergence of the world as the development of a cosmic organism; see also West [2.59]. On Anaximander's analagies : Lloyd [1. 37].

25 Tannery [2.58], 92 (quoted by Kahn [2.49], 102).

26 So e.g. KRS, pp. 141–2; Kahn [2.49], 112–13.

27 One text attests Anaximander's recognition of the ecliptic: the circles of the sun and moon 'lie aslant' (Aetius II.25.1 [DK 12 A 22]).

28 See Aristotle *Meteorology* 353b5–11 [KRS 132], with Alexander *Meteorology* 67. 3–12 [DK 12 A 27]. Well discussed by Kahn [2.49], 66–7.

29 Spheres: Aetius II.16.5; planet circle: Aetius II.15.6 [DK 12 A 18]. Zones: Kahn [2. 49], 88–9.

30 See West [1.21], 89–91.

31 So Kahn [2.49], App. II.

32 Eternal motion: Hippolytus *Refutation* I.6.2 [KRS 101, 115]; intermediate character: Aristotle *On the Heavens* 303b10–13 [KRS 109], *On Generation and Corruption* 332a19–25 [KRS 103], with discussion in KRS, pp. 111–13; Kahn [2. 49], 44–6.

33 Theophrastus' words: Simplicius *Physics* 24.17–18 [KRS 101]. Assimilation to atomist theory: Simplicius *Physics* 1121.5–9, [Plutarch] *Miscellanies* 2 [KRS 101], Aetius 1.3.3 [DK 12 A 14]. Right in general thrust: so Conche [2.46], ch.5 (cf. also Guthrie [2.13] I: 106–15), against, e.g. KRS, pp. 122–6; Kahn [2.49], 46–53.

34 See above all Kahn [2.49], ch. 3 (but his suggestion that the fragment may extend back to 'And out of those things…' is idiosyncratic and unpersuasive).

35 For this interpretation see Barnes [2.8], 33–4.

36 Good general accounts of Anaximenes in KRS and Guthrie [2.13] I.

37 For the later coinage *(sunkratein)* and substitution of *pneuma* see KRS, pp. 158–62. For *hoion* as 'for example' see Longrigg [2.51]. Barnes notes the absence of a connecting particle, common with this use of *hoion* ([2.8], 55).

38 Cf. Barnes [2.8], 46–7, 55.

39 A selection of relevant texts (with discussion) at KRS, pp. 154–8. Anaximenes seems to have suggested a fresh simile to recommend the Anaximandrian account of thunder and lightning: the flashing of oars cleaving the water (Aetius III.3.2 [KRS 158]).

40 Cf. Hippolytus *Refutation* I.7.2–3 [KRS 141]; for Anaximander cf. [Plutarch] *Miscellanies* 2 [KRS 121].

41 [Plutarch] *Miscellanies* 3 [KRS 148]; Aetius II.23.1 [KRS 153].

42 Attribution of the notion to Anaximenes is generally accepted, but denied by Stokes [2.42], 43–8. For an elegant logical articulation of it and defence of its Anaximenian credentials see Barnes [2.8], 38–44.

43 A sound and useful edition with translation—of the doxography as well as the fragments—and commentary: Lesher [2.60].

44 Heraclitus: fr.40 [KRS 255]; Plato: *Sophist* 242c–d [KRS 163]; Aristotle: *Metaphysics* 986b18–12 [KRS 164, 174]; Theophrastus: Simplicius *Physics* 22.26–31 [KRS 165]; Timon: Sextus Empiricus *Outlines of Pyrrhonism* I.223–4 [DK 21 A 35]. According to Diogenes Laertius (IX.111), he had a function in Timon's *Silloi* analogous to Virgil's in Dante's *Divine Comedy*. For the later episodes of the story see e.g. Mansfeld [2.40], chs 6–8.

45 So Burnet [2.11], 115–16, in what remains a sparkling treatment of Xenophanes' work. A more recent statement of the same view: Steinmetz [2.69], 54–73.

46 A good discussion of Xenophanes' attitude to Thales in Lesher [2.60], 120–4.

47 On Xenophanes' chronology: Steinmetz [2.69], 13–34.

48 For further discussion see Lesher [2.60], 47–77.

49 Monotheist: e.g. Barnes [2.8], 82–99; polytheist: e.g. Stokes [2.42], ch. 3.

50 For Aristotle's view see *Metaphysics* 986b24–5 [KRS 174] (but his meaning is disputed); Theophrastus' view is preserved at Simplicius *Physics* 22.26–31 [KRS 165].

51 The key modern study of the Xenophanes doxography and its relation to Theophrastus and *On Melissus, Xenophanes and Gorgias (MXG)* is Mansfeld [2.40], ch. 6. It has often been supposed that because Hippolytus (*Refutation* I.14.2) says that Xenophanes' god is spherical, it can be inferred that this was Theophrastus' view too (e.g. Burnet [2.11], 125, n.1). But the supposition is incompatible with evidence that Xenophanes did not in his opinion make god limited or unlimited (Simplicius *Physics* 22.26–9 [KRS 165]) unless it is supposed that he is reflecting contradictory remarks by Xenophanes made presumably in different places (so Steinmetz [2.69], 48–54). The date of *MXG* itself is uncertain, although the presentation of Xenophanes it contains—on which see the excellent brief discussion by Lesher [2.60], 192–4—may go back to the early third century BC. Some scholars continue to defend the credibility of the *MXG* version of Xenophanes: e.g. Barnes [2.8], 84–94; Finkelberg [2.62]. See also Cassin [2.61].

52 It is sometimes suggested (e.g. Steinmetz [2.69], 35–40) that e.g. *homoie n*, 'like', is an authentically Xenophanean divine attribute, on the strength of Timon, fr.59 (preserved in Sextus Empiricus *Outlines of Pyrrhonism* I. 223 [DK 21 A 35]). But Timon already reads Xenophanes in the fashion of Aristotle and Theophrastus as an Eleatic monist. It seems likelier that he is in fact drawing on a version of the *MXG* account of Xenophanes' theology.

53 See [Plutarch] *Miscellanies* 4 [DK 21 A 32]; Hippolytus *Refutation* I.14 [DK 21 A 33]. No cosmogony: one fragment reads 'All things are from earth and to earth all

things come in the end' (fr. 27). In the doxography where this line is quoted it is taken as committing Xenophanes to a cosmogony (Theodoretus, *Therapy for Greek Malaises* IV. 5 [DK 21 A 36]). But this conflicts with Xenophanes' stress elsewhere on sea as a source of things, and with Aristotle's denial that any pre-Socratic monist made earth the first principle (*Metaphysics* 989a5–6). Probably Xenophanes meant only that the earth was the origin of all living things: so Guthrie [2.13] I: 383–7; Lesher [2.60], 124–8. The intricacies of the doxography are indicated in Mansfeld [2.40], 150–5.

54 This is the standard interpretation: cf. e.g. Guthrie [2.13] I: 386–7. That popular beliefs are the target of the whole body of Xenophanes' physical fragments is well argued by Lesher [2.60], 124–48. For texts and discussion see also KRS, pp. 172–8.

55 The main modern disagreement about Xenophanes' handling of physical topics is whether he treats them as intrinsically ludicrous, deserving only opportunistic flights of fancy or brief debunking, or works out a serious systematic and comprehensive theory, albeit mocking popular misconceptions at the same time. The first view: Burnet [2.11], 121–5; Guthrie [2.13] I: 387–94; Steinmetz [2.69]. 54–68. The second: Fränkel [2.63], 119–21; [2.30], 334 (which complains however of 'poverty-stricken' empiricism); Hussey [2.35], 26 (who credits Xenophanes with a more admirable ontological and methodological 'parsimony'); Lesher [2.60], 145–8.

56 On the moon see Runia [2.67].

57 So Keyser [2.64]. The doxographical evidence about Xenophanes' sun is complex and confusing; for discussion see Runia [2.68].

58 On ancient interpretations of Xenophanes' epistemology, see Mansfeld [2.40], 156–9; on modern see Lesher [2.60], 159–69 (summarizing Lesher [2.65]). A good recent treatment: Hussey [2.35].

59 For knowledge as direct (not a matter of sign-inference), cf. Alcmaeon, fr.1 [KRS 439]; as transparent, cf. Hippocrates *On Ancient Medicine* 1. Not everyone would agree that Xenophanes incorporates all three notions in his concept of knowledge.

60 So Lesher [2.66]. But this may be a text relating rather to the origins of civilization and discovery of the arts: so e.g. Guthrie [2.13] I: 399–401. Note also that fr.35 is 'fraught with ambiguity and uncertainty': Lesher [2.60], 171. The limitations of human understanding are probably the focus of another famous Xenophanean remark: 'If god had not made yellow honey, they would think figs were much sweeter' (fr.38 [KRS 189]).

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CHAPTER 3
Heraclitus

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No philosopher before Socrates can have had such a profound influence on so many generations of subsequent thinkers as Heraclitus. Nor can any thinker, probably in the whole history of philosophy, have inspired such a wide range of different ideas, all claiming in some way to be true to his authentic genius. Yet the sparsity of his written remains, and the richly obscure or even mystical style of his sayings, leave us with no grounds for concluding that one, rather than another of the great variety of Heracliteanisms on offer in the history of thought is more accurate than another. This fact is probably as it should be; for if I am right in the interpretation that I shall try to present in this chapter, Heraclitus' most important observation was that the significance of things changes with the time and place and context of the observer, and of the speaker; that what is the same differs from day to day; and that what one says, and the words one says it in, will mean different and even opposed things to different people, and for different purposes. Heraclitus, the purveyor of an eternal doctrine that is both familiar to all and obscure to most, illustrates in himself the very doctrine that he tried to present: that what counts as the same and what counts as opposed is decided by a significance acquired in a social or temporal context, and is not determined absolutely by a fixed nature or material constitution in the entities we observe.

PROBLEMS OF INTERPRETATION

The problems of interpretation that are characteristic of pre-Socratic thinkers are all the more acute for Heraclitus. Firstly, we have little reliable evidence about his life,[1] though much that is unreliable; but that scarcely seems to matter when we consider the much more severe difficulties involved in reconstructing his thought. None of his work is preserved directly in its own right, a situation that is normal for thinkers of this period. The texts that we have are collected from the quotations in later writers, some of them far removed in time from Heraclitus. Although we have more of these 'fragments' than we have of any of the earlier Ionian thinkers, two factors make Heraclitus' work peculiarly difficult to reconstruct, (1) Heraclitus seems to have expressed his views in the form of short pithy sayings, largely disconnected, in prose rather than poetry.[2] The

disconnected brevity of the sayings may be true to the original style of his thought, or may be the effect of the extraction of memorable quotations by subsequent generations. For our purposes, what we have to work with are primarily extracts which include minimal connected argument.[3] As a result it is difficult to determine how to string these 'fragments' together, and indeed how to decide which words are attributed to Heraclitus in the quoting authority. (2) Because Heraclitus has been a peculiarly rich source of inspiration for subsequent generations of thinkers from Plato to Heidegger, the use made of him by thinkers of Sceptic, Stoic, Christian and Platonist persuasions has coloured the resources from which we have to reconstruct his thought. This means that although we have some versions of his own words which can be culled from these later thinkers, all those versions carry with them some preoccupations and interests from the later thinkers, both in the selection of texts that are preserved and the interpretations that are put upon them in the sources we are using.

Ideally, to work on Heraclitus a scholar will need to engage in detailed work on the context within which each of his sayings is preserved. None of us is in a position to read his work independently of the later thinkers who reconstructed his ideas on their own lines. This remains equally true of recent scholarship on the subject, which clearly shows that linking fragments together in support of a particular interpretation itself brings out resonances between the fragments.[4] Which resonances emerge depends on which fragments we juxtapose, and each reading validates itself by constructing a sequence of texts suited to its theme.[5] For our own part, the best that we can do in this chapter is to remind ourselves of the profound effect we create by placing a fragment in a particular context, and to take note wherever possible of the readings of those writers who preserve the fragments for us.[6] In this chapter the footnote included each time a new fragment is introduced will provide some minimal background regarding the quoting authority, and indicate whether the context prompts a particular reading. The reader who requires a quick and superficial grasp of the interpretation I am putting forward can afford to ignore these notes, but anyone who wishes to engage critically with the views presented here may need to pursue the suggestions made in the notes.

RITUAL AND THE GODS

Where, if at all, do the gods need to enter into the explanation of human and natural events? What should the divine nature be taken to be? These questions can be seen to underlie many of the concerns of thinkers before Parmenides. On a conventional view, the task engaging the earliest thinkers might be seen as a rationalist project to prise away the explanation of apparently mysterious phenomena from unpredictable divine beings and to ascribe them instead to predictable physical laws and patterns of behaviour. But the philosophers still sometimes speak of their own principles and causes as divine, and this indicates that their project is not an atheist drive to exclude the gods from the picture

altogether. Indeed atheism is effectively unknown in antiquity.[7] The presence of the divine in the systematic explanations offered by the early thinkers should not be taken as merely a figure of speech. It suggests a revised account of the work of the gods, in which what is truly divine is a cause outside and beyond the humdrum decisions of unpredictable individuals. Hence the conventional picture of the gods in those terms is being rejected, but that is not to make the gods redundant, nor to say that the world is independent of any divine influence. Physics and theology are still closely linked, even in Xenophanes.

Heraclitus' analysis of religious practice and belief needs to be understood before we go any further. Perhaps religion is not peculiarly significant for Heraclitus, but it provides a classic illustration of his account of the complex significance of things in general.[8] Several of his sayings have been routinely taken as critical of established religious rites, and of conventional ideas of what gods are. But although Heraclitus clearly has *some* point to make about the rites and beliefs that he mentions, careful attention to his ideas suggests that the sayings usually taken to ridicule religion are better read as observations about the significance of the religious context: although these sayings argue against simple-minded misunderstanding of conventional piety, they do not condemn such piety in itself. Instead they offer a more sophisticated theological picture, one that belongs with Heraclitus' famous commitment to the unity of opposites.[9]

We may start by looking at a group of fragments concerned with conventional rituals. In fragment B5 people ('they') who are polluted with blood are said to purify themselves with blood.[10] Heraclitus compares the procedure with using mud to wash off mud and observes (quite correctly) that in ordinary life such a procedure would be thought insane:

> Tainted with blood they purify themselves in a different way[11] as if someone who stepped into mud were cleansed with mud. But any human who claimed that the person was doing that would be considered insane.[12]

This is the first part of an unusually long piece of Heraclitus' prose. On the standard interpretation[13] it is taken as a mocking reductio: what good is a purification of that sort? It can't work any more than a mud bath! Heraclitus, like a modern logical positivist, stands for no nonsense: look at the ritual in the cold light of reason, he says, and it cannot possibly produce the results that it claims to produce.

But is this right? Heraclitus says that in the ritual purification they 'purify themselves in a different way'. The word *allo s* is ambiguous: its basic meaning is 'differently' (the participants in the religious ritual are 'differently purified') but it can also mean 'pointlessly', and that is how it is usually taken when the saying is read as a reductio of religious practice. The ambiguity, as generally in Heraclitus, is surely not accidental.[14] The comparison with washing in mud demonstrates not the absurdity of the rite but the different logic that applies in the sacred context. Ritual purification is a different kind of washing, a kind that

would be nonsensical or 'pointless' in the secular context where it would be like bathing in mud, and the claim to have been cleansed by a human agent in that way would be insane. Hence we shall read *allo s* as 'differently' if we see it from the religious point of view (the purification works in a different way), and as 'pointlessly' if we see it from the human point of view (the purification is no use at all).[15] The word itself changes its significance depending on the context or viewpoint of the reader, just as the rite of purification changes its significance when viewed as a sacred rite, or as a secular attempt at hygiene. Heraclitus implies that it is not insane for *god* to claim to cleanse us of the taint of blood that way, though the same claim from a human would be mad.

The second part of fragment B5 is about prayer. The worshippers, we are told, pray to the statues in a manner that is somehow analogous to talking to houses:

> And they pray to these statues, as if someone, who knew nothing of what gods or heroes are like, were to converse with the houses.[16]

Once again the analogy has been taken as a reductio of religious practice. Praying to statues, Heraclitus would be saying, is about as effective as talking to houses.

But again it can be read another way. Notice that it is the one who does not understand the nature of gods and heroes who talks to the houses. This implies that if we understand what a god is we shall understand how the ritual of praying to statues works and why it is not a matter of talking to some old stones, whether sacred or secular. Heraclitus observes that what we do when we pray *is absurd* if considered from a non-religious viewpoint: someone who had no understanding of religion might try to achieve the same effect by talking to houses, and that would be to miss the point. Talking to stones makes sense if you understand about the gods, and not if you do not.

Both parts of fragment B5 can thus be taken to suggest that the meaning of religious rites is given by their religious context and cannot be judged on the logic of everyday secular practices. The same actions are either sense or nonsense depending on whether they are sacred or secular. This kind of observation about the contextual dependence of significance is familiar in many other Heraclitean sayings:[17] sea water is pure for fish and impure for humans;[18] the road up and the road down is one and the same;[19] the actions of cutting, burning and inflicting pain are good when performed in a case of surgery, and bad in a case of torture.[20]

In fragment B5 the one who does not understand what gods and heroes are will try to converse with stones. Conversation is, of course, part of the human way of life, and we know exactly what will be involved in making a successful job of it. One prerequisite will be that the conversation takes place with another living human person, and not a stone wall or an empty dwelling. Similarly washing is part of the human way of life, and it is essential that we wash away the dirt with something other than the very dirt we are removing. The parallels

drawn in fragment B5 presuppose that the divine way of life is the same as the human way of life, and they point out that it does not make any sense when treated like that. So the theological error of one who takes the religious rite as a confused attempt to perform a simple human task is that of transferring human expectations into the divine context in which a different kind of behaviour makes sense. It is a kind of anthropomorphism. The ordinary people take the human way of life as a standard by which to judge activities that belong to religion. That may be what Heraclitus is saying when he cryptically comments, in B119,

> *e thos anthro po i daimo n*: 'the way of life for humanity is humanity's god'.[21]

In other words ordinary people fail to see that religious rituals operate in a different way from secular (human) habits and tasks, and that religious activities belong to another ethos in which those activities make sense. Failure to understand 'what the gods and heroes are' makes them see the religious activity as another human activity, but one that emerges as nonsense in the context of the human ethos that has become their god.

There are, then, two ways of life, that of religion in which we wash off blood with blood, and that of the human in which we do not converse with stones. In fragment B78 Heraclitus observes that the human way of looking at it has no sense:

> The human way *[e thos]* has no sense *[gno mai]* but the divine way does.[22]

We might take this as a comment directly attached to fragment B5 in which case it concludes that washing off blood with blood does make sense so long as we recognize the divine way of life that gives it its sense; but there is no sense in the practice if it is viewed within the ethos of human activities. This leaves open the possibility that Heraclitus means that each kind of activity makes equally good sense, provided it is seen in its context, and the rationale of that ethos is respected. That position accords with Heraclitus' idea that a unified rationale (the *logos*) can be seen to underlie all our shared life and language, and to be in agreement with itself even where it appears to be different.[23]

Less satisfactory is an alternative interpretation which would give fragment B78 general significance, as an observation that in every circumstance the practices that depend upon the human or secular way of doing things are senseless, and that sense lies only in the divine way of doing things. The divine way of doing things is the religious or sacred rationale of ritual and sacrifice, in which we wash off blood with blood. Then Heraclitus would be saying that whereas ordinary people judge on the basis of the human ethos and find the sacred rituals to be nonsense, in fact the *sacred* is where sense is primarily located: those rites are not pointless but significant. On that account any sense

that human practices have must be parasitic or derivative from the sacred practices that belong to the divine custom or *logos* and are expressed in shared human customs; yet it becomes unclear then why the secular practices should develop a different way of doing things, since, as Heraclitus says in B114, all human customs are nourished by the one divine way of doing things.[24] It therefore seems more appropriate to read fragment B78 with fragment B5, as saying that neither the sacred nor the secular is a privileged context: both are equally good reflections of the one underlying rationale that makes sense of all things, but an action only makes sense within its own context. What we must not do is forget the difference, and judge an action in the terms of the wrong ethos.

Fragment B15 is an observation about the rites held in honour of Dionysus, a divinity associated with an exuberant style of religious experience:

> If it were not Dionysus for whom they held the procession and sang the hymn to the shameful parts, they would be performing the most shameless deeds…[25]

The festivals of Dionysus included a number of rituals that might be considered shocking. Heraclitus mentions particularly the procession of the phallus and the associated hymn, though the rest of the fragment also mentions the Dionysiac frenzy. But here it is not that such action would be shocking in a *secular* context but that the propriety of the actions is restricted, even within the religious sphere, to the honour of a particular deity: what is appropriate for Dionysus would not be done for Hades, god of the dead. Hence the context in which the same action is shameful or shameless is given not by whether we do it in a religious context but whether it is the right religious context.

In fact, however, Heraclitus goes on to say that Hades and Dionysus are one and the same:

> But Hades is the same as the Dionysus for whom they rave and celebrate Lenaia.[26]

Now we cannot infer that one kind of rite suits one god and another another. The two gods in this case are one and the same. So is Heraclitus objecting to the variety of rituals? I think not, for elsewhere Heraclitus tells us that two things are ‘one and the same’:[27] not only the road up and the road down,[28] but also day and night[29] and the beginning and the end of a circle.[30] In none of these cases do we have to suppose that because two things are ‘one and the same’ they must demand the same response. We approach the uphill struggle differently from the same road taken as a downhill stroll, and what we do at night differs from what we do in the day, however much it simply depends on whether the sun is in our part of the sky whether the same hours are night or day.[31] Heraclitus’ point is rather that, as he claims in B51,[32] things can differ while agreeing with themselves: something that is fundamentally the same is viewed under different

aspects (as day and night, as up or down) and consequently merits and receives different responses appropriate to each.

So what are we to learn? The procession they perform for Dionysus is appropriate to Dionysus and would be inappropriate in the funerary contexts we associate with Hades.[33] You cannot do for Hades what you do for Dionysus. But that need not mean that Hades and Dionysus are two different deities. One and the same god, viewed under two different aspects, may merit two wholly different kinds of rite and response and Heraclitus may be denying that the deities thus worshipped are themselves different entities, (or he may be simply observing that we can and do regard them as a unity without difficulty).[34]

Thus Heraclitus does not ridicule the religious practices that belong within religion and to particular deities within religion; he argues that they make sense only within their context, and that the judgement of what is or is not right depends on understanding that context. Nevertheless the tone of his sayings is mocking, particularly in its use of the third person plural: '*they* purify themselves', '*they* pray to statues', '*they* perform the procession'. Heraclitus does not say 'we' do these things. Evidently Heraclitus, as elsewhere, is claiming that the ordinary people are confused over the most obvious things, even when the evidence is before their very eyes.[35] If it is 'they' who do these things, then Heraclitus plainly thinks that 'they' are in a muddle.

However we need not suppose that the muddle is in the religious practices themselves. The muddle is apparently in people's understanding of the significance of the ritual: they do not see that the rationale of the ritual is distinct and peculiar to the sacred. Someone who fails to understand what gods and heroes are fails to see that the same action is a different action, with a different kind of point, in a sacred ritual, or in the rites of one particular god. Ordinary religion may be confused, not in its recognition of the sacred as a distinctive context, for that is quite proper, but because it fails to appreciate that it is the distinction of context itself which accounts for the distinctive significance of religious rites. The failure in religion would then be the failure of its adherents to appreciate what they were actually doing;[36] and that fits with Heraclitus' view that ordinary mortals generally fail to see what they are doing in the common way they live their lives, use their language and perceive what is obvious and familiar.[37] They go through life as though they were asleep.[38] They engage in the religious rituals, but they fail to grasp what gives them significance.[39]

CUSTOM AND SHARED PRACTICE

> Those who speak with sense *[xun noo i legontas]* ought to rely on what is common *[xunos]* among all things, just as a city relies on custom—and much more reliably; for all human customs are nourished by one custom, the divine one. It exercises as much power as it likes, and is sufficient for all and more besides.

(B114)[40]

> Therefore one should follow what is *xunos*—that is, what is common, for *xunos* means 'common'—but although the *logos* is *xunos* most people live as though they had their own wisdom.
>
> (B2)[41]

Custom and established practice is a shared feature of the life of mortals, and with language *(logos)* it contains the key to understanding the rationale *(logos)* of everything, according to Heraclitus.[42] There is no reason to suppose that customary religious practice is excluded from the shared customs to which people should owe allegiance and for which they should fight as a city fights for its defending wall.[43] It seems highly unlikely that Heraclitus is suggesting any kind of rejection of the customary beliefs and practices; it is far more in keeping with his ideas to suggest that we should look at those practices in a new light and see for ourselves how they illustrate the universal principle that what is fundamentally the same acquires significance in a variety of contexts.

This is perhaps one aspect of the notion that human customs, which rightly command our allegiance, are nourished by a single universal divine custom (or law, *nomos*):[44]

> For all human customs are nourished by one custom, the divine one…
>
> (B114)

Human practices and customs may vary from city to city, but that again will be simply a feature of the unity in diversity, the context-dependent significance of human practices. It need not mean that they do not cohere with a single underlying rationale that accounts for the significance of everything, however apparently diverse. The 'divine custom' here seems to be that universal rationale, and, as was suggested in the identification of Hades and Dionysus, so here too, in B114, it is said to be one.[45] This point precisely coheres with the sense of B67 which claims that God is 'day, night, winter, summer, war, peace, satiety, hunger…all the opposites…and it changes like when [something] is combined with spices and is named according to the savour of each'.[46] There may be one god, but we give the one god a name according to the context we encounter it in —a context which is not in any way illusory or mistaken, but which quite properly transforms the significance we find in it and the name we consequently apply to that god. Heraclitus shares with Xenophanes an interest in the varieties of ritual representations of the gods. Perhaps he is not far from Xenophanes when he wants to say that what are named as two are ultimately just one god; but he does not think that recognizing this truth will involve rejecting the variety of religious practices, although people may sometimes mistake their significance.

Thus adherence to shared practices and forms of life, whether religious, linguistic or any other kind of human custom, need not, in Heraclitus' view, be

rejected, nor need it undermine his fundamental claim that there is just one common rationale that underpins the sense of the whole system. Indeed it is by adhering to, and defending, the shared life of the religious and linguistic community that we shall avoid turning aside into a private world of our own in which nothing has any sense. 'Heraclitus says that for those who are awake there is one common world, but among the sleepers each one turns to a private world' (B89).[47] It is clear that being awake to the significance of shared customs and practices is the same thing as being awake to Heraclitus' own message.

THE LOGOS

> With this *logos* which is for ever human people are out of touch *[axunetoi]* both before they hear it and once first they have heard it; for although all things take place in accordance with this *logos*, they are like beginners experimenting with both words and practices such as these that I am going through as I divide each thing according to nature and say how it is. But it eludes other people what they are doing when they are awake, just as it eludes them what they do when asleep.
>
> (B1)[48]

This important text, which stood near the beginning of Heraclitus' work, suggests that ordinary people are unaware of what is going on, or indeed of what they are themselves doing, as though they were going through life asleep. What they are missing out on is 'this *logos*', but what exactly that might be is something of a mystery. We are told that it 'is for ever (or always)' and that all things take place in accordance with it; but it is also something that people hear, and yet fail to appreciate even when they have heard it. The word *logos*, which is etymologically linked to the word *legein* (to speak), can carry a range of meanings connected both with speech, rational discourse, sentence or word, and with logical reasoning, proportion, system, calculation, definition or explanation. It seems that Heraclitus has a point to make both about the rational coherence underlying our customary experiences of the world: their point or meaning, their explanation (something that is true and explanatory independently of Heraclitus' own verbal expression of it) *and* about his own attempt to present that explanation as a discourse in words. It is Heraclitus' presentation of the rationale underlying our shared world that we hear and yet fail to grasp; yet that rationale is something that we encounter in any case in all our actions and words, the actions and words that we fumble with as though we were beginners coming to a new subject. It is not really a new experience: it is the significance that has lain behind everything that has taken place so far in our lives. But we have encountered it in our sleep, so to speak, unable to take its meaning on board.

The *logos* is the objective explanatory rationale of the world, which is presented in Heraclitus' own *logos,* or discourse. It seems plain that it figures in that discourse both as the explicit subject (sometimes) of the argument and as the implicit message of it; for language and discourse is, like other shared practices, expressive of the common *logos* in its very structure. Thus we can 'hear' the *logos,* simply in virtue of hearing and understanding the language that Heraclitus and all the rest of us speak; though the understanding that would put us in touch with the *logos* is distinct from the understanding of the overt meaning of a text:

> Those who are out of touch *[axunetoi],* having heard, are just like deaf people; it is to them that the saying testifies that though present they are absent.
>
> (B34)[49]

Heraclitus distinguishes himself from the *logos* in a famous text:

> It is wise for those who have listened not to me but to the *logos* to agree that all things are one, Heraclitus says.
>
> (B50)[50]

The word for 'agree' *(homologein)* has often been recognized as a play on the notion of *logos,* together with the notion of sameness given by the root *homo*. One effect of understanding or hearing the *logos* is that wisdom follows and the hearer grants the coherence of the one universal *logos*. But why does hearing the *logos* not involve listening to Heraclitus himself? The point seems to be that we need to hear not merely what he says, but also the language in which he says it; the rational linguistic structure or form of life in which his discourse belongs, and which it implicitly expresses, can be 'heard' in what he says. It is that which tells us that *what* he says about the unity of the *logos* must be true. We could almost translate the text 'If you listen to the way the language works, rather than to what I say, you will rightly acknowledge all things to be one.'[51]

EVERYTHING FLOWS

It may be that the *logos* also has an explanatory role in the physical behaviour of the world. There is a long-standing tradition, from Plato onwards, that associates Heraclitus with a particular interest in change. In Plato's *Cratylus* he is said to be committed to the thesis that everything flows and nothing stays still;[52] in the *Theaetetus* he is caricatured as committed to such a radical thesis of total universal flux, that nothing whatever, neither a substance nor any of its attributes, stays stable long enough to be mentioned correctly by name, or to be said to 'be' rather than to 'flow' or 'become'.[53] In this situation truth becomes a meaningless notion and discourse is impossible. It is unlikely that the extreme flux doctrine developed in the *Theaetetus* is, or was even meant to be, true to

Heraclitus' own views. But this need not mean that there was nothing authentically Heraclitean behind the notion that everything flows.

The most obviously relevant texts are a set known as the 'River fragments'. These may be variants of a single Heraclitean saying or he may have said several similar things.

> For it is not possible to step twice into the same river, according to Heraclitus, nor twice to touch a mortal being in the same condition…
>
> (B91)[54]

> Onto those who step into the same rivers different and different waters flow; and souls are exhaled from moistures.
>
> (B12)[55]

> We step and do not step into the same rivers, we are and we are not.
>
> (B49a)[56]

The interpretations offered by those who quote the texts imply that Heraclitus was making an observation about the continuing identity of the human soul; there need not be material identity in the waters flowing down a river, yet we shall say that it is the same river. There is a sense in which we encounter the same individual twice, but if the individual is not in the same condition what is it that makes it the same person? The point may not have been linked to other change, but there is no doubt that Heraclitus also thought that other parts of nature underwent similar processes of change:

> Cold things warm up, the warm gets cold, the moist dries up, the parched gets damp.
>
> (B126)[57]

In particular he focused on some changes in which the material components did not remain:

> Always remember Heraclitus' view that the death of earth is to be born as water, and the death of water to be born air, and of air fire, and the reverse. Bear in mind as well the one who has forgotten whither the road leads; and that people are at odds with the thing with which they are most constantly associating, the *logos* that directs all things, and the things they encounter daily seem strange to them; and we should not act and speak as if asleep…[58]

The first part of this extract seems to refer to processes of change in the natural world, processes in which, to Heraclitus at least, it appeared that the prior stuff was eliminated ('died') and a new stuff came into existence ('was born'[59]); the

second part again alludes to the inability of ordinary people to detect the *logos* in the everyday things they encounter. It seems that one aspect of the systematic and coherent *logos* appears in the regularity of systematic change in the natural world, even where discontinuity seems evident.

> This system, one and the same system of all things, no god, nor any human being made it, but it always was and is and will be an ever-living fire, catching light in measures and extinguished in measures.
>
> (B30)[60]

> Sea is poured off and is measured out to the same proportion *[logos]* as it was formerly, before the birth of earth.
>
> (B31b)[61]

> All things are in return for fire and fire for all things, like goods for gold and gold for goods.
>
> (B90)[62]

Two important features emerge from these texts: first, there is a *logos*, a measure or proportion, which is fixed and regular in the processes of natural change; and second, this measure is independent of material continuity and is based on some kind of continuity of exchange value, as in the image of the buying and selling of goods for gold. When we purchase something for money we do not retain anything of the same product that we owned before. We no longer have the gold; we have the purchased item instead. But the purchased item can then be returned, and we can get the money back. What remains through the exchange is not the material item, but the value of the goods measured by an independent standard. Thus Heraclitus can maintain that the discontinuity in the changes observed in the world is structured by a system of measured proportion, the *logos* that ensures that what we have after the change is, in the sense that matters, the same value: it is measured to the same *logos*. He can affirm that everything flows in radical change where no material substance remains, and yet there is a coherence and unity to the changing world.

The suggestion that no material substance persists marks a radical break with the older Ionian tradition which sought to find unity behind the changing processes in the form of a single underlying stuff that was preserved through change, manifesting itself in different forms but essentially retaining its identity. For Anaximenes everything is a form of air, varying only in its density. For Heraclitus it does not matter if air ‘dies’ completely and fire is born from its ashes. We can still retain a sense that the world has a continuing identity, like the identity of a river whose constant flow of new water is what makes it a river.

None of the fragments implies that fire persists through the changes. In B30 the fire is said to be regularly being extinguished in measures: presumably those parts are then not fire. Thus to say that the system as a whole always is a fire is

only to say that all of its material serves as fuel, and some parts of it are periodically alight, not that all of it is continuously fire, even the parts currently extinguished. The role of fire is as a standard measure (as we use gold for currency) and this gives it a fundamental or basic place in Heraclitus' system without committing him to the view that every part is always fire, just as our use of gold as a standard monetary measure means only that the paper money, the numbers on the bank statement, or the purchased goods, can all be cashed in for gold, not that they are all gold in disguise. The widespread assumption that Heraclitus believed that fire was an element or substrate of all things is, I believe, a mistaken inference from its role as the canonical measure.

It is therefore important to observe that Heraclitus' theory is not like the modern notion of 'energy', which corresponds much more closely with the ideas of Anaximander and Anaximenes.[63] For Heraclitus the things we meet with are not manifestations of a universal stuff (energy) which we encounter in its various guises and never gets destroyed but is always 'conserved'. For Heraclitus the important point is that the elements do get destroyed. They are not just fire in another guise. In fact it is important that they are not fire, just as it is important when I buy bread with my copper coins that I do not keep my copper coins in any form. I get a *different* item in return. The purchase of bread differs from the process of making bread out of flour, water and yeast, because I do not get back what I put in. What remains is not in any respect a material ingredient, or energy transmuted into another form. The only constant is the measure or value, the *logos*, which means that my coins could have purchased your large loaf just as well as they purchased mine; nothing in the matter paid in will determine which item is acquired, nor will I get precisely the same coins back if I return my goods.

THE UNITY OF OPPOSITES

In his comments on the significance of religion Heraclitus drew attention to the significance of context in accounting for the variety of practice in the sacred and secular spheres. One and the same action can be either insane or sensible, depending on where it belongs; and an action that is shameful in one context may be proper and pious for another purpose. When we say that it is one and the same action, we need not, of course, mean that it is numerically identical: the action of washing off blood with blood may occur at one time in one context and at another time in another. They are two examples of the same kind of action. But as Heraclitus observes, the two examples may carry very different significance; so we might ask whether they are the same action. In other cases, however, a single example may be perceived to have two different kinds of significance. We saw with the word *allōs* in B5 that an ambiguous term may mean two different things depending on the way the reader takes it: for the unbeliever it means 'pointlessly'; for the believer it means 'differently'. The same is true of the road uphill and the road downhill: for a traveller at the top of the hill the road is a

downhill stroll; for the traveller at the bottom it is an uphill struggle: 'The road up and down is one and the same' (B60).[64]

It seems clear that Heraclitus' interest in context-dependent significance is linked to his interest in continuity and identity through change. In both he is concerned to show that the kind of unity or identity that is determined by the *logos* does not depend upon material continuity, nor does opposition or diversity of significance depend upon material discontinuity. The same item, such as the road, can carry a different significance to another observer, while on the other hand a significant continuity can be preserved for two items that elicit varied responses, such as the day and the night, or sea and earth. The explanation of identity must be sought not in a material substrate, but in a more complex account of observer-related or context-dependent significance.

Some of the opposites mentioned by Heraclitus are substantive nouns, such as those attached to god in fragment B67 (day, night, winter, summer, hunger, satiety); others are expressed as adjectives expressing relations or attributes or evaluations of things, such as up, down, good, bad, pure, impure, straight, crooked and the like. We might think that these were two different kinds of items, since nouns name things while adjectives say something about the properties of things, and it might be tempting to suppose that the kind of opposites that are attributes or relations or values would be more likely to be context-dependent. But it should be noticed that neither set is a set of material entities; nor are the ones identified by nouns more absolute or objective than the others: the classification of hours as day or night, or the classification of months as winter or summer, implies a certain response or attitude to the significance of those items for our own activities and for our lives.[65] The connection between the two sets of opposites can be seen if we look at the notion of slave and free:

> War is both father and king of all, and it has revealed some to be gods, some human; it has made some slaves and some free.
>
> (B53)[66]

To be human is to be a slave or a free person. But which you are depends upon your status, your position in society. In this respect you are made a slave or free: it is war that makes us slaves or free. So does the term 'slave' identify what the individual is, or some attribute or evaluation of the person? The term can be either a noun or an adjective; it can point out a person, or it can say something about the person. But what is there to the person, other than an identity within a particular society? Where you belong and who you are seem to be defined by a range of roles that acquire their significance in your relations to others. Indeed perhaps we cannot ask who you are, or whether you are the same person, unless we have in mind some society within which your identity matters. Thus your identity is defined not by your physical constitution but by the significance of your place in society. What and who you are is context-dependent, determined by the circumstances of a human way of life, the conventions of warfare and of

society. It is not a fact given independently of the value judgements of social convention, but is itself wholly bound up with those forms of significance. Hence it seems that there is no independent set of self-identical entities. Identity, similarity, difference, opposition are all determined by the significance acquired in context.

> The doctors, Heraclitus says, while cutting, and burning, and torturing sick people badly in every way, demand a fee from the sick, unworthy though they be of anything, engaging in the very same practice—both good things and diseases.
>
> (B58)[67]

In so far as we can grasp the general gist of this saying, it appears that the activities of the surgeons and doctors, carried out in the sick-room for the cure of diseases, are regarded as a benefit and merit a fee from the victim, while the same practices carried out in the torture room or in any other day-to-day context, would certainly not be worth paying for. Indeed we should disapprove all the more if the deeds were inflicted upon a weak or sickly individual. In these circumstances the surgeon's techniques would actually produce an illness, not cure one. Thus just as ritual purification makes sense only within the ritual context, so the action of the doctor is worthy only in the sick-room. The same actions cannot be judged out of their proper context. What they are, and what they achieve, depends entirely on that acquired significance.

What counts as good and worthwhile depends upon who we are: donkeys prefer rubbish to gold (B9);[68] pigs wash in mud; farmyard birds wash in dust (B37);[69] cows are most happy with vetch (B4).[70] Something similar may lie behind the curious observation that corpses are more to be discarded than dung.[71] Whether dung is worth saving depends on what you need it for; most of us have good uses for it. But we are less likely to put our dead bodies to good use, so why do we treat them with such respect? Transferred out of context the value placed on dead bodies looks inappropriate; but they do have a place in our ritual lives. We see here the same kind of analysis of ritual practice as we identified in fragment B5: an attempt to show the significance of the ritual context by pointing to the incongruity of the practice if viewed in the context of the ordinary secular or human ethos.

For cases of natural change Heraclitus uses the language of living and dying to express the transformation that brings an end to one stuff and introduces another. We have seen that that must mark a total material discontinuity, with the constant factor lying in the measure of exchange governed by *logos*. Does the same apply in the case of the human individual? If we are right in suggesting that the important continuity is not material identity, we shall not expect Heraclitus to mention a material soul. What interests him more is the changing significance attached to an individual in the course of life and death:

> The same [inside] living and dead, and what is awake and what is asleep, and young and old: for those change and are these and these change again and are those.
>
> (B88)[72]

In these circumstances we need not expect Heraclitus to be bothered by the discontinuity evident in the death or decay of an individual body. The changing significance of life and death, for the individual concerned, is no different from the change from winter to summer, or from Hades to Dionysus: our response will be different, because we are encountering a different experience, just as adding a new spice to something makes it taste different (B67). But the significance varies with the change of context, and the discontinuity is less important than the continuing pattern ensured by the underlying *logos,* which is the essence of identity and continuity in a world of material flux, and context-dependent significance. Indeed if we are constantly breathing out a new soul,[73] it clearly will not be the material continuity of an enduring soul that ensures our continuing identity, even within life. So it seems that what we are, if indeed we are a single individual through the changes from young to old, slave to free, and living to dead, is neither an unchanging body, nor an unchanging soul.[74] Evidently we must find our identity in a pattern of changing experiences that is systematic, and ultimately secured by the unity of the *logos,* for which there need not be any one essential item that remains to constitute the identity.

My experiences as a youngster were not your experiences, and my life is not like yours now; but my story fits together as a continuous sequence, and although my story will be different from yours, like yours it will be unbroken through to death. The sequence of that story is a sequence of changing events, but it is uninterrupted; it has no gaps; there are no absences, except in sleep and those are filled by the experiences of sleep and dreams. Thus we can envisage that story going on, still uninterrupted into death, since there is no reason to suppose that the changes will cease, just as the cosmic story of the world continues uninterrupted, even though the elements change from one to another. Hence Heraclitus can maintain that there is continuity under the systematic measured rule of the *logos,* even where no permanent item remains.

What we eventually encounter in death will not, of course, be more of the same experiences as we encounter in life; for then it would be life, not death. Whatever the events might be, they would have a totally distinct significance for us, just as what we encounter in our sleep has a different significance for us from our waking experiences, and what we do in religious rites differs in its rationale from what belongs to secular human behaviour.

> What remains for humans when they die are things such as they neither hoped for nor thought of.
>
> (B27)[75]

We cannot imagine what it would be like to be dead, placed as we are in the context of a life in which all the thoughts and experiences have their significance defined by that life, the absence of which would be death.

While life and death are contrasted in this way there is still, for Heraclitus, a fundamental connection between them. This connection is expressed in the structure of language, in the fact that the word for life *(bios)* is also one of the names for the bow, an instrument of death. The coherence of these opposites is thus evident in the systematic ambiguity of language, one of the shared practices that expresses the systematic *logos:* 'The name of the bow is life, its function death' (B48).[76] Whether the word carries implications of life or death will be determined by its context in language, and that fact reflects the context-dependent significance of life and death as features of our human ethos.

Aristotle knows of a tradition which suggests that Heraclitus denied the law of non-contradiction:

> It is impossible for anyone to suppose that the same thing both is and is not, as some people think Heraclitus said. For it is not necessarily the case that what someone says is what he supposes.[77]

In Aristotle's view it is not possible seriously to believe in a contradiction. He does not deny that that might be the effect of something Heraclitus says, but he denies that Heraclitus could seriously have held it to be so. Subsequently Heraclitus seems to have been adopted as an authority by the Sceptic Aenesidemus, and although it is unclear exactly what Aenesidemus found in Heraclitus that led him to suggest that the Sceptical method of doubt led ultimately to Heracliteanism, it is possible that his point was that the Sceptic will ultimately need to question even the law of non-contradiction, on which all earlier doubts were founded.[78] What these traditions draw on seems to be the sayings we possess that stress the importance of seeing one and the same thing under opposed descriptions. Heraclitus was indeed concerned to draw attention to the contrasting significance of words and practices, and to say that we need not then suppose that what we thus perceived as opposed was not a unity. But Aristotle was probably right that, in stressing that aspect, he did not mean to say that there was a contradiction involved; rather he wants to say that the context is sufficient to give us opposition; indeed that it is the sole source of the contrasting significance of what is in other respects one and the same.[79]

HARMONY AND THE RECOGNITION OF WHAT IS OBSCURE

The internal relation between features of apparently opposite significance is sometimes linked to the notion of 'agreement' and *'logos':*

> It is wise for those who have listened not to me but to the *logos* to agree that all things are one, Heraclitus says.
>
> (B50)[80]

But another way of expressing the same idea is that of a harmony, or connection among things:

> They do not understand how in differing it agrees with itself: a backward-turning structure like that of a bow or a lyre.
>
> (B51)[81]

Exactly how the structure *(harmoniē)* of a bow or lyre illustrates the agreement in difference has been the subject of some discussion. One possibility is the equilibrium of tension between two opposing forces, another the technique of plucking or drawing the string in such a way that it springs back to the original position. The former is a more static image: a world in which equilibrium ensures continuity without radical change; the latter is more dynamic, capturing the idea of a world engaged in reciprocal change between opposing states.

Hippolytus, after quoting this passage, goes on to tell us that for Heraclitus a harmony or connection that is not apparent is more powerful than one that is apparent (B54).[82] Hippolytus' discussion is concerned with the use of sense perception and the value placed upon empirical evidence, but it seems clear that Heraclitus had some claim to make about the internal connection between things that are, at the superficial level, unconnected, or indeed opposed. Indeed his point seems to be that that is the more important relation: that what appears obvious is not always the locus of the most profound and telling connections.[83] It is not always by looking at things that appear immediately promising or rich in significance that we shall discover what is really important: those who search for gold dig up a great deal of earth and discover little (B22).[84]

A number of other matters are said to be particularly obscure or hidden: the *logos* of the soul, which we have seen cannot be located in a material identity, is one of them:

> You would not discover the limits of soul if you traversed every path; that is how profound its *logos* is.
>
> (B45)[85]

Nature is another.[86] Discovering the truth is a matter of looking for something that is not obvious or expected, where you least anticipate it:

> You will not discover what is unexpected unless it is expected, because it is impossible to deduce and obscure.
>
> (B18)[87]

This is a connection or harmony among things that are not related by empirically observed continuity of material entities, the sort of continuity that we might deduce from accumulating data and predicting similar patterns. It is a connection that is context-bound, producing a varied significance of things that is not evidently predictable but derives from an obscure relation among words and things.

In these circumstances the senses are not the most obvious tools for achieving an understanding of what matters; or rather the senses alone are not adequate for the job. The testimony of the senses can be positively misleading unless we can grasp the significance of the evidence they give. This seems to be the claim expressed in the curious saying

> The eyes and ears of those who have foreign souls are bad witnesses for people.
>
> (B107)[88]

A foreign ('barbarian') soul is one who cannot understand the message; perhaps one who cannot grasp the *logos*, the lingo, in which the sense perceptions are coded. This person, as it were, hears the sounds, but misinterprets what is said, so that the witness that is given turns out to be a false testimony, leading the hearer to believe a false account rather than the true *logos* that is actually encoded in the message of the senses when correctly understood. The message is some kind of riddle which, in the imagery of another fragment, cannot be understood by the blind:

> People are taken in as regards knowledge of things that are apparent, like Homer, who was wiser than all the Greeks. For some children killing lice fooled him by saying: the ones we saw and caught, those we left behind; but the ones we neither saw nor caught, those we are taking with us.
>
> (B56)[89]

The language of this riddle is rich with epistemological significance. Homer, who was traditionally blind, unfamiliar with what is apparent to the senses, is also blind to the significance of the riddle, because he cannot see that it is lice that the children are busy catching. But other people are also blind to the significance of the riddle, which is that the superficial evidence, that we see and grasp, is worthless and can be discarded; while the less obvious significance, what we carry with us in the internal structure of our language, our rituals, and the shared customs that we use but do not observe, is what is worth grasping, if only we could.

THE ERRORS OF OTHER PEOPLE

Much of the material that we have considered so far has included disparaging remarks about the inability of ordinary mortals to comprehend what is before their eyes. In fragment B1 the word for 'out of touch' *(axunetoi)*, describing those who fail to comprehend the *logos*, appears to pun with the texts that stress the importance of what is 'common' *(xunos)*. The word also occurs in B34:

> Those who are out of touch *[axunetoi]*, having heard, are just like deaf people; it is to them that the saying testifies that though present they are absent.[90]

What the ordinary observer is out of touch with is that which is common, on which those who speak with sense *(xun noōi)* rely absolutely (B114).[91] As in the case of those who blindly use their eyes and fail to grasp what is really important, so those who listen but fail to hear are like the deaf. It is possible, and indeed usual, according to Heraclitus, to use the senses but to fail to make contact with what is common, to go through life asleep, and to be out of touch with what one has heard.

How, then, can one improve or gain understanding? Not, it appears, by means of learning from other supposedly wise people, for it is not only Homer who fails to live up to his reputation for wisdom, but also Hesiod:

> Hesiod is the teacher of a great many; they understand that he knew a great many things, though he did not recognize day and night. For they are one. (B57)[92]

and all the other well-respected authorities:

> Quantity of learning does not teach sense, otherwise it would have taught Hesiod and Pythagoras, and again Xenophanes and Hecataeus. (B40)[93]

> Pythagoras, son of Mnesarchus, was the most assiduous researcher of all mankind, and by excerpting from these writings he made his own wisdom: quantity of learning, bad practice. (B129)[94]

A consistent theme in these criticisms of the teachers respected by most is the notion that the quantity of things known is no guarantee of wisdom. Yet Heraclitus also seems to have said that 'philosophical men have to be researchers of a very great quantity of things' (B35).[95] If the 'philosopher' here is a man of true wisdom there seems to be some conflict with the claim that the quantity of things known is no guide in the attainment of sense. An alternative way of taking

this last text would be to suppose that Heraclitus is scornful of 'philosophical men'; the term 'philosopher', if genuinely Heraclitus' own, makes its first known appearance here. Such people, he might be saying, must, if they are to attain that status, engage in the kind of research that brings learning but no understanding. But that is not the kind of thinker that Heraclitus himself respects.

It might be thought that Heraclitus respects only his own judgement: 'I searched myself (B101);[96]'Of those whose theories I have heard, none has attained this: to recognize that the wise is distinct from all things' (B108).[97]Only one thinker is mentioned with respect, and that is Bias, one of the seven sages, but since little is known of him nothing can be deduced as to the grounds on which Heraclitus observes that 'his *logos* is greater than the rest'.[98]

What can safely be deduced? Heraclitus does not hold that research of the normal sort practised by philosophers and poets offers a way to an understanding of the significant truth. There is one truth that all but a few fail to appreciate, and that is the independence of the one thing that is wise: its detachment from the great plurality of things into which these other thinkers enquire and the knowledge of which they amass with such enthusiasm.

> One thing, what is wise, to understand the sense in the way in which it controls all things through all things.
>
> (B41)[99]

POLITICS, VIRTUE AND GLORY

> Diodotus…says that the treatise is not about nature but about politics and what it says concerning nature is included as illustrative examples.
>
> (Diogenes Laertius *Lives* IX. 15)

Even if we do not subscribe to Diodotus' extreme view, it is evident that Heraclitus expressed some opinions on political matters. Predictably something goes wrong with politics if the choice of leader lies with those who are out of touch with what matters; Heraclitus explodes about the action of his own citizens in expelling the one man who was worth having:

> It would be worthwhile if the Ephesians were all hanged from the young men upwards, and left the city to the boys, since they expelled Hermodorus who was the most valuable man of them all, saying: Let not one among us be the most valuable; or else let him be elsewhere and among other people.
>
> (B121)[100]

What does Heraclitus mean by the 'most valuable'? The point seems to be that the citizens have rejected the person who was most effective at the job, purely out

of a concern that he should not stand out from the rest of them. Heraclitus' observation that they might as well be hanged suggests not simply that they have done wrong, but that their life will now be not worth living, and the city would be as well off in the hands of youngsters.

The faintly anti-democratic sentiment of this observation accords well with Heraclitus' general estimate of the capacity of ordinary mortals to understand what matters, and is borne out by some of his other reflections:

> Have they any mind or intelligence? They believe the popular singers and take the crowd as their teacher, unaware that the common people are bad and few are good.
>
> (B104)[101]

Nevertheless it would probably be wrong simply to infer that Heraclitus is expressing a standard prejudice against popular rule. We need first to discover what it is that makes a man 'good' and why the rejection of such a man from the city is a major disaster. Heraclitus' view of who counts as good or worthy of respect is developed along the lines of his own understanding of things. It is tied up with his estimate of what gives significance to justice, and value to the things that we ordinarily find choiceworthy in life. Value and significance depend upon a context in which the good things can be recognized and appreciated: 'It is sickness that has made health pleasant and good, hunger satisfaction, toil release' (B111).[102] We value these things precisely because they come as an exchange from another situation, and it is the context of release from something unpleasant that makes those conditions desirable and appreciated. The opposites are related in such a way that we could not have the one without the other: release would not be release from anything if there were no toil or pain to be released from. We value it in those circumstances and in no others.

It seems to follow that having too much of these 'good' things can result in the absence of any appreciable value at all. This probably explains Heraclitus' enthusiasm for self-restraint: 'It is not preferable for people to get whatever they want' (B110);[103] 'Moderation is the greatest virtue, and wisdom is speaking the truth and acting knowingly in accordance with nature' (B112);[104] 'All people have a chance to know themselves and be moderate' (B116).[105] But the real answer is to find what has an eternal value and will never depend upon a transitory context for its appreciation. There is only one source of such value that Heraclitus recognizes, and that is the honour of virtue that achieves recognition in everlasting fame among mortals.

The best choose one thing rather than everything: everflowing

> honour among mortals; but the common people satisfy themselves like cattle.
>
> (B29)[106]

Honour is the best thing to choose precisely because it escapes from the context-dependence of other values, which are desirable only by contrast with some painful alternative and are confined to the temporal life of an individual with desires. Ordinary people, as Clement observes in interpreting this saying, measure their happiness by food and sex, the values of non-human animals. But virtue achieves a different kind of reward, one that extends beyond human recognition: 'Gods and humans honour the war-dead' (B24).[107]

Thus although Heraclitus certainly does not regard the values of the multitude as worthy of pursuit, he will not easily find anyone who is qualified to rule. Aristocracy, in place of democracy, will be the rule of the 'best', but the best are defined by their choice of honour or virtue as the only lasting value worthy of pursuit. 'It is customary to respect the advice of one' (B33);[108]'One is ten thousand if he is the best' (B49).[109]

Honour transcends context and the limitations of a single human life. What is morally right, on the other hand, seems at first to be defined by contrast with wrongdoing; Heraclitus observes that we use the term of approval ('right') in a context where we imply a contrast with some alternative:

> They would not have known the term 'right', if there were no such things as these.
>
> (B23)[110]

'These' are, we presume (following the suggestions offered by Clement when he quotes the text), examples of wrongdoing or misdeeds. But Heraclitus is not content to leave morality in the same position as the utilitarian values of health, food and rest. Mortals may in practice define their notion of what is morally right by contrasting right with wrong, but in some sense this is an error. We can notice the reference to 'they' again, which generally accompanies a disparaging remark on the confusion of ordinary mortals. Perhaps, then, what is morally right does have absolute value that is not dependent upon a respite from an alternative range of evils, but mortals only learn to see it as the notion abstracted from the absence of certain identifiable wrongs. Yet there would, presumably, be a meaning for the word 'right' even were there no wrongs in the world at all. That seems to be so for god, because there are no such things as wrong for him. 'Everything for god is noble and good and right, but humans have taken some to be wrong and some right' (B102).[111] Indeed this fragment suggests that our perception of evils as evils is observer-related: they are evils for us; and we confine the word 'good' to what is good for us. But that is to make goodness a merely human value. That mortal usage of right and wrong is out of line with the absolute value perceived from the god's eye view. So whereas it may seem to us that we could not appreciate the value of goodness in itself without the presence of evil, that is not how things appear to one who correctly perceives what the absolute value of morality is. Like honour, then, what is absolutely right escapes

from the context of temporal values, and has significance independently of any human observer.[112]

HERACLITUS' STYLE AND THE SIGNIFICANCE OF LANGUAGE

Heraclitus' message is conveyed not only by what his words say but also how they say it. To hear the *logos* the listener must attend to the structure of language and social practice, and not just to what Heraclitus or others may choose to say about them. Heraclitus' own use of language seems to be consciously designed to draw attention to the features that illustrate his theme. Some of these have already emerged since they contribute to the significance of texts we have been discussing. Many others are lost in translating the texts, because they depend upon juxtaposition of opposing words in such a way as to emphasize the tension between opposites (a possibility in Greek, which is an inflected language, but less easy in English where the order of words in a sentence determines their role). It will, nevertheless, be worthwhile collecting a number that illustrate two aspects of Heraclitus' use of word-play: (a) play on words that suggests a link between two similar words; (b) playing with the grammatical structure and syntax of a sentence, or with ambiguous words, to elicit more than one meaning from a single text.

Connecting Words of Different Significance

Heraclitus links the notion of what is common *(xunos)* with the idea of speaking with intelligence *(xun noōi legontas)* in fragment B114; it seems that this theme extends through a number of other texts that pick up on the same kind of language: B113, in which he suggests that thinking is common *(xunon)* to all; 851, in which people are said not to understand *(on xuniasin);* and B34 in which those who are out of touch *(axunetoi)* are like the deaf, to mention just a few. It is clear that what is common *(xunos)* is what people need to be in touch with, or to understand, if they are to be said to speak or act with intelligence. Heraclitus is clearly drawing out this point, not so much by saying so, as by using the implicit connections between words of similar form to make his message apparent.

A similar sequence can be detected in the emphasis on 'agreement' *(homologein)* which resonates with the word *logos*. Something that differs is said to agree *(homologeei)* in B51, while in B50 it is wise for someone to agree *(homologein)* that all are one, once one has heard the *logos.* Again Heraclitus does not actually say what the connection between recognizing the *logos* and agreeing is, but the language itself reveals the connection, just as it reveals the role of *logos* in ensuring that what differs is systematically connected in a tense structure like the bow or lyre.

In B5 the participants in the ritual purification do so because they are polluted *(miainomenoi)*. That is what makes the ritual a sensible one to engage in. But to

the uncomprehending observer they are mad *(mainesthai)*. They appear mad because they are engaging in more of the same action that caused them to be polluted. The connection between madness and pollution that is implicit in Heraclitus' choice of language relates to the context-dependent nature of both judgements: whether one is mad, or polluted, cannot be decided without an understanding of the context in which one's actions are taking place.

Deriving More than One Significance from One and the Same Word

Language neatly illustrates Heraclitus' claim that context determines the significance of things. The word *bios* is one which he explicitly comments on (B48: The name of the bow is life, its function death) but there are others where the point simply emerges from the fact that we cannot tell which way to take a word. Some of these involve taking a word in more than one sense: one example was the use of the word *allōs* to mean either 'differently' or 'pointlessly' in B5;[113] Heraclitus also seems to pun on the word 'shameless' *(anaidestata)* in B15, taking it to mean 'un-Hades-like' as well.[114] Similarly in B57 Hesiod is said to be the teacher 'of many' *(pleistōn)* but the context suggests that we could take this either to refer to the many subjects that he taught, or the many people who were taught by him. Both ideas are found in the context, and both ways of reading the text make good sense.

Other examples depend upon a word carrying not two different senses, but playing two different roles in the syntax of the sentence. The most famous is the word 'ever' in fragment B1, which can be taken with 'is' ('with this *logos* which is for ever') or with 'human people are out of touch' ('human people are for ever out of touch'). Heraclitus places the word in such a way that it works equally well with either; and there is no doubt that he believes both claims to be true. There seems every reason to suppose that he wanted one and the same word to perform two different functions, and to enter both contexts, carrying a separate though related significance to each. We can find a very similar example in the fragment on pollution discussed above. In this text (B5) the word for 'with blood' *(haimati)* is placed between 'tainted' and 'they purify themselves' in such a way that it can function equally well with either. This draws attention to the fact that the people are purified with the very same stuff that they were first polluted with. Clearly it is important to Heraclitus' message that one and the same word belongs in both contexts: 'Tainted with blood, they purify themselves…' and 'Tainted, they purify themselves with blood…'[115]

Words and names can be significant, and clearly for Heraclitus their significance tells us a lot about the kind of non-material connections between things that make the world a place governed by a systematic rationale. But the significance of the words may still depend upon the surrounding context, just as the names for god can change with the ritual context we encounter him in. This is why Heraclitus can say that the name Zeus is both the right name and the

wrong name: 'One, alone, the wise, likes and dislikes to be spoken of by the name of Zeus' (B32).[116]

Although the meaning of this saying is obscure, it implies that the name applied to the one, or the wise, does matter (it likes or dislikes certain names, presumably because they do or do not have the right significance), but there will not be one name that is consistently right. It would be an error to suppose that the god must only be Zeus and must always go by that name. In certain circumstances that may be the wrong name. Just as in the case of Dionysus the variety of appropriate ritual did not distinguish two separate gods, so the correct use of a name other than Zeus will not tell against a single sole being, the wise.

Heraclitus does not explicitly discuss how language acquires significance in context, in the way that a modern philosopher of language might be expected to. But his handling of the language, and the claims he makes about significance in the more general sphere of human practices and social custom, indicate his commitment to the idea that language does not have meaning independently of the particular context in which it is used; indeed the same words in the same context may carry a plurality of meanings when read in a number of different ways, or by different readers with different points of view. Meaning is not fixed by the individual words, but is nevertheless governed by a system or rationale which explains how it can be open to various or opposed meanings, yet not become a meaningless flux of indeterminate sense.

> The lord who has the oracle at Delphi neither speaks, nor conceals, but signifies.
>
> (B93)[117]

The 'lord' in question is the god Apollo; his oracle was such that the Pythia, a priestess in a state of ecstatic possession, conveyed the god's response to the petitioner. The god did not speak directly to the applicant, nor did he keep his answer wholly to himself or deliberately mislead; but the response he gave by way of the Pythia was not always easy to interpret. It might indicate the truth, but only if you could grasp the significance. One of the stories Herodotus tells is of Croesus who consulted the Delphic Oracle for advice on whether to pursue his empire-building strategy.[118] 'If you cross the river Halys you will destroy a great empire' was the response he got. The response is ambiguous because the meaning of 'a great empire' is not fixed until we find a context within which it makes unequivocal sense. The petitioner is likely to assume that the god's response functions in the same context as the question that was asked. In a conversation, in shared human language, we should gather the sense from the context within which the words were uttered, but the god's response comes detached from any context. Hence Croesus can disastrously misunderstand the response by taking the empire in question to be not his own but that of his opponent.

Why does Heraclitus tell us about the oracle? Plainly the polysemie language of the Pythian Oracle bears some resemblance to the polysemie language of Heraclitus' own utterances, which play upon the multiple significance available to different readers, and from different syntactical construal of the phrases. But perhaps the difficulty of interpreting the oracle without a context to fix the sense, to make it speak directly instead of hinting at a meaning that is unobtainable, also tells us something about the way in which language is itself wholly dependent upon context for its shared significance as part of what is common; and thus the oracle alerts us to the way that language functions, and hence to the sources of unity and opposition to which Heraclitus hopes to draw our attention, if we could but hear what he has to say.

NOTES

1 Heraclitus belonged to the city of Ephesus during a period when it was under Persian domination. He was probably of an aristocratic family, and he is likely to have lived in the latter part of the sixth century and early part of the fifth century BC. From fr. 40 it is evident that he is working in a period after Pythagoras, Xenophanes and Hecataeus. He shows no knowledge of Parmenides, but there might be grounds for thinking that Parmenides alludes to Heraclitus (compare Parmenides B6.7 with Heraclitus B51 for example).

2 This feature adds to the difficulty, since when poetry is involved the metrical constraints can sometimes provide a key to reconstructing a reliable text, or more particularly determining which words are quoted and which paraphrased. Heraclitus does have a characteristic style (see below, 'Heraclitus' style') which can sometimes be recognized in dubious quotations (e.g. the habit of placing a word so that it plays more than one role in the sentence, cf. B1), and some fragments retain the Ionic dialect forms, though the absence of these need not mean that a fragment is not authentic.

3 There is one relatively lengthy passage known as fragment B1, which appears to belong to the beginning of Heraclitus' work. This is quoted by more than one ancient author, and implies that Heraclitus' work circulated as a written prose treatise, though it is possible that the written version was not prepared by Heraclitus himself. Diogenes Laertius, whose life of Heraclitus is extremely unreliable, reports a story that Heraclitus deposited his book in the temple of Artemis in such a way that it would be inaccessible to the general public (Diogenes Laertius [3.12], IX.6). If there is any truth in this it implies that Heraclitus had charge of the written version of his own treatise.

4 See the excursus 'On reading Heraclitus' in Kahn [3.7], 87–95, and Osborne [3. 31], 1–11, 23–4.

5 The standard Greek text of the fragments is that of DK [2.2]. In this collection the fragments thought to be genuine are listed in section 22B. The letter B prefixed to a fragment number indicates its presence in this collection. The order of fragments in DK is primarily determined by the alphabetical order of the quoting authorities, a procedure deliberately adopted by Diels to avoid imposing his own interpretation in assembling a sequence of texts. Robinson [3.9] retains DK's order. Kahn [3.7]

rearranges the texts, but provides concordances to enable the reader to trace a particular fragment.

6 The Penguin Classics collection *Early Greek Philosophy* [2.6] translated by Jonathan Barnes carefully presents the fragments with some of the necessary material from the surrounding context, sufficient, in most cases, to enable the reader to get some sense of the basis for the writer's understanding of the text. On the absolute necessity for paying heed to this context in any serious work on Heraclitus see Osborne [3.31]. The two recent editions of Heraclitus (Kahn [3.7], Robinson [3.9]) are both seriously inadequate, in that they provide virtually nothing of the context for the fragments.

7 Thinkers condemned or criticized for impiety are usually revising the conventional theology rather than denying any place for divine beings. Anaxagoras (apparently condemned at Athens in *c.*430 BC) introduced a divine 'mind' as the governing cause of the way the world is. Socrates was accused of introducing new gods. His divine sign was perceived as a deity exclusive to himself, and hence constituted a kind of private religion that appeared as a threat to the community in a Greek polis.

8 Religion is mentioned as the last topic in Heraclitus' book by Diogenes Laertius [3.12] (*Lives* IX.5) but it is unlikely that the edition he knew was Heraclitus' own. I deal with it first, partly to emphasize its place in his thinking, partly because the sayings on the subject are classic examples of his style of thought, and raise important issues of a general nature.

9 See below 'The Unity of Opposites'.

10 On the rituals for homicide involving purification with blood see Parker [3.20], app. 6, 370–4.

11 Reading *allōs* with the manuscript and Kahn [3.7], Robinson [3.9], Marcovich [3.2], rather than *allōi* (with *further* blood) which was an emendation suggested by Fränkel and adopted by Kranz in DK (5th edn and later).

12 The text is preserved entire in the *Theosophia,* an anonymous Christian collection of pagan material from *c.*500 AD; it is also paraphrased in some other texts, assembled by Marcovich [3.2], 455–8. The second part (quoted below) is also recorded by Celsus (apud Origen); see n. 16.

13 Kahn [3.7], 266; Robinson [3.9], 78; Burkert [3.19], 309; Parker [3.20], 371–2, for example.

14 See below 'Heraclitus' style".

15 Heraclitus seems to use the word 'human' to contrast with god, whose method of purifying is the sacred one. In what follows I shall sometimes use 'religious' or 'sacred' and 'secular' which is our normal terminology for the distinction he is making, sometimes 'divine' and 'human' which is Heraclitus' terminology, e.g. in B78 and B119.

16 This second part of B5 is quoted not only in the *Theosophia* (see n. 12) but also by Celsus (preserved in Origan's *Against Celsus*) and is discussed at some length by Origen. Celsus takes the fragment to be a comment on the correct use of religious images and its dependence on the believer's proper understanding of the gods. Origen responds by hijacking the fragment for his own ends.

17 See below, 'The Unity of Opposites'.

18 B61. The text is preserved by Hippolytus of Rome [3.13], a Christian bishop of the early third century AD, in the *Refutation of all Heresies* IX.10. This section of the

Refutation tries to demonstrate that the heretic Noetus, like Heraclitus, confuses things of opposed significance. See Osborne [3.31], ch. 4.

19 B60. The text is preserved by Hippolytus [3.13] *Refutation* IX.10. See below, 'The Unity of Opposites'.

20 B58. The text is preserved by Hippolytus [3.13] *Refutation* IX. 10.

21 Preserved by Stobaeus *Anthology* IV.40.23, Plutarch *Quaestiones Platonicae* 999, and Alexander of Aphrodisias *On Fate* 6. The fragment is peculiarly difficult to interpret; the interpretation offered by Alexander appears to cohere with that offered here, which, however, brings out a quite different sense from that normally put upon the text by recent scholars ('a person's character is his fate (divinity)', Robinson [3.9], 69), but makes the most of the typically Heraclitean style with its ambiguous placing of *anthrōpōi*. The alternative readings with a genitive (*anthrōpou* or *anthrōpōn*), given by Plutarch and Alexander respectively (the former adopted by Bollack-Wismann [3.5]) retain the same sense.

22 From a summary of the quotations given by Celsus from Heraclitus on the subject of the difference between divine and human wisdom, included by Origen, *Against Celsus*, 6.12.

23 See below 'The Logos'.

24 See below 'Custom and Shared Practice'.

25 Both parts of B15 (see further below) are quoted in close connection by Clement of Alexandria *Protrepticus* II. 34.5.

26 This quotation is listed as the second part of B15. The Lenaia was a particular festival of Dionysus associated with ritual madness on the part of women. See Seaford [3.22], 239, 322. Heraclitus uses a rare verb ('to Lenaia-ize') to speak of the performance of these ritual activities.

27 See below 'The Unity of Opposites'.

28 B60; see n. 19.

29 B57, 'Hesiod is the teacher of a great many; they understand that he knew a great many things, though he did not recognize day and night. For they are one.' The text is preserved by Hippolytus [3.13], *Refutation* IX. 10 (see n. 18).

30 B103. The text is preserved by Porphyry *Quaestiones Homericae ad Iliadem* XIV. 200.

31 Heraclitus probably thought the earth was flat, though the evidence is unclear (Diogenes Laertius [3.12], *Lives* IX. 11) but he may have been aware that the length of day varies from north to south, and he recognized that the hours of day and night are not absolute but determined by the presence or absence of the sun (B99 and cf. B57).

32 See below 'Harmony and the Recognition of What is Obscure'.

33 *anaidestata*, 'un-Hades-like' as well as 'shameless' if we adopt the widespread view that there is significant word-play here (Kahn [3.7], 336 n. 390 with further references). See below 'Heraclitus' Style'.

34 The identification of Hades and Dionysus does not seem to be a peculiar doctrine of Heraclitus, nor does it commit him to monotheism. The evidence for a cult connection between the two is quite extensive, particularly in south Italy, and the dionysiac mysteries are associated with death rituals. See Seaford [3.22], 319–26; C. Sourvinou Inwood 'Persephone and Aphrodite at Locri: a model for personality definitions in Greek Religion', *Journal of Hellenic Studies* 98 (1978): 101–21, 109, repr. in Sourvinou Inwood *'Reading' Greek Culture*, Oxford, 1991; Rohde [3.21],

159, 184 n. 7; Marcovich [3.2], 254; J. C.Carter ‘Sanctuaries in the *chora* of Metaponto’, in S.E.Alcock and R.G. Osborne (eds) *Placing the Gods*, Oxford, Clarendon Press, 1994:161–98.

35 B56, B57. See below ‘The Errors of Other People’.

36 Something similar to this conclusion was suggested by Guthrie [3.24], 476 on the basis of fragment B68.

37 B71–3. See below ‘The Errors of Other People’ and ‘Custom and Shared Practice’.

38 B89. See below ‘Custom and Shared Practice’.

39 This section of the chapter is based on a paper delivered to a conference of the University of Wales Institute of Classics and Ancient History and due to appear in a forthcoming volume of proceedings.

40 The text appears in a list of sayings from Heraclitus quoted without context by John Stobaeus, *Anthology* III. 1.179. Stobaeus wrote in the fifth century AD.

41 The text is quoted shortly after B1, (on which see below, ‘The *Logos*’) by Sextus Empiricus *Adversus Mathematicos* VII. 133, who says that Heraclitus adds this claim after a few intervening things. The opening words show that it concludes an argument that established the role of what is ‘common’ in determining the correct wisdom, conceivably B114. The text I translate, the one usually adopted by editors, follows a suggestion of Bekker since what Sextus Empiricus says is slightly garbled. The explanation of the term *xunos* is presumably by Sextus himself (a writer in the Sceptical (Pyrrhonist) school) for the benefit of his second century AD readers. He is discussing Heraclitus’ views on the criterion of truth and knowledge.

42 See below ‘The *Logos*’.

43 ‘The people should fight for their custom as if for a wall.’ (B44) The text is quoted by Diogenes Laertius [3.12] (third century AD), *Lives* IX. 2. He offers no interpretation. The word for ‘custom’ *(nomos)* can refer to formal legal provisions or to local established practice.

44 See above ‘Ritual and the Gods’, The text does not supply the word *nomos* after ‘divine’, but it is natural to understand it from the mention of human customs. An alternative translation would be ‘all human customs are nourished by the one divine thing’.

45 The ‘divine law’ mentioned in B114 is identified with the laws of nature by some interpreters, notably Robinson [3.44], 483–4. This restricts the divine law to the laws of behaviour of physical or material bodies; it makes Heraclitus a materialist, whereas the stress on human social practices and language suggests his interests lie much more in the non-material connections between things that have no physical link.

46 The text is preserved by Hippolytus [3.13] *Refutation* IX. 10 (see above n. 18). The word ‘something’ is missing in the text (unless there was no word there and ‘god’ is said to change); various suggestions have been made as to what is said to change when mixed with spices, the most popular being ‘fire’ (Diels’s suggestion). The point is clear in any case: an admixture of spices will alter the effect and the name of something itself unchanged. It is probably best to avoid a term such as ‘fire’ that carries theoretical significance.

47 Reported by Plutarch (AD *c*.45–120) *De Superstitione* 166C.

48 The text is known from two relatively reliable sources: Sextus Empiricus *Advenus Mathematicos* VII. 132, in the same context as fr. 2 (see above), and Hippolytus of Rome [3.13] in his ch. on Noetus *Refutation* IX. 9. The opening sentence is also

discussed for its grammatical structure (in which 'for ever' can be taken either with what follows or what precedes) by Aristotle *Rhetoric* 1407b11. Both Aristotle and Sextus say that the text occurred at the beginning of Heraclitus' book.

49 The text is preserved by Clement of Alexandria (AD 150–215) in his *Miscellanies* (V. 115.3), which is a work comparing Greek thought with Christian thought. He takes this text to express the same idea as 'he that hath ears to hear let him hear'. Nussbaum ([3.37], 12) suggests that 'the saying' refers to what they say: their way of talking shows that they do not understand. See below 'The Errors of Other People'.

50 The text is preserved by Hippolytus ([3.13] *Refutation* IX. 9), who appears to find in it an emphasis on the unity and agreement of opposite features. Robinson ([3.44], 481–3), in a characteristically physicalist move, reads the *logos* here as a kind of law of nature; see also Patricia Kenig Curd 'Knowledge and unity in Heraclitus', *Monist* 74 (1991): 531–49, at pp. 532–5.

51 The fragment (B50) can also be reads as alerting us to the objective truth of Heraclitus' claims: it is not because it is *his* version but because it is independently true that it leads to assent.

52 *Cratylus* 402a, and cf. 401d and 411b.

53 *Theaetetus* [3.14], 152d and 179d–180a.

54 Plutarch *On the E at Delphi* 392B. The text is not necessarily wholly Heraclitus' own words. Plutarch associates the text with the issue of personal identity.

55 Eusebius, *Praeparatio Evangelica* XV. 20.2, quoting Arms Didymus, quoting Cleanthes, quoting Zeno the Stoic to compare him with Heraclitus. The passage is concerned with the origins of souls, and takes Heraclitus to be referring to a constant flowing out of the soul (breath?) like a river that is always new and never runs dry.

56 Heraclitus Homericus (first century AD), *Homeric Questions* 24, who implies that he takes the text to be an allegory, but does not explain in what way.

57 Tzetzes *Notes on the Iliad* 126H; his main observation is that Heraclitus' remarks are obscure.

58 Marcus Aurelius *Meditations* IV. 46, incorporating texts known as B76, B71, B72, B73.

59 'Fire lives the death of earth…' in Maximus of Tyre's version of B76; 'The death of fire is birth for air…' in Plutarch's version; 'The death of earth is to be born as (or become) water…' in Marcus Aurelius' version.

60 Clement of Alexandria *Miscellanies* V. 14.104. Clement is developing an account of Heraclitus' notion that everything is periodically consumed by fire *(ecpyrosis)*. This was a standard Stoic reading of Heraclitus, but is often disputed in recent scholarship. It has been recently reaffirmed by Kahn, see his Excursus I ([3.7], 147–53). This fragment implies that the system functions like a bonfire, in which any pan might catch light at any time.

61 This text belongs later in the same passage of Clement *Miscellanies* V. 14.104.5. He takes 'sea' to represent creation, which is then dissolved into fire periodically according to a regular system.

62 Quoted by Plutarch *On the E at Delphi* 388D-E.McKirahan's alternative translation ('as money for gold and gold for money', [3.11], 124) makes little sense and will not support the interpretation he offers on p. 140, since *chremata* (things) can

mean money in the sense of property, but not coinage. There is, therefore, no way that this fragment can be taken to imply material persistence.

63 *Pace* Wiggins [3.45], 16.

64 Quoted by Hippolytus [3.13], *Refutation* IX. 10 (see above n. 19). In Diogenes Laertius [3.12] (Lives IX 9. 8–9) the road up and down is associated with two directions of change through the elements in the cycle of natural change.

65 We think of a month as winter or summer depending on what activities we can perform or how the land yields its fruit. Thus Heraclitus need not know of the antipodes to identify summer and winter as observer-related; the first month of summer for the arable farmer may still see the sheep in winter pastures for the hill-farming shepherd.

66 Quoted by Hippolytus [3.13] *Refutation* IX. 9, in the same context.

67 Quoted or summarized by Hippolytus [3.13] *Refutation* IX. 10 (the same context). The text is somewhat uncertain.

68 Aristotle *Nicomachean Ethics* 1176a5–8.

69 Columella *On Agriculture* VIII. 4.4.

70 Albert the Great *On Vegetables* VI. 2.14 (the saying is paraphrased in Latin).

71 B96, from Plutarch *Quaestiones Conviviaes* 669A, and other sources.

72 [Plutarch] *Consolation to Apollonius* 106E, who suggests that the implication is that death is always present. The text is difficult to make sense of as it stands, and the word for 'inside' may be corrupt.

73 Eusebius explaining B12; see n. 55.

74 See Nussbaum ([3.37], 158–62) on the notion of immortality without any material continuity. For her the implied answer to B27 (see below) is 'nothing', but since no significance for us depends upon material identity I do not see the need for this conclusion. See also Hussey ([3.41], 526–7).

75 Clement *Miscellanies* IV. 144.3, who compares Heraclitus' view with that expressed by Socrates in the *Phaedo*.

76 Quoted to illustrate the meaning of the word *bios* by the *Etymologicum Magnum* s.v. *bios*.

77 Aristotle *Metaphysics* 1005b23–6.

78 Sextus Empiricus [3.15] *Outlines of Pyrrhonism* I. 210–12.

79 Barnes ([3.23], 69–74)is, I think, alone among recent scholars in taking Heraclitus to be seriously guilty of contradiction.

80 See above 'The *Logos*'.

81 It is not clear what 'it' is. The context in Hippolytus, who quotes this after B50 mentioned above, implies that the two quotations are about the same thing. The neuter ('it differs') in B51 suggests that the subject is not the *logos* or the cosmos (both masculine), but other neuter subjects are available (the wise, B32; fire, B66; ethos, B78; unnamed neuter subject, B84a). The bow and lyre can be seen to belong together as attributes of the god Apollo, whose tendency to reveal and conceal illustrates the tension of opposites inherent in language, B93 (see below).

82 Hippolytus [3.13] *Refutation* IX. 9; the link with the mention of harmony in B51 is made by Hippolytus who had just repeated the second part of B51.

83 Compare also B8 (reported by Aristotle *Nicomachean Ethics* 1155b4): 'Heraclitus says that opposition is convenient and that the finest harmony derives from things that differ.'

84 Clement *Miscellanies* II. 2.4.2.

85 Diogenes Laertius *Lives* IX. 7.
86 'Nature likes to hide' (8123), recorded by Themistius *Orations* 5.69b who links it with the notion of a divine harmony that is not available to human knowledge.
87 Clement *Miscellanies* II. 4.17.8.
88 Sextus Empiricus *Adversus Mathematicos* VII. 126, who suggests that a foreign soul is one who trusts in non-rational perceptions. Modern interpretations also take 'foreign' as metaphorical, but vary on exactly how. The view presented here is that the soul fails to understand the message of the senses; the alternative (which coheres with the stress I have placed on language as a shared practice) is that it fails to understand the significance of its own language (not, of course, that it is literally not a Greek-speaker); see Nussbaum [3.37], 9–12.
89 Hippolytus [3.13] *Refutation* IX. 9. My interpretation here differs in some details from [3.31], 162–3. See also Rethy [3.36].
90 See n. 49.
91 See above 'Custom and Shared Practice'.
92 Hippolytus ([3.13] *Refutation* IX. 10), whose interest is in the unity of day and night. See further below 'Heraclitus' Style'.
93 Diogenes Laertius [3.12] *Lives* IX. 1 who quotes the saying as evidence of Heraclitus' arrogant contempt.
94 Diogenes Laertius [3.12] *Lives* VIII. 6, part of his account of Pythagoras' written work.
95 Clement *Miscellanies* V. 140.5. Clement takes this to be a positive assertion of the need for knowledge in the search for the good.
96 Plutarch *Against Colotes* 1118C, who compares the text with the Delphic maxim 'Know thyself'.
97 Stobaeus *Anthology* III. 1.174.
98 B39, cited by Diogenes Laertius [3.12] in his life of Bias (*Lives* 1.88). 'His *logos* is greater' may mean his theory is better, his reputation is greater, or his written work is more extensive.
99 Diogenes Laertius [3.12] *Lives* IX. 1. The text is uncertain and extremely difficult to translate. The opening words are identical to the first words of B32 (see below 'Heraclitus' Style').
100 Diogenes Laertius [3.12] *Lives* IX. 2.
101 Proclus *Commentary on the First Alcibiades* 256.1–6. Proclus comments that Timon called Heraclitus 'reviler of the mob'.
102 Stobaeus *Anthology* III. 1.177.
103 Stobaeus *Anthology* III. 1.176.
104 Stobaeus *Anthology* III. 1.178.
105 Stobaeus *Anthology* III. 5.6.
106 Clement *Miscellanies* V.9.5 9.4–5, quoted after a summary of B104.
107 Clement *Miscellanies* IV. 4.16.1.
108 Clement *Miscellanies* V. 155.2.
109 Paraphrased by Theodorus Prodromos as part of a compliment to his correspondent.
110 Clement *Miscellanies* IV. 9.7. I do not see any reason to agree with Kahn that there is a reference to a deity ('justice') in this text (Kahn [3.7], 201). Nor can he be right ([3.7], 185) that the term *dike* has a primary connection with penal correction; it is

evident that its earliest meaning is for fitting and morally upright action. Morality is what is at issue.

111 Porphyry *Quaestiones Homericae ad Iliadem* IV. 4. Porphyry is discussing how the gods can approve of war and battle, and affirms that god sees to it that all things are in fact in accordance with goodness and what is right.

112 It would probably be anachronistic to complain that Heraclitus' god fails to condemn moral evil. The point is probably more concerned with the partiality of human perceptions of evil, rather than the claim that nothing is offensive to god, however bad. It also accords with the sense that there is a measured plan to the whole system, which cannot go wrong in any way that ultimately matters.

113 See above 'Ritual and the Gods'.

114 Compare also the use of *logos* in B39 (see n. 98).

115 See also B119 (n. 22) and B84b: To toil for, and to be ruled by, the same people is tiresome', or 'It is tiresome for the same people to toil and to be ruled'. (There are other ways of reading this fragment. See Kahn [3.7], 169–70.)

116 The text is preserved by Clement of Alexandria in the same context as B34 (see n. 49) and B33 (n. 108). His interest is in links with Christian ideas, here perhaps in implied monotheism and the acceptance of names other than Zeus for the supreme divinity.

117 Known from Plutarch *De Pythiae oraculis* 404D and Stobaeus III. 199. Plutarch compares the god's use of the Pythia to convey the response with the sun's use of the moon to transmit its light.

118 Herodotus I. 53.

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Fragments are mentioned in the text by their number in DK [2.2], vol. I, section 22; the letter B indicates the fragments listed as authentic quotations in part B of that section. Part A contains testimonia (accounts of Heraclitus' life and doctrine from ancient authors); I have cited such texts by the authors concerned, and not according to the DK collection. Translations are my own, and differ, usually in minor ways but occasionally radically, from those found in other collections. Where the variant translation makes an important difference I have tried to indicate the reasons in the text or notes.

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3.1 DK [2.2].

3.2 Marcovich, M. *Heraclitus, editio maior*, Merida, Venezuela, Los Andes University Press, 1967. Full critical Greek text with textual commentary; also includes English translation of those fragments considered genuine by Marcovich.

3.3 Wright [2.5].

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3.5 Bollack, J. and Wismann, H.*Heraclite ou la séparation,* Paris, Les Éditions de minuit, 1972. Greek and French.
3.6 Conche, M. *Héraclite: Fragments,* texte établi, traduit, commenté par M. Conche, Paris, Presses Universitaires de France, 1986. Greek and French.
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3.8 KRS [1.6]. Includes selected texts in Greek and English.
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3.10 Barnes [2.6]. English translation.
3.11 McKirahan [2.7]. English translation with commentary.

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CHAPTER 4
Pythagoreans and Eleatics

Edward Hussey

PYTHAGORAS AND THE EARLY PYTHAGOREANS

Pythagoras, a native of Samos, emigrated to southern Italy around 520, and seems to have established himself in the city of Croton. There he founded a society of people sharing his beliefs and way of life. This spread through the Greek cities of southern Italy and Sicily, acquiring political as well as intellectual influence. Some time after his death, the original society broke up and its continuity was lost; yet groups of self-styled 'Pythagoreans' appeared repeatedly thereafter.

Palpably reliable evidence about early Pythagorean activities is so scanty that some initial scepticism is in order about Pythagoras as a philosopher, or as a 'natural philosopher' in Ionian style.[1] Sporadic early reports depict Pythagoras as primarily a magician and miracle-worker; and, on the theoretical side, a collector and expositor in dogmatic style, rather than a creator or investigator. It is clear that some doctrines later seen as 'Pythagorean' were already current, around the same time, in the theological and cosmological poems attributed to Orpheus. Plato barely mentions Pythagoras by name; but incorporates into some of his myths material which is likely to be genuinely Pythagorean. After Plato, philosophically-inspired reconstructions of Pythagoras begin to appear, in which he is represented as the head of a regular school, promoting research into philosophy and the mathematical sciences; or as an enlightened statesman and instructor for political life.[2] At best, even when based on good sources, these fourth-century accounts (which themselves survive only in later reports) are more or less anachronistic idealizations. Still less reliance can be placed in the great mass of later statements about Pythagoras and his followers.

Indirectly, the fact that certain later fifth-century thinkers were called 'Pythagoreans' (see below) gives some indication of what theoretical interests were then attributed to Pythagoras. The cosmology of Parmenides (see below) and the poems of Empedocles have a substratum of ideas that may be suspected to be Pythagorean in inspiration. All in all, there is a body of general ideas, appearing by the mid fifth century and reasonably firmly associated with Pythagoras, which was to be influential in a programmatic way throughout the

century, and on Plato, above all, in the fourth. These ideas may be grouped under the headings of 'metempsychosis' and 'mathematics'.

'Metempsychosis' and the Self

'Metempsychosis' was the doctrine of the repeated incarnations of an immortal 'soul' or self, in human or animal or plant bodies. Centred on that doctrine, and more or less closely tied to it were various ideas, not necessarily clearly distinguished by Pythagoras himself.

(1) One was the radical redefinition of the *self* which the doctrine involved: a new belief about what we human beings really are. The implication is that we are not, as in traditional Greek belief, mortal beings, with at best a shadowy afterlife in Hades, but that we are truly immortal, perhaps fallen gods. Our real selves have always existed and will always exist. And the heritage which they have lost, but may recover, is a divine, paradise-like existence.

(2) Connected with that is the belief that we are *not at home* in the body, in fact that this life and all incarnations are really punishments, or at best periods of rehabilitation. It follows that we are not here *primarily* to enjoy ourselves. It does *not* necessarily follow that the body is intrinsically evil, or that the ordinary kinds of enjoyment are bad in themselves. That extreme puritanical conclusion may have been drawn by some, but probably not by Pythagoras himself.

(3) Pythagoras saw the world as sharply and systematically polarized between good and evil. The real role of the self is to be a moral agent, to participate in the moral struggle; and it is rewarded and punished accordingly. A systematic cosmological dualism, associating all aspects of the world with the good—evil polarity, seems also to have been characteristically Pythagorean. It may be this dualism which accounts (psychologically at least) for the doctrine of the cyclical recurrence of events. Given a systematic dualism of good and evil, good must triumph, but evil cannot be abolished. The simplest solution is to suppose that there are cosmic cycles: at the end of each cycle, all beings have been 'saved', and good triumphs; but then the moral fall starts all over again.

(4) Yet another aspect is the kinship of all living things. What precepts, if any, Pythagoras deduced from this about human behaviour to other animals, is obscure.[3]

Mathematics and the Importance of Abstract Structure

Another leading idea of Pythagoras was that of the key importance of *mathematical structures* in the universe.

Pythagoras himself was no creative mathematician; there is no reliable evidence that he proved any mathematical theorems at all (not even 'Pythagoras' theorem'). The evidence suggests rather that the Pythagoreans' focus was on a speculative numerology applied to the cosmos. (For example, the dualism of good and evil was paralleled, and perhaps meant to be explained, by the dualism

of odd and even numbers; and so on.) But from here the thought emerges, first, that mathematics is not just a useful practical device; that it reveals an abstract structure in things; and secondly that this abstract structure may be the key to the essential nature of things. It is through these ideas that Pythagoras became the midwife of pure mathematics, which began to develop from now on; and indeed the founder of the whole mathematical side of scientific theory.

PARMENIDES

The Poem of Parmenides

Parmenides was a citizen of the Greek city of Elea in southern Italy. His philosophical activity belongs to the first half of the fifth century. He expounded his thoughts in a poem, using Homeric hexameter verses. Verse for public recitation was then still a natural medium for diffusing ideas; yet the 'natural philosophers' of the sixth century had chosen prose, to show their rejection of the authority of the poets, and their closeness to ordinary experience. Parmenides' choice of hexameter verse may imply in its turn a rejection of the natural philosophers.

The poem begins with a first-person narrative of a journey. Accompanied by the daughters of the Sun, the narrator rides in a chariot into remote regions, to reach 'the gate of the paths of night and day'. Passing through, he is welcomed by a goddess, who promises that he is to 'find out everything'. She goes on to fulfil the promise, in an exposition which constitutes the whole of the rest of the poem.

Over one hundred verses of the poem survive, including all of the introductory narration and probably almost all of the first and fundamental part of the goddess's exposition. Together with comments of Plato, Aristotle and others, this is a fine corpus of first-rate evidence, the survival of which is due principally to Simplicius, the sixth-century Neoplatonist commentator on Aristotle.[4]

Yet controversy dogs almost every part of Parmenides' thinking, for a conjunction of reasons. First, there are gaps in our information at certain crucial points. Next, Parmenides' language is often obscure, in spite of his evident striving for maximal clarity. The constraints imposed, by the metre and vocabulary of epic verse, on the exposition of a subject-matter for which they were never designed, are bad enough. Then there is the problem of supplying whatever, in the course of his exposition, Parmenides left to be understood. Finally, his thought is itself novel and complex.

Any translation, therefore, and any overall reconstruction of Parmenides, including the one now to be outlined, cannot but be highly controversial at many points.[5]

The Promise of the Goddess

Central to the understanding of Parmenides is the promise made by the goddess:

> It is necessary that you find out everything: both the unmoving heart of well-rounded reality *[alētheiē]*, and the opinions of mortals, in which there is no real guarantee of truth—but still, these things too you shall learn, how [or: since] it had to be that opinions should reputably be, all of them going through everything.
>
> (DK 28 B 1.28–32)

The division of the objects of discovery into two determines the structure of the rest of the poem. It rests on the distinction (explicit since Xenophanes at least) between what can and what cannot be certainly known. The first pan, concerned with *alētheiē*, will contain only certainties. The second part, of which the truth cannot be guaranteed, will contain 'opinions of mortals'. As with Xenophanes, there are better and worse opinions: those to be revealed are not any old opinions, but ones which enjoy the status of being 'reputable', and which form a complete system.[6]

If we leave on one side, for the moment, the 'opinions' and what is here said about them,[7] the next fundamental question is the meaning of the word *alētheiē*. In English, it is usually translated by 'truth', to which it seems to correspond in the spread of its early usage. The adjective *alēthēs*, from which it is formed, has much the same spread as 'true' (covering the areas indicated by the words 'truthful', 'accurate', 'real', and 'genuine'; though not that of 'faithful'). But in Parmenides the translation 'reality' for Parmenides' *alētheiē* must be insisted on, in order to bring out the essential point: what is referred to here is not anything (words, speech, thoughts) that is or makes a true statement; it is what the true statement is *about*, and is guaranteed by: the underlying actual state of things, the reality. So, later on, the goddess marks the end of the first part by saying, 'At this point I end for you my trusty tale and thought concerning *alētheiē*.'[8]

While 'reality' may be taken as the closest word to the intended primary meaning here, it is also true that *alētheiē*, as in Homer, carries implications about the *certainty* of what is said, and of the *correctness* and *accuracy* of the method by which it is found. Parmenides wants to insist on these points too; which he does, here and elsewhere, primarily by words indicating trustworthiness and its guarantees *(pistos, pistis, peitbō)*. The goddess promises not only insight into some reality, but a guarantee of the truth of the insight.

This reality is 'well-rounded', presumably because it forms a satisfactorily coherent and closed system; and it has an 'unmoving heart', presumably because at least in essentials it is not subject to change. Both of these thoughts reappear significantly later.

The Choice of Ways

The narrator's 'finding out' of reality is represented as a matter of simply listening to the goddess. Yet there are hints that his was an active pursuit of the truth; it was his own desire that started him off. The metaphor of travel, and the implication of active pursuit in 'finding out', are now carried further. There is talk of 'ways of enquiry'; the listener is warned off from two of these 'ways', and told of 'signs' that appear in the course of the third. The exposition envisages an active rethinking, by the listener, of the course of Parmenides' thinking.

Why the *active* participation of the listener is needed becomes clear from what follows. The exposition concerning reality is in the form of a deductive argument, which one cannot properly follow and grasp, without recreating it in the movement of one's own mind. The 'ways of enquiry' are 'lines' (as we say) of argument, each following deductively from its own initial premiss, by the mention of which it is, naturally enough, identified in the exposition. Rigorous deductive arguments were possibly already in use in mathematics; but they must have been novel to most of Parmenides' contemporaries. Hence the efforts Parmenides makes, using the metaphor of the 'ways', to keep the course of the arguments, their interrelation and their overall effect, absolutely clear.

> Come then, I will tell you (and you, listen and take in the story!), which ways of enquiry alone are to be thought: the one, that it is and cannot not be, is the path of conviction, for it follows along after reality; the other, that it is not and that it is necessary that it is not—*this* track, I tell you, is utterly unconvincing…
>
> (DK 28 B 2.1–6)

This presents, as a starting-point, a choice between two such ways, which are mutually exclusive. Clearly, though, they are not jointly exhaustive, since there might also be ways involving unrealized possibilities ('it is, but might possibly not be', 'it is not, but might possibly be'). In fact, in the sequel, Parmenides will present only one more way, the 'way of mortals', which, as stated, is evidently self-contradictory. The two named here are apparently the only ones that 'are to be thought'; and, of these, one is to be rejected as false.

What is going on here seems to be as follows. Parmenides holds (on what grounds, remains to be examined) that to speak of unrealized possibilities involves a contradiction. Hence, taking 'is it?' as the basic question at issue, there can be only two premisses to be considered: 'necessarily, it is', and 'necessarily, it is not'. The 'way of mortals', which says that 'it is and it is not', is self-evidently contradictory; it is therefore not 'to be considered'. None the less, it is mentioned later, and the reader is expressly cautioned against it, because it is a popular and appealing way. Of the two ways worth consideration, the second, which says 'necessarily, it is not', also turns out to involve a

contradiction, but this is not evident at the start; it has to be shown by argument. Once that has been done, the way that says 'necessarily, it is' is the only remaining possibility. Accordingly, it is accepted as true by elimination, and its consequences examined.

What then is meant here by 'it is' and 'it is not'? First, what is 'it'? In the Greek, the verb *esti* stands alone, as Greek verbs can, without even a pronoun to function as the grammatical subject. But unless Parmenides is making some radical and improbable departure from ordinary practice, an intended subject of discourse, of which 'is' and 'is not' are here said, must have been meant to be readily supplied from the context. Unfortunately for us, the original context is now partly missing. Between the promise of the goddess and the statement of the two ways, some now lost stretch of text, probably not long, once stood. None the less, what remains is sufficient for near-certainty as to the intended subject.

The ways are 'ways of enquiry'. An enquiry, then, is presupposed as being already afoot. What that enquiry is concerned with, is likely to be what the first part of the goddess's promise is concerned with: reality. It is true that the word *alētheiē* nowhere appears subsequently in the subject place attached to the verb *esti*. In the exploration of the true way that says 'it is', the subject of 'is' appears sometimes, cloaked in the unspecific designation *(to) eon,* 'that which is'. This phrase, though, can be taken without artificiality as another, and metrically more convenient, way of referring to *alētheiē*. (So taken, it involves a metaphysical pun: see below on the meanings of the verb *einai*.)

This conclusion, that *alētheiē,* in the sense of 'reality', is the intended subject, is central to the interpretation of Parmenides to be presented here.[9] It has been reached by a simple yet powerful argument. It has yet to be subjected, though, to a series of severe tests. A reconstruction of Parmenides deserves acceptance only if it makes convincing sense of the *whole* of the surviving evidence.

The first test arises immediately. Can one make sense of an initial choice between 'necessarily, reality is' and 'necessarily, reality is not'? At this point, we must also ask about the possible meanings of the verb *einai* ('be').

In general, it seems to make sense, whatever *x* may be, if one is making an enquiry into *x,* to start by asking 'is there any such thing as *x* or not?' The normal usage of the verb *einai* easily covers such a sense of 'is'. In launching an enquiry into *alētheiē,* understood in extension from Homeric usage in a 'summed sense', as what would be jointly indicated by all true statements, Parmenides is in effect asking, sceptically, 'why do we have to suppose that there is any such thing in the first place?'

Since this entirely normal and familiar use of *einai* fits the context so well, there is no need at the outset to look for more exotic possibilities.[10] Later, though, when the subject of discourse is referred to as 'that which is' *(to eon),* a different use of the verb bears the logical weight. Another common use of *einai* is that in which it means (said of possible states of affairs) 'obtain, be the case'. If *alētheiē* is thought of as a 'summed state of affairs', then to say that there actually exists such a thing is just the same as to say that it is the case.

Parmenides' philosophical starting-point looks, in this light, rather like that of Descartes. Both start with a philosophical enquirer, an apparently isolated mind, trying to establish what it can know with absolute certainty. Parmenides approaches the problem via the concept of *alētheiē*, the reality that would have to underwrite any knowledge. What is next to be examined is his argument to establish that there must be such a reality. It is here that his further initial presuppositions, if any, are to be found. This is the argument that rejects the way that says 'it is not'.

The Rejection of 'it is not'

The passage in which Parmenides justifies the rejection of the second way is probably not preserved entire. There survive, in fact, only the beginning ((A) below) and the end, plus a single sentence presumably belonging closely with it ((B) below).

> (A)…*this* track, I tell you, is utterly unconvincing [or: undiscoverable]; for you would not recognize [or; become aware of] what is not (for that cannot be done), nor would you point it out.
>
> (DK 28 B 2.6–8)

The claim is that the way 'it is not' must be rejected. The verbs on which the argumentative weight is thrown, are, in the aorist forms used here, common Homeric words for 'recognize' and 'point out'; they are cognitive 'success verbs'. Their objects can be either ordinary individuals or 'that'-clauses. So it is necessarily true that (1) 'you would not recognize [to be the case: i.e. get knowledge of], or point out [as being the case: i.e. show, demonstrate], what is not'.

The natural way to expand (1) into a relevant argument is as follows. If there is no such thing as reality, then no-one can recognize it, nor point it out. In that case there can be no knowledge (if knowledge requires recognition of reality) and no communication of knowledge.

This will suffice to reject 'it is not', provided two further premisses are available: (2) that knowledge involves or consists in awareness of reality, and communication of knowledge involves or consists in the pointing-out of reality; (3) that knowledge and its communication are possible.[11]

Did Parmenides supply any support for (2) and (3)? As to (2), there is no way of telling; maybe it was taken as following immediately from the meaning of *alētheiē*, as that which truths are *about*, and knowledge is *of*. As to (3), first of all some evidence of Aristotle comes in here opportunely. Aristotle identifies, as an underlying thesis of the Eleatics, that 'some knowledge or understanding *(phronēsis)* is possible' (Aristotle, *On the Heavens* III. 1, 298b14–24). This supports the reconstruction; but does not tell what grounds if any were given for (3). It cannot be that this assumption is embodied in the initial acceptance of the

'enquiry', as something actually on foot, unless there was an argument to show that enquiry is always successful. It will now be suggested that in fact the remaining pieces of text, dealing with the rejection of 'it is not', give the supporting argument for (3).

> (B) For the same thing is for thinking and for being.
>
> (DK 28 B 3)

> It must be that what is for saying and for thinking, is; for it is for being, but what is not is not [for being]…
>
> (DK 28 B 6.1–2)

These passages are part of the conclusion of the rejection of 'it is not'. But they should be treated, at least initially, as (part of) a separate argument from the one reconstructed above. Once again, Homeric usage is an important guide. 'It is for being/thinking/saying' represents an idiom familiar in Homer: 'A is for x-ing' means either 'there is *A* available to do some x-ing' or 'there is *A* available to be x-ed'.

Much depends here on what sort of thing might be said to be 'available for saying and thinking'. In Homeric usage, the object of the verbs 'say' and 'think' is usually expressed by a 'that'-clause. What the clause describes is the state of affairs, in virtue of which the saying or thinking is true or not.

An interpretation is possible within these linguistic constraints. Parmenides is arguing for the thesis that what can be said and thought, must actually be the case; i.e. that one can say and think only 'things that are', these being thought of not as true statements but as actual states of affairs.

The argument has a very close affinity with one which troubled Plato in various places, notably in the *Sophist* (but he did not accept it as correct, in the *Sophist* or elsewhere).[12] The 'Platonic problem' (as it may be called for convenience) starts from the premiss (4), that saying and thinking must have, as objects, a state of affairs, actual or not; i.e. a genuine case of saying or thinking must be a case of saying or thinking that such and such is the case. But then, (5) if saying or thinking actually and not merely apparently occurs, its object must exist. Now, (6) for a state of affairs, to exist is just to be actual. Hence (7) only actual states of affairs are thought and said, i.e. all thinking and saying is true.

In what is left of Parmenides' text there appears, not quite this argument, but a far-reaching modal variation of it. What can be thought and said, must by (4) be at least a possible state of affairs ('it is for being'). But (8) there can be no unrealized, 'bare' possibilities. The argument to this effect is brought out effectively by the idiomatic 'is for being'. What 'is for thinking', also 'is for being', and therefore necessarily is. There can be nothing more to 'being for being', than just being. Anything that is not, cannot be in any sense, and so cannot even 'be for being'. Hence every possible state of affairs is actual, and so it must be that (7) what can be thought and said is true.

We must, then, disentangle here the result (7), that there is no false thinking or saying, from the strong modal principle (8), that there are no unrealized possibilities. They are, of course, akin; in both (7) and (8), there is a refusal to have any philosophical truck whatever with any non-existent state of affairs. It is principle (8) that also supplies what is obviously needed: an explanation of Parmenides' hitherto unjustified ruling-out of the ways 'it is but might not be' and 'it is not but might be'.

Both principles, (7) and (8), are important for the rest of the poem as well.[13] In the deduction of consequences from 'it is', principle (8) will have a central role. Moreover, error, by principle (7), doesn't consist in any 'saying' or 'thinking' but in the constructing of fictions of some sort, *apparent* statements. The effect of (7) is to force a new analysis of apparent falsehood, as will be seen later.

These two partial reconstructions may now be put together to make an overall reconstruction of the rejection of 'it is not'. The overall effect of the rejection of the way 'it is not' is to establish that since there must be true thinking and saying, there must be some objective reality. The first piece of text ((A) above) is a sketch of this overall argument, using premisses (1) (2) (3). In reply to this argument, a sceptic might question premiss (3): granted that thinking and saying occur, why should it be that some thinking and saying must be *true*?[14] So Parmenides engages with this objection in the further argument which terminates in the second piece of text ((B) above). This argues that (7) there is no such thing as false thinking and saying, and (8) there are no unrealized possibilities either.

On this reading, if Parmenides' starting-point is like that of Descartes, and his first task is to show that knowledge is possible, his next problem, having shown that, is of a Kantian kind: given that knowledge and correct thought *must* be possible, what if anything follows about the nature of things? With the premisses (1), (2) and (3), he is able to show for a start that there must be such a thing as reality. There must be something for the knowledge to be *about*, and *of*, which by being so guarantees it.[15]

The 'Way of Mortals'

After rejecting the way that says 'it is not', the goddess mentions, as unacceptable, yet another way, not previously mentioned:

> Then again [I shut you out] from this [way], which ignorant mortals wander along [or. construct], two-headed (for it is helplessness that steers the wandering mind in their breasts); they drift along, deaf and blind, in a daze, confused tribes: they accept as their convention that to be and not to be is the same and not the same [*or:* that the same thing and not the same thing both is and is not]; the path of all of them is back-turning.
>
> (DK 28 B 6.4–9)

For surely it will never be forced that things that are not should be…

(DK 28 B 7.1)

There is no problem in understanding the rejection of a way that is clearly self-contradictory. But why does Parmenides identify this way as the way of 'mortals'; and are all human beings meant, or only some particular group?

From the text, the 'mortals' seems to be 'people' generally, humanity in the mass. The 'confused tribes' can hardly be just a particular group of theorists.[16] Besides, the goddess associates this way with an unthinking interpretation of the evidence of the senses, which is due to 'habit of much experience' and therefore presumably almost universal among adults:

> do not let the habit of much experience drive you along this way, exercising an unexamining eye, and a hearing and a tongue full of noise; but judge by reason the controversial test which I have stated.
>
> (DK 28 B 7.3–6)

It seems to be, not sense perception itself which is at fault here, but people's lazy habits in selecting and interpreting the information given by sense perception. The distinction had already been made by Heraclitus, who remarked: 'Bad witnesses to people are eyes and ears, if [those people] have uncomprehending souls' (DK 22 B 107). It is reason that must dictate how sense perception is to be understood, and not the other way round.

On what grounds Parmenides took ordinary people to be enmeshed in contradiction about reality, is not yet clear. The reference to 'the controversial test which I have stated' must include the rejection of 'it is not'. Parmenides may see people as accepting both 'it is' and 'it is not', because, while they see the need to assume some kind of reality, they at once contradict that assumption, as Parmenides believes, by allowing reality to contain features which are excluded by the test. For example, the existence of unrealized possibilities, and other things which are yet to be expressly excluded. The 'controversial test' probably includes also the negative implications of what is yet to come: the examination of the way that says 'it is'.

Consequences of 'it is'

The other ways having been shown false, only the way that says 'it is' remains, so that this must be true.

> Only one story of a way is still left: that it is. On this [way] are very many signs: that what is cannot come-to-be nor cease-to-be; [that it is] whole, unique, unmoving and complete—nor was it ever nor will it be, since it is all together now—one, coherent.
>
> (DK 28 B 8.1–6)

The 'signs' are best taken as the proofs, to follow, of the properties announced here as belonging to 'what is' *(eon),* i.e. reality. Evidently the deduction of the consequences of 'it is' constitutes, as expected, the journey along the way.

(a)
Reality cannot come-to-be nor cease-to-be (B 8.6–21)

> For, what origin will you seek for it? How and from where did it grow? Nor will I let you say or think that [it did so] out of what is not, for it is not sayable or thinkable that it is not. Besides, what necessity would have driven it on to come-to-be, later or sooner, starting from what is not?
>
> (DK 28 B 8.6–10)

The first section of proof reveals the techniques of argument characteristic of this part. For convenience, the subject ('what is' or 'reality') will be denoted by *E*. Suppose that *E* does at some time come-to-be. Then Parmenides asks: *out of what* does it come-to-be? The implied premiss is: (10) whatever comes-to-be, comes-to-be out of something. Parmenides seems to have taken (10) as self-evidently true; it is plausible to connect it with other places in this argument where he seems to have some variety of the Principle of Sufficient Reason in mind.
So, if *E* comes-to-be, it comes-to-be out of *F* (say). Then for *F,* in turn, there are the two possibilities: *F* is, or *F* is not. Parmenides considers the second possibility, but not, apparently, the first one. This is a first problem.

There is an extra twist to it. So far, we have considered Parmenides' reasonings about 'it is' and 'it is not' without taking account of the ambiguities of the present tense. The rejection of the way 'it is not' does not call for these to be considered. But the Greek present tense is ambiguous in the same ways as the English one; and where, as here, possible past and future events are being discussed, it becomes necessary to distinguish the various uses. 'It is' and 'it is not' may be timeless, or refer to the time of the coming-to-be, or to the time of utterance, if that is different. Parmenides gives us no help at all on this point; but it is plausible to assume that he means the question 'is *F* or is it not?' to be understood as specialized (in line with ordinary usage) to the time of coming-to-be. This results, as will now be shown, in an intelligible argument.

The question is then: *E* comes-to-be out of *F;* is *F,* or is it not, at the time of *E's* coming-to-be? First, if *F* is, at that time, then at that time it is part of *E,* since *E* (on the interpretation followed here) is the whole of reality. But nothing can come-to-be out of a part of itself, since that does not count as coming-to-be at all. This point will account for Parmenides' failure to examine the supposition '*F* is'.

Second, suppose then that *F,* at the time of *E's* coming-to-be, is not. This is the case which Parmenides examines. He gives two arguments.

One argument is: 'It is not sayable or thinkable that it *[F]* is not'. This invokes the results of the rejection of the way that says 'it is not'. By principle (7), '*F* is not' is not sayable or thinkable, because it is not true.

But why is '*F* is not' not true? By principle (i), if it were true, then F would not be capable of being recognized or pointed out; so it could not figure intelligibly in any sentence; so no sentence including it could be true, a contradiction. Parmenides in what follows will repeatedly appeal to the same consequence of (1): namely (11), *no* sentence of the form '*X* is not' can be true.

It might be objected that this principle (11) (so far as has been shown) applies only to what is not *at the time when the utterance is made;* in other words that here too there is a crucial ambiguity in the present tense. What if *F* is not, at the time of coming-to-be, but is, at the time of speaking? In that case, it would seem to be possible to recognize and point out *F,* and say of it intelligibly that it was not, at some earlier time. Again, Parmenides seems unaware of this objection. Is there a hole in his proof? It is more charitable, and perhaps more plausible, to suppose that Parmenides tacitly applies a principle of tense-logic such as this: (12) for any time *t,* and any statement *S,* if it is true now that *S* was (will be) true at *t,* then it was (will be) true at *t* that *S* is true then. By this means, Parmenides can transfer the force of principle (1) to the time of the supposed coming-to-be. '*F* is not' cannot be (have been, be going to be) true at *any* time, because, if so, it would be true at the relevant time that '*F* is not'; but, by principle (11), the truth of '*F* is not' (at any time) would involve a contradiction.

The powerful general moral to be drawn, which will find further applications, is that, in assigning the properties of what is, none may be assigned which involves reference to things that supposedly *at any time* are not.

The other argument begins: 'Besides, what necessity would have driven it on to come-to-be, later or sooner, starting from what is not?'

The demand for a 'necessity', to explain what would have happened, implies, again, some variety of the Principle of Sufficient Reason. In an initial state in which there is nothing that is, there could hardly be any way of grounding the necessity. Even if there were, why did it operate 'later or sooner': at one particular time rather than at another?

The rest of section (a) is occupied, on this interpretation, only with recapitulation and summing up. Only the case of coming-to-be has been discussed; there is no parallel treatment of ceasing-to-be, presumably because the arguments are intended to be exactly analogous.

(b)
Reality is undivided, coherent, one (B 8.22–25)

> Nor is it divided, since it is all in like manner, nor is it in any respect more in any one place (which would obstruct it from holding

> together) nor in any respect less: all is full of what is. Hence it is all coherent, for what is comes close to what is.
>
> (DK 28 B 8.22–5)

The underlying strategy here is parallel to that of section (a). Suppose that reality (E) is divided. What that implies is that something divides *E*. What could that be?

By the fact that *E* is 'summed', comprising all that is, anything other than E has to be something that is not. By the same argument as before, it can never be true to say that *E* is divided by something that is not. Hence *E* is not divided by anything other than itself. This limb of the argument, though suppressed here as obvious, appears in the parallel passage at 8.44–8.

What is here explored is the other possibility: that *E* is divided by itself, i.e. by its own internal variations. The possibility of internal qualitative variations is not mentioned; presumably they would not count as creating divisions. What is mentioned is the possibility of variations of 'more' and 'less', i.e. in 'quantity' or 'intensity' of being. These are rejected, by the observation that 'it is all in like manner'. Being admits of no degrees; anything either is or is not.

(c)
Reality is complete, unique, unchanging (B 8.26–33)

> The same, staying in the same, by itself it lies, and thus it stays fixed there; for strong necessity holds it in the fetters of the limit, which fences it about; since it is not right that what is should be incomplete, for it is not lacking—if it were, it would lack everything.
>
> (DK 28 B 8.29–33)

This is a train of argument in which exposition runs the opposite way to deduction. It must be read backwards from the end. The starting-point is that reality (E) is complete or 'not lacking'. Once again the strategy is the same, that of *reductio ad absurdum*. Suppose *E* is lacking; then E must lack something. What is this something? It cannot be part of *E*, for then it would not be lacking from E. Therefore it is not part of *E*, and hence is not; but it is not true that it is not, by the now familiar argument.

Given that *E* is not lacking, it is complete, and has a 'limit'. The word used here has no close English equivalent: Homer's usage applies it to anything that marks or achieves any kind of completion. Here, the 'limit' functions as a constraint on reality: the need for completeness is a (logical) constraint. Completeness rules out, in particular, all change and movement, and enforces uniqueness: reality is 'by itself' or 'on its own'. Why?

Completeness has these consequences because it embodies the principle that *E* contains everything that is. This now enables Parmenides to get some grip on the

problem of the past and the future. If past (or future) realities are still (or already) real, then they form part of reality; if not, not. The further question about the reality of the past (or future), does not here have to be decided. Either way, there can be no such thing as change or movement of reality: for those would imply the previous existence and present non-existence of some part of reality. Either past (future) and present coexist but differ, and then change is unreal; or the past (future) does not exist and then change is impossible.

For similar reasons it must be 'by itself, that is, unique, and not existing in relation to anything else. For 'anything else' that could be taken into account could not fail to be part of it.

(d)
Reality is spherically symmetrical (B 8.42–9)

The grand finale of the way 'it is' combines points made earlier in a striking image:

> But since there is an outermost limit, it is perfect from every direction, like the mass of a well-rounded ball, in equipoise every way from the middle. For it must not be that it is any more or any less, here or there. For neither is there what is not, which would obstruct it from holding together, nor is there any way in which what is would be here more and here less than what is; for it is all immune from harm. For, equal to itself from every direction, it meets its limits uniformly.
>
> (DK 28 B 8.42–9)

What is new in this section is spherical symmetry. From its 'being all alike' (the uniformity of its manner of being) and its perfection, is deduced its symmetry about a centre. What is surprising is not the symmetry, since that could be seen as a form of perfection, but the 'middle', a privileged central location, introduced without explanation (on this see the next section).

The Nature of Reality

Having followed the proofs of the properties of reality, one may still be uncertain just what those properties are. How strong, for instance, is the claim that reality is 'one and coherent' meant to be? Does 'completion' include spatial and temporal boundedness, and in general does reality have any spatial or temporal properties at all? How, if at all, is it related to the world apparently given in ordinary experience?

Is reality spatial or temporal or both?

First, the question of spatial and temporal properties. Parmenides shows no hesitation in applying to reality words which would normally imply spatial and temporal properties. It is 'staying in the same thing' and it 'stays fixed there'; and 'what is comes close to what is'. The word 'limit' *(peiras)* by itself implies nothing about space or time; but it is also said that this limit 'fences it about' and is 'outermost'. The simile of the ball might not be meant spatially, but what of the statement that reality is 'in equipoise every way from the middle'?

Recall that reality has been interpreted to be a state of affairs. Such a thing, though it may persist or not through time, can hardly itself have a spatial location or extension. This point chimes with another: if one supposes that reality is spatially extended, its spherical symmetry is problematic. The 'limit' cannot possibly be meant as a spatial boundary, since for reality to be bounded in space would be for it to be incomplete. It must be right, then, to take the spatial terms metaphorically. They must be aids to grasping how reality inhabits a kind of 'logical space'. This works out smoothly. The 'spherical symmetry' must express metaphorically the point that reality is exactly the same, however it is viewed by the mind: it presents no different 'aspects'. The 'middle', about which it is symmetrical, can be identified with the 'heart of well-rounded reality' mentioned earlier; and be some kind of logical core (more on this later). Likewise the undividedness and coherence of reality mean that it is unified, not logically plural, not self-contradictory. 'What is lies close to what is', in the sense that any internal variation between parts does not constitute an essential difference. 'Staying the same in the same and by itself makes the point that reality does not exist in relation to anything other than itself, and so not in relation to any external temporal or spatial framework; it is unique, and provides its own frame of reference. The metaphorical understanding of these terms is supported, above all, by the nature of the proofs. As has been seen, these make no appeal at all to properties of the space and time of experience.

With respect to time, though, the situation is different. It is at least possible to conceive of a state of affairs as being in, and lasting through, time. Parmenides argues against any *change* in reality; but this is still consistent with the view that reality is something which persists, without change, *through* time. Did he wish to go further? There are good reasons for thinking so.

First, the point made in connection with space, that reality exists 'by itself, without relation to anything other than itself, means that, if reality exists in and through time, time must itself be seen as an aspect of reality. The basic temporal phenomenon must be the temporal extension of reality. This already goes some way beyond the simple notion of a persisting reality.

Second, the argument (section (c) above) to the conclusion that reality is changeless and 'by itself seems powerful enough to rule out, not merely change, but even mere time-lapse in relation to reality.

Third, the initial list of conclusions states: 'nor was it ever, nor will it be, since it is all together now.' If one cannot even say that 'it was' and 'it will be', then one cannot say that it persists. Nor is it necessary to understand 'now' as a 'now' which implies a 'time when'. It is much more plausibly a metaphorical 'now', indicating a single timeless state, in which there is no longer any distinction of before and after, and therefore no meaning in tensed statements.

The metaphorical interpretation of these spatial and temporal terms, as applied to reality, does not, of course, imply that for Parmenides the spatial and temporal properties of ordinary objects are *illusory*. It still remains to be seen (in the next section) how Parmenides deals with the world of ordinary experience.[17]

In what sense is reality one?

There is no doubt that Parmenides was a monist of some kind; the comments of Plato and Aristotle alone would prove it, even if the fragments were lacking.[18] The relevant proofs are those given under (b) and (c) in the previous section. While argument (b) shows that reality is internally one ('not divided'), argument (c) shows *inter alia* that there is nothing other than reality (it is 'unique' or 'by itself'). Together these yield a monistic thesis: reality is both unified and unique, so there is but one thing.

Just what this monism amounts to, may be seen by seeing what it excludes. The minimum that it must exclude is the error made by mortals when (in a passage to be discussed below) they decide to 'name two forms, one of which ought not [to be named]; this is where they have gone astray' (B 8.53–4). The fundamental error of the 'mortals' of the cosmology is to allow there to be two different subjects of (apparent) discourse, rather than just one.

Parmenides is then committed at least to a logical monism: there is one and only one subject about which anything is true. This seems also to be the maximum that needs to be claimed, and the maximum that is imputed by Aristotle's remark that '[Parmenides] seems to be getting at that which is one in definition' (*Metaphysics* I.5, 986b18–19). The argument for unity (section (b)) demands nothing more. In particular it does not exclude internal variation, nor does it impose qualitative homogeneity. Reality consists of a set of facts true of itself. It is not excluded that reality might be constituted by more than one such fact; and after all many statements about reality are made by the goddess herself in the course of the argument; it would be absurd to suppose that they are meant to be seen as identical. Even though one may talk (as even the goddess sometimes does) in a misleading conventional way, this 'plurality' of facts must not be understood as a genuine plurality: what we are really dealing with here is different aspects of reality. Even when different parts of reality are distinguished, the correct formulation does not admit them as subjects in their own right, but speaks only of 'what is': 'what is comes close to what is'; 'what is cannot be here more or here less than what is'.

So when the goddess distinguishes 'the unmoving heart', and the 'middle', of reality, implying that there is also a peripheral part, she must be understood as speaking, in a conventional way, about a situation which could be described more correctly. What she means by it, has now to be considered.

The Errors of 'Mortals' and the Place of Ordinary Experience

It remains to ask how this reality is supposed to be related to the world of ordinary experience.

In Parmenides' rejection of the 'way of mortals', it was seen that sense-experience in itself did not seem to be blamed for their mistakes. It was mortals' habitual misinterpretation of sense experience which caused them to fall into self-contradiction.

After the exploration of the nature of reality, it is possible to specify the fundamental mistake of 'mortals' more clearly, and Parmenides does so:

> The same thing is for thinking and [is] the thought that it is; for you will not find thinking apart from what is, in which it is made explicit. For nothing other is or will be outside what is, since that has been bound by fate to be whole and unchanging. Hence it will all be [just] name, all the things that mortals have laid down, trusting them to be real, as coming-into-being and perishing, being and not being, changing place and altering bright colour.
>
> (DK 28 B 8.34–41)

'Mortals', here too, includes all who accept a world of real plurality and real change. Such people are committed to the reality of what are in fact conventional fictions or 'names', taken as putative objects of thinking and saying. The passage starts with a reaffirmation of the principle derived from the 'Platonic problem' (see above): 'what can be thought is just the thought that it is', since this is (with its various consequences) the only true thought. Because there is no saying and thinking something false, apparent false thought must be 'mere names'. So too at the beginning of the cosmology (see next section), where we shall see that even 'mere names' (like other conventions, so long as intelligently made and properly observed) can have their uses.

It is the subjects of ordinary discourse, the things that we normally identify as the plural changing contents of the world, that are here denounced as just 'name', conventional noises and nothing more. Since statements about them cannot be true, they are not capable of being genuinely spoken and thought about.

The self-contradictory 'way of mortals' is now explained. 'Mortals' recognize the existence of an objective reality, and therefore say 'it is'. But they also have to say 'it is not', because they take reality to be something truly plural and changing.[19]

The denunciation of 'mortals' does *not* exclude the substantial reality of the ordinary world of experience—provided a construction is put upon that world which is radically different from the usual one, on the two key points of plurality and change. The temporal dimension may be kept, so long as it is in effect spatialized, with becoming and change ruled out as an illusion. The multiplicity of things in both spatial and temporal dimensions may be kept, so long as it is seen as non-essential qualitative variation within a single logical subject.

Finally, if this is right, it yields a satisfactory sense for the mentions of the 'unmoving heart' of reality and of its 'middle', a core implying a periphery. The 'heart' or 'middle' is constituted by the necessary truths discovered by reasoning, which alone are objects of knowledge. The outside is 'what meets the eye': the contingent snippets of reality as perceived by the senses. Sense-perception, even when in fact veridical, presumably does not yield knowledge because of the possibility of deception.[20] What it reveals, not being part of the core of reality, is non-essential and not demonstrable by reasoning.

The Nature and Structure of Empirical Science: Cosmology as 'Opinions of Mortals'

Parmenides' stringently exclusive conception of knowledge does not entail the uselessness of all other cognitive states. Far from it. He recognizes both the possibility and the practical value of 'opinions' about the cosmos, when organized into a plausible and reliable system. Here, building on the ideas of Xenophanes, he turns out to be the first recognizable philosopher of science.[21]

This is why the conclusion of the investigation of reality does not mark the end of the poem. There still remains the second half of the promise of the goddess, which must now be recalled:

> It is necessary that you find out everything: both the unmoving heart of well-rounded reality *[alētheiē]*, and the opinions of mortals, in which there is no real guarantee of truth—but still, these things too you shall learn, how [*or:* since] it had to be that opinions should reputably be, all of them going through everything.
>
> (DK 28 B 1.28–32)

This promise of an exposition of 'mortal opinions' is taken up at the end of the exploration of reality:

> At this point I cease for you my trusty tale and thought concerning reality; from now on, learn the opinions of mortals, hearing the deceptive ordering of my words… This world-ordering I reveal to you, plausible in all its parts, so that surely no judgement of mortals shall ever overtake you.
>
> (DK 28 B 8.50–1 and 60–1)

What Parmenides says about his system of 'opinions' confirms the conclusion already reached, that for him sense-perception cannot give knowledge. For he is at pains to emphasize that such a system has no 'proper guarantee of truth'; and that it is 'deceptive' (it purports to give knowledge, but does not). It appeals to empirical evidence for support, not to reason. So it lacks any claim to be an object of knowledge. The deeper reason why it cannot be supported by appeal to pure reason is presumably that it is concerned with 'peripheral', contingent aspects of reality.

But there is still a problem. If conducted in the usual way, a cosmology must also necessarily be not so much false as meaningless verbiage, since it takes seriously the illusions of plurality and change, speaks as though they were real, and offers explanations of such changes in terms of physical necessities. Parmenides' 'Opinions' is such a cosmology. Why does he deliberately offer a system of which he himself thinks, and indeed implicitly says (in calling it 'deceptive', and basing it on an 'error'), that it is not merely not certain, but, taken literally, meaningless all through?

One possible answer is that Parmenides thought that his convenient, but literally meaningless, statements could be at need translated back into the correct but cumbersome language of timelessness and logical monism. Unfortunately, there is no indication in the text that it is merely a question of words.

He does at least seem to reassure us that, meaningless or not, these statements are *practically* useful. In some way they correspond to the way the world presents itself to us. The fictitious entities they mention correspond to the fictions we create on the basis of our misread ordinary experience. That experience shows they may be usefully manipulated to give a practically workable understanding of the phenomenal world.[22](Cosmology so conceived is like science as seen by 'operationalist' philosophers of science; and like divination and natural magic—a thought perhaps taken further by Empedocles.[23])

Within such limits, cosmology may none the less be required to satisfy certain formal demands.[24] Parmenides sets out these demands explicitly, for the first time. The original promise of the goddess stresses that the cosmology to be told is (1) reliable; (2) comprehensive. Both of these points are echoed in the later passage, (1) Reliability is echoed by 'deceptive' and 'plausible'. The demands on the cosmology are further that it be a 'world-ordering', not only (2) comprehensive but also (3) coherent and formally pleasing; and (4) the best possible of its kind. These last two points may also include economy or beauty of explanation. The Principle of Sufficient Reason, which is closely related to the demand for economy, appears, as in the exploration of reality, so again in the cosmology, to yield a symmetry between the two cosmic components.

In fact, Parmenides devises an elegant and economical basis for cosmology by following a hint given by the 'way of mortals'. Any conventional cosmology has to tread that false way, and to say both 'it is' and 'it is not'. The simplest way to commit this error is to suppose initially not one logical subject but two: one

which is, and one which is not.[25] The physical properties of the two subjects are then a kind of cosmic parody or allegory of the logical properties of what is and what is not.

> Now, they have fixed their judgements to name two forms, one of which should not [be named]; this is where they have gone astray. They have separated their bodies as opposites, and laid down their signs apart from one another: for the one form, heavenly flaming *Fire*, gentle-minded, very light, the same as itself in every direction, but different from the other one; but that [other] one too by itself [they have laid down] as opposite, unknowing *Night*, a dense and weighty body.
>
> (DK 28 B 8.53–9)

Fire and Night are the physical embodiments of the two opposed principles. The cosmology is dualistic, and there is reason to suspect that, as with the Pythagoreans from which it may borrow, the dualism was a moral (and an epistemic) as well as a physical one. The two opposed 'forms' are associated from the outset with knowledge and ignorance; perhaps also with good and evil. Traces of morally charged struggles and loves of 'gods' within the cosmos remain in the testimony.[26] A cycle of cosmic changes is the most likely explanation of a detached remark (DK B 5) about circular exposition.

Not only is the basis economical, but there are overall formal demands on the two forms. They must jointly exhaust the contents of the cosmos; and there must be cosmic symmetry as between them (DK B 9),[27]

Conclusion: the Trouble with Thinking

This account of Parmenides must end with questions on which certainty seems to be out of reach.

The overarching question is this: is Parmenides' 'framework', in which his theory of reality is embedded, itself meant to be grounded in that theory of reality? By the 'framework' is meant roughly the following: the original assumption about the actual existence of thinking and certain knowledge; the distinction between knowledge and opinion; the application of logic in the discovery of the nature of reality; and the assertion of the practical, empirical effectiveness of systematized 'opinions'.

Even if this question cannot ultimately be given any confident answer, it usefully focuses attention on one sub-problem, which has so far been kept to one side. This is the problem about the relation between thinking and reality. We have seen that thinking, for Parmenides, can only be of truths, indeed of necessary truths, about reality. Is it a necessary truth that thinking occurs? If so, that truth itself is of course a necessary truth about reality; and whatever it is that thinks must be (part of) reality. If so, one would think that it ought to be deducible from the nature of reality that it thinks about itself. No such

deduction appears in the text, though; and the thesis that true thinking occurs seems to be (as Aristotle took it) an initial assumption which is taken as unquestionable, but not formally proved.

On this point, there are two parts of the poem which might serve as some kind of a guide. One is the introductory narrative of the journey to the goddess. Another is the outline of 'physical psychology', a general theory of perception and thought, which is attested as part of the cosmology.

The journey to the goddess

The chariot-ride of the narrator in the introduction (preserved in DK B 1) has usually been taken as an allegory of Parmenides' own intellectual odyssey, and of the framework with which he starts.[28] Its chronology and geography are elusive and dreamlike. The individual beings mentioned, even the narrator and the goddess herself, are but shadowy outlines. Only certain *technological objects*—the chariot wheels and axle, the gate and its key—stand out in relief. Is Parmenides here proclaiming his advances in the technology of thinking, as the motive power in, and the key and gateway to, all that follows? The 'paths of Night and Day' would then be the ways of 'it is' and 'it is not'. The chariot, the horses, the daughters of the Sun who act as guides, and Parmenides' own ambition, would correspond to everything Parmenides needs to get him as far as the choice of ways,—that is, to the 'framework'. All too much, though, must be left uncertain, even if such an approach looks plausible in general.

The empirical psychology

The psychology or 'theory of mental functioning' which was outlined in Parmenides' cosmology is, equally, not much more than a tantalizing hint. Theophrastus says that for Parmenides as for several others 'sense perception is by what is similar', and goes on:

> 'As for Parmenides, he goes into no detail at all, but just [says] that, there being two elements, cognition *[gnōsis]* is according to what predominates. For, as the hot or the cold predominates, the intellect *[dianoia]* alters, but that [intellect] which is [determined] by the hot is in a better and purer state, though even that kind needs a kind of proportioning. He says:
>
> > According as the compounding of the wandering limbs is in each case, in such a way is mind present in people; for it is
> >
> > the same thing in each and in all that the nature of the limbs has in mind: the more is the thought.

> For he talks of sense perception and mental apprehension as being the same; which is why [he says that] memory and forgetting occur from these [constituents] by the [change of] compounding. But whether, if they are in equal quantities in the mixture, there will be mental apprehension or not, and what state this is, he does not go on to make clear. That he also makes sense perception [occur] for the other element [(the cold)] in itself, is clear from the passage where he says that the corpse does not perceive light and hot and noise, because of the lack of fire, but does perceive cold and silence and the opposite things. And in general [he says that] everything that is has some kind of cognition. Thus it seems he tries to cut short, by his dogmatic statement, the difficulties that arise from his theory.
>
> (Theophrastus *On the Senses* 3–4, citing DK 28 B 16)

This would seem to be at least a two-tier theory. The lower tier is basic sense perception, available to everything that exists, and 'by the similar'; i.e. what is fire can perceive fire, what is night can perceive night, and what is a mixture can perceive both. The higher tier is that of mind and thought, somehow due to a 'proportionate compounding' in human (and other?) bodies.[29]

Any inferences from these indications can be but tentative. Briefly, the general shape of Parmenides' theory of reality shows that any real thinking must be (part of) reality thinking about itself.[30] The account of Parmenides' intellectual journey may be taken as acknowledging the need for starting-points for thinking —for a 'framework'. The theory of mental activity in the cosmology is of course infected with the fictitiousness of the whole cosmology; yet it is probably meant to correspond, somehow, to the truth about thinking. If one element ('fire') in the cosmology corresponds to reality, then the fact that it is fire that cognizes fire reflects the truth that it is reality that thinks of reality. It is a pity we can know no more of what Parmenides thought about thought.

ZENO

Introduction

Zeno of Elea, fellow citizen and disciple of Parmenides, became famous as the author of a series of destructive arguments. There is no good evidence that he put forward any positive doctrines. Plato and Aristotle were deeply impressed by the originality and power of the arguments; such knowledge of Zeno as survives is due principally to them and to the Neoplatonist scholar Simplicius.[31]

The Arguments against Plurality

(a)
Plato on Zeno's book and the structure of the arguments

Plato's dialogue *Parmenides* describes a supposed meeting in Athens, around 450 BC, of the young Socrates and others with two visitors from Elea, Parmenides and Zeno. Plato's fictional narrator gives some biographical data about the two Eleatics, and recounts a conversation between 'Socrates' and 'Zeno' which tells (127d6–128e4) of the genesis of Zeno's arguments against plurality, their structure and their aim. Even if based solely on Plato's own reading of Zeno's book, this has to be taken seriously as testimony.[32]

According to this testimony, there was a book by Zeno which consisted entirely of arguments directed against the thesis 'there are many things'. Each argument began by assuming the truth of this thesis, and proceeded to deduce a pair of mutually contradictory conclusions from it, in order to make a *reductio ad absurdum* of the original thesis. In support of this account, Simplicius the Neoplatonist gives verbatim quotations from two of the arguments, which can be seen to exemplify the pattern; Plato's narrator himself gives the outline of another.

(b)
The aim of the arguments

This account of the structure of Zeno's arguments leads 'Socrates' in the dialogue to the view that Zeno's aim was simply to refute the thesis of pluralism ('that there are many things'), in any sense incompatible with Parmenides' theory, and thereby to establish Parmenidean monism. However, this conclusion of 'Socrates' is not completely accepted by 'Zeno', who denies that the book was a 'serious' attempt to establish Parmenidean monism, and goes on:

> actually this [book] is a way of coming to the aid of Parmenides' theory, by attacking those who try to make fun of it [on the grounds] that, if there is one thing, then many ridiculous and self-contradictory consequences follow for the theory. Well, this book is a counter-attack against the pluralists; it pays them back in the same coin, and more; its aim is to show that their thesis, that there are many things, would have even more ridiculous consequences than the thesis that there is one thing, if one were to go into it sufficiently.
>
> (*Parmenides* 128c6–d6)

The natural way to read this is as saying that the arguments had an *ad hominem* element. 'Zeno' cannot be saying that Parmenides' thesis really had ridiculous consequences; 'even more ridiculous consequences' points to the employment by

Zeno of assumptions made by Parmenides' opponents, but not accepted by Zeno himself.

Yet 'Socrates', a little earlier, has said that the arguments give 'very many, very strong grounds for belief (128b1–3) that pluralism, of any variety incompatible with Parmenides, is false. In Plato's opinion the arguments, however they originated, were usable against all varieties of anti-Parmenidean pluralism. Therefore Plato's testimony on Zeno cannot be fully understood unless we know how he interpreted Parmenides, which cannot be investigated in this chapter.

Provisionally, it is enough to note that there is no danger of contradiction in Plato's testimony, provided we may assume that Zeno's original opponents made, and Zeno himself used against them, only such assumptions as were either inconsistent with Parmenides; or plausibly seen as articulations of common-sense.[33] The question can be finally decided, if at all, only by analysis of the arguments themselves.

One further piece of information is given at 135d7–e7: the arguments were about 'visible things', i.e. they addressed themselves to the question of pluralism in the ordinary world, using assumptions derived from experience.[34]

(c)
The argument by 'like' and 'unlike'

According to Plato (*Parmenides* 127d6–e5), the argument (the first one in the book) purported to show that 'if there are many things, they must be both like and unlike'. Nothing further is known.

(d)
The argument by 'finitely many' and 'infinitely many'

Simplicius preserves the entire text of this argument. The compressed, austere style is reminiscent of Parmenides.

> If there are many things, it must be that they are just as many as they are and neither more of them nor less. But if they are as many as they are, they would be finite.
>
> If there are many things, the things that are are infinite. For there are always other things between those that are, and again others between those; and thus the things that are are infinite.
>
> (DK 29 B 3, Simplicius *Physics* 140.27–34)

The first limb insists on the implications of countability. If it is true to say 'there are many things' and to deny that 'there is one thing', that implies that (a) there is one correct way of counting things; (b) that that way of counting the things that

are leads to a definite result. But a definite result implies finitely many things: if there were infinitely many, counting them would lead to no result at all.

The second limb invokes the relation 'between' *(metaxu)*. Any two distinct things are spatially separate (the converse of Parmenides' argument for the oneness of reality from its undividedness). But what separates them must itself be something that is, and distinct from either. From this principle, an infinite progression of new entities is constructed.

Though this involves an appeal to spatial properties, it might easily be rephrased in terms of logical ones. The principle would be: for any two distinct things, there must be some third thing different from either which distinguishes them from one another; and so on.

(e)
The argument by 'sizeless' and 'of infinite size'

Again Simplicius is our source. He quotes two chunks of the text, and enough information to recover the rest in outline.

The first limb claimed that 'if there are many things, they are so small as to have no size'. The argument proceeded, according to Simplicius, 'from the fact that each of the many things is the same as itself and one' (*Physics* 139, 18–19). It is not difficult to make a plausible reconstruction here. First, to speak of a 'many' implies, as in (d), a correct way of counting. The many must be made up of securely unified ones. Then consider each of these units. The line may have been (compare Melissus DK B 9): what has size has parts; what has parts is not one. Hence each of the units must be without size.

The second limb contradicted this in successively stronger ways. First, it claimed to show that, in a plurality, what is must have size. Suppose something does not have size, then it cannot be:

> For if it were added to another thing that is, it would make it no larger: for if something is no size, and is added, it is not possible that there should be any increase in size. This already shows that what is added would be nothing. But if when it is taken away the other thing will be no smaller, and again when it is added [the other thing] will not increase, it is clear that what was added was nothing, and so was what was taken away.
>
> (DK 29 B 2, Simplicius *Physics* 139.11–15)

This argument in terms of adding and taking away obviously makes essential use of the assumption 'there are many things'; it could not, therefore, have been turned against Parmenides. It also needs some principle such as 'to be is to be (something having) a quantity': not a 'commonsense' axiom, but one likely to be held by most mathematizing theorists of the time.[35]

The next and final step proceeds from size to infinite size:

> But if each [of the many things] is, then it is necessary that it has some size and bulk, and that one part of it is at a distance from another. The same account applies to the part in front: for that too will have size and a part of it will be in front. Now, it is alike to say this once and to keep saying it all the time: for no such part of it will be the endmost, nor will it be that [any such part] is not one part next to another. Thus if there are many things, it must be that they are both small and large: so small as to have no size, so large as to be infinite.
>
> (DK 29 B 1, Simplicius *Physics* 141.2–8)

One axiom used is that anything having size contains at least two parts themselves having size. This clearly generates an unending series of parts having size. Less clear is the final step from 'having infinitely many parts with size' to 'infinite (in size)', which apparently was taken with no further argument. There is some analogy with the 'Stadium' and 'Achilles' (see (c) below): just as the runner's supposedly finite track turns out to contain an infinite series of substretches, each of positive length, so here the object with supposedly finite size turns out to contain an infinite series of parts, each having size. If we try to recompose the original thing out of the parts, we shall never finish, but always be adding to its size; and this, Zeno might plausibly claim, is just what is meant when we say something is infinite in size.[36]

(f)
Methods and assumptions

In the light of the arguments themselves as preserved, the question of their aims and methods can be taken up again.

It is evident that some of the assumptions used by Zeno in these arguments are not due to simple 'common sense'. Common sense does not make postulates about the divisibility *ad infinitum* of things having size; nor suppose that 'to be is to be something having a quantity'; nor insist on a single correct way of counting things. Hence Zeno's arguments are not directed against unreflecting 'common sense'. In fact, these are the kind of assumptions that are naturally and plausibly made, when one sets about theorizing, in an abstract and mathematical spirit, about the physical world.

The methods and the style of proof are also mathematical. Note-worthy are the constructions of progressions *ad infinitum*, and the remark when one is constructed: 'it is alike to say this once and to keep saying it all the time'. However many times the operation is repeated, that is, it will always turn out possible to make precisely the same step yet again.[37]

The Arguments about Motion

(a)
Aristotle's evidence

There is only one certain primary source for the content of Zeno's arguments about motion: Aristotle, who states and discusses them in *Physics* VI and VIII (VI 2, 233a21–30; VI 9, 239b5–240a18; VIII 8, 263a4–b9). Aristotle's source is not known; no book of Zeno that might have contained them is recorded. It is perfectly possible that they reached Aristotle by oral tradition. In any case, while there is no reason to doubt that they are substantially authentic, there is also no reason to suppose that Zeno's own formulations have been faithfully preserved. (A source possibly independent of Aristotle is mentioned in (d) below.)

The four individual arguments, as Aristotle reports them, derive contradictions from the supposition that something moves. Three of them purport to show that what moves, does not move. They are 'dramatized', in so far as they introduce particular supposed moving things: a runner; two runners; an arrow; three moving and stationary masses. Aristotle presents the arguments as designed to be mutually independent.[38]

(b)
The 'Stadium' and the 'Achilles'

Suppose a runner is to run along a running-track. The stretch to be traversed (call it *S*) may be considered as divided up into substretches in various ways. Given the starting and finishing points we understand what is meant by 'the first half of *S*', 'the third quarter of *S*' and so on. It seems that however short a substretch is specified in this way, it will always have positive length and may be thought of as divided into two halves.[39]

Going on in this way we can specify a division of *S* into substretches which will be such that the runner runs through a well-ordered but infinite series of substretches. First the runner traverses the first half, then half of what remains, then half of what remains, and so on. In this way, for any positive integer *n*, at the *n*th substretch the runner has covered $\frac{(2^n - 1)}{2^n}$ of *S*, and the *n*th substretch is $\frac{1}{2^n}$ of the whole length of the track. However large a finite number *n* becomes, the fraction is never equal to 1; there are infinitely many substretches.

With such a division, the series of substretches is well-ordered, and the runner who traverses *S* has been through *all* of the substretches in order: for every finite number *N*, the runner has traversed the *N*th substretch. Hence the runner has traversed an infinite series of substretches, in a finite time; but this is impossible.

This is an expansion of Aristotle's formulations (*Physics* VI 2, 233a21–23; VI 9, 239b11–14) of the 'Stadium' argument.[40] The 'Achilles' (*Physics* VI 9, 239b14–29) makes the same point more dramatically, pitting a very fast runner

against a very slow one. The slow runner is given a start. The stretch covered by the faster runner is divided up in such a way that it appears the faster can never catch the slower within any finite time. This drives home the point that speed is irrelevant. No limit of speed is prescribed or needed by the argument; the speed of the fast runner could increase without limit without removing the problem.

(c)
The 'Arrow'

Another way of looking at things supposedly in motion throughout a time-stretch is to select any one moment during that stretch. Say an arrow is in flight.

1 At any one moment the arrow must be 'in one place'. No part of it can be in two places at once; so it must occupy 'a space equal to itself (i.e. of the same shape and size).
2 The arrow must be at rest at this moment. There is no distance through which it moves, *in* a moment; hence it does not move *at* a moment, so it must be at rest at that moment.
3 But the moment chosen was an arbitrary moment during the flight of the arrow. It follows that the arrow must be at rest at *all* moments during its flight.
4 Hence, since the arrow during its flight is never not at a moment of its flight, the arrow is always at rest during its flight; so it never moves during its flight.

The above argument cannot claim to be more than a plausible filling-out of Aristotle's abbreviated report (*Physics* VI 9, 239b5–9 and 30–3).[41] Aristotle himself is interested only in step (4), where he thinks to find the fallacy; he gives the only briefest sketch of (1), (2) and (3).[42]

(d)
The 'Moving Rows'

Aristotle (*Physics* VI 9, 239b33–240a18) reports this argument in terms of unspecified 'masses' on a racecourse; to make it easier for a modern reader, the masses may be thought of as railway trains.[43]

Consider three railway trains of the same length, on three parallel tracks. One of the trains is moving in the 'up' direction, another is moving at the same speed in the 'down' direction, and the third is stationary. As may be easily verified, either of the moving trains takes twice as long to pass the stationary train as it does to pass the other moving train.

Just how Zeno derived a contradiction from this fact, is uncertain. According to Aristotle, Zeno simply assumed that the passing-times must be equal, since the speeds are equal and the two masses passed are equal in length. Then it follows that the time is equal to twice itself. The assumption, though, has often been

thought too obviously false to be Zeno's. It may simply be Aristotle's attempt to fill a gap in the argument as it reached him.[44] Yet Aristotle himself thought it not obviously fallacious, and worthy of detailed refutation.

(e)
Method and purpose of the four arguments

As Aristotle describes them, these four arguments are simply 'the arguments of Zeno about motion which cause difficulties to those who try to solve them': no suggestion that they were *all* of Zeno's arguments on the subject. Aristotle presents them as mutually independent, and in an order which is not dictated by his own concerns, presumably that of his source.

Once again, as with the arguments against plurality, some of the assumptions are manifestly theorists' initial assumptions, rather than those of simple 'common sense'; but they are close to common sense.[45] If one starts trying to think systematically in an abstract way, analogous to mathematics, about the phenomena of motion and its relation to time and space, these are assumptions that it is natural to start with. It is natural to assume that both the time-stretch and the track of the moving thing may be treated for theoretical purposes as geometrical lines obeying Euclidean geometry. This means that they are divisible *ad infinitum*, and that points along them exist 'anywhere': i.e. at all places corresponding to lengths constructible by Euclidean procedures. There was no theory equivalent to that of the real numbers available in Zeno's time, but such assumptions correspond to elementary theorems and constructions of plane geometry as it was beginning to be developed.

The way of thinking about physical phenomena embedded in Zeno's assumptions is therefore an abstracting, mathematizing physicist's way. Zeno's original opponents are likely to have been natural philosophers, very likely from the loose group of 'Pythagoreans' (see below), who were then taking the first steps towards a mathematized theory of the natural world.[46]

Just because Zeno's assumptions are natural ones for any mathematising theorist to make, his arguments still arouse heated discussion among philosophers. The suggestion, still sometimes made, that Zeno's arguments have been made obsolete by developments in modern mathematics (particularly differential calculus and the theory of infinite series), misses the point. The value and interest of all Zeno's arguments is just that they are challenges to the foundations of any mathematics and any physics that uses infinites and indivisibles of any kind and applies them to the physical world.[47]

Other Arguments

Reports of yet other arguments by Zeno survive.

Aristotle records a problem about place: 'if everything that is is in a place, clearly there will be a place of the place too, and so *ad infinitum*' (*Physics* IV 1,

209a23–5). Elsewhere he gives the problem in the form: 'if a place is something, in what will it be?' (*Physics* IV 3, 210b22–24). If this was originally one argument, it constructed an infinite series out of the common assumption that everything that is, is in a place, which is something other than itself: applying the assumption to places themselves, we shall have places of places, places of places of places, and so on. Such a series could have figured in one of the arguments against plurality. In any case, it would be a good parry to any attack on Parmenides' monism which sought to show that his 'One' must occupy a place other than itself.

Also from Aristotle (*Physics* VII 5, 250a19–22): Zeno argued that, if a heap of grain makes a noise when it falls, then a single grain and any fractional part of it must make a noise too. One may conjecture that Zeno's dilemma was: either it makes a proportionately small noise, or none at all. If the latter, a natural and fundamental assumption of mathematizing physics is undermined: the assumption that the magnitudes of effects are in direct proportion to the magnitudes of their causes. But if the former, then why do we not hear the proportionately small noise? If it fails to affect our senses, the assumption of proportionality breaks down somewhere else. Such an argument would obviously fit Zeno's programme of attack on any possible mathematical physics.

Conclusion

Examination of the evidence for Zeno's arguments leads to satisfyingly consistent results, and bears out the testimony of Plato.

First, Zeno attacked principally certain commonly-held views involving the reality of plurality and change, but did not confine himself to those targets. This fits well with Parmenides, who saw the twin beliefs in the reality of essential plurality and of change as the two marks of deluded 'mortals'.[48]

Second, Zeno's argumentative assumptions are taken from his opponents. They may be characterized as those of theoretical physics in its infancy, of 'mathematicized common sense'.

PHILOLAUS AND 'THE PEOPLE CALLED PYTHAGOREANS'

In the mid to late fifth century, there were various people and groups claiming to be 'Pythagorean'; they were found principally in the west of the Greek world (Sicily and southern Italy). Aristotle, our most reliable source, tells of certain 'Italians' or 'people called Pythagoreans' who had a programme of reducing everything to mathematics (*Metaphysics* 1.5, 985b23–986b8 and 987a9–27).[49] The only individual one, about whom something of tangible philosophical interest can be known, is Philolaus of Croton.[50]

Five fragments which may be reasonably taken as genuine reveal a theory of underlying structure in the universe which is heavily influenced by the

development of mathematics as an abstract study.[51] This theory is propounded, it seems, on the basis of an analysis of ordinary human knowledge and its presuppositions.

Philolaus' starting-point is *gnōsis*, the everyday activity of cognitive 'grasping' (individuation, identification, reidentification, reference) of ordinary individual things. This 'cognizing' implies that its objects 'have number', i.e. are in some sense measurable or countable. Quite generally, any cognizable object must be marked off from everything else by a sharp, definite boundary. Whether this boundary be spatial or temporal, the object within it will have some measurable quantity (volume, time-duration). Also, a cognizable collection of objects must have a number; indeed even a single object must be recognizable as a single object and not a plurality, which implies a definite and practically applicable method of counting. These points are recognizably related to some arguments of Parmenides and Zeno. Zeno (see above, pp. 153–4) argues that a 'many' implies a definite number; but also that it implies definite, distinct units and hence boundaries round these units. That what is must be a unit and have a boundary is also argued in Parmenides (see above, p. 41).

The concept of a 'boundary' is central here. Philolaus' analysis of the presuppositions of cognition leads him to a logical separation of the contents of the universe into 'things which bound' and 'things unbounded'. Everything in the cosmos, and that cosmos itself, is claimed manifestly to exhibit a structure 'fitted together' from the two kinds of thing. This dualism is obviously closely related to views which Aristotle attributes to 'the people called Pythagoreans'. He reports that some of them set up two 'columns of correlated opposites', which featured such items as limit/unlimited, odd/even, one/plurality, right/ left, male/ female, etc. (*Metaphysics* I. 5, 986a22–6).

Philolaus' careful attempt to build up a general ontology on the basis of an analysis of ordinary cognition, guided by mathematics, leads him naturally in the direction of Aristotelian 'form' and 'matter'. Whatever stuff an individual is thought of as being 'made of, is in itself not 'bounded'; for it might be present in any quantity. But for there to be an individual, there must be also a 'bound'.

Further explication of just what is involved in this 'fitting together' is not found, and it seems that Philolaus thought this question beyond the reach of human knowledge. That conclusion is in conformity with his method. The 'everlasting being' of things, or 'nature itself, is the subject of 'divine cognition' only. The 'fitting together' is achieved 'in some way or other'. Mathematics, clearly, cannot help; for it too exemplifies, rather than explains, the dualistic structure. All that we can say is that even humble human cognition presupposes such a structure of things in particular and in general; the first example, it has been suggested, of a Kantian transcendental argument.[52]

MELISSUS

Melissus of Samos (active around the mid fifth century) is best grouped with the philosophers of Elea, to whom he obviously owes much. In spite of the preservation of ten fragments (plus a paraphrase of other arguments) by Simplicius, and a reasonable amount of supporting testimony (the most useful from Aristotle), Melissus' intentions are not obvious. Many of his arguments seem obviously weaker and cruder than those of Parmenides; on these grounds he was dismissed with contempt by Aristotle.[53]

Foundations of Monism

As found in the quotations by Simplicius, Melissus starts by considering 'whatever was' (DK B 1). The emphatic use of the *past* tense already signals a departure from Parmenides. It may have been justified by an initial argument to the effect that thinking and speaking require the existence of something thought or spoken about; it is impossible to think or speak 'about nothing'.[54] By the time we reflect on our own thinking and speaking, they are in the past, so what is guaranteed by the argument is that something *was*.

'Whatever was' is also apparently more non-committal than 'reality'. As quickly becomes clear, however, this entity is conceived of by Melissus as extended in space and in time. It is 'the universe' rather than 'reality'. Various things are proved about it. First (B 1), it cannot have come into being, because it would have to have done so out of nothing, which is impossible. Next (B 2), it always was and always will be; Melissus here assumes that ceasing-to-be is just as impossible as coming-to-be.

Next (B 3), an obscure argument to show that the universe is spatially unbounded, perhaps intended to parallel the argument for no coming-to-be and no ceasing-to-be. The thought seems to be that a 'beginning' or 'end' in space is just as inconceivable as one in time; in either case we should have to suppose that there was nothing beyond. But that is unacceptable, apparently. Why? Possibly again for the reason that a statement ostensibly 'about nothing' (i.e. where 'nothing' appears to refer to what the statement is about) is not a statement at all.

Finally, an argument for the unity of the universe: 'If it were two, they could not be unbounded, but would have bounds with each other'. Why should internal boundary lines be ruled out? Perhaps (cf. Parmenides and Zeno) because even internal boundary lines involve what is not; they cannot be part of either of the components they separate, so are either themselves components, and need further boundaries, or are 'nothing', which is again impossible. So there cannot be two or more distinct components in the universe.

A further vital point, proved we know not how, was that the universe is homogeneous. It also has no 'bulk' or 'body', on the grounds that that would mean that it would have physical parts, and not be a unity (B 10).

Arguments against Change, Void and Motion

Melissus' arguments against the possibility of any kind of change proceed briskly but none too convincingly. First, qualitative change would imply lack of internal homogeneity in the universe, since it would have to be qualitatively different at different times. Next comes 'change of *kosmos*'; apparently some more essential type of change (change of internal structure?). The argument is that such a change necessarily involves what has already been ruled out: e.g. increase or partial perishing or qualitative change.

There follows the at first sight bizarre corollary that the universe does not experience pain or mental distress; since pain and distress imply change or inhomogeneity in various ways. To deny that would be pointless, unless the universe were at least possibly a sentient being. If Melissus, like Parmenides, began with the assumption that some mental activity occurred, that would for him have the consequence that the universe has mental activity and so is sentient.

Next, there can be no such thing as void, which would be 'nothing' and therefore does not exist. Hence there must be a plenum, which cannot admit anything from outside into itself, and so there can be no movement, since nothing can budge to make room for the moving thing. Two corollaries: first, no actual dividing of the undivided universe is possible, since that implies movement. Second, there can be no inner variation in respect of density, since 'less dense' can be understood only as meaning 'having more void'.

The Relation to Ordinary Experience and the Attack on Sense Perception

Where does Melissus' monism leave common sense and sense perception? The messages of sense perception cannot be true. Melissus bases his attack on the fact that sense perception tells us that change occurs. The argument is: if something is really so rather than so, it cannot cease to be true that this is so. Hence, if our senses tell us that, e.g. this water is cold, and then that this water has heated up, they would be contradicting themselves. So either our senses do not really tell us anything; or there is no change, when again our senses have misled us.

The aim is clear: it is to undermine any common-sense objections to the positive doctrine about the universe. It therefore has to be an independent argument. The central idea of this independent argument against change is that nothing that is true can cease to be true, 'for there is nothing stronger than what is really so'. We need a conception of truth as unchanging; but then the deliverances of sense perception need to be at least reinterpreted, for they give us only time-bound truths. So we need to revise the common-sense notion that sense perceptions are straightforwardly true.

CONCLUSION

This chapter began with Pythagoras, as the presumed source of some persistently influential thoughts. His influence on philosophy was diffuse and non-specific. His questioning of 'what we really are', and his insistence that we are moral agents in a morally polarized world, prepared for the creation of moral philosophy by Socrates and Plato.[55]

Above all, Pythagoras' insistence on the relevance of mathematics and importance of abstract structure links him to the Eleatics. For what seems to be common to both Pythagoreans and Eleatics is that they take seriously the ideal of mathematically exact knowledge, the constraining force of mathematically rigorous argument, and the cardinal role of abstract structure in the nature of things. (Pythagoras' other main concerns—the nature and destiny of the self, and the dualism of good and evil—surface in the Eleatics, if at all, only in Parmenides' cosmology.)

The Eleatic philosophers, likewise, had an influence which reached far beyond their few actual followers, and is still active today. Higher standards of precision in statement and rigour of argument are noticeable everywhere in the later fifth century. Metaphysical argument in the Eleatic style appears: in Melissus, and as an intellectual exercise or for sceptical purposes, as in the sophist Gorgias. More significantly, Socrates' step-by-step, mostly destructive argumentation is Eleatic in spirit; it developed into the philosophical method of Plato and Aristotle, both of whom pay tribute to 'father Parmenides'.

In the philosophy of scientific theorizing, it was Zeno's dazzling attacks on incipient mathematizing physics that, for a long time, stole the show. Their effect was not wholly negative: they stimulated further investigations into the foundations of mathematics, and its relation to the physical world, which culminated in the work of Aristotle. The more constructive thinking of Parmenides and Philolaus about scientific theorizing has only very recently begun to be understood and appreciated.

NOTES

1 The classic study of Walter Burkert (Burkert [2.25]) supersedes all previous discussions of the evidence. It may go too far in the direction of scepticism about Pythagoras as theoretician: see Kahn [4.2]. The (pre-Burkert) catalogue of sources in Guthrie [2.13] Vol I: 157–71 is still serviceable.

2 Those of Aristoxenus, Dicaearchus and Heraclides Ponticus were the earliest and most influential: see Burkert [2.25], 53–109.

3 Certain animal foods were taboo, but a comprehensive ban on the slaughter and eating of animals is improbable and poorly attested for Pythagoras himself. Some under Pythagorean or Orphic influence, such as Empedocles, did observe such a ban. On the whole subject of the taboo-prescriptions and mystical maxims *(akousmata, sumbola)* of the early Pythagoreans, see Burkert [2.25], 166–92.

4 The fragments of Parmenides have been edited many times. DK is the standard edition for reference purposes; the most reliable and informed recent edition, on matters of Greek linguistic usage and of textual history, is that of Coxon [4.8], which also gives much the fullest collection of secondary ancient evidence. Among minor sources are some other Neoplatonists (Plotinus, Iamblichus, Proclus), and Sextus Empiricus the Sceptic.

5 The scholarly literature is extensive. A small selection is given in the bibliography; the monograph of Mourelatos [4.24] can be particularly recommended for clarity, fullness of information and breadth of approach. The footnotes below offer very brief indications of the spread of opinion on cardinal points; they do not try to outline the arguments needed to justify the reading given in the text.

6 On Xenophanes and his relevance here, Hussey [2.35], 17–32.

7 On the 'opinions of mortals' see below pp. 147–9.

8 On *alētheiē* and related words in early Greek, scholarly discussion has been too often darkened by philosophical prejudice. See the useful study of Heitsch [4.29]; also Mourelatos [4.24], 63–7 and references there.

Alētheiē in Parmenides is taken as 'reality' by Verdenius [4.30], Mourelatos [4.24], 63–7, Coxon [4.8], 168. Others understand it as 'truth' or 'manifest or necessary truth'.

9 So Verdenius [4.30]. Allied to this view are those who take the intended subject to be 'what is' in the sense of 'what is the case' (e.g. Mourelatos [4.24]). Other leading candidates for the role of subject of discourse: 'that which is' (so e.g. Cornford [4.19], Verdenius [4.27], Hölscher [4.22], O'Brien [4.12]); 'what can be spoken and thought of (Owen [4.46]), 'whatever may be the object of enquiry' (Barnes [2.8]). That a wholly indefinite subject ('something') or no specific subject at all is intended, at least initially, is suggested in different ways by e.g. Calogero [4.18], Coxon [4.8].

10 On the verb *einai* 'be' in early Greek, see items [4.31] to [4.34] in the Bibliography. The entirely straightforward Homeric usage ('*X* is'—'there is such a thing as *X*') is the obvious first hypothesis for the *esti* and *ouk esti* paths. Some, though, have put the so-called 'veridical' uses ('be'='be true' or 'be'='be so', 'be the case') in the forefront (e.g. Jantzen [4.23], Kahn [4.42]); others make the use of *einai* in predication central (e.g. Mourelatos [4.24]); yet others (Calogero [4.18], Furth [4.41]) have suggested that in Parmenides this verb is a 'fusion' of two or more of the normal uses.

11 In fact premiss (2), even without (1) and (3), gives a reason to reject the way that says 'it is not'. For this way says, about reality generally, that it doesn't exist or obtain. So by its own account it can't state any truth, since truth presupposes reality. But there is nothing to show that Parmenides took this short cut.

12 Plato *Theaetetus* 188c9–189b6, *Sophist* 237b7-e7. On the versions of this argument in Plato, see e.g. items [4.49] to [4.51] in the Bibliography.

13 It is true that in places the words 'say' *(legein, phasthai)*, 'think' *(noein)* and their derivatives are used in ways that seem inconsistent with principle (7). (a) The goddess describes (at least) two ways as those 'which alone are to be thought' (B 2.2), including (at least) one false one. (b) She warns Parmenides against a false way: 'fence off your thought from this way of enquiry' (B 7.2), as though it were possible to think its falsities, (c) She speaks of '[my] trusty account ("saying") and thought about reality' (B 8.50–1), as though it were possible to have un-trusty

thought. Of these passages, though, (b) and (c) are rhetorical flourishes, in no way essential to the argument; while (a), which occurs before principle (7) has been introduced, need only mean that *at most* those two ways can be thought.

14 Xenophanes, for instance, would have questioned the ambition of establishing the truth, rather than mapping out by enquiry *coherent possibilities for well-based opinion*.

15 Whether this reality is *objective* or not, is not here at issue. On this question, see 'Conclusion; the Trouble with Thinking'.

16 Though verbal echoes suggest that Parmenides (not surprisingly) had Heraclitus, with his aggressive use of (?apparent) contradictions, particularly in mind.

17 Some have taken the spatial and temporal ways of speaking literally. Literal sphericity and centre: e.g. Cornford [4.19], Barnes [2.8]; against this, e.g. Owen [4.46], 61–8. Persistence through time: e.g. Fränkel [4.20], sect 6; Schofield [4.48]; against this, Owen [4.47] The tense-logical principle ascribed to Parmenides at p. 140 above would not commit him to the reality of time in any sense.

18 For example, Plato *Sophist* 242d4–6; *Parmenides* 12834–433; Aristotle *Metaphysics* 1.5, 986b10–19. Recent views on just what the monism amounts to, and of the reliability of Plato's testimony, have differed widely; Barnes [4.39] maintains that Parmenides is not a monist at all.

19 The contemptuous term 'mortals' may itself hint at their double mistake, by itself presupposing that mistake: it is plural, and it implies the reality of death. By their very error, they condemn themselves to appear to themselves as plural and ephemeral. Interesting parallels for this in early Brahmanical monism, e.g. in the Katha Upanishad:

> …Herein there's no diversity at all.
> Death beyond death is all the lot
> Of him who sees in this what seems to be diverse.

(R.C.Zaehner, *Hindu Scriptures* (Everyman's Library: London and New York, Dent/Dutton, 1966); 178)

20 That the bare possibility of deception suffices to destroy a claim to knowledge had been pointed out by Xenophanes (DK 21 B 34).

21 On Xenophanes see the section 'The Promise of the Goddess'.

22 But what it is (if anything), in the nature of reality, that underwrites this practical usefulness, is not clear. There is a hint ('it *had to be* that opinions should reputably be', B1.32) that Parmenides did envisage such a guarantee; and see below on the cosmology as formally parallel to the section dealing with *alētheiē*.

Scholarly opinion has been much divided on the status and purpose of the section concerned with the 'opinions of mortals'. They have been taken, for example, as a 'dialectical' refutation by analysis of the presuppositions of ordinary mortals (Owen [4.46]), a 'history of the genesis of illusion' (Hölscher [4.22]), a 'case-study in self-deception' (Mourelatos [4.24]); or as reportage of the latest (Pythagorean) fashion in cosmology (Cornford [4.19]). Or, as here, they have been taken to be meant seriously as empirical science (and philosophy of science); so e.g. Calogero [4.18], Verdenius [4.27], Fränkel [4.20].

23 Empedocles promises magical powers to the disciple who meditates on his cosmology: Empedocles DK B 110 and 111.
24 On the internal structure of the 'opinions', and the parallelism with *Alētheiē*, see Mourelatos [4.24], 222–63.
25 This reading is supported by Aristotle's testimony (*Metaphysics* 1.5,
26 'Love' as a power: DK 613, cf. Aristotle *Metaphysics* 1.3, 984b20–31; struggles of gods: Plato *Symposium* 195c, Cicero *On the Nature of the Cods* I.II.28 (DK 28 A 37). There is no need to be puzzled by the appearance of Hesiodic divinities here, if Parmenides, as suggested, is taking an 'operationalist' view of what he is doing.
27 On details of the cosmology not discussed here (except for the theory of mental functioning, on which see pp. 150–1; see Guthrie [2.13] II: 57–70.
28 But there is much disagreement about the details. An extended ancient allegorization is found in Sextus Empiricus (*Adversus Mathematicos* VII.111–14). For the important parallels in Homer, Hesiod and Orphic writings, see Burkert [4. 28].
29 On the theory of mental functioning, Fränkel [4.20], sect. 3; Laks [4.54]. Both text and meaning of the lines of Parmenides here quoted by Theophrastus are, unfortunately, uncertain at vital points.
30 Of course it does not follow from this that reality's thinking is what alone constitutes reality, nor that reality is just what thinks itself. (It does follow that reality is not ultimately 'mind-independent', in that it is necessarily thought by itself. In this rather special sense, Parmenides is an idealist, but not provably in any wider sense.)
31 Zeno was 'the Eleatic Palamedes' (Plato *Phaedrus* 261d6), the 'inventor of dialectic' (Diogenes Laertius *Lives* VIII.57 (W.D.Ross *Aristotelis Fragmenta Selecta*, Oxford, 1955:15).
32 Plato's evidence has not gone unchallenged. Zeno has sometimes been read as attacking Parmenides as well as his opponents, particularly by those who question whether Parmenides was a monist. The attempt of Solmsen [4.72] to undermine Plato's testimony was countered by Vlastos [4.73]; but even Vlastos doubts Plato's testimony that all the arguments in the book were directed against plurality.
33 Closeness to common sense is also suggested by the knockabout flavour of 'making fun' *(kōmōidein)*. (The phrase 'as against all the things that are said' (127d9–10) is too vague to be of use.) But mere unreflecting common sense would not have tried to make fun of Parmenides *by arguments*, as Zeno implies his opponents did.
34 This fits the earlier suggestions of *ad hominem* argumentation by Zeno. It does not imply that, in Plato's opinion, Parmenides' monism was a monism about the ordinary world.
35 So Aristotle, *Metaphysics* III 4, 1001b7–16, who calls the argument 'crude' because of this assumption.
36 Vlastos ([4.64], 371) points out that the step made here was taken as valid by many later ancient writers.
37 Other possible arguments of Zeno against plurality appear at: Aristotle *On Generation and Conception* 1.2, 316a14–317a12 (not attributed, and introduced in the context of Democritus' atomism); and Simplicius *Physics* 139.24–140, 26, Themistius *Physics* 12.1–3, Philoponus *Physics* 80.23–81.7 (attributed to

Parmenides or Zeno). On these as possibly Zeno's: see Vlastos [4.64], 371–2 and Makin [4.66].

38 On their possible interdependence, see section (e).

39 Compare the assumption needed in (e) above, that anything having size can be divided into two things each having size.

40 Sometimes known as the 'Dichotomy'. Aristotle's own solution is at *Physics* VIII 8, 263a4–b9.

41 Aristotle's phrase corresponding to 'at a moment' is 'in the now', i.e. 'in the present understood as an indivisible instant'. This excludes periods of time, even supposedly indivisible ones. It is possible that Zeno's argument somehow depended crucially on the instant's being taken as *present* (as suggested by Lear [4.67]).

42 Diogenes Laertius (*Lives* IX.72, DK 29 B 4), using a source independent of Aristotle, gives a summary of an argument which may possibly descend from Zeno's formulation of step (2): 'that which moves does not move either in the place in which it is, or in the place in which it is not'.

43 The long illustrative example (240a4–17), implying a lettered diagram, is given as Aristotle's own contribution; there is no reason to attribute it to Zeno.

44 Attempts to reconstruct a more satisfactory argument include those of Furley [4.63] and Owen [4.68].

45 In some interpretations, the arguments have been seen as systematically exhausting the theoretical possibilities for pluralism. The idea goes back to the nineteenth century; notable in this connection is the theory of Owen [4.68]. On such a view, time and the track of the moving thing are considered in the 'Stadium' and the 'Achilles' as divisible *ad infinitum;* but in the 'Arrow' and the 'Moving Rows' as 'atomized', i.e. as consisting ultimately of indivisible units of extension.

46 On the indications connecting Zeno's arguments with 'Pythagoreans' see Caveing [4.62], 163–80.

47 This is not to deny that modern mathematics enables us to give sharper formulations both of the arguments and of the possibilities for meeting them: see especially Grünbaum [4.75].

48 See above pp. 145–7.

49 On Aristotle's description and criticism of this programme, see Huffman [4.78], 57–64; and Kahn [4.2].

50 The surviving fragments attributed to Philolaus are due to various late sources (Diogenes Laertius, some Neoplatonists, and the anthology of Stobaeus). Their authenticity is controversial; on this question, see Burkert [2.25], 238–68; [4.78],

The reading of Philolaus given here is indebted to Burkert [2.25] and particularly to Nussbaum [4.79],

51 See DK 44 B 1, 2, 4, 5, 6.

52 Nussbaum [4.79], 102.

53 Aristotle *Metaphysics* I.5, 986b25–7 ('rather crude'); *Physics* I 2, 185a10–11 ('low-grade'). One purported source, the pseudo-Aristotelian essay *On Melissus Xenophanes Gorgias (MXG),* is an exercise in 'philosophical reconstruction', from which it is not possible to disentangle with confidence any further information about Melissus. *MXG* is not drawn on here. The most noteworthy modern attempt to rehabilitate Melissus as a philosopher is that of Barnes [2.8], chs. 10, 11, 14.

54 This is a conjectural interpretation of Simplicius' paraphrase, *Physics* 103.15: 'if nothing is, what would one say about it as though it were something?'

55 It is not safe, though, to read back the mind-body dualism of Plato's middle period into Pythagoras.

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CHAPTER 5
Empedocles

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INTRODUCTION

Empedocles was a native of Acragas (Agrigento) in Sicily, a Doric colony founded on the south coast of the island in the sixth century BC, which soon grew to rival Syracuse in its prosperity. A line of temples, many of which are still standing, attested to its wealth and public piety; behind the city rose the dramatic volcano of Etna, and the plains further into the hinterland were held sacred to Demeter and her daughter Persephone, and their associated mysteries and cults.

Empedocles' lifetime spanned the greater part of the fifth century, probably from 494 to 434 BC. His family was aristocratic, but more inclined to democracy than oligarchy. There are various anecdotes supporting his own pro-democratic outlook, and his part in overthrowing a tyrannical regime in the city. He had a reputation as an experienced orator, and taught, or at least influenced, the great Sicilian rhetorician Gorgias. He is also credited with giving practical help in various emergencies, and his work shows a detailed interest in anatomy, embryology and physiology, as well as in more general biological and botanical themes. He claims to have travelled extensively, and to have been both well-known and popular:

> Whenever I enter prosperous towns I am honoured by both men and women. They follow me in countless numbers, to ask what is best for them, some seeking prophecies, others, long pierced by harsh pains, ask to hear the word of healing for all kinds of illnesses.
>
> (fr. 112.7–12)

As a result of such claims, and of the confidence in his understanding of natural science, he acquired a reputation as a wonder-worker. There was however no sound basis for this, or for the legend, preserved in the same context, of his suicide leap into the volcano at Etna. Despite their romantic appeal, a life-style as a magician and this dramatic death are both firmly rejected as fabrications by

the early local historian Timaeus. As was often the case such biographical details probably arose from particular interpretations of the philosopher's own words in different contexts. Because of his known political sympathies Empedocles is more likely to have ended his years in exile in south Italy or mainland Greece; he is reported to have been barred from Sicily when the descendants of his political enemies opposed his return.

Empedocles' travels through the towns of south Italy, for which there is evidence independent of his own words, would have brought him into contact with the philosophical activity there. He is likely to have known of the Pythagorean communities around Croton and the pan-Hellenic foundation of Thurii in 443 BC, which involved the sophist Protagoras and later attracted the historian Herodotus. He was certainly influenced by Parmenides in Elea and was a contemporary of Zeno there. His place in the history of pre-Socratic thought is further confirmed by the notice in the first book of Aristotle's *Metaphysics* that he was younger than Anaxagoras but his philosophy came earlier.

Like Parmenides, Empedocles wrote in verse, in the epic hexameters and style of Homer's *Iliad* and *Odyssey*. It is reported from Timaeus that part of his work was recited at the Olympic games as one of the display pieces, and his talent as a poet later earned praise from Aristotle. Although he is credited with various writings in the *Life of Empedocles* by Diogenes Laertius—a *Hymn to Apollo*, an essay on Xerxes' invasion of Greece, a medical treatise, political works, tragedies and epigrams—there is reliable evidence for just two poems, known as *Physics* (or *On Nature*) and *Katharmoi (Methods of Purification)*. These titles were probably assigned later, and have since been understood by some as alternatives for one comprehensive work. All in all there are over 450 lines extant from the Empedoclean corpus, more than from any other pre-Socratic, in over 130 fragments, some in continuous blocks and others as individual verses or phrases. From various surviving summaries and doxographical evidence it appears that these form a nucleus of the original which allows for a reasonably confident reconstruction of the main topics of his philosophy and his treatment of them.

There are two main themes: one deals with scientific and cosmological principles, set out in the fragments traditionally assigned to the *Physics*, and is addressed to the student Pausanias; the second, the subject of the *Katharmoi*, has the form of a public proclamation to the citizens of Acragas, and is concerned more with psychology, purification and related ritual. The fragments may be attached to one or other of these themes according to explicit citations from ancient authors, the use of the second person singular or plural for the addressee and other criteria, but the placing of many is dubious. Recently there have been attempts to relocate some important fragments from the *Katharmoi* to a *Proem* of the *Physics*, and so significantly reduce the content and subject-matter of the public poem, or to take them all as from a single work. In whatever way the fragments are arranged (and the case for two separate works is still the stronger) scholarship on Empedocles has always been much concerned with the problem of reconciling

a complex scientific philosophy explained to a particular individual with public exhortations to a moral and religious life-style that appears to be incompatible with it. In Empedocles' case the problems of compatibility and consistency are increased by the the fact that he expounded his ideas in the form of epic poetry rather than through the medium of prose, which had first been developed by the Ionians in the sixth century BC as a medium more appropriate than verse for philosophical exposition. The exotic vocabulary and complex style that characterize Empedocles' talent often make his work ambiguous and obscure, especially when contrasted with the simpler language and more direct argument of Parmenides' poem, but they also add to its fascination.

As with later figures in the history of ideas, it is not necessary to assume a 'conversion' from science to religion or a disillusioned rejection of religious principles in favour of the rigours of science, since obviously a common issue may be approached from different points of view, appropriate to the immediate context and level of understanding assumed. Nor is it as obvious now as formerly appeared that there is such a great divide between science and theology that the two cannot be expected to engage the same mind at the same time. Few ancient Greek philosophers would have recognized such a division, and now once more the distinctions are blurring. The last sentence of *God and the New Physics* (Harmondsworth, Penguin, 1984), for example, by the contemporary cosmologist Paul Davies shows an innate sympathy with the comprehensive approach found two thousand years earlier in Empedocles:

> It is my deep conviction that only by understanding the world in its many aspects—reductionist and holistic, mathematical and poetical, through forces, fields and particles as well as through good and evil—that we will come to understand ourselves and the meaning behind this universe.
>
> (Davies, 1984:229)

In some recent developments which are likely to dominate scientific studies into the next millennium it is possible to view Empedocles as a distant precursor. First the combined study of physics, chemistry and biology is apparently unlocking the secret of life itself as the mapping of the sequences of the DNA molecule progresses. These rest on the myriad variations of a genetic alphabet of just the four letters A, T, G and C (the initials of adenine, thymine, guanine and cytosine), the basic building blocks of protein being in principle something like Empedocles' four 'roots'. As with Empedocles the results cover the whole spectrum of life, from the simplest plant forms to humans, and show large areas of overlap in genetic material between what were thought to be widely differing species. It is expected that there will be great rewards in improved understanding of disease, in new cures and in the manipulation of the limits of life in birth and death; those who work in these areas are given Nobel prizes, the modern equivalent of being 'crowned with ribbons and garlands, honoured by all'. Then the latest theories in cosmology also have great popular appeal, and books on the

subject become best-sellers. A particular interest here which is relevant to the student of the pre-Socratics and especially of Empedocles is the search for a unified theory which will explain the complexity of phenomena from the immensely large to the most minute as a seamless manifestation of basic principles.

A third focus of modern science comes in new research into the old mind-body problem, where the study of the brain, and advances in parallel neural computing, might well engender a more sympathetic attitude to the reductionism of the early thinkers as well as providing a context in which it is still worthwhile to discuss the working of individual sense-organs in something akin to Empedoclean terms. Finally it becomes necessary to find a way of life for humans in the light of the latest discoveries, to deal with individual emotions (especially the polarities of erotic attraction and aggressive hostility) and to direct decision-making towards the development of viable relationships and societies that do not conflict with other living creatures and the natural environment. It is in these four main areas, in the theories of elements, of cosmology, of perception and cognition, and of the unity of life, that Empedocles' position in the history of philosophy is assured.

THE THEORY OF ELEMENTS

Empedocles started from a basic principle that was his most influential discovery in the history of science: the understanding of the nature of an element, and the reduction of all apparent generation, alteration and destruction, along with the particular and changing characteristics of what is perceived, to a limited number of persisting and unchanging basic entities. Empedocles had assented to the conclusion from the 'Way of Truth' of his predecessor Parmenides that there could be no absolute birth or death, since these entail temporal non-existence, which was found to be logically unacceptable; his wording here follows the Eleatic argument closely:

> It is impossible for there to be a coming into existence from what is not, and for what exists to be completely destroyed cannot be fulfilled, nor is to be heard of.
>
> (fr. 12)

Parmenides had likewise denied the corresponding spatial non-existence; Empedocles identified this as void (what is empty or *kenon*) and then, on similar logical grounds, refused its admittance as a divider between the continuity and homogeneity of being, for 'there is no part of the whole that is empty' (fr. 13). This also meant that there could be no addition to or subtraction from the total sum, for, as he says elsewhere, 'What could increase the whole? And where would it come from?' (fr. 17.32). The common acceptance of additions and subtractions as births and deaths should consequently be understood as merely 'names' mistakenly used in human speech:

> When there has been a mixture in the shape of a man which comes to the air, or the shape of the species of wild animals, or of plants, or of birds, then people say that this is to be born, and when they separate they call this again ill-fated death; these terms are not right, but I follow the custom and use them myself.
>
> (fr. 9)

Empedocles then developed from the hint of the two forms of light and night in Parmenides' 'Way of Opinion' the concept of a minimum number of elements, with permanent and unalterable characteristics, which could account for a world of plurality and variety according to their proportion and arrangement in compounds.

Like Parmenides, Empedocles was also a poet wrestling with a new vocabulary, and for his opening move, instead of saying in a straightforward manner that the number of elements was four, and that they correspond to fire, air, earth and water, his words translate as:

> Hear first the four roots of all things: bright Zeus, life-bringing Hera, Aidoneus and Nestis, whose tears are the source of mortal streams.
>
> (fr. 6)

The botanical term 'roots' *(rizōmata)* indicated the vitality of the sub-structures, their unseen depths and the potential for growths from them, while the divine names were an indication of their potency and sempiternity. Why were these four chosen? Perhaps Empedocles had in mind the Homeric division of the world which allotted the sky to Zeus, the sea to Poseidon, the underworld to Hades, and left the earth common to all, and then adapted this division to apply to two pairs of male and female principles, one higher (Zeus the fire above, and Hera the air), and one lower (Aidoneus for earth, and Nestis as water). Four was the economical minimum number, reinforced by the importance of the opposites of hot and cold, dry and wet for the earlier Milesians, and by the adoption of different basic principles:—of air (by Anaximenes), of fire (by Heraclitus), of water (attributed to Thales) and the general tradition of earth as the mother of all. A group of four (the first square number and associated with justice for the Pythagoreans) also allowed for mutual activity within a structure of balance and equilibrium. Most obviously the four comprised the natural masses visible in a coastal town of Sicily:—the earth below, the sea at its edge, the air above and fire visible in the bright sun and also in the lava pouring from the volcanoes.

This is confirmed by one fragment of Empedocles which states that an understanding of the true nature of things can come simply from looking around:

> since all these—sun and earth and sky and sea—are one with the parts of themselves that have been separated off and born in mortal things.
>
> (fr. 22)

At their first appearance the four were given divine names, since they had now taken the place of the traditional gods as the true immortals, but Empedocles' vocabulary was not consistent. As well as the names of gods and goddesses, he also listed them by the common terms of fire, air, earth and water, or by their most obvious manifestations as sun, sky, earth (*chthōn* as well as *gaia*), and sea or rain. He posited just these four, no more and no less, eternally existing, ever the same, equal in privilege and power, but capable, as they mingle, separate and reassemble, of producing a variety of phenomena. The evidence for their individual characteristics, as for their very existence, was to be found in their appearance as conglomerates in the natural world:

> sun with its radiant appearance and pervading warmth, heavenly bodies bathed in heat and shining light, rain everywhere dark and chill, and earth the basis of firmly rooted solids.
>
> (fr. 21.3–6)

Such qualitative differences as hot and cold, wet and dry, light and dark, remain whether the four are separated out in perceived stretches of bright sky, mist, land and sea, or brought together in compounds, in which the characteristics of the predominating elements may be apparent, but others imperceptible because of the smallness of the component particles.

Empedocles therefore considered the four roots or elements to be basic and permanent corporeal entities, forming temporary arrangements as their parts were brought into compounds of different shapes, although they themselves were not subject to alteration of any kind. He constantly rammed the point home:

> these are the only real things, but as they run through each other they become different objects at different times, yet they are throughout forever the same.
>
> (fr. 17.34–5 and cf. 21.13–4, 26.3–4)

Birth and death, generation and destruction have to be accepted as illusory, the consequence merely of the mingling and separating of parts of the elements in various proportions, which give to the different structures their apparent individuality. The context in fragment 21 explains further:

> From them (the four 'roots') comes all that was and is and will be hereafter —trees have sprung from them, and men and women, and animals and birds and water-nourished fish, and long-lived gods too, highest in honour. For these are the only real things, and as they run through each other they assume different shapes, for the mixing interchanges them.
>
> (fr. 21.9–14)

To illustrate the possibility of the wide diversity of phenomena generated from just four elements Empedocles used the simile of a painting, which can show in two dimensions a variety of plant, animal and human life, although it consists basically of pigments of a few primary colours in a particular arrangement:

> As painters, men well taught by wisdom in the practice of their art, decorate temple offerings when they take in their hands pigments of various colours, and after fitting them in close combination—more of some and less of others—they produce from them shapes resembling all things, creating trees and men and women, animals and birds and water-nourished fish, and long-lived gods too, highest in honour; so do not let error convince you that there is any other source for the countless perishables that are seen…
>
> (fr. 23.1–10)

This fragment also throws light on how parts of elements are placed together in a compound. Empedocles is not speaking of a complete fusion, like blue and yellow blending to form green, but, according to the common practice in Greek painting, of the juxtaposition of pigments or washes (usually black, white, red and yellow) to produce the effect of figures and objects. The parts of elements involved in a compound may be very small, as when for example they form the alternating channels of fire and water in the eye, or are compared to metals ground down to fine powders, but even so they are not reducible to absolute minima. In positing elements in Aristotle's phrase (*On the Heavens* 305a4) that are 'divisible but never going to be divided', Empedocles' philosophy here contrasts on the one hand with the complete infinite divisibility of compounds in Anaxagoras' theory and on the other with Democritean atomism.

Empedocles' far-reaching conclusion that despite appearances to the contrary all animate and inanimate forms should be understood as particular arrangements in different proportions of a small number of unchanging, qualitatively distinct elements immediately became standard, and was taken into account by philosophers, cosmologists, natural scientists and medical writers throughout antiquity, and into the Middle Ages and beyond. As a basic principle it foreshadows contemporary assumptions in a number of areas, for example that the main ingredients of living things are the elements of carbon, hydrogen and oxygen, that language, literature and mathematics can be expressed as encoded variations of the binary numbers zero and one, and that the genetic range of species is reducible to an arrangement of the four basic letters of the DNA strings.

Some further motive force however was required in Empedocles' scheme to explain how the four elements come into compounds and separate into their own masses. For this role he posited opposed principles of attraction and repulsion which, in his vivid vocabulary, he called *philia* ('love', 'friendship') and *neikos* ('strife', 'hate'). As the visible masses of earth, sea, sun and sky had provided

evidence for the four elements and their characteristics in the composition of individual constructs, so a further inference was drawn from the power which these two basic drives have in human experience and action to their involvement in the widespread generation and destruction of forms of life. Empedocles attributed the continual grouping, separating and regrouping of elements in temporary compounds to the beneficient or destructive effects of these forces:

> For all these—sun and earth and sky and sea—are one with the parts that have been separated off and born in mortal things. In the same way, those that are more ready to combine are made similar by love and feel mutual affection. But such as are more different from each other in birth and mixture and the moulding of their forms are most hostile, inexperienced in union, and grieving at their generation in strife.
>
> (fr. 22)

The same patterns of constructive unity and corruptive separating could also be found on a larger scale, in the different kinds of life found in the distinctive elemental masses:

> This is well known in the mass of mortal limbs: at one time, in the maturity of a vigorous life, all the limbs that are the body's portion come into one under love; at another time again, torn asunder by evil strifes, they stray on the borderline of life. So it is for plants, and for fish that live in the water, and for wild animals who have their lairs in the hills, and for the wing-sped gulls.
>
> (fr. 20)

From such quotations it is clear that Empedocles' arguments for the existence of universal principles of attraction and repulsion were derived from empirical observations in the natural world of the processes of birth and growth being countered inevitably by decline and disintegration, and from consideration of the powerful stimuli to action engendered by love and hate in human experience. In addition a crucial significance had been given to love (as *erōs*) in Hesiod's *Theogony* which Parmenides had adapted for his cosmology, and Anaximander and Heraclitus had used the political terminology of aggression and war for the tensions and oppositions necessary to the maintenance of the present world order.

Love and strife in this theory are, like the elements, ungenerated, unchanging and indestructible, and Empedocles presented them as set against each other in eternal rivalry for universal government. They are not however material, as fire, air, earth and water are, or like them visually recognizable on a large scale; instead the student is told to 'contemplate love with the mind':

> She is acknowledged to be inborn in human bodies, and because of her their thoughts are friendly and they work together, giving her the name Joy,

> as well as Aphrodite. No mortal has perceived her as she moves among them, but pay attention to my line of argument, which will not mislead you.
> (fr. 17.21–6)

The existence of the opposed stimuli is to be *inferred* from an understanding of how the elements act and react to each other, and any apparent personification is a question of allegory or poetic licence.

Empedocles described his principles of attraction and repulsion in terms of equal balance and power. They are able to extend over the elements and act on them, with expanding and contracting areas of application as the four are brought together or held further apart. Love 'increases' and takes up more place in the sense that more and more elemental particles may be brought together to mingle, and the converse holds 'when Strife rises to its honours as the time is completed' (fr. 30), and the elements move out of their combinations to group with their own kind. The two principles are manifest in the patterns of attraction and separation of the elements, and are contained within the same limits as them. In Empedocles' theory the consequences of this wide-ranging polar opposition are to be found at different levels: in the repeated patterns of movements and arrangements of the elements within the cosmos, in the genesis and destruction of successive generations of mortal life, and for individuals in their friendships and enmities.

COSMOLOGY

Empedocles' four-element cosmos was a spherical everlasting *plenum*. Parmenides had previously argued that it is peculiarly self-contradictory to assert the existence of 'what is not' *(mē on)*. Applied temporally this meant that there could be no generation or destruction (which would entail earlier or later non-existence), and in spatial terms there had to be continuity, balance and homogeneity 'as in the bulk of a well-rounded sphere'. Empedocles took this as the literal shape of the cosmos, and, as has been shown, further adapted the Eleatic argument by equating the non-existent with *kenon* (empty space), and then denying its existence: 'there is no part of the whole that is empty or overfull' (fr. 13).

The atomists later agreed with this identification of non-being with empty space, but then reinstated it as an existing void. In Empedocles' theory, however, the elements are contained within the cosmos with no spaces between them, nor did he allow the possibility of variation in consistency; this possibility had been adopted by the Ionian Anaximenes previously, to account for differences between solid, liquid and gaseous substances by assuming a process of rarefaction and condensation of primary matter. For Empedocles, earth, air, fire and water assimilate and separate in the *plenum*, shifting together and moving apart in continually changing arrangements and rearrangements, while each keeps its character inviolate.

The evidence on the whole suggests that the activity of the elements under the principles of attraction and repulsion follows certain patterns in recurring cycles. There is an unceasing alternation of all the elements at one time coming into a unity through Love (where their particles are so completely and finely mingled that no part can be distinguished from any other) and then at another of separating into their respective masses under the influence of Strife. At this stage they are probably to be envisaged in the traditional form of concentric spheres, with earth at the centre, surrounded by water and air, and the fiery sky (the *ouranos*) enclosing the whole. The processes of elemental movement from one extreme to the other and back again result in a generation of mortal things, as is explained in part of one of the longest fragments:

> A twofold tale I shall tell: at one time it grew to be one only from many, and at another again it divided to be many from one. There is a double birth of the mortal, and a double passing-away; for the uniting of all things brings one generation into being and destroys it, and the other is reared and scattered as they again divide. And these things never cease their continual exchange of position, at one time all coming together through love, at another again being borne away by strife's repulsion. So in so far as one is accustomed to arise from many and many are produced from one as it is again being divided, to this extent they are born and have no abiding life; but in so far as they never cease their continual exchange, so far they are forever unaltered in the cycle.
>
> (fr. 17.1–13)

Empedocles took the description of the elements as logically prior ('hear first the roots of all things…'), and, although there can be no chronological beginning to eternal recurrence, for the purposes of the narrative he apparently started with an account of the elements in separation, indicating how in such a state earth, water, air and fire would cling to their own kind, shunning association with each other, in a sterile and unharmonious lack of order *(akosmia)*. When, however, the power of Strife began to wane, the principle of attraction gradually pulled the separated parts together until eventually their individual characteristics (as earth, air, sea and sun) were no longer manifest, but they became completely united, taking the form of a unique cosmic divinity:

> held fast in the close covering of harmony…two branches do not spring from his back, there are no feet, no swift knees, no organs of generation, but he is equal to himself in every direction, the same all over, a rounded sphere, rejoicing in encircling stillness.
>
> (frs. 28–9)

Empedocles said however that inevitably, at a time ascribed somewhat enigmatically to a 'broad oath', Strife would enter and begin to cause the

disintegration of the divine harmony. In the resulting movements, as the elements 'run through each other', the present world order would be generated, with its teeming variety of plant, animal and human life. During this time Love should be envisaged initially as the more powerful force, and, on the analogy of a craftsman, as engendering well-constructed forms of life in sympathy with each other. But Strife, with increasing power and ferocity, is preparing to tear them apart, and eventually to bring down the cosmic edifice in the return once more to *akosmia*. The limits of the powers of both attraction and separation are presumed to be held, like the elements which they control, within the circumference of the sphere, the *kuklos*, that persists throughout; beyond these lies what is described in the doxography without further explanation as 'idle matter' (*argē httlē* is the term at Aetius I.5.2).

Some of the details of the process are controversial, and even the basic idea of cosmic phases being repeated has been challenged, and, given the fragmentary nature of the primary sources, there can be no certainty. But the consensus of opinion, supported by such testimony as we do have from the primary and secondary sources, suggests a reconstruction along the following lines, with Empedocles' poetic skill giving a vivid character to his descriptions of elements reacting to contrary forces. At one time the four ('fire and water and earth and measureless height of air') were completely separate under Strife, and Love lay inactive at the circumference; then came the increase of her power, initiated (in the metaphor of the invasion of foreign territory) by a move to the centre, and the consolidation of her position as Strife was pushed back. This alternation was manifest in the elements consequently 'running through' each other, and so causing the rise of a generation of mortal beings. Some monsters and strange shapes emerged at first, even separate limbs and 'heads without necks', but these were short-lived, whereas those that were well formed and fitted for survival became a viable generation of living creatures. Love was eventual victor in the cosmic battle, bringing all the elements into one, and so generating the blessed god *(theos eudaimonestatos)*, in which Strife had no part. But the ideal state came to an end, and, when the time was completed, Strife struck as Love had done by rushing to claim the centre. This caused a mighty disturbance as 'one by one all the parts of the god began to tremble' (fr. 31).

Empedocles saw the emergence of the present world as a consequence of this upheaval. In the succeeding phase of his cosmogony, as Strife began the process of separation, he introduced the important concept of a rotation (a vortex or *dinē*) starting in the centre, which was the immediate cause of the separating of the closely mingled parts of the different elements. First it seems that air was drawn out and flowed round in a circle, followed by fire, which solidified some of the air into the *ouranos* as *aithēr* and brought down the heavier particles as atmospheric mist. The force of the rotation also compressed parts of the earth into the centre, and water consequently exuded from it to form the sea ('sea is the sweat of earth' as Empedocles expressed it in a typical homology, fr. 55). Such fire as was still in the earth warmed some of the remaining water to produce hot

springs, and hardened lumps of earth into rocks; as it moved upwards to join its counterparts it also created the conditions of warm, moist clay which would be capable of engendering life, first in the form of trees and plants, and then of animals and humans.

This imaginative narrative, pieced together from direct quotations and indirect report, was in the tradition of the early pre-Socratics, but treated with much more acumen and sophistication. The use of a swirl in the original mixture to start the separation, the outward movement of the lighter air and fire, and what looks something like an early theory of gravity, when the bulk of earth at the centre drew parts of earth elsewhere towards itself, show a remarkable mind at work.

Further evidence of Empedocles' achievements comes in the wealth of insight preserved on many of the individual aspects of the subsequent phenomena. Starting with the initial formation of the elemental masses—'earth and swelling sea, moist air and Titan sky' (fr. 38.4)—Empedocles included explanations for the spherical shape of the earth, volcanoes beneath the earth's surface and the salinity of the sea. Of particular interest in this section was the recognition that the moon is a satellite of earth reflecting the sun's brightness ('a circle of borrowed light moves swiftly round the earth', fr. 45), and that solar eclipses are caused by the moon coming directly between sun and earth; and when Empedocles says that 'earth causes night by coming under the sun's rays' (fr. 42) it is tempting to assume that he realized that this meant that night on the upper surface of a spherical earth would be complemented by day in the antipodes.

THE NATURAL WORLD

At some time into the present era, once the main bulk of the elements were separated out into the distinct masses of earth, sea and air, with fire visible in the sky as sun and stars and as volcanoes erupting from the earth, then living creatures began to emerge. Empedocles described this genesis, in a typical blend of poetry and science, as derived from amorphous lumps which bubble up from the earth's surface during the separating process:

> And now hear this—how fire, as it was being separated, brought up by night the growths of men and pitiable women, for the account is to the point and well-informed. First whole-nature forms, having a share of both water and heat, emerged from the earth; fire as it tended to reach its like, kept sending them up, when they did not yet show the lovely shape of limbs, or voice, or language native to men.
>
> (fr. 62)

With the passage of time the forms were further articulated until they become recognizable as the human race, able then to reproduce sexually and communicate by language.

In a world antithetical to the present one Empedocles found a place for the bi-form monsters of myth in a kind of genetic nightmare:

> Many creatures with a face and breasts on both sides were produced, human-faced bulls and again bull-headed humans, others with male and female nature combined.
>
> (fr. 61)

Some of these were put together from different parts—heads without necks, arms without shoulders—but, despite the bizarre nature of the concept, a more serious point was being made. As Aristotle reports:

> Wherever all the parts came together as though for a purpose, the creatures survived, being organized spontaneously in an appropriate way. Those that did not then died out (and continue to do so), as Empedocles said of his 'human-faced bulls'.
>
> (*Physics* 198b29–32)

It would be an exaggeration to read into the reports of Empedocles' views here a precursor of a Darwinian theory of the survival of the fittest, but he does seem to have been prepared to recognize that for survival a species or 'animal-kind' must be able to reproduce itself, and have organs that are mutually supportive in nutrition and growth: teeth to masticate food, a stomach with which to digest it, and a liver to transform it into blood and tissue. In any case the unsuccessful hybrids were shunted into a different era, complementary to the present one, when the cosmos was coming out of a state of disorder into one in which unity would eventually prevail.

The world which the human race now inhabits is by contrast to be understood as coming from a better past into a more turbulent future. In Empedocles' terms Love has not yet relinquished her hold on the elements, and in the battle against the forces of dissolution she has considerable if temporary success in the formation of harmonious wholes. These depend on the formula of elements in the compound, again a crucial scientific point lurking behind Empedocles' loose poetic language:

> And the kindly earth received into its broad hollows of the eight parts two of the brightness of Nestis and four of Hephaestus; and these came to be white bones, marvellously held together by the gluing of harmony.
>
> (fr. 96)

Aristotle quoted these lines in a compliment to Empedocles for realizing that it was not so much the elements of which something is made which give it its character but the *logos* or ratio of their combination; it was rare to find among the pre-Socratics a foreshadowing of what later came to be known as Aristotle's 'formal

cause'. The particular ratio here of four parts fire: two earth: two water (or on an alternative version one each of water and air) is a simple one, but the achievement is in the understanding of the principle of proportion in the formation of organisms rather than any sophistication in its development.

The last line of the quotation—'marvellously held together by the gluing of harmony'—shows the 'bonding' of the elements, not as an additional ingredient, but inherent in their attraction when they come together in the right formula. Another way for the poet to express this is was to envisage the artisan-goddess fashioning living forms as artefacts:

> When Kypris was busily producing forms, she moistened earth in water and gave it to swift fire to harden.
>
> (fr. 73)

In other fragments she acted as a baker or sculptor, and sometimes as a carpenter, joining the organic parts together. More conventionally, she personified the sexual urge, the mutual desire that brings male and female together, and ensures the continuation of the species. The theme continued in a section devoted to embryology, which included an account of sex differentiation within the womb. This was a subject which interested many pre-Socratics, and Empedocles' medical experience may have sharpened his concerns in this area. On one occasion, when he maintained that both the male and female contribute to the embryo's substance, matching like the two parts of a tally, he was closer to the truth of the shared parental donation of chromosomes than was Aristotle with his preference for the domination of the male.

In his account of life now on earth Empedocles had explanations for a wide variety of phenomena, from the structure of trees, plants and fruits through to a broad range of animal species. He comments for example on the normal combination of hard bone surrounded by soft flesh as an instance of a chance compound developing a formal structure, represented as the artisan at work:

> bones within and flesh as an outer covering, a kind of flaccidity chanced on at the hands of Kypris
>
> (fr. 75)

but in some creatures the hard and soft tissues are reversed:

> In those with heavy backs who live in the sea…you will notice that earth is on the top surface of the flesh of sea-snails and stony-skinned turtles.
>
> (fr. 76)

Here the collecting and hardening of earth 'on top' is a means of protection for the organism, and this prevails over the tendency of earth to come to the centre.

But the carapace is also the sea-turtle's bone structure. In this and in many other fragments Empedocles shows a remarkable first awareness of biological analogy and homology in similarities found between plant and animal structures. The elements themselves are first called *rizōmata*, or root clumps, and this type of language is extended throughout the natural world in a variety of contexts. Empedocles regarded humans as plants that grow from 'shoots', he called the auricle of the ear a 'sprig of flesh', he had a common word for the bark of a tree and for the skin of a grape and apple peel, olive trees were said to bear 'eggs', and *amnion* was the term used both for the skin of an egg and the caul of an embryo. Processes similarly correlate, and it seems to be a similar change in the liquid, a *sēpsis*, which makes wine of water, yoghurt of milk and colostrum of blood. Connections between primitive and more advanced species were drawn when horses' manes were seen as analogous to the spines of hedgehogs, and a famous fragment took this further:

> Hair, leaves, the close-packed feathers of birds and scales on strong limbs
> —as the same they grow.
>
> (fr. 82)

The shared function here of covering and protection crosses the forms of life and the different elements to link humans and plants in land, birds in the air, and fish in water.

PERCEPTION AND COGNITION

Another advance in the history of science came when Empedocles originated the concept of pores and effluences to explain the workings of the organs of senses in animals and humans, a theory which also extended the range of homology through the various species. The medical philosopher Alcmaeon had previously suggested that channel-like pores led from the eye to the brain, but Empedocles set up a universal theory of perception, according to which all bodies have pores close packed on their surfaces, and effluences like films 'from everything in existence' are capable of entering the opening of these pores where there is symmetry between them. According to his method Empedocles gave some common examples of the theory at work before arguing for its extension over a wider range. He cited the way in which water can mix with wine but not oil as evidence for symmetry and asymmetry of the pores and 'thick parts' of the liquids. Another example was when saffron dye became firmly fixed into a piece of linen, and the magnet could be explained by effluences dragging the iron until it closes with the pores in the stone. Something like this also happens in nutrition and growth, where nourishment is broken up in the organism and distributed to appropriate parts of the body according to their fit, for like substances are attracted to their like, and unite with them:

> So sweet seized on sweet, bitter rushed to bitter, sharp came to sharp, and hot coupled with hot.
>
> (fr. 90)

The application of the theory could then proceed to cover the range of human and animal perception, which also occurs in the context of the attraction of likes, as given in the Empedoclean lines most widely quoted in antiquity:

> With earth we perceive earth, with water water, with air divine air, with fire destructive fire, with love love, and strife with baneful strife.
>
> (fr. 109)

In more straightforward terms this means that the element within a sense-organ draws to itself the corresponding elemental part of an external object and assimilates it in the act of perception. As we perceive fire outside ourselves, for example, by means of fire within, then the fire in the constitution is increased, and so with earth, air and water. Further, we have control to some extent over our perceptions, with the implication on the moral plane that the inner strength of love or strife can be increased by concentrating on its like in the external world, with consequent profit or loss in general well-being or disharmony. In the extension to human relations such compatibility between likes produces unity and friendship, whereas those who are most different from each other 'in birth and mixture and the moulding of their form' wander alone, hostile and in deep grief (fr. 22).

A good example of Empedocles combining scientific theory with poetry—here in a Homeric-type simile—comes in his account of vision:

> As when a man who intends to make a journey prepares a light for himself, a flame of fire burning through a wintry night; he fits linen screens against all the winds which break the blast of the winds as they blow, but the light that is more diffuse leaps through, and shines across the threshold with unfailing beams. In the same way the elemental fire, wrapped in membranes and delicate tissues, was then concealed in the round pupil—these keep back the surrounding deep waters, but let through the more diffuse light.
>
> (fr. 84)

This and some related fragments show that Empedocles' account of the structure of the eye is remarkably accurate. He explains how the fiery part of the eye, i.e. the lens, is concealed behind the dark opening of the pupil and protected by membranes and tissues composed of earth and air. Surrounding the membranes, and prevented by them from quenching the fire, is water. There are pores in this fire and water, and vision occurs when effluences from objects fit into these pores, dark colours being seen when they fit into the pores of water, and light

colours in the pores of fire. Eyes that have less fire (i.e. a smaller pupil and lens) see better by day, and those with more by night. The particular point of the lantern simile is to show the function of the membranes, which keep the water in the eye from the fire, but allow the fire to penetrate through it.

In his explanation of the sense of hearing Empedocles supposed that external sounds, which are emanations of air particles, enter the channel of the outer ear (which he called a 'sprig of flesh', again linking plant and animal organs); if they fit the pores there they then reverberate within as 'in a trumpet bell'. Empedocles accounted for smell in a similarly modern way as the entry of odorant particles into receptive sockets on the surface of the organ—of the nostrils in the higher animals, but extending over the whole body in lower forms of life. All skin surfaces may be sensitive to odours, and so 'all are apportioned breathing and smelling' (fr. 102).

The theory extended beyond that of simple perception, according to the lines which probably followed on fragment 109, quoted above:

> all things are fitted together and constructed out of these (the elements), and by means of them they think and feel pleasure and pain.
>
> (fr. 107)

Pleasure might occur as a result of the appropriate conjuncture of elemental compounds within the body's physical structure, but also as a response to external stimuli that harmonize with this structure, or from the replenishment of a deficiency by a complementary mixture of similar proportions. Conversely pain was thought to be caused by ill-adjusted coalitions, the clash of contraries or excessive replenishment. Examples of such painful experiences could be found in nutrition when the food absorbed could not be assimilated to the body, and in harmful perceptual encounters such as with a bright light or loud noise where the intake overwhelms the organ. Asymmetry of pores in the senseorgan and the effluences from the external object were also able to provide an explanation for organs being unable to distinguish each other's objects, for the eye sees colours but not sounds, whereas sounds as effluences or 'waves' from a distant object are symmetrical with the pores of the ear, and odours enter and fit with the nostrils.

Empedocles recognized that pores through the surface of the body in simpler animal forms could be aware of and assimilate odours from distant objects in a way analogous to humans taking them in through the nostrils, or hunting-dogs sniffing spoors in the form of odorous effluences left by their prey, which enable them to follow a trail. Skin and nostrils are not only the organs of smell, but are also involved in respiration; this again is widespread, so that Empedocles was ready to claim that 'all things are apportioned breathing and smelling' (fr. 102) in a way similar or analogous to human respiration. One of the longest fragments deals with this topic, and, as with the quotation on the eye, uses an engaging simile:

> This is the way in which all things breathe in and out: they all have channels of flesh which the blood leaves, stretched over the surface of the body, and at the mouth of these the outside of the skin is pierced right through with close-set holes, so that blood is contained, but a passage is cut for the air to pass through freely. Then, when the smooth blood rushes away from the surface, a wild surge of blustering air rushes through, and when the blood leaps up, the air is breathed out again. It is like a girl playing with a clepsydra…
>
> (fr. 100.1–9)

The clepsydra was a common household utensil for transferring liquid from one container to another, and for measuring. It had a narrow opening at the top, which could be plugged by hand, and a perforated base. Empedocles compared the movement of air into and out of the body through skin pores (and in human and higher animals through the two large pores that are the nostrils) to that of water into and out of the perforated base of the clepsydra. He used the clepsydra as a model (comparable to Harvey's use of a pump as a model for the heart), rather than as a specific experimental device.

For the first time in extant Greek physiological theory respiration was here connected with the movement of the blood. Empedocles recognized that the blood is in continuous motion as air is breathed in and exhaled, not yet understanding that the movement involves a circulation but taking it as oscillatory, from the heart to and from the body's surface in small-scale channels. Taking the perforations in the clepsydra to correspond to these channels or pores, Empedocles explained inhalation as blood moving inwards followed by air entering the pores, and exhalation (comparable to the child unplugging the clepsydra) as the blood returning to the surface as the air is expelled again into the atmosphere. No void is involved, but, as is obvious, the heart and chest area expands with the intake of air and returns to normal as the air goes back out through the channels. The comparison is not exact in every detail for the blood obviously does not pour out of the body into an external container, but Empedocles did not claim an exact correlation. The model works admirably in showing a mutual movement of air and blood in respiration, the corresponding oscillation of the blood within the body, and the way in which it can be held in the capillaries at the extremities by the pressure of the air outside.

Empedocles took these discoveries further in suggesting that the blood acts as a kind of neural system between the individual sense organs (which in touch and smell can include the whole of the body surface) and the centre of the cognitive system which, like most Greek philosophers apart from Plato, he located in the heart:

> In seas of blood coursing to and fro, there above all is what men call thought, because for humans blood around the heart is thought *[noēma]*.
>
> (fr. 105)

The basis for this apparently strange statement is not only that blood travels incessantly to and from the organs to the heart and so acts as a conduit (the 'broadest path of persuasion' goes from the eyes and hands to the cognitive centre according to fragment 133), but also because of its physical construction. It contains all the elements, and in a ratio closer to equal amounts of each than in any other part of the body; and Empedocles attributed the sophistication of this compound to the powerful principle of attraction (here personified as the goddess of love):

> And earth, anchored in the perfect harbours of Aphrodite, chanced to come together with them in almost equal quantities, with Hephaestus and rain and all-shining air, either a little more, or less where there was more. From these came blood and the different forms of flesh.
>
> (fr. 98)

Earth here is a crucial ingredient in the formation of the tissues: with less of this element there is blood, and with more there would be flesh. Aristotle's pupil Theophrastus wrote a history of early theories of perception and in it interpreted Empedocles' theory as it would be when stripped of its poetic vocabulary:

> We think chiefly with the heart-blood, for there the elements are more fully mingled than in any other part of the body. Those who have an equal or almost equal mingling of these elements are the most intelligent and have the keenest sense perceptions, but those whose condition is the reverse are the most stupid.
>
> (Theophrastus *On the Senses* 10–11)

The proportion of ingredients (as in any chemical formula) is crucial for the performance of the compound; here the best intelligence comes from the mixture most approaching equality as, in other examples cited by Theophrastus, the orator has a good mixture in his tongue and the craftsman in his hands.

On the mind-body problem all the pre-Socratics were in principle reductionists, since in Aristotle's terminology they recognized only 'material cause'. In Empedocles' theory the centre of cognition was explained as constituted of the same elements as everything else, i.e. of earth, air, fire and water, but the quality of thought is dependent on their increase and decrease, and consequent proportion relative to each other. This means, as he says, that

> Human wisdom grows according to what is present.
>
> (fr. 106)

and it is also the case that

> As one's constitution changes, so the present thoughts are always changing.

(fr. 108)

The continual modifications here of incoming and outgoing thoughts are taken to correspond both to fluctuations in the outside world and to alterations in the inner condition.

The less intelligent (including in particular those who infer erroneous general conclusions too quickly from inadequate evidence) quite literally have inadequate means of 'grasping' the truth, whereas a wealth of appropriate thoughts results in proper understanding (frs 2, 3, 132). Although the medical terminology of heart and lungs *(phrenes)*, midriff *(prapides)* and intestines *(splangchna)* even in the Homeric poems was losing its literal meaning, Empedocles' constant use of it points to a consistent theory of a physical basis for rational activity. In this way he can envisage a struggle in the *phrēn* between deceit and persuasion (fr. 23), introduce evidence to strengthen feeble conviction (fr. 35), speak of thoughts entering the *phrontis* of the Muse (fr. 131), and describe a wise man, perhaps Pythagoras, stretching his *prapides* when he remembers generations that are past and makes prophecies for the future (fr. 129).

Similarly Empedocles sees the instruction of his student as a literal transfer via speech from one to the other. This is shown when he asks that a 'pure stream' of thoughts in the form of the words that express them might pass from his lips to his pupil (fr. 3), and he advises Pausanias to ensure that his sense-organs are in their different ways receptive to the transfer of truth:

> do not keep back trust from seeing, hearing, taste or any other channel for thinking, but think each thing in the way in which it is clear.
>
> (fr. 3)

When Pausanias has taken in the account the argument is to be divided into its component parts and almost literally digested like food in the stomach area (fr. 4. 3). And Empedocles gives a final exhortation:

> If you put the words I say firmly into your crowded thoughts, and contemplate them with clear and constant attention, assuredly they will all be with you through life, and you will gain much else from them, for of themselves they will cause each [new thought] to grow into your character, according to its nature. But if you should reach out for things of a different kind, for the countless trivialities that dull human meditation, straightaway they will leave you as the time comes round…
>
> (fr. 110.1–8)

The meaning here would seem to be that the mixture of the bodily components reflects or represents whatever is thought about in the external world, while the continual physical changes in the structure of the body alter that mixture, with corresponding shifts in the nature and range of the thinking. The resulting

thoughts may be further confused or dulled according to the intention or effort of the thinker, or correspondingly made purer.

There is further a great confidence, an optimism that the consequent scientific knowledge of the processes of nature will bring with it the power to control them. Empedocles suggests to his student that the understanding of the elements of earth, air, fire and water alone and in combination, in virtue of one's own thoughts being akin to them and made up of like parts, will allow their manipulation. In this way it might be possible for the internal elements that make up the intelligent mind to control their like in the external masses; the chance would most obviously come in the vagaries of the weather:

> You will check the force of tireless winds, which sweep over land and destroy fields with their blasts; and again if you wish you will restore compensating breezes. After black rain you will bring dry weather in season for people, and too bring tree-nourishing showers after summer dryness.
>
> (fr. 111.3–8)

The knowledge of the working of elements within the body's structure could also form the basis of medical skill, allowing the avoidance and curing of illness and the postponement of old age. The climax would be a restoration to life:

> You will lead from Hades the life-force of someone who has died.
>
> (fr. 111.9)

Whether the story is true or based on this line, the biographers report that Empedocles did resuscitate a women who had been in a coma; it would be consistent with Empedocles' interest in respiration that an understanding of its mechanism would enable one to restart the heart and so renew the life of a patient.

THE UNITY OF ALL THINGS

The series of fragments in the *Physics* has shown an original, sharply observant and analytical mind suggesting solutions to a comprehensive range of problems in the realm of natural science. Empedocles' second poem *Katharmoi (Methods of Purification),* which a minority have taken to be another part of the same poem, is superficially quite different in tone and content from what has been discussed so far. The *Physics* had been in the form of instruction to a single student, but the *Katharmoi* opened with an address in the plural, to Empedocles' fellow-citizens of Acragas, and went on to celebrate the high esteem in which the philosopher was held. He travelled he says 'as an immortal god, mortal no longer', on his journey through prosperous towns, and people flocked to him for prophecies and cures.

The most important fragment, which needs to be quoted in full, gives an explanation of his position:

> There is a decree of necessity, ratified long ago by gods, eternal, and sealed by broad oaths, that whenever one in error, from fear, [defiles] his own limbs—daimons to whom life long-lasting is apportioned—having by his error made false the oath he swore, he wanders from the blessed ones for three times ten thousand years, being born throughout the time as all kinds of mortal forms, exchanging one hard way of life for another. For the force of air pursues him into sea, and sea spits him out on to earth's surface, earth casts him into the rays of blazing sun, and sun into the eddies of air; one takes him from another and all abhor him. I too am now one of these, an exile from the gods and a wanderer, trusting in raging strife.
>
> (fr. 115)

After this comes the statement:

> before now I have been at some time boy and girl, bush, bird, and a mute fish in the sea.
>
> (fr. 117)

Empedocles then went on to describe a journey to an unfamiliar place, a cave, peopled by pairs of personified opposites, including 'Earth and Sun, Discord and Harmony, Beauty and Ugliness, lovely Truth and blind Uncertainty', as well as 'Birth and Death, Sleep and Wakefulness, Movement and Rest'. This is followed by an account of a time in the past that was an adaptation of the 'golden age' under Kronos in traditional mythology, when there was no war, all creatures were tame and friendly, and the ruling power was Kypris, another name for Aphrodite, goddess of love.

A universal law, extending 'through wide-ruling air and measureless sunlight', was then said to bring about a change which was a degeneration from this ideal state. Empedocles in his own person expresses regret for a crime he committed, described as 'the cruel deed of eating flesh', and, in verses which recall Agamemnon killing his daughter Iphigenia at the altar of Artemis, the standard pious ritual of the sacrifice of an animal is shown to be comparable to the impious slaying of kin. Furthermore, the traditional meal of the meat of the sacrificed animal enjoyed by the community becomes a re-enactment of the tragedy of a Thyestes, who unwittingly consumed his own children:

> The father will lift up his dear son in a changed form, and, blind fool, as he prays he will slay him, and those who take part in the sacrifice bring [the victim] as he pleads. But the father, deaf to his cries, slays him in his house and prepares an evil feast. In the same way son seizes father, and children

> their mother, and having deprived them of life devour the flesh of those they love.
>
> (fr. 137)

The citizens of Acragas are urged to give up such practices, which further the work of strife, and instead to honour the power of love, personified as Kypris, in the old way:

> with holy images and painted animal figures, with perfumes of subtle fragrance…and libations of golden honey.
>
> (fr. 128.5–7)

Empedocles apparently extended the injury to the common bond of life displayed in animal sacrifice even to plants, for Plutarch, in the context of fragment 140: 'keep completely from leaves of laurel', reports a prohibition against tearing off leaves because of the injury to the parent tree. He also links the themes once more in another fragment, which gives a ranking of the highest types of plants and animals in a scale of an exchange of lives:

> Among animals they are born as lions that make their lair in the hills and bed on the ground, and among fair-leafed trees as laurels.
>
> (fr. 127)

And finally the highest human lives are listed, as the last stage before becoming a god:

> And at the end as prophets, minstrels, healers and princes they come among men on earth; and from these they arise as gods, highest in honour.
>
> (fr. 128)

The ways in which the subject-matter of these fragments bears on those already discussed as from the *Physics* may now be explored. Any interpretation should be based on the direct quotations as far as possible, for there is very little reliable external evidence, and the comments of ancient authors, even when giving a quotation, have to be used with caution, and stripped as far as possible of their own particular bias.

It is appropriate to start with the four elements. A *daimōn* is the term given in the *Katharmoi* to an individual divinity, the enhanced form of life that is superior to a human but still a temporary compound of the true immortals, the four elements. When, in fragment 115 quoted above, it is said that the air drives the *daimōn* into sea, sea casts him on to earth, earth into sun, and sun back to the swirling air, these areas of banishment refer explicitly to the masses of the four elements described and explained in the *Physics*. The language of 'a changing of the paths' for the combining of living creatures from elemental parts, the

separating of them at death and their subsequent rearrangement into other forms is common to both poems. The boy, girl, bush, bird and fish of fragment 117 are obvious examples of the types of mortal life that the *daimōn* assumes as he goes from one hard way of life to another, and they are lives in different elements. Empedocles has explained that, according to necessity and universal law, coming under Strife results in so-called birth as *tbnēton,* 'a mortal thing'; so, finding himself as prophet, leader, minstrel and healer at the highest stage of mortal life he would suppose that the law had run its course in his case. Since this involves lives in different elements, he might well consider that he has himself been born in some way as a bird in the air, fish in the sea and plant on earth. This need not imply that he *remembers* being in these states; it is an inference from the law that the *daimōn* of necessity takes on a variety of forms.

Like the four roots, Love and Strife have their place in the *Katharmoi;* the terminology is similar, and it is the account of their nature and function in the *Physics* that helps in the understanding of their role in this second context. The principle of Philia throughout is responsible for universal friendship, unity and the good of the cosmos; Strife, 'raging' and 'destructive', is the cause of hatred, enmity and separation. In the *Physics* bodies were said to grieve at their birth in hatred and anger, and to be 'torn apart by evil strifes' (frs. 20 and 22); the theme is repeated in the representation of this world in the *Katharmoi* as 'a joyless place' and 'the field of blind delusion' (fr. 121).

The traditional mythology of anthropomorphic gods was rejected by Empedocles, and instead he gave the elements the names of Olympian gods—Zeus, Hera and Hephaestus—to signify immortality and universal power. He also replaced the former age of the Titan Kronos, the time of 'the golden race of mortals' in Hesiod's poem, with the past sovereignty of Love as Kypris, and this in turn reflected the description of the cosmic sphere under Love as an ideal and blessed state of harmony, with strife absent. A place was found however for the more conventional 'long-lived gods, highest in honour' as the original *daimones* 'who have a share of blessed life', and as divinities in the final stage of a series of lives that include plants, animals and humans (fr. 128, quoted above). These are all temporary arrangements of elements, in which the combinations that are gods are distinguished merely because they last longer before their inevitable dissolution than the other forms of life, as he explains:

> trees sprang from [the elements], and men and women, animals and birds
> and water-nourished fish, and long-lived gods too, highest in honour.
>
> (fr. 21)

This erasing of the dividing line between men and gods, which in the epic tradition was fixed and except in rare cases impassable, has two effects. One is to reduce the level of these gods by showing them superior only in having a longer and happier existence than other forms; the second is to raise the status of plants, animals and humans by recognizing in them a nature akin to that of honoured

gods, but with a shorter and less fortunate term of existence as particular arrangements of elements. Empedocles, as has been shown in the famous example of the comparability of hair, leaves, feathers and fish-scales, demonstrated that the functions of the different structures were similar in different life forms and also that they all in some analogous way were 'apportioned breathing and a sense of smell' (fr. 102). But he went further to say:

> As chance wills, all things have the power of thought.
>
> (fr. 103)

and later reiterated the point:

> All things have intelligence and a share of thought.
>
> (fr. 110.10)

The inadequacy that Aristotle's successor Theophrastus complained of in all the pre-Socratics—that they failed to distinguish perception and thought—becomes an advantage here for Empedocles. In his universal ascription of the power of thought *(phronēsis)* he was able to show a seamless stretch of activity from the simplest awareness of a part of one element for another of its kind and an attraction towards it, through a range of more sophisticated perceptions in animal life to human ratiocination. So the physical and biological theory, which removes the traditional distinctions between life as god, man, animal, bird, fish and plant and sets them along the one spectrum, makes the suggestion of a transition from one form of life to another less startling.

The accepted frontiers of birth and death were also broken down. Empedocles thought that humans generally have a narrow outlook:

> After observing a small part of life in their lifetime…they are convinced only of that which each has experienced, yet all boast of finding the whole.
>
> (fr. 2.3–6)

Instead of rash generalizations based on limited experience people should realize that their life does not begin with birth and end with death but is part of a broader scheme. And this conclusion is supported with the arguments from Parmenides that nothing comes from nothing, and that what is cannot cease to be. Birth and death in Empedocles' theory are merely names, to be understood in reality as the mingling and separating of eternally existing elements, which are subject on the cosmic and the human scale to the alternating control of Love and Strife. Since, therefore, birth is not to be considered as generation from what was not there before, nor death the annihilation of that which now is, it is no surprise to learn that there is some kind of existence before and after this present life:

> Someone who is wise in such matters would not surmise in his mind that people are, and meet with good and ill, for as long as they live, for a lifetime as they call it, and that before they were formed, and after they have disintegrated, they do not exist at all.
>
> (fr. 15)

One more connecting topic that is present in the two aspects of Empedocles' work deals with the elemental structure of blood, and its significance for life and intelligence. In fragment 105 Empedocles said that, Tor humans, blood around the heart is thought *[noēma]*.' This is explained by Theophrastus, in his history of previous views on sensation, as meaning that the elements in the structure of the blood and tissues of the heart are mingled in a better proportion (that is, closer to the ratio of one to one of the minimal parts) than elsewhere in the body. Here therefore is the cognitive principle; it is analogous in its composition to the physical structure of the sphere under Love, in the state that was described as 'holy mind' and 'most happy god'. The combination of elements that comes nearest in this world of increasing Strife to such an optimum condition is said to be found in the blood around the heart, so the controversial prohibition against bloodshed can be seen to have a place in the overall scheme. There are three reasons: first, the shedding of blood is given as a cause of the exile of the *daimōn* from a happier state; second the earlier age of Kypris/ Aphrodite was characterized by the absence of animal sacrifice; and third the continuing shedding of blood in war, and in the name of religion, is given as grounds for the continuing misery of human life.

The themes of *Physics* and *Katharmoi* are not therefore diametrically opposed, but connect on several issues. The theory of four elements helps to explain the exchange of lives of the *daimōn* in earth, sea, air and sun, and the account of the cosmic activity of Love and Strife is necessary to show how one can come under these powers, and the inevitable consequences. The frontiers of birth and death no longer hold, and traditional theology has to be revised. Plants, animals, men and gods have a common origin and nature, and there are no fixed boundaries marking off the kinds of life. And the principle of thought, based on a materialistic structure, has features common to the individual and the cosmos as a whole.

Throughout Empedocles' work there is emphasis on an alternation between god and human, mortal and immortal. The elements united under Love are a cosmic god; when held apart by Strife they are separate but still immortal; and in the intervening times they take on mortal forms. The god-like *daimones* are born as mortals, and in turn 'many-times dying men' become immortal gods. But in the *Katharmoi* the alternation of the states 'mortal' and 'immortal' takes on a vividly personal tone. Notions of wrongdoing, banishment and return to happiness give individual histories to gods and mortals, which at first sight appears incompatible with a theory that explains particular forms of life as a temporary arrangement of elemental parts.

A solution to this difficulty can be found in an appreciation of the different contexts in which the underlying ideas are set. Before the present state of the world all things were said to have been united under Love; this was an ideal state, and the present one a degeneration from it. In physical terms the elements were exactly mixed and held fast in harmony, with Neikos, the principle of enmity and separation, having no control. The interpretation of this for publication to the people of Acragas was in terms of a previous 'golden age' comparable to the era of general happiness and universal friendship traditionally ascribed to Kronos in the Isles of the Blessed. Then, at a fixed time, there came an end to the ideal state. Strife entered the cosmic sphere, causing tremors that resulted in elements separating out from the mixture; it was as a consequence of this further disturbance that the conditions arose that were appropriate for the emergence of varied forms of life. In the language of the *Katharmoi* Strife gained control of some of the *daimones* and separated them from their fellows, causing them to take on 'an unfamiliar garment' of skin and tissues (fr. 126); that is, the substance is reconstituted as forms of lives in different elements. That this is the same process viewed in two ways is confirmed by the mention of the oath at the appropriate moment in each case: the time for the end of the state of harmony, for the rise of Strife and the consequent generation of mortal lives, is held secure by the 'broad oath of necessity', a striking way of indicating the inevitability of universal law.

Empedocles sees himself involved in these cosmic events. The elements of which each individual is composed have, in this present phase of the cosmic cycle, been pulled apart from their original unity and plunged into rounds of so-called births and deaths. Life on earth is therefore to be viewed as an exile from an earlier true home. In terms of human law exile is the standard penalty for blood-shedding and perjury, and so these are given as the acts committed by the *daimōn,* who consequently takes on a series of mortal forms, and lives in one element after another. Although the *daimōn* has come under the power of Strife and so is said to have acted 'wrongly', this does not imply wrong intention or opportunity for choice on the part of the *daimōn,* for it was 'according to necessity' that Strife would gain control. And when Empedocles says that he has been born as boy, girl, plant, bird and fish, no personal remembrance of such states is involved, but it is an inference from the universal law ordaining that the *daimōns* be born in different elements as different kinds of mortal life.

There would however seem to be some constant factor to justify Empedocles' use of *egō* ('I' as first person) at each stage of his history, which would be incompatible with the theory of the complete dispersal at death of the elemental parts that make up the individual. Now in the *Physics,* as has been shown, the elements, eternal and unchanging, are called gods, which, when the time comes round, adopt the form of mortal things. The supreme cosmic god (*theos eudaimonestatos,* where the adjective has connotations of a good and happy daimonic status) is the union of the whole under Love, resulting in holy mind *(phrēn hierē),* until attacked and broken into separated parts by Strife. The *daimones* of the *Katharmoi* similarly were united under Love, then forced to

separate by Strife, but will again return, after being prophets, minstrels, doctors or leaders, as 'gods highest in honour'. It is said that they will share 'hearths and tables', but this is to be taken as a standard adaptation of the ancient tradition of privileged people winning admittance to the banquets of the gods, and implies no more than achieving some kind of divine status.

It is the wisdom shown in the most advanced types of humanity which would be enhanced when the mortal life returns to the divine; in this condition it would approach and perhaps even be expected to share in the supreme 'holy mind' *(phrēn hierē)*. In this context comes Empedocles' own advice to his student cited earlier (p. 196)

> If you put the words I say firmly into your crowded thoughts, and contemplate them with clear and constant attention, assuredly they will all be with you through life, and you will gain much else from them, for of themselves they will cause each [new thought] to grow into your character, according to its nature. But if you should reach out for things of a different kind, for the countless trivialities that dull human meditation, straightaway they will leave you as the time comes round…
>
> (fr. 110. 1–8)

If the thinking, the *phronēsis* in which all things partake, becomes most perfect, in physical terms the combination of elements in the structure becomes completely integrated, and in *Katharmoi* language the wise man is about to return to daimonic status.

In the complete blending of elements which provides the structure for the perfected *phronēsis* the individual qualities of the elements would so balance each other that their individual characteristics would no longer be apparent. This state would be similar to the characterless and unvarying composition of 'the most blessed god', which, as has been shown, described the condition of the cosmos in the harmony of Love, before the intrusion of Strife and the emergence of mortal life. Other pre-Socratic philosophers had made use of a similar principle (or *archē*) which had no perceptible features. Anaximander, for example, had posited a neutral source of becoming in the *apeiron*, and Anaximenes had generated a cosmos from characterless air, which he regarded as a mean between the rarer and the more compact; Anaxagoras, soon after Empedocles, spoke of an initial state of affairs as 'all things together', where no colour or other distinguishing feature could be picked out. Empedocles adapted such notions to link the nature of the individual daimonic thought to that of the original cosmos, and our present cognitive powers to what survives of that original now at the circumference of the sphere. In this he also foreshadows the Aristotelian theory of a fifth element (the *quinta essentia*) eternally encircling the cosmos, to which the human *psuchē* is related.

The historian of Greek philosophy, W.K.C.Guthrie, said in the introduction to his chapter on Empedocles that 'in the union of rational thought with mystical

exaltation, he sums up and personifies the spirit of his age and race' ([2.13] II: 125–6). But it would be more appropriate to see Empedocles in the light of recent developments in modern science as the search is renewed for 'a theory of everything'. In investigations that range from the study of the very smallest atomic structures to the vastness of the cosmos, and in the latest attempts to bridge the gulf between life on earth and activity in outer space, a fresh sympathy might be found for an original thinker from the ancient world, sometimes dismissed as an engaging eccentric, who found ways in which the familiar earth and the forms of life it contains were involved in the history of the whole. Enriched by the poetic style, and the exotic and often archaic language in which they were expressed, Empedocles' ideas still hold interest. His achievements are especially to be found in the comprehensive theory of elements subject to opposed forces, in the reduction of all life forms to greater or less sophistication on a single scale, in the perceptive insights into human origins and behaviour, and general biological structures and functions, and in the first attempts to link these themes to the cycles of regeneration at the outer limits of cosmic space.[1]

NOTE

1 General interest in the philosophy of Empedocles has recently been increased by the discovery of nearly forty scraps of papyrus fragments in the archives of the University of Strasbourg, first reported in *The Times* for 16 April 1994. The scraps, which range from a single letter to a portion of some contiguous verses, come from an early Greek papyrus found in a burial site in upper Egypt. They have been identified as Empedoclean, connected with citations from the cycle of birth and death in the contexts both of natural science and 'purifications'. The publication with commentary by Professor Alain Martin of Brussels is eagerly awaited.

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CHAPTER 6
Anaxagoras and the atomists

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ANAXAGORAS

In the course of the fifth century BC the political and cultural pre-eminence of Athens attracted to the city a considerable number of intellectuals of various kinds from all over the Greek world. This phenomenon, the so-called ‘Sophistic Movement’, is fully described in the next chapter; here it suffices to point out that, in addition to the discussions of moral and theological questions for which the sophists are more widely known, the activities of many of them included popularization and extension to new areas, such as the study of the origins of civilization, of the Ionian tradition of general speculative enquiry into the natural world (see Chapter 2). Anaxagoras stands out from his sophistic contemporaries as a truly original thinker, who sought not merely to transmit the Ionian tradition, but to transform it radically in a number of ways, and in so doing to enable it to meet the challenge of Eleatic logic, which had threatened the coherence of the cosmological enterprise.

An Ionian from Clazomenae on the central coast of Asia Minor, Anaxagoras was a contemporary of Protagoras and Empedocles. Aristotle says (*Metaphysics* 984a11–12: DK 59 A 43) that he was older than the latter, and (probably) that his writings are later than those of Empedocles (the interpretation of the crucial sentence is disputed). It is reliably attested that he spent thirty years in Athens and that he was closely associated with Pericles, though there is some dispute among scholars on when the thirty years began and ended, and whether they were a single continuous period or discontinuous. Socrates in the *Phaedo* (97b–98c: DK 59 A 47) describes reading Anaxagoras’ book as (probably) quite a young man, but implies that he was not personally acquainted with him; some have taken this as evidence that Anaxagoras had already left Athens for good by about the middle of the century, but the evidence is weak. It is clear that, in common with other intellectuals, his rationalistic views on matters touching on religion (in his case, his materialistic accounts of the nature of the sun and other heavenly bodies) made him unpopular in certain circles, and there is a tradition (questioned by Dover [6.6]) that he had to flee from Athens (with the assistance

of Pericles) to escape prosecution. He is said to have died at the age of 72, probably in the early 420s.

He appears to have written, as did Anaximander, a single comprehensive prose treatise, referred to by later writers, such as Simplicius, by the traditional title *On Nature*. In the *Apology* (26d, DK 59 A 35) Socrates states that it was on sale for a drachma, about half a day's wage for a skilled craftsman, which indicates that it could be copied in well under a day. The surviving quotations from it (almost all preserved by Simplicius), totalling about 1,000 words, therefore probably represent quite a substantial proportion of it. In what follows I shall be concerned with two central topics of this work, the nature of the physical world and the nature and cosmic role of mind.

The Physical World

For all post-Parmenidean thinkers the central challenge was to show how natural objects, including the world order itself, could come to be, change and cease to be without violating the Eleatic axiom that what is not cannot be. Parmenides had argued that that axiom excluded coming to be (for what comes to be comes from what is not), change (for what changes changes into what it is not) and ceasing to be (for what has ceased to be is not). Anaxagoras' contemporary Empedocles met this challenge by redescribing change (including coming and ceasing to be) as reorganization of the four elements, earth, air, fire and water. Those elements satisfy the Parmenidean requirement in its full rigour, since they are eternal and changeless. What we observe and call change, coming to be and destruction is in reality nothing but reorganization of these elemental components; hence neither organic substances, such as animals and plants, nor their components, bones, hair, blood, leaf tissue, etc., *strictly speaking* ever come into being or cease to be. Put anachronistically, coming into being reduces to elemental rearrangement, and what is reduced is thereby eliminated from a strict or scientific account of the world.

Anaxagoras agreed with Empedocles that what is conventionally regarded as coming to be and destruction is in fact reorganization of basic items. He asserts this fundamental thesis in fragment 17:

> The Greeks are not correct in their opinions about coming to be and destruction; for nothing comes to be or is destroyed, but they are mixed together and separated out from things which are in being. And so they would be correct to call coming to be mixing together and destruction separation.

The language is strikingly reminiscent of Empedocles' fragment 9:

> Now when they [i.e. the elements] are mixed and come to light in a man or a wild animal or a plant or a bird, then they say it has come to be, and

> when they separate, then they call that dismal destruction; they do not call it as they ought, but I too assent to their usage.

But there is a crucial difference, in that Anaxagoras rejected Empedocles' core belief in the primacy of the four elements. Even if we accept (as I shall assume) that Anaxagoras' book was written later than Empedocles' poem on nature, it must be a matter for conjecture how far Anaxagoras arrived at his view of what was physically basic through conscious opposition to the views of Empedocles. What is, however, indisputable, is that Anaxagoras' view of the physically basic constituted a radical departure from that of Empedocles (and *a fortiori* from that of his Ionian predecessors); that divergence, moreover, marked a fundamental innovation in the conception of physical reality and of the relation between reality and appearance.

For Anaxagoras' account of what is physically basic we may begin with fragments 1 and 4. Fragment 1, according to Simplicius the opening sentence of Anaxagoras' book, describes the original state of the universe, in which everything that there is was so mixed up together that nothing was distinguishable from anything else. What these things were fragment 4 tells us; they were 'the wet and the dry and the hot and the cold and the bright and the dark and a lot of earth in with them and an infinite number of seeds, all unlike one another'. In this list we see: first a list of the traditional opposite qualities, as in Anaximander for example; second, earth, one of Empedocles' four elements; and third, an infinite number of seeds. 'Seeds' is a biological term, denoting roughly what we would call the genetic constituents of organisms; the seed of a kind of plant or animal is what develops into a new instance of that plant or animal type, and, as Vlastos [6.19] points out, the process was ordinarily conceived as one in which the seed, seen as 'a compound of all the essential constituents of the parent body from which it comes and of the new organism into which it will grow' (p. 464), develops by assimilating more of the same kinds of constituent supplied by the environment. That these constituents were identified by Anaxagoras with the organic stuffs, flesh, blood, fibre, etc., which compose organisms of different kinds, is suggested by fragment 10: 'How could hair come to be from what is not hair, and flesh from what is not flesh?' For the naked embryo to develop into the hirsute adult, the seed must have contained hair, the presumably minute quantity of which was supplemented by the amounts of hair contained in the nourishment which the growing animal assimilated.

In Anaxagoras' primeval mixture, then, we find qualities, namely the opposites, and stuffs mingled together without any categorial distinction. The stuffs include the four Empedoclean elements; earth is mentioned in fragment 4, and air and *aithēr*, the bright upper atmosphere, (traditionally conceived as a form of fire) in fragment 1, while the principle of fragment 10 ('*F* cannot come to be from what is not *F*') implies that water is a constituent in the mixture too. But the elements have no special status relative to other stuffs; earth is no more primitive than bone or flesh (contrast Empedocles frs 96 and 98). In fact the

central and most novel feature of Anaxagoras' world-picture is that it contains no elemental stuffs. Relative to substances such as trees or fish, and to their parts, such as leaves and fins, all stuffs are elemental, since substances come to be through rearrangment of stuffs. But relative to other stuffs, no stuffs are elemental, since every stuff is a component of every stuff; 'so everything is in everything, nor is it possible for them to be apart, but everything has a share in everything' (fr. 6), 'in everything there is a share of everything, except mind' (fr. 11).

Some interpreters (Cornford [6.5], Vlastos [6.19]), finding a literal reading of these statements intolerably uneconomical, have urged a restricted reference for the second occurrence of 'everything', interpreting 'in everything there is a share of everything' as 'in every substance there is a share of every opposite'. On this view the basic items of Anaxagoras' ontology are the opposites, stuffs such as flesh and earth being 'reduced' to clusters of (opposite) qualities as in Berkeley and Hume. (Schofield even describes stuffs as 'logical constructions' of opposites ([6.17], 133).) The texts in which these statements occur contain no hint of any such programme. They give no justification for restricting the reference of 'everything' more narrowly than to the 'all things' which were together in the original mixture, which undoubtedly include the stuffs air and *aithēr* (fr. 1) and on the most natural reading earth and an infinite number of seeds (fr. 4). Moreover, the idea that qualities are ontologically more basic than stuffs also lacks support from the fragments. Those, to repeat, present the picture of the original state of things as a mixture of constituents of all kinds, every one of which is equally a constituent, not only of the mixture, but of every other constituent. Further, they attest that the 'everything in everything' principle holds in the present world order as much as it did in the original state (fr. 6). Can sense be made of these claims on the generous interpretation of 'everything' which is here adopted?

Before proceeding to that question we should consider another restriction on the generality of 'everything' proposed by Cornford [6.5]. Observing correctly that the concept of seed is a biological one and that the biological processes of nutrition and development are particularly prominent in the fragments and testimonia, Cornford restricts the 'everything in everything' principle to organic substances, interpreting it as 'in every organic substance there are seeds of every organic substance'. While the indefinite variety of observable biological transformations provides grounds for accepting that every organic substance can come from every other, and must therefore (by the principle that *F* cannot come from what is not *F*) be a constituent of every other, there is no ground to extend this to non-organic substances. To use his example ([2.15], 280), since we never observe acorns turn into emeralds, there is no reason why Anaxagoras should have believed that acorns contain portions of emerald. On the other hand, Aristotle reports (*Physics* 203a23–4, DK 59 A 45) that Anaxagoras held that every part is a mixture in the same way as the whole (i.e. the universe) because he saw that anything comes to be from anything, and Lucretius cites the coming

to be of gold, earth and other non-organic stuffs along with, and explained by the same process as, organic generation (I.830–42, DK 59 A 44). The comprehensive character of traditional Ionian explanation makes it plausible that Anaxagoras should have accepted the universal thesis. Xenophanes had already noticed the transformation of animals and plants into stone by fossilization (DK 21 A 33), and the transformations of stone into earth and earth into water by erosion, of water to wine, wine to animal tissue, etc. were matters of common observation (see Simplicius' commentary on the passage from the *Physics* cited above (DK 59 A 45)). It is therefore highly plausible that Anaxagoras should have held that we can have no reason to say of any two things that they cannot be transformed into one another by some chain of causation, however long. We know that the atomists, following Parmenides, appealed to the Principle of Sufficient Reason, arguing, for example, that since there was no more reason for atoms to have one shape rather than another, and since they obviously had some shapes, therefore they must have all possible shapes (Simplicius, *Physics* 28.9–10). Similarly, Anaxagoras may have reasoned that since some transformations are observed to occur, and there is no reason for one transformation to occur rather than another, all transformations must be assumed to occur.

I shall take it, then (1) that Anaxagoras drew no systematic distinction between stuffs and qualities and (2) that he believed that every amount or bit of any stuff (or quality) contains quantities or bits of every other stuff (or quality). On the assumption that if a given amount of a given stuff (amount *A* of stuff *S*) contains amounts *B, C, D*…of stuffs *X, Y, Z*…then *A* is larger than *B*, and larger than *C* and larger than *D* etc.,…it immediately follows that there is no smallest quantity of any stuff. For any quantity of any stuff, however small, contains smaller quantities of every stuff, and so on *ad infinitum*. Anaxagoras asserted this conclusion explicitly: 'for there is no smallest part of what is small, but always a smaller' (fr. 3), and according to Simplicius deduced it from the premiss that everything is in everything and is separated out from everything.

But if there is a portion of every stuff in every stuff, what distinguishes one stuff from another? Anaxagoras' answer is given at the end of fragment 12; 'Nothing is like anything else, but each single thing most clearly is and was that of which it contains most'. This dark saying is explained by Aristotle in *Physics* 187b1–7 (not in DK):

> Therefore they say that everything is mixed in everything, because they saw everything coming into being from everything. And they appeared different and were called by different names from one another on account of the quantitatively predominant component in the mixture of infinitely many components; for there is nothing which is as a whole pure white or black or sweet or flesh or bone, but the component each thing has most of, that is what the nature of the thing appears to be.

That is to say, every stuff contains amounts of every stuff, but in different proportions, and in each stuff the component of which there is the largest amount gives its character and name to the whole. Thus a lump of earth contains, in addition to earth, 'seeds' of every other stuff and quality, but it contains more earth than any of the others (the other 'seeds' may be thought of as impurities in the sample of earth). So any sample of earth is not *pure* earth, but *predominantly* earth; in general, to be a sample of *S* is to be *predominantly S*. (The texts leave it indeterminate whether something predominantly *S* must contain more *S* than all other components put together, or merely more *S* than any other component; I shall assume that the weaker condition is sufficient.)

This doctrine may seem to threaten Anaxagoras with a dilemma. Either it commits him to the existence of samples of pure *S*, which is inconsistent with the doctrine that everything contains a bit of everything, or it is empty. Taking the first horn, it is clear what it means to say that a sample of *S* is predominantly *S*. Analyse the original sample, by whatever physical process is available, into its components S, A, B, C… Continue the analysis until you reach pure samples of each component. Then you will discover that the amount of pure *S* is larger than the amount of pure *A*, larger than the amount of pure *B*, etc. But now it is false that everything contains a bit of everything; analysis will have succeeded in doing what Anaxagoras explicitly says (fr. 8) it is impossible to do, namely separate from one another the things in the cosmos 'and chop them off with an axe'.

Prima facie Anaxagoras should prefer the other horn. According to this there are no pure samples of any stuff; every sample of every stuff, however small, will contain as impurities amounts of every other stuff. But now what does it mean to say that gold contains more gold than hot, sweet, blood, vegetable fibre…? It can't mean that it contains more pure gold than pure hot…since there are no such pure stuffs. It means that it contains more gold than hot etc., i.e. more stuff that contains more gold than hot etc., and the stuff that that stuff contains more of is the stuff that contains more gold etc., and so on for ever. That is to say, we can never give a complete specification of what it is that gold contains most of; gold just is what contains more *gold* than anything else, and so on for ever. In semantic terms, we have no account of what *F* means if all we can say is '"*A* is *F*" means "*A* is predominantly *F*"'.

But in order to understand the name of a stuff it is not necessary that it should be possible, even in principle, to isolate pure samples of that stuff. As Kripke[1] has shown, the names of stuffs are proper names whose reference is fixed by those observable properties which typically, though contingently, characterize that stuff. Thus gold is that stuff, whatever it is, which is yellow, shiny, malleable, etc. The specification of what stuff it is which has those properties is the task of the best available theory, in modern terms the theory of elements, which identifies gold as the element with atomic number 79. The only resource available to Anaxagoras to identify stuffs is via their constitution; thus gold just is that stuff which when analysed yields more samples of yellow, shiny, malleable stuff than red, warm, sticky, liquid stuff (and so on for every stuff-

description). Analysis goes on for ever, in principle at least; even when the technical limit is reached of whatever process of physical separation has been employed, we know a priori that every sample of yellow, shiny, malleable stuff contains infinitely many samples of every kind of stuff, but always more of yellow, shiny, malleable stuff than of any other.

An objection to the attribution of this theory to Anaxagoras is that it seems flatly to contradict Aristotle's evidence (DK 59 A 43, 45, 46) that in Anaxagoras' system the elements were 'the homoeomerous things'. In Aristotelian terminology a homoeomerous substance is one whose parts are of the same nature as the whole, e.g. every part of a piece of flesh is a piece of flesh, as opposed for example to a plant, whose parts are leaves, roots etc., not plants. In general, stuffs, which we have seen to be among Anaxagoras' basic things, are in Aristotelian terms homoeomerous. Hence Anaxagoras is committed to holding that every part of a piece of gold is a piece of gold, which contradicts the account given above, according to which a piece of gold contains, in addition to pieces of gold, portions of every other substance and quality. (This contradiction is the basis of Cornford's interpretation of 'everything in everything' as 'every opposite in every substance'.) This difficulty seems to me illusory. One possibility (adopted by McKirahan [2.7], 208, n. 38) is that in identifying Anaxagoras' basic substances as 'the homoeomerous things' Aristotle means merely to identify them as stuffs, i.e. the things which *in Aristotle's theory* are homoeomerous, without attributing to Anaxagoras the thesis that those stuffs are in fact homoeomerous. This may well be right. It is, however, possible that Anaxagoras may have maintained (the texts are silent) that stuffs and qualities are indeed homoeomerous, despite containing portions of every stuff and quality. He could do so consistently if by 'homoeomerous' he meant 'having every part of the same kind as the whole', and if by part he understood what is produced by division. He *might* then have maintained that however minutely one divided up a lump of gold, what would be produced would be fragments of gold, the other stuffs and qualities being separable, if at all, not by division, but by other processes such as smelting. That would be, in effect, to distinguish parts, separable by division, from portions, separable, if at all, otherwise than by division. (It is not necessary for this hypothesis to suppose that Anaxagoras marked that distinction by any explicit distinction of terminology.) I emphasize that this suggestion is offered merely as a possibility, and that I am not maintaining that it has positive textual support. The crucial point is that the interpretation of the 'everything, in everything' doctrine which I have defended above is not *inconsistent* with Aristotle's statements that Anaxagoras' basic things were homoeomerous.

That doctrine is neither empty nor viciously regressive; it is an ingenious construction which allows Anaxagoras to maintain consistently two of his fundamental theses: (1) there is a portion of every stuff in every stuff, (2) each stuff is characterized by the character of its predominant portion. Its crucial flaw is its lack of explanatory force; the character of a stuff is 'explained' by its

principal component's having precisely that character, which is in turn 'explained' by its principal component's having precisely that character, and so on *ad infinitum*. A central element in explanation, the simplification of a wide range of diverse phenomena via laws connecting those phenomena with a small range of basic properties, is absent. Nor is this an oversight, since the effect of the principle 'What is *F* cannot come from what is not *F*' is precisely to exclude the possibility that the 'explanation' of something's having a property should not contain that very property in the explanans. The slogan 'Appearances are the sight of what is non-apparent' (fr. 21a) thus proves to state a central, and quite startling, Anaxagorean doctrine. At first sight it appears to state the empiricist axiom that theories about what is unobserved must be based on observation, and it was presumably in that sense that Democritus is said by Simplicius to have approved it. But in fact Anaxagoras' claim is much stronger; he is asserting that the observable phenomena literally do give us sight of what is unobserved, in that the very properties which we observe characterize the world through and through. (This was presumably the point of the remark of Anaxagoras to his associates recorded by Aristotle (*Metaphysics* 1009b26–8, DK 59 A 28), that they would find that things are just as they supposed.) This does not contradict fragment 21, where Anaxagoras is reported by Sextus as declaring that the weakness of the senses prevents us from judging the truth, and as supporting this claim by citing the imperceptibility of the change produced by pouring a pigment drop by drop into a pigment of a different colour. Rather, the two fragments complement one another. The senses are unable to discern the infinite variety of components in any observable thing, and hence to detect in them the microscopic rearrangements whose accumulation eventually produces an observable change (fr. 21); yet the nature of those components has to be what is revealed by observation at the macroscopic level (fr. 21a).

Just as there are in Anaxagoras' theory no elements, i.e. basic stuffs, so there are no basic properties. It cannot, therefore, be the task of theory to devise an account of the world sufficient to explain the phenomena, since the phenomena must ultimately be self-explanatory. Theory has, however, the more limited task of explaining how the observed world has come to be in the state in which it is; this brings us to another central Anaxagorean concept, that of Mind.

Mind

In the famous passage of the *Phaedo* cited above, in which Socrates describes his intellectual progress, he states that he was dissatisfied by the absence of teleleogical explanation from the theories of the early philosophers. Anaxagoras promised to make good this deficiency, since he claimed that the world is organized by Mind. Socrates, assuming that this organization by a cosmic intelligence must aim at the best possible state of things, eagerly perused Anaxagoras' book for an account of that state and how it was attained, and was all the more disappointed to discover that in his cosmology Anaxagoras made no

use of teleology, remaining content, like his predecessors, with purely mechanistic explanations.

The evidence of the fragments of Anaxagoras' views on Mind is consistent with this passage. The most important piece of evidence is fragment 12, which contains a number of theses about the nature and activity of Mind, as follows:

Nature Mind is	(a)	unlimited
(b)	self-directing	
(c)	separate from everything else	
(d)	the finest and purest of all things	
(e)	all alike, the greater and the less	
Activity Mind	(f)	takes thought for everything and has the greatest power
(g)	controls everything which has a soul	
(h)	directed the entire cosmic rotation, initiating it and continuing it	
(i)	knew all the mixtures and separations of everything	
(j)	organized whatever was, is and will be.	

The first problem is, what is the reference of Anaxagoras' term *Nous*? Is it mind in general, instanced in different individual minds (as in 'the concept of mind'), or a single cosmic mind? The answer is that it is probably both. The specification of mind given by (a)–(e) seems to be an attempt to differentiate mind as a constituent of the universe from all other constituents. Mind is the finest and purest of all things, it is self-directing (as opposed to other things, which (according to (f), (g) and (j) are directed by mind), and it (alone) is separate from everything else, whereas everything else contains a portion of everything else. (Compare fr. 11, 'In everything there is a portion of everything except mind, but there are also some things which contain mind.') But the account of mind's activity, most especially (h), strongly suggests the activity of a single supreme mind, which organizes the cosmos as a whole. It is clear, too, that that is how Plato represents Socrates as understanding Anaxagoras, especially *Phaedo* 97c: 'Mind is what organizes and is the cause of everything…the mind which organizes everything will organize and arrange each thing as is best'. The characteristics listed in (a)–(e) are characteristics of all minds, both 'the greater and the less' (i.e. presumably the supreme cosmic mind and subordinate minds, including but not necessarily restricted to human minds), which are explicitly stated in (e) all to be alike. The activities listed in (f)–(j) are activities of the cosmic mind,

though (g) may also perhaps refer to an individual mind directing each ensouled thing, doubtless under the overall direction of the cosmic mind. (Aristotle says (*On the Soul* 2–4, DK 59 A 100) that Anaxagoras sometimes identified soul with mind and attributed the latter to all animals, but appears unsure of what precisely he meant, while the pseudo-Aristotelian work *On Plants* reports that he regarded plants as a kind of animals and attributed consciousness and thought to them (815a15ff., DK 59 A 117).) Assuming that the fragments refer both to the cosmic mind and to individual minds, they are inexplicit as to the relation between the former and the latter. The minds of humans and of other animals are clearly subordinate to the cosmic mind, but it is unclear what the model of subordination is, i.e. whether particular human and other minds are parts of the cosmic mind, or agents operating under its direction.

The only assertion which Anaxagoras supports by any argument is (c): mind cannot be a constituent of any stuff, for if it were it would (by the 'everything in everything' principle) be a constituent of every stuff. Why should it not be? Empedocles had maintained that 'everything has intelligence and a share in thought' (fr. 110); why should Anaxagoras have demurred? The reason which he gives in fragment 12 is that if mind were a constituent of anything, the other constituents would prevent it from exercising its directive function. Mind has to be external to what it controls, as the rider has to be external to the horse. It is hard to see any force in this argument. We think of organisms as self-directing, and assume that some part of the organism functions as a control mechanism. Why should the mind of a human or animal not be a built-in control mechanism for the animal, or the cosmic mind such a mechanism for the cosmos as a whole?

It is problematic precisely because what is implied by the description of mind as unlimited. All stuffs exist eternally (fragment 17), and are therefore temporally boundless, and are unlimited in amount (fragments 1 and 3). Perhaps (a) is simply to be read as making the same claims for mind, but the opening of the fragment appears to contrast mind with the other things, and it is at least tempting to look for a sense of 'unlimited' *(apeiron)* in which mind alone is unlimited. Such a sense may be suggested by fragment 14, which states that mind is where all the other things are. Mind is not, as we have seen, a constituent of anything else, but it knows and controls everything, and is here said to be where everything else is. The picture seems to be of mind as everywhere, pervading everything without being part of anything. This would differentiate mind from the other stuffs, for though every stuff is contained in every stuff, there are some places where it is not, namely those places which are occupied by other stuffs. Mind, on the other hand, if this suggestion is right, is not excluded from any place by the presence of any stuff in that place. This, together with the description of mind as the finest and purest of all things, may suggest that Anaxagoras was groping towards the conception of mind as immaterial, but it would be anachronistic to suggest that that conception is clearly articulated in the fragments.

The fragments provide scant information on how the cosmic mind directs and organizes the cosmos. Fragment 12, supplemented by some secondary sources (DK 59 A 12 (Plutarch), 42 (Hippolytus) and 71 (Aetius)), indicates that a cosmic rotation separated out the original undifferentiated mass by centrifugal force into the main elemental masses, and also attests that the original rotation is continuing and will continue to a greater and greater extent. But what the connection is between the rotation and other kinds of natural change, e.g. the generation and development of plants and animals, and how mind is supposed to organize the latter, remains obscure. In particular, our extant evidence, consistently with Socrates' complaint in the *Phaedo* (see above) says nothing about how natural change, of whatever kind, is directed towards the best.

It is none the less likely that Anaxagoras held the cosmic mind to be divine. The explicit statements to this effect in ps.-Plutarch's *Epitome* and in Stobaeus (DK 59 A 48) are not confirmed by similar assertions in the fragments. However, the description of its activity in fragment 12, as 'taking thought for everything and having the greatest power', 'controlling' *(kratein)* everything ensouled and the whole cosmic rotation, 'knowing everything that is mixed together and separated out' and 'organizing' *(diakosmein)* everything is irresistibly suggestive not only of traditional divinities such as Zeus but also of the cosmic divinities of Anaxagoras' philosophical predecessors, the divine mind of Xenophanes which 'without labour controls all things by the thought of its mind' (DK 21 B 25, cf. 26) and the holy mind of Empedocles 'darting through the whole cosmos with swift thoughts' (DK 31 B 134).[2]

In this respect, as in many of the details of his astronomy and cosmology, Anaxagoras preserves some of the features of earlier Ionian thought. The conventional picture of him as a child of the fifth-century enlightenment is to that extent one-sided, yet it is not altogether inaccurate. In fact the two aspects are complementary; Anaxagoras represents in a striking way the vitality of the Ionian tradition, specifically its adaptability to the rigour of Eleatic thought and to the critical spirit of the later fifth century. That feature is, if anything, even more pronounced in the thought of the atomists, especially that of Anaxagoras' younger contemporary Democritus.

THE ATOMISTS

Atomism was the creation of two thinkers, Leucippus and Democritus. The former, attested by Aristotle, our primary source, as the founder of the theory, was a shadowy figure even in antiquity, being over-shadowed by his more celebrated successor Democritus to such an extent that the theory came to be generally regarded as the work of the latter, while Epicurus, who developed and popularized atomism in the third century BC, went so far as to deny that Leucippus ever existed. Nothing is known of his life. Even his birthplace was disputed, some sources associating him with one or other of the two main centres

of early Greek philosophy, Miletus and Elea, others with Abdera, the birthplace of Democritus. Of his dates all that can be said is that since he was certainly older than Democritus he lived during the fifth century. No lists of his works survive, and only a single quotation is ascribed to him by a single ancient source (Stobaeus).

Only a little more is known about Democritus. He came from Abdera, on the north coast of the Aegean (also the birthplace of Protagoras), and is reported as having described himself as young in the old age of Anaxagoras, i.e. probably in the 430s. He is traditionally said to have lived to a very great age (over 100 years on some accounts), and may therefore be supposed to have lived from about the middle of the fifth till well into the fourth century (though some scholars dispute the accounts of his longevity). He is quoted as saying that he visited Athens (where no one knew him), and is said to have had some slight acquaintance with Socrates. Of his works, which according to the list preserved in Diogenes Laertius' *Life* were many and encyclopaedic in scope, including a complete account of the physical universe and works on subjects including astronomy, mathematics, literature, epistemology and ethics, none survive. Ancient sources preserve almost 300 purported quotations, the great majority on ethics (see below), but also including some important fragments on epistemology preserved by Sextus. Our knowledge of the metaphysical foundations and physical doctrines of atomism relies on the doxographical tradition originating from Aristotle, who discusses atomism extensively. The precise relation between Leucippus and Democritus is unclear. Aristotle and his followers treat Leucippus as the founder of the theory, but also assign its basic principles to both Leucippus and Democritus; later sources tend to treat the theory as the work of Democritus alone. While it is clear that the theory originated with Leucippus it is possible that the two collaborated to some extent, and almost certain that Democritus developed the theory into a universal system.

Physical Principles

According to Aristotle, the atomists, like Anaxagoras, attempted to reconcile the observable data of plurality, motion and change with the Eleatic denial of the possibility of coming to be or ceasing to be. Again like him, they postulated unchangeable primary things, and explained apparent generation and corruption by the coming together and separation of those things. But their conceptions of the primary things and processes differed radically from those of Anaxagoras. For the latter the primary things were observable stuffs and properties, and the primary processes mixing and separation of those 'elements'. For the atomists, by contrast, the primary things were not properties and stuffs but physical individuals, and the primary processes not mixing and separation but the formation and dissolution of aggregates of those individuals. Again, the basic individuals were unobservable, in contrast with the observable stuffs of

Anaxagoras; consequently their properties could not be observed, but had to be assigned to those individuals by theory.

Since the theory had to account for an assumed infinity of phenomena, it assumed an infinite number of primary substances, while postulating the minimum range of explanatory properties, specifically shape, size, spatial ordering and orientation within a given ordering. All observable bodies are aggregates of basic substances, which must therefore be too small to be perceived. These corpuscles are physically indivisible (*atomon,* literally 'uncuttable'), not merely in fact but in principle; Aristotle reports an (unsound) atomistic argument, which has some affinities with one of Zeno's arguments against plurality, that if. (as for example Anaxagoras maintained) it were theoretically possible to divide a material thing *ad infinitum,* the division must reduce the thing to nothing. This Zenonian argument was supported by another for the same conclusion; atoms are theoretically indivisible because they contain no void. On this conception bodies split along their interstices; hence where there are no interstices, as in an atom, no splitting is possible. (The same principle accounts for the immunity of the atoms to other kinds of change, such as reshaping, compression and expansion; all require displacement of matter within an atom, which is impossible without any gaps to receive the displaced matter.) It is tempting to connect the assumption that bodies split only along their interstices with the Principle of Sufficient Reason, which the atomists appealed to as a fundamental principle of explanation (arguing for example that the number of atomic shapes must be infinite, because there is no more reason for an atom to have one shape than another (Simplicius, *Physics* 28.9–10, DK 67 A 8)). Given the total uniformity of an atom, they may have thought, there could be no reason why it should split at any point, or in any direction, rather than any other. Hence by the Principle of Sufficient Reason, it could not split at all.

Atoms are in a state of eternal motion in empty space; the motion is not the product of design, but is determined by an infinite series of prior atomic interactions (whence two of Aristotle's principle criticisms of Democritus, that he eliminated final causation and made all atomic motion 'unnatural'). Empty space was postulated as required for motion, but was characterized as 'what is not', thus violating the Eleatic principle that what is not cannot be. We have no evidence of how the atomists met the accusation of outright self-contradiction. As well as explaining the possibility of motion, the void was postulated to account for the observed plurality of things, since the atomists followed Parmenides (fragment 8, 22–5) in maintaining that there could not be many things if there were no void to separate them. The theoretical role of the void in accounting for the separation of atoms from one another has an interesting implication, recorded by Philoponus (*Physics* 494.19–25 (not in DK), *On Generation and Corruption* 158.26–159.7, DK 67 A 7). Since atoms are separated from one another by the void, they can never strictly speaking come into contact with one another. For if they did, even momentarily, there would be nothing separating them from one another. But then they would be as inseparable

from one another as the inseparable parts of a single atom, whose indivisibility is attributed to the lack of void in it (see above); indeed, the two former atoms would now be parts of a single larger atom. But, the atomists held, it is impossible that two things should become one. Holding atomic fusion to be theoretically impossible, and taking it that any case of contact between atoms would be a case of fusion (since only the intervening void prevents fusion), they perhaps drew the conclusion that contact itself is theoretically impossible. Hence what appears to be impact is in fact action at an extremely short distance; rather than actually banging into one another, atoms have to be conceived as repelling one another by some sort of force transmitted through the void. Again, though no source directly attests this, the interlocking of atoms which is the fundamental principle of the formation of aggregates is not strictly speaking interlocking, since the principle of no contact between atoms forbids interlocking as much as impact. Just as impact has to be reconstrued as something like magnetic repulsion, so interlocking has to be reconstrued as quasi-magnetic attraction. If this suggestion is correct (and it is fair to point out that no ancient source other than Philoponus supports it) it is a striking fact that, whereas the post-Renaissance corpuscular philosophy which developed from Greek atomism tended to take the impossibility of action at a distance as an axiom, the original form of the theory contained the a priori thesis that all action is action at a distance; consequently that impact, so far from giving us our most fundamental conception of physical interaction, is itself a mere appearance which disappears from the world when the description of reality is pursued with full rigour.

Chance and Necessity

While the broad outlines of the views of the atomists on these topics can be fairly readily reconstructed, there is much obscurity about the details. The atomists' universe is purposeless, mechanistic and deterministic; every event has a cause, and causes necessitate their effects. Broadly speaking the process is mechanical; ultimately, everything in the world happens as a result of atomic interaction. The process of atomic interaction has neither beginning nor end, and any particular stage of that process is causally necessitated by a preceding stage. But exactly how the atomists saw the process as operating is obscure. This obscurity is largely attributable to the fragmentary nature of the evidence which we possess, but it may be that the statement of the theory itself was not altogether free from obscurity.

The fundamental text is the single fragment of Leucippus (DK 67 B 1): 'Nothing happens at random, but everything from reason and by necessity.' The denial that anything happens 'at random' *(matēn)* might well be taken in isolation to amount to an assertion that all natural events are purposive, since the adverb and its cognates frequently have the sense 'in vain' (i.e. not in accordance with one's purpose) or 'pointlessly'. If that were the sense of 'not *matēn*' then 'from reason' *(ek logou)* would most naturally be understood as 'for a purpose'.

These renderings are, however, very unlikely. The majority of the sources follow Aristotle (*On the Generation of Animals* 789b 2–3, DK 68 A 66) in asserting that Democritus denied purposiveness in the natural world, explaining everything by mechanistic 'necessity'.[3] A reading of Leucippus which has him assert, not merely (*contra* Democritus) that some, but that all natural events are purposive, posits a dislocation between the fundamental world-views of the two of such magnitude that we should expect it to have left some trace in the tradition. Moreover, the attribution of all events to necessity, a central feature of the mechanistic Democritean world-view, is itself attested in the fragment of Leucippus. We ought, then, to look for an interpretation of the fragment which allows it to be consistent with Democritus' denial of final causation.

Such an interpretation is available without forcing the texts. Sometimes (e.g. Herodotus VII.103.2, Plato *Theaetetus* 189d) *matēn* is to be rendered not 'without purpose' but 'without reason' ('in vain' and 'empty' have similar ranges of application). Given that construal of *matēn*, 'from reason' is to be construed as 'for a reason', where the conception of reason is linked to that of rational explanation. The first part of the fragment ('Nothing happens at random, but everything from reason') thus asserts, not universal purposiveness in nature, but a principle which we have already seen to be pervasive in atomism, the Principle of Sufficient Reason. Instead of a radical discontinuity between Leucippus and Democritus, the fragment, thus construed, attests commitment to a principle basic to atomism. The second half ('and by necessity') makes a stronger claim, which links the notion of rational explanation to the notions of necessity and of cause. The stronger claim is that whatever happens has to be happen, cannot but happen. This amounts to a specification of the reason whose existence is asserted in the first half of the sentence; nothing happens without a reason, and, in the case of everything which happens, the reason for which it happened was that it had to happen. But the claim that whatever happens happens 'by necessity' is not just the claim that whatever happens has to happen, though the former implies the latter. For the concept of necessity is not a purely modal concept requiring elucidation via its connection with other such concepts, such as possibility and impossibility. Rather, necessity is conceived as an irresistible force bringing it about that things have to happen. This is indicated both by the causal force of the preposition *hypo* (rendered 'by' in the expression 'by necessity'), and also by the fact that Democritus is reported as *identifying* necessity with impact and motion ((Aetius I.26.2, DK 68 A 66) on the interpretation of this see below). Impact and motion, then, take over the determining role traditionally assigned to Necessity, when the latter is conceived (as in Parmenides and Empedocles) as an ineluctable, divine cosmic force (cf. Plato, *Protagoras* 345d5 'Against necessity not even the gods fight').

Nothing, then, just happens; every event occurs because it had to occur, i.e. because it was made to occur by prior impact (namely, of atoms on one another) and prior motion (namely, of atoms). So there can be no chance events, i.e. no events which simply happen. On the other hand, we have evidence that the

atomists assigned some role to chance in the causation of events, though precisely what role is not easy to determine. Aristotle (*Physics* 196a24–8, DK 68 A 69), Simplicius (*Physics* 327.24–6, DK 68 A 67; 330.14–20, DK 68 A 68) and Themistius (*Physics* 49.13–16 (not in DK)) all say that Democritus attributed the formation of every primal cosmic swirl to chance (indeed Aristotle finds a special absurdity in the theory that while events in a cosmos occur in regular causal sequences, the cosmos itself comes into being purely by chance). Cicero (*On the Nature of the Gods* I.24.66, DK 67 A 11) says that heaven and earth come into existence 'without any compulsion of nature, but by their [i.e. the atoms'] chance concurrence', while Lactantius (*Divine Institutions* I.2.1–2, DK 68 A 70) baldly attributes to Democritus and Epicurus the view that 'everything happens or comes about fortuitously'. Aetius I.29.7: 'Democritus and the Stoics say that it [i.e. chance] is a cause which is unclear to human reason' may be read either as asserting or as denying that Democritus believed that there are genuinely chance events. Read in the latter way it attributes to Democritus the view that we explain an event as due to chance when its real cause is unknown; on the former reading the view attributed to Democritus is that chance is itself a real cause of events, but an unfathomable one (the position mentioned by Aristotle without attribution at *Physics* 19605–7). A passage from Epicurus' *On Nature* (fr. 34.30 in Arrighetti), which one might hope to be our most authoritative source, is similarly ambiguous. There Epicurus describes the atomists as 'making necessity and chance responsible for everything', a formulation which is ambiguous between two positions; (1) 'necessity' and 'chance' are two names for a single universal cause, (2) necessity and chance are distinct but jointly exhaustive causes of everything.[4]

The passage of Lactantius is of little weight; he states that the fundamental question is whether the world is governed by providence or whether everything happens by chance, and says that Epicurus and Democritus held the latter view. It is plausible that he took their denial of providence to commit them to that view, since he himself took those alternatives to be exhaustive. This passage, then, gives no independent ground for the attribution to either philosopher of the thesis that literally everything happens by chance.

We are still, however, left with those passages attesting Democritus' belief that every cosmic swirl, and therefore every cosmos, come into being by chance. That might be thought to be confirmed by the statement in Diogenes Laertius' summary of Democritus' cosmology that he identified the cosmic swirl itself with necessity (IX.45, DK 68 A 1). On this interpretation the statement that everything happens by necessity is confined to events within a cosmos, and states that all such events are determined by the atomic motions constituting the swirl. The swirl itself, however, is not determined by itself, nor by anything; it just happens. Eusebius (*Praeparatio Evangelica* XIV.23.2, DK 68 A 43) also reports Democritus as ascribing the formation of worlds to chance, and goes further by reporting him as holding that the pre-cosmic motion of the atoms was also random ('these atoms travel in the void *hōs etuchen* (literally "as it

chanced"). On this view necessity governs, but is local to, a world order, which itself arises by chance from a pre-cosmic state where there is no necessity.

The recognition of pure chance is, however, inconsistent with the Principle of Sufficient Reason, which we know the atomists accepted. It therefore seems preferable to look for some interpretation of the evidence which is consistent with that principle. That interpretation is provided by the first reading of the Aetius passage cited above, namely that the ascription of events to chance is a confession of ignorance of their causes, not a denial that they have causes. Some features of the evidence support this suggestion. Diogenes' summary of the cosmology of Leucippus (IX.30–3, DK 67 A 1) concludes with the sentence, 'Just like the coming into being of worlds, so do their growth, decay, and destruction occur according to a certain necessity, the nature of which he does not explain.' In line with his famous dictum, then, Leucippus held that all events including the formation of worlds happen according to necessity, but was unable to say what it is that necessitates cosmic events. It is then plausible that either he himself or Democritus said that such events may *be said* to occur by chance, in the sense that we are (whether merely in fact or in principle is indeterminate) ignorant of their causes. Simplicius' evidence suggests just that; in *Physics* 327. 24–6 his attribution to Democritus of the view that the cosmic swirl arises by chance is avowedly his own inference from the fact that Democritus did *not* say how or why that occurs. In *Physics* 330.14–20 he says that although Democritus appeared *(edokei)* to have made use of chance in his account of the formation of worlds, in his more detailed discussions *(en tois merikōterois)* he says that chance is not the cause of anything. That suggests that he merely seemed to ascribe cosmogony to chance (perhaps by speaking of it as a chance occurrence in the sense of an occurrence whose cause is unknown). Explanations of specific kinds of events and of particular events were governed by the principle that there are no chance events, but no attempt was made to offer explanations of the fundamental cosmic processes themselves. That need not imply that they are literally uncaused, but that they might as well be treated as such, since their actual causes are of a degree of complexity outstripping the powers of the human mind to discover.

For the atomists, then, everything happens of necessity; the identification of necessity with the mechanical forces of impact and motion may have been due to Democritus. But what exactly was his view on this? Aetius (I.26.2, DK 68 A 66) reports him as identifying necessity with 'impact and motion and a blow of matter'. Are impact and motion given equal status in this identification, or is it taken for granted that motion is always caused by prior impact? On the former construal some motion may be either uncaused, or attributable to a cause other than impact. In favour of the first alternative is Aristotle's evidence (*Physics* 252a32–b2, DK 68 A 65) that Democritus held that one should not ask for a cause of what is always the case. He might then have said that the atoms are simply always in motion. But while that principle allows him to exclude the question, 'What causes the atoms to be in motion?', the Principle of Sufficient

Reason requires that the question, 'Why is any particular atom moving with any particular motion?' should have an answer, and it might appear inevitable that that answer should refer to a prior atomic collision. We have, however, to recall the evidence from Philoponus that atoms never actually collide or come into contact, with its implication that the basic physical forces are attraction and repulsion. Attraction, as we saw, explains, not atomic motion, but the immobility of atoms relative to one another, since the relative stability of atoms in an aggregate has to be explained, not by their literal interlocking, but by their being held together *as if* interlocked by an attractive force operating over the tiny gaps between the atoms in the aggregate. In addition, some form of attraction may also have explained some atomic motions; Sextus cites Democritus (*Adversus Mathematicos* VII.116–8, DK 68 B 164) as holding that things of the same kind tend to congregate together, and as illustrating that phenomenon by examples of the behaviour of animate (birds flocking together) and inanimate things (grains of different sorts being separated out by the action of a sieve, pebbles of different shapes being sorted together by the action of waves on a beach). That this principle was applied to the atoms appears from Diogenes' account of the cosmogony of Leucippus, where atoms of all shapes form a swirling mass from which they are then separated out 'like to like'. The separation out of atoms of different *sizes* could adequately be accounted for by the stronger centripetal tendency of the larger, itself a function of their greater mass. But the context in Diogenes, where the atoms have just been described as of all shapes, with no mention so far of size, suggests that 'like to like' is here to be understood as 'like to like in shape'. Aetius' report of Democritus' account of sound (IV.19.3, DK 68 A 128) asserts that atoms of like shape congregate together, and contains the same illustrative examples as the Sextus passage; it is plausible, though not explicitly asserted, that this same principle accounts for the formation of aggregates of spherical atoms, for example flames.

We have, then, evidence that Democritus' dynamics postulated three fundamental forces: a repulsive force which plays the role of impact in a conventional corpuscular theory, and two kinds of attractive force, one of which draws together atoms of the same shape and another which holds together atoms of different shapes in an atomic aggregate. It is plausible that he applied the term 'necessity' to all three, regarding them alike as irresistible. It must, however, be acknowledged first that the evidence for this theory is fragmentary and also that even if it is accepted we have no idea whether or how Democritus attempted to unify these forces into a unified theory. Stated thus baldly, the theory has obvious difficulties; for example, if two atoms of the same shape collide, do they rebound or stick together? If all atoms have both attractive and repulsive force there must be some yet more basic principles determining what force or combination of forces determines their motion. Our sources give no hint of whether Democritus had so much as considered such questions.

Epistemology and Psychology

While we have no evidence to suggest that Leucippus was concerned with epistemological questions, there is abundant evidence of their importance for Democritus. It is quite likely that the latter's epistemological interests were stimulated at least in part by his fellow citizen and elder contemporary Protagoras (see below). Our evidence is highly problematic, in that it provides support for the attribution to Democritus of two diametrically opposed positions on the reliability of the senses. On the one hand, we have a number of passages, including some direct quotations, in which he is seen as rejecting the senses as totally unreliable; on the other, a number of passages ascribe to him the doctrine that all appearances are true, which aligns him with Protagorean subjectivism, a position which he is, however, reported as having explicitly rejected. The former interpretation is supported mainly by evidence from Sextus, and the latter mainly by evidence from Aristotle and his commentators, but we cannot resolve the question by simply setting aside one body of evidence in favour of the other. The reasons are that: (1) in the course of a few lines (*Metaphysics* 1009b7–17, DK 68 A 112) Aristotle says both that Democritus says that either nothing is true, or it is unclear to us, and that he asserts that what appears in perception is necessarily true; (2) in *Adversus Mathematicos* (VII.136, DK 68 B 6) Sextus ascribes some of Democritus' condemnation of the senses to a work in which 'he had undertaken to give the senses control over belief. Prima facie, then, the evidence suggests that both interpretations reflect aspects of Democritus' thought. Was that thought, then, totally inconsistent? Or can the appearance of systematic contradiction be eliminated or at least mitigated?

The former interpretation is based on the atomists' account of the secondary qualities, whose observer-dependence Democritus seems to have been the first philosopher to recognize. Our senses present the world to us as consisting of things characterized by colour, sound, taste, smell, etc., but in reality the world consists of atoms moving in the void, and neither atoms nor the void are characterized by any secondary quality. We thus have a dichotomy between how things seem to us and how they are in reality, expressed in the celebrated slogan (fr. 9) 'By convention sweet and by convention bitter, by convention hot, by convention cold, by convention colour, but in reality atoms and the void.' Further, the distinction between the reality of things and the appearances which that reality presents has to be supplemented by an account of the causal processes via which we receive those appearances. Atomic aggregates affect us by emitting from their surfaces continuous streams of films of atoms which impinge on our sense organs, and the resulting perceptual states are a function of the interaction between those films and the atomic structure of the organs. For example, for an object to be red is for it constantly to emit films of atoms of such a nature that, when those films collide with an appropriately situated perceiver, the object will look red to that perceiver.

Hence we are doubly distanced from reality; not only phenomenologically, in that things appear differently from how they are, but also causally, in that we perceive atomic aggregates via the physical intervention of other aggregates (namely the atomic films) and the action of those latter on our sense organs. A number of fragments stress the cognitive gulf which separates us from reality: (fr. 6) 'By this principle man must know that he is removed from reality'; (fr. 8) 'Yet it will be clear that to know how each thing is in reality is impossible'; (fr. 10) 'That in reality we do not how each thing is or is not has been shown many times' and (fr. 117) 'In reality we know nothing, for truth is in the depths.'

This evidence immediately presents a major problem of interpretation. On the one hand fragment 9 and associated reports stress the gulf between appearance and reality, claiming that the senses are unreliable in that they misrepresent reality. That dogmatic claim presupposes that we have some form of access to reality, which enables us to find the sensory picture unfaithful to how things are in fact. On the other hand, fragments 6, 8, 10 and 117 make the much more radical claim that reality is totally inaccessible, thereby undercutting the thesis that there is a gulf between appearance and reality. Fragment 7, 'This argument too shows that in reality we know nothing about anything, but each person's opinion is something which flows in' and the second half of fragment 9, 'In fact we know nothing firm, but what changes according to the condition of our body and of the things that enter it and come up against it' attempt uneasily to straddle the two positions, since they draw the radically sceptical conclusion from a premiss about the mechanism of perception which presupposes access to the truth about that mechanism. We might conclude that Democritus simply failed to distinguish the dogmatic claim that the senses misrepresent reality from the sceptical claim that we can know nothing whatever about reality. An alternative strategy is to look for a way of interpreting the evidence which will tend to bring the two claims nearer to consonance with one another.

We can bring the two claims closer to one another if the 'sceptical' fragments are interpreted as referring, not to cognitive states generally, but specifically to states of sensory cognition. These fragments will then simply reiterate the thesis that we know nothing about the nature of reality *through the senses*, a thesis which is consistent with the slogan stated in the first half of fragment 9 and which dissolves the apparent tension internal to fragment 7 and the second half of fragment 9. Support for that suggestion comes from consideration of the context in which Sextus quotes fragments 6–10, namely that of Democritus' critique of the senses; of this Sextus observes, 'In these passages he more or less abolishes every kind of apprehension, even if the senses are the only ones which he attacks specifically.' It thus appears that Sextus understands Democritus as referring in these fragments to the senses only, though in his (i.e. Sextus') view the critique there directed against the senses in fact applies to all forms of apprehension. This is confirmed by the distinction which Sextus immediately (*Adversus Mathematicos* VII.135–9) attributes to Democritus between the 'bastard' knowledge provided by the senses and the 'genuine' knowledge

provided by the intellect (fr. 11). The latter is specifically said to be concerned with things which fall below the limits of sensory discrimination, and we must therefore suppose that the atomic theory itself is to be ascribed to this form of knowledge. This is supported by those passages (*ibid.* VIII.6–7, 56) in which Sextus associates the position of Democritus with that of Plato, in that both reject the senses as sources of knowledge and maintain that only intelligible things are real; for Plato, of course, the intelligible things are the Forms, whereas for Democritus they are the atoms, which are inaccessible to perception and, consequently, such that their properties are determinable only by theory.

Thus far the prospects for a unified interpretation of Democritus' epistemology look promising. The position expressed in the fragments cited by Sextus is not general scepticism, but what we might term theoretical realism. The character of the physical world is neither revealed by perception nor inaccessible to us; it is revealed by a theory which, starting from perceptual data, explains those data as appearances generated by the interaction between a world of imperceptible physical atoms and sensory mechanisms also composed of atoms. But now, as Sextus points out (*ibid.* VIII.56 (not in DK)) and Democritus himself recognized (in the famous 'complaint of the senses' (fr. 125)) scepticism threatens once again; for the theory has to take perceptual data as its starting-point, so if the senses are altogether unreliable, there are no reliable data on which to base the theory. So, as the senses say to the mind in fragment 125, 'Our overthrow is a fall for you.'

Commentators who (like Barnes [2.8]) read fragment 125 as expressing commitment to scepticism (despairing or exultant, according to taste) on the part of Democritus, naturally reject the unitary interpretation proffered above. On this view fragments 117 and 6–10 are not restricted to sensory cognition, but express a full-blooded rejection of any form of knowledge, which must be seen as superseding the distinction between appearance and reality of fragments 9 (first part) and 11 and the claim to 'genuine knowledge' in the latter. Yet Sextus presents 6–11 in a single context (*Adversus Mathematicos* VII.135–40) without any suggestion of a conflict within the collection. Moreover, in *Outlines of Pyrrhonism* I.213–4 (not in DK) he points out that, though the Sceptics resemble Democritus in appealing to phenomena of conflicting appearances, such as the honey which tastes sweet to the healthy and bitter to the sick, in fact Democritus uses those phenomena to support, not the sceptical position that it is impossible to tell how the honey is in fact, but the dogmatic position that the honey is itself neither sweet nor bitter. (I interpret the latter as the assertion that sweetness and bitterness are not intrinsic attributes of the structure of atoms which is the honey (see above).) Sextus, in short, sees Democritus not as a sceptic, but as a dogmatist. Indeed, Sextus does not cite fragment 125, and it is possible that he did not know the text from which it comes; VIII.56 shows that he was aware of the problem which is dramatized in the fragment, but he clearly saw it as a difficulty for Democritus, rather than as signalling Democritus' rejection of the basis of his own theory.

At this point we should consider in what sense the theory of atomism takes the data of the senses as its starting-point, and whether that role is in fact threatened by the appearance—reality gap insisted on in fragment 9. According to Aristotle (*On Generation and Corruption* 315b6–15, DK 67 A 9; 325b24–6, DK 67 A 7) the theory started from sensory data in the sense that its role was to save the appearances, i.e. to explain all sensory data as appearances of an objective world. Both Aristotle *(On Generation and Corruption)* and Philoponus (his commentary, 23.1–16 (not in DK)) mention conflicting appearances as among the data to be saved; the theory has to explain both the honey's tasting sweet to the healthy and its tasting bitter to the sick, and neither appearance has any pretensions to represent more faithfully than the other how things are in reality. All appearances make an equal contribution to the theory. That is a position which atomism shares with Protagoras, but the latter assures the equal status of appearances by abandoning objectivity; in the Protagorean world there is nothing more to reality than the totality of equipollent appearances. For Democritus, by contrast, the reconciliation of the equipollence of appearances with the objectivity of the physical world requires the gap between appearance and reality. Without the gap a world of equipollent appearances is inconsistent, and hence not objective. But there is no ground for denying equipollence; *qua* appearance, every appearance is as good as every other. Hence the task of theory is to arrive at the best description of an objective world which will satisfy the requirement of showing how all the conflicting appearances come about.

So far from threatening the foundations of the theory, then, the appearance-reality gap is essential to the theory. But in that case what is the point of the complaint of the senses in fragment 125? Surely that text provides conclusive evidence that Democritus believed that the gap threatened the theory, and hence (assuming that he understood his own theory) conclusive evidence against the interpretation which I am advancing. I do not think that the text does provide such evidence, for the simple reason that we lack the context from which the quotation comes. The point of the complaint need not (and given the nature of Democritus' theory certainly should not) be the admission that the theory is self-refuting. It is at least as likely to be a warning against misunderstanding the account of the appearance-reality gap as requiring the abandonment of sensory evidence. We may imagine an anti-empiricist opponent (Plato, say) appealing to the gap to support the claim that the senses are altogether unreliable, and should therefore be abandoned (as is perhaps indicated by *Phaedo* 65–6). In reply Democritus points out that the attack on the senses itself relies on sensory evidence. Sextus does indeed align Democritus with Plato in this regard (*Adversus Mathematicos* VIII.56). It is my contention, however, that when we put the Aristotelian evidence of the atomists' acceptance of the appearances as the starting-point of their theory together with all the other evidence, including the fragments, we have to conclude that the picture of Democritus as a failed Platonist is a misunderstanding. The atomists' distinction between appearance and reality does not involve 'doing away with sensible things'; on the contrary,

appearances are fundamental to the theory, first as providing the data which the theory has to explain and second as providing the primary application for the observationally-based terminology which is used to describe the nature and behaviour of the entities posited by the theory (cf. [6.46]).

A final objection, however, comes from Aristotle himself, who describes Democritus as concluding from conflicting appearances 'that either nothing is true, or it is unclear to us' (*Metaphysics* 1009b11–12). This is a very puzzling passage, for a number of reasons. Aristotle is explaining why some people go along with Protagoras in believing that whatever seems to be the case is so, and in the immediate context (1009a38ff.) cites the phenomena of conflicting appearances and the lack of a decisive criterion for choosing between them as conducing to that belief. But at 1009b9 he shifts from the thought that conflicting appearances lead to the view that all appearances are true to the sceptical account of those phenomena, namely that it is unclear which of the appearances is true or false, 'for this is no more true than that, but they are alike'. This, he says (i.e. the belief that none of the appearances is truer than any other) is why Democritus said that either nothing is true, or it is unclear to us. So Democritus is represented as posing a choice of adopting either the dogmatic stance that none of the appearances is true, or the sceptical stance that it is unclear (which is true). Yet in the next sentence Aristotle says that because he and others assimilate thought to perception they hold that what appears in perception is necessarily true, the position which we have already seen him attribute to Democritus in a number of places. So unless Aristotle is radically confused, the disjunction 'either none of the appearances is true, or it is unclear to us' must be consistent with the thesis that all perceptions are true. If 'it is unclear to us' is read as 'it is unclear to us which is true', then the claims are inconsistent. I suggest, however, that what Democritus said was to the effect that 'either nothing is true, or it (i.e. the truth) is unclear'. The first alternative he plainly rejected, so he maintained the second. And that is precisely what he maintains in fragment 117: the truth (about the atoms and the void) is in the depths, i.e. it is not apparent in perception, i.e. it is unclear *(adēlon)* in the sense that it is not plain to see. That he used the term *adēlon* to apply to atoms and the void is attested by Sextus (*Adversus Mathematicos* VII.140, DK 68 A 111), who cites Diotimus as evidence for Democritus' holding that the appearances are the criterion for the things that are unclear and approving Anaxagoras' slogan 'the appearances are the sight of the things that are unclear' *(opsis tōn adēlōn ta phainomena)*. The truth, then, i.e. the real nature of things, is unclear (i.e. non-evident), but all perceptions are true in that all are equipollent and indispensable to theory.

If that is what Democritus held, then it may reasonably be said that 'true' is the wrong word to characterize the role of appearances in his theory. 'All appearances are equipollent' is equally compatible with 'All appearances are false', and in view of his insistence on the non-evident character of the truth it would surely have been less misleading for him to say the latter. Though there are some difficult issues here, I shall not argue the point, since I am not

concerned to defend Democritus' thesis that all appearances are true. I do, however, accept that he actually maintained that thesis and have sought to explain why he did and how he held it together with (1) his rejection of Protagorean subjectivism and (2) the views expressed in the fragments cited by Sextus.[5]

In conclusion, it should be observed that the persuasiveness or otherwise of the atomists' account of the secondary qualities cannot be separated from that of the whole theory of perception of which it is pan, and that in turn from the theory of human nature, and ultimately of the natural world as a whole. As presented by the atomists, the theory is entirely speculative, since it posits as explanatory entities microscopic structures of whose existence and nature there could be no experimental confirmation. Modern developments in sciences such as neurophysiology have revised our conceptions of the structures underlying perceptual phenomena to such an extent that modern accounts would have been unrecognizable to Leucippus or Democritus; but the basic intuitions of ancient atomism, that appearances are to be explained at the level of the internal structure of the perceiver and of the perceived object, and that the ideal of science is to incorporate the description of those structures within the scope of a unified and quantitatively precise theory of the nature of matter in general, have stood the test of time.

Democritus' uncompromising materialism extended to his psychology. Though there is some conflict in the sources, the best evidence is that he drew no distinction between the rational soul or mind and the non-rational soul or life principle, giving a single account of both as a physical structure of spherical atoms permeating the entire body. This theory of the identity of soul and mind extended beyond identity of physical structure to identity of function, in that Democritus explained thought, the activity of the rational soul, by the same process as that by which he explained perception, one of the activities of the sensitive or non-rational soul. Both are produced by the impact on the soul of extremely fine, fast-moving films of atoms *(eidōla)* constantly emitted in continuous streams by the surfaces of everything around us. This theory combines a causal account of both perception and thought with a crude pictorial view of thought. The paradigm case of perception is vision; seeing something and thinking of something alike consist in picturing the thing seen or thought of, and picturing consists in having a series of actual physical pictures of the thing impinge on one's soul. While this assimilation of thought to experience has some affinities with classical empiricism, it differs in this crucial respect, that whereas the basic doctrine of empiricism is that thought derives from experience, for Democritus thought is a form of experience, or, more precisely, the categories of thought and experience are insufficiently differentiated to allow one to be characterized as more fundamental than the other. Among other difficulties, this theory faces the problem of accounting for the distinction, central to Democritus' epistemology, between perception of the observable properties of atomic aggregates and thought of the unobservable structure of those aggregates. We

have no knowledge of how, if at all, Democritus attempted to deal with this problem.

Theology

Another disputed question is whether Democritus' materialistic account of the universe left any room for the divine. According to most of the ancient sources, he believed that there are gods, which are living, intelligent, material beings (of a peculiar sort), playing a significant role in human affairs. They are atomic compounds, and like all such compounds they come to be and perish. They did not create the physical world (of which they are pan), nor, though they are intelligent, do they organize or control it. They are as firmly part of the natural order as any other living beings. Specifically, Democritus believed the gods to be living *eidōla*, probably of gigantic size, possessing intelligence, moral character and interest in human affairs. While some sources suggest that these *eidōla* emanate from actual divine beings, the majority of sources agree that they are themselves the only divine beings which Democritus recognized. Some modern scholars (e.g. Barnes [2.8], ch. 21 (c)) interpret this as amounting to atheism, taking Democritus to have held that the gods are nothing more than the contents of human fantasy. But for Democritus *eidōla* are not intrinsically psychological; they are not contents of subjective states, but part of the objective world, causing psychological states through their impact on physical minds. In that case the theory must explain their source and their properties, notably their being alive. Since they are of human form, it is plausible to suggest that their source is actual humans, possibly giants living in the remote past. They are themselves alive in that, flowing from beings permeated with soul-atoms, they contain soul-atoms themselves. Consistently with this naturalistic theology Democritus gave a naturalistic account of the origin of religion, identifying two types of phenomena as having given rise to religious belief, first the occurrence of *eidōla* themselves, presumably in dreams and ecstatic states, and second celestial phenomena such as thunder, lightning and eclipses.

Democritus' theology thus contrives to incorporate some of the most characteristic features of the gods of traditional belief, notably their anthropomorphism, power, longevity (though not, crucially, immortality) personal interaction with humans and interest (for good or ill) in human affairs, within the framework of a naturalistic and materialistic theory. It is thus, despite the bold originality of its account of the divine nature, notably more conservative than some of its predecessors (especially the non-anthropomorphic theology of Xenophanes) and than its Epicurean successor, whose main concern is to exclude the gods from all concern with human affairs.

Ethics and Politics

The evidence for Democritus' ethical views differs radically from that for the areas discussed above, since while the ethical doxography is meagre, our sources preserve a large body of purported quotations on ethical topics, the great majority from two collections, that of Stobaeus (fifth century AD) and a collection entitled The sayings of Democrates'. While the bulk of this material is probably Democritean in origin, the existing quotations represent a long process of excerpting and paraphrase, making it difficult to determine how close any particular saying is to Democritus' own words. Various features of style and content suggest that Stobaeus' collection of maxims contains a greater proportion of authentically Democritean material than does the collection which passes under the name of 'Democrates'.

Subject to the limitations imposed by the nature of this material, we can draw some tentative conclusions about Democritus' ethical views. He was engaged with the wide-ranging contemporary debates on individual and social ethics of which we have evidence from Plato and other sources. On what Socrates presents as the fundamental question in ethics, 'How should one live?' (Plato, *Gorgias* 500c, *Republic* 352d), Democritus is the earliest thinker reported as having explicitly posited a supreme good or goal, which he called 'cheerfulness' *(euthumia)* or 'well-being' *(euestō)*, and which he appears to have identified with the untroubled enjoyment of life. It is reasonable to suppose that he shared the presumption of the primacy of self-interest which is common both to the Platonic Socrates and to his immoralist opponents, Callicles and Thrasymachus. Having identified the ultimate human interest with 'cheerfulness', the evidence of the testimonia and the fragments is that he thought that it was to be achieved by moderation, including moderation in the pursuit of pleasures, by discrimination of useful from harmful pleasures and by conformity to conventional morality. The upshot is a recommendation to a life of moderate, enlightened hedonism, which has some affinities with the life recommended by Socrates (whether in his own person or as representing ordinary enlightened views is disputed) in Plato's *Protagoras*, and, more obviously, with the Epicurean ideal of which it was the forerunner.

An interesting feature of the fragments is the frequent stress on individual conscience. Some fragments stress the pleasures of a good conscience and the torments of a bad one (frs 174, 215) while others recommend that one should be motivated by one's internal sense of shame rather than by concern for the opinion of others (frs 244, 264, Democrates 84). This theme may well reflect the interest, discernible in contemporary debates, in what later came to be known as the question of the sanctions of morality. A recurrent theme in criticisms of conventional morality was that, since the enforcement of morality rests on conventions, someone who can escape conventional sanctions, e.g. by doing wrong in secret, has no reason to comply with moral demands (see Antiphon fr. 44 DK, Critias fr. 25 DK and Glaucon's tale of Gyges' ring in Plato's *Republic*,

359b–360d). A defender of conventional morality who, like Democritus and Plato, accepts the primacy of self-interest therefore faces the challenge of showing, in one way or another, that self-interest is best promoted by the observance of conventional moral precepts.

The appeal to divine sanctions, cynically described in Critias fragment 25, represents one way of doing this, and there are some traces of the same response in Democritus. While his theory of the atomic, and hence mortal, nature of the soul admits no possibility of postmortem rewards and punishments, the theory allows for divine rewards and punishments in this life. Fragment 175 suggests a complication: the gods bestow benefits on humans, but humans bring harm on themselves through their own folly. Is the thought that the gods do not inflict punishment arbitrarily, but that humans bring it on themselves? Or is it rather that the form which divine punishments take is that of natural calamities, which humans fail to avoid through their own folly? The latter alternative would make the pangs of conscience one of the forms of divine punishment, while the former would see it as a further sanction. Either way (and the question is surely unanswerable) we have some evidence that Democritus was the earliest thinker to make the appeal to 'internal sanctions' central to his attempt to derive morality from self-interest, thus opening up a path followed by others including Butler and J.S.Mill.

The attempt, however pursued, to ground morality in self-interest involves the rejection of the antithesis between law or convention *(nomos)* and nature *(phusis)* which underlies much criticism of morality in the fifth and fourth centuries. For Antiphon, Callicles, Thrasymachus and Glaucon, nature prompts one to seek one's own interest while law and convention seek, more or less successfully, to inhibit one from doing so. But if one's long-term interest is the attainment of a pleasant life, and if the natural consequences of wrongdoing, including ill-health, insecurity and the pangs of conscience, give one an unpleasant life, while the natural consequences of right-doing give one a contrastingly pleasant life, then nature and convention point in the same direction, not in opposite directions as the critics of morality had alleged. (We have no evidence whether Democritus had considered the objections that conscience is a product of convention, and that exhorting people to develop their conscience assumes that it must be.) Though the texts contain no express mention of the *nomos-phusis* contrast itself, several of them refer to law in such a way as to suggest rejection of the antithesis. Fragment 248 asserts that the aim of law is to benefit people, thus contradicting Glaucon's claim (*Republic* 359c) that law constrains people contrary to their natural bent. Fragment 248 is supplemented and explained by fragment 245; laws interfere with people's living as they please only to stop them from harming one another, to which they are prompted by envy. So law frees people from the aggression of others, thus benefiting them by giving them the opportunity to follow the promptings of nature towards their own advantage. The strongest expression of the integration of *nomos* and *phusis* is found in fragment 252: the city's being well run is the

greatest good, and if it is preserved everything is preserved, while if it is destroyed everything is destroyed. A stable community, that is to say, is necessary for the attainment of that well-being which is nature's goal for us. This quotation encapsulates the central point in the defence of *nomos* (emphasized in Protagoras' myth (Plato, *Protagoras* 322a–323a)) that law and civilization are not contrary to nature, but required for human nature to flourish, a point also central to the Epicurean account of the development of civilization (see especially Lucretius V).

I conclude with a brief discussion of the vexed question of the connections (or lack of them) between Democritus' ethics and his physical theory. In an earlier discussion ([6.46]), I argued against Vlastos's claim [6.47] to find significant connections between the content of the two areas of Democritus' thought. Vlastos's position has found some recent defenders (and my views some critics), including Sassi [6.43]; these discussions seem to me to call for some re-examination of the question.

It is, I take it, common ground that in composing his ethical writings Democritus had not abandoned his physical theory, and therefore that, at the very least, he would have sought to include nothing in the former which was inconsistent with the latter. I shall make the stronger assumption that he took for granted in the ethical writings the atomistic view of the soul as a physical substance pervading the body. I remain, however, unconvinced of any closer connection between physics and ethics. In particular, I see no indication that any ethical conclusions (e.g. that the good is 'cheerfulness') were supposed to be derived from the physical theory, or that the physical theory provided any characterizations of the nature of any ethically significant psychological state. Put in modern terms, I see no evidence that Democritus believed in type—type identities between ethical states such as cheerfulness and physical states such as having one's soul-atoms in 'dynamic equilibrium' (Vlastos, in [4.64], 334). My earlier criticisms of this kind of view seem to me to stand.

There is, however, one particular point on which I now think that I took scepticism too far. This was in my rejection of Vlastos's interpretation of fragment 33, that teaching creates a new nature by altering the configuration of the soul-atoms. My reason was that *ruthmos* was an atomistic technical term for the shape of an individual atom, not for the configuration of an atomic aggregate, for which their term was *diathigē.* Hence *metaruthmizei* (or *metarusmoi*) in the fragment could not mean 'reshape' in the sense 'produce a new configuration'. But, as Vlastos had already pointed out, the catalogue of Democritean titles includes *Peri ameipsirusmiōn* 'On changes of shape' (Diogenes Laertius IX.47), which cannot refer to changes in the shapes of individual atoms (since they are unchangeable in respect of shape), and must therefore refer to changes in the shape of atomic aggregates. Further, Hesychius glosses *ameipsirusmein* as 'change the constitution *(sungkrisin)* or be transformed', and though he does not attribute the word to any author it is at least likely to have been used in that sense by Democritus, since neither the verb nor its cognates are attested to anyone else.

It therefore now seems to me that Vlastos's reading of the fragment is probably right. Teaching, like thought and perception, is for Democritus a physical process involving the impact of *eidōla* on the soul, with consequent rearrangement of the soul-aggregate. (Cf. fr. 197, 'The unwise are shaped *(rusmountai)* by the gifts of fortune…') Acceptance of that causal picture does not, of course, commit one to endorsing type-type psychophysical identities.

Psycho-physical identity having been set aside, some looser connections between Democritus' ethics and other areas of his thought may perhaps be discerned. I argued [6.46] for a structural parallel between ethics and epistemology, a suggestion which still seems to me plausible. Another vague connection is with cosmology. It is not unreasonable to suppose that Democritus saw at least an analogy between the formation of worlds *(kosmoi)* from the primitive atomic chaos by the aggregation of atoms under the force of necessity and the formation of communities (also termed *kosmoi*, frs 258–9) by individuals driven by necessity to combine in order to survive, and it may be that the aggregation of like individuals to like, which is attested as operating in the formation of worlds (DK 67 A 1 (31)), had some counterpart in the social sphere.

Conclusion

Atomism can thus be seen as a multi-faceted phenomenon, linked in a variety of ways to various doctrines, both preceding, contemporary and subsequent. Atomistic physics is one of a number of attempts to accommodate the Ionian tradition of comprehensive natural philosophy to the demands of Eleatic logic. Atomistic epistemology takes up the challenge of Protagorean subjectivism, breaks new ground in its treatment of the relation of appearance to reality and constitutes a pioneering attempt to grapple with the challenge of scepticism. Atomistic ethics moves us into the world of the sophists and of early Plato in its treatment of the themes of the goal of life, and of the relations between self-interest and morality and between *nomos* and *physis*. Chapters in subsequent volumes attest the enduring influence of the atomism of Leucippus and Democritus throughout the centuries, whether as a challenge to be faced, most notably by Aristotle, or as a forerunner to Epicureanism in all its aspects, and thereby to the revival of atomistic physics in the corpuscular philosophy of the sixteenth and seventeenth centuries.[6]

NOTES

1 S.Kripke, *Naming and Necessity*, 2nd edn., Oxford, Blackwell, 1980.
2 For fuller discussion see Lesher [6.14].
3 An apparent exception is Aetius I.25.3 (DK 28 A 32, from ps.—Plutarch and Stobaeus). After ascribing to Democritus (and Parmenides) the doctrine that

everything is according to necessity, the citation continues ‘and the same is fate and justice and providence and the creator’. The reference of ‘the same’ *(tēn autēn)* is presumably the feminine noun *anangkē;* Democritus is therefore said to have identified necessity with fate, justice, providence and the creator. Apart from the authority of this testimony, its meaning is problematic. It might be taken (in opposition to all the other evidence), as ascribing purpose and moral content to necessity, but could as well be taken as explaining justice and providence away as nothing more than necessity, i.e. as saying ‘necessity is what (socalled) fate, justice and cosmic providence really are’. Since in the next section ps.—Plutarch cites Democritus’ mechanistic account of necessity as impact (I.26.2, DK 68 A 66) consistency is better preserved by the latter reading.

4 In Epicurus’ own theory, chance and necessity are distinct causes (*Letter to Menseceus* 133, Diogenes Laertius *Lives X*, sections 122–35), so if he is assuming that the atomists share his view, the position he ascribes to them is (2). But that assumption is not required by the text, which leaves open the possibility that the view ascribed is (1).

5 Richard McKim argues [6.39] that Democritus held all appearances to be true in a robuster sense of ‘true’ than that for which I argue here, namely that ‘they are all true in the sense that they are true to the *eidōla* or atomic films which cause them by streaming off the surfaces of sensible objects and striking our sense organs’ (p. 286). Though McKim does not discusss what it is for appearances to be true to the *eidōla,* I take it that he is attributing to Democritus the account of the truth of appearances which Epicurus is held by some writers to have maintained, namely that sense impressions faithfully register the physical characteristics of the *eidōla* which impinge on the sense organs. (See G.Striker ‘Epicurus on the truth of sense-impressions’, *Archiv für Geschichte der Philosophie* 59 (1977): 125–42 and C.C.W.Taylor ‘All impressions are true’, in M. Schofield, M.Burnyeat and J.Barnes (eds) *Doubt and Dogmatism,* Oxford, Clarendon Press, 1980:105–24.) While I am in total sympathy with McKim’s account of Democritus’ overall epistemological strategy, I am unwilling to follow him in attribution of the Epicurean theory to Democritus, since none of our evidence gives any support to the suggestion that Democritus gave that or any particular account of the truth of appearances. I agree that he probably held that, for the reason dramatized in the complaint of the senses, all appearances had to be in some sense or other true if there was to be any knowledge at all. But against McKim I hold that we have insufficient evidence to attribute to Democritus any account of the sense in which appearances are true, beyond the implicit claim that all appearances are equipollent. It is plausible to suppose that Epicurus’ account was devised in attempt to make good that deficiency. See also Furley [6.33].

6 I am grateful to Gail Fine, David Furley and Robin Osborne for their comments on earlier drafts.

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CHAPTER 7
The sophists

G.B.Kerferd

In the fifth century BC the term *sophistēs* was used in Greece as a name to designate a particular profession, that of certain travelling teachers who went from city to city giving lectures and providing instruction in a variety of subjects in return for fees. One of the implications of the name *sophistēs* was 'making people wise or skilled' and it is probable that at an earlier stage the term was used to mean simply a wise man or a man skilled in a particular activity, such as poetry, music, the arts or a diviner or seer or the possessor of certain other kinds of mysterious knowledge. It is surely no accident that professional sophists of the fifth century BC liked to emphasize their affinity with such earlier sophists and wise men generally. While such a view was one which it was natural enough for the sophists to adopt, it failed to do justice to the actual form of the word *sophistēs;* in modern terms it implies that what is being referred to is someone who does something, *nomen agentis*, but what the sophist did was to attempt to make other people proficient in the practice of wisdom. In other words it was the function of the *sophistēs* to act as a teacher.

The fifth-century sophists were, then, above all else teachers. This raises immediately two questions: what things did they teach and what were the methods used in their teaching? But the answers to these questions must depend to a considerable extent on an understanding of the way in which the sophists functioned in Greek societies in the fifth century, and above all on what their function was at Athens. Plutarch, in his *Life of Cimon* (chapter 15), claimed that by the middle of the fifth century the multitude at Athens had come to be released, and had overthrown all the ancient laws and customs that had hitherto been observed. The result was a full and unmixed democracy promoted and supported by Pericles. But, as I have written elsewhere[1] in fact it is clear from the carefully phrased statement of Thucydides (II.37.1) that Periclean democracy rested on two fundamental principles; Thucydides' words were:

> it is called a democracy because the conduct of affairs is entrusted not to a few but to the many, but while there is equality for all in civil affairs established by law, we allow full play to individual worth in public affairs.

From this it may be seen that the two principles may be stated as follows: while power should be in the hands of the people as a whole and not with a small section of the citizen body, high offices carrying the right to advise and act for the people should be entrusted to those best fitted and most able to carry out these functions.

It should be clear that if a society was to be based on both of the above two principles, this favoured the development of certain more or less specialized skills, above all the ability to speak and argue in public. When it is remembered that ordinary school education for male citizens at Athens was completed by the age of 14 it should be clear that the competition for success in the newly developed Periclean democracy created a real need for a type of further education such as that supplied by the sophists. But it would be a mistake to suppose that this need was something confined to Athens. Individual sophists came from many parts of the Greek world and travelled extensively, teaching and lecturing everywhere that they went. Thus Gorgias taught pupils in Argos and at another period was apparently settled in Thessaly, and Antiphon, who was himself an Athenian, was said to have set up a kind of citizen's advice bureau offering some sort of psychiatric service to those who needed it, in Corinth of all unlikely places. Virtually every other sophist of whom we have knowledge is stated to have spent much of his time travelling. What all this suggests is that throughout the Greek world there was an emergent demand for the provision of secondary education in the fifth century BC and that this demand was satisfied at least in part by the development of the Sophistic Movement as a whole.

What I have found it convenient to call the Sophistic Movement, a term which might be greeted with some criticism as suggesting that the movement as a whole was somehow organized, was essentially a pattern or kind of thinking in the period from about 460 to 380 BC, and it was the product above all of individual sophists. We have the names of some twenty-six such individuals, and ideally the history of philosophy should involve a consideration of each of these separately, together with a discussion of how each reacted or responded to the thought of his predecessors and contemporaries. But in the absence of surviving works by individual sophists we simply do not have the evidence for the reconstruction of their several views on an individual basis. Secondly, when we do have evidence for the views of an individual sophist it is in many cases clear that these views were held in common between several or indeed all of the sophists in the period in question. Consequently it seems appropriate to begin with an attempt to state what were at an early stage recognized as the distinctive doctrines and methods of teaching and argument characterizing the movement as a whole.

What may be called generically the sophistic method of argument requires an understanding of three key technical terms: dialectic, antilogic and eristic. First for the term 'dialectic': in its most general sense this meant in Greek 'discussion' involving two or more persons, and its most obvious application is to be found in the written dialogues of Plato, although this was not exactly the way in which

Plato wished to understand the term. At a quite early stage in the fifth century its use was already more precise and this more specialized sense was attributed by Aristotle (*Sophistical Refutatins* 10, I70b19, DK 29 A 14) to Zeno the Eleatic who wrote before the middle of the fifth century BC. This more specialized sense involved a method of refutation which consisted in opposing two contradictory statements in order to proceed to the acceptance of one of the two statements as truer or more appropriate. Dialectical discussions in this sense of the term flourished above all on the basis of questions and answers, or more generally, on brief statements made by either party to a debate, or even by a single person only. This was to become a marked feature of what is known as the Socratic *Elenchos,* which is especially associated with the practice followed by Socrates in the early dialogues of Plato. There Socrates reduces opponents to confusion in argument by persuading them to give their agreement to two contradictory views on a given question, either because the initial view is seen to imply its own contradiction or because it is matched by an independently established second proposition which is found to contradict it. In the period after the classical sophists the term 'dialectic' came also to be used as a name for Plato's own preferred method of reasoning. This was a method of escape from the contradictions on Plato's view inherent in phenomenal experience, leading to the ascent to the world of Forms, which alone for Plato were free from internal contradictions.

The method of arguing by opposing contradictory arguments is best known to us from Protagoras, who seems to have held that two opposed arguments or propositions are to be found concerning everything whatsoever, and to have developed a method of argument based on this supposed fact. In their simplest form two propositions are found to be opposed to one another when one is the negative of the other, as for example in the statements that the wind is hot and the wind is not hot. Protagoras' method of argument based on this doctrine is referred to by Plato (*Republic* 454a) as the 'art of antilogic'. Protagoras' aim was to teach his pupils how to make one proposition stronger than its opposed argument, whether this involves arguing for the positive or the negative of the two opposed propositions. Plato's objection to this method, which he attributes not only to Protagoras but to other sophists as well, is that the attempt to establish one statement as true about the phenomenal world in opposition to its opposite is mistaken; truth is not to be found in phenomena but only in the world of the Forms. What is worse than this, he maintains, is that anyone who attempts to establish one such argument in opposition to another is not really seeking truth at all since truth is not to be found in this way. It follows that anyone proceeding in this way cannot be seeking the truth but is simply trying to secure victory in an argument. This Plato calls the art of Eristic (*Sophist* 231e and frequently). I have argued elsewhere[2] that the meaning of 'Eristic' for Plato is always distinct from the meaning of 'Antilogic' though he is prepared freely to apply the same two terms to the same people and to the same procedures. Antilogic is the opposition of one proposition to another which contradicts it, and this is in fact a respected and necessary part of the Socratic *Elenchos* and the process of dialectic. Eristic

on the other hand is what occurs when people are concerned to secure apparent victory in argument without any concern for what is in fact the truth. Plato's charge against the sophists is that they developed the method of antilogic simply for eristic purposes, and his concealed criticism is that this was because they failed to use it in order to ascend by dialectic to an understanding of the Forms.

The opposition of one argument to another has a clear practical application, namely the process of public debate whether political or philosophic. It consequently provided an effective basis for sophistic teaching on rhetoric and some have supposed that the teaching of rhetoric was not only an essential element in the Sophistic Movement but constituted the whole of their intellectual activity.[3] On this view the sophists were teachers of rhetoric and this is all that needs to be said about them. They would then, it is argued, have no claims to a place in this history of Greek philosophy.

Such a judgement raises conceptual issues of considerable importance. In modern discussions it has long been a matter of convention to oppose rhetoric to philosophy. Rhetoric is regarded as the art of persuasive or impressive speaking or writing, or the use of language to persuade or impress often with the implication of insincerity or exaggeration. Philosophy on the other hand is seen as the love of wisdom or knowledge, especially that which deals with ultimate reality or with the most general causes and principles of things. But it is probable that no such opposition was to be found in the earliest Greek uses of the expression 'the art of rhetoric'; this was understood simply to refer to the best and most correct use of language. Thus in Plato's *Gorgias* (449erff.), when Socrates asks the sophist Gorgias 'what is rhetoric about?' he receives the answer that it is the art which makes men good at speaking and also makes them good at thinking about the subjects on which it teaches them to speak. This raises the possibility that on Gorgias' view the most correct use of language will be that which best expresses the nature and structure of reality or the way things are. This is in no way inconsistent with the *use* of rhetoric as a means of persuasion, and Socrates proceeds in what follows in the *Gorgias* to secure admissions from Gorgias that persuasion was a major feature of rhetoric. But for Gorgias, persuasion, at least when properly used, is based on the communication of truth. For most or all of the sophists, however, truth is based on a phenomenalistic view of reality, and this is something which Plato rejected. So in Plato's eyes the sophists were to be condemned because when they were concerned with the art of persuasion they were not concerned with the communication of non-phenomenalistic truth.

PROTAGORAS

Protagoras was the most famous of all the sophists and Plato seems to have believed that he was the first to adopt the name of sophist and to charge fees for the instruction which he offered (*Protagoras* 349a2–4). He was born in Abdera, an Ionian colony on the coast of Thrace, probably not later than 490 BC, and he

probably died after 421 BC. According to one tradition he was educated as a boy under Persian religious teachers at his house in Thrace. He probably first visited Athens well before 443 BC, as in that year he was asked by Pericles to frame a constitution for the new pan-Hellenic colony of Thurii in southern Italy. It is clear that throughout his life Protagoras was able to rely on the support of Pericles. He was said to have died by drowning on a sea-voyage, when he had to leave Athens after he had been tried and convicted of impiety. As a result of his trial it was recorded that his books were burnt in the agora after they had been called in from those who possessed them, by a herald's proclamation. The immediate basis for the charge of impiety seems to have been his work *On the Gods*, of which the opening words were:

> concerning the gods, I cannot know either that [or perhaps 'how'] they exist or do not exist or what they are like in appearance, for there are many things which prevent one's knowing: the obscurity of the subject and the shortness of human life.
>
> (DK 80 B4)

As a result Protagoras came to be included in later lists of alleged atheists from the sophistic period, alongside Prodicus, Critias, Euripides, Anaxagoras and Phidias. It seems more probable however that Protagoras' position was actually one of agnosticism rather than outright atheism.

Diogenes Laertius, who wrote probably in the third century AD, lists twelve works as written by Protagoras and from other later writers we can add a further six titles. The tradition of the discussion and interpretation of Protagoras' most important doctrines begins with Plato, above all in the dialogues *Protagoras* and *Theaetetus*. But all we have by way of actual fragments of Protagoras' writings is a handful of brief statements and single sentences, and it is not possible to form any certain idea of the arrangement and order of the arguments in his writings. What must be done is to attempt a reconstruction of his doctrines on the basis of the doxographic tradition, and we have good reason to suppose that the doxographic tradition as a whole was ultimately rooted in what Protagoras had actually written.

By far the most famous of his doctrines is that known by the catch-phrase as the *homo mensura* or man the measure theory. This was stated in the first sentence of a work entitled *On Truth*, perhaps with a subtitle *Overthrowing Arguments*. The fragment reads, 'Of all things man is the measure, of things that are that [or perhaps "how"] they are and of things that are not that [or "how"] they are not (DK 80 B1).' Every feature of this famous sentence has been the subject of vigorous controversies, and there is no agreement among scholars as to its precise meaning. In what follows I attempt to state the main matters of controversy and to suggest what seem to me to be the most likely interpretations. In the nineteenth century quite a number of scholars took the word 'man' in the quotation to mean not the individual human being but mankind as a whole, and

on this view things are presented to us according to the structure and arrangement of what is to be known as human nature, thus bringing Protagoras' doctrine into line with the idealism of Immanuel Kant. But against this view it seems clear that Democritus, Plato, Aristotle and Sextus Empiricus all took 'man' in Protagoras' quotation as referring to each individual man. On this view each individual man is the measure for himself of what he experiences. Next, what is meant by 'that' or 'how', which is simply a rendering of the single Greek word *hōs*? Once again scholars are divided. If the meaning is to be taken as 'that', then the doctrine as a whole is to be interpreted as meaning 'Man is the measure of the existence of things that exist and the non-existence of things that are not.' So for an example, if we as individuals or collectively believe that the gods exist then for us they do exist, and if we believe that they do not exist then for us there are no gods. But if the meaning of *hōs* is to be taken as 'how' then 'Man' for Protagoras is the measure not merely of whether things exist or not, but of the way in which they exist, in other words of all their phenomenal qualities. It is clear from Plato's *Theaetetus* that Plato supposed that Protagoras' doctrine certainly included phenomenal qualities. This can clearly be seen when he gives as an example the case of a wind and explains that for Protagoras sometimes when the same wind is blowing it feels cold to one person and to another person not cold. On the everyday view the wind itself is either cold or not cold, and one of the percipients is mistaken in supposing that the wind is as it seems to him and the other percipient is right. This seems clearly to be the view that Plato is concerned with in his discussion of Protagoras' doctrine. But there are at least three ways of understanding what Protagoras may have supposed to be the case: (1) there is no one wind at all but only two private winds, my wind which is cold and your wind which is not. (2) There is a public wind but it is neither cold nor warm; the apparent coldness of the wind only exists privately for me when I have the feeling that it is cold. The wind itself exists independently of my perceiving it but its coldness does not. This view, however, does not exclude the possibility that while the wind itself is neither hot nor cold it may still contain causal elements which produce in me the sensation of cold. (3) The wind is itself both cold and warm; the two qualities can and do coexist in the same physical object and I perceive one of the qualities while you perceive the other.

Each of these three interpretations has been vigorously defended by groups of modern scholars and there is no agreement as to which is correct.[4] Here I can only say that I believe that both the evidence of Plato and of the later doxographic tradition definitely supports the third of the above views, namely that all perceived qualities are in fact objectively present in the perceived object. From this it follows that all perceptions that actually occur are true and perception as such is infallible; it would not occur if the basis for what is experienced were not actually *there,* and as it were waiting to be perceived.

Clearly the man-measure doctrine is of considerable interest as a doctrine of *perception*. But its importance is even wider than this, since Plato in the *Theaetetus* makes it clear that it was applied by Protagoras not only to qualities

which we would say are perceived by the senses, but also to values such as good and bad, advantageous and disadvantageous and so on. It is not clear, though it is entirely possible, that Protagoras regarded these attributes as similar to beautiful and ugly and so as themselves in some sense rooted in external reality. But the doctrine that whatever seems right and admirable to any one individual is necessarily and infallibly right for that individual has clear echoes in present-day thinking about values. Its importance for political arguments and discussions cannot easily be exaggerated, and it was a major contribution to the analysis of the processes of democracy so recently developing at Athens.

Protagoras' views about the nature of men in society and the process of political activity can be inferred in some detail from what Plato says in the *Protagoras* and which he most probably derived from some of Protagoras' own writings. According to Plato, Protagoras set himself up as a teacher of *Aretē* (human virtue or human excellence). This will involve Protagoras training a man in the habit of good judgement about his own affairs, showing him how best to order his own household, and in the affairs of his city showing how he may have the most influence on public affairs both in speech and action (*Protagoras* 318e–319a). Protagoras is thus committed to the doctrine that virtue is something which may be taught, as opposed to the view that it is simply inherited or acquired from essentially aristocratic groupings within larger human societies. Plato proceeds to expound the doctrines of Protagoras in two stages, first through a myth and then through a more analytic and rationalized account (a *Logos*) intended to convey the same doctrines. Protagoras, as Plato and Aristotle do after him, begins his analysis with an account of the development of human societies. First men lived scattered and dispersed and there were no cities at all. But even then they had already developed the ability to provide themselves with dwelling places, clothes, shoes and bedding, and had learnt to talk and to worship the gods. In addition they gradually acquired and so came to possess sufficient skills with their hands to provide themselves with food. They thus possessed a certain technical wisdom which enabled them to develop some of the material elements of civilization. But they were in the process of being destroyed by wild animals which were stronger than they were. This led them to join together and found cities primarily aimed at securing their self-defence. But as they lacked the art required for living together in cities they began to commit injustices against one another and so began to scatter again and to be destroyed. Zeus, in order to preserve mankind, sent Hermes to give them the two qualities needed for them to live together, namely the qualities of respect for what is right *(Aidōs)* and a feeling for Justice *(Dikē)* between individuals. These qualities are given to all men and all men are to share in them, with the exception that those incapable of sharing in them are to be killed as being a plague to the city. But while all men after this action by Zeus do share in these qualities they do not do so equally; some have larger shares than others. So much in mythical terms. In the rational explanation that Protagoras gives after the myth a number of points are made clear. The universal share in *Aidōs* and *Dikē* that results from the gift of Zeus is

not innate, nor is it in fact acquired automatically; it is the product of a process of education, which starts in infancy. The fact that the individual's share in these two essential qualities is acquired and then developed by teaching provides a justification for the profession of the sophist, who is able to regard himself as an exceptionally able teacher. The whole approach provides a theory of justification —the first known to history —for participatory democracy. All citizens have a claim to participation in the political processes of the city since all share in the qualities needed for the city to function. But they do not share equally in these qualities, and it is accordingly appropriate that within a democracy leadership should be exercised by those who are exceptionally able. Many other aspects of normal political activity at Athens and elsewhere in Greece were probably discussed in Protagoras' political writings—we have brief notes to the effect that he discussed a theory of punishment as something to be accepted both as a deterrent and also as a form of education leading to reform of the errant individual. Finally mention may be made of the intriguing and puzzling statement, found in Diogenes Laertius (III.57, DK 80 B 5), that the whole of the content of Plato's *Republic* was to be found in the work by Protagoras entitled *Contradictory Arguments (Antilogikoi Logoi)*. While this in itself is clearly not credible, that it could even be said to be the case is perhaps evidence of the extremely wide-ranging nature of Protagoras' writings on politics. More precisely, it may have been possible for an enthusiastic supporter of what Protagoras had written to discern structural similarities with the *Republic*, in which Plato is concerned with the development of rational societies from earlier organizations that had not yet grasped the need for a rational understanding of and a just respect for the functions of other citizens.

It is possible that the unifying basis of Protagoras' numerous theories was always his distinctive method of arguing. The tradition preserved by Diogenes Laertius (IX.51) tells us that Protagoras was the first to declare that in the case of every question there are two arguments opposed to each other, and that he used this supposed fact as a method of debate. We can expand this statement from other sources somewhat as follows: of the two arguments one will be positive, stating that something is the case, and the other will be negative, stating that something is not the case. In the light of the man-measure doctrine both of the opposing arguments will be true in virtue of their position in the world of appearances. But one view will, at least on certain occasions, be better than the other in that it promotes more desirable results. When one of the two contrary arguments is proposed, one that does not promote desirable effects, such an argument may seem to the ill-informed person to be the stronger of the two arguments. It is then the task of the wise man to make the weaker argument stronger so that it will prevail in competition with what then becomes the weaker argument. To do this is the function of the orator in a developed political society. It is also the function of the sophist as teacher to make the weaker argument stronger and to show others how to do this. An interesting application of this approach may perhaps be seen in Protagoras' detailed consideration of the nature

of language. This, perhaps rather surprisingly, included a doctrine of the correct forms of linguistic expression. He seems to have made an analysis of sentences into narrative, questions, answers, commands, reported narrative, wishes and summonses. Aristotle tells us that he set out to correct ordinary Greek genders to bring usage into accord with the supposed 'real' gender of things and concepts. One may conjecture that this could be justified, while still keeping the basis of Protagoras' relativism, which was that it is better and more expedient for the genders of words to express the perceived genders of things around us. The whole question of the relation between words and things was of fundamental importance for all of the sophists, as far as we know, and it gives us the key to an understanding of the next figure to be considered here, namely Gorgias.

GORGIAS

Gorgias came from Leontinoi (modern Lentini), an Ionian colony in Sicily. He was born probably between 490 and 485 BC and he outlived Socrates, who died in 399 BC. The most famous single event in his life was his visit to Athens in 427 BC when he came as leader of a group of envoys from his native city in order to seek Athenian support for Leontinoi in its war with Syracuse. The requested alliance was secured after Gorgias had amazed the Athenian assembly by his rhetorical skill (DK 82 A 4). He also, perhaps after his Athenian visit, travelled extensively throughout the Greek world; he is recorded as speaking at Olympia, Argos, Delphi, and in Thessaly and Boeotia. But above all he taught pupils at Athens, for which teaching he received considerable sums of money. After his death he was honoured by the setting up of a golden statue of himself both at Delphi and at Olympia, for the latter of which it may be that the base survives to the present day.

In Sicily Gorgias had been a disciple of Empedocles, and his own doctrine of perception was clearly derived from that to be found in his master's poem. Plato devoted a whole dialogue, the *Gorgias*, to a discussion of his views on rhetoric, and Aristotle is recorded as having written an attack on Gorgias' doctrines, unfortunately no longer extant. We have the titles of some eleven writings attributed to Gorgias. Two speeches survive, apparently complete, and we have two detailed summaries of his treatise *On Nature*. It is on this work that his claims to a significant place in the history of philosophy must depend. One summary of it is preserved in some four (printed) pages of Greek in Sextus Empiricus, *Adversus Mathematicos* (VII.65–87). A second summary, with some significant differences from Sextus, is found in the third section of a piece of writing wrongly attributed to Aristotle, and so included in the Aristotelian corpus, under the title *On Melissus, Xenophanes and Gorgias* (*MXG* for short). Both the reconstruction of the argument in Gorgias' treatise and its interpretation are difficult and controversial. Scholarly discussion has essentially passed through three stages. First and for a very long period it was held that the work was simply not meant to be taken seriously. On this view Gorgias had written an extended

parody or joke against philosophers. If it had any serious purpose it was to be seen as a purely rhetorical exercise in a method of argument which philosophers were supposed to have used and which simply made them ridiculous.[5] A second stage in the interpretation of Gorgias' treatise was reached by those who *were* prepared to take it seriously, and who took it as an elaborate attack on the philosophic doctrines of the Eleatics, and to a lesser extent the doctrines of certain physical philosophers among the pre-Socratics.[6] On this view the verb 'to be' in Gorgias' treatise has the meaning 'to exist'. The treatise itself is divided into three parts. The first part maintains that nothing exists, and this is established by arguing that 'not-being' does not exist, nor does 'being' exist. This is directed against the contention of Parmenides that only being exists. Gorgias by his arguments thus achieves a position of philosophic nihilism. Parmenides had destroyed the manifold world of appearances, but he kept the unitary world of true being. Gorgias completed the negative process begun by Parmenides by denying also the world of being, so that we are left simply with nothing.

This second stage in the interpretation of Gorgias' treatise had at least one advantage; it took the treatise seriously and did assign to Gorgias a place in the history of philosophy, albeit one that was negative and destructive. The second part of Gorgias' treatise on this view tried to ram home the argument by contending that even if something does exist it cannot be known by human beings. In the third part it is argued that even if something exists and is knowable, no knowledge or understanding of it can be communicated to another person.

But if this second approach is an improvement over the first, it now begins to seem that perhaps it does not go far enough. What is happening is that we are now beginning to have a certain reassessment of the uses of the verb 'to be' in ancient Greek in the light of certain modern doctrines. It is now common to make a clear distinction between 'is' as a copula followed by a predicate, as in '*X* is *Y*', and an existential sense where the verb has the meaning 'exists' as in '*X* exists'. But we can understand the claim that anything which exists must necessarily be *something*. From this it could follow that the existential use of the verb 'to be' is always to be understood as implying one or more predicates. This in turn has the effect of reducing the existential use to a special case of its use as a copula, namely one in which predicates are necessarily involved, but are not actually expressed. We are now also familiar with the view that in order to understand the function of language it is necessary to pay attention to two distinguishable things, namely what is the meaning of words and phrases, and to what if anything they refer. It is now beginning to seem to be the case that Gorgias may have been attempting to make use of just this distinction. On this view it is the relation between words and things with which he is concerned.[7] This, it can be argued, emerges in the second and third parts of his treatise, where he is arguing that it is not possible for a *thing* to be known by human beings because we are only indirectly in contact with objective things, either by perception or by the use of words to describe them. Likewise no knowledge or understanding of things can be conveyed from one person to another, since the

only means we have of attempting to do this is by means of words. Words transfer only themselves and not the things to which they refer. I believe that much further work is needed before we can hope to arrive at an adequate interpretation of Gorgias' treatise. It does not matter if the account just outlined above is dismissed as simplistic. What would be of the greatest importance would be that Gorgias in his treatise was perhaps the first thinker to grapple directly with the problem with which we have come to be familiar for rather more than a hundred years, namely the distinction made by Frege between meaning and reference.

Plato in the *Meno* (76c–e) is quite explicit that Gorgias had a precise theory of perception based on Empedocles' doctrine of effluences from physical objects. Perception takes place when one or more effluences from a physical object fit exactly into pores or passages in the human body, and for them to do this they must be neither too large nor too small. It is such shapes or effluences which provide us, for example, with our perception of colours. Gorgias followed Empedocles in his contention that no one sense can perceive the objects of any other sense. We do not have precise details as to how Gorgias developed his theory of perception, but there is every reason to suppose that it was a matter of great importance to him.

The gulf between words and things was apparently also exploited by Gorgias in his teachings on rhetoric, both in theory and in the practice to be followed by speakers if they were to hope to be successful. At the practical level he stressed the importance of being able to speak briefly as well as at length according to the needs of the situation, and also the importance of appeals to the emotions as a means of persuasion. In addition he recommended an elaborate series of stylistic devices, listed by later writers under technical names such as antithesis, isokolon (two or more clauses with the same number of syllables), parison (parallelism of structure between clauses), and homoeoteleuton (a series of two or more clauses ending with the same words or with words that rhyme). At the more theoretical level he developed a doctrine of attention to the right time and situation, in Greek the *kairos*. Secondly he stressed the need to devote attention to things that are probable, and thirdly to arguments which are 'suitable' or appropriate. Finally he gave expression to a doctrine of 'justified deception'. This he used to give a theoretic basis for literature, above all for tragedy, and he seems to have applied this also to the practice of making speeches, contending that the man who indulges in this practice is acting with more right on his side in his use of myths and appeals to emotions than is the person who is not acting as a deceiver. But the end result is that the person who is deceived in this way is the wiser because a man who is not without experience in the reading of literature will let himself be won over by the pleasure of spoken words. Clearly the doctrine involved was highly technical, but the implication was probably that a man's view of the world around him is improved by the study of literature and the teaching he receives from the sophists.[8]

Gorgias' influence among his contemporaries was so extensive that he came close to establishing a school for those who came after him, not in the sense of a particular organization, but rather in that a number of thinkers and teachers continued to express ideas and doctrines clearly derived from him. These included Alcidamas of Elaia, Isocrates the orator, Licymnios of Chios, Meno of Larisa, Polus of Acragas who is an important character in Plato's *Gorgias*, and Protarchus of Athens, who is a key speaker in Plato's *Philebus*. Of special interest is the sophist Lycophron who was said to have been an associate of Gorgias. In addition to certain social and political doctrines concerning nobility of birth and its lack of any real basis in nature he is reported to have argued that the Greek verb for 'is' should be confined to existential cases, such as 'Socrates exists', and should not be extended to its use with a predicate, as in 'Socrates is white' or 'Socrates is two cubits in height' as this would have the effect of making the same thing both one (Socrates) and many (the various predicates) at the same time.

PRODICUS

Prodicus came from the island of Ceos in the Cyclades, where he was probably born before 460 BC, and he was still alive at the time of the death of Socrates. He came frequently to Athens, sometimes on official business for Ceos. On one occasion he gained a high reputation for a speech before the Council, and at other times he was involved in the teaching of young men, for which he received large sums of money. Plato records that Socrates had sent pupils to him for instruction before they were ready to come to Socrates himself (*Theaetetus* 152b). Like Gorgias he gave public display lectures for which the technical name was *Epideixeis*, and one of these, *On the Choice of Herakles*, was summarized by Xenophon, who puts it in the mouth of Socrates (*Memorabilia* II.1.21–34). It seems to have come from a work entitled *Hours (Hōrai)* which included encomia on other persons or characters as well as Herakles. He also wrote a treatise *On the Nature of Man*, and another on *The Correctness of Names*. In a separate work *On Nature* he called the four elements, earth, air, fire and water, all gods as well as the sun and moon, on the ground that they were the source of life for all things. But what made Prodicus famous among all the sophists was his treatment of language. For this we have no record of any actual written version, but it must at the very least have featured prominently in his lectures and in his teaching. Our fullest information about Prodicus' views on language comes to us from Plato's *Protagoras*, in which Prodicus figures as one of the sophists taking part in the discussion that resulted from the visit of Protagoras to the house of Callias. We have further information from other dialogues of Plato. It is clear that he developed a very precise doctrine about the need for an extremely accurate use of words. This involved distinguishing sharply between words that might seem to have similar meanings. The theoretical basis for these distinctions between words was made clearer to us by the discovery in 1941 of a papyrus commentary

on *Ecclesiastes* which attributes to Prodicus the doctrine that it is not possible to contradict. The reason for this paradoxical contention is stated to be because only the person who speaks the truth makes a meaningful statement. The person who appears to contradict him is not in fact saying anything at all, and so in effect is not actually speaking. What this implies is that meaningful statements necessarily refer to something which is the case, while statements which appear to contradict such meaningful statements by denying that they are true, are themselves without meaning since they have nothing to which they can refer. This should probably be related to the doctrine ascribed to Prodicus by Alexander of Aphrodisias (DK 84 A 19), that in proper linguistic usage each word or phrase should be related to one thing only and to no other. In modern terms this amounts to the attribution to Prodicus of a referential theory of meaning.

Prodicus was famous also for his rationalizing account of the origins of religious beliefs. The details of exactly how he did this are unfortunately not clear, but he seems to have supposed that human beings began by personifying physical objects that were of use to them, so bread becomes Demeter and wine becomes Dionysus. Finally it may be stated that the pseudo-Platonic dialogue *Eryxias* credits Prodicus with a doctrine of the relativism of values, which I have argued else-where[9] may in fact be true for the historical Prodicus.

HIPPIAS

Hippias of Elis was a younger contemporary of Protagoras and he is depicted by Plato in the *Protagoras* as present along with other sophists at the house of Callias. The dramatic date for this is about 433 BC. He was apparently still alive at the death of Socrates in 399 BC. He travelled extensively as a professional sophist, making a famous visit to Sicily, and made a great deal of money. He claimed to be at home in all the learning of his day, and was credited with a large number of writings, both in prose and in verse in the forms of epics, dithyrambs and tragedies. His polymathy was no doubt aided by certain exceptional powers of memory. It appears that these were developed by special techniques which he also taught to others, and he was said to have been able to remember fifty names after a single hearing. In addition to his epideictic displays he was known to have been ready to teach astronomy, mathematics and geometry, genealogy, mythology and history, painting and sculpture, the functions of letters, syllables, rhythms and musical scales. Of particular importance for the history of Greek thought must have been his *synagōgē* which, it appears, was a collection of passages, stories and pieces of information from earlier writers both Greek and non-Greek. It thus stands at the beginnings of the doxographic approach to Greek thought, above all to the preSocratics, and it probably underlay to some extent both Plato's and Aristotle's schematized views of their predecessors. Another work of great importance was his list of victors at the Olympic games based on local written records, which provided a foundation for subsequent Greek

historical chronology. The collection of Plato's writings includes two dialogues directly concerned with Hippias, the *Hippias Major* and the *Hippias Minor*. The authenticity of each of these dialogues has been questioned by modern scholars, probably wrongly at least in the case of the *Hippias Major*. But in either case, they provide evidence which there is good reason for us to accept. Hippias is presented throughout as incapable of standing up to the questioning of Socrates. It has been suggested that Hippias came close to personifying the type Plato most abhorred as a generic sophist. None the less his intellectual versatility is clearly represented, even though it is always dismissed as accompanied by superficiality.

When we turn to consider the philosophic doctrines associated with Hippias we are confronted with an initial difficulty. We do not know for certain whether Hippias held any overall or unifying basis for his polymathy. But there *is* some evidence for an overall philosophical position given in the *Hippias Major* (301b–e) where reference is made to a 'continuous theory of being'. This is apparently based on the view that there is something continuous that is carried through classes as well as through the physical bodies of things without interruption, and this is wrongly divided or cut up by the use of words. The implication here is that language cannot represent the true nature of the external world.

That he did have a doctrine of some kind about nature is supported by what we are told about him in Plato's *Protagoras,* where he contrasted law and nature; he favoured nature against law, which acts as a tyrant and compels human beings to do or submit to many things which are contrary to nature. He further argued that like is akin to like by nature, and called for men to draw the logical consequences from this. One of these consequences is that some or even all men are alike by nature, and as a result we should recognize as friends and kinsmen those men who are alike by nature. Unfortunately the context in Plato (*Protagoras* 337d-e) does not make it clear exactly what he supposed was the range of the likeness to be found in men. If, as is possible, he held the view that it is all men who are alike by nature he would then be seen as an advocate of the doctrine of the unity of mankind. But other scholars have supposed that he may have been confining his remarks to Greeks only, and so to have been preaching simply pan-Hellenism. An even more restricted interpretation is possible. What, according to Plato, Hippias is actually saying is that he considers those whom he is addressing, namely 'you', as kinsmen and intimates and fellow citizens by nature, not by law, on the basis that like is akin to like by nature. We who are the wisest of the Greeks, no doubt meaning by this sophists, should accordingly refrain from quarrelling with each other like the basest of men. This suggests that he is advocating a recognition of the unity of wise men or scholars, as distinct from ordinary people. The people to whom he is speaking are those who 'know the nature of things' and are the wisest people among the Greeks. In that case what he is advocating is the unity of Greek scholars rather than the unity of mankind as a whole, or perhaps even only the unity of sophists within the Sophistic Movement.

However that may be, the actual contributions made by Hippias to Greek scholarship were by no means inconsiderable. In mathematics he is credited with a history of Greek geometry after Thales. When Proclus came to write his history of geometry he drew on a work by Eudemus of Rhodes, not now extant, and he makes it clear that at least some of Eudemus' information about the period before Plato was derived from Hippias. In addition Hippias was credited with his own attempted solution to the problem of the squaring of the circle. This consisted in the invention of the curve later known as the quadratrix, the name for which may have been derived from Hippias' own expression, which we know from Proclus' commentary on Euclid (DK 86 B 21)[10] was *grammē tetragōnizousa*.

There was also a practical side to Hippias' activities, based on his doctrine of the ideal of self-sufficiency in the individual. This ideal he put into practice for himself; he appeared at Olympia on one occasion when all his own clothing and equipment had been made by himself. In particular, according to the author of the *Hippias Minor* (368b-c), he had manufactured for himself his own engraved finger ring and another seal as well, then a strigil, an oil flask, his own sandals, cloak, tunic and Persian-style girdle.

ANTIPHON

The expression 'Antiphon the sophist' is currently used by many scholars as a means of identifying the author of three works, namely *On Concord*, *On Truth* and a *Politikos*, to which is sometimes added a work *On the Interpretation of Dreams*. But in the manuscripts that have come down to us under the general title of the Attic Orators we have a set of speeches attributed to an Athenian, Antiphon of Rhamnous, who is often referred to as Antiphon the orator. This Antiphon was condemned to death and executed in 411 BC, after the overthrow at Athens of the oligarchy of the Four Hundred, of which he was a member (Thucydides VIII.68). We are confronted with a major and as yet unresolved question, namely whether Antiphon the sophist is to be identified with Antiphon the orator or not. The evidence is conflicting and uncertain. But according to one tradition an Antiphon who was a writer of tragedies was put to death at the court of Dionysius I of Syracuse some time between 405 and 367 BC (Philostratus *Lives of the Sophists,* I.15.3). If this was Antiphon the sophist, then clearly he was not the same as Antiphon the orator. But he just may have been a third Antiphon, to be added to the other two in the historical tradition.

From the point of view of the history of philosophy it is probably allowable for us to sidestep this question; it is the four works of the supposed Antiphon the sophist which alone are of real interest from a philosophic point of view. These indeed were not regarded as important before 1915, when his reputation was transformed by the publication in the collection of the Oxyrhynchus Papyri of two quite large fragments of the work *On Truth*. A further fragment was added in 1922. Then in 1984 a small further fragment of fewer than 200 scattered letters

was published with a dramatic result since it shows that the standard supplements of the fragments known previously, made by Wilamowitz and included in the standard edition of the fragments in Diels-Kranz (87 B 44) are in fact incorrect. They were based on an overall view of Antiphon's position which can now in all probability be seen to involve at least an element of distortion.

The first surviving section of *On Truth* begins

> Justice then consists in not transgressing the laws and customs of the city in which one is a citizen. So a man would employ justice best in his own interests if he were to regard the laws as important when witnesses are present, and when they are not he were to regard the demands of nature as of greater importance.

The opposition between law and the requirements of human nature as sources of values was widely discussed throughout the sophistic period, and some have argued that it can be taken as a typical or even as a defining doctrine for the movement as a whole. But Antiphon's preference for nature over law involves a further concept, that of benefit or advantage to each individual man, and this leaves open the question whether exceptionally some laws may actually be of benefit to our natures. In that case nature could become a norm for laws. Support for this interpretation may be drawn from the surviving fragments which we have from the second treatise of Antiphon, namely *On Concord*, which seems clearly enough to be arguing for the value of harmony or concord both in society and within the personality of an individual man. This raises the question of how, if at all, it is possible to reconcile the doctrine of *On Truth* with that of *On Concord*. The simplest answer is also the most likely to be correct, namely that an attack on traditional justice and on traditional societies is perfectly compatible with the promulgation of the ideal of a better and radically different society based on 'true' values and (true) justice. Such arguments could be used to support the position of an oligarch at Athens, and would be understandable if Antiphon the sophist was in fact the same person as Antiphon the orator. But they need not imply any oligarchical political stance, as they are also compatible with the view that it is the function of a democracy so to revise the laws of a city that they are brought into accord with nature.

Two further works are possibly relevant here. *On the Interpretation of Dreams* seems to have argued that dreams cannot be used directly to foretell the future, but require rational interpretation first, though they *can* be used for predictive purposes. Finally mention must be made of the work with the intriguing title *The Art of Avoiding Distress*. In the later doxographic tradition this is attributed to Antiphon the orator, but it would seem rather to have affinities with what we know of the psychological interests of Antiphon the sophist, assuming always that there were two Antiphons and not simply one. This piece of writing outlined an extension of the treatment provided by doctors for those who are ill. Antiphon was said to have set up a kind of clinic functioning as a citizen's advice bureau

or modern style Samaritan Service in a dwelling-place near the market in Corinth. In a notice in front of the building he claimed that help could be provided to those in distress by discussing matters with them, and, through talking to them, finding out the causes of their illness (DK 87 A 6). If this tradition is sound it seems more likely to be true of the sophist rather than the orator, since the latter is less likely to have functioned away from Athens. A further statement of psychiatric interest is that preserved by Stobaeus (DK 87 B 57), namely that 'illness is a holiday for those who are cowards, for such people do not go out into the world to undertake activities'.

Among other aspects of Antiphon's interests should be mentioned the brief references, which are all that survive, to discussions about the nature of time, the functioning of the sun and the moon, the bitterness of the sea and the formation of the surface of the earth, the behaviour of bile and other physiological processes, and an attempt to solve the problem of the squaring of the circle by continually doubling the number of sides in an inscribed regular polygon (DK 87 B 26–8, 29–32 and 13).

LESSER SOPHISTS

Thrasymachus of Chalcedon in Bithynia was well known as a sophist who travelled from city to city and claimed fees for his teaching. A number of writings are attributed to him, but we know virtually nothing of their contents. He appeared as a character in a lost play by Aristophanes, the *Daitaleis* performed in 427 BC. But his fame springs for us from his confrontation with Socrates in the first book of Plato's *Republic*. There he puts forward the view that justice is the interest of the stronger, and he infers from this that justice accordingly is normally to be understood as consisting in seeking the interest of some one or more persons other than oneself. Accordingly justice is folly, the only reasonable course being always to pursue one's own interest. Clearly Plato regarded this as an important if wrong-headed sophistic contention, and in a sense the whole of the rest of the *Republic* after the first book is concerned to give us Plato's refutation of Thrasymachus.

Three further characters who appear in Plato's dialogues are Callicles in the *Gorgias*, and Euthydemus and Dionysodorus in the *Euthydemus*. According to Plato, Callicles came from the deme of Acharnae in Attica, and it is at his house in Athens that his friend Gorgias is staying at the opening of the *Gorgias*. Like Thrasymachus Callicles is presented as approving actions which the world calls unjust, and he approves of them because they express for him a higher justice, the justice of nature. Such justice he goes so far as to call the law of nature, in what is apparently the first occurrence of the phrase which was to become of such importance in the history of European thought. The importance of what Callicles has to say in the dialogue can hardly be questioned. But it should be mentioned that modern scholars have expressed doubts both as to whether he was a real person and if so as to whether he should be classed as a sophist.[11]

Euthydemus and Dionysodorus were brothers and came originally from Chios. In Plato's *Euthydemus* they are addressed as sophists (271 CI) and are said to have had many pupils. Euthydemus' most distinctive doctrine is perhaps that referred to in Plato's *Cratylus* (386d), namely that all things belong equally to all things at the same time and always. The most likely explanation of this statement is that which takes it as meaning that all things possess all attributes together and all the time. If this is what he is saying, then it would seem to provide an underlying basis for Protagoras' man-measure doctrine. All perceived qualities are in fact always present in perceived objects, and this is shown by the fact that the verbal attribution of any quality to any thing is always possible. Words only have meaning because they refer to what is actually the case. This would explain the doctrine attributed to Dionysodorus (*Euthydemus* 284c5) according to which no one says things that are false: all statements that anyone can make are true because all attributes are necessarily actually present in the things to which reference is being made. Consequently it is not possible to make genuinely contradictory statements, since contradiction would be asserting that one statement is true and the other which conflicts with it is false.

Three names in addition to the above may be mentioned in passing. Critias, who was a first cousin of Plato's mother, was one of the Thirty Tyrants who held power at Athens at the end of the Peloponnesian war. He was classed as a sophist by Philostratus, and has regularly been listed among the sophists ever since, down to the present day. He wrote tragedies, in at least one of which he included a rationalizing account of belief in the gods. But he is not known to have been a teacher, and he should accordingly in all probability be excluded from the list of sophists. The opposite is the case with the thinker Antisthenes of Athens who came to be regarded as the founder of the Cynic sect. As a result he has usually been discussed by modern writers under the general heading of the Cynic movement. But his claims to have been the founder of this movement are subject to serious doubt, and there is fairly convincing evidence that he should rather be classed as a sophist.[12] He lived a long life, from the middle of the fifth century long into the fourth century BC. We know from Aristotle (*Metaphysics* 1024b26) that he held the two distinctive sophistic doctrines that we have already mentioned several times, namely that it is not possible to contradict and that it is not possible to say what is false.

The final name to be mentioned here is that of Socrates. Although presented by Plato as the arch-enemy of the sophists and all they stood for, it is none the less true that Socrates can only be understood if he is seen as a member of the world in which he lived. Socrates had a great influence on the young men who became his disciples, even though he did not accept any payment from them for his teaching. Two things at least emerge clearly from what Plato has to tell us: Socrates had begun early in his life with a critical interest in the problems of physical science (*Phaedo* 96a–99d), and he also deployed a distinctive method of argument which involved the refutation of unacceptable propositions and the promotion of acceptable answers to the question 'What is the correct account to

be given as to what is x?' above all when *x* is a moral or political concept. This became famous as the Socratic method of *Elenchos*, and this alone would be sufficient to justify us in considering him as an active member of the Sophistic Movement, in fact as an unpaid sophist.

In addition to named sophists it is necessary to discuss a number of anonymous sophistic writings, of which several survive, at least in summary form. The first of these is known as the *Dissoi Logoi*, the title being taken from the first two words of the opening paragraph, which are repeated in the next three chapters. The text is found at the end of the main manuscripts of Sextus Empiricus, and it is written in a dialect which is a form of literary Doric. This has suggested to some that it may have originated in Sicily or southern Italy, but there is no other positive evidence for this. It has commonly been supposed that it was composed soon after 400 BC on the basis of the reference in I.8–10 (DK 90) where the victory which the Spartans won over the Athenians and their allies is spoken as a most recent event. But this dating is quite uncertain and others have argued for a much later date.

The pattern of arguments followed throughout the treatise is established in the first chapter where we are told that 'some say that good is one thing and bad is another thing, while others say that they are the same, and that for the same person it is on one occasion good and on another occasion bad.' This formulation is potentially ambiguous. On one view to say that good and bad are the same thing might be taken to say that the two terms are identical in meaning, or it might mean that any one thing will be both good and bad either simultaneously or at different times and in different relationships. It is however the second interpretation which should be preferred: the meanings of the two terms are always different and it is the way in which they are to be applied as attributes to particular things or situations which varies. What we are explicitly told is that as the name or term used differs so does the thing. This is repeated three times in subsequent sections, in one of which (II.1) 'thing' is expressed by *sōma* or physical body. There seems no doubt that what we are being confronted with is the familiar sophistic problem of varying predicates attached to physical objects in the external world. The whole approach of the *Dissoi Logoi* amounts to an application of the sophistic doctrine of relativism. After good and bad in the first section the same treatment is applied to the terms for beautiful and ugly, then to just and unjust, the truth and falsehood of propositions, and the question of the teachability or otherwise of wisdom and virtue. After the discussion of these terms the treatise concludes with arguments that election by lot is a bad method of election in democracies, that the art of the man who is skilled in argument (and so has been trained by a sophist) is the same as the art of the statesman, and that a developed use of memory is essential for intellectual wisdom and its application in the conduct of human affairs.

A second anonymous treatise is known as the *Anonymus lamblichi*. This was identified in 1889 when Friedrich Blass showed that some ten pages of printed Greek text in the *Protrepticus* of Iamblichus were taken apparently virtually

unaltered from an otherwise unknown piece of writing of the fifth or fourth centuries BC. Attempts to assign it to one of the known sophists of the period are now generally regarded as unsuccessful. But the sophistic origin of the material is not in question. It provides a manual of how to succeed in life. This is dependent on the achievement of *aretē* or virtue, which requires both natural qualities and efforts maintained over a period of years. When achieved, human *aretē* is found to have involved acting in accordance with law and justice in order to benefit as many persons as possible. Respect for law brings with it good government, which benefits all greatly, and removes the danger of tyranny. The treatise thus provides a kind of complementary antithesis to the perhaps more famous sophistic doctrine which would place the claims of nature above those of human laws. In fact, according to the *Anonymus* it is not the man who scorns vulgar justice who is going to succeed, it is rather the man who exercises control over himself and co-operates with the society in which he lives.

By way of conclusion mention may be made of a further series of anonymous works which various modern scholars have supposed should be attributed to sophistic writers, but for the *content* of which we have only rather slight information. These may be listed as *On Music* published from a Hibeh papyrus in 1906; a work entitled *Nomima Barbarika* concerned with the contrasting customs of different peoples; *On Laws*, consisting of materials extracted in 1924 from Demosthenes, *Oratio* XXV; *On Citizenship* which actually survives among the works attributed to Herodes Atticus in the second century AD, and a supposed treatise *On Magnificence* (as a quality of persons), which may have some relationship with the *Dissoi Logoi*. Sophistic doctrines and materials are to be found in many places in the Hippocratic corpus, particularly in the treatises *On Art*, *On Ancient Medicine*, *On Breathing* and *De Locis in Homine*. To these may be added the pseudo-Xenophontine *Constitution of the Athenians*, which cannot have been written by Xenophon, and seems to have been put together partly under the influence of the doctrine of opposing arguments developed by Protagoras.

NOTES

1 Kerferd [7.15], 16.
2 Kerferd [7.15], ch. 6.
3 For this view of the sophists see the description by H. Sidgwick, *Journal of Philology* 4 (1872); 289.
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5 So, for example, Gomperz [7.13], 1–38.
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CHAPTER 8
Greek arithmetic, geometry and harmonics: Thales to Plato

Ian Mueller

INTRODUCTION: PROCLUS' HISTORY OF GEOMETRY

In a famous passage in Book VII of the *Republic* starting at Socrates proposes to inquire about the studies *(mathēmata)* needed to train the young people who will become leaders of the ideal *polis* he is describing, that is, the subjects that will draw their souls away from the sensible world of becoming to the intelligible world of being and the dialectical study of the Forms. Socrates goes on to discuss five such studies: arithmetic, plane geometry, solid geometry, astronomy and harmonics. The purpose of this chapter is to discuss some important aspects of the development of these mathematical sciences other than astronomy in the Greek world down to the later fourth century.

As will become clear, discussion of this topic involves a wide range of interrelated historical, philosophical, and philological questions on many of which opinion still remains sharply divided. My goal here is more to explain what the questions are than to offer answers to them. As a framework for my discussion I shall use a passage from Proclus' commentary on Book I of Euclid's *Elements* ([8.74], 64.7ff.), which is sometimes referred to as the Eudemian summary, on the assumption that its ultimate source is Eudemus' history of geometry written *c.*300.[1] I shall simply call it Proclus' history. Proclus begins by mentioning the origin of geometry in Egyptian land-surveying and the origin of arithmetic in Phoenician commercial activity. He then turns to the accomplishments of the Greeks, beginning with the proverbial Thales, standardly supposed to have flourished *c.*585, of whom he says:

> Thales, who had traveled to Egypt, was the first to introduce geometry into Greece. He made many discoveries himself and taught his successors the principles for many other discoveries, treating some things in a more universal way, others more in terms of perception.
>
> ([8.74], 65.7–11)

After a perplexing reference to an otherwise unknown brother of the poet Stesichorus, Proclus turns to Pythagoras, standardly supposed to have been born sometime between *c.*570 and *c.*550:

> Pythagoras transformed the philosophy of geometry into the form of a liberal education, searching in an upward direction for its principles and investigating its theorems immaterially and intellectually. He discovered the doctrine of the irrationals and the construction of the cosmic figures. After him Anaxagoras of Clazomenae applied himself to many questions in geometry, and so did Oinopides of Chios, who was a little younger than Anaxagoras. Both these men are mentioned by Plato in the *Lovers* [132a5–b3] as having got a reputation in mathematics. Following them, Hippocrates of Chios, who discovered how to square lunes, and Theodoras of Gyrene became eminent in geometry. For Hippocrates wrote a book of elements, the first of those of whom we have any record who did so.
>
> ([8.74], 65.7–66.8)

At this point Proclus turns to the age of Plato, so that the material just described represents his whole history of sixth- and fifth-century geometry. Anaxagoras is thought to have flourished *c.*450. Our main source for Theodoras is Plato's *Theaetetus*, in which he is represented as an approximate contemporary of Socrates. We should then assign Oinopides and Hippocrates to the last half of the fifth century. I will discuss fifth- and sixth-century mathematical science in the second part of this chapter. As Proclus' history suggests, we have a clearer idea of specifically scientific work for the late fifth century than we do for the earlier period, for much of which we depend on reports on the quasilegendary Thales and Pythagoras.

Proclus' history is much more detailed for the fourth century. He focuses on Plato and his associates. A natural inference from what he says would be that all mathematical work in the fourth century was ultimately inspired by Plato. I quote only the material from Proclus which mentions the three figures whom I will be discussing in Part One of this chapter: Archytas, Theaetetus and Eudoxus:

> After these people Plato made a great advance in geometry and the other mathematical sciences because of his concern for them…. At this time… Archytas of Tarentum and Theaetetus of Athens also lived; these people increased the number of theorems and gave them a more scientific organization… Eudoxus of Cnidus, who was…one of those in Plato's circle, was the first to increase the number of general theorems; he added another three proportionals to the three [already in use]; and, applying the method of analysis, he increased the number of propositions concerning the section, which Plato had first investigated.
>
> ([8.74], 66.8–67.8)

The last associate of Plato mentioned by Proclus is a Philip of Mende, standardly assumed to be Philip of Opus.[2] Proclus concludes his history when he introduces Euclid:

> Those who have written histories bring the development of the science up to this point. Euclid is not much younger than these people; he brought the elements together, and he gave an order to many propositions of Eudoxus and perfected many of Theaetetus's; moreover, he gave irrefutable proofs to propositions which had been demonstrated rather loosely by his predecessors.
>
> ([8.74], 66.8–68.10)

The chronology of Archytas, Theaetetus and Eudoxus is very obscure, but a certain consensus has emerged, based importantly on assumptions about the relationships among their mathematical achievements. Theaetetus is thought to have died in 369 before he was fifty. Eudoxus is said to have lived 53 years; his death year is now generally put around the time of Plato's (348–7) or shortly thereafter. Archytas is thought to be an approximate contemporary of Plato, and so born in the 420s. The important issue is not the exact dates, but the assumed intellectual ordering: Archytas, Theaetetus, Eudoxus.

PART ONE:
THE FOURTH CENTURY

(1)
The Contents of Euclid's Elements

The oldest Greek scientific text relevant to arithmetic, geometry, and solid geometry is Euclid's *Elements*. I give a brief description of its contents. Although the proofs of Books I and II make use of the possibility of drawing a circle with a given radius, the propositions are all concerned with straight lines and rectilineal angles and figures. The focus of Book III is the circle and its properties, and in Book IV Euclid treats rectilineal figures inscribed in or circumscribed about circles. In Books I–IV no use is made of the concept of proportionality (x:y :: z:w) and in consequence none—or virtually none—is made of similarity. It seems clear that Euclid chose to postpone the introduction of proportion, even at the cost of making proofs more complicated than they need to have been. Indeed, he sometimes proves essentially equivalent propositions, first independently of the concept of proportion and then —after he has introduced the concept—using it. Moreover, sometimes the proportion-free proof looks like a reworked version of the proof using proportion.[3]

Book V is a logical *tour de force* in which Euclid gives a highly abstract definition of proportionality for what he calls magnitudes *(megethē)* and

represents by straight lines. The essential content of the definition may be paraphrased as follows:

> V, def. 5. x:y :: z:w if and only if whenever a multiple m·x is greater than (equal to or less than) a multiple n·y, m·z is greater than (equal to or less than) n·w, and (V, def. 7) $x:y > z:w$ if for some m and n $m \cdot x > n \cdot y$ and $m \cdot z \leqslant n \cdot w$.

Euclid proceeds to prove a number of important laws of proportionality, e.g., alternation (V.16: if x:y :: z:w, then x:z :: y:w) using a strictly formal reduction to the definition and to basic properties of multiplication and size comparison. In Book VI Euclid applies these laws to plane geometric objects.

Geometry disappears at the end of Book VI when Euclid turns to arithmetic, the subject of VII–IX. Logically these three books are completely independent of the first six. In them Euclid uses a notion of proportionality specific to numbers, i.e., positive integers, and proves for numbers laws of proportionality already proven for magnitudes in Book V.

In Book X there is a kind of unification of arithmetic and geometry. Euclid distinguishes between commensurable and incommensurable magnitudes, again represented by straight lines, and proves:

> X.5–8. Two magnitudes are commensurable if and only if they have the ratio of a number to a number.

I shall briefly discuss the proof of these propositions at the end of section 5, but in the immediate discussion I shall treat this equivalence as something which can be taken for granted as well known to Greek mathematicians of the fourth and perhaps even fifth century. The bulk of Book X is given over to an elaborate classification of certain 'irrational' *(alogos)* straight lines.[4] Euclid proves the 'irrationality' of a number of straight lines, the most important being:

> the medial, the side of a square equal to a rectangle with incommensurable 'rational' sides;
>
> the binomial, the sum of two incommensurable 'rational' straight lines;
>
> the apotome, the difference of two incommensurable 'rational' straight lines.

Book XI covers a great deal of elementary solid geometry quite rapidly; by contrast with his procedure in Books I—IV and VI, Euclid appears willing to use proportionality whenever he thinks it simplifies his argumentation. Book XII is characterized by the method used in establishing its principal results, the so-called method of exhaustion. The method of exhaustion is, in fact, a rigorous technique of indefinitely closer approximations to a given magnitude. It depends

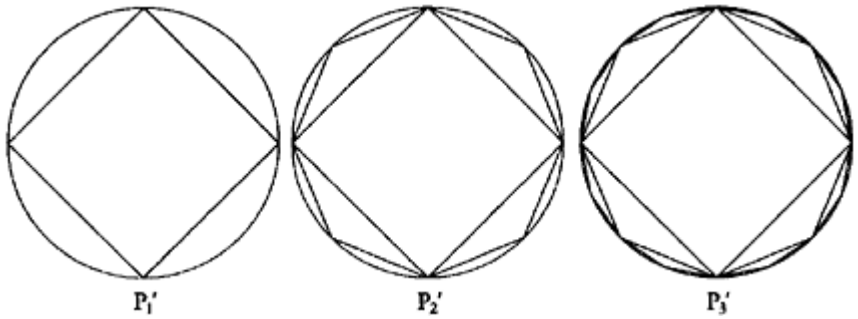

Figure 8.1

on what is traditionally called the axiom of Archimedes or Archimedean condition. Euclid purports to prove a form of the 'axiom' in:

> X.1. Two unequal magnitudes being set out, if from the greater there be subtracted a magnitude greater than its half, and from that which is left a magnitude greater than its half, and if this process be repeated continually, there will be left some magnitude which will be less than the lesser magnitude set out.

Most of the results proved in Book XII concern solids, but the first and simplest, XII.2, establishes that circles C, C′ are to one another as the squares *sq*(d) and *sq* (d′) on their diameters d and d′ (XII.2). To prove this Euclid first shows (XII. 1) that if P and P′ are similar polygons inscribed in C and C′, then P:P′ :: *sq*(d):*sq*(d ′). He then argues indirectly by assuming that C is not to C′ as *sq*(d) is to *sq*(d′), but that for some plane figure C* which is, say, smaller than C′, C:C* :: *sq*(d):*sq* (d′). He inscribes in C′ successively larger polygons P_1', P_2',… (see Figure 8.1) until a P_n' of greater area than C* is reached, and then inscribes a similar polygon P_n in C. By XII.1, $P_n:P_n'$ :: *sq*(d):*sq*(d^1), so that C:C* :: $P_n:P_n'$, and C:P_n :: C*:P_n'. But this is impossible since C is greater than P_n and C* is less than P_n'.

In book XIII Euclid shows in XIII.13–17 how to construct each of the five 'cosmic figures' or regular solids, the triangular pyramid contained by four equilateral triangles, the octahedron contained by eight such triangles, the icosahedron contained by twenty, the cube contained by six squares, and the dodecahedron contained by twelve regular pentagons. In XIII. 13–17 Euclid also characterizes the relationship between the edge e of the solid and the diameter d of the circumscribed sphere. For triangular pyramid, cube, and octahedron the results are simply stated; for example, for the triangular pyramid the square on d is 1½ times the square on e. However for the other two solids Euclid uses materials from Book X, taking the diameter d to be a 'rational' straight line, and showing that the edge of the dodecahedron is an apotome, and that the icosahedron is a line which he calls minor and defines in X.76. These

characterizations of the edges of the regular solids apparently provide the main motivation for the elaborate classification undertaken in Book X.

(2)
Eudoxus and Books V and XII of Euclid's Elements

Two scholia associate Book V with Eudoxus. The more interesting one says:

> This book is said to belong to Eudoxus of Cnidus, the mathematician who lived at the time of Plato, but it is nevertheless ascribed to Euclid and not wrongly. For why shouldn't a thing be assigned to one person as far as its discovery is concerned, even though it is agreed by everyone that it is Euclid's as far as the arrangement of things with respect to elementhood and with respect to the relations of implication with other things of what has been arranged?
>
> ([8.30] 5:282.13–20)

It is difficult to make any precise determination of the roles assigned to Eudoxus and Euclid by this scholium, but it would seem that at least some equivalent of the Book V definition of proportionality and an indication of its viability should be ascribed to Eudoxus, and some non-trivial reorganization to Euclid.

Book XII is also closely connected with Eudoxus. For in the preface to *On Sphere and Cylinder* I ([8.22] 1:4.2–13) Archimedes ascribes to him proofs of equivalents of two propositions from Book XII, and in the prefatory letter to *The Method* ([8.22] 2:430.1–9) he contrasts Eudoxus being the first person to prove these propositions with Democritus being the first to assert one or both of them without proof[5]. Moreover, in the preface to the *Metrica* Heron ([8.45] 3:2.13–18) credits Eudoxus with the first proofs of one of these propositions and of XII. 2. In the prefatory letter to *Quadrature of the Parabola* ([8.22] 2:264.5–25) Archimedes connects the proof of the equivalents of several propositions in Book XII with what he there calls a lemma and is more or less equivalent to X.1. It seems clear that Eudoxus was responsible for some considerable part of the contents of Book XII, although again we have no way of knowing how much Euclid contributed to its formulation. Since the treatment of proportion in Book V and the use of exhaustion in Book XII can be said to represent the outstanding logical and conceptual achievements of the *Elements*, there is good reason to compare Eudoxus' accomplishments with foundational work of the nineteenth century by people such as Weierstrass, Cantor, Dedekind, and Frege.[6]

(3)
Theaetetus and Book XIII of the Elements

The *Suda* ([8.87] 2:689.6–8) says that a Theaetetus of Athens 'was the first to describe the so-called five solids.' The connection of Theaetetus with the regular solids is confirmed by a scholion on Book XIII:

> In this book, the thirteenth, the five figures called Platonic are described. However, they are not Plato's. Three of the five are Pythagorean, the cube, the pyramid, and the dodecahedron; the octahedron and the icosahedron belong to Theaetetus. They are called Platonic because Plato mentions them in the *Timaeus*. Euclid put his name also on this book because he extended the elemental ordering to this element as well.
>
> ([8.30] 5:654.1–10)

We have seen in the introduction that Proclus credits Pythagoras with discovering the construction of the five solids, but his statement is unlikely to be reliable. The most plausible understanding of ancient testimonia about the regular solids has been provided by Waterhouse [8.10], and it confirms both the *Suda* claim that Theaetetus was the first to describe the five solids and the scholiast's distinction between the solids of the Pythagoreans and those of Theaetetus. Waterhouse suggests that there was an early recognition of the cube, pyramid, and dodecahedron,[7] but that Theaetetus tried to produce a completely general account of the regular solids and brought into geometry both the simple octahedron and the complex icosahedron. As we have seen in section 1, the characterization of the edges of the dodecahedron and icosahedron in Book XIII seems to provide the whole rationale for Book X. And we find Theaetetus connected with Book X as well.

(4)
Theaetetus and Book X of the Elements: *the Three Means and Harmonics*

In his commentary on Book X of the *Elements* Pappus of Alexandria describes a relationship between Theaetetus and Book X analogous to the relation between Eudoxus and Book V described by the scholium quoted above:

> It was Theaetetus who distinguished the powers which are commensurable in length from those which are incommensurable, and who divided the more generally known irrational lines according to the different means, assigning the medial line to geometry, the binomial to arithmetic, and the apotome to harmony, as is stated by Eudemus the Peripatetic. Euclid's object on the other hand was the attainment of irrefragable principles, which he established for commensurability and incommensurability in

> general. For rationals and irrationals he formulated definitions and differentiae, determined also many orders of the irrationals, and brought to light whatever of definiteness is to be found in them.
>
> ([8.60], I.1)

Later Pappus writes:

> Those who have written concerning these things declare that the Athenian Theaetetus assumed two lines commensurable in square [only] and proved that if he took between them a line in ratio according to geometric proportion, then the line named the medial was produced, but that if he took the line according to arithmetic proportion, then the binomial was produced, and if he took the line according to harmonic proportion, then the apotome was produced.
>
> ([8.60], II.17)

These assertions require some explication. I begin with the notions of geometric, arithmetic and harmonic proportion, and with a fragment of Archytas' *On Music*.

> There are three musical means, the first arithmetic, the second geometric, the third subcontrary *(hupenantios)*, which is also called harmonic. There is an arithmetic mean when there are three terms in proportion with respect to the same excess: the second term exceeds the third term by as much as the first does the second…. There is a geometric mean when the second term is to the third as the first is to the second… There is a subcontrary mean (which we call harmonic) when the first term exceeds the second by the same part of the first as the middle exceeds the third by a part of the third.
>
> (Porphyry [8.73], 93.6–15, DK 47 B 2)

Here Archytas speaks of three types of means rather than three types of proportions, although the vocabulary of proportions also slips into what he says. In the present context I shall speak of the three types of mean and use the word 'proportion' only for expressions of the form 'x:y :: z:w'. The geometric mean is, of course, the middle of three terms standing in a standard proportion. The arithmetic mean is simply the arithmetic average of two terms x and z, that is $\frac{1}{2}(x + z)$. The harmonic mean is usually given a more general definition which we find in Nicomachus ([8.55], II.25.1; cf. Theon of Smyrna [8.92], 114.14–17), according to which:

> y is the harmonic mean between x and z if and only if
>
> $$(x - y): (y - z) :: x : z \text{ (so that y is } \frac{2xz}{x + z})$$

It is generally believed that the arithmetic and harmonic means were introduced in connection with harmonics, and with the realization that the fundamental concords of Greek music are expressible by elementary ratios:

fourth (doh-fa)	4:3
fifth (doh-sol or fa-doh′)	3:2
octave (doh-doh′)	2:1

The simplest representation of all three of these relations together is:

doh	fa	sol	doh′
12	9	8	6

where 9 is the arithmetic and 8 the harmonic mean between 12 and 6. I shall consider the discovery of these relations in section 2 of Part Two. The important point for now is that harmonics forms part of the background of Theaetetus's handling of the three 'generally known' irrationals.[8]

The Greek word standing behind 'power' in the translation from Pappus is *dunamis*, which Euclid uses only in the dative: straight lines are said to be commensurable *dunamei* (in square) when the squares with them as sides are commensurable.[9] Pappus' vocabulary presumably reflects the passage at the beginning of Plato's *Theaetetus* (147d–148b) to which he refers. In the passage Theaetetus says that Theodorus was teaching something about *dunameis*, showing that the three-foot *dunamis* and the five-foot *dunamis* are not commensurable in length with the one-foot *dunamis*, doing each case separately up to the seventeen-foot *dunamis*, where he stopped. Theaetetus and his companion took it that there were infinitely many *dunameis* and produced a general characterization of them. Making a comparison between numbers and figures, they divided all *number* into what we would call square and non-square, and made a parallel division among lines which square *(tetragōnizein)* the numbers, calling the set which square the square numbers lengths and those which square the non-squares *dunameis*, 'as not being commensurable in length with the lengths, but only in the planes which they produce as squares'.

It does not seem possible to assign a uniform precise meaning to the word *dunamis* in the *Theaetetus* passage. Ultimately Theaetetus defines *dunameis* as the straight lines which square a non-square number, so that all *dunameis* are incommensurable with the one-foot length. But in the description of Theodorus's lesson Theaetetus refers to the one-foot *dunamis*, which is certainly commensurable with a onefoot length. So it seems likely that the general meaning of *dunamis* in the description of the lesson is simply 'side of a square' or 'side of a square representing an integer'. When Pappus says that Theaetetus 'distinguished the *dunameis* which are commensurable in length from those which are not commensurable', it seems likely that he means something like this by *dunamis* and that he ascribes to Theaetetus a distinction between the straight

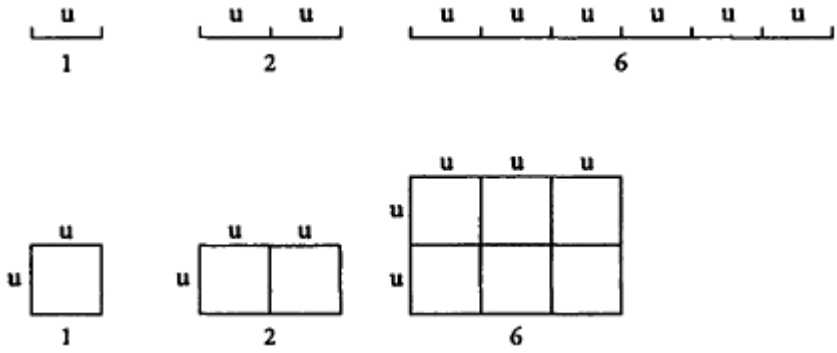

Figure 8.2

lines commensurable in length with the one-foot *dunamis*—or, equivalently, with a line set out—as 'rational' from those which are not.

The comparison between numbers and figures to which Plato's Theaetetus refers is quite clear in much Greek arithmetic vocabulary, of which 'square' and 'cube' are perhaps the most common modern survivors. But we do not find in Euclid anything genuinely like the representation of a unit as a straight line u with a corresponding unit square *sq*(u), and other numbers represented both as multiples of u and as rectangles contained by such multiples (cf. Figure 8.2). But this seems to be what lies behind the discussion in the *Theaetetus*. That is to say, it looks as though Theodoras was using a unit length u and proving what we would call the irrationality of $\sqrt{n}$ for certain n by showing that the side s_n of a square corresponding to n was incommensurable in length with u. Theaetetus made a generalization of what he was shown by Theodoras by assuming or proving that:

(i) n is a perfect square if and only if s_n is commensurable with u.

It should be clear that there is a big difference between assuming and proving (i). And although the proof of implication from left to right is quite straightforward, the proof of right-left implication is far from it. In fact, it is just the proposition we would assert by saying that the square root of any non-square positive integer is irrational. There is no extant ancient proof of such an assertion.

We may gain more insight by formulating the question raised by Theaetetus in the *Theaetetus* and his answer to it as:

Question: If y is the geometric mean between m·u and n·u (i.e. if the square on y is equal to the rectangle on m·u and n·u), under what conditions is y commensurable with u?

Answer: If y is the geometric mean between m·u and n·u, then y is commensurable with u (if and) only if $y \approx k \cdot u$, for some k.

Phrased this way, Theaetetus' problem is equivalent to looking at the geometric mean y between two commensurable straight lines x and z, and asking whether it is commensurable with the lines. One correct answer to this problem is the following:

> (ii) If y is the geometric mean between straight lines x and z, y is commensurable with x if and only if x has to z the ratio of a square number to a square number.

(ii) is equivalent to *Elements* X.9, which a scholiast ascribes to Theaetetus:

> This theorem is the discovery of Theaetetus, and Plato recalls it in the *Theaetetus*, but there it is set out in a more particular way, here universally. For there squares which are measured by square numbers are said to also have their sides commensurable. But that assertion is particularized, since it doesn't include in its scope all the commensurable areas of which the sides are commensurable.
>
> ([8.30] 5:450.16–21)

If Theaetetus was interested in the commensurability of the geometric mean between commensurable straight lines with the straight lines, it does not seem unreasonable to suppose that he would also have considered the arithmetic and harmonic means between commensurable straight lines and seen right away that these are commensurable with the original lines.[10]

So we can imagine that Theaetetus showed that the arithmetic or harmonic mean between two commensurable straight lines is commensurable with the original lines, but that this holds for the geometric mean only in the case where the original lines are related as a square number to a square number; if they are not so related, he could only say that the geometric mean is commensurable in square with the original straight lines. He might now wonder whether, if we insert a mean x between lines y, z which are commensurable in square only, x is commensurable (at least in square) with y (and z). In fact this can be shown to hold for none of the means, and so we might imagine Theaetetus having proved:

> (iii) The insertion of any of the three means between incommensurable 'rational' lines produces an 'irrational' line.

We might imagine him pushing on to further 'irrational' lines by inserting further means (cf. *Elements* X.II5), but I suspect that, if Theaetetus were looking to the notion of commensurability in square as a kind of limit on incommensurability, the recognition that any of the means between lines commensurable in square only goes beyond that limit might have given him pause. He would then have had a 'theory' summarized by (iii). This theory only gets us to the medial, not to the binomial and apotome. To explain the

introduction of the binomial and medial we need only recall that the motivation for the whole theory of 'irrational' lines seems to be provided by the treatment of the regular solids in Book XIII.[11]

There remains the question of what exactly Theaetetus did and how it is related to Books X and XIII of the *Elements*. Pappus' statement that Euclid formulated definitions for rationals and irrationals 'and differentiae, determined also many orders of the irrationals, and brought to light whatever of definiteness is to be found in them' suggests that quite a bit of book X is due to him. On the other hand, if one assumes, as it seems necessary to do, that Theaetetus' interest in apotomes grew out of his study of the regular solids, then it seems plausible to assume that he established the characterizations of the edges of dodecahedron and icosahedron which we find in the *Elements*. But once we make that assumption it seems hard to deny that essentially all of X and XIII is due to Theaetetus,[12] and that Euclid's changes were more formal than substantive. However, we have no way of drawing an exact boundary between the work of the two men.

(5)
Theaetetus and the Theory of Proportion

I have already alluded in section 1 to the major peculiarity involved in the treatment of proportionality in the *Elements*. Euclid gives one definition of proportionality for 'magnitudes' in Book V and another for numbers in Book VII. Then in X.5–8, with no indication that there is any problem, he introduces proportions involving both numbers and magnitudes. Understandably those who view the *Elements* as a loosely strung together compilation of independent treatises have focused considerable attention on this juncture in the text. A standard position is that (a) the ultimate sources of Book VII are chronologically earlier than the work of Eudoxus incorporated in Book V; (b) since Book X deals with incommensurable magnitudes, it obviously cannot be based on the theory of proportion of Book VII; and (c) since Book V has nothing to say about numerical ratios, Book X cannot be based on Eudoxus's theory. What, then, could it be based on? This alleged gap in our knowledge was filled by Becker [8. 96], starting with a remark on definitions in Aristotle's *Topics* (VIII.3.158b24–35):

> Many theses are not easy to argue about or tackle because the definition has not been correctly rendered, e.g., whether one thing has one contrary or many…. It seems that it is also the case in mathematics that some things are difficult to prove because of a deficiency in a definition. An example is that a line which cuts a plane [i.e. parallelogram] parallel to a side, divides the line and the area similarly. For the assertion is immediately evident when the definition is stated. For the areas and the lines have the same *antanairesis*. And this is the definition of the same ratio.

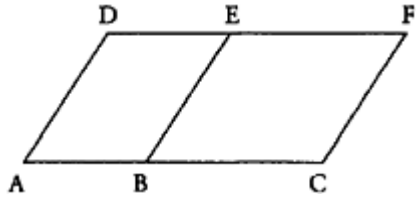

Figure 8.3

Commenting on this passage, Alexander of Aphrodisias says ([8.20], 545.15–17) that Aristotle calls *anthuphairesis antanairesis* and that early mathematicians called magnitudes proportional if they have the same *anthuphairesis*. In terms of Figure 8.3 Aristotle's example of a proposition difficult to prove presumably says something like:

Parallelogram ABED is to parallelogram BCFE as AB is to BC. In the *Elements* Euclid proves a similar result as VI.1. using the Book V definition of proportionality.

Neither *anthuphairesis* nor *antanairesis* occurs with a mathematical sense in an ancient text outside the *Topics* passage and Alexander's comment on it, but the verb *anthuphairesthai* is used by Euclid in the *Elements*, where Heath [8.32] translates it 'be continually subtracted' or 'be continually subtracted in turn'. Two propositions in which this verb occurs are:

> VII.1. Two unequal numbers being set out and the less being continually subtracted in turn from the greater, if the number which is left never measures the one before it until a unit is left, the original numbers will be prime to one another.
>
> X.2. If, when the lesser of two unequal magnitudes is continually subtracted in turn from the greater, that which is left never measures the one before it, the magnitudes will be incommensurable.

And the verb turns up in the proof of VII.2, which shows how to find the greatest common measure of two numbers, and in that of X.3, which shows how to find the greatest common measure of two commensurable magnitudes. The method used to find a common measure is what Alexander means by *anthuphairesis*. I illustrate its use to find the greatest common measure or divisor, 2, of 58 and 18:

1	$58 - 18 = 40$	
2	$40 - 18 = 22$	
3	$22 - 18 = 4 < 18$	$58 = (3 \cdot 18) + 4 \ (4 < 18)$
4	$18 - 4 = 14$	
5	$14 - 4 = 10$	
6	$10 - 4 = 6$	
7	$6 - 4 = 2 < 4$	$18 = (4 \cdot 4) + 2 \ (2 < 4)$
8	$4 - 2 = 2$	
9	$2 - 2 = 0$	$4 = (2 \cdot 2)$

I now give a general representation of the procedure for magnitudes x_1 and x_2 with $x_1 > x_2$:

1	$x_1 = m_1 \cdot x_2 + x_3$ with $x_3 < x_2$
2	$x_2 = m_2 \cdot x_3 + x_4$ with $x_4 < x_3$
3	$x_3 = m_3 \cdot x_4 + x_5$ with $x_5 < x_4$

This procedure either stops with

$$\text{n.} \quad x_n = m_n \cdot x_{n+1}, \text{ for some n,}$$

or proceeds forever with

$$\text{i.} \quad x_i = m_i x_{i+1} + x_{i+2}, \text{ for every i.}$$

Euclid takes for granted that, if we are dealing with numbers, the procedure will stop because eventually we will get 1 (the unit) as a remainder; we might say that in this case 1 is the greatest common measure, but Euclid normally distinguishes between 1 and a number. The argument that if the procedure stops at step n, x_{n+1} is the greatest common measure relies only on ideas about measuring, adding and subtracting, as does the argument that, if the procedure doesn't stop, there is no common measure.[13]

The *anthuphairesis* of two quantities x_1 and x_2 is completely represented by the series of multipliers m_1, m_2…produced by the process of alternate subtraction. So presumably the definition of proportionality referred to by Aristotle says that two pairs of magnitudes are in proportion if the series produced by applying *anthuphairesis* to the first pair is the same as the series produced for the second. This definition obviously does apply to both numbers and to magnitudes. Since Aristotle refers to Eudoxus in several passages and the proportionality definition of Book V is ascribed to Eudoxus, there is reason to think that Aristotle is referring to a definition of the 'early' mathematicians, i.e. earlier than Eudoxus. Given other assumptions which we have already mentioned, it is a short step to ascribing the anthuphairetic definition of proportionality to Theaetetus and to supposing that the original of Book X was based on this definition. A crucial assumption for this view is the idea that there is a serious gap in the proofs of X.5–8. This claim is hard to evaluate because there are serious logical difficulties in Euclid's treatment of proportionality in

arithmetic itself.[14] But if, as is generally done, those difficulties are ignored, and we assume that at least by the time of Book X Euclid includes numbers among magnitudes, then the only law which Euclid has not proved in Book V and which he needs to justify X.5–8 is trivial.[15] The assumption that Euclid left the proof of this law to his readers or students does not seem to me implausible. However, even if this is true, Aristotle's remark in the *Topics* makes it very likely that at some point before his and Eudoxus' time an anthuphairetic theory of ratios was developed to apply to commensurable and incommensurable magnitudes.[16] Whether we should ascribe this theory to Theaetetus seems to me moot.

(6)
Archytas, Harmonics and Arithmetic

In section 4 I described the representation of the fundamental concords fourth, fifth and octave in terms of the ratios 4:3, 3:2, 2:1. In a fragment from *On Mathematics* (Porphyry [8.73], 56.5–57.27, DK 47 B 1), Archytas correlates high pitches with fast movements and low pitches with slow ones in a piece of physical acoustics.[17] We find an analogue of this correlation in the prologue of Euclid's *Sectio Canonis*, our earliest text in mathematical harmonics. The prologue concludes with an argument that it is 'reasonable' that:

> SC Assumption 1. The concordant intervals are ratios of the form n+1:n or n:1, i.e. they are either 'epimorics' or multiples.

It seems possible that Archytas put forward an argument of the same kind, although only Euclid makes an explicit correlation between pitch and frequency.[18] Euclid's argument for SC Assumption 1 relies only on an analogy between the idea that concordant notes make a single sound and the fact that ratios of the two forms are expressed by a single name in Greek: double is *diplasios*, triple *triplasios*, etc., and 3:2 is *hēmiolios*, 4:3 *epitritos*, 5:4 *epitetartos*, etc. There is no question that the argument is a *post hoc* attempt to justify previously established correlations; and it fails rather badly as a foundation for the programme of the *Sectio*, which is:

1 to establish the numerical representation of the fundamental concords;
2 to use mathematics to disprove apparent musical facts, such as the existence of a half-tone;
3 to construct a diatonic 'scale'.

In the treatise Euclid tacitly takes for granted that addition of intervals is represented by what we would call multiplication of ratios, subtraction of intervals by what we would call division. To divide an interval represented by m:n in half is, then, to find i, j, k such that i:k :: m:n, and i:j :: j:k. In addition to SC Assumption 1 Euclid also relies on the following empirical 'facts':

SC Assumption 2. fourth+fifth=octave.

SC Assumption 3. fifth−fourth=tone.

SC Assumption 4. The concords are in order fourth, fifth, octave, octave +fifth, and double octave.

SC Assumption 5. Certain other intervals, in particular the double fourth and double fifth, are discordant and neither multiple nor epimoric.

SC Assumption 5 brings out a kind of duplicity in the *Sectio*. In a (for him) ideal world Euclid would be able to say that all and only the concordant intervals are epimoric or multiple. To say that they all are would conflict with the fact that the octave+fourth (represented by 8:3) is concordant; Euclid passes over this interval in silence. To say that only they are would conflict with the fact that the tone (represented by 9:8 the 'difference' between 3:2 and 4:3) and the interval represented by 5:1 are discordant. Clearly Euclid picks and chooses his 'facts' as he needs them.

Although the foundation of the *Sectio* is very nebulous and hardly what we would call scientific, and although SC Assumption 5 is used in a very arbitrary way, the core of the argumentation depends on quite sophisticated number theory. I shall not discuss the argumentation in detail,[19] but do wish to mention three propositions of pure mathematics proved in the *Sectio*:

SC Propositions 1, 2. If $d_1:d_2 :: d_2:d_3$, then d_2 is a multiple of d_1 if and only if d_3 is.

SC Proposition 3. If $d_1:d_2 :: d_2:d_3 ::\ldots:: d_{n-1}:d_n$, then $d_1:d_n$ is not epimoric.

SC Proposition 2 enables one to establish the result that Plato ascribes to Theaetetus ((i) in section 4 above). In his proof of SC Proposition 2 Euclid justifies the crucial step by saying, 'But we have learned that if there are as many numbers as we please in proportion and the first measures the last, it will also measure those in between.' Euclid's formulation here varies slightly from the formulation of the equivalent assertion as *Elements* VIII.7, a proposition which Euclid derives by *reductio* from its equivalent VIII.6: 'If there are as many numbers as we please in continuous proportion and the first does not measure the second, none of the other numbers will measure any other.'

SC Proposition 3 is of special interest for fourth-century mathematics because Boethius ([8.28] III.11, DK 47 A 19) ascribes a similar proof to Archytas. To facilitate comparison of the two proofs I first give a simplified version of the *Sectio* proof:

Suppose $d_1:d_n$ is epimoric, and (i) let d+1 and d be the least numbers in the ratio of d_1 and d_n. (ii) No mean proportionals fall between d+1 and d, since no numbers fall between them at all. (iii) Therefore, there are no d_i such that $d_1:d_2 :: d_2:d_3 ::\ldots d_{n-1}:d_n$.

To justify this last step Euclid invokes the equivalent of *Elements* VIII.8 when he says, 'However many means fall proportionally between the least numbers, so many will also fall proportionally between numbers having the same ratio.'

In Euclid's actual argument step (i) is replaced by something like the following argument:

> (i′) Let d and d′ be the least numbers such that d′:d :: d_1:d_n. Then d′ and d have only the unit as common measure. Now consider d′−d; by the definition of 'epimoric' d′−d is a part of d and a part of d′; therefore it is the unit.

In asserting that d′ and d have only the unit as common measure Euclid is apparently relying on the equivalent of VII.22 ('The least numbers of those having the same ratio with one another are relatively prime') and the definition of relatively prime numbers as those having only the unit as common measure (VII, def. 12).

The proof ascribed to Archytas by Boethius is even messier. In place of (i′) it has:

> (i″) Let d+d* and d be the least numbers such that (d+d*:d) :: d_1:d_n, so that, by the definition of 'epimoric', d* is a part of d. I assert that d* is a unit. For suppose it is greater than 1. Then, since d* is a part of d, d* divides d and also d+d*, but this is impossible. For numbers which are the least in the same proportion as other numbers are prime to one another and only differ by a unit.' Therefore d* is a unit, and d+d* exceeds d by a unit.

After inferring (ii″) that no mean proportional falls between d+d* and d, Boethius concludes, presumably by reference to something like VIII.8:

> (iii″) Consequently, a mean proportional between the two original numbers d_1 and d_n cannot exist, since they are in the same ratio as d+d* and d.

In the quoted lines in (i″) the equivalent of VII.22 is again cited, but, as Boethius points out, the words 'only differ by a unit' are not correctly applied to arbitrary ratios in least terms but only to epimoric ones.[20]

It seems reasonable to suppose that Archytas was responsible for something like the proof ascribed to him by Boethius, and that Euclid improved it in the *Sectio*, perhaps relying on the *Elements* as an arithmetical foundation. It even seems reasonable to suppose that Archytas composed some kind of Ur-*Sectio*, on which our *Sectio* was somehow based. However, it seems to me unlikely that our *Sectio* is simply an improved version of a work of Archytas. For Euclid's diatonic scale is the standard one used by Plato in the *Timaeus* (35b–36a) for the division of the world soul into parts, whereas we know from Ptolemy ([8.77], 30.9–31.18, DK 47 A 16) that Archytas's diatonic was quite different.[21]

The question whether Archytas' tuning is mathematical manipulation without musical significance must be considered moot. Barker ([8.14], 46–52) has argued that musical practice may have played a much more significant role in Archytas' theorizing than is usually allowed, but he leaves no doubt that a kind of mathematical a priorism, particularly the faith in the consonance of epimorics, played a central role in Archytas' musical thought. Moreover, a passage in Porphyry ([8.73], 107.15–108.21, DK 47 A 17) suggests that Archytas used very arbitrary numerical manipulations to determine the relative concordance of octave, fifth, and fourth, subtracting 1 from each term of the corresponding ratios, adding the results for each interval and taking lower sums to mean greater concord; since $(2-1)+(1-1) < (3-1)+(2-1) < (4-1)+(3-1)$, he declared the octave to be more concordant than the fifth, which, in turn is more concordant than the fourth.

This mixture of mathematical reasoning and mathematical mystification makes it difficult for us to classify the musical work of Archytas (and even of Euclid) as either science or numerology.[22] It is difficult to believe that Archytas did not know the truth of VIII.7 and 8, at least for the case of one mean proportional. But it is hard to see how he could even begin to think about such results without a well-developed idea of arithmetical reasoning and proof.[23]

PART TWO:
THE SIXTH AND FIFTH CENTURIES

(1)
Thales and Early Greek Geometry

In addition to his general remarks about Thales quoted in the introduction Proclus ([8.74]) records four of Thales' mathematical achievements, twice citing Eudemus as authority. I quote the passages:

(a) The famous Thales is said to have been the first to prove that the circle is bisected by the diameter. (157.10–11)
(b) We are indebted to the ancient Thales for the discovery of this theorem [asserting the equality of the base angles of an isosceles triangle] and many others. For he, it is said, was the first to recognize and assert that the angles at the base of any isosceles triangle are equal, although he expressed himself more archaically and called the equal angles similar. (250.20–251.2)
(c) According to Eudemus, this theorem [asserting the equality of the non-adjacent angles made by two intersecting straight lines]…was first discovered by Thales. (299.1–4)
(d) In his history of geometry Eudemus attributes to Thales this theorem [asserting the congruence of triangles with two sides and one angle equal]. He says that the method by which Thales is said to have determined the

> distance of ships at sea requires the use of this theorem. (352.14–18, all four passages in DK 11 A 20)

Other passages[24] credit Thales with a method for determining the height of a pyramid by measuring its shadow and call him 'the first to describe the right triangle of a circle', whatever that may mean. However, the crucial passages are the four I have quoted. Dicks ([8.88], 302–3) seizes on the last to argue that Eudemus' attributions to Thales are reconstructions which presuppose that Thales demonstrated in a basically Euclidean way geometrical theorems implicit in his more practical accomplishments. Even if one accepts the plausibility of this approach to ancient doxographical reports, two features of these particular ones may cause one to hesitate: the detailed point in (b) about Thales' archaic vocabulary, and the fact that in (a) Thales is said to have proved something which is (illegitimately) made a matter of definition in Euclid's *Elements* (I, def. 17).

It is also striking that all four of the propositions ascribed to Thales can be 'proved' either by superimposing one figure on another (d) or by 'folding' a configuration at a point of symmetry. It seems possible that Thales' proofs were what we might call convincing pictures involving no explicit deductive structure. But once one ascribes even this much of a conception of justification to Thales, one is faced with what would seem to be serious questions. How did it come about that Thales would formulate, say, the claim that a diameter bisects a circle? If he was just interested in the truth 'for its own sake', then we already have the idea of pure geometrical knowledge. But if, as seems more plausible, he was interested in the claim as a means to justifying some other less obvious one, then we seem to have the concept of mathematical deduction, from which the evolution of the concept of mathematical proof is not hard to envisage. We need not, of course, suppose that Thales was a rigorous reasoner by Euclidean standards; merely saying that he explicitly asserted and tried to justify mathematical propositions of a rather elementary kind is enough to give us a primitive form of mathematics.

Of course, we would like to know something about the historical background of Thales' interests. Proclus and other ancient sources give credit to the Egyptians, but modern scholars tend to be sceptical about these claims.[25] Van der Waerden and others have invoked the Babylonians to fill the gap. I quote from his discussion of Thales ([8.13], 89), which shows that he also credits Thales with a high standard of mathematical argumentation.

> We have to abandon the traditional belief that the oldest Greek mathematicians discovered geometry entirely by themselves and that they owed hardly anything to older cultures, a belief which was tenable only as long as nothing was known about Babylonian mathematics. This in no way diminishes the stature of Thales; on the contrary, his genius receives only now the honor that is due it, the honor of having developed a logical

> structure for geometry, of having introduced proof into geometry. Indeed, what is characteristic and absolutely new in Greek mathematics is the advance by means of demonstration from theorem to theorem. Evidently, Greek geometry has had this character from the beginning, and it is Thales to whom it is due.

(2)
Harmonics in the Sixth and Fifth Centuries

In his commentary on Ptolemy's *Harmonics* ([8.73], 30.1–9), Porphyry says:

> And Heraclides writes these things about this subject in his *Introduction to Music:*
>
> As Xenocrates says, Pythagoras also discovered that musical intervals do not come to be apart from number; for they are a comparison of quantity with quantity. He therefore investigated under what conditions there result concordant or discordant intervals and everything harmonious or inharmonious. And turning to the generation of sound, he said that if from an equality a concordance is to be heard, it is necessary that there be some motion; but motion does not occur without number, and neither does number without quantity.

The passage continues by developing an even more elaborate theory of the relationship between movements and sound than the ones I mentioned earlier in section 6. Scholars who are doubtful that Pythagoras was any kind of scientist are happy to deny that Heraclides is Heraclides of Pontus, the student of Plato, and to restrict the extent of the citation of Xenocrates to the first sentence.[26] Even this sentence implies that Pythagoras discovered something about numbers and concords, and I think everyone would agree that, if he discovered any such thing, it was the association of the fundamental concords with the ratios 4:3, 3:2 and 2:1. It is commonly thought that this association must have been known by people familiar with musical instruments quite independently of theoretical proclamations, but that 'Pythagoras invested the applicability of these ratios to musical intervals with enormous theoretical significance' [KRS p.235]. Burkert ([8.79], 374–5) has pointed out how difficult it is to identify an early instrument which would facilitate recognizing the correlation of pitch relations with numerical ratios.

The traditional story of Pythagoras' discovery of the ratios—for which our earliest source is Nicomachus ([8.57], 6)—depends upon false assumptions about the causal relation between pitches produced and the weights of hammers striking a forge or weights suspended from plucked strings. However we find a perfectly credible experiment, involving otherwise equal bronze discs with thicknesses in the required ratios, associated with the early Pythagorean Hippasus of Metapontum (Scholium on *Phaedo* 108d [8.64], 15, DK 18.12).[27]

Hippasus is thought to have flourished in the earlier fifth century. In an important sense he is our only clear example of a Pythagorean mathematical scientist before Archytas. But the stories about his relations to the Pythagoreans and the division of the school into *akousmatikoi* and *mathēmatikoi* surround him in a mysterious fog which is not fully penetrable.[28]

In section 4 I described the close relation of the doctrine of means with harmonics, and quoted the passage in which Archytas describes the three basic means. Proclus ([8.74], 67.5–6) indicates that Eudoxus added other means to the basic three. Nicomachus ([8.55], II.21) says that all the ancients, Pythagoras, Plato and Aristotle, agreed on the arithmetic, geometric and harmonic means. Iamblichus ([8.54], 100.22–4) says that Hippasus and Archytas introduced the name 'harmonic' in place of 'subcontrary', and in two passages ([8.54], 113.16–17, 116.1–4) he associates the introduction of additional means with Hippasus and Archytas. Whether or not the additional means can be ascribed to Hippasus, it seems plausible to suppose that he did work with ratios and at least the first three means in the earlier fifth century. His doing so certainly implies some level of mathematical abstraction and manipulation, but presumably the level might be fairly low.

We do not gain much clarification in this matter when we turn to the other main allegedly fifth-century treatment of mathematical harmonics, which is ascribed to Philolaus. In the second part of DK 44 B 6 (put together from two versions, Stobaeus ([8.86] I.21.7d) and Nicomachus ([8.57], 9)), Philolaus constructs an octave with seven tones, the first four of which quite clearly form a tetrachord in the standard diatonic system (see note 21). In his own vocabulary he mentions the ratios for the three fundamental concordant intervals, and asserts the following:

fifth−fourth=9:8;
  octave=five 9:8 intervals+two 'dieses';
  fifth=three 9:8 intervals+one 'diesis';
  fourth=two 9:8 intervals+one 'diesis'.

Boethius ([8.28] III.8, DK 44 B 6) tells us that for Philolaus the 'diesis' or smaller semitone is the interval by which 4:3 is greater than two tones, so that there is no reason to doubt that Philolaus has the mathematics of the standard diatonic scale. However Boethius goes on to say that the 'comma' is the interval by which 9:8 is greater than two 'dieses', and that the 'schisma' is half of a 'comma', and the 'diaschisma' half of a 'diesis'. The 'diesis' should be 256:243 and the 'comma' 531441:524288. Neither of these intervals can be divided in half in the sense of the *Sectio Canonis*. Since Philolaus seems clearly to recognize that the tone cannot be divided in half, it is rather surprising that he apparently takes for granted—what is false in terms of the *Sectio*— that there are half 'dieses' and half 'commas'.

Figure 8.4

But the situation becomes even more problematic when one takes into account III.5 of *De Institutions Musica* (DK 44 A 26). For there Philolaus garbles together the combining and disjoining of ratios with the adding and subtracting of numbers. He also moves without comment from taking an interval as a ratio between two numbers m and n and as their difference m−n. He begins by taking 27 as the cube of the first odd number, and then expresses the tone (9:8) as 27:24. He says that this is divisible into a larger and smaller part, the 'apotome' and the 'diesis', the difference between them being a 'comma'.[29] Taking the standard value for the 'diesis', 256:243, he treats it as if it were 13 (=256−243), pointing out that 13 is the sum of 1 ('the point'), 3 ('the first odd line') and 9 ('the first square'). To find the 'apotome' he uses the value 243:216 (9:8) for the tone and says that 27 (=243−216) is the tone. The value of the 'apotome' is then 14 (=27 −13) and the value of the 'comma' is 1 (=14−13). This discussion is, of course, pure nonsense. For Burkert the nonsense is genuine late fifth-century Pythagoreanism, which 'shows a truly remarkable mixture of calculation and numerical symbolism in which 'sense' is more important than accuracy' ([8.79], 400). For Huffman ([8.61], 364–80), whose Philolaus and fifth-century Pythagoreanism are much more scientific than Burkert's, just the description of the seven-note scale with the diatonic tetrachord is genuine Philolaus. I remark only that everywhere in what we might call the Pythagorean tradition of Greek music, including Archytas, Plato, Euclid and Ptolemy, the sense of the cosmic power of pure numbers and the willingness to indulge in meaningless numerical manipulation is always present. What distinguishes Philolaus, from Euclid and Ptolemy certainly, and for the most part from Archytas as well, is the apparent confusion between numerical relations or ratios and absolute numbers. Even if we waive the question of authenticity, I do not think there is sufficient evidence to decide whether Philolaus represents the sort of thing one would expect of any fifth-century Pythagorean. But there is little doubt that it can be expected of some.

(3)
Arithmetic in the Sixth and Fifth Centuries

It is customary to associate the representation of the fundamental concords as ratios with an important concept of Pythagorean lore, the *tetraktus*, the first four numbers represented by the triangle of Figure 8.4 and summing to 10, the perfect number encapsulating all of nature's truth.[30]

In II.8 of his *Introduction to Arithmetic* Nicomachus introduces the notion of a triangular number, that is a number which can be represented in triangular form, as in Figure 8.5.

Figure 8.5

Figure 8.6

It is clear that the triangular numbers form an infinite sequence and that the nth triangular number is the sum of the first n numbers.[31] I shall call these arrays of dots figurate numbers. In succeeding chapters Nicomachus describes square numbers, pentagonal numbers, and so on up to octagonals. In his commentary on Nicomachus's presentation of triangular numbers Iamblichus says ([8.54], 58.19–25; cf. Aristotle, *Categories* 14.15a29–33) that the number added to the mth n-agonal number to get the m+1th is called the gnomon, the thing which preserves the shape of a thing when added to it. He explains that the term was taken from geometry, where it was applied to the excess by which one square exceeds another. Figure 8.6 shows what he means and how the gnomon functions in the generation of square numbers.[32] It makes quite clear that the nth square number is the sum of the first n odd numbers, one example of the way in which relatively simple manipulation of figurate numbers can establish mathematically interesting results independently of anything resembling a stylized Euclidean deduction.

But the difference between such deduction with its definitions, technical vocabulary, diagrams and formalistic descriptions, on the one hand, and informal manipulation designed to bring out general truths about numbers or rules for producing them is not great. Nor are the moves from the sacred *tetraktus* to triangular numbers to generalizations about them and other polygonal numbers. Our evidence for figurate numbers is late, Theon of Smyrna, Nicomachus, and Iamblichus being the principal sources. There is no trace of figurate numbers in Euclid. Nevertheless, most scholars take the material in Theon, Nicomachus and Iamblichus to be early. In his *History* Heath discusses this material under the rubric 'Pythagorean arithmetic' before he discusses Thales. I do not wish to suggest that his doing so is illegitimate, but only to insist that once one admits an interest, even a numeromystico-theological interest, in accumulating general numerical laws and rules on the basis of the manipulation of configurations of dots, one has the fundamentals of a scientific arithmetic, although not, of course, an arithmetic in which one advances 'by means of demonstration from theorem to theorem', to use van der Waerden's description of the geometry of Thales.[33]

As an example of the power of the manipulation of figurate numbers, I want to consider the so-called Pythagorean theorem (*Elements* I.47). It is now a commonplace of mathematical history that the theorem is not the discovery of

Pythagoras,[34] but was known by the Babylonians centuries before he was born. One need not, however, suppose that Greek knowledge of the theorem came ultimately from Babylonia. The primary Greek account of Pythagoras's discovery of the theorem[35] caused even his later admirers difficulty because in it the allegedly vegetarian Pythagoras was said to have celebrated his discovery by sacrificing an ox. For example, Proclus ([8.74], 426.5–9) says:

> If we listen to those who like to give an account of old things, one will find them attributing this theorem to Pythagoras and saying that he sacrificed an ox on its discovery.

Proclus then immediately turns to praise for Euclid for generalizing the theorem from squares to similar figures (*Elements* VI.31). Proclus also attributes to Pythagoras a procedure for generating numbers satisfying the theorem;[36] the procedure starts with an odd number m and takes $\frac{m^2-1}{2}$ and $\frac{m^2-1}{2}+1$

Heath ([8.7]: 80) shows how this rule could be related to the generation of the square numbers through the addition of gnomons. It is clear from Figure 8.6 that the square number $(n+1)^2$ is generated from a square number n^2 by the addition of the gnomon $2n+1$; but if $2n+1=m^2$, $n=\frac{m^2-1}{2}$ and $n+1=\frac{m^2-1}{2}+1$.

Becker [895] pointed out an odd feature of the last sixteen propositions (IX.21–36) of the arithmetic books of the *Elements*. In IX.20 Euclid proves one of the old chestnuts of arithmetic, the infinity of the prime numbers. In IX.21 Euclid proves on the basis of definitions only that the sum of any number of even numbers is even; and there follows a string of other relatively elementary propositions. However, the string culminates in another old chestnut of arithmetic (IX.36), that if $p=2^0+2^1+2^2\ldots+2^n$ and is prime, $p\cdot 2^n$ is perfect, i.e. equal to the sum of its factors other than itself.[37] Euclid's proof of this result uses propositions proved before IX.21 and none from IX.21–34. IX.21–34 are, with the exception of 32, a self-contained deductive sequence dependent only on definitions. Becker argued that the propositions in the sequence could all be proved on the basis of figurate numbers if one understood the product of two numbers to be a rectangle with the numbers as 'sides' (see Figure 8.7, which represents the product of 3.5), and understood even and odd in the way they are defined in the *Elements*, where an even number is said to be one which is divisible into two equal parts and an odd to be one which is not even or which differs from an even number by 1 (VII, defs 6 and 7). Becker also showed that 36 could be incorporated into the sequence and proved on the same basis, eliminating the need for IX.35, which Euclid proves as a lemma for 36. Becker's claim that he had reconstructed a piece of early Pythagorean deductive arithmetic has won considerable, although not universal, acceptance among historians of Greek mathematics.

Subsequently Becker ([8.1], 41, [8.2], 51–2) offered a proof of the same kind for what he called the irrationality of 2, but which we can think of as the claim that there is no square number which added to itself produces a square number.

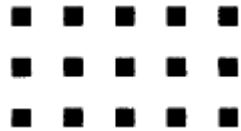

Figure 8.7

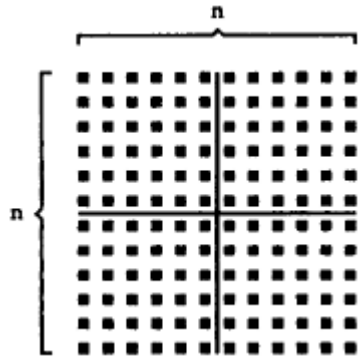

Figure 8.8

Clearly if a Pythagorean was interested in finding numbers satisfying the Pythagorean theorem in general, he might have been interested in finding numbers satisfying it in the particular case of isosceles right triangles. Like the justification of Pythagoras' rule for finding numbers satisfying the Pythagorean theorem, the proof begins by imagining what things would be like if such numbers were found. It is easy to see (Figure 8.8) that the square of an even number is even and, in fact, divisible into 4 equal square numbers. But if $n^2=2m^2$, then n^2 is even by definition and the left and right halves of the figure are equal to m^2, which itself is divisible into two square numbers, each equal to $(\frac{n}{2})^2$. Clearly then m^2 is a smaller number than n^2 and is twice a square number, which is twice a smaller square number m_1^2, which obviously will be twice a smaller square number m_2^2, and so on *ad infinitum*. But such an infinite sequence of smaller numbers is impossible.

Becker's reconstruction is a reconstruction. There is no evidence to support the claim that there ever were arguments of the kind that he presents, let alone that they were given by early Pythagoreans. Burkert ([8.79], 434–7) raises a number of objections to the reconstruction, of which I mention two.[38] The first is that the reconstructed theory has a deductive structure, but the Pythagoreans 'did not deduce one proposition from the other'. The second is that the Pythagoreans, being 'simpler souls' would be satisfied with seeing inductively that there are no configurations satisfying the equation $n^2=2m^2$ and could not proceed by imagining a configuration satisfying it. Both of these assertions seem to me to beg important questions. It may well be a mistake to assign Euclidean formality to the early fifth century, but there doesn't seem to me anything conceptually or

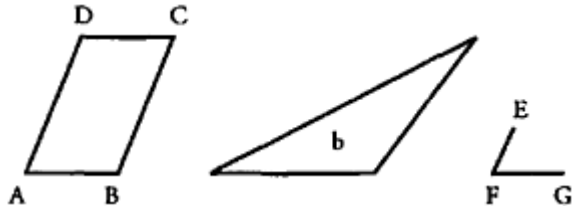

Figure 8.9

psychologically difficult in imagining that Pythagoreans who showed that, say, the sum of two even numbers is even by using figurate numbers might show that an even plus odd number is odd by pointing out that an even plus an odd number is an even number plus an even number plus 1. Nor does it seem to me difficult to imagine a Pythagorean simple soul who has seen 'inductively' that no n^2 is $2m^2$ using a picture like Figure 8.8 to demonstrate the fact, while ignoring the point that the figure 'really' shows only that $12^2=72+72$ and does not represent 72 as a square number.

(4)
Geometry in the Sixth and Fifth Centuries

Application of areas

Proclus's general description of Pythagoras' contributions to geometry has a blatantly Neoplatonic sound. Burkert ([8.79], 409–12) has invoked a partial similarity to a sentence of Iamblichus ([8.51], 70.1–7) to argue that Proclus' entire description of Pythagoras with the ascription to him of the study of irrationals and the construction of the regular solids—for Proclus the goal of the *Elements* as a whole—is unreliable. In section 3 of pan one I pointed out that Theaetetus probably was the first person to treat the five regular solids in a roughly systematic way. Before discussing irrationality I want to mention a passage in which Proclus cites Eudemus for an ascription, not to Pythagoras, but to the 'ancient' Pythagoreans.[39]

In *Elements* I.44 Euclid shows how, given a straight line AB, a triangle b, and an angle EFG, to construct a parallelogram ABCD equal to b and with angle DAB equal to angle EFG (See Figure 8.9).

At the beginning of his discussion of this proposition Proclus ([8.74], 419. 15–18) writes:

> Those around Eudemus say that the following things are ancient and discoveries of the muse of the Pythagoreans: the application *[parabolē]* of areas and their excess *[hyperbolē]* and their deficiency *[elleipsis]*.

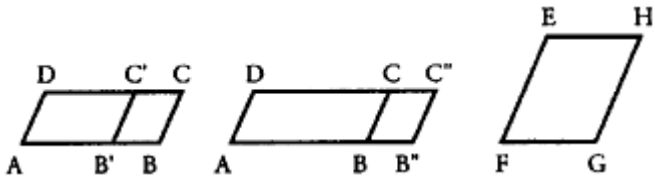

Figure 8.10

In I.44 the given area b is 'applied' to the straight line AB. In VI.28 (VI.29) Euclid shows how, given a rectilineal figure b (b′) and a parallelogram EFGH, to apply to a straight line AB a parallelogram AB′C′D (AB″C″D) which is equal to b (b′) and 'deficient' ('excessive') by a parallelogram BB'C′C (BB″C″C) similar to EFGH (See Figure 8.10).[40]

In his headnote to Book II of the *Elements* Heath ([8.32] 1:372) writes:

> We have already seen how the Pythagoreans and later Greek mathematicians exhibited different kinds of numbers as forming different geometrical figures. Thus, says Theon of Smyrna (p. 36, 6–11), 'plane numbers, triangular, square and solid numbers, and the rest are not so called independently…but in virtue of their similarity to the areas which they measure; for 4, since it measures a square area, is called square by adaptation from it, and 6 is called oblong for the same reason'. A 'plane number' is similarly described as a number obtained by multiplying the two numbers together, which two numbers are sometimes spoken of as 'sides', sometimes as the 'length' and 'breadth' respectively of the number which is their product.
>
> The *product* of two numbers was thus represented geometrically by the *rectangle* contained by the straight lines representing the two numbers respectively. It needed only the discovery of incommensurable or irrational straight lines in order to represent geometrically by a rectangle the product of any two quantities whatever, rational or irrational; and it was possible to advance from a geometrical arithmetic to a geometrical *algebra*, which indeed by Euclid's time (and probably long before) had reached such a stage of development that it could solve the same problems as our algebra

> so far as they do not involve the manipulation of expressions of a degree higher than the second.
>
> (Cf. van der Waerden [8.13], 124)

Heath here presents what I will call the algebraic interpretation of Greek mathematics, an interpretation he takes over from Tannery and Zeuthen.[41] We can get a good enough sense of what he has in mind by considering the propositions I used to illustrate application of areas. These propositions are given their 'algebraic' sense when, as Heath's remarks suggest, the angle EFG is taken to be right, the parallelogram EFGH to be a square, and the other parallelograms to be rectangles. For then the area b represents a known quantity b and the straight line AB represents a known quantity a. In I.44 AD represents the value x which solves the equation '$ax = b$'.[42] And in VI.28 (VI.29) the straight line BB′ (BB″) represents the solution of the equation '$(a - x)x = ax - x^2 = b$' ('$(a + x)x = ax + x^2 = b$'). Similarly, to construct a square equal to a given rectilineal figure (II.14) is to solve '$x^2=b$'.

It is important to see that the algebraic interpretation of an important part of Greek mathematics involves treating its geometric form as mere form. The qualitative geometric character of Greek mathematics becomes a mask for a quantitative and calculational notion of 'what's really going on'. It is in large part because of this picture that Heath moves Pythagorean arithmetic to the front of his *History*, preceding it by a chapter on 'Greek numerical notation and arithmetical operations', a chapter which likewise relies entirely on late Greek sources.

Tannery, Zeuthen and Heath all did their work before the decipherment of Babylonian materials. These materials provided the basis for an interpretation of Babylonian mathematics as an algebra which solves numerical problems. With this discovery people were in a position to argue that the geometrical clothing which the Greeks allegedly put on their 'algebra' was sewn out of Babylonian cloth to clothe a Babylonian body.[43] And the answer to why the Greeks bothered with all the fancy tailoring was found in their deductive rigour and the discovery of incommensurability. I quote van der Waerden ([8.13], 125–6):

> In the domain of numbers the equation $x^2=2$ cannot be solved, not even in that of ratios of numbers. But it is solvable in the domain of segments; indeed the diagonal of the unit square is a solution. Consequently, in order to obtain exact solutions of quadratic equations, we have to pass from the domain of numbers to that of geometric magnitudes. Geometrical algebra is valid also for irrational segments and is nevertheless an exact science. It is therefore logical necessity…which compelled the Pythagoreans to transmute their algebra into a geometric form.[44]

Thus we have a complicated story of (a) Greek borrowing of Babylonian computational mathematics, (b) discovering incommensurability, and (c)

developing a rigorous geometric disguise for carrying on with Babylonian computation. If we assume that when Eudemus says that the discovery of application of areas was ancient and Pythagorean, he intends to refer to what we call early Pythagoreans, the whole history has to be moved back at least to the early fifth century. The way Burkert ([8.79], 465) avoids this difficulty is to leave the word 'ancient' out of account and argue that the discovery of incommensurability is 'not far from Theodoras of Cyrene',[45] and hence to make (c) apply to 'late' Pythagoreans. My preference is to give up the whole idea that Greek mathematics is essentially computational and hence the idea that it rests on Babylonian achievements. With this point of view the question of the discovery of incommensurability becomes independent of positions on the nature and origins of Greek mathematics and can be approached on its own. I wish I could say that approaching the question this way made one answer or another probable, but, if we abandon Proclus' statement about Pythagoras, the evidence for dating is unsatisfactory. The *terminus ante quem* is provided by references to irrationality in Plato; and if we believe that the mathematics lesson of the *Theaetetus* gives an indication of the state of mathematical knowledge in the 410s, we will be struck by the fact that Theodoras starts his case-by-case treatment with 3, and not 2; we might, then, take 410 as the *terminus*.

The discovery of incommensurability: Hippasus of Metapontum

The version of the Becker proof of the irrationality of $\sqrt{2}$ which I presented in section 2 of this part is just a reformulation of the argument to which Aristotle refers (*Prior Analytics* I.23.41a26–7) when he illustrates *reductio ad absurdum* by referring to the proof that 'the diagonal of the square is incommensurable because odd numbers become equal to evens if it is supposed commensurable'. A version of this proof occurs in our manuscripts as the last proposition of *Elements* X, but is printed in an appendix by Heiberg ([8.30] 3:408.1ff.). That version differs from the proof I gave in avoiding direct reference to the impossibility of an infinitely descending sequence of numbers by assuming that n and m are the least numbers such that $n^2=2m^2$ and inferring that, since n is even, m must be odd; but then the argument shows that m must be even. It is frequently assumed that some such proof was the first proof of incommensurability, partly because of the passage in Aristotle and partly because side and diagonal of a square are the standard Greek example of incommensurability. In its Euclidean form the proof presupposes a fairly sophisticated understanding of how to deal with ratios in least terms—an important subject of *Elements* VII, which is dependent on *anthuphairesis*. There are various ways of minimizing this presupposition, but in general those who believe that the Euclidean proof is a version of the original proof have used its relative sophistication to argue either that the proof must be late or that Greek mathematics must have been sophisticated relatively early.

Von Fritz [8.46] ascribed the discovery of incommensurability to the Pythagorean Hippasus of Metapontum on the basis of two texts of Iamblichus printed under DK 18.4. The first says:

> About Hippasus they say that he died at sea for impiety because he published and described the sphere composed of twelve pentagons [i.e the dodecahedron] and allowed himself to be credited with the discovery, but all these things were the discoveries of 'that man' (for this is the way they refer to Pythagoras and not by his name). Mathematics advanced because of these things, and two people were most of all considered the first mathematicians of the time, Theodoras of Cyrene and Hippocrates of Chios.
>
> (Iamblichus [8.53] 78.27–36)

In the other text Iamblichus ([8.51] 132.11–23) does not mention Hippasus, but says that the divine destroyed at sea the person who revealed the construction of the dodecahedron. Iamblichus adds that 'some people say it was the person who spoke out about irrationality and incommensurability who suffered this'. Von Fritz claimed that Hippasus discovered irrationality in connection with the regular pentagon (the face of the dodecahedron) and the star or pentagram, a Pythagorean symbol formed by connecting alternating vertices of the pentagon. I sketch, with reference to Figure 8.11, the reasoning von Fritz ascribed to Hippasus.

Suppose one tries to find the greatest common measure of the side AE and the diagonal AD. It is clear that AE≈AE′, so that AD −AE≈E′D. But E′D<AE and E′D≈AA′. Hence when E′D measures AE′ it leaves A′E′ as a remainder. But now E′D≈D′D≈ A′D′, so performing *anthuphairesis* on A′E′ and E′D is the same as performing it on A′E′ and A′D′, i.e. on the side and diagonal of the regular pentagon A′B′C′D′E′. Clearly, the initial situation repeats itself and will repeat itself infinitely often as *anthuphairesis* is continued. Hence diagonal and side have no common measure.

A Euclidean version of this argument would, of course, require justifications of the equalities and inequalities educed. One might assume that Hippasus could and would give such justifications. But, like Beeker's arguments with the number configurations, Hippasus's alleged argument could be a verbalization of something which is 'seen' to be true from the figure. However, the Hippasus argument, like the proof using the expression of ratios in least terms, presupposes the use of *anthuphairesis* to find a common measure,[46] and hence—using the correlation between commensurability and having the ratio of a number to a number—the desire to express quantitative relations numerically. This desire is a primary mathematical component of numerous scholarly representations according to which the early Pythagoreans were committed to a view that 'everything is number', sought to find numerical expressions for all kinds of relationships, and were thrown into a crisis by the discovery of

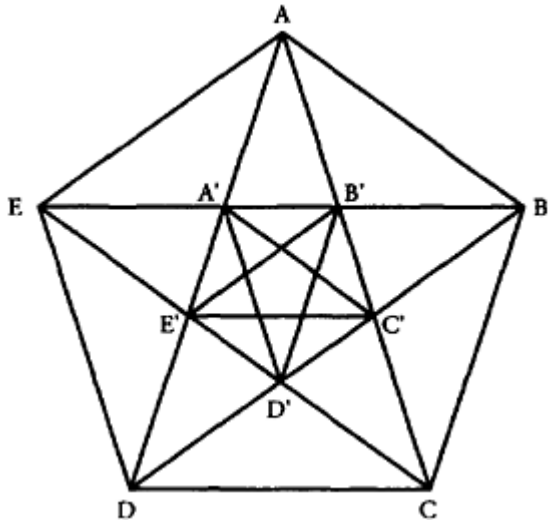

Figure 8.11

incommensurability.[47] The metaphysical component of these representations of early Pythagoreanism has, I think, been largely discredited, as have the attempts to connect Zeno's paradoxes with the issue of incommensurability.[48] And so perhaps has the idea that the discovery of incommensurability caused some kind of crisis (as opposed to a difficulty requiring a solution) in mathematics itself. But, as we have seen, the view that Greek mathematics was importantly numerical and calculational and that the discovery of incommensurabilty 'forced' it to become geometricized remains an anchor of many contemporary presentations of Greek mathematics. However, the information which we have is more than merely compatible with the view that the Greeks pursued arithmetic and geometric investigations, including the application of areas, at a reasonably early time and that they continued to do so after the discovery of incommensurability. The question of how rigorous early Greek mathematics was seems to me quite unanswerable. If we accept the reports on Thales' geometric accomplishments at more or less face value, we are presumably committed to saying that some idea of proof was functioning in Greek mathematics at a very early stage. If we do not, we are in no position to make any definite statement about its emergence, except that it did emerge. There are analogues of mathematical argument in Parmenides' deduction and in Zeno's dialectical argumentation. But the direction of influence seems to me quite indeterminable. I make no more than my guess in saying that I don't believe that mathematical argument was influenced by either one of them[49] and that, whereas Parmenides' argumentation looks to be autonomous and satisfactorily explained without invoking mathematical precedent, Zeno's considerations of infinite divisions seem likely to reflect mathematical preoccupations.

The later fifth century: the quadrature of the circle

In his history Proclus moves directly from Pythagoras to Anaxagoras, Oinopides of Chios, Hippocrates of Chios, and Theodoras of Cyrene. After his brief remark on the advancement of mathematics because of Hippasus' mathematical revelations, Iamblichus mentions only the last two of these people ([8.53], 78.27–36, quoted in the previous section). We know essentially nothing about the mathematical accomplishments of Anaxagoras,[50] although Plutarch (*On Exile* 607F, DK 59 A 38) tells us that he managed to square the circle while in prison. From passages in Aristotle and comments on them we learn of other apparent attempts to square the circle by Antiphon (late fifth century), Bryson (fourth century), and Hippocrates of Chios.[51] Antiphon apparently argued that one of the successively larger inscribed polygons of a sequence like the one indicated in Figure 8.1 would coincide with the circumscribing circle, and Bryson that, since there is a square larger than a given circle and a square smaller than it, there is one equal to it. From the point of view underlying Eudoxus' method of exhaustion Antiphon's argument would seem to ignore the difference between arbitrarily close approximation and coincidence. Bryson's argument is not a fallacy, but establishes (on the basis of some intuition about continuity) only the existence of a square equal to a given circle without showing how to construct it.

Hippocrates and Oinopides

Hippocrates' reasoning has been the subject of considerable discussion because Simplicius' presentation of his argument, based on the account of Eudemus, is our fullest representation of a piece of fifth-century mathematics. In the *Physics* (I.2.185a14–17) Aristotle refers to a quadrature by means of segments as if it made an incorrect inference from true geometrical principles. In the *Sophistical Refutations* (11.171b13–18) he refers to a false proof of Hippocrates in a context in which he also mentions Bryson's quadrature and a quadrature by means of lunes, that is, plane figures contained by two circle arcs such as the darkened areas in Figure 8.12. Subsequently (171b38–172a7) Aristotle characterizes the quadrature by means of lunes in much the way that he characterized the quadrature by means of segments in the *Physics*. The ancient commentators on the *Physics* passage, starting with Alexander, all take the quadrature by means of segments to be the quadrature by means of lunes and to be the work of Hippocrates. In his comment on the *Physics* passage ([8.84], 60.27–30) Simplicius invokes Eudemus:

> I will set out precisely what Eudemus says, but for the sake of clarity I will add a few things taken from Euclid's *Elements*, because Eudemus comments in the old-fashioned way and sets out explanations in abbreviated form.

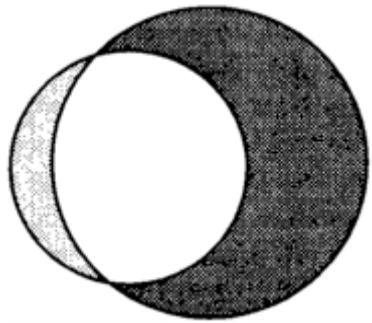

Figure 8.12

Obviously our perception of Hippocrates' reasoning is mediated by both Simplicius and Eudemus. We might suppose that, once the quotations from Euclid have been subtracted, the remainder of the material which follows is by Eudemus, but that still leaves us with the question of distinguishing Eudemian from Hippocratic material, a question which does not seem to be capable of being settled.[52] Simplicius' extract from Eudemus begins as follows:

> In the second book of his history of geometry Eudemus says the following. The quadratures of lunes, which are not considered as superficial constructions *(diagrammata)* because of their connection with the circle, were first described by Hippocrates in a way which was considered to be in order. Let us therefore touch on this subject in more detail and go through it. He made himself a starting-point and set out as the first of the things useful for the quadratures, the proposition that:
>
> (i) similar segments of circles have to one another the same ratio as their bases have in square. He showed this on the basis of having shown that:
>
> (ii) diameters [of circles] have the same ratios in square as the circles do, a proposition which Euclid puts second in Book XII of the *Elements*, where the proposition says 'Circles are to one another as the squares on their diameters'. For as the circles are to one another, so are their similar segments, since:
>
> (iii) similar segments are those which are the same part of a circle, for example, a semicircle is similar to a semicircle, a third of a circle to a third of a circle. Therefore,
>
> (iv) similar segments admit equal angles, at least the angles of all semicircles are right, and the angles of segments greater than semicircles are less than right angles and as much less as the segments are greater than semicircles, and the angles of segments less than semicircles are greater than right angles and as much greater as the segments are less than semicircles.
>
> ([8.84], 60.30–61.18, my numbers inserted)

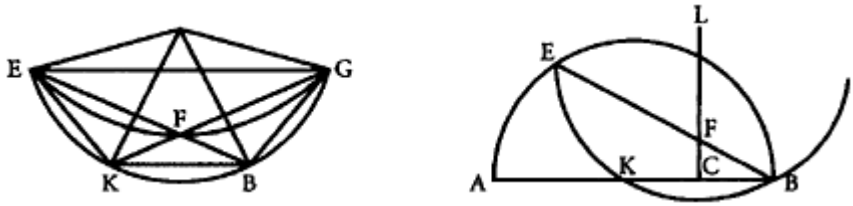

Figure 8.13

Proposition (ii) is, as Simplicius says, equivalent to *Elements* XII.2, which is proved by the method of exhaustion (see section 1 of part one). Simplicius says that Hippocrates 'showed' *(deiknumi)* (ii), but scholars are reluctant to admit that he could have proved it in a rigorous fashion. Euclid takes (iv) as the definition of similar segments (III, def. 11), but he himself makes very little use of them. Hippocrates apparently defined two segments to be similar if they are the same 'part' of the circles of which they are segments. In Euclid a part of something is one nth of it, which would mean that Hippocrates picked out very few of the similar segments, indeed, none greater than a semicircle, and certainly none of the incommensurable ones. The way in which Hippocrates gets from (iii) to (iv) suggests that he wasn't using much of a notion of proportionality at all, and just arguing in some sort of loose way. Obviously this looseness bears on the question whether or not Hippocrates knew about incommensurability. Again we are faced with standard kinds of choice: blame Simplicius or Eudemus for misunderstanding; assume that Hippocrates' argumentation was not entirely rigorous; assume that incommensurability was discovered after Hippocrates squared his lunes or at least not long before. Finally, the move from (ii) to (i) seems to require some proposition about the relationship between the base of a segment of a circle and the diameter of the circle, perhaps that the segment is to the semicircle as the square on its base is to the square on the diameter. But we are not told how Hippocrates might have proved this.

Hippocrates squared in succession three particular lunes, one with a semicircle as outer circumference, one with an outer circumference greater than a semicircle, and one with an outer circumference less than a semicircle, and then a circle plus a particular lune. Simplicius' report does not make it seem as though Hippocrates claimed to have shown how to square the circle because he had shown how to square a circle plus a lune and how to square lunes with an outer circumference of 'any size'. Perhaps he did, but it seems equally likely that the investigations described by Simplicius were an attempt at quadrature which somehow was interpreted to involve a claim to success.

It is not possible for me to describe here Hippocrates' four quadratures.[53] I shall, however, mention one construction described by Simplicius. In the left configuration in Figure 8.13, EG is parallel to KB, EK≈KB≈BG, EF≈FG, and the circle segments on EF, FG, EK, KB and BG are all similar.

It should be clear that the lune EKBGF will be squarable if:

$$3{\cdot}sq(\mathrm{KB}) \approx sq(\mathrm{EK}) + sq(\mathrm{KB}) + sq(\mathrm{BG}) \approx sq(\mathrm{EF}) + sq(\mathrm{FG}) \approx 2{\cdot}sq(\mathrm{EF})$$

since then the circle segments on EK, KB and BG are together equal to the circle segments on EF and FG and the lune EKBGF is equal to the rectilineal figure EKBGF.

The right configuration in Figure 8.13 shows how Hippocrates manages to produce this result. He starts from a semicircle AKCBE with centre K, and lets CL be the perpendicular bisector of KB. He then finds F on CL such that the continuation of BF intersects the semicircle at E with $2{\cdot}sq(\mathrm{EF}) \approx 3{\cdot}sq(\mathrm{KB})$. It is then a simple matter to carry out the rest of the construction. What our text doesn't tell us is how Hippocrates proposed to find F. This could be done by a so-called verging argument *(neusis)*. There is no problem in constructing a straight line E′F′ satisfying $2.sq(\mathrm{E'F'}) \approx 3{\cdot}sq(\mathrm{KB})$. One might think of the verging argument as a matter of marking E′F′ on a line (or ruler) and then moving the line around until a position is found in which E′ lies on the circumference, F′ on CL, and the line passes through point B. However, the problem can also be solved by a fairly complicated application of areas.

It seems reasonable to suppose that the original Hippocratean material from which Simplicius' report ultimately derives represented a high standard of geometric argumentation. Since Proclus tells us that Hippocrates was the first person said to have written elements, it also seems reasonable to suppose that at least parts of Hippocrates' geometric work were built up in something like the Euclidean way. Hippocrates' interest in mathematical methodology is borne out by another of his accomplishments, his reduction of the problem of constructing a cube twice the size of a given one to the finding of two mean proportionals between two given straight lines x and y, that is finding z and w such that x:z :: z:w :: w:y (Eutocius [8.44], 88.17–23, DK 42.4). According to Proclus ([8.74], 212.24–213.11), Hippocrates was the first person to 'reduce' outstanding geometric questions to other propositions.

That by Hippocrates' time there had been a fair amount of reduction of problems to quite elementary geometric materials is borne out by what little we know of the geometric work of his fellow countryman Oinopides. According to Proclus ([8.74], 283.7–10, DK 41.13) Oinopides investigated the problem of erecting a perpendicular to a given straight line 'because he believed it was useful for astronomy'.[54] Oinopides' interest in what is a quite elementary geometric construction is often connected with another passage in Proclus ([8.74], 333.5–9, DK 41.14) in which, on the authority of Eudemus, Oinopides is said to have discovered how to construct an angle equal to a given one (*Elements* I.23). It seems almost certain that Oinopides could not have been concerned with the practical carrying out of these constructions by any means whatsoever, but with justifying them on the basis of simpler constructions. But these constructions are themselves so simple that it is hard to see how this could have been Oinopides' concern if he was not working on the basis of something like the ruler-and-

compass foundation of the *Elements*. That is to say, it looks as though by the later fifth century Greek geometry has moved close to what became a permanent foundation. It seems to me most plausible to imagine this concern with the equivalent of foundations as the outcome of a rather lengthy history of geometric demonstration.

Of course, the problems involving Hippocrates' use of the theory of proportion, his *neusis* construction, and his 'showing' of the equivalent of *Elements* XII.2 remain unsolved. My suggestions on these questions are made with no great confidence. I see no way to make good sense of the passage on similar segments which follows Simplicius' citation of XII.2, and prefer to treat it as Simplicius' unsatisfactory attempt to provide a derivation of (i) from (ii) using (iii), and then to connect (iii) with Euclid's definition of similar segments. If this is correct, then Simplicius had no more information on these questions than what he says before he cites Euclid. In general I accept the standard view that only in the fourth century did the Greeks develop techniques for dealing with proportions involving incommensurables. But I am also inclined to put the date of the discovery of incommensurability back to the time of Hippasus of Metapontum, whether Hippasus himself discovered it in connection with the pentagon or it was discovered in something like the way Becker has suggested. I infer that the Greeks worked for more than half a century using laws of proportion which they were not able to prove in a rigorous way. Hence I also infer that the interest in providing a rigorous foundation for the treatment of proportionality is a fourth-century interest. If this is correct, then we need not suppose that Hippocrates' 'elements' included any explicit theory of proportion.

Similarly, in the case of XII.2, I think we should assume that Hippocrates could not have proved this in the Euclidean way, and that, if he did, indeed, 'show' it, he did so in some intuitive way. The *neusis* construction offers us the alternative of assigning to Hippocrates either a full development of the method of application of areas or the use of an intuitively based construction which cannot in general be done with unmarked ruler and compass alone. Simplicius' silence on Hippocrates' technique makes it seem to me likely that he did not know which alternative Hippocrates adopted, and that Eudemus did not say. My inclination is to assume that Hippocrates used the intuitive construction. Of course, to say that Hippocrates used a *neusis* construction in his quadrature is not to say that he did or did not do the same kind of thing in his 'elements'. And even if he did use such constructions there, he may also have been interested in carrying out as many constructions as possible using some kind of compass and straight edge. In any case, it seems clear from Hippocrates' quadratures that he knew a good deal of the elementary geometry in Euclid's *Elements*, and had put it into some kind of reasonably rigorous order.

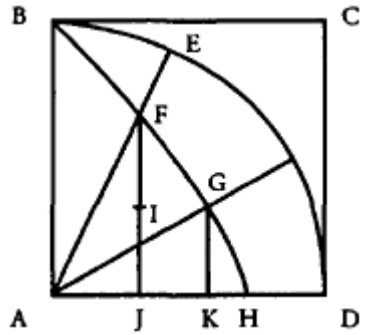

Figure 8.14

Hippias of Elis and the teaching of the mathematical sciences

There is one other fifth-century figure to be mentioned in connection with quadrature, the sophist Hippias of Elis, who described a curve known as the quadratrix *(hē tetragōnizousa grammē)* because of its use in squaring the circle. It seems probable that Hippias used it only for the trisection of angles.[55] The quadratrix is defined as follows (see Figure 8.14). Let ABCD be a square, ABED the quadrant of a circle with radius AB. Let AB make a uniform sweeping motion through the quadrant in the same time in which BC falls uniformly to coincide with AD. The quadratrix is the curve BFGH described by the intersection of the two moving straight lines.

The quadratrix enables one to divide an angle in any given ratio, since it is easy to prove that if the given ratio is IJ:FJ and GK is made equal and parallel to IJ, then angle GAD:angle FAD::IJ:FJ. The quadrature of the circle is more difficult. One first establishes the length of circumference of the circle by showing that:

> arc BED:AB :: AB:AH[56]

and then uses a result, associated with Archimedes[57] and proved by the method of exhaustion:

> A circle has the same area as a right triangle with one leg equal to its radius and the other equal to its circumference.

Hippias of Elis is known to us from Plato's dialogues, where he is represented as an intellectual jack-of-all trades, who has a prodigious memory, performs numerical calculations at a speed which amazes his audience, and teaches the 'quadrivium', calculation *(logismos)*, astronomy, geometry and music (*Protagoras* 318e). In the *Theaetetus* (145a) Plato represents Theatetus' instructor Theodoras, the remaining fifth-century mathematician mentioned in Proclus' history, as knowledgeable in the subjects of the quadrivium.

Unfortunately, we know no more about Theodoras' accomplishments than we are told in the *Theaetetus;* that is to say, the only thing about which we can be reasonably certain is that Theodoras taught something about incommensurability. For my purposes the important point is that Hippias and Theodoras show us that already in the fifth century the core of Plato's scientific curriculum was being taught in Greece.[58] In this chapter I have not discussed astronomy, but I hope I have made clear that if the other mathematical sciences of the curriculum had reached a high level of development by Plato's time, the groundwork for that achievement had been firmly laid by the end of the fifth century.

NOTES

1 Dates are BCE (before Common Era) unless there is an indication to the contrary. For scepticism about the Eudemian provenance of this history see Lan [8.76].

2 Materials on the people other than Eudoxus and Archytas, who are mentioned by Proclus in the second part of his history, are collected in Lasserre [8.65].

3 See Mueller [8.38], 161–2, 192–4 and, for a historically oriented discussion of the avoidance of proportion in Books I–IV, Artmann [8.94].

4 I put 'rational' and 'irrational' in quotation marks to make clear that the irrationality defined in Book X (definitions 3 and 4) is importantly different from the standard modern conception. Given an arbitrary straight line r taken as 'rational' *(rhētos),* Euclid calls a straight line x 'rational' if and only if x and r are commensurable 'in square' *(dunamei),* i.e. if and only if the square with x as side is commensurable with the square with r as side. And a rectilineal area is called 'rational' or 'irrational' depending on whether or not the side of a square equal to the area is 'rational'. If we think of r as of length 1, then the straight line corresponding to $\sqrt{2}$ is 'rational' because the square on it is twice as large as the square on r.

5 For a discussion of Democritus as a mathematician see Heath [8.7] 1:176–81.

6 For discussion of Eudoxus' equally impressive achievements in geometrical astronomy see, e.g. Dicks [8.16], 151–89 or Neugebauer [8.18], 675–89.

7 The dodecahedron is very complicated mathematically, but it occurs naturally as a crystal, and there are quite early fabricated versions of it. Neither of these two things is true of the complicated icosahedron.

8 I here omit the argument establishing the correlation between these means and the irrationals which underlies Pappus' description of Theaetetus's accomplishment.

9 Euclid also describes a straight line as *dunamenos* an area when it is equal to the side of a square equal to the area. For this use cf. Plato, *Theaetetus* I48b2.

10 This is obviously the case for the arithmetic mean. A proof in Greek style for the harmonic mean $\frac{2mn}{m+n}$ ate; the core idea is that the harmonic mean between integers m and n .

11 See section 1 above. Book XIII only makes use of apotomes and lines related to them, not binomials. But the symmetry between binomials and apotomes would seem to provide a satisfactory explanation of the development of a theory of both.

12 Van der Waerden adopts an extreme version of this position. For him Book XIII itself was written by Theaetetus and incorporated in the *Elements* without revision. Book X, which was also written by Theaetetus, was changed in its' very early parts for reasons which we will discuss in the next section, but the body of the book, 'which is concerned with the 13 kinds of 'irrational' lines, was left practically unchanged by Euclid, except that he and his followers added a number of less important propositions and remarks, intended to clarify the very difficult subject' (van der Waerden [8.13], 179).
13 In this case Euclid's argument requires the 'axiom of Archimedes' (see section 1 above).
14 See Mueller [8.38] 58–72
15 Namely, x:(m-x)::y:(m-y). Cf. Heath [8.32] 3:25 and 2:126–9.
16 The idea of a pre-Eudoxian anthuphairetic conception of proportionality is most fully developed by Fowler [8.68].
17 The same kind of view is ascribed to 'those around Archytas and Eudoxus' by Theon of Smyrna ([8.92], 61.11–17, DK 47 A 19a).
18 'Movements which are thicker produce higher notes, thinner ones lower' ([8.30] 8: 158.8–9).
19 There is a quite full discussion in Barker [8.14], 190–208.
20 In IV.2 ([8.28], 303.19–304.6) Boethius reproduces the proof from the *Sectio*.
21 For discussion see Barker [8.14], 56–75. To explain the difference I first remark that it is customary to give a scale for two octaves, each divided into two fourths or tetrachords separated by a tone; each tetrachord is divided in the same way into three intervals. The standard diatonic tuning is represented by:

9 tone
9 tone
8 tone
8 tone

256:243 'leimma' (note that $\frac{4}{3} = \frac{9}{8} \times \frac{9}{8} \times \frac{256}{243}$)

whereas Archytas' is:
9:8
8:7
28:27.

22 One could say much the same thing about the question of the basic attitude underlying Plato's attitude toward mathematical science. Much that he says suggests to us a quite scientific outlook, but passages like the division of the world soul in the *Timaeus* (35a–36b) or the description of the marriage number in the *Republic* (546b-c) make it difficult to feel confident about his general stance or about the many passages which are vague enough to sustain both a scientific and a mystifying reading.
23 For a discussion of Archytas' construction of a cube twice the size of a given one, which is a *tour de force* of the spatial imagination, see, e.g., Heath [8.7] 1: 246–9.

24 See Heath [8.7] 1:128–37.
25 See, e.g., van der Waerden [8.13], 35–6. Cf. Neugebauer's remark ([8.10], 91) about astronomy: 'Ancient science was the product of a very few men; and these few happened not to be Egyptians.'
26 See Burkert [8.79], 380–2. For a defense of Heraclides of Pontus as Porphyry's source see During [8.78], 154–7.
27 Burkert ([8.79] 378–9), wishing to stress non-Pythagorean interest in music theory, fastens on a corrupt text (Theon of Smyrna [8.92], 59.4–21, DK 18 A 13) in which a physically impossible experiment involving the striking of vessels filled to various heights with liquid, *may* be ascribed to Lasus of Hermione, a person from the last half of the sixth century, who, according to the *Suda* ([8.87] 3:236.23–7), was the first to write a book *(logos)* on music, to introduce dithyrambs into competition, and to introduce eristic arguments (!)
28 See Burkert [8.79], 192–207.
29 Philolaus' two accounts of the comma are equivalent since: tone−two *dieses*=(tone −*diesis*)−*diesis*=*apotome*−*diesis*.
30 On the *tetraktus* see Delatte [8.80], 249–68.
31 I here ignore difficulties involved in treating 1 as a number. For Nicomachus ([8.55], II.8.3) 1 is 'potentially' a triangular number.
32 On Euclid's definition of 'gnomon' (*Elements* II, def. 2) and the origin of the word itself, see Heath, [8.32] 1:370–2.
33 Burkert ([8.79], 433–4) accepts the figurate number material as early and admits that 'even a game may be regarded legitimately as a kind of mathematics'. But he insists on the deductive character of even Thales' geometry, in the context of which 'Pythagorean arithmetic is an intrusive quasi-primitive element'.
34 Even contemporary defenders of the idea of an early Pythagorean mathematics are usually willing to concede that attributions of scientific achievements to Pythagoras are always subject to question and will settle for an attribution to the 'early Pythagoreans', a somewhat vague locution which I take to refer to the period before 450. In this essay I stress ancient attributions to Pythagoras because they offer the greatest challenge to sceptics. I am, however, only interested in early Pythagorean science, not in the science of Pythagoras.
35 For the sources see Heath [8.7] 1:144–5.
36 [8.74], 428.10–21. In the continuation Proclus attributes a parallel method to Plato.
37 For $2^0 + 2^1 + 2^2 = 7$, $7.2^2 = 28$, and $28 = 2^0 + 2^1 + 2^2 + 7 + 14$. example,

38 Burkert also objects that Becker's proof of IX.36 'requires an abundant use of modern algebraic notation'. Here I think he points to a problem which cannot be avoided in writing out an argument which turns on perceived spatial relations. The argument I have given uses the fact there are no infinitely descending sequences of integers, which is a form of what we know as the principle of mathematical induction, but which is immediately obvious from the figurate representation of numbers. On the other hand, Burkert is right to question whether the notion of perfection involved in IX.36 could have coexisted with the notion of perfection involved in calling 10, the sum of 1, 2, 3 and 4, perfect. But such a consideration does not seem to me decisive.
39 I signal, but do not discuss, another passage ([8.74], 379.2–5) in which Proclus says that Eudemus ascribed to the Pythagoreans the discovery and proof of the

proposition that the sum of the angles of a triangle is equal to two right angles (*Elements* I.32). Burkert ([8.79], 451, n.21) apparently takes these to be 'late' Pythagoreans.

40 Being able to carry out VI.28 depends on a condition on b which I here ignore.

41 See, e.g., Tannery [8.107] and ch. 1 of Zeuthen [8.111]. For criticism of the algebraic interpretation with other references see Unguru [8.108].

42 In I.45 Euclid generalizes I.44 by making b an arbitrary rectilineal figure. In [8.32] Heath gives the algebraic interpretation of I.44–5 on p. 374 of vol. 1 and that of VI. 28–9 on pp. 258–67 of vol. 2. He gives a similar and even more elaborate account of Book X on pp. 4–10 of vol. 3. For a purely geometric reading of Book X see Taisbak [8.39].

43 See, e.g., van der Waerden [8.13], 124.

44 Cf. Neugebauer [8.10], 146–52, Burkert [8.79], 454, neither of whom share van der Waerden's enthusiasm for the Pythagoreans.

45 But possibly made earlier by Hippasus of Metapontum as early as c.450.

46 Von Fritz [8.46], 403 refers to this technique as 'an old one, known by craftsmen as a rule of thumb many centuries before the beginning of Greek philosophy and science'. However, he gives no evidence for this characterization.

47 As an example of this view see Raven [8.105], and for criticism the review by Vlastos (*Gnomon* 25 (1953): 29–35).

48 For one attempt see Hasse and Scholz [8.100], and for criticism van der Waerden [8.109].

49 The view that Parmenides' argumentation was the source of Greek mathematical rigour was put forward most fully in Szabó [8.100]. It is endorsed by Burkert [8. 79], 424–6. For criticism see Knorr [8.102] and the review of Szabó by Bowen (*Historia Mathematical* 11 (1982); 335–45).

50 See Heath [8.7] 1:172–4.

51 For discussion see Heath [8.7] 1:183–200, 220–5 and Mueller [8.103].

52 Compare the different analyses of Rudio [8.85] and Heath [8.7] 1:183–91.

53 There are quite full discussions in Heath [8.7] 1:191–200 and Bulmer-Thomas [8. 49].

54 For a discussion of Oinopides' work in astronomy see Bulmer-Thomas [8.59].

55 For the relevant texts see Heath [8.7] 1:225–6, who, however, reaches a different conclusion about Hippias and quadrature.

56 Of course, since H results when AB and BC coincide, H can only be determined as the limit of a sequence of points produced before they coincide.

57 *Measurement of a Circle*, prop. 1.

58 At the beginning of the fragment (DK 47 B 1) from *On Mathematics* referred to at the beginning of section 6 part one, Archytas also mentions the four mathematical sciences as brothers. Burkert ([8.79], 380, n. 46) questions the authenticity of the remarks, but one part of his objection rests on the text printed in DK, which combines a passage in Porphyry in which astronomy is described but not named with a passage in Nicomachus in which astronomy is called spherics, but is not described.

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CHAPTER 9
Socrates and the beginnings of moral philosophy

Hugh H.Benson

INTRODUCTION

Cicero in *Tusculan Disputations* famously tells us that

> Socrates first called philosophy down from the sky, set it in cities and even introduced it into homes, and compelled it to consider life and morals, good and evil.
>
> (V.4.10)[1]

Again in the *Academica* he attributes to Varro the following view:

> It is my view, and it is universally agreed, that Socrates was the first person who summoned philosophy away from mysteries veiled in concealment by nature herself, upon which all philosophers before him had been engaged, and led it to the subject of ordinary life, in order to investigate the virtues and vices, and good and evil generally, and to realize that heavenly matters are either remote from our knowledge or else, however fully known, have nothing to do with the good life.
>
> (I.5.15, trans. Rackham)

Here we have two of the clearest statements of a tradition that stretches from perhaps as early as Aristotle[2] to the present day:[3] moral philosophy begins with Socrates.

Nevertheless, this tradition should strike us as odd. In this very volume we have seen instances of moral philosophy—or at least a reasonable facsimile of it—predating Socrates. The Pythagoreans appear to be committed to something like a moral philosophy, while many of the so-called 'natural philosophers' appear to have moral commitments as only a quick glance at their fragments makes clear. Moreover, a number of philosophers flourishing virtually contemporaneously with Socrates would seem to have an equal claim to fathering moral philosophy. The sophists—Protagoras, Gorgias, *et al*—certainly

seem to have moral views that rival Socrates', while the fragments of Democritus exhibit a moral theory.

Of course, part of the difficulty here is that the notion of having or practising a moral philosophy is quite vague. Does it suffice merely to entertain moral propositions? If so, then moral philosophy began long before Socrates. On the other hand, if it requires something else, what else? Answering this question is both difficult and perhaps uninteresting. But even if we were to answer it, we would still be a long way from confirming or disconfirming the Ciceronian tradition. To do this we would need to rehearse the entire history of philosophy up to Socrates focusing on whether any of Socrates' predecessors or contemporaries had or practised a moral philosophy so defined. Such a task is obviously well beyond anything that can be accomplished in an essay of this son. Consequently, I will not attempt it. Instead, I propose to focus on a characteristic feature of Socratic moral philosophy, a feature that may have motivated the Ciceronian tradition. For morality, according to Socrates, is a knowledge or expertise to be practised and studied just like any other knowledge or expertise. What distinguishes it from other instances of knowledge and expertise is its object: roughly, the good. This is the message at the core of Socratic philosophy, a message Socrates believed he was called upon to spread. Whether such a message is new to the intellectual scene of fifth century Greece, or if so, whether that justifies crediting Socrates with the origins of moral philosophy, I leave for others to decide. My goal here is to come to grips with the substance of Socratic moral philosophy, whatever its intellectual ancestors and contemporaries may have been.

THE SOCRATIC PROBLEM

Before beginning this task we must address an issue that all discussions of Socratic philosophy must face: Whom am I referring to when I use the name 'Socrates'? The question arises because the historical individual that goes by this name (and who was the mentor of Plato, an associate of Xenophon, Alcibiades and Chaerephon, and general pest on the streets of Athens in the latter part of the fifth century BC) apparently wrote nothing. Our knowledge of the philosophical views of this individual derives primarily from four distinct sources: Aristophanes, who wrote a comedy entitled the *Clouds* in which Socrates is a major figure;[4] Xenophon, who wrote a variety of Socratic works, perhaps the most important of which is the *Memorabilia* which purports to be a record of a number of Socratic conversations[5]; Plato, who wrote twenty dialogues in which Socrates is the primary speaker[6]; and Aristotle, who refers to Socrates over forty times throughout his corpus.[7] This alone would pose no problem; we think we know quite a bit about Themistocles or Pericles and yet we possess none of their writings either. The problem arises because the portraits of Socrates painted by our first three sources are so different.[8] According to Aristophanes, Socrates is a sophistic natural philosopher who was willing to teach anyone who would pay for

it how to make the weaker argument the stronger and who denied the existence of the gods of common opinion. According to Xenophon, Socrates was an unexciting didactician, who was quick to give advice concerning the most common matters and who was a paragon of common morality and religious practice. And according to Plato, Socrates was a non-dogmatic, perhaps even sceptical, moral philosopher, who examined and exposed others' pretenses to wisdom, denied that he taught anything, and espoused such non-traditional, in some cases even paradoxical, theses as 'no one ever does wrong willingly', 'it is wrong to harm one's enemies', and 'knowledge is necessary and sufficient for virtue'. The problem, then, is to decide which of these three portraits accurately represents the actual historical Socrates who walked the streets and frequented the gymnasia of fifth-century Athens.

Perhaps the clearest and currently most widely accepted solution to this problem[9] can be found in Gregory Vlastos's last book *Socrates: Ironist and Moral Philosopher* [9.93].[10] According to Vlastos, our three principal sources are Plato, Xenophon and Aristotle. He dismisses the Aristophanes portrait as the comic caricature that it is,[11] and then goes on to maintain that the Platonic portrait is more equivocal than I have let on. Vlastos argues that there are at least two distinct portraits of Socrates in the Platonic dialogues: one to be found in the early dialogues and another to be found in the middle and late dialogues.[12] The argument proceeds by detailing ten theses each consisting of two parts. One part contains a feature or view attributable to Socrates in the early dialogues; the other part contains a feature or view at odds with that of the first part and attributable to Socrates in the middle dialogues. For example, according to Vlastos, the Socrates of Plato's early dialogues is exclusively a moral philosopher, while the Socrates of Plato's middle dialogues is a 'moral philosopher and metaphysician and epistemologist and philosopher of science and philosopher of language and philosopher of religion and philosopher of education and philosopher of art'.[13] Vlastos concludes from this that in the Platonic dialogues Socrates maintains two philosophical views 'so different that they could not have been depicted as cohabiting the same brain throughout unless it had been the brain of a schizophrenic. They are so diverse in content and method that they contrast as sharply with one another as with any third philosophy you care to mention.'[14] Next, Vlastos argues on the basis of the testimony of our other two sources—Aristotle and Xenophon—that the philosophical view maintained by Socrates in the early dialogues is the philosophical view of the historical Socrates. For example, Vlastos argues that the Socrates of the middle dialogues advances a theory of separated Forms, while the Socrates of the early dialogues does not, and then points to *Metaphysics* 1078b30–2 where Aristotle distinguishes between Plato and Socrates precisely on the grounds that the former did, while the latter did not, separate the Forms.[15] Finally, Vlastos maintains that Plato's overriding concern in composing his dialogues—the early ones as well as the middle and late ones—is always philosophy. Consequently,

'in any given dialogue Plato allows the persona of Socrates only what he (Plato) considers true'.[16]

The conclusion of Vlastos's argument results in an interpretation of the Platonic portrait of Socrates that can be summed up in the following three theses:

1 The philosophical views advanced by Socrates in the early dialogues are distinct from the philosophical views advanced by that character in the middle dialogues (interpretation derived from Vlastos's ten theses).
2 The philosophical views advanced by Socrates in the early dialogues represent the philosophical views of the historical Socrates (thesis based on the independent testimony of Aristotle and Xenophon).
3 The philosophical views advanced by Socrates in the early dialogues represent the philosophical views of Plato before he adopted the classical Platonism of the middle dialogues (thesis based on Vlastos's grand methodological hypothesis).

I believe that this interpretation of the Platonic Socrates is generally correct.[17] Consequently, my answer to the question with which this section began is as follows. When I use the name 'Socrates' in the course of this essay I am referring to the actual historical individual who goes by that name, was the mentor of Plato, an associate of Xenophon, Alcibiades and Chaerephon, and a general pest on the streets and in the gymnasia of fifth-century Athens. I take as my primary source of evidence for the philosophical views of this individual the early dialogues of Plato, but I also take these views to be confirmed in part by the portraits of Aristotle and Xenophon.[18] This is the Socrates of this essay.

FOLK MORALITY

We can now turn to the task with which this essay began: coming to grips with Socratic moral philosophy. Since according to the Ciceronian tradition Socrates is doing something very unusual in advancing a moral philosophy, we can begin by turning to those views with which Socrates contrasts his own: common or folk morality and sophistic morality. Let me begin with folk morality and a passage in the *Protagoras* (319b3–319d7).

The main conversation in the *Protagoras* begins when Socrates asks Protagoras what he professes to teach. When Protagoras answers that he professes to teach virtue *(aretē)*, Socrates expresses surprise.[19] He had always believed that virtue could not be taught—or so he says —and one of his arguments for this is that the Athenians are wise, but they don't think that virtue can be taught.[20] Evidence that the Athenians don't believe that virtue can be taught is derived from their behaviour in the Assembly. When they are faced with a decision regarding the building of temples, the building of ships, or any other technical matter *(en technēi)*, they are unwilling to listen to the advice of anyone other than the relevant experts: temple-builders, shipwrights, etc. But when they

are faced with a decision regarding the management of the city they are willing to consider the advice of anyone, 'be he carpenter, smith or cobbler, merchant or ship-owner, rich or poor, noble or low-born' (319d2–4, [9.82]).

If this is supposed to provide evidence that the Athenians fail to believe that virtue can be taught the idea must be something like this. The Athenians distinguish between those decisions that require virtue and those that do not. In the case of those that do not, the Athenians permit only the experts to be heard. In the case of those that do, the Athenians permit any and everyone to be heard. Thus, the Athenians do not regard virtue as an expertise, and so do not believe it can be taught. When Protagoras responds to this first Socratic argument, he does not deny that everyone—or at least everyone in a political community—possesses virtue sufficient for giving advice about such matters. Instead, Protagoras denies that virtue—so understood—fails to be an expertise.[21] Protagoras maintains that the Athenians believe that virtue is an expertise possessed by all the citizens to some degree or other. This, however, is apparently not how Socrates understands their view.

Here then we have Socrates' conception of common Athenian morality. According to Socrates, the common or folk view is that virtue is not an expertise —at least, if by expertise one has in mind some sort of special or unique ability. Instead virtue is something possessed to one degree or another by everyone; it is easily or automatically acquired; and everyone is a competent adviser concerning it. Thus, if Socrates contrasts his own moral view with this folk view, he must believe that virtue is an expertise like temple-building, ship-building, and the rest; not something possessed by everyone; nor easily acquired. For Socrates, decisions that require virtue require the advice of an expert. But why should we think that Socrates contrasts his own moral view with this folk view? Doesn't Socrates put this view forward not only as the common view, but also as his own in contrast to Protagoras? Yes he does, but there are a number of reasons to doubt that Socrates is genuinely committed to the view he attributes to the Athenians in this passage.[22]

First, at the end of the *Protagoras* (361a5–c2) Socrates expresses his dismay that he and Protagoras appear to be arguing for the opposite of what they had maintained at the beginning. Immediately prior to this passage they had been discussing the relationship between courage *(andreia)* and wisdom *(sophia)*. Protagoras maintained that the two are altogether different on the grounds that many men are ignorant yet courageous. Socrates argued on the contrary that courage is wisdom *(sophia)* about what is to be feared and what isn't (360d4–5), and so those who are ignorant cannot be courageous. Socrates concludes by noting that while he had earlier maintained—presumably at 319b3–d7 —that virtue is not knowledge *(epistēmē)* and so cannot be taught, he is now arguing that it is knowledge, on the basis of the claim that all the virtues—courage, justice, temperance and piety—are nothing other than knowledge. Protagoras on the other hand had maintained that virtue was knowledge and so could be taught and now he is arguing that it is not knowledge.[23] Exactly how to take Socrates'

position here at the end of the *Protagoras* is a difficult question,[24] but however else we take it we can no longer rest secure in the thought that Socrates accepts the view he attributes to the many at 319b-d.

Second, outside the *Protagoras* there are other passages in which Socrates testifies to his rejection of the folk view. In the dialogue named for him, Crito urges Socrates to escape from prison in part on the grounds that the many apparently believe that it is the proper thing to do. Socrates responds by asking whether one should pay attention to the views of everyone or rather only to the views of the wise *(tōn phronimōn)*. For example, Socrates asks, in the case of physical training should one pay attention to the views of anyone and everyone or to the views of the expert—the doctor *(iatros)* or the physical trainer *(paidotribēs)*—the instructor and one who knows *(tōi epistatēi kai epaionti)*? When Crito replies that it is the advice of the expert that ought to be heeded in this case, just as the Athenians in the *Protagoras* would maintain, Socrates continues that the same point holds in other cases, but especially in the case of matters concerning justice or injustice, the shameful and the fine, the good and the bad, that is, matters of the sort they are presently considering (47a-d). According to Socrates in this passage in the *Crito,* it is not the advice and opinion of the many that ought to be heeded in facing the decision whether to escape, but rather the advice and opinion of the one—if there is one—who knows. Thus, while Socrates does not explicitly say that when faced with decisions concerning (and so requiring) virtue, one should not consider the views of just anyone, but only the views of the expert, he does say that in these circumstances one should only pay attention to the one who knows and the analogy with the doctor and physical trainer suggests that the knowledge involved is expertise.[25]

In another passage Socrates' rejection of the folk view that virtue is not an expertise is more explicit. The *Laches* begins with two fathers soliciting the advice of two Athenian generals—Laches and Nicias— concerning the proper education of their sons. In particular, they want to know whether they should enrol their sons in a particular form of military training. When the two generals offer incompatible advice, Laches recommending against the training, Nicias recommending in its favour, one of the fathers turns to Socrates for his vote to decide the issue. Socrates responds that this is no way to reach a decision. Again he points to the example of physical training and maintains that in this case we would not heed the advice of the majority, but rather the advice of the one who had been trained under a good physical trainer *(paidotribēi)*—again, just as the Athenians in the *Protagoras* would maintain. As Socrates puts it, 'for I think that it is necessary to judge by knowledge but not by number if one intends to judge well' (*Laches* 184e8–9). Thus, Socrates continues, the proper way to decide the issue that faces the fathers is to heed the advice of the expert *(tecknikos)* concerning that thing about which they are currently seeking advice. After determining that the thing concerning which they are now seeking advice is the proper care of the soul, Socrates concludes that in order to decide whose advice

ought to be heeded—Socrates', Laches', or Nicias'—they must determine which of the three is an expert concerning the care of the soul (185e1–6). When Socrates forswears his own expertise concerning this matter, Laches and Nicias permit their expertise to be tested. Rather than asking the generals whom they have made better or who their teachers have been (189d5–e3), Socrates indicates that another way to test their expertise concerning this matter is to determine if they know what virtue is (190b7–c2). Since this may be too large a task, Socrates narrows the question to whether they know what a part of virtue is—that is, whether they know what courage is (190c8–e3). This is the question that occupies the remainder of the *Laches*. Thus, Socrates here explicitly maintains that when faced with a decision that the Athenians would acknowledge requires virtue we should not heed the advice of everyone. Rather it is only the advice of the expert that should be heeded. Socrates here identifies the virtue required to give such advice with some form of expertise and the expertise itself appears to amount to, or at least require knowledge of the nature of virtue.

Finally, this passage in the *Laches* points us to a further consideration in favour of Socrates' rejection of folk morality: Socrates' elenctic mission. In testing the expertise of Laches and Nicias, Socrates is engaging in his elenctic mission, a mission he claims in the *Apology* derives from Chaerephon's trip to the Delphic Oracle. According to Socrates, Chaerephon once asked the oracle at Delphi whether anyone was wiser *(sophōteros)* than Socrates, to which the oracle responded that no one was. When Chaerephon reported this episode to Socrates, he was at loss as to what the oracle could mean. On the one hand, Socrates 'knew that he was wise concerning nothing great or small' (*Apology* 21b4–5),[26] and yet on the other hand, the oracle could not lie. Socrates, thereupon, set out to test the oracle by trying to uncover someone wiser than he. First, he went to the politicians, all of whom believed themselves to be wise but were shown not to be (*Apology* 21c3–e2). Next, he went to the poets. Not only did the poets think themselves wise concerning their poetry, but were not, but the poets also took themselves to be wise about other matters, concerning which they were not (*Apology* 22a8–c8). Finally, Socrates turned to the manual experts *(cheirotechnas)*.[27] These, he discovered, did indeed know many of the fine things they were reputed to know, but unfortunately this knowledge of theirs encouraged them to believe that they were wise concerning other very great things *(ta megista)* when they were not (*Apology* 22c9–e5). Socrates concludes from this investigation of the oracle that,

> the god is wise and that his oracular response meant that human wisdom is worth little or nothing, and that when he says this man, Socrates, he is using my name as an example, as if he said: 'This man among you, mortals, is wisest who, like Socrates, understands that his wisdom is worthless.' So even now I continue this investigation as the god bade me—and go around seeking out anyone, citizen or stranger, whom I think wise.

> Then if I do not think he is, I come to the assistance of the god and show him that he is not wise.
>
> (*Apology* 23a5–b7; trans. Grube.)

Here then Socrates once again contrasts his own view with that of the average Athenian citizen. The average Athenian citizen—be he a politician, a poet, a manual expert, or anyone else—thinks himself wise about the great things, but is not. Such wisdom or expertise is not as easy to come by as they suppose. Socrates lacks this wisdom as well, but he also lacks the false conceit that he has it. Herein lies Socratic wisdom: recognition of his ignorance concerning the great things— recognition, that is, of his lack of moral knowledge or expertise.[28] Unlike the average Athenian, Socrates does not take himself to be in the position to give advice concerning decisions that require virtue. This is the role of a moral expert, something that Socrates, unlike the average Athenian, realizes he is not.

But this is not the end of the story. Socrates has found in his investigation of the oracle a mission[29]—the elenctic mission I referred to above.[30] Socrates does not merely test an individual's claim to moral wisdom and when he finds it lacking abandon him. Rather, as the passage quoted above indicates, when Socrates discovers that the individual lacks the knowledge he thinks he has, Socrates attempts to show him that he lacks it. But why? Socrates assumes that such moral knowledge is desirable. All of us—average Athenian and everyone—desire to possess it. Indeed, Socrates believes that such expertise is so desirable, that to encourage us to possess it, all Socrates needs to do is show us that we lack it. Consider how Socrates redescribes his elenctic mission following the jury's hypothetical order to cease philosophizing:

> Gentlemen of the jury, I am grateful and I am your friend, but I will obey the god rather than you, and as long as I draw breath and am able, I shall not cease to practice philosophy, to exhort you and in my usual way to point out to any one of you whom I happen to meet: 'Good Sir, you are an Athenian, a citizen of the greatest city with the greatest reputation for both wisdom and power; are you not ashamed of your eagerness to possess as much wealth, reputation and honours as possible, while you do not care for *(epimelēi)* nor give thought to wisdom or truth, or the best possible state of your soul *(phronēseōs de kai aletheias kai tēs psuchēs hopōs hōs beltistē)*?' Then, if one of you disputes this and says he does care *(epimeleisthai)*, I shall not let him go at once or leave him, but I shall question him, examine him and test him, and if I do not think that he has attained the goodness *(aretēn)* that he says he has, I shall reproach him because he attaches little importance to the most important things and greater importance to the inferior things. I shall treat in this way anyone I happen to meet, young or old, citizen or stranger, and more so the citizens because you are more kindred to me. Be sure that this is what the god orders me to do, and I think there is no greater blessing for the city than my

> service to the god. For I go around doing nothing but persuading both young and old among you not to care for *(epimeleisthai)* your body or your wealth in preference to or as strongly as for the best possible state of your soul *(hōs tēs psuchēs hopōs aristē estai)*.
>
> (*Apology* 29d2–30b2; trans. Grube).

Here then we have the first moral philosophy or moral perspective against which Socrates contrasts his own—the common or folk view. According to folk morality, virtue is something everyone—or nearly everyone[31]—already possesses. It is not an expertise—at least if by expertise one has in mind some sort of special or unique ability. Consequently, it is fairly easy to come by[32] and everyone is in a position to give advice concerning those affairs that require virtue. For Socrates, however, things are otherwise. Virtue is an expertise, like physical training, temple-building, and the rest. It is not easy to come by[33] and few—if any—people possess it or are in a position to give advice on matters that require it. But it is valuable, and we should all make it our business to obtain it.

SOPHISTIC MORALITY

For Socrates virtue appears to be an expertise. But how, then, does Socratic morality differ from the moral perspective of the sophists? Don't the sophists—in so far as we can characterize their view generally —believe that virtue is an expertise possessed by relatively few individuals? Indeed, don't they profess to be able to teach this expertise to anyone willing to pay for it? And aren't many apparently willing to do so[34] because of the sophists' claim that those who possess this expertise will become eminently more successful in public affairs—that is, at being virtuous—than those who do not possess it? Whether or not this accurately characterizes the sophistic position,[35] it is clear that this is how Socrates would characterize it. Moreover, it is equally clear that he rejects it.

Recall that in the *Protagoras* Socrates characterizes Protagoras' position as the claim to teach 'political expertise' *(ten politikēn technēn)* and to make men better citizens *(politas)*[36] which he later characterizes as the claim to teach virtue *(aretē)*.[37] Moreover, Protagoras does not deny it. Rather he only denies—somewhat unsatisfactorily—that every member of the political community fails to already possess what he teaches.[38] Again in the *Hippias Major*, Socrates describes Hippias' wisdom *(sophia)*—the expertise of the sophists *(ten tōn sophistōn technēn)*[39]—as 'the sort that makes those who study and learn it stronger in virtue *(aretēn)*' (*Hippias Major* 283c3–4; Woodruff trans.). In the *Gorgias*, Socrates sums up Gorgias' position on rhetoric—Gorgias' expertise—as the view that the rhetor will not give advice in the Assembly on matters relating to health, ship-building, wall-building or the military. On these matters, the rhetor will accede to the advice of the relevant expert. Rather, it will only be on matters concerning the just and the unjust that the rhetors will give expert advice.[40] When Gorgias objects that the rhetor will be best able to persuade concerning all

matters that face the Assembly,—not merely the just and the unjust, but ship-building, wall-building and the rest, he is forced to concede that it is only on matters concerning the just and the unjust that the rhetor genuinely gives expert advice—a concession that ultimately leads to Gorgias' downfall. Finally, in the *Euthydemus*, the two eristic experts —the brothers, Euthydemus and Dionysodorus—claim to be the best teachers of virtue alive.[41] But in the *Euthydemus*, especially, there can be no doubt that Socrates rejects this claim.

Nevertheless, in rejecting the sophistic moral perspective Socrates need not be rejecting the sophistic view that virtue is an expertise. He may instead reject the view that virtue is the particular expertise that the sophists proclaim it is. And indeed, this is precisely what he does, as the *Euthydemus* makes clear.[42] Following the eristic brothers' claim to teach virtue, Socrates asks them to display their expertise at persuading the young Cleinias to pursue the love of wisdom *(philosophian)* and the care for virtue *(aretēs epimeleian)*.[43] The next portion of the dialogue consists of two pairs of displays: first the eristic brothers' display (275c–277c), then Socrates' example of what he had in mind (277d–282e), another eristic display (282e–286b), and then again another Socratic example picking up where the first left off (288b–292e). The two Socratic displays are frequently referred to as the first and second protreptics.

In the first protreptic Socrates maintains that everyone seeks happiness or to fare well (278e3–279al)[44] and that in order to be happy or fare well one must possess goods (279al–4). Next, Socrates argues that the only genuine good is knowledge or wisdom, all other prima facie goods are good only in so far as they are guided by knowledge (279a4–281e5).[45] Consequently, Socrates concludes that everyone should seek to become as wise as possible (282a5–6). Socrates asks whether one should 'acquire every sort of knowledge *(epistēmē)* or whether there is one sort of knowledge which it is necessary for the one who is happy and a good man to possess, and if so what it is' but the question is not pursued until the beginning of the second protreptic.

In the second protreptic Socrates argues that not just any knowledge or expertise is the one necessary for happiness or faring well. The relevant knowledge or expertise is one which combines 'making something and knowing how to use what it makes' (289b5–6). This eliminates lyre-making *(luropoiikē)* and pipe-making *(aulopoiikē)*, since these expertises fail to know how to use what they make. But it also eliminates perhaps more plausible candidates: the speech-making expertise *(logopoiikēn technēn)*, the military expertise *(strategikē)* and the political expertise or the expertise of a king *(hē potitikē kai he basilikē technē)*. The first two are eliminated because they fail to know how to use what they make;[46] the last is rejected because what it makes is too difficult to determine. In each case, Socrates rejects an expertise as the one required to make us happy—that is, he rejects an expertise as virtue—but it is not because it is an expertise, but because it is an expertise of the wrong sort. What sort of expertise is required can, however, be gleaned from elsewhere.

Consider first the *Laches*. When Laches proposes wise endurance as the proper definition of courage (192d10–12), Socrates enquires whether he thinks that those who endure the relevant dangers with the expertise of horsemen, or the expertise of the sling, or the expertise of the bow, or the expertise of well-divers, or any other expertise of this sort are more or less courageous than those who endure without the relevant expertise (193b9–c8). Laches answers that they are less courageous, and so abandons his definition. The suggestion is that whatever the proper definition of courage may be, it appears not to be wise endurance when wisdom is understood as these sorts of expertise.[47] Moreover, when Socrates turns to Nicias' definition that courage is knowledge of fearful and daring things, he asks Nicias whether knowledge of fearful and daring things is anything other than knowledge of future goods and evils. Nicias responds that it is not. Next, Socrates asks whether it belongs to the same knowledge to know future, past and present things. When Nicias answers that it does, Socrates points out that it follows on Nicias' view that courage is knowledge of all goods and evils, which is the whole of virtue and not its part, contrary to Nicias' initial claim that courage is part of virtue. Again, whatever we take Socrates' view to be concerning the proper definition of courage, the suggestion here seems to be that in so far as courage is defined as knowledge of the good and the bad it will be identical to virtue, not a part of it.[48] Virtue, according to Socrates in the *Laches,* appears to be knowledge of the good and the bad. Here, then, we have a hint of Socrates' answer to the question with which we were left at the end of the second protreptic of the *Euthydemus*. The knowledge or expertise that is virtue—that is necessary to make us happy and fare well—is not a knowledge or expertise like horsemanship or well-diving, but the knowledge or expertise of the good and the bad.

Finally, we can turn to the *Charmides*. The last half of this dialogue consists of a long, complicated, and often tortuous discussion of Critias' definition that temperance is knowledge of oneself (164d3–5). By 173a this definition has been modified to mean that temperance is knowledge of what one knows and does not know (172c9), and as Socrates conceded earlier, life in accordance with that knowledge would be free from error (171d6–172a3). Now Socrates relates a dream in which temperance—understood as knowledge of what one knows and does not know—rules *(archoi he sōphrosunē)*. He grants that in such a situation one would live according to knowledge and so be free from error, but he wonders whether one would fare well and be happy *(eu an prattoimen kai eudaimonoimen)*. Ultimately, Socrates and Critias agree that one would not. After denying that it is the knowledge of draught-playing *(petteutikon)*, calculation *(logistikon)*, or health— presumably medicine—that makes one fare well or be happy, Critias asserts that it is knowledge of the good and the bad (174b10). This leads Socrates to ask whether the doctor is any less successful in producing health or the shoemaker is any less successful at making shoes when knowledge of the good and the bad is lacking. Critias responds that they are not and Socrates concludes that it is the production of these things 'well and beneficially' that is

removed when the knowledge of the good and bad is lacking (174c9–d1). This contrast recalls a similar contrast in the *Euthydemus* between making and using.[49] Once again, Socrates distinguishes between those expertises that do not make one happy and fare well, and the one expertise that does: the ruling expertise he was searching for in the second protreptic of the *Euthydemus*. Indeed, as in the *Laches*, Socrates suggests what it is: the knowledge or expertise of the good and the bad.[50]

Much of this is necessarily speculative. We have at best hints, suggestions, indications that Socrates takes the knowledge or expertise that makes us happy and fare well as the knowledge or expertise of the good and the bad. But what is not speculative is that Socrates takes the knowledge or expertise that makes us happy and fare well to be virtue, nor is it speculative that that knowledge or expertise is not the expertise the sophists claim to teach. It is not the eristic brothers' expertise in fighting with words, Gorgias' expertise of persuasion, Hippias' diverse expertises, nor whatever Protagoras' expertise is supposed to be. For Socrates, virtue is an expertise—contrary to folk morality—but it is not the expertise of the sophists.

A SKETCH OF SOCRATIC EXPERTISE

If, then, for Socrates virtue is an expertise, the obvious question that arises is, What is an expertise for Socrates? Fortunately a considerable amount of energy has already been devoted to this topic. Brickhouse and Smith, for example, list the following conditions which an expertise must meet: rationality or regularity, teachability or learnability, explicability, inerrancy, uniqueness, distinctness of subject-matter, and knowledge or wisdom.[51] Rather than merely rehearsing this work, I propose to address this question from a slightly different angle. I propose to ask what sort of thing an expertise is according to Socrates.

To begin an expertise appears to be a power or capacity *(dunamis)*.[52] Early on in the *Euthydemus*, Socrates explains that all those present asked the two eristic brothers to 'demonstrate the power *(dunamis)* of their wisdom' (274c6–d3). Similarly, at the beginning of the *Gorgias*, Socrates beseeches Gorgias to teach him 'what the power *(dunamis)* of his expertise is and what it is he advertises and teaches' (447c1–3). In both passages the point is the same: in professing to possess expertise, Gorgias and the eristic brothers are professing to have a power or capacity, and Socrates wants to know what power or capacity they are professing to possess. Socrates assumes that if a person possesses knowledge, wisdom or expertise, that person possesses a power or capacity.[53]

That knowledge is understood as a kind of power or capacity is reinforced by the Prometheus story in the *Protagoras*. As Protagoras tells the story, the gods charged Epimetheus and Prometheus with distributing powers or capacities to each of the mortal creatures as was fitting. Unfortunately, Epimetheus (who was given the task of making this assignment, while Prometheus agreed to inspect it) used up all the powers available to him (e.g. strength, speed, winged flight, size,

tough skin, thick hair) on the irrational creatures, leaving humans quite unprovided for (321b6–c1). Prometheus, thereupon, stole the practical wisdom *(sophian)* of Hephaestus and Athena—Hephaetus' expertise *(technēn)* in working with fire and Athena's other expertise[54]—and gave them to humanity. In this way, according to the story, humans acquired their practical wisdom, but not yet their political expertise *(politikēn)*. This latter was reserved for Zeus to supply, who seeing that humans were able to obtain food and shelter, but were unable to fight against the beasts and to come together in cities, sent Hermes to distribute to all of humanity conscience and justice *(aidō te kai dikēn)* —the political expertise *(tēn politikēn technēn)*. According to this story, then, once Epimetheus had doled out to the irrational creatures all of the powers fitting and necessary for survival,[55] other powers or capacities had to be obtained for humans. Thus, Prometheus gave to them the power of practical wisdom, while Zeus gave to them the power of political wisdom. In both cases, wisdom or expertise is presumed to be a power or capacity.

Indeed, the idea that political wisdom or expertise, i.e. the virtues, is a power or capacity is further supported by the question with which the remainder of the *Protagoras* is preoccupied: whether or not the virtues are one. Following Protagoras' Great Speech, of which the Prometheus story is a part, Socrates asks the question which will resolve the one 'small' remaining difficulty: are justice, temperance, wisdom, piety and courage distinct parts of virtue or are they all different names for one and the same thing (*Protagoras* 329c6–d1)? Protagoras responds that this is an easy question to answer: virtue is one thing and justice, temperance, piety, etc. are its parts. Socrates appeals to the analogies of the parts of gold and the parts of a face (*Protagoras* 329d4–8) and asks his question again.

> And does each of them [i.e. the parts of virtue] have its own separate power *[dunamin]*? When we consider the face, the eye is not like the ear, nor is its power *[dunamis]* the same, nor any other part like another in power *[dunamin]* or in other ways. Is it the same with the parts of virtue, that none is like any other, either in itself or in its power *[dunamis]*? Surely, it must be, if it corresponds to our example.
>
> (*Protagoras* 330a4–b2; adapted from Taylor [7.22])[56]

Socrates' question, then, is—at least in part—whether, according to Protagoras, political expertise is one power or more.

It may be objected, however, that this last passage especially indicates not that virtue or political expertise is a power or capacity but that it is that in virtue of which one has a power or capacity.[57] The suggestion is that an eye stands to its power just as courage—one of the virtues and so an expertise—stands to its power. An eye is not the power to see. Rather, it is that in virtue of which an individual has the power to see. The eye and its power are ontologically distinct. If we take the analogy to the virtues and expertise strictly, then, we must take the

expertise to be ontologically distinct from its power. It is not a power; it is what confers a power on its possessor.

While I cannot fully argue the point here, I believe that this is to take the analogy with the parts of the face too strictly. Recall that the point of the analogies is to get clear about what Protagoras is maintaining when he claims that the virtues are distinct. Is he maintaining that they all are (or have) the same kind of power but differ in some other way, or is he maintaining that their powers differ as well? It is at least open to Socrates to maintain contrary to Protagoras that they are (or have) the same kind of power, and so that they do not differ in any essential way.[58] Moreover, there is simply no organ analogous to the eye in the case of expertise or the virtues. Surely, the possession of fully functioning vocal chords does not suffice for the possession of the expertise of rhetoric, for example. But to postulate some entity between the vocal chords and the power to persuade that is rhetoric is simply to add an unnecessary ontological layer. Indeed, it is to add an ontological layer that is not demanded by the text. None of the passages that I have cited are incompatible with understanding expertise as a kind of power in the way that knowledge—on a justified true belief model—is a kind of belief. Perhaps most important, there are various passages in which Socrates appears to use the word for power and the words for knowledge or expertise interchangeably.[59] At the very least these passages indicate that the ontological distinction that the present objection presupposes is of little moment for Socrates. For all these reasons, as well as others,[60] I conclude that for Socrates an expertise is some sort of power or capacity.

Saying this, however, only raises a further question: what according to Socrates is a power or capacity? Surprisingly little attention has been devoted to this question, but there are a few preliminary things we can say. First, a Socratic power or capacity is typically associated with particular types of activities or behaviours.[61] For example, in the *Laches* Socrates defines quickness as 'the power *to do* many things in a short time concerning speech and running and all other things' (*Laches* 192b1–3). In the *Hippias Minor* he describes the one who has power (the *dunatos*) as the one '*who does* what he wants when he wants' (*Hippias Minor* 366b7–c1). And finally in the *Ion,* Socrates says,

> What *moves* you [Ion] is a divine power *[dunamis],* like the power *[dunamis]* in the stone which Euripides dubbed the 'Magnesian', but which most people call the 'Heraclean'. This stone, you see, not only attracts iron rings on their own, but also confers on them a power *[dunamin] by which they do* the same thing that the stone does.
>
> (*Ion* 533d3–31; adapted from Saunders trans.)

But as many commentators have pointed out, for Socrates, a thing does not have a power simply in virtue of the fact that it acts or behaves in certain ways. It does not have a power simply in virtue of what it does. Rather, for Socrates, a thing has a power in virtue of some state of the thing that occasions it in the

appropriate circumstances to do what it does. A power for Socrates is not the mere tendency to perform a certain sort of activity, but rather the state of a thing that results in such activity.[62] Thus, for Socrates, the power is ontologically prior to the activity the power is associated with. The activities are defined in virtue of the power that produces them, not vice versa.[63]

Second, a power or capacity for Socrates is to be identified by its peculiar object. For example, in the *Charmides*, after indicating that since temperance is knowledge of knowledge it must be a power *(dunamis)*, Socrates infers that it must be 'of something' *(tinos einai)*, citing as examples that the greater has the power *(dunamin)* to be of the lesser (168b5–8) and the double the power *(dunamis)* to be of the half. Thus, according to Socrates, if there is a double of itself, then the double will be both double and half of itself. In general, he maintains that 'the very thing which has its own power *(dunamin)* applied to itself will have to have that nature towards which the power *(dunamis)* was directed' (*Charmides* 168c10–d3; adapted from Sprague trans.). He explains this with the following examples: since hearing is of sound, hearing would have to be a sound if it were to be of itself, and since sight is of colour, sight would have to be coloured if it were of itself. While the details of these passages may be difficult to sort out, the general idea appears clear enough. Associated with every power is an object, property, nature or being *(ousian)*. Thus, the powers of the greater, the double, hearing and sight have as their respective objects the lesser, the half, sound, and colour. Moreover, the power must always be of this object; if it were of a different object, it would be a different power. It is only on this assumption that Socrates can draw his conclusions that if the greater is of itself, then it must be lesser (as well as greater), if the double is of itself, it must be half (as well as double)[64], if hearing is of itself, it must be a sound, and if sight is of itself, it must be coloured.[65]

Thus, since virtue is an expertise, it is a power. As a power it must be associated with a particular sort of activity and have a specific object. The activity is evidently virtuous activity[66], while the object appears to be the good (and the bad) in light of our earlier discussion. But in saying this we have left out the cognitive aspect of expertise. For expertise is not just a power; it is a cognitive power. This cognitive aspect of expertise is manifested in Socrates' view that expertise is infallible, inerrant or luck-independent.

Consider, for example, Socrates' claim in the first protreptic of the *Euthydemus* that having included wisdom in his list of goods necessary for happiness it would be superfluous to add good luck; for 'when wisdom is present no good luck is lacking to the one for whom it is present' (*Euthydemus* 280b2–3). The idea here is that the person with wisdom or knowledge will invariably make decisions or choices conducive to his or her happiness. Just as the expert ship pilot invariably makes decisions or choices conducive to getting to the port safely, given the circumstances she is in, so the wise or knowledgeable individual will invariably make decisions or choices conducive to attaining happiness, given her circumstances. Many scholars believe that Socrates takes these choices to be

sufficient for happiness;[67] others maintain that Socrates takes other goods in addition to be necessary for happiness.[68] But most would agree that wisdom or knowledge is sufficient for 'getting things right'. It is in this sense that good luck is not necessary for the wise individual. Just as the wise ship pilot does not need to rely on lucky guesses in getting to the port safely (although she may need to rely on luck in obtaining calm seas, which may or may not be necessary for arriving at the port safely), so the wise individual need not rely on lucky guesses in attaining happiness (although she may need to rely on luck in obtaining other goods which may or may not be necessary for attaining happiness).[69]

Again, in so far as Socrates is inclined to identify wisdom or expertise with definitional knowledge,[70] Socrates' request at *Euthyphro* 6e3–6 to be taught what piety is 'so that looking to it and using it as a paradigm, I can say that that which is such as it, whether done by you or anyone else, is pious and that which is not such as it, is impious' is making a similar point: the individual with definitional knowledge of piety will not make mistakes concerning which things are pious and which are not. She will always 'get things right'. Wisdom, expertise, or definitional knowledge regarding piety somehow guarantees correct judgements regarding piety.[71]

In fact, in the *Gorgias* Socrates apparently distinguishes between expertise and knack with this very point in mind. At 464e2–465a7 and 500e3–501b1 this distinction is drawn almost entirely on the basis of the fact that the former possesses a *logos* of its object, while the latter does not.[72] It is in virtue of the possession of this *logos*[73] that an expertise can reach correct judgements concerning which things are good, for example, and so can say why each of the good things are good. A knack on the other hand, lacking this *logos* must merely guess at which things are pleasant, for example, and why they are. It is the definitional knowledge of the object of the expertise that accounts for the expertise's infallibility with respect to its object.

While I have only just brushed up against the many issues surrounding these passages, they all point in the same general direction: the cognitive aspect of an expertise can be found in its infallibility for reaching correct judgements concerning its object. An expert temple-builder always makes correct judgements concerning temple-building.[74] It is, indeed, for this reason that her advice is heeded when considering temple-building. Thus, the characteristic Socratic view that virtue is an expertise[75] amounts to the view that virtue is a power associated with a specific activity and a specific object. As a cognitive power, virtue also infallibly produces correct judgements regarding its object. We have seen some reason to suppose that for Socrates the object of the expertise that is virtue is the good. Thus, virtue is an expertise that enables its possessor infallibly to reach correct judgements regarding the good—whether, for example, escaping from prison or setting out to defeat the Sicilians is good. To learn more about the specific activities associated with virtue so understood, we must turn to Socrates' account of the good.

THE GOOD

A complete account of Socrates' moral perspective must address the question of virtuous behaviour or activity. Thus far our examination of the characteristic feature of Socrates' moral philosophy has focused almost entirely on the nature of a virtuous person. I have been concerned to exhibit the cognitive power that such a person possesses. Such a focus, however, might be thought to obscure another way in which Socrates' moral perspective is to be contrasted with that of the sophists. For it is often thought that Socrates is a defender in some sense of traditional moral behaviour against the supposed immoralism of the sophists.[76] If such a view is correct we should expect it to emerge out of Socrates' account of the expertise of virtue, since, as I indicated above, the activities associated with a power or capacity are defined in virtue of the power associated with them and not vice versa. To some extent our expectations will not be disappointed. But to see this we must turn to Socrates' account of the good.

In the *Gorgias*, Socrates indicates that the good is the rational end of all our actions. It is for the sake of it that we do everything we do, and we do not do it for the sake of anything else.[77] In the *Euthydemus*, we saw that Socrates maintains that happiness or faring well is the object of everyone's rational desires.[78] It is reasonable to infer, then, that for Socrates the good is happiness or faring well.[79] Let us call this eudaimonism.[80] Given eudaimonism, then, it would appear that no one ever intentionally acts contrary to his or her own good.[81] Since everyone rationally desires his or her own good, it is only mistaken beliefs about what contributes to one's good that could explain one's acting contrary to one's good. Knowledge of which activities benefit one is sufficient for performing those activities.[82] This is not because Socrates fails to recognize the necessity of desire for motivating action, but because for Socrates everyone rationally desires his or her own good. Consequently, since for Socrates virtue is the cognitive power whose object is the good and which infallibly produces correct judgements about the good, the virtuous person will never act contrary to his or her own good. Such a person will know which activities benefit him or her, and given his or her rational desire, he or she will perform them. Such actions will by definition be virtuous actions,—since actions are defined in virtue of the power they result from. Thus, for Socrates, knowledge of the good is sufficient for virtuous activity as well. No one ever acts viciously except out of ignorance of the good.[83]

Thus the characteristic feature of Socratic morality, the view that virtue is the expertise of the good—what we might call Socratic intellectualism—does have the consequence that virtuous activities benefit the agent who performs the activities. But as a defence of traditional moral behaviour it appears to be a failure. For nothing in the account of Socratic virtue as I have described it indicates that the moral expert will recognize those activities associated with traditional morality as good or beneficial. If Socratic morality is not to be the primarily amoral thesis that virtue is simply the cognitive power whose object is

the agent's own good and that is associated with those activities that promote the agent's own good, whatever they happen to be, Socrates must believe that some or most of those activities typically associated with traditional morality promote the agent's good.[84] But where is the defence of this view?

There are various passages in which Socrates compares the good of the body to the good of the soul and maintains that virtuous actions promote the health of the soul and vicious actions make it sick.[85] But as a defence of traditional morality these passages are rather slight. Either Socrates is not referring necessarily to traditionally virtuous behaviour or if he is the passages appear to be merely stipulative. For while a defence of the position maintained in these passages can be derived from the account of Socratic virtue I have been proposing no part of that defence requires that the actions that promote the health of the soul are traditionally virtuous activities. On the other hand, there appears to be no independent defence in these passages for the claim that traditionally virtuous activities promote the health of the soul.

Perhaps a more plausible defence can be derived from the longer passages in which Socrates is arguing against the immoralism of Callicles in the *Gorgias* and of Thrasymachus in the first book of the *Republic*. Certainly the argument against Callicles, for example, purports to defend the claim that virtuous actions are always more beneficial for the agent than vicious actions against Callicles' claim that unbridled pleasure-seeking is most beneficial for the agent. Whatever else Socrates is attempting to do in this passage he appears to be arguing that at least one sort of traditionally vicious behaviour harms the soul. While both of these arguments against immoralism deserve serious further study, there remains something unsatisfactory about them, a lack of satisfaction that Plato explicitly notes at the beginning of the second book of the *Republic*.[86] But it is in these passages, if anywhere, that Socrates' defence of traditional morality is to be found.

CONCLUSION

Let us return briefly to the Ciceronian tradition with which this essay began. According to this tradition moral philosophy in some sense begins with Socrates. We have seen a sense in which such a tradition is justified. Socrates is unique, at least among the average Athenian citizen and the sophists, in maintaining that morality or virtue is a knowledge or expertise of the good. Against the folk view, he maintains that morality or virtue is an expertise that is not possessed by everyone, but which everyone should make it their business to obtain. It is not easily obtainable, but it is obtainable none the less, and few of us are in the position to give advice concerning it. Against the sophists, Socrates maintains that it is not an expertise reducible to others. It is not rhetoric or antilogic or even polymathy. It is its own unique branch of knowledge. It is knowledge or expertise of the good.[87] Nevertheless, in saying this Socrates has really only supplied what might be called the formal features of morality or virtue. Socrates'

own claim to lack the expertise that is virtue[88] prohibits him from supplying a more substantive moral theory. Perhaps this is yet another way in which Socrates stands at the beginning of moral philosophy. Many, if not all, of the subsequent Greek moral philosophers may be seen as completing the work that Socrates could only begin.

NOTES

1 From Guthrie [9.33]. Other translations are my own unless otherwise noted.
2 See Aristotle *The Parts of Animals* 642a28 and *Metaphysics* 987b1–4 and 1078b17.
3 See the title of the present essay. See also Guthrie [9.33], 97–105. Indeed, much of what I have to say here in the introductory section regarding this tradition and the puzzle it raises follows Guthrie's remarks. My response to this puzzle, however, diverges significantly from Guthrie's.
4 Socrates is also mentioned in the *Frogs* and the *Birds*.
5 His other Socratic works are the *Apology, Symposium* and the *Oeconomicus*.
6 Not counting those dialogues which are generally considered spurious. The *Alcibiades* I and the *Cleitophon* have recently garnered some supporters; for the former see Annas [9.1] and for the latter see Roochnik [9.75]. If they are genuinely Platonic, then 22 of the dialogues feature Socrates as a primary speaker.
7 Not counting the occasions in which he uses Socrates as an example in various arguments.
8 Aristotle's portrait agrees in most essentials with the Platonic portrait.
9 I am hedging here because I am well aware that there are many first-rate Socratic scholars who do not accept Vlastos's solution. See, esp. Kahn [9.40], [9.41], [9.42], [9.43], [9.44], [9.45], [9.46], and [9.47]. Moreover, even among those scholars who accept the substance of Vlastos's approach, few would accept it in all of its detail. Nevertheless, Vlastos's well-deserved scholarly reputation, the plausibility of the approach, and the characteristic clarity and force of his argument will likely make his approach the paradigm for years to come. In any case, I believe the basic outline of the approach to be correct.
10 Vlastos [9.94] was published posthumously under the editorship of Myles Burnyeat.
11 Actually, Vlastos's dismissal of Aristophanes is made explicitly only in Vlastos [9.91]. I am somewhat more sympathetic to Aristophanes' portrait than is Vlastos.
12 The Platonic dialogues have traditionally been divided into three groups, corresponding to their supposed order of composition: the early dialogues (in alphabetical order): *Apology, Charmides, Crito, Euthydemus, Euthyphro, Gorgias, Hippias Major, Hippias Minor, Ion, Laches, Lysis, Menexenus, Protagoras, Republic* I; the middle dialogues (in alphabetical order): *Cratylus, Parmenides, Phaedo, Phaedrus, Republic* II–X, *Symposium* and *Theaetetus;* the late dialogues (in alphabetical order): *Critias, Laws, Philebus, Politicus, Sophist, Timaeus*. (I have excluded the *Meno* from these three groups, because it is commonly taken to be transitional between the early and middle periods, containing elements of both.) While more fine-grained orderings have been proposed, they have never received

the general support that this coarse-grained ordering has. Nevertheless, I should not be taken to suggest that everyone would agree with this method of dividing up the dialogues. Kahn (see earlier note) argues for a different division among the dialogues, while unitarians of various sorts have long argued against the utility of reading the dialogues with reference to their supposed order of composition. See most recently, Nails [9–59].

13 Vlastos [9.93], 48. The other nine theses that Vlastos lists are roughly: (2) Socrates_{m} (henceforth the Socrates of the middle dialogues) has an elaborate theory of separated Forms; Socrates_{e} (henceforth the Socrates of the early dialogues) does not; (3) Socrates_{e} seeks knowledge elenctically and denies that he has any; Socrates_{m} seeks demonstrative knowledge and claims to have it; (4) Socrates_{m} has a tripartite model of the soul; Socrates, does not; (5) Socrates_{m} is a mathematical expert; Socrates_{e} is not; (6) Socrates, is a populist; Socrates_{m} is an elitist; (7) Socrates_{m} has an elaborate political theory; Socrates_{e} does not; (8) Socrates_{m} has a metaphysical grounding for his homoerotic attachments; Socrates_{e} does not; (9) For Socrates_{e} religion is practical and realized in action; for Socrates_{m} religion is mystical and realized in contemplation; (10) Socrates_{e} has an adversative philosophical method, Socrates_{m} a didactic one.

14 Vlastos [9.93] 46.

15 The other theses Vlastos considers in this regard are (3) and (4).

16 Vlastos [9.93], 117 and n. 50. See also [9.93], 49–53. Vlastos labels this his ‘grand methodological hypothesis’.

17 Each of these theses has had its detractors. Graham [9.29] has recently objected to the third thesis. Kahn [9.46], Nehamas [9.65], and Beversluis [9.11] have all objected to the second thesis, primarily because of their scepticism about the reliability of the Aristotelian testimony. Finally, two different sorts of objections have been raised to the first thesis. Kahn [9.46] and Nails [9.60] have objected to seeing any significant difference between the views advanced in the early dialogues and those advanced in the middle dialogues. Kraut [9.52], Irwin [9.37], Taylor [9. 83] and others have objected to seeing the difference to be as radical as Vlastos sees it. I find only this last objection to be persuasive, and so would modify Vlastos’ approach along the lines advocated by Kraut, Irwin and Taylor.

18 Indeed, to some extent by Aristophanes as well. The moral philosophy that can be found advanced by Socrates in Plato’s early dialogues—as we will see— can easily be confused with the moral philosophy (if that is the correct name for it) advanced by the sophists, at least as Socrates/Plato understood the sophists.

19 I am here running roughshod over a number of subtleties of the text that I believe are peripheral to my present concern. Socrates does not actually ask Protagoras what he professes to teach, but rather how Hippocrates would be improved or benefited if he became Protagoras’ pupil. Nor does Protagoras actually answer that he teaches virtue. Rather Protagoras says that if Hippocrates becomes his pupil, every day he will go away being better at political expertise *(tēn politikēn technēn)* or at being a citizen *(politēs);* see Socrates’ summation of Protagoras’ answer and Protagoras’ approval. Nevertheless, Socrates clearly takes Protagoras to be professing to teach virtue. See *Protagoras* 320b4–c1.

20 The other argument is that those who possess virtue are unable to pass it on; *Protagoras* 319d7–320b3. Another version of this argument can be found at *Meno* 93a5–94e2.

21 See 322b5–C3, where Protagoras appears to identify the political expertise *(politikēn teamēn)* with conscience and justice *(aidō te kai dikēn)* which Zeus distributes among all the members of the community.

22 See Seeskin ([9.79], 121) who takes this passage as evidence that for Socrates virtue is not an expertise.

23 Note the apparent interchangeability of expertise *(technē)*, wisdom *(sophia)*, and knowledge *(epistēmē)* in these passages. At 319b3–328d2, Socrates had indicated that virtue was not an expertise *(technē)*, while Protagoras had indicated that it was. At 361a5–c2, however, Socrates decribes his earlier view as the view that virtue is not knowledge *(epistēmē)*, and Protagoras' as the view that virtue is knowledge *(epistēmē)*. Again, the argument from 349d2–360e5 has the conclusion that courage is wisdom *(sophia)*, which Socrates describes at 361a5–c2 as leading to the view that virtue is knowledge *(epistēmē)*. Protagoras uses knowledge and expertise interchangeably at 360e–351a and Socrates uses them interchangeably at 357b.

24 Taylor ([7.22], 213–14) and Vlastos ([9.93], 124) apparently take the expression of inconsistency to be insincere or illusory. The argument that has intervened between 319 and 360 is taken to suffice to reject the folk view. Brickhouse and Smith ([9.17], 99), however, apparently take this to be an expression of a genuine failure or inconsistency in Socrates' position. Seeskin ([9.79], 143) and Guthrie ([9.33], 114 n. 1) would seem to agree. See also Irwin [9.39] and Santas [9.78].

25 Note also that in the *Protagoras*, at least, Socrates was unconcerned to distinguish knowledge and expertise. See n. 23.

26 For the debate concerning the translation of this passage see Vlastos ([9.93], 237), Annas ([9.2], 44) and Woodruff ([9.96], 62 n. 3).

27 Socrates has in mind here not simply experts in general—*technikoi*—but experts in various manual pursuits: sculptors, painters, cobblers, etc. A more natural translation of *cheirotechnas* would be 'craftsmen' or 'artisans', but that conceals the distinction between *technikos* and *cheirotechnas*.

28 For the connection between knowledge or wisdom of the great things and moral wisdom or expertise see Brickhouse and Smith [9.17], 34. For a similar interpretation of Socratic wisdom see Irwin [9.39], 27–8.

29 On how Socrates derives a mission from this oracular pronouncement see Reeve [9.73], 24–28 and Brickhouse and Smith [9.12] and [19.15], 87–100.

30 The method that Socrates practices in carrying out this mission is the *elenchos* (which can be roughly translated as 'refutation', 'test', or 'cross-examination'). Its general form is the following: First, Socrates gets the interlocutor (the individual whose claim to knowledge or expertise is being tested) to express some belief, *p*, usually, but not always, concerning the definition of some moral concept. Next, Socrates gets the interlocutor to express some other beliefs, *q*, *r* and *s*. Third, Socrates goes on to show that these premisses entail the negation of the original belief, i.e. the apparent refutand, *p*. Thus, the conjunction *p* and *q* and *r* and *s* is false. Considerable debate, sparked in part by Vlastos' classic 'The Socratic Elenchus', concerns what Socrates concludes from such elenctic episodes. Some take Socrates to conclude that *p* or one of the other premises is false; see Gulley [9.31], Nakhnikian [9.61], Vlastos [9.88], Kraut [9.50], Polansky [9.72], and McPherran [9.55]. Others take Socrates merely to conclude that the interlocutor's beliefs are inconsistent; see Stokes [9.81], Benson [9.3] and [9.8], and perhaps

Brickhouse and Smith [9.16] and [9.17], 3–29. For the difference between the Socratic *elenchos* and the method of the sophists see Benson [9.4] and Nehamas [9. 64].

31 This depends on whether we accept Protagoras' account of folk morality. If we do, then according to Protagoras, the Athenians do not maintain that everyone possesses virtue, but only those abiding within a political community.

32 In maintaining that virtue is fairly easy to come by they need not maintain that the process is automatic or simple. The point is simply that it does not require any special training—but just the sort of training the typical Athenian 'gentleman' provides his 'sons'. See Anytus in the *Meno* at 92e–93a.

33 Although Socrates need not think that it can be taught in the way that the average Athenian thinks that ship-building is taught. Indeed, Socrates may not believe that it is an expertise that can be taught at all.

34 See, for example, Hippias' boast concerning the riches he has made in this way at *Hippias Major* 282d6–e8.

35 See the previous chapter.

36 *Protagoras* 319a3–5.

37 *Protagoras* 320b4–c1.

38 Indeed, this would seem to be Protagoras' greatest challenge: to make coherent his profession to teach virtue and his acceptance of folk morality. See the conclusion of the *Protagoras* as well as *Theaetetus* 177e–179b.

39 *Hippias Major* 281d5. Note the interchangeability of expertise and wisdom throughout this passage.

40 *Gorgias* 455a8–d5.

41 *Euthydemus* 273d8–9; see also 274e5, 285a2–b5, and 287a9–b1.

42 Socrstes' distinction between knacks *(empeiriai)* and expertises *(technai)* at *Gorgias* 463a–465d indicates that Socrates would also reject that what the sophists practice is an expertise. But even if it were an expertise, like the expertises of medicine and physical training, it would still not be virtue. Not because virtue fails to be an expertise, but because virtue fails to be that particular expertise.

43 Note the interchangeability of wisdom and virtue here and at *Euthydemus* 278d2–3. See also the *Apology* 2.9d2–30b2 quoted above.

44 See Irwin [9.36], Chance [9.18] and Brickhouse and Smith [9.17] for the interchangeability of happiness *(eudaimonia)* and to fare well *(eu prattein)* at *Eutbydemus* 278e–282d.

45 See Brickhouse and Smith [9.17], 103–12 for an excellent discussion of the various subtleties surrounding this passage. See also *Meno* 87d–89a for a similar argument.

46 Actually the military expertise does not make anything either. Rather it captures or discovers things. But Socrates does not reject it on these grounds, but on the grounds that it fails to know how to use what it captures or discovers.

47 In indicating that this is the suggestion of this passage I do not mean to be claiming that Socrates takes the *elenchos* in which these points are made to constitute a proof that Laches' definition is false. I have argued elsewhere that Socrates understands his individual elenctic arguments as establishing no more than the inconsistency of the interlocutor's beliefs. See Benson [9.3] and [9.8]. My point here is simply that Socrates' views can be gleaned from this passage —in part because they are repeated in other early dialogues—not that Socrates takes (nor

should we take) what he believes to be relevant to the results of this particular *elenchos*.

48 Again, I do not intend here to suggest that this is the conclusion Socrates thinks he has established by means of his *elenchos* with Nicias at the end of the *Laches*. See previous note.

49 To see how Socrates may have taken these two contrasts to be the same consider Socrates' example of the miner who produces gold. This expert can produce gold successfully lacking knowledge of the good and the bad. But he can't produce it beneficially—that is, produce it in a way that will benefit him—if he lacks the knowledge of how to use it, that is, if he lacks the knowledge of the good and the bad. If we are to take these two contrasts to be essentially the same and we are to take the knowledge or expertise of the good and the bad as the knowledge or expertise that makes us happy and fare well—that is, virtue—then what is the product of this knowledge? The good. In taking virtue to be an expertise we may or may not need to view it as essentially productive. For important discussions surrounding this issue see Irwin [9.34] and Roochnik [9.76].

50 Again, however, I hasten to point out that I do not take this to be the 'hidden meaning' of the *Charmides* or the conclusion Socrates takes his *elenchoi* in the *Charmides* to establish. See previous notes on the *Laches*.

51 Brickhouse and Smith [9.17], 6–7. Note that they prefer to translate *technē* as 'craft' rather than 'expertise'. See also Reeve [9.73], 37–53, Woodruff [9.96], 68–81, and Irwin [9.34], 73–7.

52 See Brickhouse and Smith [9.17], 37, Penner [9.69], 197, Penner [9.68], 321–2, Ferejohn [9.24], 383 n. 18, Ferejohn [9.23], 15 and Irwin [9.34], 296 n. 28.

53 See also *Republic* 346a1–3 and *Charmides* 168b2–4.

54 Taylor [9.82], 84 glosses this as perhaps spinning, weaving, pottery and cultivation of the olive.

55 See *Protagoras* 320e2–3.

56 See also *Protagoras* 331d1–e4, 333a1–b6, 349b1–c5, and

57 I owe the clear expression of this objection to C.C.W.Taylor.

58 On Socrates' position as contrasted with Protagoras' here see the debate concerning the Socratic doctrine of the unity of virtues: Vlastos [9.87], 221–70 and 418–23, Penner [9.67] and [9.71], Taylor [7.22], Irwin [9.39], 31–52 and 78–94, Devereux [9.20] and [9.21], Ferejohn [9.23] and [9.24], and Brickhouse and Smith [9–17]. 60–72 and 103–36.

59 *Hippias Minor* 365d6–366a4, *Gorgias* 509d2–e1, and *Hippias Major* 296a4–6. See also the Prometheus story mentioned above in which Protagoras sometimes has Epimetheus doling out the powers, for example strength and speed, and sometimes the things in virtue of which the creature has a particular power, for example thick hair.

60 See, for example, *Republic* 477d7–61 where Plato—as opposed to the Socrates of the early dialogues—explicitly identifies knowledge *(epistēmē)* and belief *(doxa)* as powers or capacities.

61 I say 'typically' because it is difficult to say what activities are associated with the powers of the greater, the double, the heavier, the lighter, the older, and the younger in the *Charmides* (168b-d), for example.

62 See Irwin's A-powers ('x and y have the same A-power when each of them does F (where F is some kind of behaviour); each of them has the power to F') versus B-

powers ('x and y have the same B-power when each of them is in the same state, G, which causes their behaviour') ([9.34], 44–46); Socratic powers are Irwin's B-powers. See also Penner's tendencies and motive forces or states of the soul ([9.67]); Taylor's dispositional quality versus permanent state ([7.22], no); Ferejohn's P1: 'A has the power to do X if A intended to do X, and there were an occasion for A to do X, A would do X' versus P2: 'A has the power to do x if there is some unique (simple or complex) occurrent property P such that (i) A has P, and (ii) anyone with P who intended to do X, and who had the occasion to do X, would do X' ([9.23], 18; [9.24], 382–83 and n. 18); and Vlastos's tendencies versus dispositions ([9.87], 434).

63 The issue here is complicated somewhat by the fact that Socrates appears to allow that the same activity can be associated with different powers—for example, in the *Laches* Socrates appears to allow that the activity of fleeing the enemy in the face of danger which typically is associated with cowardice, can also be associated with the power of courage—while at the same time indicating in the *Republic* that wage-earning activities can only be associated with the wage-earning power or expertise. The resolution of this issue is to be found in recognizing that activities are susceptible to differing descriptions. For Socrates, a perspicuously described activity is properly associated with only one power. The perspicuity of the description is tied to the power that produced the activity. But all of this goes considerably beyond the issues with which I am currently concerned.

64 Socrates apparently takes these to be absurd or impossible consequences; see *Charmides* 168e3–7.

65 One of the complications involved in this passage is the apparently equivocal use of the genitive. On the one hand, the genitive is used to pick out the special object associated with each power; on the other hand, it is used to pick out the power itself when it is 'of itself. Perhaps the best way to understand this is to distinguish between the object of the power and what it can be directed toward. Thus, sight and hearing can both be directed toward this bell since the bell both is coloured and makes a sound. The idea might be put as follows: a power can be directed toward a particular object just in case that object has the property associated with that power. Thus, sight can be directed towards itself just in case sight is coloured. Another passage that indicates that a power is to be identified by its object is *Gorgias* 447c1–456a6; see Penner [9.68], 320–322. Unfortunately, there are a few passages that suggest that distinct powers can have the same object; see *Gorgias* 451a–c and 464a–465d. This tension, however, can be resolved in a longer discussion of this topic.

66 To some extent this is as uninformative and potentially problematic as we might expect in light of the complication noted in n 63 above.

67 See, for example, Vlastos [9.93] and Irwin [9.36].

68 See Backhouse and Smith [9.17] and [9.14].

69 For a discussion of the argument on behalf of the luck-independence of wisdom in the *Eutbydemus* see Chance [9.18], 60–62 and Irwin [9.36], 92–6. See also Brickhouse and Smith [9.17], 119 n 31 for a similar account of the underlying idea of this passage. The same point is made concerning knowledge at *Charmides* 171d6–172a3 and concerning expertise at *Republic* 340d8–341a4. In the *Euthydemus*, while the first protreptic begins with frequent and consistent appeals

to wisdom *(sophia)*, by the end wisdom *(sophia)* and knowledge (*epistēmē* and *phronēsis*) are being used interchangeably.

70 I here forego the argument for such an identification, although *Laches* 184e– 190c discussed above establishes that definitional knowledge is at least a necessary condition of expertise. Dubbing this sort of knowledge 'definitional knowledge' is potentially misleading because if what I am arguing is correct, knowledge of what F—ness is is definitely not merely something like justified true belief of a definitional proposition, although it may very well entail such a thing. Nevertheless answers to Socratic 'What is F-ness?' questions have been for so long associated with definitions, it is difficult not to understand the knowledge that such an answer manifests as definitional knowledge. For more on Socratic 'What is F-ness?' questions, see Robinson [9.74], Nakhnikian [9.61], Beversluis [9.9], Nehamas [9. 62], Irwin [9.34] and [9.39], Benson [9.5], Kidd [9.49] and Taylor [9.84]. See also Aristotle (*Metaphysics* 1078b17–19) who apparently sees a connection between Socrates' innovation regarding moral philosophy and his interest in definitions.

71 See also *Protagoras* 360e8–361a3. This raises a number of issues concerning the relationship between definitional knowledge of virtue, for example, and knowledge that someone is virtuous or that virtue is teachable. For more on the controversies surrounding these issues see Geach [9.25], Irwin [9.34] and [9.39], Vlastos [9.90] and [9.92], Nehamas [9.63], Beversluis [9.10], Woodruff [9.95], Benson [9.6], Penner [9.70] and [9.71], and Brickhouse and Smith [9.17].

72 Dodds [9.22], 226 explains that the distinction between *technai* and *empeiriai* is drawn in two ways: 'by their aim, which is merely pleasure, and by their empirical character, which means that they cannot give any rational account of their procedure….' He goes on to explain the connection between the two ways as follows (228–229): 'A *technē* differs from an *empeiria* in that it is based on a rational principle *(logos)*, and can thus explain the reasons for its procedure in every case. This difference is connected with the one just mentioned [i.e. between pleasure and the good]; for in Plato's view *to beltiston* is in each case rationally determinable, whereas *to hēdu* is not. Thus in matters of diet a doctor can predict on general principles what will be *beltiston*, and give a reason for his prediction, if he knows enough about the chemistry of nutrition; but the patient's likes and dislikes are not predictable.' (Irwin [9–35] 209–10 appears to give a similar account.) In both Irwin and Dodds the suggestion seems to be that it is the rationality of *technai* that is basic. In aiming at pleasure rhetoric cannot be rational and so cannot be a *technē*.

73 For the identification of definitional knowledge with the possession of the *logos*, see Woodruff [9.96], 74–75 and Reeve [9.73] 42–43.

74 See *Republic* 340d8–341a4.

75 This, then, is how I understand one of the so-called Socratic paradoxes that knowledge is (necessary and sufficient for) virtue. See, for example, Penner [9.71], 5, who writes 'as if we needed evidence for the claim that 'Virtue is knowledge' is Socratic!' Penner here is objecting to Devereux [9.20] (see also Devereux [9.21]), but even Devereux does not deny that the doctrine can be found in some of the Socratic dialogues, e.g. the *Protagoras*. See also Kraut [9.51], 286: 'The credentials of (B) [Virtue is knowledge] as a genuine Socratic principle are impeccable. He endorses it not only in the *Protagoras* (361b1–2), but in the *Meno* (87c11–89a4) and the *Laches* (194d1–3) as well; in the *Charmides* (165c4–6) and

the *Euthyphro* (14c5–6), the search for temperance and piety eventually leads to the idea that these qualities are forms of knowledge; and if we wish to look outside the early dialogues, we can find Aristotle (*Nicomachean Ethics* 1144b28–30) and Xenophon (*Memorabilia* III.9.5–6) attributing (B) to Socrates.' Even Brickhouse and Smith [9.17], ch 4 agree that for Socrates knowledge or wisdom is necessary and sufficient for virtue. Indeed, it is because they accept Socrates' commitment to this doctrine that they are forced to distinguish between virtue—which knowledge of the good is sufficient and necessary for —and virtuous actions—which knowledge of the good is neither necessary nor sufficient for. See also Guthrie [9. 33], 130–39, and Taylor [9.84], 137, among others.

76 See Xenophon's portrait of Socrates mentioned above. One way this issue is sometimes put is that Socrates collapses the convention (nomos)/nature *(phusis)* distinction that the sophists made so much of. (For the sophists' view of this distinction see, for example, Kerferd [9.48], 111–131, de Romilly [9.19], 113–116, and Guthrie [9.32], 55–131.) The idea here is that Socrates is supposed to have believed that activities enjoined by conventional or traditional morality are essentially the same as those enjoined by nature.

77 See *Gorgias* 499e7–500a1. See also 467c5–468c1. See Irwin [9.35], 208 who correctly points out that *Gorgias* 499e 7–500a1 really claims that the good is what we *should* aim at, but what Polus and Socrates had agreed to earlier was that the good is what we *do* aim at. I follow Irwin's first reading of the latter passage.

78 See *Euthydemus* 278e3–279a1. The happiness involved here, like the good referred to in the *Gorgias*, is the agent's own. See Vlastos [9.93], 203 n.14, for example. For the translation of *eudaimonia* as happiness see Vlastos [9.93], 200–3.

79 See Vlastos [9.93], 204 n 20, for example, who maintains that the identity of happiness and the good is so obvious to Plato and Socrates that neither of them feels compelled to argue for it. Vlastos cites their apparent interchangeability in Socrates' statement of Callicles' position at *Gorgias* 494e–495b. See Irwin [9.36], 92 n. 12 for some reason to worry about this identity.

80 A number of different theses have been delineated under this general title. See, for example, Vlastos [9.93], 203–9, Brickhouse and Smith [9.17], 103–4 and Irwin [9. 39], 52–3.

81 This is Santas' prudential paradox; [9.78], 183–89. He cites on behalf of Socrates' commitment to this principle *Meno* 77b–78b, *Protagoras* 358c and *Gorgias* 468c5–7. To get the prudential paradox from Socratic eudaimonism we may also need the claim that there are no non-rational desires or that non-rational desires always succumb to rational desires.

82 I here sidestep the issues surrounding Brickhouse and Smith's [9.17] denial that virtue and so knowledge of the good is sufficient for happiness. Whichever side of this dispute we favour, someone who acts contrary to his or her own good does so unintentionally. It is either because the individual fails to know which action benefits him or her or the individual through some misfortune or lack of non-moral good is unable to perform the action. Henceforth, I will take Socrates' position to be the sufficiency thesis in order to simplify the explication.

83 This is Santas' moral paradox: that 'all who do injustice or wrong do so involuntarily'; ([9.78], 183). He cites the following passages: *Gorgias* 460b–d, 509e5–7, *Protagoras* 345c and 360d3.

84 See Santas ([9.78], 190) and Taylor ([9.84], 149), who maintain that in order for Socrates to get from the prudential paradox to the moral paradox Socrates must contend that virtuous behaviour benefits the agent and vicious behavior harms the agent.
85 See, for example, *Crito* 47d–e and *Gorgias* 477b–480a. For the identification of the individual with the soul see Brickhouse and Smith [9.17], 101 n. 41.
86 See Irwin ([9.35], 193) who writes concerning the argument in the *Gorgias*, 'Perhaps Plato believes that someone who rejects *nomos* and its conception of justice as a whole can justify himself only by advocating the complete self-indulgence supported by Callicles. Plato does not show that Callicles' ground is the only reasonable ground for a general criticism of *nomos*.'
87 Note that for Socrates the study of moral philosophy promotes one's virtue.
88 See, for example, *Apology* 20b9–c3, 20d7–e3, 21b4–5, 23b2–4, *Charmides* 165b4–c2, *Laches* 200c2–5, *Hippias Major* 304d4–e3, *Gorgias* 509a4–7.

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CHAPTER 10
Plato: metaphysics and epistemology

Robert Heinaman

METAPHYSICS

The Theory of Forms

Generality is the problematic feature of the world that led to the development of Plato's Theory of Forms and the epistemological views associated with it.[1] This pervasive fact of generality appears in several guises, (1) Normally, *one* characteristic is exhibited by *many* individuals. Redness, for example, characterizes many objects. (2) General terms such as 'is red' are correctly applied to many objects, and abstract singular terms such as 'triangularity' appear to name something without naming any individual. (3) We can *think* of general characteristics such as redness and of general facts such as that 'the triangle is a three-sided plane figure', where what is thought cannot be identified with a red individual or a fact about an individual triangle. (4) I can not merely think of but *know* general notions such as triangularity and general truths about them. Plato was the first western philosopher to focus attention on these facts, and his Theory of Forms attempts to explain their existence.

Although the first philosopher to draw attention to the problem of universals, Plato himself did not use any word that could be translated by 'universal'. The Greek terms normally used in the middle dialogues' 'classical' Theory of Forms are *eidos* and *idea*, which mean shape or form.

These terms already appear without their later metaphysical weight in early dialogues, where they signify moral characteristics which Socrates wants to define. In a famous passage of the *Metaphysics* (987a32–b8) Aristotle wrote,

> Having in his youth first become familiar with Cratylus and with the Heraclitean doctrines (that all sensible things are ever in a state of flux and there is no knowledge about them), these views he held even in later years. Socrates, however, was busying himself about ethical matters and neglecting the world of nature as a whole but seeking the universal in these

> ethical matters, and fixed thought for the first time on definition. Plato accepted his teaching, but held that the problem applied not to sensible things but to entities of another kind—for this reason, that the common definition could not be a definition of any sensible thing, as they were always changing. Things of this other sort, then, he called Ideas…

This fits what we find in early dialogues where, in asking questions of the form 'What is X?' Socrates[2] is seeking a general definition stating what X *is*, not merely what X is *like*. The correct definition of X should not only be coextensive with X but illuminate the nature of X: the *being* or *reality* or *essence (ousia)* of X.

While taking over Socrates' interest in general definitions, Plato went further by raising the question of 'what the problem applied to': *what* do we define when we truly state, for example, that

(1)
Virtue is knowledge of good and evil?

Further, Plato had a deep interest in mathematics, seeing it as a paradigm of knowledge, and the same question arises for mathematical truths such as

(2)
The triangle is a three-sided plane figure.

Precisely *what* is the subject-matter of such a statement?

I believe the following sort of reasoning lay behind Plato's answer to this question: Whatever such truths are about, their being about *that* must explain why they are *eternally* and *changelessly* true. By contrast, truths about sensible objects such as (3) Socrates is sitting inevitably become false. The explanation for this feature of (3) seems straightforward: (3) is about Socrates, a changeable object, and it is because Socrates changes that the statement about him changes from true to false.

Since (3)'s changeable subject-matter explains its change in truth value, it appears plausible to suppose that what explains the fact that (2) is eternally and changelessly true is that it is about an eternal and changeless subject (cf. *Timaeus* 2.9b).

If so, with what could such a subject be identified? Apart from one brusquely dismissed proposal to be mentioned shortly, Plato believed that the only alternative to Forms which needs to be ruled out consists in sensible objects. Now, as Aristotle informs us, Plato was influenced by a student of Heraclitus named Cratylus who said that the world is in constant flux, and he himself held a similar view of the sensible world. Whatever the exact meaning of Plato's claim, it certainly entailed that the instability of sensible objects excludes them as the subject-matter of eternal truths.

Even if sensible objects sustain the same features for some time, they eventually perish and so could not be what *eternal* truths are about. If the triangle is a three-sided plane figure even after a particular sensible triangle perishes, the general truth cannot be reporting any fact about it. After its demise, no state of affairs involving the particular triangle exists, so no such state of affairs can be the reality represented by the general truth.

So, I take Plato to have reasoned, (2) is about a Form, an eternal and changeless entity, and that is why (2) is an eternal and changeless truth. Similarly, there will be a Form of Virtue underlying a true definition such as (1), thereby justifying Plato's belief in an objective moral reality which is as independent of human capacities and interests as mathematical reality.

A related and absolutely fundamental point for understanding why Plato believed in the Forms lies in their role as objects of thought. Its importance is stressed at the end of the criticism of the Theory of Forms in the *Parmenides* when, in face of all the alleged problems for the theory, Plato comes down to one bedrock argument that furnishes unanswerable proof for the existence of Forms:

> If one does not allow Forms of things in view of all the present difficulties and others like them, and does not distinguish some single Form in each case, *one will have nothing on which to fix one's thought,* since one is not allowing that in each case there is an Idea that is always the same, and so one will utterly remove the possibility of discourse.
>
> (135b–c)

Plato sees thought as involving an awareness of entities external to the thinker where these entities furnish the contents of the thought. For, first of all, when I think of triangularity I am thinking about something, my thought has a content. So, Plato (fallaciously) reasons, what I am thinking of exists. Therefore triangularity is a being that I am aware of when thinking of triangularity. And second, to think of triangularity is not to be aware of some thought inside my own mind. Thought is directed toward a content other than itself—a Form (*Parmenides* 132b–c).

So thought, like perception, mentally connects us with a reality outside ourselves, and Plato regularly speaks of thinking as a kind of mental vision. By thinking of triangularity I stand in a relation to a being which is the content of the thought. And since I can think of triangularity when no particular triangles exist, particular triangles could not be the reality I am then related to and aware of in thinking of triangularity. For *what* is thought when I think of triangularity does not vary with the shifting population of particular triangles. So at no time could the object of thought be identified with sensible objects.[3]

For Plato, this shows not merely that the object of thought—the Form of triangularity—differs from particular triangles, it proves the Form's complete independence of them. Hence, Forms are not only eternal and changeless, they exist independently of what happens in the sensible world.

The reference to discourse at the end of the passage quoted from the *Parmenides* indicates that what holds for thought applies equally to language: general words have a meaning or content that must be identified with the Forms. Although Plato distinguishes between words and statements, he does not (yet) distinguish the ways in which they function. Both signify some objective reality which is identified with their content.[4]

Only Forms are objects of knowledge. To see why we must look more closely at Plato's view of the sensible world.

The eternity, changelessness and independence of the Forms are part of what Plato has in mind when, under the influence of Parmenides' conception of being as an eternal changeless reality, he says that the Forms are real or *are* in a strong sense to be contrasted with the *appearance* and *becoming* characteristic of sensible objects. *Being* also comprises truth—*really being* such and such—and when Plato says that knowledge is of *being* the notion of truth is fused with the idea that a subject S's *being* F involves S being F *in virtue of its own nature*, and therefore *being eternally and changelessly* F, and hence never being the opposite of F.

So the nature of S explains why S *really is* F. Only what is F in this way is a stable F, a pure F, a true, perfect and real F. A subject cannot be a real F, it cannot be its nature to be F, if it ever appears contrary to F, which Plato (at times) conflates with appearing to be *not* F.

We saw that in early dialogues Plato says that being or reality is displayed in a general definition. Such being or reality—where this now has all the connotations noted above—is found only among the Forms. Beauty, for example, is beautiful in virtue of its own nature, and hence is eternally and changelessly beautiful without any trace of its opposite, ugliness.

In contrast, sensibles are never beautiful in virtue of their own nature: they inevitably appear ugly in another respect, or in comparison to another thing, or at another time. If a beautiful object is not ugly at the same time, it will nevertheless eventually become ugly since it is undergoing continuous change. For example, sensible objects constantly change place, and if a beautiful object approaches a more beautiful object the first will be uglier than the second, and hence appear ugly as well as beautiful. Or one may move to a position from where the object appears ugly rather than beautiful. If, unavoidably, A will appear ugly as well as beautiful, then we cannot explain A's beautiful appearance by saying that it is A's nature to be beautiful. It *is* not beautiful *in itself*, it merely presents an appearance of beauty in virtue of 'participating' in a being outside of itself, the Form of Beauty. That is—this is the only content Plato ever gives to *participation*—the sensible resembles or imitates the nature of Beauty. We must look beyond the sensible object to explain its appearance. It is dependent on the Form which is, by contrast, entirely independent of it.

This situation of appearing F without *being* F applies to all features of sensible objects. There is nothing that they *really are*. We cannot say that this stuff before us really is snow because changes are constantly going on in the sensible world

which will lead to the disappearance of snow. It is not snow in itself, it does not have the nature of snow, or *any* nature since all its features will eventually disappear or be joined by their contraries. So we must look beyond the snow itself to explain why it is cold. We can say that the stuff before us is cold because it participates in the Form of Cold, or, more interestingly, that it is cold because it participates in the Form of Snow, which always brings along Coldness. But we cannot explain why it is cold by saying that the stuff before us has the nature of Snow, and therefore is cold.

At times Plato goes further[5] and suggests that the constant change undergone by sensible objects leaves them bereft of any kind of identity between what we *call* different phases of the 'same' object. Plato believes in particular qualities which are peculiar to the object they are found in. Socrates' health, for example, is peculiar to him and differs from Aristotle's health. A sensible object is a bundle of such qualities and when the qualities change the numerical identity of the object changes as well, even if we call it the same because of the similarity[6] between the earlier and later objects. Not only can we not properly say that this object *is* healthy, we cannot say that it *is* Socrates, for that would impute a stability which it does not possess. For the same reason it is misleading to refer to sensible phenomena with the word 'this': it suggests permanence and stability that the sensible phenomena are too volatile to merit.[7]

The *Timaeus* identifies individual qualities with images of the Forms which cannot be legitimately called this or that but should only be derivatively described in reference to their models—Forms—as, for example, 'such as' water. One point of this characterization is that the images and sensible objects composed of them are derivative from, dependent on and less real than the Forms they reflect, as images in mirrors or water are derivative from, dependent on and less real than their ordinary models. When shifting phenomena change from air to water to earth, etc., we can, during the second stage, say that the image is such as water since there is a fleeting resemblance to Water. (Similarly we could say that a mirror image of water is 'such as' water, imitates or resembles water, without really being water.) But the image's disappearance shows that we could not have pinned it down as 'this' or 'that': like mirror images, the phenomena lack any nature which they could be said to be.

The *Timaeus* further develops Plato's view of the sensible world by introducing the 'dim and difficult' notion of space as an entity needed besides Forms and images on the grounds that an image requires a medium or receptacle where it can exist. Space has no feature of its own since that would interfere with its imaging the contrary feature. But since its nature is stable and unchanging, it can properly be spoken of as 'this'. What we observe in the phenomenal world should be described by saying (e.g.): this (namely, space) is such as fire. An analogue would be the statement that gold is triangular: as an underlying medium gold receives and exhibits the feature without really being that feature and without its own nature being affected by the presence of the shape.

Knowledge exists, and its object must plainly be what *is*, reality. And here all the aspects of *being* noted above coalesce: truth, essence, eternity, changelessness, stability and intrinsic intelligibility. For Plato, a paradigm case of knowledge would be expressed in the definition of the being or nature of triangularity. Since in knowing that the triangle is a three-sided plane figure one has knowledge of reality, *what* reality precisely is it that is known? Not a sensible triangle for, as we saw, the changeable character of sensible objects exposes their lack of the being demanded of an object of knowledge: they *are* not anything but only appear to be and imitate reality. The nature and being of a triangle is not present in but beyond the sensible object and there is nothing there in the sensible to be known. Since sensibles have no natures to be known, the objects of knowledge must be different: the Forms.

Nevertheless, we do have mental states related to sensible objects. These, however, are perceptions and opinions or judgements *(doxai)* based on perception, not knowledge. Lacking any notion of a proposition or sense that could serve as the content of a cognitive mental state, Plato identifies this content with the being in the world that the mental state is about. Since judgement or opinion differs from knowledge—it can be correct or incorrect, it is not based on an account of its object—the entity that is its content, Plato argues, can no more be identical with the *being* grasped by knowledge (namely, the Forms) than a colour can be what we hear. Still, since opinion does have a content it cannot be directed toward sheer nothingness. So the objects of opinion fall between being and not being. Sensible objects, appearing both to be F and not to be F for many properties, must be the entities that furnish opinions with their content.[8]

Again, the Forms must be changeless and eternal, and as objects of knowledge they must *be* the natures expressed in definitions.

For Plato, even if there were (or are) eternal triangles in the sensible world, there would be a distinct Form of Triangularity because we could not otherwise explain why the triangles have something *in common*, share *one general* feature.

If it is by reference to the Form of Triangularity that we explain why particular triangles have something in common, then (*Republic* 597b–c; cf. *Timaeus* 31a) there must be only one Form of Triangularity. An individual's being F is explained by its participation in F. If, *per impossible*, we had two Forms of triangularity, T_1 and T_2, then if object *a* were a triangle because it participated in T_1 and *b* were a triangle because it participated in T_2, we could not explain why *a* and *b* have something in common. To do that we must relate them both to one and the same entity, one and the same Form.

To explain how things have features in common, then, we must suppose that for each property there is one and *only* one Form.

We have, Plato believes, the ability to think of ideal standards such as perfect equality, for when we judge that sensible objects are equal we may judge at the same time that they fall short of perfect equality. So to judge is to compare the sensible objects with another entity. For to think about perfect equality—to have *that* as a content of thought— is for the mind to stand in a relation to a reality

outside the mind. The question then arises of how to explain this awareness and our ability to think—from among all the entities that exist—of precisely *it*.

I could no more have become aware of this entity through examining the contents of my own mind than I could have by introspection become aware of Mount Everest. And Plato appears to believe that the explanation of my ability to think of perfect equality must be that at some time or other I experienced it. To perceive sensible equals is not to experience perfect Equality since none of them really *is* equal: they are inevitably also unequal, the opposite of equal. It is not, Plato thinks, by observing an object that is no more equal than unequal that I can acquire the notion of perfect equality. So it must be through acquaintance with the Form of Equality, which is perfectly equal, that I acquired the ability to think of perfect Equality.

So a Form of F-ness is a paradigm of F, it is perfectly F. This is part of a Form's *being* in a way that sensibles are not.

This idea that a Form of F is itself F has come to be known as 'self-predication'.[9] Already in the earliest dialogues, where the Theory of Forms is undeveloped, we observe thought and language that naturally evolved into the self-predication assumption. For example, proposed definitions were often expressed as in the following definition of justice:

(1) Doing one's own *is just*.[10]

If the definition is correct, since

(2) Doing one's own=justice

it follows that

(3) Justice is just.

In early dialogues such statements are taken to express self-evident truths.[11] A statement of this form is also implied by the assertion that if Beauty is correctly defined as X, then X must be more beautiful than anything else[12] and cannot be the opposite of beautiful;[13] and by an argument that X cannot be the definition of Beauty because it is not beautiful.[14]

Assertions of (3)'s form are entailed by Plato's belief that if an object b explains why an object a is F, b must itself be F[15] and somehow impart its own F-ness to a. Plato considers it self-evident that if a is F, F-ness is a *being*, and the presence of F-ness explains why a is F.[16] It follows that F-ness must itself be F.

This condition on explanation is important once the Theory of Forms is developed, for Plato uses it and related principles in the *Phaedo* to mount a rationalist attack on experience of the sensible world as a source of knowledge, and to argue that explanations of phenomena in terms of perceptible and mechanical processes lead to absurdity. Typically, Plato believes, if we use our

senses to identify some sensible property, physical process or object X as the explanation of something—Y—in the sensible world, the following absurdities arise: (1) X is contrary to Y, or (2) in other cases the contrary of X appears to bring about Y, or (3) in other cases X appears to bring about the contrary of Y. To suppose that a contrary could be explained by its own contrary is like supposing that we could explain why snow is cold by appealing to the presence in it of something hot.

Plato's explanations of phenomena in terms of participation in Forms avoid these difficulties.[17] The 'safe and stupid' explanation of why a sensible object is cold, for example is that it participates in the Form of Coldness. The 'clever' explanation appeals to the fact that certain kinds of thing are necessarily associated with one opposite characteristic and exclude another; as Snow, for example, must, in virtue of its own nature, be characterized by Coldness and exclude Hotness. So the clever explanation of why a sensible object is cold could be that it participates in the Form of Snow.

Although clearly distinguished from *teleological* explanations, Plato gives no indication that his preferred explanations differ in kind from those he rejects. But while the latter include what Aristotle would label efficient causes, Plato's recommended explanations are more like 'formal causes'. A safe and stupid explanation states *what it is* for a sensible to be F. The clever explanation's account of why the snow is cold combines with the snow's participation in Snow the point that 'snow' entails 'cold', just as 'triangle' entails 'interior angles equal to 180 degrees'.

The important point for self-predication is that Plato's explanations avoid the alleged difficulties confronting physical, mechanical explanations. The items appealed to possess the characteristic explained and never possess the contrary. Thus, the Form of Snow is cold, and the Form of Coldness is cold. Self-predication is essential to Plato's idea of explanation.

It is also essential to his account of participation. A sensible object gives the *appearance* of Beauty, so although it cannot *be* beautiful, the appearance can only be accounted for if the sensible object 'participates' in the Beauty which it cannot be. And for the sensible to participate in Beauty is for it to resemble or imitate the nature of Beauty which it does not possess. If there is resemblance, then there is a shared characteristic.[18] And if this is not strictly true, that is not because the Form of Beauty is not really beautiful, but because the sensible is not really beautiful and only appears to be such as the Form truly is.

Resemblance and self-predication are also important for recollection since Plato thinks we are often reminded of and re-acquire knowledge of Forms by observing sensible objects that resemble them.

Again, self-predication alone makes sense of Plato's theory of love. Love is the desire to possess what is beautiful and the supreme object of love is the Form of Beauty. So the Form must be beautiful. How could the object of the most intense and most pleasurable eros *not* be a beautiful object?

As the goal of a passionate longing, the Forms are objects of desire, and to 'acquire' them by knowing them is a mystical experience of *divine*[19] beings. All people, most unconsciously, yearn to recapture the vision of the Forms which they enjoyed before birth. This alone did give them and would give them complete satisfaction and happiness.

All this makes some sense only if the Forms are perfect paradigms. Because of their greater reality 'possession' of the Forms gives true satisfaction in a way in which possession of sensibles does not. And part of that greater reality consists in the Forms being perfectly what sensible objects are only deficiently or in appearance.

Similarly, Forms are more real because of their greater 'cognitive visibility' in comparison with sensible objects.[20] If we want to learn what a property F is, the observation of a sensible F will typically prove of little use since the property will be bound up with its opposite, and so the observation will provide a confused idea of what F-ness is. However, if we could attain a clear view of the Form we would immediately know what F-ness is because it is a 'pure' and perfect example of F uncontaminated by its opposite (cf. *Philebus* 44d–45a). Here again, the greater reality of the Forms depends on their being paradigms.

Self-predication, then, is fundamental for Plato's philosophy. However, it is a mistake, arising, in part, from confusions that helped to make it seem entirely natural.

1 Plato does not distinguish different uses of 'to be.' His single Form of Being merges these different uses with the features of true being noted before. So the existential use is run together with the identifying use,[21] the existential use is conflated with the predicative use,[22] and the predicative use is confused with the identifying use.[23] Given the last confusion, since, plainly, Beauty is Beauty, it may also seem self-evident that Beauty is beautiful.
2 Pre-Socratic philosophers did not always properly distinguish between objects and properties. Thus, Anaxagoras spoke of 'the hot' and 'the cold' on a par with 'earth' as elements from which things come to be. If Plato too was not clear on this point, then it would have been natural for him to think of Beauty as a beautiful object.[24]

   The point is not that Plato did not distinguish attributes and objects but that he did not adequately distinguish the kinds of thing which they are.
3 Greek uses expressions formed from the definite article and an adjective such as 'the beautiful' to name properties. Occasionally Plato will even use the adjective on its own as the subject of a sentence to refer to a Form. Such expressions lend themselves to being understood as operating in the same manner in which they *do* operate when applied to sensible individuals, namely as *describing* the object named. And this danger is especially serious in Plato's case for (*Cratylus* 384d–385c) he does not adequately distinguish naming and describing. So he could easily understand terms designating the

Form of Beauty—'the beautiful' and 'beautiful'—as describing and not merely naming the Form.

4 The definition

(D) The triangle is a three-sided plane figure

specifies the condition an individual must satisfy to be a triangle. But even if 'the triangle' in (D) names a universal, the rest of the sentence does not *describe* the universal. That is, (D)—however it should be construed—does not say that the universal *triangle* is a three-sided plane figure, is a triangle, in the way an individual triangle is. But that is just how Plato understands (D).

This connects with a failure to distinguish different types of general predication. Supposing there is a Form of Man we could say that

(a) Man is eternal, changeless, etc.

Here properties are attributed to the Form just as they are attributed to Socrates when I say he is white, henpecked, etc. Man is an entity that is an eternal thing, etc. But

(b) Man is an animal, mortal, etc.

makes a different sort of claim. Thus, whereas there may be some plausibility in proposing that (b) means

(c) Every man is an animal, mortal, etc.,

(a) certainly does not mean

(d) Every man is a universal, eternal, etc.

The predications in (a) are true because they are about a Form: all Forms have those properties. The predications in (b) are true because they are about the specific concept Man. If the two types of predication are not distinguished, one might understand the predications in (b) in the same way as those in (a). Then definitions such as

Man is a rational animal

may make it seem obvious that Man is a man, Triangularity is a triangle, etc.

Plato's metaphysics is built on the contrast between Forms and sensible objects. These contrasts make Forms *more real* than sensible objects. Forms are natures existing independently of sensibles: eternal, changeless, divine, immaterial, imperceptible, knowable and intelligible in virtue of their natures. Free of contrary attributes, they are perfectly beautiful, just, etc. and of the highest value. Sensible objects, by contrast, are dependent on Forms: material, perceptible, transient, in constant flux, of little or no value, or evil; lacking intrinsic natures, they *are* not really anything but bound up with opposites and unintelligible.

Being utterly contrary to what is found in the sensible world, Forms do not exist in but apart from the world around us.[25] While their images exist in us,[26] they exist 'in themselves', and this means that they do not exist in us or anywhere 'here on earth'[27] in the 'corporeal and visible place.'[28] They exist in 'another place,'[29] the 'intelligible place,'[30] 'the place in which the most blessed part of reality exists,'[31] a place 'untainted by evils'[32]—heaven[33]or a 'place beyond heaven.'[34]

The Parmenides

Parmenides 127d–136e presents the puzzling spectacle of Plato putting forward criticisms of his own Theory of Forms. Probably the prevalent view today is that the dialogue documents Plato's realization of the unacceptable consequences of self-predication, which he therefore abandons.

I disagree. Plato portrays a youthful, immature Socrates not yet in possession of the philosophical acumen that would enable him to answer the objections to his underdeveloped theory. But Plato himself, I believe, is not concerned about the objections because, in his view, they arise from confusion or an inadequate understanding of the Theory of Forms. I will only have space to discuss the first version of the Third Man Argument (132a–133a), the 'TMA'.[35]

The argument's validity rests on two assumptions not given in the text: Self-Predication,

> (SP) A Form of F-ness is F

and 'Non-Identity',

> (NI) If all members of a set of objects are F in virtue of participating in a Form of F-ness, no member of that set—that Form of F-ness.

The only assumption on the surface of the text is the 'One over Many Assumption,'

> (OM) If several objects are F, there exists a Form of F-ness by virtue of participating in which they are F.

Whereas Plato maintains that only one Form exists for any attribute, he appears committed to infinitely many Forms for each attribute.

For suppose that sensibles

(1) a, b and c are large.

Then by (OM)

(2) there exists a Form of Largeness: Largeness_1.

By (SP) it follows that

(3) Largeness1 is large.

So now we have a new set of large things:

(4) a, b, c and Largeness, are large.

By (OM), applied to this new set of large objects,

(5) there exists a Form of Largeness: Largeness_2.

And given (NI), Largeness_2 differs from Largeness_1: since Largeness_1 is large by virtue of participating in Largeness_2, it cannot be Largeness_2. When endlessly repeated, these steps produce an infinite number of Forms of Largeness.

Since Plato nowhere explains his attitude toward this argument, we will never know what he thought of it. The question must be addressed on the basis of indirect evidence.

Attention has focused on self-predication since that is in fact a mistake. As we saw, self-predication is essential to Plato's earlier Theory of Forms, so the TMA's presumption of self-predication does not render it irrelevant to Plato's position.[36]

The belief that the argument's point is to prove the unacceptability of self-predication runs into the problem that self-predication is present in what is now generally agreed to be a dialogue later than the *Parmenides*, namely the *Timaeus*.[37] There, despite *Parmenides* 133a's rejection of resemblance, sensibles participate in paradigmatic Forms by resembling and imitating them. Resemblance brings along self-predication.

That the target is not self-predication is also indicated by a peculiar argument separating the two versions of the Third Man Argument. Socrates proposes that Forms might be *thoughts*, to which Parmenides objects that then everything is a thought, and hence either everything thinks or else, while *being* a thought, does not think.

The argument assumes that *a thought* thinks. Further, we saw that one confusion behind self-predication is the failure to distinguish between predications such as

(i) Man is eternal

and

(ii) Man is mortal.

If Socrates participates in the Form of Man, then *only* (ii)'s predicate can be legitimately transferred to Socrates. But when from the proposal that Forms are thoughts Parmenides concludes that

(iii) Man is a thought,

the predication is of the type that occurs in (i). So one who was clear about the difference between (i) and (ii) would not take Socrates' participation in Man together with (iii) to imply that Socrates is a thought.

But such is Plato's inference. Now, Plato certainly rejects the idea that Forms are thoughts, so he is probably making what *he* considers a sound objection against it. If the point of the TMA were to expose and reject self-predication, why would Plato, in the midst of this demonstration, deliberately present a fallacious argument against a view he wants to refute, where the fallacy is of precisely the sort involved in the error of self-predication?

But if Plato did not abandon self-predication, how could he respond to the Third Man Argument? By restricting the One over Many Assumption, the only assumption expressly given in the text.[38] Platonists in the Academy regularly limited the inference from a set of Fs to a Form of F to cases where the members of the set do not stand in relations of priority and posteriority; and, according to Aristotle, Plato himself accepted this restriction.[39] Aristotle reports this view in the *Eudemian Ethics* (1218a1–8):

> There is not something common over and above and separate from things in which the prior and posterior exist. For what is common and separate is prior *(proteron)* since the first *(prōton)* is taken away when what is common is taken away. For example, if *double* is first of the multiples, *multiple*, which is predicated [of particular multiples, namely *double*, *triple*, etc.] in common, cannot be separate. For then there will be [a multiple] prior to *double*.

But *double* is the first multiple and cannot have a multiple prior to it. So there is no Form of *Multiple* over and above specific multiples. The rationale for this

principle assumes self-predication: it is *because* the Form of Multiple would be *a* multiple that it would be, impossibly, a multiple prior to *double*.

Ontological priority is in question: if x's non-existence entails y's non-existence, but x can exist without y, then x is prior to y. Aristotle reports that Plato regularly used this notion of priority.[40]

One page before the quoted passage Aristotle points out that a Form of F is, in just that sense, prior to particular Fs: the Form of Good is the first and prior good because if taken away the other goods would be taken away. That is because for them to be good is for them to participate in, and thus depend on, the Form, while the Form is not similarly dependent on the particular goods: *being good* is its nature, so it is good in itself.

Likewise for any other Form. So at step (4) of the argument,

(4) a, b, c and Largeness1 are large,

Plato can block reapplication of the One over Many Assumption and the inference to a new Form. One subject—the Form—is the first of 'the larges' and prior to the others.

Of course, if the reason given above was Plato's justification for thus restricting the One over Many Assumption, then the restriction is unacceptable since it rests on self-predication. In fact, then, but unknown to Plato, the Third Man Argument presents a serious problem for the theory of Forms.[41]

Many have detected revision of the Theory of Forms in a discussion of 'friends of the Forms' in the *Sophist* (248a–249d). Some believe Plato is allowing that the Forms can change, some believe that motion is allowed to be real, and some believe that the Forms have become 'powers' *(dunameis)* or potentialities for change—all contrary to what Plato previously believed.

Interpretation of the passage is made difficult by its aporetic character, and the entire discussion (236–51) ends in aporia. The Eleatic Stranger, who leads the *Sophist's* conversation, examines a dispute between 'giants' who define being in terms of matter, and 'gods' who explain that being consists of the immaterial and changeless grasped by reason independently of the senses. The latter are called 'friends of the Forms' and are often thought to include Plato himself. Hence, when their position is criticized it is thought that Plato is criticizing his own previous position.

Before discussing the friends of the Forms, the Stranger criticized the materialists and introduced the following definition of *being*: x is a being just in case x has a power to act on, or be acted on by, something else. The friends of the Forms might be expected to reject the definition because it admits material objects as beings, but the only explanation given for their rejection is their denial that Forms—the beings—possess a power to act or be acted on.

The Eleatic Stranger raises two objections against the friends of the Forms, (1) They allow that Forms are known. But *to know* is to act, and therefore *to be known* is to be acted on. Hence, in being known the Forms are acted on, and

therefore changed. (2) He cannot accept that intelligence does not belong to 'what wholly is'. But if intelligence belongs to being, so must life, soul, and hence change, belong to being.

Now, to determine Plato's attitude to this criticism, we need to know: Does Plato accept the Eleatic Stranger's definition of being?

And to answer this we would need to answer the following question: Is the notion of *being* defined in terms of the capacity to act or be acted on *being* in the strong sense or the weaker notion applicable to material objects?

The *Sophist* itself fails to settle these questions. But if we look to later dialogues where the earlier contrast between being and becoming is reaffirmed,[42] and assume that the *Sophist* does not represent a temporary detour, then we can say the following: (1) If the *Sophist* defines being in the strong sense, then Plato cannot accept its definition since he later reaffirms that being cannot apply to the sensible world of becoming. (2) If the *Sophist* is defining being in the weaker sense, then Plato could accept it consistently with his contrast between a stronger notion of being and becoming. For the fact that x is acted on does not, as the Stranger falsely suggests (248e), entail that x is altered. One example of 'acting' and 'being acted on' was that if x possesses an attribute F, then F acts on x, and x is acted on by F. In this sense the Form of Figure 'acts' on the Form of Triangularity, and, according to the *Sophist's* doctrine of the communion of Forms, the Form of Being 'acts' on the Form of Difference. Obviously, this does not entail that Triangularity or Difference change, and the passage ends with the changelessness of the objects of knowledge reaffirmed (249b-c; cf. *Politicus* 269d).

If it is said that the vehemence with which the Stranger asserts that motion, life, mind and wisdom belong to 'the *wholly* real' shows that he is asserting their being in the strong sense, this is consistent with the earlier Theory of Forms.[43] It too asserted the existence of Forms of Soul and Life in the *Phaedo*.[44] The Form of Motion is casually referred to in Socrates' outline of his *immature* Theory of Forms in the *Parmenides* (129e), and the Form of Knowledge is mentioned later in the same dialogue (134a–e; cf. *Phaedrus* 247d–e).[45]

While there is no clear evidence for the suggested alterations in the Theory of Forms, the *Sophist* does undeniably contain one new development: for the first time Plato speaks of Forms participating in other Forms: the 'communion of Forms'. Hitherto, Plato was only concerned to give the ontological analysis of the fact behind a true statement that a subject S is F when S is an individual. But in many cases—and many cases of the sort that Plato would be particularly interested in—the subject of a statement asserting that S is F will name a Form. If the case where S is an individual demands explanation, it is obvious that the general case likewise demands an explanation. And this Plato provides for the first time with his doctrine of the communion of Forms.

A central passage in the *Sophist* (251a–257a) presents a series of arguments to distinguish five 'greatest Kinds': Being, Sameness, Difference, Rest and Motion. Many have found more sophisticated theories here, but I believe that communion

of Forms is the same relation as his earlier notion of participation—in the sense that for a Form S to participate in a Form F is for S to possess F as a property, just as for an individual S to participate in a Form F is for it to have F as a property.[46] Consequently, self-predication is a feature of the *Sophist's* Kinds[47] since the ontological analysis of the fact that *the Triangle is a figure* is: the Kind Triangularity participates in the Kind Figure, and hence *is a figure* in the same way as particular triangles are. Given that the Kinds are also 'divine' (254b), they must be the same Forms which we find in the middle period dialogues.

Divinity also characterizes the 'Henads' of the *Philebus* (62a), a very late dialogue mainly concerned with ethical problems but containing important and notoriously obscure passages on metaphysics with Pythagorean overtones absent from earlier works. The obscurity is probably due, in part, to the metaphysics of the *Philebus* being grounded in Plato's 'unwritten doctrines,'[48] about which our knowledge is very thin.

Plato divides 'all beings' into the categories of (1) Limit, (2) the Unlimited, (3) the mixture of Limit and the Unlimited, (4) the cause of this mixture. (4) is relatively clear, being identified with intellect, but the rest of the scheme resists interpretation because of the shifting usage of the notions of Limit and Unlimited, and the bizarre diversity of examples from the mixed class.

The Limit-Unlimited contrast is associated with the contrast between one 'Henad' with a specific number of species, and its indefinitely large range of generable and destructible instances (16c-d). But Limit is later explained in terms of the notion of a numerical ratio or measure (2 5 a), and still later connected to the ideas of *moderation* and a *balanced* and *good* proportion (26a). Correspondingly, the Unlimited is not only associated with the idea of an indefinite range of particular instances but is explained in terms of scales of qualities referred to with pairs of comparative adjectives: hotter-colder, higher-lower, etc., which are generally characterized as admitting the more and the less, and as in themselves admitting no definite quantity. Further, the Unlimited also includes pleasure and the *life* of pleasure. The difficulties are further compounded by Plato's identification of these different notions of Limit and Unlimited (23c) and by the disparate nature of the examples from the mixed class: it includes a moderate amount of pleasure, the life which combines pleasure and intellect, the art of music, fair weather, health and virtue of character. As these last examples show, Plato's scheme cannot be interpreted in terms of Aristotle's notions of form (Limit), matter (Unlimited) and composite (mixture). Nevertheless, it appears that Plato is analysing entities into what can be loosely called 'formal' and 'material' elements.

How do the Forms fit into this classification? If the One of the One-Many problem raised at 13e–15c corresponds to a (perhaps 'mathematicized') Form from earlier dialogues, then since the One-Many problem arises for all items in classes (1)–(3) (23e, 24e, 26d), Forms do not fall under any one of these classes but rather there are Forms for all the beings in (1)–(3). So, for instance, the

Unlimited will include both the Form of Pleasure and particular instances of pleasure.

As in the *Sophist*, Plato displays greater interest in the relations between Forms than he did before. The *Philebus* addresses the problem of reconciling the Form's unity with the fact that it not only has many individual instances but will often be divisible into further species which are themselves Forms. Perhaps 15d–17a proposes a solution to this problem, but if so it is, like much of the *Philebus'* metaphysics, steeped in obscurity.[49]

EPISTEMOLOGY

Recollection

The recollection theory is Plato's explanation of our ability to think of and acquire knowledge of general notions and general truths, where general notions are understood as Forms and general truths the facts about Forms.[50] The theory claims that in this life we can think of and know the Forms only because we experienced them before birth and thereby acquired knowledge of them. This 'active' knowledge is lost at birth but remains latent in the soul, and perception of sensibles that resemble the Forms, or teaching by another, or enquiry into the Forms by a dialectical conversation which (ideally) operates independently of the senses, may lead to full recovery of the latent, innate knowledge.

To understand why Plato adopted this extravagant theory we must recall his picture of thought as a relation to—as an *awareness of*— beings outside our minds. Suppose that yesterday you found yourself thinking of my cousin Ruth Collins in Lancaster County, Pennsylvania, a person you never heard of before. As you could not have simply pulled out of yourself the awareness of this person who is a real being existing independently of you, if it could be established that you have had no experience of her since birth, it might be plausible to suppose that you must have somehow experienced her before birth. And how else *could* we explain your ability to think of *her*?

Of course, we are unable to think about sensible objects we have not encountered since birth. Plato believes, however, that we *can* think of general notions and general truths which we have never experienced in our present life, and so the problem which does not exist for sensible objects does exist for general notions and general truths.

Thus, the *Phaedo* says we have the ability to think of Equality. Where could it come from? Not merely from perception of sensible equals, for they, unlike the Form, appear unequal as well as equal. This establishes that the Form is a different entity from the sensibles. So even if the sensible equals were perfectly similar to the Form of Equality, our awareness of them on its own could not have made us aware of and able to think of that entirely distinct entity, Equality itself.[51] No more than the perception of several people exactly like Ruth Collins

could have given you the ability to think of her. But perception of the sensible equals may revive our latent knowledge, and once we are aware of Equality we may carry out a dialectical enquiry leading to complete knowledge of it.

In the *Meno*, recollection explains a slave boy's ability to think of a mathematical truth; call it 'p'. Plato reasons: the slave boy produces this thought that p so it must have already been *in* him. Since nothing the slave boy experienced since birth could have put it into him, he must have become aware of it before birth (cf. *Phaedo* 73a–b). What Plato finds puzzling, what requires explanation, is the slave boy's ability to *think* of the mathematical fact, and it is by explaining this that the recollection theory explains the slave boy's ability to make a judgement about and, later,[52] to know the mathematical fact. This is the more natural for Plato because his picture of thought as an active awareness of some being in the world makes it hard to distinguish thinking and knowing.

Now, the correct explanation of the slave boy's ability is, at one level, straightforward. The sentence asserting that p is composed of words the meaning of which the slave boy already knows. And it is simply a fact about human beings that they can construct new statements and know what they are saying as long as they know the meanings of the words in the statement and can follow the relevant linguistic rules.

Only in the *Sophist* will Plato begin to appreciate the importance of the difference between the ways in which words and statements function. In earlier dialogues, statements are understood to be assigned to beings in the same way as names.[53]

Related confusions can be found in Plato's failure adequately to discriminate (1) objects and facts; (2) knowledge of objects and knowledge of facts; (3) propositions and facts.

Plato nowhere distinguishes an ontological category of facts as distinct from objects; both are referred to indifferently as 'beings'. Stating a fact with a sentence or thinking a thought is seen by Plato as a reference to or an awareness of some reality external to the thinker which is, furthermore, identified with the *content* of the thought, namely the fact in question. *What is said* is quite naturally identified with the fact—the reality—reported.[54]

So Plato sees the slave boy as someone who has some general mathematical truth, *p*, as the content of his thought, where this is identified with the fact that *p* 'grasped' by the slave boy's mind. In thinking that *p* the slave boy is related to and aware of some part of reality outside himself, and just as I could not think of an object I had never experienced, so Plato believes the slave boy could not think of and be aware of the fact that is the content of his thought if he had never experienced *it* before. As he has not experienced it since birth, he must have done so before birth.

In the *Meno* the recollection theory is also relevant to the paradox of enquiry raised before Socrates' examination of the slave boy. The paradox is stated in two ways that are not equivalent:

1 I cannot enquire into something of which I am completely ignorant.
2 I could not know if I came across what I was enquiring into because I could not recognize it as what I was searching for.

The recollection theory can answer (2). The slave boy, for example, has latent knowledge of *p* which, when revived by Socrates' cross-examination, enables him to 'recognize' *p*.

But the recollection theory does not and is not meant to answer (1).[55] To set up X as an object of enquiry I must *actively* 'know' X, and latent knowledge cannot by itself explain such awareness of X. Once we distinguish between propositions and facts, the solution to (1) is straightforward: I can know what is said by 'p' without knowing whether it is the case that p. So I can enquire whether it is the case that p without knowing whether it is the case that p. But with this solution unavailable to him, Plato's responds to (1) not with an explanation of how enquiry is possible but by arguing that as a matter of fact enquiry can lead to knowledge and so we *ought* to persist in enquiring into things we do not know.

> For inasmuch as all nature is akin, and the soul has learned all things, when a man has recalled one piece of knowledge… nothing prevents him from finding out all the other things.
>
> (*Meno* 81c-d)

If I learn A, which is similar to B, then I may recollect B. And if B is similar to C then I may recall C, and so on. It is this sort of stepwise enquiry which Socrates conducts here (*Meno* 82e 12–13).[56]

Dialectic

That stepwise procedure of recollection is an example of Plato's dialectical method. This developed from the negative and destructive Socratic elenchus—the procedure of refutation portrayed in early dialogues— into a method for achieving positive knowledge. The *Phaedo* contrasts it with empirical investigation which leads to the difficulties mentioned previously, and emphasizes that enquiry should proceed by reason alone. The Forms can only be apprehended by reason, and it will be by thinking about *them*, by having *them* in our mental view, that we will acquire knowledge of them, not by turning to the sensibles that only confusingly reflect the natures we wish to know.

'Dialectic' is from *dialegesthai* ('to converse') and dialectic is a conversation proceeding by question and answer. The questioner leads the enquiry and begins by asking his interlocutor (possibly himself) a question, typically about how to define some concept. An initial hypothesis is proposed which the questioner attacks by getting his respondent to answer a further series of questions where the answers lead to some difficulty or absurdity. They then go back and, taking this result into account, another answer is proposed. And so on. In early

dialogues this procedure produced negative results, but the *Phaedo* claims that it is the method to follow in order to acquire knowledge of the Forms. In successful enquiry the ability of a proposed definition p to withstand attempted refutations provides partial confirmation of its correctness. And for further confirmation we can select a plausible 'higher' hypothesis which would explain p, and deduce the original hypothesis from it.

This is not only the method for discovering the truth; the person with genuine knowledge must be able to successfully carry it out. Knowledge of X enables its possessor to 'give an account' of X, and, in standard cases, this involves the ability to state and explain the nature of X and to explain why that account is correct. It further involves the ability to defend the proposed definition against objections. These abilities demand expertise and understanding of an entire discipline.

A problem is that the method leads to a regress: after unsuccessfully attacking p we further confirm p by deducing it from q; then q must be challenged, and if it survives it must be further confirmed by deducing it from r; and so on. At each stage we are explaining a proposition by another which we do not know, and if we do not know the basis of our explanation we do not know or understand what we purport to explain in terms of that basis.

Unlike the *Phaedo*, the *Republic* shows some concern for this problem in the famous divided line analogy, where Plato criticizes mathematicians because they fail to scrutinize critically their assumptions, cannot explain why they are true, and hence do not know them; and therefore also do not know the conclusions derived from them. Dialecticians avoid this failing by critically examining assumptions which they can explain and defend. The backwards regress is said, vaguely, to end in apprehension of an unhypothesized beginning: the Form of the Good. Plato does not elaborate, but since the Good is the first principle, there must be nothing more basic in terms of which the Good can be explained or defined. Knowledge of it will have to consist in some sort of intuition.

This is probably related to the *Phaedo's* best method of explanation, which was abandoned as too difficult in favour of the 'safe and stupid' and 'clever' forms of explanation mentioned above. Plato clearly believes that the proper explanation of a phenomenon is a ideological explanation of why it is *best* for things to be thus and so, and therefore a proper explanation presupposes some account of what the good is.

In the *Phaedo* ideological explanation is presented as an *alternative* explanation of a fact about the sensible world which can be less adequately explained by a clever or safe and stupid explanation in terms of participation in Forms. But in the *Republic*, where the concern is with Forms alone, it appears rather that, for example, a mathematical theorem q is explained in terms of the mathematician's starting-point p, which is in turn—eventually—explained in terms of the Good. The Good is also the ultimate explanation of q *via* its explanation of p. Similarly, in the *Republic* the *being* of other Forms, and not

merely sensible phenomena, will ultimately be explained by reference to the Form of the Good (*Republic* 509b).

Later, the *Timaeus* identifies the contrast between ideological and mechanical explanations of features of the sensible world with a contrast between Reason and Necessity, and now some things are explained by one factor, some by the other, and some by both. Reason has priority over Necessity, acts to produce what is best and is solely responsible for anything that is intrinsically good such as order and proportion. At the cosmic level it is represented by the 'Demiurge,' the creator who looks to the Forms and tries to embody them in disorderly matter. Necessity is responsible for randomness, disorder and evil in the material world, but also acts in subordination to Reason to explain features which are necessary conditions for and concomitant causes of certain instrumental goods, much like Socrates' bones and sinews in the *Phaedo* (99a).[57]

In later dialogues[58] dialectic involves less argumentation and greater interest in classification. The *Republic's* conception of a master science establishing the starting-points of subordinate disciplines disappears, and is apparently not required for understanding an area of enquiry. For all Plato explicitly says, distinct disciplines are now autonomous. The procedure called 'collection and division' does not provisionally posit a hypothesis and then subject it to critical scrutiny. Rather, it standardly begins when undefined species are unified under a defined genus. This genus is divided into species, which are in turn divided into subspecies, etc., until indivisible species are reached. Conjoining the divisions thus passed through yields definitions of the items at the end of the chains. Dichotomy—the division of a genus into two species—may be followed when the aim is to define a particular Form, since the remaining species will then be irrelevant. But when we want clarification of a genus the number of divisions made at any stage should match the natural, objective divisions in the subject-matter.

However, collection and division does not exhaust the content of Plato's later 'dialectic'. It comprises (*Sophist* 253b–d):

1 dividing things according to Kinds;
2 producing definitions of Forms;
3 not identifying distinct Forms or distinguishing identical Forms;
4 knowing what Forms can and cannot combine.

(1) often aims at (2), and the misidentification of distinct Forms (violating (3)) may result from failure to properly divide a genus (cf. *Politicus* 285a). But that is not how misidentification of the Greatest Kinds is avoided in the *Sophist* (254b–257a), nor is it obvious how (4) is connected with division. *Sophist* 254bf. aims for (3) and (4) but uses arguments characteristic of the earlier dialectical method, and makes no use of the sorts of divisions which occur at the beginning of the dialogue. Perhaps Plato thought that when, unlike with many of his own

examples, philosophically important Forms were investigated, then the sort of argumentation found in the *Sophist* passage might be required.[59]

The Theaetetus *and the* Sophist

The *Theaetetus* represents Plato's most sustained investigation into the nature of knowledge. Structured around an attempt to define knowledge, it, like the early dialogues, ends in frustration. But scholars have been quick to find positive lessons which we are *meant* to draw from the discussion.[60]

The dialogue divides into three sections which consider proposals to define knowledge as (1) perception, (2) true judgement, and (3) true judgement with an account. (3) resembles contemporary definitions of knowledge in terms of justified true belief, but one difference is that all three suggestions define knowledge not as a disposition but as a mental *event:* perception or judgement, where judgement occurs when the soul *says* something to itself (180e–190a, *Sophist* 265e–264a).

(1) Because knowledge is infallible and of what is, if knowledge is perception then perception is infallible and of what is. Since *x* may (e.g.) appear warm to A and cold to B, (1) entails a Protagorean relativism validating both perceptions: what A perceives *is for* A and what B perceives *is for* B. The object is not warm or cold *in itself*: no objective reality independent of the perceptions exists that could falsify them.

Less straightforwardly, Plato connects (1) to a Heraclitean doctrine of constant flux. If what a sensible object *x* is for A is nothing more than how *x* appears to A, then *x* lacks an intrinsic nature—it is nothing in itself—and hence, in the strong sense of 'being', x *is* nothing. Given the connection between 'being' and permanence, *x* also lacks stability and constantly changes. For sensible objects are continuously changing place so as to present different appearances to different perceivers.

The refutation of (1) initially attacks the relativism and flux doctrines which it is said to imply. Of several objections raised against Protagoras, the main difficulty is that his position is self-refuting. Protagoras' 'Man is the measure' doctrine was not that it appears to Protagoras that what appears to any person A is for A, but that, absolutely, what appears to A is for A. But most people reject this, that is, for most people it appears that it is not the case that what appears to A is for A. So if what appears to them is for them, Protagoras' doctrine does not hold for them. Protagoras' absolute claim is false.

As for the flux doctrine, if everything continuously changes in every respect, no object can be accurately called anything since 'it is always slipping away while one is speaking'. So nothing we might call 'perception' is any more perception than not perception, and therefore, on the proposed definition of knowledge, nothing is any more knowledge than not knowledge.[61]

Finally, Plato attacks the definition directly by arguing that no perception can ever be an instance of knowledge. The argument has aroused much interest

because Plato is often, mistakenly, taken to be marking an important contrast between the objects of perception and judgement.[62] He first distinguishes the subject of perception from the senses through which the subject—the soul—perceives colour, sound, etc. A single subject is aware of the different kinds of sense object and observes relations between them.

Further, anything perceived through one sense cannot be perceived through a different sense. For example, I cannot hear a colour. So if anything is *common* to different kinds of sensible object, the soul cannot 'grasp' it by perception.

Now, 'being' is a common notion applicable to different kinds of sensible object: both a sound and a colour *are*. So the soul grasps 'being' not through a sense but on its own.

But to know is to know the truth, and knowing the truth is grasping being, i.e., awareness of what *really exists* or *is the case*. Since perception cannot grasp being it cannot put us into contact with the truth, and therefore it can never be knowledge.

Plato's argument rests on an ambiguity in the notion of 'grasping being'. When the common notions are first introduced, to grasp being is to understand the meaning of 'being' or what being is: being *itself* (*not* an object like red or a fact that *has* being) is not an object of perception but an object of thought. However, when in the passage's final argument it is claimed that to attain truth one must grasp being, the claim has plausibility only if grasping being is equivalent to grasping an object that *really exists* or a fact that *is the case*. And perception's inability to grasp what being itself is provides no reason to believe that perception cannot make us aware of what really exists. On the contrary, Plato himself affirms shortly afterwards (188e–189a) that if one perceives x, then x exists.

(2) The definition of knowledge as true judgement is quickly dismissed: true judgement can turn out to be true by luck, and then it is not knowledge.

(3) The final definition meets this point by suggesting that knowledge is true judgement 'with an account'. But the notion of an account is unclear, and Socrates attempts to explain it in terms of a metaphysical theory he heard in a dream. The theory says there are simples and complexes. There is no account of the simples which can only be named and so are unknowable. Complexes are knowable and expressible in an account which is a weaving together of names.

Even at this abstract level the dream theory faces two objections. First, a complex either is or is not identical with its elements. If it is, then since its elements are unknowable, it is unknowable too. If it is not, then it does not have the elements as parts, and, since nothing else could be part of the complex, it must be simple and hence (according to the theory) unknowable. Second, if we consider simples and complexes such as syllables and their letters, the letters are knowable independently of any account of them.

Both arguments have plausibly been supposed to be meant to apply to the problem of knowledge of Forms. If a Form F is defined in terms of A, B and C, the knowledge of F expressed in the definition presupposes knowledge of A, B

and C. And if A, B and C are known by knowing *their* definitions, the same problem recurs. Either there is an infinite regress and knowledge does not exist, or some kind of knowledge does not involve an account—a definition—of the thing known. This last seems to be the sort of knowledge needed of the *Republic's* unhypothesized beginning, but Plato never clarifies what kind of knowledge it could be.

Although the final argument against the dream theory seems to show that knowledge does not need an account, Plato proceeds to consider different interpretations of 'account'. The serious suggestions—and it is important to bear in mind that the item known is an object—are that knowledge of X requires (1) the ability to analyse X into its elements or (2) the ability to give a mark distinguishing X from everything else.[63]

Against (1) Socrates objects that a person might correctly judge that the first syllable of 'Theodoras' contains 't' 'h' and 'e', but on another occasion, when writing the name of Theaetetus, incorrectly judge that that same syllable contains the elements 't' and 'e'. Then he did not know the syllable 't-h-e' the first time even though he correctly analysed it into its elements. Knowledge is infallible.

Against (2) Socrates objects that the ability to give a distinguishing mark of X is presupposed in having a true judgement about X: otherwise one would not have a true judgement about *X* to begin with. So (2) adds nothing to the idea of having a true judgement about X.[64]

With this the discussion comes to an end. One puzzle is the question of why Plato neglects the notion of giving an account which he himself uses in other dialogues when discussing knowledge. If being able to give an account includes the abilities to explain why something is so and to defend the claim in question, then some of the *Theaetetus'* difficulties are overcome.

Another problem arises from the dialogue's use of sensible objects as objects of knowledge. Does Plato now countenance knowledge of the sensible world, or is the negative conclusion of the dialogue rather meant to reinforce the lesson that we cannot explain the nature of knowledge when its objects are disregarded?

It seems the *Theaetetus* cannot be *intended* as a demonstration that an account of knowledge must fail if it does not bring in Forms as the object of knowledge, for if that were Plato's aim the neglect of his own interpretation of 'account' would only too obviously undermine his argument. And we've already seen that some objections against the proposal that knowledge be defined in terms of judgement apply equally well when its objects are taken to be Forms. For example, accounts of Forms are as vulnerable to the epistemological regress as accounts of anything else.[65]

None of the objections against proposed definitions of knowledge turn on the *objects* used in the examples not being of the right kind. The one firm conclusion of the dialogue is about the sort of state knowledge is, not the nature of its object: knowledge must be sought in *judgement* rather than perception (187a).

Despite this conclusion—which could be supposed to be undermined by the rest of the dialogue—one might still see the *Theaetetus* as reinforcing Plato's view

that Forms are the sole objects of knowledge, where knowledge must be *contrasted* with judgement, not explained in terms of it. After all, it *is* clear that the *Theaetetus* cannot represent Plato's abandonment of his earlier view, given that later dialogues are still emphatically contrasting perception and judgement *(doxa)* with knowledge on the basis of a difference in their objects. Thus, the *Timaeus* (27d–28a, 51d–51a) asserts: Being (i.e. Forms) is grasped by intelligence *(noēsis)* with an account (or reason, *logos*), while becoming (the sensible world) is grasped by judgement *(doxa)* with perception. Yet, in direct contradiction of this, the *Theaetetus* considers definitions of knowledge that state that it is perception or a kind of judgement *(doxa)*. So, perhaps, Plato takes the *Theaetetus'* failure as confirmation of the *Timaeus'* view on the objects of knowledge.

But this interpretation faces serious problems, the answers to which are far from clear. For example: why should the difficulties which afflict proposed definitions of knowledge in terms of *judgement (doxa)* disappear when knowledge is defined as a kind of *thought (noēsis)*?

Lacking the notions of proposition and sense, Plato can only identify the contents of thought with beings—facts or objects—in the world. Taking statements to name facts in the way that words name objects, Plato is inclined to construe stating or judging what is false as stating or judging where there is no content to be stated or judged. False judgement appears impossible.

Likewise, for Plato, if I think of X I am thereby related to a being in the world which is the content of the thought. And how could I think of X—that being which furnishes the content of my thought— if I was not aware of X, if I did not *know* X? And if I know Y as well as X, I would never say to myself that X is Y, i.e., I could not judge falsely that X=Y. While if Y is unknown to me it could never enter into any judgement I made, so again I could not falsely judge that X=Y.

These problems from the *Theaetetus* are attacked with the wax tablet and aviary models, which begin to make headway towards over-coming some of the obstacles to an account of false judgement in so far as they provide for the possibility of an object entering into thought via different routes. But it is the *Sophist* which presents Plato's solution,[66] a solution which does not build on the *Theaetetus*.

The main philosophical section of the *Sophist* begins with the assertion that in order to show how false judgement is possible, Parmenides' assertion 'Never shall this be proved, that things that are not are' must be refuted. For a false statement says that what is not (=Not Being) is.

The main point needed to overcome Parmenides' dictum is that 'Not Being' or 'What is Not' does not signify *contrary* to being, i.e. non-existence, but *different* from being. Focusing on the 'greatest Kinds'—Being, Difference, Sameness, Rest and Motion—Plato, after explaining how some can participate in and hence *be* the others, points out that each is *different* from the others, and hence can be said to *not be* each of the others. So Not Being exists.

Next, we must be clear about the fact that a statement has two kinds of parts that function in different ways. The name signifies the being in the world that the statement is about, while the verb signifies what is said about the subject, namely the being in the world that is the attribute ascribed to the subject.

'Theaetetus is sitting' is true if *sitting* 'is with respect to Theaetetus', i.e. if sitting=one of his attributes. And then 'Theaetetus flies' is false if *flying* '*is not* with respect to Theaetetus', i.e. *is different from* every attribute that is with respect to Theaetetus. The fact that in this false statement *what is not* is said of Theaetetus does not mean that *nothing* is said about Theaetetus. For here *what is not* is not the *non-existent* or *non-existence*[67] but *flying*—a being.

Plato's solution marks a major advance when he clearly signals the difference between the ways in which words and statements function. But with no clear notion of sense as distinct from reference, he still has nothing to say on the question of what could constitute the content of a false statement.

NOTES

1 My understanding of the Theory of Forms owes most to Ryle [10.43] and Frede [10.74]. See also Graeser [10.76], Ross [10.92]; Wedberg, 'The Theory of Ideas', in [10.97], 28–52; Bostock [10.67], 94–101, 194–201, 207–13. Crombie [10.36] can be consulted on all subjects covered by this chapter. I am very grateful to Christopher Taylor for his extensive and helpful comments on earlier drafts of this chapter.

Any discussion of the topics I discuss is bound to be controversial and some alternative interpretations can be found in works cited in the notes and bibliography. Limitations of space compel these references to be highly selective.

2 I assume the generally agreed view that the earliest dialogues closely reflect the methods and beliefs of the historical Socrates, but that in middle period dialogues the character of Socrates expresses views which go far beyond those of Plato's teacher.

3 Cf. the argument 'from things that are no more' from Aristotle's *On Ideas* in [10. 63], 81–2. Note that the point in the text applies just as much to 'horse' and 'finger' as it does to 'beauty' and 'one'. Some believe *Republic* 523–5's distinction between concepts that do and do not give rise to thought shows that Forms are not needed for concepts such as 'horse' which, like the concept of 'finger', do not give rise to thought. But the passage only indicates that perception of particular fingers may suffice, epistemically, for recollection of the Form of Finger. The latter is an object of thought as distinct from perceptible fingers as the perceptible and 'oppositeless' squares and circles drawn in the sand are distinct from their corresponding Forms which are the objects of the mathematician's thought (*Republic* 510d–511a).

4 *Cratylus* 431b–c; cf. 432e, 385b–c. Similarly with the philosopher Parmenides: what is required for thought was not distinguished from what is required for speech.

5 *Symposium* 207d–208b: the relation between the different phases of 'one' life is the same as that between a parent and its offspring. See also *Cratylus* 439d; *Theaetetus* 154a, 159d–160a; *Timaeus* 49c–e. Contrast *Phaedo* 102e.
6 Even in this most extreme statement of the doctrine of flux, Plato allows that the later and earlier objects share many characteristics. Hence, he does not accept the *Theaetetus*' wild version of Heracliteanism which says that sensibles always change in every respect.
7 *Timaeus* 49d–e. For other views on flux, see Bolton [10.65], Irwin [10.80].
8 For a different interpretation, see Fine, 'Knowledge and Belief in *Republic* V–VII', in [10.101], 85–115.
9 This topic is thoroughly examined in Malcolm [10.85].
10 *Hippias Major* 289d, 291d, 292c–d, 297e, 304d; *Charmides* 161a–b; *Laches* 192c–d.
11 *Hippias Major* 292e; *Protagoras* 330c–e.
12 *Hippias Major* 291c.
13 *Hippias Major* 291d.
14 *Hippias Major* 296c–d.
15 *Lysis* 217c; *Charmides* 160e–161a, 169d–e; *Hippias Major* 291c; *Gorgias* 497e; *Meno* 87d–e; *Phaedo* 68d–e, 100e–101b; *Republic* 335d–e, 379a–c; *Parmenides* 131c–d; *Philebus* 65a.
16 *Hippias Major* 287c.
17 While Plato allows that physical conditions and phenomena are necessary conditions for the items he explains in other terms, the *Phaedo* (99a–b) denies them the title of 'explanations'. In the *Timaeus* (46c–d), however, he calls them secondary or co-operative causes or explanations.
18 *Parmenides* 139e, 148a.
19 See, for example, *Symposium* 211e, *Republic* 500c, *Phaedo* 84b, *Pbaedrus* 250a, *Sophist* 254b, *Philebus* 62a.
20 See Vlastos [10.98], 58–75. For the ideas in the paragraph before last, see [10.98], 43–57.
21 *Timaeus* 38b.
22 *Republic* 478b12–c1 with 478d–479d.
23 *Phaedo* 74c1–2. Plato equates two questions: (1) Is Equality ever unequal? (2) Is Equality ever Inequality?

Had he seen the difference, he should also have seen (2)'s irrelevance to his argument. He is trying to show that sensible equals differ from Equality because they possess a feature Equality lacks. But sensible equals no more appear to *be* Inequality than Equality does.
24 On this point see Frede [10.74], 51–2.
25 *Timaeus* 52a, c; *Symposium* 211a–b.
26 *Phaedo* 102d–e, 103b; *Republic* 501b; *Parmenides* 132d.
27 *Theaetetus* 177a.
28 *Republic* 532c–d.
29 *Phaedo* 80d.
30 *Republic* 5080, 509d, 517b.
31 *Republic* 526e.
32 *Theaetetus* 177a.
33 *Republic* 592b.

34 *Phaedrus* 247c–e.

35 Very briefly on the other objections: the first questions the range of Forms but does not present any positive objections. The second falsely assumes that Forms exist in sensible objects. The last objection mistakenly infers from the statements that (for example) the Form of Master is master of Slavery itself and not of any particular slave, and a particular master is a master of a particular slave and not of Slavery itself, that there can be *no* relations between individuals and Forms.

36 For another view, see Allen, 'Participation and predication in Plato's middle dialogues', in [10.64], 43–60, and in Vlastos [10.97], 167–83; H.F.Cherniss 'The relation of the *Timaeus* to Plato's later dialogues', in [10.64], 360–7; Nehamas [10. 87].

37 In a famous paper ('The Place of the *Timaeus* in Plato's dialogues', in Allen [10. 64], 313–38) G.E.L.Owen argued that the *Timaeus* should be dated prior to the *Parmenides*. This provoked H.F.Cherniss's response in the article cited in n. 36. Owen's thesis 'must be pronounced a failure' Vlastos [9.93], 264). See Brandwood [10.34], and, more briefly, 'Stylometry and chronology', in Kraut [10.41], 90–120.

38 The only author I have come across who notes the relevance of the following point to the Third Man Argument is Cherniss [10.71], 520.

39 [10.63], 84. Cf. *Philebus* 59c; Aristotle, *Nicomachean Ethics* 1096a17–19, ps.-Aristotle, *On Indivisible Lines* 968a9–14.

This restriction on the One over Many Assumption was a commonplace among the Neoplatonists. See Proclus, *In Parmenidem*, V, 125, Cousin=684, Stallbaum; Plotinus, *Enneads* VI, 1.1. Ammonius, *In Porphyrii Isagogen*, ed. A. Busse, Berlin, 1891, 28.10–12; 29.18–19; 82, 5–10; Olympiodorus, *In Categorias*, ed. A.Busse, Berlin, 1902, 58.35–7; Asclepius, *In Metaphysicorum Libras A–Z Commentaria*, ed. M.Hayduck, Berlin, 1888, 226. 21–2.

40 *Metaphysics* 1019a2–4.

41 For further discussion see Vlastos, 'The Third Man Argument in the *Parmenides*', in [10.64], 031–63; Strang, 'Plato and the Third Man', in [10.58] I, 184–200; Allen [10.19].

42 *Timaeus* 27d–28a, 51d–52a; *Philebus* 59a–c. Cf. *Politicus* 269d.

43 But possibly Plato is referring to the demiurge of the *Timaeus* or the world soul (cf. *Timaeus* 30b, *Philebus* 30c).

44 *Phaedo* 106d refers to the Form of Life. Keyt [10.81] convincingly argues the *Phaedo's* commitment to Forms for substances such as Snow and the Soul.

45 *Sophist* 248a–249d is discussed in Keyt [10.82].

46 I defend this view in [10.78]. For other views see Ackrill **'ΣΥΜΠΛΟΚΗ ΕΙΔΩΝ'**, in [10.64], 199–206 (=[10.58]1, 201–9); and a sometimes inaccurate survey of alternative accounts in Pelletier [10.89].

47 I argue that the text of the *Sophist* bears this out in [10.77]. For other views, see, e.g. Vlastos, 'An Ambiguity in the *Sophist*', in [9.87], 270–308; Frede [10.73].

48 Aristotle, *Physics* 209b15. The unwritten doctrines are views attributed to Plato by Aristotle and ancient commentators which are, at least frequently, not clearly expressed in Plato's writings. The *Philebus'* notions of Limit and the Unlimited may be connected to Plato's generation of Forms from the One and the Great and the Small in his oral teachings (Aristotle, *Metaphysics* 987b18–21). On the unwritten doctrines, see, for example, Cherniss [10.70], Gaiser [10.75], Krämer [10. 83], Robin [10.91], Vlastos, 'On Plato's oral doctrine', in [9.87], 379–403.

49 For discussion of the *Philebus*, see Hackforth [10.25]; Gosling [10.26]; Sayre [10.93], ch. 7; Striker [10.95].

50 At least this is so in the *Phaedo* where Forms and the recollection theory are said to stand and fall together (76e). Since we do not experience Forms in the world around us, the *Phaedo* in effect offers an explanation of a priori knowledge, where the knowledge is prior not to *all* of the soul's experience, but to its experience since birth in its present life. It is doubtful, however, that Plato is thinking of Forms in the earlier *Meno*, where they go unmentioned and we recollect things seen 'here' (81c6) in the present life. A related difference between the dialogues is that in the *Meno*, where knowledge is a kind of opinion (98a), both latent opinion and latent knowledge explain the slave boy's performance. While in the *Phaedo*, where Forms alone are recollected and are 'unopinable' (*adoxaston*, 84a), references to latent opinions disappear.

For general discussion of Plato's epistemology, see, for example, Gulley [10.102] and the papers on Plato in [10.101].

51 It doesn't matter whether x is or is not like y, or, in the first case, whether x does or does not (73a) fall short of y; the important point is that 'as long as while you are seeing *something else (allo)* from this vision you think of *something else (allo)*' (74c–d) it is recollection.

52 In the dialogue the slave boy does not recover active knowledge of p (85c–d), so what he *actually does* there which requires explanation in terms of recollection must be something else.

53 *Cratylus* 431b–c.

54 The confusion persisted into this century. 'Moore and Russell were constantly perturbed by whether or not to identify true propositions with facts, which they took to be fully part of the real world, or merely to regard the one as corresponding to the other, whether to admit the existence of false propositions, and similar problems, and constantly changing their minds on these points' (M. Dummett, *Frege: Philosophy of Language*, London, Duckworth, 1973, p. 153).

55 There are good reasons to reject Gail Fine's suggestion that Plato answers (1) with the slave boy example by saying that, even though the enquirer lacks knowledge in any sense, he has true beliefs about the subject of enquiry ('Inquiry in the *Meno*' in [10.41], 200–26). First, the purpose of the slave boy example is to demonstrate the truth of the recollection theory (81e, *Phaedo* 72e–73b), not to solve the paradox of enquiry. Further, her attempt to explain away the references to the slave boy's knowledge as allusions to his past or future knowledge (n. 40) is refuted by the reference to 'the knowledge which he now has' at 85d9. Likewise *Phaedo* 73a is clearly saying that the slave boy could not have spoken the truth if *knowledge* had not been in him *then*. This is also the presumption of *Republic* 518b-d. There is no contradiction with *Meno* 85b-c's statement that the slave boy does not have knowledge since this denies that he has current, revived knowledge of p, not that he has latent knowledge of p.

56 For different views of the recollection theory, see the papers reprinted in [10.10].

57 This paragraph is based on Strange [10.94]. Some other works on the *Timaeus*: Cornford [10.23], Brisson [10.68], Mohr [10.86], Taylor [10.96]. For Plato's dialectical method in the middle dialogues the classic work is Robinson [10.105]. See also Sayre [10.106].

58 In particular, the *Phaedrus*, the *Sophist*, the *Politicus* and the *Philebus*.

59 For discussion of Plato's later dialectic, see Ackrill [10.99]; Sayre [10.106]; Stenzel [10.107].
60 Some works on the *Theaetetus*: Cornford [10.20]; McDowell [10.21]; Burnyeat [10.22]; Bostock [10.100].
61 One important issue of interpretation concerning the *Theaetetus* is the question of whether Plato revises his earlier views of the sensible world. For the famous debate between Owen and Cherniss (referred to in n. 37), see Allen [10.64], 332–5 and 349–60.
62 The standard view holds that Plato is saying that to know one must truly judge *that* something is the case (*grasping being* either is this judgement or is presupposed by it in virtue of 'is'), and that such an intentional content cannot be delivered by perception. But Plato uses singular terms and 'that' clauses indifferently to refer both to objects of judgement and objects of perception. (Judgement: 185c–d, 186a–d; 185a–b, 186b. Perception: 184b, 184d–185a; 185b–c.) Furthermore, on the standard view it is inexplicable that Plato blatantly ignores the point for the rest of the dialogue where many examples of objects of knowledge and judgement are individuals. Before, during and after 184–7 both things and facts are objects of the knowledge which the dialogue attempts to define, and this is one source of the difficulties troubling Plato's discussion.
63 Unlike present day epistemologists, Plato does not speak here of the justification of belief in a proposition.
64 This argument brings out Plato's inability to clearly distinguish *thinking* of X and *knowing* X: to think of X is already to know X.
65 Burnyeat in [10.22], 238.
66 For further discussion of the *Sophist's* solution, see McDowell [10.103] and Frede 'The *Sophist* on false statements,' in [10.41], 397–424.
67 Here I am assuming a view of Not-Being in the *Sophist* which not all will accept. This issue is discussed in Malcolm [10.84]; Frede [10.73] Owen 'Plato on Not-Being', in [10.58] I, 223–67; Heinaman [10.79]; Brown [10.69].

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CHAPTER 11
Plato: ethics and politics

A.W.Price

I

Plato followed his teacher Socrates into ethics by way of a question that remained central in Greek thought: what is the relation between the virtues or excellences *(aretai)* of character, and happiness *(eudaimonia)*?[1] Both concepts were vague but inescapable, and inescapably linked: happiness is the final end of action, and constitutes success in life (cf. *Symposium* 205a2–3); so virtue, for which we commend agents and actions, needed to be recommended by reference to happiness. The happiness that gives reason for action is primarily the agent's; all Greek moralists hoped to grant the egocentricity without licensing egoism. At least examples of moral virtues were generally agreed: justice, piety, courage, temperance and the like. Happiness was more elusive, and its paradigms more debatable. Herodotus has Croesus and Solon disagree about whether the greatest happiness consists in enjoying the greatest riches, or in living simply and dying well (I.30–2). The demands of the virtues needed to be defined, and their status as virtues justified by a conception of what it is for a human being to be happy. Otherwise, there could be no telling whether it was pious of Euthyphro to prosecute his own father for murder (*Euthyphro* 3e4–4e3), nor whether Thrasymachus might be correct to claim injustice as a virtue (*Republic* 1.348b8–64). Plato's central treatment of these matters is in the *Republic*, the masterpiece of his so-called 'middle' period. I shall also pay attention to four works that consensus places as follows: the *Symposium*, before the *Republic*, the *Phaedrus*, after the *Republic*, the *Politicus* (or *Statesman*), after the *Phaedrus;* and finally (but perfunctorily) the *Laws*, the long labour of his old age. An initial question was properly abstract: what is the appropriate kind of way in which to define a virtue? He poses this question in the *Republic* through presenting variants on an approach that is not his own.

Perhaps moral virtue relates to action as follows: a virtue is a practice of acting, or a disposition to act, in a determinate way definable by a rule.[2] Thus, in the case of justice, Socrates—who, in tribute to the historical Socrates, appears as protagonist in most of the dialogues I shall be considering, but as a quasi-

historical figure whose relations to the real Socrates, and to Plato himself, are intentionally undefined— asks Cephalus whether justice *is* telling the truth and returning what one has borrowed (331c1–3); justice as a quality of persons would then be a disposition to act so. Why, next, is justice, so understood, a virtue? This is initially contested by Thrasymachus. He offers no definition of justice, and it is uncertain whether he has a coherent conception of it. If we take him to be implicitly distinguishing legal from natural justice, the legally just is what accords with the laws and thus, in fact, serves the interests of the lawgivers (338e1–4). The naturally just extends more widely: it is what serves another's good—and so, within the perspective of the subject *qua* subject, broadly coincides with legal justice (343c3–4). Thrasymachus interprets interests as material, taking it for granted that it is in one's interest to pay less tax and take more in return (d6–e1). Now material goods are limited and transferable, so that their allocation is often a field of competition. Assessing justice and injustice instrumentally, as qualities of practices and dispositions that determine the distribution of losses and gains, he takes justice to be a tendency towards loss and injustice to be a tendency towards gain. If one's virtue must serve one's happiness, it follows that justice is not a virtue. Plato supplies in response a pastiche of Socratic ethics that at once puts Thrasymachus in his place, and marks his own point of departure.

Another member of the company, Glaucon, is not satisfied, and puts forward a different position, not as his own but as deserving a fairer run, to which Socrates' full reply will be no less than the remainder of the *Republic*. This is an imaginative variation upon Thrasymachus in which a class of rulers is replaced by a pair of agents, of which previously one was just and one unjust, whose power is ascribed on the model of the myth of Gyges to a magic ring bestowing invisibility. (We might introduce science fiction to the same effect.) Socrates had confronted Thrasymachus with contingencies: rulers can make mistakes, and command what is not in their interest (339c1–e8); even criminals need to co-operate, and must treat their accomplices justly (351c7–352d1). Gyges' ring now transports its possessors beyond human fallibility and individual impotence: both of them, just and unjust alike, will be unable now to refrain from breaking the rules of justice against adultery, murder and the like (II.360b3–c5). Ringless, we have reason to be just, but only as a second-best: able to do wrong but liable to be wronged, we make a social contract that both denies us the advantages and spares us the disadvantages of injustice (358e5–359a7).

What is the denotation of 'justice' within this aetiology? It is the class or characteristic of actions that are permitted by the law (358a3–4); its opposite is the legal category of forbidden wrongdoing or 'malurn prohibitum'. However, there is a difficulty. We are told that it is naturally good to do wrong or act unjustly, and bad to be wronged or treated unjustly; the agreement is that that one should neither do nor suffer injustice (358e3–359a2). Thus it appears that justice is an artificial virtue (as Hume was to conceive it), while injustice is a natural and pre-contractual concept. This is coherent, if injustice was already

recognized as a quality of actions, and the contract introduced justice as a practice. But how in a state of nature was justice to be understood, and its extension grasped as a unity? Perhaps Glaucon offers an implicit gloss that defines justice outside the law: to remain just is to abstain from what belongs to others (360b5–6). Socrates will not disagree: justice is neither having what belongs to others, nor being deprived of one's own (IV.433e6–11). Yet such remarks rather move within a moral circle than reduce the moral to the natural: it is equally apposite to say that what is my own is that of which it would be unjust to deprive me. We should rather suppose that it is retrospectively that the contract is motivated by fear of injustice *as such*: what existed before the contract was not resentment of injustice, but fear of a multitude of unwelcome actions some of which became unjust, or were deemed to be unjust, by being penalized—a selection presumably sensitive to practicalities. So the contract may be described after the event (as it is by Glaucon) as an escape from injustice, but it has to be explained as an escape from something else, or many other things; these will have included such cases of losing one's life or being deceived by one's partner as it was thought good to penalize, after the invention of law and morality, as murder or adultery.

This view is a positive transformation of Thrasymachus that takes laws not to be imposed by rulers on subjects, but to be adopted by free contractors. The structure of attack or apology remains the same: it is indirect and instrumental. Glaucon is recommending justice as the practice of acting in accordance with laws that human agents need to respect in order to reduce the risk of their being treated in ways to which they are by nature averse. For all its pretensions, morality is revealed as an under-servant of felicity.

Plato has two grounds for rejecting this approach. First, it does not work: the content of a virtue cannot be explicated by concrete rules of conduct. This is first intimated within the *Republic* when Socrates objects to Cephalus that it is wrong to identify being just with telling the truth and returning what one has borrowed, for these acts are not always just (as when a borrower is asked to return some weapons by a lender who has gone mad, I.331c1–d3). A more resilient participant than Cephalus might suppose that one has only to try again, but the objection falls within a pattern to which Socrates later alludes when he describes how the young can be corrupted by counter-examples to attempts to define the just or the fine by appeal to general laws or maxims (VII.538c6–e4). This pattern of objection was already familiar from early Platonic dialogues (cf. [11.5], 43–6): on the same ground, temperance cannot be identified with a quiet or gentle manner (*Charmides* I59b1–160d3), nor with shame (160e3–161b2), nor courage with endurance (*Laches* 192b9–d9)). Unlike quietness, shame and endurance, a virtue is always good (*Charmides* 161a6–b2). We need to add that the endurance is wise, but how is wisdom to be defined (*Laches* 192d10–193a2)? One way out is by a special kind of vagueness: perhaps justice is giving all men their due (*Republic* I.331e1–4), and temperance is doing one's own (*Charmides* 161b3–6). But such paraphrases either invite the same objection, or move around the moral

circle mentioned above: if giving all men their due does not reduce to returning what one has borrowed and the like, it may more vaguely be equated with giving them what is appropriate to them (*Republic* I.331e8–332c3), that is, giving them what they justly deserve. Glaucon's account fares better, but not well. That the just is that which the law prescribes or permits (II.359a3–4) is only plausible if the law uses terms (like 'murder' and 'adultery') whose descriptive connotations are debatable. Legislators properly find it difficult to define such terms precisely in advance, and are wiser to be content with the vagueness that invites casuistical debate about their application.

Secondly, Glaucon's framework provides virtue with the wrong kind of justification. To make clear what he would prefer, he offers Socrates an exhaustive trichotomy of goods: (1) goods that we welcome for their own sake and not for their consequences, such as enjoyment, and harmless pleasures that only bring enjoyment; (2) goods that we welcome both for their own sake and for their consequences, such as understanding, sight and health; (3) goods that we welcome only for their consequences, such as exercise, being healed, and doctoring or other money-making (357b4–d2). Socrates replies that he would place justice in class (2), which is the 'finest' category (358a1–3). We should view this not as a moralist's salesmanship, but in relation to a perennial conception: 'It is a requirement on moral action…that the action should not be merely instrumentally related to the intention: the end should be realized not merely through the action but in the action' ([11.21], 43).

Glaucon initially speaks of justice as a practice (358a5–6), but then as a state of soul (cf. n. 2): he wishes to hear what justice and injustice are, and what power *(dunamis)* each possesses in and of itself when it is present in the soul (b4–6, cf. 366e5–6). It becomes explicit that he is shifting his focus from its external to its internal operations when he asks how it acts upon its possessor (367b4, e3). The shift is motivated by his concern whether being just is a good thing to be. It suits Plato more particularly, both anticipating what is to come, and recalling the most pregnant passage of Book I: injustice occurring within an individual does not lose its power (the same word *dunamis*), but here too produces faction and enmity (I.351e6–352a3). Irrespective of whether the focus be internal or external, this talk of how a state acts upon a thing 'in and of itself can seem a contradiction in terms, asking about consequences even as it excludes consequences, and has provoked much discussion.[3]

One suggestion has been that Glaucon wants to set aside not natural but artificial consequences, excluding rewards and penalties that are attached to the appearance (cf. II.367d4) but not psychological effects that attach to the reality; but this fails to fit, for strength and health are natural effects of taking exercise and receiving treatment, which are placed within category (3). We must rather suppose that injustice and enmity, justice and friendship, stand in an internal and necessary relation that helps to constitute what justice and injustice really *are* (in a manner in which strength does not define what it is to wrestle, nor health what it is to diet). Virtues and vices have real natures and not just verbal definitions; a

proper understanding will reveal what it is for them to take effect within a soul. It may seem inconsistent of Glaucon to ask Socrates to praise justice in and of itself (358d1–2), to offer to praise injustice in the manner in which he wishes to hear the dispraise of injustice and the praise of justice (d3–6), and then to speak at length (within the fantasy of Gyges' ring) about the consequences of injustice, e.g. winning the opposite reputation, presumably through deception or other ploys that pile injustice on injustice (361a7–b3). However, he must mean not that it is appropriate to praise justice and injustice in the same way, but that he wishes them both to be praised appropriately: he will play at recommending injustice instrumentally as emancipation from a negative constraint, while Socrates must succeed in recommending justice intrinsically as a positive ideal. The unjust refuse to let justice stand between themselves and what they want; the just want to be just.

Glaucon intensifies the contrast: to exclude any ulterior motives, he proposes that they compare the intrinsic value of justice with the maximal instrumental benefits of injustice, imagining that the unjust agent receives all the rewards merited by justice, and the just agent all the penalties merited by injustice (360e1–362c8). In supposing that it is better to be just but impaled than unjust and respected, he implicitly makes a further requirement of the motivations of just agents: they must not only value justice for its own sake, but take its value to eclipse (or 'trump') all non-moral values. Otherwise the demands of justice would be bound to be outweighed on occasion, however rarely, by non-moral considerations. The attitude is Socratic (cf. [11.20], 209–11), but looks more heroic than rational unless injustice is its own worst punishment. In the *Crito*, an early and Socratic dialogue, Socrates compared a soul spoiled by acting unjustly to a body spoiled by living unhealthily (47d7–e7), but without any means to make out that injustice is more than analogous to ill health. When he equated living well with living 'finely and justly' (48b8–10), it was not clear whether that rested on good reasons, or on a refusal to make distinctions. Perhaps on both: if, as Socrates supposed, all desires are rational (though some may be erroneous), they can only aim at the right and good; there are no desires that, arising non-rationally, would be in fact be satisfied by what is bad and wrong; hence immorality is wholly a failure to achieve what one really wants (cf. *Gorgias* 467a8–468e5). The *Republic* will set out a different picture of the soul, which holds that reason is only one source of desire. This allows the soul a complexity like that of the body. When the *Gorgias*, a dialogue of transition which pioneers an anatomy of the soul, actually calls injustice a 'sickness' of the soul (480b1), the term is taking on an extended sense that is more than metaphorical. Plato must now provide more complex and less Socratic answers to the following questions: in what way are justice and injustice fundamentally inner states with decisive implications for the happiness of the individual? What is their relation to other virtues and vices that narrows our options to two: being virtuous and happy, or vicious and unhappy? And how do they connect with the moral action that we demand of one another?

II

Plato's line of answer proposes a paradox exactly tailored to the measure of the problem. On Glaucon's construction, justice is a social virtue that benefits society; this fits the view, later ascribed by Socrates not just to Thrasymachus but to unnamed poets and prose-writers, that it is the other person's good and one's own loss (*Republic* III.392a13–b4). Plato will reconceive it as social and personal at the same time: in its fundamental form, its field and profit are indeed within a society, but that society is oneself. Politics and psychology are mirrors of each other, so that the commonplace that justice is good for a society can be translated into a claim that it is good for the agent.

'My name is Legion: for we are many' (Mark 5:9); Plato would have found these the words not of a madman, but of the best philosopher. Each of us contains a plurality of parts that are indeed not people, but may be pictured as interrelating rather as people do. What distinguishes the parts is the potentiality of conflict: this is revealed when we find someone not merely (as H.W.B.Joseph put it) 'similarly affected towards different objects', but 'contrarily affected towards the same' ([11.7], 53). Just as one man cannot simultaneously push and pull the same thing with a single part of his body (IV.439b8–11), so he cannot simultaneously accept and reject the same thing with a single part of his soul. Someone who thirsts for a drink, and yet refuses to drink, displays that his soul is multiple, containing contrasting sources of desire. If we specify that the thirst arises (like hunger) from physical depletion, but the refusal from rational calculation, we can distinguish his appetite from his reason (c2–e3). Further, we must separate his spirit from both: a man may be angry with his appetites, or his reason may condemn his anger (439e3–441c2). And this may only be a beginning, to be complicated by further investigation (435c9–d8, 443d7, cf. VI. 504bl–c4). Such soul-parts are not distinct souls: they share a single consciousness, and lack their own sense perceptions. And yet they are not mere faculties either; indeed, they share certain faculties, such as those of believing and desiring. Rather, as clusters of beliefs and desires arising from different sources, and acting together or apart on bodily organs, they are agencies, and have some of the freedom that we ordinarily ascribe only to persons. Hence to talk of them in interpersonal terms can be apt, and only slightly metaphorical. When Socrates likens each soul to a trio of animals, a Cerberus, a lion and a man (IX.588c7–e1), he is graphically conveying how alien to one another are the repertories of the different parts. When he remarks that these can give commands (IV.439c6–7) or be obedient (441e6), and raise faction (442d1, 444b1) or be meddlesome (443d2, 444b2), he is using public imagery to capture private reality. Among the qualities of persons that are also literal qualities of parts, in Plato's view, are virtues and vices of character.

The easiest illustration of this is also its central application. Socrates feels and Plato plots a way to a definition of justice through a series of commonplaces. A principle of the specialization of labour is recommended as a sensible policy (II.

370a7–b6, 374a3–62, III.397d10–e9) before it returns as the essence of justice (IV.433a1–434d1). It is plausible to suppose that it must be more efficient if all agents concentrate on that single skill for which their nature and experience best suit them. It is truistic to say that it is unjust to take what belongs to others or lose what belongs to oneself (433e6–11).[4] Taken together, the two propositions suggest a less elementary thought about justice: if one agent does the job within the city that another agent could do better, the one is taking what is another's and the other is losing what is his own. The reasoning is doubly equivocal. It shifts from what *is* mine (my job or property) to what *ought to be* mine (the job or property of which I can make most). And it trades on the ambiguity of the notion of what I can do best between what I can do better than *anything* else, and what I can do better than *anyone* else. Unless talents are providentially distributed, these will not always coincide, so that what is best for me (which is doing the former), and what is best for my city (which is generally doing the latter), may come apart (cf. [11.5], 333 n. 34, 343 n. 28). The conclusion is a typically bold persuasive définition: playing an improper role within a city is theft. Plato's political application is well-known: there are to be three classes of citizen, guardians who theorize and govern, auxiliaries who police and defend, and artisans who marry and produce.

However, all this is provisional until we have seen whether the same characterization applies not only to each individual within the city, but within each individual (434d1–5). Of course, it is then claimed that it does (441d5–442b4), but the claim is not made carelessly. If there is no natural guarantee that reason will be better at resisting thirst than thirst at impelling drinking (cf. 439b3–5), what shows that it is proper for thirst to obey reason, and not for reason to capitulate to thirst? The answer lies in a fuller description of their aims and aptitudes. The social analogy, in which an agent's proper job is best both for the city and for himself, suggests that the proper function of a soul-part will at once benefit soul and part. Happily, these indeed go together: it is reason's task to govern the entire soul by knowledge of what is beneficial both to each part of the soul and to the community of its parts (441e4–442c8). It alone is capable of reflection and calculation (439d5), and so can take a wide and long view of the interests of the soul as a whole. An unruly appetite defeats its own ends also. What stimulates it is the prospect not merely of eating or drinking, but of doing so pleasurably (436an); it identifies success not with indulgence itself, but with felt satisfaction. Hence it is not the case that the better it activates action, the better off it will be. A thirst that succumbs uncontrollably to any drink is not a thirst that makes the best of its opportunities: it will accept not only the water with which the dying Sidney scrupled to dispel his own discomfort, but also the gin that produces dehydration. The apprehension and application of practical truth can alone offer deliverance from 'fulfilment's desolate attic' (Larkin, 'Deceptions'). Given that reason is a wise altruist, and appetite a foolish egoist, it is true for *both* of them that it is just and best that reason rule and appetite obey. Thus, as demanded, justice admits the same account within city and soul.

What of the other virtues? The *Republic* originates the once famous doctrine of the four cardinal virtues in distinguishing three others that are also realized within both city and citizen. Within the soul, wisdom is primarily the quality of a reason that has firmly grasped theoretical and practical truth, courage of a spirit that holds fast to reason's guidance in the face of fear, and temperance of all the parts united in friendship and harmony (442b9–d1). A just soul must have these three virtues if it has the tripartite structure that Socrates describes. Even a quartet of virtues raises an old question. In earlier dialogues of Plato, such as the *Protagoras*, Socrates taught the unity of the virtues: to have one virtue is to have all virtues. That doctrine simplifies the defence of virtue, which can then be single; but can it survive the partition of the soul? The *Republic* is inexplicit, and interpreters disagree (cf. [11.5], 329–30, n. 26, [n.6], ch. 14). One ground for supposing that it cannot is the new possibility of *akrasia*. The *Protagoras* argued that to be wise is to be temperate, so that one cannot know that one ought to be resisting a pleasure to which one succumbs (352a8–357e8); but now appetite is permitted to defy reason, may one not have the wisdom to know that one should not drink even though one lacks the temperance or self-control to abstain? Such could have been true of the necrophilic Leontius when he rebuked his eyes for feasting on corpses even as he rushed forward for a closer gaze (*Republic* IV. 439e7–440a3). This view may be right, but it is not required. If we may distinguish a wise reason from a wise person, we may say that a person as a whole only possesses wisdom—or, equivalently, wisdom only possesses a person as a whole—if his reason exercises effective rule (cf. 442c5–8; *Laws* III.689a1–c1). Thus we may suppose that a wise person must also be brave and temperate.

Among the questions that this leaves open is whether the brave and temperate must also be wise. If they must, then the virtues may indeed entail each other, but with the implication that only fully trained guardians can have any of them. Yet it cannot be Plato's intention that his Utopia should leave the great majority of its inhabitants in a vicious and therefore unhappy state. He needs to give wisdom a reach beyond the reason of the wise. He achieves this by anticipating a distinction that Aristotle was to make between two modes of 'possessing' reason, one displayed in reasoning, the other in listening to reasoning (*Nicomachean Ethics* I.7.1098a3–5). It is best to possess one's own understanding, and one can then safely enjoy freedom; otherwise, if one has the luck to live within Plato's Utopia, one may find the same governance through the subordination of one's reason, either for a time or for a lifetime, to the understanding of another (*Republic* IX.590c8–591a3). How is this governance to be effective when spirit or appetite is dominant? It is the art of the guardians to give the auxiliaries such a role that they can indulge their spiritedness, and the artisans such a role that they can indulge their appetitiveness, without acting unwisely or unreasonably. Auxiliaries are only contingently brave, and artisans only contingently temperate, in that they need guardians to contrive for them recurrent situations in which they can simultaneously serve spirit or appetite and observe reason. Within their souls, reason is not corrupt, for it would not

command whatever spirit or appetite demanded. Yet it is weak, both in that it is directed by another's, and in that it can lead spirit or appetite only in a direction in which this is willing to go. Their courage or temperance is thus doubly parasitic: it depends upon a judgement which echoes another's wisdom, and which only prevails because that wisdom makes sure that it meets no resistance. Expulsion from Plato's paradise would be the fall of these men: in the terms of the rake's progress that he sketches in Books VIII and IX, auxiliaries would become timarchic men corrupted by honour, and artisans oligarchic, democratic or tyrannical men corrupted by pleasure. It is by moral luck that they attain to virtue of a kind. They are not fully brave or temperate but wholly unwise; rather, they are brave or temperate in a way through a wisdom that they can accept but not achieve. The unity of the virtues proper is reflected in a unity of popular virtue.

Thus the virtue of individuals is a unitary condition of their psychic parts. How is it needed to make them happy? The readiest answer to this question focuses upon temperance, which is defined within the soul as follows: 'We call a person temperate by reason of the friendship and harmony of these parts, that is, when the ruler and its two subjects agree that reason ought to rule, and do not raise raise faction against it' (IV.442c10–d1). Caring for all the parts alike, reason makes them 'friends' (IX.589b4–5); parts, like people, will be 'alike and friends' if they share the same governance (590d5–6). Socrates remarks again that vice is a sickness of the soul (IV.444e1), and can now explain. Eryximachus was giving fanciful expression to a Greek commonplace when he defined it as the task of medicine to produce 'love and concord' between the opposites (hot and cold, wet and dry, and so forth) that are the elements of the body (*Symposium* 186d6–e3). Mental health is the peace of mind that comes of parts of the soul that are friends and not factions. Without temperance, a man is prey to conflicting desires, perhaps subdued but not persuaded, which make him 'a kind of double individual' (*Republic* VIII.554d9–e1). There is a good and bad slavery: while reason is a benevolent master who educates desire, the appetites are a tyrannical one who frustrates it (IX.577d1–12). Reason can hope to rule with consent because of its altruism and intelligence. It was the soul's original nature (X.611d7–e3), and the origin of the mortal soul (*Timaeus* 42e7–8); so its attitude is paternalist, like that of a farmer tending his crops (*Republic* IX.589b2–3). In indulging necessary appetites (those we cannot divert, or whose satisfaction benefits us, VIII.558d9–e2), it keeps appetite content. Being a master of language, it can 'tame by *logos*', persuading and not compelling (554d2). As reason can grasp appetite's concept of the pleasant, while appetite cannot make out reason's concept of the good, reason can take appetite by the hand, whereas a recalcitrant appetite could only turn its back on reason.

So translated from the outer to the inner world, from society to soul, justice becomes not a demand but an overriding need. The story of Gyges' ring was a fable of external accidents; in its internal essence, there is no such thing as

injustice with impunity. As Socrates will calculate with half-comical precision, the tyrant is 729 times unhappier than the philosopher-king (IX.587d12–e4).

III

Socrates elaborates his defence of justice with some felicity. And yet it raises two related questions:

(1) Is it coherent? Socrates is using two models to relate justice in society and soul (cf. [11.5], 331 n. 29). The first is of group-member dependency. Any quality of a city derives from the citizens who possess it (*Republic* IV.435e1–6) and from their displaying it within the city; thus guardians make it wise in exercising their wisdom on behalf of the city as a whole (428c11–d6), while auxiliaries make it brave in exercising their courage on its behalf (429b1–3). The other model is of macrocosm-microcosm: justice is identical in city and in citizen (II.368e2–369a3, IV.434d3–5). According to the first model the justice of a citizen is external, but according to the second it is internal: it is said explicitly that the justice of an individual consists in his doing his own business not externally, but within his soul and in respect of its parts (443c9–c2). So a just city is one whose citizens are just in exercising justice *within it;* yet just citizens are those who are just in exercising justice *within themselves*. Which seems not to cohere.

(2) Is it to the point (cf. [11.16])? When Thrasymachus and Glaucon questioned the value of justice, their starting-points were concrete and external: justice is not committing murder, or adultery. They were asking a general question about conduct of certain kinds. Socrates had already indicated a doubt as to whether justice can be defined in such terms, but he needs to connect his definition to their initial conceptions. Otherwise, he risks having quietly changed the subject from justice commonly conceived as respect for others to justice idiosyncratically reconceived as mental health. The analogy between soul and city may have confirmed that it is good for a city to be just, just as it is good for a soul to be at peace. But the question was not that, but whether it benefits each citizen to be just *towards others*.

Both difficulties will be resolved if internal and external justice are related so closely that operating well within oneself is an exercise of the same disposition as acting justly towards others. Then internal justice will be an aspect of the same disposition or practice as external justice; to attempt to evaluate them separately would be false and artificial. This Socrates tries to make out. He confirms his own definition by applying a ‘vulgar’ test: the internally just man will be the last person to commit externally unjust acts such as theft and adultery (442d10–443b3). The connection also runs the other way: he evidently assumes that it will not alter the extension of the terms ‘just’ and ‘unjust’ if one calls that action just which ‘preserves and helps to produce’ internal justice, and that action unjust which tends to dissolve it (443e5–444a1). (The same reciprocity should apply within popular virtue, once this has been distinguished: the outer will

manifest and maintain the inner, always within the contingency of an external governance that makes the popular virtues sufficient in context for good acts.) It suits Socrates to focus on unjust actions that overindulge appetite, and so 'feast' and 'strengthen' it (IX.588e5–6); and it extends the range of these actions that appetite takes on a love of money, initially as a means to its more basic satisfactions (580e5–581a1). Plato always views it with anxiety: in an earlier and memorable simile, unrestrained appetites are as insatiable as a leaking jar (*Gorgias* 493b1–3). Indulging appetite risks one's health, and it is only safe to satisfy necessary appetites. Every unjust action, strengthening tendencies that tend to take one over, is unsafe, and a proper object of concern to the agent who takes thought about the condition of his soul. If the action is *very* unjust, the concern can only be acute.[5]

Plato is seeking reasons for being just that are rooted in human nature, that is, in human psychology. A Martian's reasons for being moral would have to be very different if it were capable of an unconflicted contrariness of which we, in Plato's view, are not. The success of his ethics is here a function of his psychology. It depends upon taking spirit and appetite to be potentially rampant, and locating all criminal tendencies within them. (A pertinent objection is that the psychopath, for instance, may suffer not from passion but from boredom.)[6] Helpful, in a way, is that the parts are protean: spirit is given not only to anger but to pride (*Republic* VIII.553d4–6); appetite can even motivate a dilettantish taste for philosophy (561c6–d2). When Belloc's Mitilda told 'such dreadful lies' she may have been indulging spirit or appetite. Yet this variability is more convenient for saving the theory than for guiding our practice. In the absence of any determinate definition of the inclinations of the lower parts, and hence of any precise demarcation between the acts that discipline and the acts that indulge them, it becomes imperative to supplement a negative description of the costs of immorality by a positive account of the motivations natural to reason. It is also part of our nature, in Plato's view, that we possess a reason that is not just the slave of the passions (as Hume characterized it), but a pursuer of its own projects. We need to hear more about the appeal of acting justly in familiar ways, and how it is strong enough to captivate any soul in a state of healthy receptivity. Widening our focus around justice, we must ask what the charms are of treating others well that are irresistible to the intelligent soul.

IV

Platonism is marked by two metaphysical dualisms, of unchanging Forms and mutable participants, and of soul and body. The second dualism discourages a possible implication of the first: Platonists do not view the world of change with indifference, for it is another country within which souls operate, orienting themselves and others in colonial lives that realize the Forms under other skies.

In the *Phaedo*, we find Socrates teaching the way of death, urging his pupils to escape the cycle of reincarnation in order, as discarnate souls, to philosophize

uninterruptedly. In the *Symposium*, composed at about the same time, he takes a more positive view of incarnate life. Within a body, even the life of the mind is an exercise in transience, but after a manner that creates a kind of permanence. 'Ways, habits, opinions, desires, pleasures, pains, fears' and even 'knowings' do not remain the same, but come and go in a cycle of loss and repair, each instance departing and being replaced by another, so that it appears to remain the same (207e2–208b2). This pattern within a life becomes the model for a pattern between lives that traverses not only the passage of time but the terminus of death. Poets, lawgivers and lovers so lead their mental lives as to pass on their best features to others. Thus, within a pédérastic relationship, the man transmits his virtues to the boy, so that, as through physical children, but more nobly and more efficaciously, his life is reduplicated in a way that delivers it from his own death (209b5–c7). If the boy becomes a lover in turn, there is the chance of a chain of transmission that may achieve for the sequence of lovers a kind of immortality. The *Symposium* contains no developed psychology, but this prospect gains in point from the tripartition of the *Republic*. Tripartition comes with incarnation, and so, to the extent that human virtues are ways of making the best of a tripartite state, they are creatures of incarnate life. Philosophic lovers or lawgivers (poets are now distrusted) who value being *humanly* virtuous have reason to work not only for their own escape from reincarnation, but also for the continuation within other lives of the human virtues that they hope themselves to transcend.

Vicarious immortality is not explicitly adduced in the *Republic*, perhaps for the reason, as we shall see in Section VII, that there Socrates has tactical reason (despite Glaucon, but because of Thrasymachus) to play down the appeal of ruling. Yet he illustrates how it could be maximized in describing lawgivers who lay down the general plan of a Utopia where everything of importance is to be planned (e.g. V.458d9–e1), and there is no area of personal liberty within which their influence is not to intrude. It is a further goal of theirs that every life should connect with every other by a maximal mutual identification: 'In this city more than any other, when any individual fares well or badly, they would all speak in unison the word we mentioned just now, namely that *mine* is doing well, or that *mine* is faring badly' (463e3–5). Now 'this way of thinking and speaking' (464a1) can neither achieve anything in itself, nor have any magic to work in a vacuum: the language of pseudo-identity is not an Indian rope-trick. What is its substance?

Some have supposed that Plato takes an organic view of the state (*pro*, [11.13], 79–81; *contra*, [11.17]), a suggestion that may be both clarified and supported by a simile in which he compares the fully unified city to the body that feels pain as a whole when only a finger is wounded (462c10–d7). Just as it is the animal who feels pain, and not the finger, so it might be the city as a whole that feels at one with itself. In the face of the fact that a city is not a person, such a notion, could only be mystical. Plato inclines rather to translate out talk about a city in terms of its citizens (as when he derives any quality of a city from its citizens, IV.435e1–

6). In one respect, an organic view threatens to be at once opaque and sinister: it might imply that the happiness of persons can be sacrificed to the impersonal good of the state. Plato remains far from conceiving that even when he gets closest to it. In reply to a complaint by Adeimantus that he is denying his guardians the *dolce vita* that a ruling class expects, Socrates reminds him that their target was the happiness not of one class especially, but of the whole city; and he gives the simile of a statue whose eyes should be painted the colour that best suits the statue (420b5–d5). However, the point of the simile is that, just as we want eyes that look like eyes, so we want guardians who remain guardians, that is, who care for their fellow citizens. The contrast is between factional and general happiness, and not between the good of the citizens and the good of the city. When Socrates speaks of a myth that will make the citizens 'care more for the city and for each other' (III.415d3–4), the 'and' is exegetical and not conjunctive. His desire that the city remain 'one' (IV.423b9–10) expresses not a mystical or temperamental love of unity, but a fear that rich and poor may form two cities hostile to one another (422e9–423a1). There is nothing sinister, either, in the claim that it is guardians who make the city count as wise, although they are by far the smallest class (428c11–e9), any more than when a company counts as innovative in virtue of the ingenuity of its design department. Even though he mocks a democratic and undiscriminating attitude to pleasures (VIII. 561b7–c4), and argues that the truest pleasures are those of philosophy (IX.583b2–587b10), Plato never permits happiness to be the privilege of a few. Perhaps because he does not suppose that a choice has to be made (at least within his Utopia), he rather envisages that *all* citizens will achieve the happiness natural to them.

How then, if not within an organic state, is the term 'mine' to be used in unison? Since it is the guardians who guide the rest, it is their mentality that most needs moulding.[7] To preclude private interests that might conflict with public obligations, Socrates advocates the abolition, among guardians and auxiliaries, of marriage, family life and private property, and their replacement by eugenic couplings and common messes. Ignorance of one's parents risks the errors of an Oedipus, and it is ostensibly to prevent these that he proposes that those born as a result of some procreative festival will call whoever bred then 'mother' or 'father' (V.461d2–5). But when he adds a similar extension of 'sister' and 'brother' even though he is oddly unconcerned about coeval incest (d7–e3), it becomes clear that he sees a more positive value in the group family. Viewing each other as relations, the guardians will treat one another accordingly (463c3–d8). Thus they will live in perfect peace; and, if *they* don't quarrel, there will be no danger of rebellion or faction within the rest of the city (465b5–10). Plato's hope turns out to be that, so long as the guardians are perfectly united as an extended family, even the artisans will empathize with them and with one another. We may suspect that, even from his viewpoint, the latter would be subject to some tension of attitude: if they are spared the communism, this is plausibly because it would undermine the appetitive motivation which they represent, and which suits their productive role; and yet it is presumably because

they possess a reason, if a débile and dependent one, that they are capable of an altruism within the city of which appetite is incapable within the soul. However, what counts as a 'necessary' appetite, deserving of satisfaction, must vary with natural disposition and civic role; a rational altruism can permit artisans a livelier appetitiveness than befits others. If so, they too may achieve Plato's personal and civic ideal of unity in becoming one man instead of many (IV.443e1), and yet identifying with everyone else.

Such is Plato's political ideal. His personal ideas shines forth in the defence of inspired madness that constitutes Socrates' second speech in the *Phaedrus*, though it is there enveloped in an aptly mythic glow that makes interpretation hazardous. Not only recollection of the Forms, but erotic companionship, are presented as recoveries of an earlier and happier state. Souls in heaven are pictured as following in the trains of the Olympian gods, and so forming more selective bonds of congeniality than are proper to civic relations. After the catastrophe of incarnation, followers of Zeus will look for someone to love who is by nature a philosopher and a leader, while followers of Hera will look for someone who is naturally regal, and so on (252e1–253b4). This fits well with the *Republic's* acceptance of varied natural talents, but extends the varieties of personality. It does not only value the companionship of philosophers, but allows that spirited lovers, though less intellectual and less chaste, may eventually, in the ornithic imagery, regrow their plumage together and fly back to heaven (256b7–e2). (We may suppose that it is in order to relate even unphilosophical love to recollection that Socrates here exceptionally envisages tripartition even before incarnation.) Thus Plato seems willing to grant personal attachments a general power to facilitate and enhance whatever activities are their sphere. However, he finds them particularly apt to philosophy. One reason is the interpersonal nature of philosophizing. Most explicit here is the *Seventh Letter*: 'Only after long partnership in a common life devoted to this very thing does truth flash upon the soul, like a flame kindled by a leaping spark' (341c6–d1). Dialectic is essentially a kind of dialogue, a truth of which he keeps us in mind by the very genre of his writings. It is oral discussion, and not written communication, that can alone truly achieve the mental immortality described in the *Symposium*: living words sown in one soul contain a seed that can propagate them in others down an unending sequence (*Phaedrus* 276e4–277a4). The sphere of philosophy is friendship.

V

Plato calls his famous demand that philosophers be rulers and rulers philosophers 'the greatest wave' (*Republic* V.473c6–7). We must not forget that he was writing under a democracy, and one whose values, even within his parody (VIII. 557a9–558c7), we too must find congenial. And yet he makes his conception of a class of guardians selected and trained for devotion to the city still more remarkable in its concrete elaboration.

Socrates assumes that aptitude for guardianship is genetically determined. He notoriously embodies this assumption in a 'noble fiction' that is to be instilled into all citizens (III.414b9–c2): everyone contains a trace of gold, silver, or iron and copper that marks him as a natural guardian, auxiliary, or artisan (415a4–7). Children commonly resemble their parents, but exceptions are to be demoted or promoted (a7–b3, cf. IV.423c6–d2). How and when the traces are to be detected is largely unspecified. Artisans will presumably receive some physical and mental training, in addition to the 'noble fiction', to prepare them for temperance; but it is not said what, nor whether it precedes or follows their assignment to that class. (In recent English educational terms, one might think of them as failing the eleven-plus.) Guardians and auxiliaries only divide in middle age when the former advance from mathematics and administration to philosophy and government. Relegation may occur at any time as occasion justifies: cowards in battle become artisans (V.468a5–7). Late promotion is more problematic, as it may be too late to catch up on education; parallel to demotion here is not promotion (as at III.415b2–3, IV.423d1–2), but public honour and private gratification (V.468b2–c4). Yet Plato's human stratification is a meritocracy, and not a caste-system.

In place of marriages, Socrates proposes the institution of eugenic matings (458d9–e4) arranged ostensibly by lot but actually with an eye to personal merit and stability of population (459d8–460b5).[8] This had better have the effect of creating better guardians *and* auxiliaries, and not a shortage of natural auxiliaries; it fits that courage, as well as intelligence, is a ground of selection (460b1–5, 468c5–8). He permits some freedom of sexual activity to those past the proper ages for breeding (461b9–c7), presumably because even they need some sexual satisfaction; but, likening 'erotic necessity' to geometric (458d5–7), he depersonalizes it. The only erotic attitudes that he allows to be discriminating in their objects depend upon culture (cf. III.403a7–c2), and are satisfied by kissing (V.468b12–c4). It may be wondered (as in [11.n], 159) whether their very selectivity must not make them out of place within Plato's all-embracing community.

In one respect Plato is millenia in advance of his time. He accepts that his principle of specialization applies also to women, but rejects an application that would justify the status quo.[9] Different natures should indeed have different functions within the city, but to infer that men and women should play different roles would be like permitting bald men to be cobblers but not men with hair, or vice versa; for most purposes it is irrelevant that the female bears and the male begets (453e2–454e4). Recent writers, tired of debating whether Plato avoids fascism, debate tirelessly whether he achieves feminism. Julia Annas has two complaints that rest, I think, rather upon prejudice than upon perception. First, she declares that Plato 'sees women merely as a huge untapped pool of resources', and that his 'only' objection to the subjection of women is that 'under ideal conditions it constitutes an irrational waste of resources' ([11.1], 183). She implies that, although concerned about 'production of the common good' ([11.

1], 181), Plato views half the population exclusively as providers and not receivers, as means and not as ends. This should not easily be believed. Somewhat artificially, Socrates distinguishes the questions whether his proposals are feasible, and whether they are desirable (456c4–10, 457a3–4). His defence of their feasibility, sketched above, is explicitly about what is natural (b12–c2), and implicitly about what is just (though it uses his definition of justice and not the term 'just'). His defence of their desirability is simply that mental and physical education will produce the best possible men and women, which is the greatest good for a city (456e6–457a2). He says no more, doubtless because he simply has in mind that the best city is that whose citizens are best (cf. IV.435e1–6), a valuation that is intrinsic and not instrumental. Secondly, Annas complains that Plato retains a masculine stereotype of excellence in spending most of Book V 'claiming, irrelevantly and grotesquely, that women can engage in fighting and other "macho" pursuits nearly as well as men' ([n.1], 185).[10] It is true that Socrates pays special attention to women's new role as soldiers and athletes (V. 452a7–e3); but this is because he feels that he has to confront the objection that, since physical exercise was taken naked, that would be indecent and ridiculous (cf. 457a6–b3). Otherwise, he gives no more emphasis to physical than to intellectual training (456b8–10, 456e9–457a1), and actually makes less mention of 'macho' pursuits such as athletics and soldiering (456a1–2, 457a6–7) than of medicine (454d2–6, 455e6), culture (e7), philosophy (456a4), and guardianship (a7–8, 457a8). Even when reflecting upon women, Plato is no philistine.

There are, however, two opposite regrets to qualify our admiration of his prescience. On the one hand, he distances himself too quickly from his own experience in denying women any distinctive qualities. The training and education of the guardians involve the reconciling of contrasted tendencies within the soul, the toughness of spirit and the tenderness of reason (III.410c8–e9), and facility and stability within reason itself (VI.503b7–d12). If he had presented this as a wedding of the masculine and the feminine (cf. *Laws* VII. 802e8–11), he could have welcomed women more positively, not as monopolizers, but as icons, of tenderness and stability. On the other hand, he remains too slackly within the limits of his own experience when he has Glaucon remark that, broadly speaking, women are in everything 'far outdone' by men, and Socrates agree: 'In all occupations the woman is weaker than the man' (V. 455d2–e2). Admittedly, the force of this is unclear, and has to be consistent with the reservation 'Many women are better than many men at many things' (d3–4, where the repetition of 'many' increases the rhetorical emphasis even as it reduces the logical content). It might imply a scarcity of female guardians, which would be inconvenient. It might just mean that men possess more energy and stamina in exercising the same abilities, which is one way of making sense of the summing-up: 'So man and woman have the same nature as guardians of the city, except that it is stronger in men and weaker in women' (456a10–11). But a passage that challenges prejudice should not take refuge in ambiguities. Plato has

some, but not all, of the courage and imagination needed to flesh out his picture of a class of rulers unlike any rulers he knew.

VI

Though they can be allowed no monopoly on altruism, philosophers must be extraordinarily motivated to serve others if they are to merit the power that Plato would place in their hands. At the heart even of his social philosophy lies the theory of Forms. Within both personal and civic relations he expects these to be not distracting but inspiring.

In the *Phaedrus* Socrates makes an extraordinary linkage between Forms and faces. Of all the Forms, Beauty offers the clearest image of itself to our sight, so that 'it is the most apparent and the most loved' (2250d3–e1). We then read that the lover would offer a sacrifice to the boy 'as to a statue and a god' (251a6–7), as if a boy, unlike a god, could be both. He is clearly in a state of deep confusion, and we should not be too quick to insist that what he really sees in the boy is the image and not Beauty itself. *In* (and not merely *while*) looking at him, he is 'carried back' to the Form (250e2–3): passionate seeing is infused by unconscious recollecting. When he turns his attention from body to soul, the same confusion recurs. He now recollects not a Form but a god, i.e., at least a mode of apprehending and realizing Forms. But gazing at the boy without grasping that he is remembering a god, he naturally credits the boy with the gifts that he in fact owes to the god and transmits to the boy; mistaking material for model, he supposes that he is imitating the boy even as he transmutes him (252e7–253b1). The confusion is salutary, for it inspires the generosity (b7–8) that does indeed make the lover godlike: it is through finding the boy 'equal to a god' (255a1) that he becomes himself 'possessed by a god' (be). Appropriately within his defence of a higher madness, Socrates is allowing that the Forms can produce a moral revolution, replacing conventionality by authenticity (252a4–6), through metaphysical bewilderment.

The same transition from inspiration by a body to displacement of interest from body to soul was already an emphatic feature of the ladder of love in the *Symposium*. The omission there of any mention of recollection, a theme that Plato was developing about the same time in the *Phaedo*, can only be understood as a sacrifice for the sake of simplicity and unity of presentation. Alternately extending and raising his view, the lover shifts his interest from one body to all beautiful bodies, to one soul, to the practices and laws that mould all beautiful souls, to the branches of knowledge, and so to the most cognizable of all beauties, the Form of Beauty itself (210a4–e1). The Form is explicitly grasped only at the end, but must be supposed to have been exercising a subliminal influence from the beginning. The lovers of sights and sounds in *Republic* Book V, who not only lack but are incapable of knowledge of the Form, are fixated on a plurality of beauties (476b4–c4, 479e1–2). Though they doubtless use the general term 'beautiful', they are effectively nominalists and not realists about

beauty, with no inkling that shifts of interest between individuals and even categories are intelligible as exercises of loyalty towards a single common property. They are aesthetes for whom every art-object is irreplaceable by any other. Those who make the ascent are different from early on: their hearts rapidly adjust to generalizations about beauty as a single property that comes in kinds and degrees. For Plato, this can only mean that, like homing pigeons, they are already potentially on target to retrieve the Form itself.

How will this effect their attitudes to persons? Their promiscuity will be unlike that of the indiscriminate lovers mentioned in the *Republic* who find a snub nose 'charming' and a Roman nose 'regal', a dark complexion 'virile' and a fair one 'divine' (474d7–e2). Inhabiting an erotic world of thick rather than thin concepts, of specificities and not abstractions, these find all adolescents attractive in different ways. The lovers of the *Symposium* realize that 'if one must pursue beauty of appearance, it is great folly not to consider the beauty of all bodies one and the same' (210b2–3). So the two promiscuities contrast, for the one depends on appreciating differences, the other on appreciating identity; the one values all individuals, while the other values nothing individual. Even at the second level of the ascent, where the objects of love are souls and mental qualities, there is no interest in varieties of personality. The right speeches are those 'that improve the young' (c2–3), with no suggestion of the theme in the *Phaedrus*, which is one of the links between its treatments of love and rhetoric, that different types of speech are appropriately directed at different temperaments (271b1–5, c10–d7). When the ascent is completed, the lover will look down at 'the wide sea of beauty' (*Symposium* 210d4) at a height from which individuals, and even kinds of individual, are no longer distinct.

We may then wonder whether the ladder of love is not an exit out of love in any ordinary sense. It is true that the summit of the ascent is not the end of the story. In a sexual metaphor, the lover will beget on Beauty 'not images of virtue but true virtue', and so become 'dear to the gods and, if any man can, immortal himself also' (212a3–7). Yet all this contrasts with the kind of immortality offered before (209c2–d1); there the lover begat on the boy virtues 'more beautiful and immortal' than physical children; here he begets virtue on Beauty itself so as to become, so far as is humanly possible, immortal in the manner of a god. The 'images of virtue' that the human lover generated in his beloved were perhaps no more real than those that poets generate in their audience (d1–4); the philosophical lover may generate 'true virtue' only in himself in the form of an intellectual state that relates him only to the gods. On this reading, a vicarious immortality dependent on the contingencies of personal relationships is transcended and replaced by a proprietary immortality that is no longer a child of chance. Gregory Vlastos concludes, 'What started as a pederastie idyl ends up in a transcendental marriage' ([10.59], 42).

If this egoistic intellectualism is the correct interpretation of the Platonic ascent, Forms provide not a new motivation towards morality, but a new problem for its justification. As Vlastos aptly comments, 'Were we free of mortal deficiency we

would have no reason to love anyone or anything except the Idea: seen face to face, it would absorb all our love' ([10.59, 32–3). If so, Plato's erotics have problematic implications for his politics, for the Forms that distract lovers from loving should also distract philosopher-rulers from ruling. It is a famous problem in the *Republic* how to draw philosophers away from enjoying the truth into doing good, and this reading of the *Symposium* turns the screw. If Socrates' second speech in the *Phaedrus* seems very different, that might confirm that it has to be taken with caution. However, one may doubt whether it can be right to read the *Symposium* so inconveniently. It is clear from the *Phaedo* that 'true virtue' is not purely intellectual but rather consists of practical virtue 'together with wisdom' (69b3), here in the *Symposium* coming from apprehension of the Forms. Similarly procreative language to that of *Symposium* (212a2–5) serves in the *Republic* (VI.490b3–7) to describe the emergence of 'a sound and just character, which is accompanied by temperance' (c5–6). In the *Laws*, the effect of intercourse with divine virtue is to become outstandingly virtuous oneself (X. 904c6–e3). The contrast in the *Phaedo* is with a slavish virtue that merely measures pleasures and pains; here in the *Symposium* it is with a pre-philosophical virtue that may be beautiful and immortal (209c6–7) but lacks understanding. There is no implication of any withdrawal from practical life.

More uncertain is whether there remains any intimate relationship with an individual. One might infer that there does not from a remark that 'slavery to the beauty of one' is 'base and mean-spirited' (210d1–3); but that complaint is actually more applicable if the lover is now developing his own virtue alone. We should rather distinguish the contemplation of beauty, which should be wide and individually non-discriminating, from the creation of beauty, which for most of us has to be personal and more selective. Better indicative is the context: personal love cannot cease to be Socrates' topic without a discontinuity of which one could expect a clearer warning. It is more likely that the 'true virtue' is generated both in the lover and in a beloved (unlike the 'images of virtue' which already existed in the lover and had only to be transmitted). If so, what the Forms provide is not a new egocentricity in the pursuit of virtue, but a new motivation for creating it as best one can—which for lovers is within a beloved, as for lawgivers it is within a community. Vicarious immortality was presented before the ascent-passage as the prolongation of a human good; a proprietary immortality is now the additional reward of a divine height of beneficence. So understood, this section of the *Symposium* is indeed an overture, and not an obstacle, to the wider and deeper concerns of the *Republic*.

The two works display a structural similarity: in both, a human explanation of caring for others is supplemented by a transcendental one that follows on introduction of the Forms. The *Symposium* first finds in vicarious immortality a human motive for creating virtue in another especially within an erotic relationship; the *Republic* first finds in communism among the guardians a human cause of identifying with others within a Utopia. But those capable of apprehending the Forms have an extra ground for doing good that also enables

them to do more good. Plato's presentation in the *Republic* takes on a partly misleading emphasis from the dialectical context. In reaction to Thrasymachus' assertion that all rule is for the benefit of the rulers (I.338e1–339a4), Socrates claims that some 'compulsion and penalty' must be applied to the good if they are to be willing to rule; the greatest penalty is being ruled by someone worse (347b9–c5). Later he still accepts the principle, 'The city in which those who are to rule are least eager to do so must needs be the best and least divisively administered' (VII.520d2–4). It is only fair that philosopher-kings should be forbidden to linger among their own contemplations, and 'compelled' to rule, each in turn, in return for an education that, exceptionally, they owe to their city (a6–c3). This risks disappointing Glaucon, who wanted to hear justice praised for its own sake (II.358d1–2), for ruling reluctantly in payment of a debt might have no value in itself other than that, which is being questioned and cannot be presupposed, of justice itself; and even that value might be cancelled by the compulsion. However, the word 'compelled' carries no implication of the intrinsically unchoiceworthy: philosophers are also 'compelled' to gain a vision of the Form of the Good (VII.519c8–d1, 540a7–9). When Socrates remarks that philosopher-kings will practise ruling 'not as something fine but as something necessary' (b4–5), the thought must be that they will be obliged to rule, and not that they will get nothing out of it. Yet the emphasis is unhelpful: we have to look around for hints of what ruling offers rulers in itself that makes them willing though not enthusiastic. And we cannot extract an answer from sections II–III above: truant philosophizing, so long as it is pursued for the sake of truth and not for fun or out of one-upmanship, is hardly fattening the lion of spirit or the Cerberus of appetite. Philosophers, like Martians, escape the common costs of injustice.

We need to ask (as Vlastos possibly failed to) what it is to love a Form. To suppose that it is simply to enjoy contemplating it would be like supposing that a mother can only show her love for her child by looking at it. Loving the Forms is further to wish to fashion oneself after them in a just and orderly life (VI.500c2–d1). Once reason itself possesses wisdom, it desires that this possess the soul of which it is part, which requires that it rule wisely within the soul (IV.442c5–8). This already offers the agent a rich enough prize: becoming just and practising virtue likens a man to a god so far as is humanly possible (X.613a7–b1, cf. *Symposium* 212a5–7). Thus meeting an obligation can be a humble, if not the highest, part of the project of apotheosis. There is yet further point in moulding not just oneself but one's community: I love wisdom more if I wish it to characterize not only myself but my city, which demands that this be ruled by the wise; in a striking expression, it is a 'service' to justice to extend its domain in governing a city (VII.540e2–3). Moreover, to the extent that this attitude focuses on the Form itself, it will be impartial between cities as well as citizens. Identification with others previously replaced egoism by what has been called 'nostrism' (cf. [11.9], 72); devotion to Forms, and desire that things participate in them, now supplements egocentricity by impartiality. Here in the *Republic*, as not

in the *Symposium*, we meet a passionate impersonality, inspired by the Forms, that values the existence of justice on earth as in heaven, with no special reference either to the agent or to his own circle or community. However high this valuation may be, it is compatible with a reluctance to rule. If I am a philosopher in Plato's Utopia, I shall consent to rule, for the sake both of being just myself and of making others just, when it is needed and because I am obliged; but I shall not compete to rule when justice would be equally achieved all round by another's ruling instead. I may value nothing above the rule of justice; but, to the extent that this is an end definable without even implicit reference to myself, I can be as keen as possible that it be achieved without being more than willing that it be achieved through me. It is thus that we may take Plato to be reconciling the rulers' reluctance with their devotion to the ruled.

VII

Forms have a further role to play, providing not only a special motivation to rule but a special competence in ruling. Dialectic, which leads through the world of the Forms, is also to provide a practical knowledge that entitles philosophers alone to lead their own lives and direct those of others. But how is it to do this? The *Republic* hardly faces up to the question. Karl Popper has a complaint that is for once not unfair: 'Plato's Idea of the Good is practically empty. It gives us no indication of what is good, in a moral sense, i.e. what we ought to do' ([11.13], 274 n. 32, cf. 145–6). The objection goes back to Aristotle (*Nicomachean Ethics* I.6.1096b35–1097a13), who had more to go by than the text of the dialogues. Yet in assessing it by the evidence we have, we need to remember some features of the *Republic* as a text that we inevitably neglect when we expound its content as a theory—as I have been doing. In a manner, the *Republic* deconstructs itself. It advances the thesis that it is dialectic alone, looking at the stars, that can guide the ship of state (to translate into metaphor an analogy spelled out at VI.488a7–489c7). The paradox is made vivid in the image of the philosopher's return from the light outside back into the Cave: one would expect him to be blinded by the darkness (VII.516e3–6), but are assured that he alone will see aright (520c3–6). The best guide is Johnny Head-in-Air. But who is presenting the case? A Socrates who remains Socratic in denying any pretensions to dialectic himself: he compares himself to a blind man on the right road (VI.506c8–9), and can only offer to speak in likenesses (e3–4). He is a pre-dialectical 'lawgiver' (V.458c6, VI. 497d1) for a community that allows only dialecticians the right to rule.[11] His conclusions themselves imply that interpreters who take them as Platonic dogma must be making a mistake. His task is to present a persuasive case for dialectic without any ability reliably to anticipate its results. Consequently, we cannot expect more from him than gesture where we most want guidance, and need to be cautious even where he is communicative.

Socrates conceives of the goal of dialectic in two ways: it is apprehension of the nature of the Form of the Good (VII.532a5–b5), and of the interconnections

between the branches of knowledge (531c9–d4, 537c1–7). Dialectic is thus foundational, evaluative and synoptic. Our world depends upon the world of Forms, which derives ideologically from the Good; unlike our world, which can only imperfectly marry the material with the ideal, the world of Forms is as it is because that is the best way anything can be. Apprehending the Forms would yield a grasp of the *is* and the *ought* of their world and of ours, but Socrates is unable to spell out how. One particular difficulty is this: our 'ought' is in part a moral 'ought', but how can morality, which is interpersonal, connect with the impersonal world of Forms? More technically, Plato is at least inclined to a doctrine of the self-predication of Forms; how then can there be a Form of Justice, when it is only persons, acts, intentions, and the like, that can be just? Consistently with his persona, Socrates supplies hints that are not answers. Quite deliberately, we may suppose, Plato has him twice take us by surprise. Justice has been defined in partite terms: a soul or city is just if its parts do their own thing. And yet it is by looking at the soul *before* partition that we shall best distinguish justice from injustice (X.611c4–5). Justice is personal. And yet it can be said that the Forms neither wrong nor are wronged by each other (VI.500c3–4). We should infer, I suggest, that the justice that Socrates has identified as one of the cardinal virtues is the human face of a vaguer reality. Specific talk of a Form of Justice is at home within a human perspective. Glimpsed outside that perspective, the opposite of injustice is no less than rational order (*kosmos* according to *logos*, c4–5). We may suppose that the four virtues, and indeed all virtues, are products of the refraction of that through the prism of mind and matter. (This would be the metaphysical ground of the unity of the virtues.) In patterning themselves and their society upon the Forms, philosophers make them 'as orderly and divine as is humanly possible' (c9–d1). Their goal is to make human activity a more faithful reflection of intelligible reality.

This is abstract, but not empty. There is an obvious analogy between the unity of the Forms (visible to the synoptic eye) and Plato's ideal—which we may well not share—of a wholly co-operative community. If we explain away his metaphysics as a projection from his ethics, that confirms the analogy. Yet the content of the *Republic* is generally less indefinite, and we need to reflect how the abstract and concrete connect. In a similar passage, we read that philosophers, forming a clear pattern in their minds through scrutiny of the truest truth, 'establish here norms concerning the fine, the just, and the good if they need establishing, and preserve those that are established' (484d1–3). This may express an ideal that contrasts both with Aristotle and with later Plato: dialectic might allow the deduction of moral principles, and civil laws and institutions, that are fixed and absolute. But the issue is debatable.[12] Little can safely be read out of the fact that much of the *Republic* is an imaginative exercise in lawgiving. We may view its laws less as attempts to anticipate the results of dialectic than as a mode of describing a city that does not exist. More recent Utopias (like Thomas More's) are commonly presented in the popular genre of travel-writing; Plato apes the more serious Greek genre of lawgiving for a colony (cf. the

casualness of VII.534e1)—as he will do again, more fully and formally, in the *Laws*. Over some matters Socrates expresses a conservatism that is doubtless Plato's: innovation in music and gymnastics is especially discouraged (IV.424b5–c6). Yet the apparent fixity of Plato's ideal may owe more to the genre than to what Popper calls 'the rigidity of tribalism' ([11.13], 172). Certainly, to infer from Books VIII and IX (where Socrates sketches a decline from Utopia through a series of constitutions and characters terminating in the tyrannical) that Plato thought that all change is for the worse would be to misread systematic comparison as impossible history, for the primitive and pre-historical Golden Age was not an age of Platonists and philosopher-kings.

We may think of his Utopia as a thought-experiment that conveys concretely how a society could be informed by dialectic without consisting solely of dialecticians. In resting so much on the analogy between soul and city, while leaving open whether further investigation would multiply the parts of the soul, Socrates implicitly leaves open also whether there are precisely three classes of citizen. Indeed, his survey of the stages of advanced education in Book VII implies further subdivisions within guardians and auxiliaries. What then of the 'norms concerning the fine, the just and the good' (VI.484d2)? We must remember that Plato cannot be rigid about rules, either moral or legal, when he has rejected any attempt to define moral virtues in concrete behavioural terms (see section I above). It is true that courage was characterized as 'the preservation of the opinion that has arisen under the law through education concerning what things, and what kinds of thing, are to be feared' (IV.429c7–8). All but guardians need general opinions as guides for a reason raised in the *Politicus*: 'How could anyone be able to sit beside someone all his life and prescribe to him precisely what is fitting?' (295a9–b2). But no virtue can be captured by such rules, for the unity of the virtues applies in a manner even to acts: an act may be just without being brave, for its context may include no danger; but, as Cephalus learnt (*Republic* I.331cl–d3), an act is only just if it is best, and that is sensitive to circumstance. Despite some of the appearances, both moral and legal rigidities are out of place in the *Republic*.

VIII

I have suggested that we have to take a somewhat sceptical view of Socrates' quasi-legislation in the *Republic* if we keep in mind the theory on which it rests. This is uncertain, but has the effect of easing the transition to the later dialogues, the *Politicus* and *Laws*.

The *Politicus* essentially approves the institution of philosopher-kings: the Stranger confirms that the correct and real form of government is that in which the rulers are truly expert; whether they rule willing or unwilling subjects, with or without laws, is by the way (293c5–d2). The decisive questions are not concrete ('Do they kill and banish?', 'Do they import citizens or send out colonies?'), but abstract ('Are they applying knowledge and justice?', 'Are they improving the

city?' (d4–c2)). This must be because there are no reliable generalizations linking the concrete and the abstract; absolute laws cannot do justice to the dissimilarities of men and situations (294a10–b6). A conception of precision (*t'akribes*, 284d1) can only be sketched imprecisely; expert statesmen, like all practical experts (c2), must be able to measure the greater and the lesser in relation not only to each other but to the 'mean', that is, 'the moderate, the fitting, the timely, the necessary, and all else that falls into the mean between extremes' (e5–8). Aristotle was to develop this more fully, but to very different effect: Plato aspires to the precision of an art of measurement, while he appeals to the perception of particular cases (*Nicomachean Ethics* II.9.1109b22–3). Within Plato, we must suspect, imprecision of description, and precision as an aspiration, are made for each other.

There are still roles for rules, either fixed or flexible. Even expert rulers will enact laws to guide action in their absence (*Statesman* 295a4–b2); but these are revisable by rulers, and overridable by subjects (c8–d7). More significant is the right role of laws within cities whose rulers are inexpert—that is, within all cities outside Utopia (meaning 'nowhere'). Here flexibility is dangerous. Where there is no knowledge, revision is likely to come of corrupt motives, whereas long experience, careful consideration and popular consent lie behind laws as they stand (300a1–b6). When rulers know what they are doing, consent does not matter (293c8–d2); when they do not, it does. It is if a doctor is expert that the patient's consent has no bearing on the desirability of the treatment (296b5–c2). However, as in medicine, political consent is at best an indication, and never a criterion, of getting things right. At least the primary *goal* of governing well must be to act justly oneself; but its *mark* is just action by the governed (c6–d4), which is a consequence and not a mode of procedure. Plato retains a counterfactual optimism: if a perfect ruler appeared, he would be welcome (301d4, cf. *Republic* VI.498d6–502a2); but, as it is, no such king is produced in our cities, and the best that we can do is follow in the track of the truest polity (301d8–e4). This causes Plato no enthusiasm. If a more practicable art, like medicine or navigation, were to proceed by rigid legislation, we should all find it absurd (298b6–299e9). Such government is an imitation of the true in a manner that makes it less a copy than a counterfeit (293e2–3, cf. 300c5–301a4): far from taking the ideal as a model, it despairs of achieving more than a simulacrum of success by means that are fit less to succeed than to avoid the worst causes of failure.

The *Laws* deepens and develops what is essentially the same conception, but with much more patience for the unideal. Its protagonist is an Athenian Stranger, who lacks at once the uncertainties and the aspirations of a Socrates. He distinguishes a 'first city and polity', which realizes the greatest possible unity, from one that is single to a secondary degree (V.739b8–e4). The ideal recalls the *Republic*, the means are communist (women, children, property held in common), the end unanimity in attitude and action; even things private by nature, eyes and ears and hands, must seem to operate in common. There is a new

fluidity: the communism is to extend not only through a small class of guardians and auxiliaries, but 'so far as possible throughout the whole city' (c1–2). This corresponds to a more fluid psychology; the golden cord of reason has to contend with other cords that are hard and steely (I.644d7–645b1), but the field of conflict is not defined as tripartite (cf. [11.2]). However, reason was never immune to corruption, and the removal of the barriers that constituted partition fits a new anxiety that incarnation is always infection. It is not in human nature to acquire autocratic power without becoming full of insolence and injustice (IV.713c6–8, cf. XII.947e7–8). Our mortal nature inclines us to sacrifice public interest to private gain, 'creating a darkness within itself (IX.875b6–c2). Only by the grace of God could a man be born with a character that would enable him safely to apply his intelligence and dispense with laws; as it is, true freedom is hardly to be found anywhere (c2–d3). The main obstacle to philosophical rule is nothing more contingent than our humanity.

Hence the second-best city is humanly the best. While still in fact evidently impracticable (cf. [11.3], 266–8, 311–12), it conveys more concretely what might be adequate to human needs if circumstances were different and consent obtainable. Though knowledge itself should never be enslaved to law (c7–d1), there is no security for any city in which the law is not master of the rulers (IV. 715c6–d6). By a revision of Athenian practice, with an age-limit and an election instead of lot, officials are to be answerable to scrutiny by a board of auditors (XII.945e4–946e4); when autocracy is out of the question, even bureaucracy must be kept under control. Laws are to be prefaced by explanations and exhortations (IV.718b2–723d4). We may wonder whether these would not encourage jurors to apply the spirit rather than the letter of each law, but their intention seems simply to win comprehension and compliance (718c8–d7). It is illustrated profusely, almost compulsively, how minutely laws must define and differentiate the types of criminal offence. That some details of regulation must be left by the founding legislator to experiment and experience (e.g. VI.770b4–8) was also recognized in the less law-bound *Republic* (IV.427a2–7); here, even these are to become virtually immutable after ten years' trial (*Laws* VI.772b5–c7). Later revision must be excused by necessity, and will be inhibited by procedural obstacles (c7–d4). Where nature is weak, safety lies in a straitjacket.

Plato's morality is a melodrama, and the *Laws* denies it a happy ending. He always tends to dualisms, of Forms and world, soul and body, reason and unreason, unity and division, education and corruption. Social dramas are mirrored by conflicts within each soul. When he writes, 'There is a strange, wild, lawless kind of desire that is present even in those of us who seem most moderate' (*Republic* IX.572b4–6), the idealist is shaking hands with the cynic: Jacques Vergès, the French lawyer who defends the undefendable, has remarked, 'There is in the heart of the most honest man a cesspool filled with hideous reptiles.' A political Utopia that intends to make a heaven of earth has to make way for a second-best polity that is truer to man's fallen nature. We read Plato now not in order to share the consolations of hope or despair, but to be reminded of

how it is part of our freedom to be able to enter imaginatively into a higher view of our potentialities, and a lower view of our actualities, than we can take quite seriously.

NOTES

1 The traditional and inevitable translation of *eudaimonia* by 'happiness' is defended by Vlastos ([9.93], 201–3) with a qualification: he notes that *eudaimonia* has two features, 'a subjective (pleasurable contentment or satisfaction) and an objective one (attainment of good, well-being)', and concedes that the second looms larger within *eudaimonia* than within happiness.

2 As I shall use the terms, I am 'disposed' to act in a certain way in certain circumstances if I am such as to act so in those circumstances (if and when they arise), while I have a 'practice' of acting in a certain way in certain circumstances if I do act so in those circumstances (if and when they arise). Hence disposition and practice are logically equivalent, and both hypothetical in content. It is not an issue whether the disposition has intrinsic value, or only instrumental value derivative from the value of the practice. This usage fits the easy transitions in the *Republic* between state and activity (e.g. at *Republic* II.357d3–358b7, where Glaucon, proposing that justice be assigned intrinsic as well as instrumental value, first speaks of it as something to be practised, and then as an internal state of the soul).

3 E.g. Sachs ([11.16], 144−7 (=[10.58]II, 38–41)), Reeve ([11.15], 24−33), Irwin ([9–39], 189–91).

4 This thought suffices to show that it is indeed of justice, and not, more broadly, of righteousness or, indeed, being moral, that Plato is offering an account; cf. Vlastos ([11.18] sect. 1).

5 It may still be objected that Socrates is really assigning external justice only derivative value as a cause and a symptom of internal justice, and so disappointing Glaucon. I take his reply to be that internal and external are aspects of the same disposition-cum-practice, of which the internal is naturally the focus of intrinsic value egocentrically conceived. One might compare dressing well, a single practice that involves both looking good to others, and looking good to oneself in the mirror. A better reply might be that, *pace Republic* IV.443c9–d1, psychic harmony is equally manifested in internal acts of mind and external actions. The just man treats others in ways that do not merely evidence and reinforce, but embody, his state of soul. He finds equal pleasure in internal and external activity, for it is in both that his psychic harmony becomes for him an object of experience.

6 I owe this example to Mark Rowe. It would need a speculative psychopathology to dissolve the objection on Plato's behalf.

7 The double process of externalization (from soul to society) and internalization (from society to soul) is illumined by Lear [11.10].

8 Whether in reaction to the frequent infelicity of Popper [11.13], or out of a distaste for moral commonplaces and a penchant for thought-experiments, modern writing on the *Republic* tends to be neutral or even sympathetic (e.g. Price [11.14], 179–93). But ominous parallels to Plato can readily be found in Kolnai [11.9], George Orwell's *1984*, and *Quotations from Chairman Mao Tse-Tung*. Thus Orwell nicely

conveys the charmlessness of compulsory copulation: ‘Even then he could have borne living with her if it had been agreed that they should remain celibate. But curiously enough it was Katharine who refused this. They must, she said, produce a child if they could… She even used to remind him of it in the morning, as something which had to be done that evening and which must not be forgotten. She had two names for it. One was “making a baby”, and the other was “our duty to the Party”’ (Harmondsworth, Penguin, 1989:70).

9 The status quo was certainly repressive, though the orthodoxy of Annas [10.45], 181–2) needs some qualification in the light of Cohen ([11.4], ch. 6).

10 The complaint goes back to Rousseau: ‘No longer knowing what to do with women, he found himself forced to turn them into men’ (*Émile*, Book 5). It reappears, alas, in Price ([11.14], 170−1).

11 The case is not as simple as that of an amateur arguing for employing an architect, for two reasons: dialectic is needed to define ends as well as means; and Socrates indulges in plenty of designing himself.

12 Contrast Owen ([11.12], 89−94 (=[4.46], 77−82)), who finds the *Republic* rigid, with Klosko ([11.8], 167–72), who finds it flexible. The evidence is elusive, but, with or on behalf of Klosko, I would cite the following passages as qualifying the prevalent pretence to be legislating once and for all by acknowledging the proper limits of the law, the need to supplement its letter in the light of its spirit, and the possibility of moral development: *Republic* 1, 425a3–e7, 426e4–427b2,

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CHAPTER 12
Plato: aesthetics and psychology

Christopher Rowe

Plato's ideas about literature and art and about beauty (his 'aesthetics') are heavily influenced and in part actually determined by his ideas about the mind or soul (his 'psychology').[1] It is therefore appropriate to deal with the two subjects in proximity to one another, and the second before the first.

THE SOUL

Preliminaries

Giving an account of any aspect of Platonic philosophy is made especially difficult by two facts about the way in which he wrote: that he did all his writing, not in treatise form, but in the form of dialogues, from which the direct authorial voice is absent (so that it is always in principle an open question how much of what is contained in them he might have wanted to endorse, and how firmly); and that each dialogue —if we discount occasional cross-references—is in principle separate from every other. It is nevertheless reasonable to suppose, especially since there are some ideas which recur repeatedly, that we can gain a fair idea from the Platonic corpus about how and what *Plato* thought, and that the separateness of individual dialogues does not constitute an absolute bar against using them jointly in an attempt to understand that thought. But it remains a moot point how we are to treat apparent differences between the ideas presented to us in different works: whether perhaps as the response of a flexible mind to issues and problems, which nevertheless leaves untouched an underlying unity of doctrine; or rather as changes of mind, which betray the author's philosophical development.

The issue is particularly important in relation to Plato's ideas about the *psuchē*, which appear to exhibit considerable variation between, and even within, individual dialogues, and to fit particularly well—at least in some respects—the hypothesis of a development in his thinking. In general, the developmental or evolutionary view of Plato has become almost standard among his interpreters (especially in the Anglo-Saxon world), partly because of an apparent coincidence

between the results of investigations into the chronology of the dialogues and what has been seen as the gradual maturation of their ideas and arguments. A typical overview will describe the Platonic corpus as falling into three parts: early, middle, and late. The early period, on this account, broadly represents that of the 'Socratic' dialogues, when Plato was by and large occupied with representing and preserving the intuitions and arguments of his master Socrates; the middle period shows him constructing those positive ideas which we most closely associate with the name 'Plato' ('Forms', 'philosopher-kings', and so on); while in the late period, he moves into a more critical and reflective phase, perhaps rejecting or heavily modifying some of his earlier ideas. The pattern at first sight fits quite neatly and easily in the case of Platonic 'psychology'. In the *Apology*, which all are agreed belongs to a time early on in Plato's writing career, we find Socrates at his trial expressing an agnostic attitude towards the fate of an individual after death: *either* death is annihilation, *or* the soul is translated to another place, where it will encounter the wise men of the past (if, as he says, the stories are true). By contrast, in the *Phaedo* (assigned to the 'middle' period), Socrates spends his last hours arguing rationally but committedly for the immortality of the soul. It is in the *Phaedo*, too, that—on the account in question—we begin to see the formation of a detailed theory about the soul and its nature, which is developed further in the *Republic* (usually treated as the middle dialogue *par excellence*) and elsewhere. Finally, in the late dialogues, signs of a retreat have been detected from some aspects of the 'middle' theory, and there is a reduction in emphasis on the immortal nature of the soul, even if the idea itself is plainly not abandoned.

There are, however, a number of points on which a developmental interpretation of Plato's treatment of the soul looks vulnerable, or unhelpful. In the *Apology*, where Socrates is (fictionally) addressing a general audience of Athenian citizens, his description of the 'other place' to which the soul may be translated after death is formulated in mainly traditional terms, which may reflect more about what Plato considered appropriate to the dramatic audience than about either his own or Socrates' views.[2] Again, the fact that the *Symposium* manages to discuss immortality at length without once referring to the *soul* as immortal cannot reasonably be supposed to indicate that Plato has temporarily given up the idea, which is heavily canvassed in other dialogues apparently written at about the same time. This looks like a clear case of what we may only suspect in the case of the *Apology*, namely of Plato's deciding what to include and what to exclude by reference to a dramatic audience—in this case, a tragic playwright and his guests at a dinner-party.[3] In the *Phaedo*, he has Socrates carefully skirt round the question whether the soul has parts, which becomes central in other dialogues but in this context would impede the argument. This does not mean that we must adopt a strictly unitarian approach; what it does mean is that chronological arguments need to be used sparingly, and that there are likely to be other factors at work in determining the content of any particular dialogue.

Plato was probably the first Greek thinker to articulate a theory of the soul. Socrates had a concept of it, but not a fully-articulated theory; and the same is true of other pre-Platonic thinkers. Two of the main ideas on which Platonic thinking on the subject is predicated are, first, the traditional notion that the 'souls' of the dead are in Hades (so that *something* of us, however insubstantial, continues in existence), and second, the idea—found for example in the medical writers—of a fundamental contrast between 'soul', on the one hand, and body on the other.[4] Socrates' way of conceiving of the soul as the moral self can be seen as building on the second of these ideas, developing it into something like our familiar opposition between the bodily or carnal (as in 'carnal pleasures') and the spiritual; Plato combines this with the first, but in a version which owes much to both Pythagoreanism and mystery religion, and—for a selected, philosophical few—reverses the relationship between life and death: for those who have lived philosophically, it is death which is preferable to life, and which allows the true fulfilment of their goals.[5]

However it is probably as correct to talk of Plato's *appropriation* of Pythagorean and other religious ideas as of his being influenced by them. It is reasonably clear that he believes in the immortality of the soul (since he goes on returning to the question of how to prove it), and in the general proposition that the wise and the good[6] will enjoy a better existence after death than the ignorant and bad; and beliefs of this general type[7] were evidently quite widespread in the Greece of the late fifth and early fourth centuries BC. He also shows more than a passing interest in the distinctively Pythagorean notion of the 'transmigration' of the soul, after a suitable interval, from one body to another (whether human or animal). But each of these beliefs seems to be rooted in a deeper one, about the primacy of goodness in the explanation of the world we inhabit, and about the possibility of squaring that with the evident corruptibility of human motivation. Moreover Plato usually himself raises questions about the way his descriptions of 'Hades' and of the fate of the human soul are to be taken, by casting them in the form of 'stories'. As he has Socrates say at the end of one of the most famous eschatological myths, in the *Phaedo*:

> to insist that these things are as I say is not fitting for a man of intelligence; but that either this or something like it is true about our souls and their habitations, if indeed the soul is evidently immortal—to risk thinking so, in my view, *is* fitting. (114d)

On such occasions, his use of the language of Pythagoreanism, or of initiatory religion, appears to hover tantalizingly between the literal and the metaphorical.

A large part of the problem here is that Plato's dialogues are no ordinary philosophical works, but—some of them—highly literary pieces, apparently written for a relatively wide reading public (at any rate one wider than his immediate circle or school), and designed above all to persuade the reader of the value of philosophy itself. This they attempt to do by a variety of means, but

especially by portraying philosophy in action, and by showing it playing a large role in, or even taking over for itself, normally distinct spheres of activity. Thus the philosopher may be the ideal statesman, orator, poet, even lover; to see the truth is to join the divine feast, or to be initiated into the highest mysteries. And yet at the same time to do philosophy is to be involved in hard, often prosaic, argument. The common thread is a commitment to the importance of rationality: whatever is worth achieving in human life is for Plato achievable by the exercise of reason, and by the assertion of the rational over the irrational. Through this means the authentic Platonic philosopher would simultaneously realize his—or her[8]—full human potentialities, and begin to resemble the (rational, Platonic) gods. If Plato does indeed genuinely believe in the immortality of the soul, then there is no reason to think of this latter goal as a mere *façon de parler*. In some sense, the ultimate fate of the soul in a Platonic universe lies beyond its present temporary conjunction with a body. But there are clear signs that for human souls actually to become divine is either in principle or in practice impossible, and that as in Greek poetry and myth, to be *godlike* is the most that we can attain.[9] It is probably this which is part of what the doctrine of transmigration is meant to express. Unlike the gods, we are ultimately bound into the cycle of birth and death[10]—and yet we share in their rationality.

If this is so, then we need to steer a middle course: neither should we assume that Plato takes literally all the many ideas that he develops through his characters in the dialogues (which would be dangerous on any account), nor should we attempt to eliminate altogether what may seem to us the more fantastic and apparently poetic elements among them. (Indeed, for some Neoplatonist and Renaissance interpreters the latter probably take us closer to the core of Platonism.) We must remain aware that Plato's philosophical writing is a complex matter, and that his motives as a writer may sometimes directly affect the content of that writing, as indeed may his chosen literary form. Thus, for instance, particular dialogues will often follow out a particular line of thought to the exclusion of others, which it is difficult to bring in within the fiction of a particular conversation (the treatment of immortality in the *Symposium* is one clear example; see above).

The Phaedo

The exercise of our reason matters for Plato because of what it can do for us. Reason enables us, most importantly, to recognize what is best for us, which is also what we desire; and this is one reason why even the driest discussion can be described in terms of passionate emotion; philosophers are *lovers* of the truth,[11] because truth is the only sure guide for the conduct of life, and a successful life is something that we all want. This kind of passionate attachment to reason is nowhere more evident than in the *Phaedo*,[12] in which Plato represents Socrates in his last hours justifying his optimism in the face of death. He claims that it is in death, if anywhere, that the philosopher will be able to achieve the wisdom he

sought but was unable fully to achieve while alive. We cannot 'see' the truth in its purity when in our embodied state, because of the confusion created by the body and its desires; death is our—our souls'—final separation from body (if we have 'trained' ourselves to have as little traffic with the body as possible); it is therefore 'reasonable to suppose' that it is then that all will be revealed to us.[13] This informal argument is then followed by four more tightly constructed ones for the underlying assumption that the soul can be relied upon to survive death (and remains intelligent, unlike the witless shades of the Homeric Hades). The supreme importance of wisdom is thus illustrated on both the theoretical and the practical level: Socrates both argues, and shows by his behaviour, that it is something the philosopher desires to the exclusion of everything else. This is a hard and unattractive doctrine (and one that does not recur in quite the same form elsewhere in Plato); it is also somewhat paradoxical, in so far as the wisdom in question seemed originally to be valued—as it is at least in part, even according to the *Phaedo*[14]—for the sake of living a good life. On the other hand, if the soul *is* immortal, then Socrates' position is intelligible enough (even if no more attractive); a single life in a body will have a vanishingly small importance, except in so far as it affects the quality of the soul's future existence. In any case, the general point is clear enough: that it is wisdom that counts, or wisdom with the virtue that flows from it.

This framing argument of the *Phaedo*, together with the four arguments for immortality, tells us a good deal about what Plato means, or can mean, by 'soul'.

> Does this not turn out to be purification [for the soul]… separating the soul as far as possible from the body, and habituating it to gather and assemble itself together from all quarters of the body, and to dwell so far as possible, both in the present and in the time to come, freed from the body as from fetters?
>
> (67c–d)

It is certainly a separate entity in itself, and itself invisible and 'bodiless' or incorporeal (as is confirmed later in the dialogue: cf. 85e); it is in its proper state, not when it is in the (or a) body, but when it is out of it —if the body is like a pair of leg-irons;[15] and it is essentially the rational, thinking element in us. But since what Socrates attempts to demonstrate, in the main part of the dialogue, is evidently *personal* immortality (the fear of death would hardly be assuaged by a rational assurance that something impersonal, something other than us, will survive), this immortal 'soul' must also represent our essential selves. If we put these last few points together, the result is that we are fundamentally rational (and incorporeal) beings, who become distorted or perverted by our association with the body, and are only fully ourselves when we are 'purified' of 'its'[16] desires, lusts and fears. Any irrational behaviour we may display is on this account simply a consequence of our enforced union with the body, though its

effects will normally outlast our deaths—that is, unless we have 'purified' ourselves through philosophy, and 'practised dying and being dead' (64a).

Something like this view of the soul also emerges elsewhere in the corpus, but in competition with the essentially different view of it as partly rational and partly itself irrational, in the more or less literal sense of having irrational parts (as well as a rational one). As I have suggested, the *Phaedo* does not commit itself to saying either that the soul does or that it does not have parts;[17] and the coexistence of the two views in the *Republic*—which treats tripartition as (perhaps) a way of describing what the soul is like in consequence of its association of the body—shows that they are not wholly incompatible. But in the final analysis they represent two quite different conceptions of human nature, which in turn reflect Plato's ambivalence about the value of our life here on earth: one view emphasizing our (potential) kinship to the divine, the other our difference from it. In the context of the *Phaedo,* the unitary view is clearly more at home. Yet there are clear problems with it, and particularly about its compatibility with the demand for *individual* immortality. If any two souls were fully 'purified', then they would apparently be indistinguishable from each other, since they would both be purely rational and knowing beings, and what they knew —given the Platonic model of knowledge—would actually be the same. (Just so, at the end of Book II of the *Republic,* the argument seems to lead to the —admittedly unacknowledged—conclusion that there exists a multiplicity of identical, rational gods.) There are difficulties about identifying the individual with his or her soul, on any interpretation of 'soul', but these are at their greatest if our 'souls' are supposed to be coextensive with our rational faculties. Who would wish to be remembered as their ability to think, and nothing else—not even the content of their thought?)[18]

But soul also has at least one other role to play in the *Phaedo*. It is not only our true, rational self; it is also a *life-principle,* or as Socrates puts it in the last argument for immortality, what 'brings life' to the body (105c-d). The idea of soul as an originator of motion, indeed, as the only self-activating source of movement anywhere in the universe, is widespread in Plato. In the *Phaedrus* (245e), Socrates suggests that 'what is moved by itself is the 'essence and definition' of soul; in the *Laws* (896a), usually agreed to be Plato's last work, it is 'that movement which is capable of moving itself by itself. Now for someone, like Plato, who is apparently happy to think of the universe itself as fundamentally rational, i.e. both as ordered, and as actually a living and thinking being, the idea that the ultimate source of motion should be a rational entity makes a certain sense, on that macrocosmic level; but it makes rather less sense at the microcosmic level of human beings, compounds of soul and body, most of whose activities are necessarily irrational in nature. Functions like ingestion, digestion or excretion may be aspects of a rationally-designed system (or what resembles such a system), but it looks distinctly odd to put them under the control of the faculty of reason, when they are by their nature unthinking.

It seems obvious enough that the tripartite model of the soul will work better in this context, as it will in the previous one: if the soul which survives death retains its emotions and its irrational desires, it will have a considerably greater chance of standing in for the original person. In fact, this will turn out to be the case even in the *Phaedo* for all except the purified, philosophical soul. Whatever we suppose to be the non-mythical equivalent of the fates of non-philosophical souls which Socrates describes (living on the shores of lake Acheron, or being swept along in the appalling rivers of the underworld), there will be little point in punishing them unless they are recognizably the same souls, dominated by irrational impulses, which motivated the unsatisfactory behaviour for which they have been condemned; and indeed the *Phaedo* openly acknowledges the point, describing the unpurified soul as 'interspersed with what belongs to the category of the body', however it may be that something incorporeal can be 'interspersed' with anything (81c). To this extent the two models for understanding the soul, unitary and tripartite, will be practically indistinguishable.[19] But on either account virtually all individuality must be lost as soon as a soul enters another body. There will certainly be no memory of any previous bodily existence, and so even if it is the same soul-stuff that animates the new body, it might as well be a new soul; no one will recognize Socrates in his new existence, and he (if it is a he) will not even recognize himself.[20]

What he *will* have a memory of is of the Platonic Forms, though his memory will remain latent from birth unless and until he is able to 'recollect' it.[21] This is the Platonic doctrine of *anamnēsis*, which is brought in as the basis of the second argument for immortality in the *Phaedo*, and which claims that 'learning' in the important cases is really a matter of rediscovering knowledge of things we knew before we were born. We are nowhere told, except in a mythical context,[22] exactly when and how we came to know the Forms; we have simply had acquaintance with them in the past, and this is sufficient to guarantee our access, given the right conditions, to a collection of objects which are not themselves objects of direct experience in our bodily lives.[23] Once again, we are brought back to the essential unworldiness of the soul in Plato's thinking. His is an extreme form of dualism: the soul is not just a separate entity from the body, but one that, despite its function as originator of movement and change, seems to belong—by its essential nature—outside the body, and outside the world[24] in which that movement and change occur (though it still remains an open question whether any non-divine soul can remain *permanently* in a discarnate state). Only in the *Phaedo* is dualism allowed to be challenged, when one of Socrates' interlocutors brings forward the view that 'soul' is merely a kind of epiphenomenon of the mixture of physical constituents in a body (the 'harmony' theory of soul). But Socrates gives this rival account short shrift, dismissing it by means of arguments which with a little reformulation it might easily evade. Plato had evidently not seen the true strength of the competition to his own view.

The Soul in Other Dialogues

One question which is likely to occur to any reader of the *Phaedo* is why, if the soul's true place is outside the body, it is ever incarnated in the first place, and especially if everything in the world is for the best. An answer, which emerges from the *Phaedrus* and the *Timaeus*, is just that the scheme of things demands living things, and living things require souls to animate them.[25] In both dialogues, these souls have three parts: one higher and rational, and two irrational, respectively responsible for the higher and the lower emotions. In the *Timaeus*, the story of the creation represents the first and immortal pan as being created by the divine craftsman out of the same stuff as the soul of the universe, while the other two are the products of lesser divinities, specifically to meet the requirements of bodily existence (to survive, we shall need, for example, an impulse to assert and defend ourselves, and a desire to take in food and drink).[26] In the *Phaedrus*, the three parts are compared to a charioteer and his two horses, one his natural ally, the other—the lusting, lecherous one—in permanent opposition to him; but unlike normal chariot teams, this one, including the charioteer, is a single whole, 'grown together'.[27] Out of the body, the most fortunate souls will be able to control their horses, and will join the gods, if only temporarily, to feast on reality and truth; in it, they will struggle against the lusts of the second horse to regain their memories of the feast.

This opposition between the highest and lowest parts is a fundamental feature of the tripartite model of the soul. It expresses what the *Phaedo* describes in terms of the opposition between soul and body, the 'lower' desires being precisely those which are there treated as belonging to the body itself. Plato's basic position is in a way bipartite rather than tripartite; that is, in so far as he sees the human soul as a battleground between the rational, on the one hand, and the irrational or 'bodily' on the other. The rational part is as it were the 'eye' of the soul, which will 'see' the truth, on two conditions: first, that it is itself fully developed; and second, that it is not prevented from doing so by the irrational in us.[28] This is the view which underlies the *Phaedo*, and it is also what we find in the *Laws*. But elsewhere we find the more complex tripartite model, which recognizes that some aspects of the irrational are not only necessary for our survival, but can contribute positively towards the good life. By splitting the irrational element into two parts, one of which is the natural 'ally' of reason, while the other tends to disrupt it, Plato is able to make this concession while still maintaining the sense of a basic opposition between rational and irrational.

However he also has independent grounds for this move. In Book IV of the *Republic*, he has Socrates argue at considerable length for the existence of three soul-parts. (In fact, Socrates introduces the term 'part' only with considerable hesitation: at first he prefers *eidos*, 'kind of thing', *ethos*, 'character-type', or plain 'something', as in, for example, *triton ti*, 'a third something' (435bff.). But the *Phaedrus* and the *Timaeus* show no such reluctance, and the *Timaeus* actually locates the three parts in separate parts of the body.) Socrates has argued that the

virtues of wisdom, courage, self-control and justice are attributable to a community or city in virtue of the qualities of, and relationships between, the groups who perform, respectively, the functions of rulers, soldiers, and producers; now he raises the question—since the ultimate aim in the context is to define the virtues (and especially justice) in the individual— whether the individual person has 'these same kinds of thing in his soul', so that the results on the larger scale can be carried over on to the smaller. Using the basic principle that 'the same thing will not be disposed to do or have done to it opposite things in the same respect and in relation to the same thing at the same time' (436b), he establishes to the satisfaction of his immediate audience, first, that we need to distinguish something in us in virtue of which we experience physical desires, e.g. the desire for drink, from something else which may on occasion cause us to resist a particular object of desire, e.g. this drink now, for a reason (it is contaminated, or poisonous); and second that we must equally separate 'spirit'[29] or the 'spirited part' from both of the other two. This part is naturally or ideally[30] the ally of reason, and never sides with the desiring part against reason, although we discover later that it may itself oppose reason.

The individual will possess justice and the other virtues when each of these three parts is performing its proper function, in harmony with the others. This means, above all, that both of the two lower parts are properly under the control of reason. If they are, then he will have only the right physical desires, and in the right measure, policed by the 'spirited' part;[31] if not, then either of the lower parts may dominate and distort the reasoning part and its judgements. This gives Plato a kind of theory of imperfect types, which offers a further explanation of the division of soul into three parts. The person who is dominated by the love of profit, on Plato's account, is 'oligarchic' man (oligarchic states being those run for the material benefit of the rulers); 'democratic' man is ruled by different sorts of desire in succession, and none in particular; and 'tyrannical' man, the tyrant himself, is controlled by a single, all-consuming master-lust. But there is also the person dominated by the love of honour, and the desire for self-assertion: the one Plato calls the 'timocratic' individual, the warrior of the *Iliad*, or the ambitious politician who is his counterpart in the democratic city-state.[32]

This picture of human nature as it should be, with reason ruling over unreason, may seem to be disturbed by some aspects of the *Phaedrus*, and in particular by Socrates' apparent readiness, in his central speech, to treat the philosopher as *mad* (244aff.). The beginning of the process of recollection of the Forms is described in terms of an encounter between lover and beloved: the beauty of a particular individual stirs the memory in the lover of Beauty Itself, and he is driven out of his wits by it, behaving in all the usual ways that lovers do— except that he manages to curb his lusts (in the shape of the black horse). The eventual outcome is a common life of philosophy, in which both older and younger partner recognize the real source of their original passion. Thus, paradoxically, a life of reason has its source in the opposite state, a kind of god-given madness which Socrates compares to that of the seer and prophet, of the religious initiate, and of

the divinely inspired poet. But the paradox is clearly deliberate, and in fact the overtly crazy behaviour of the philosophical lover is restricted wholly to the first stage, when he first falls in love, as he supposes with the beloved himself; after that, he recovers himself, and only appears crazed to the outside world, for neglecting ordinary concerns.[33] Yet at the same time the context shows that we are supposed to imagine him still in an 'inspired' state, still 'in love', since his mind remains directed towards, among other objects, the one—Beauty—which originally stirred him to passion. In the *Symposium* we find what is recognizably a variant of this picture of the philosopher as lover. Having begun by falling in love with a particular beautiful individual, he will be led (by a mysterious guide)[34] ultimately to acknowledge the splendour of the Form from which that individual and all other beautiful things derive their beauty, and transfer his allegiance to that.

What emerges with particular clarity from the *Phaedrus* is that it is *reason itself* which longs for Beauty. What is stirred by the vision and the memory of beauty (and Beauty) is primarily the charioteer himself, though the second horse, from the philosophical point of view unfortunately, also responds in its own way. In fact, Plato consistently treats the reasoning part as having its own desires and its own pleasures. The lower parts of the soul cannot redirect themselves towards higher objects, since they just are those parts of the soul with which we desire respectively food, drink, etc., or honour. A horse cannot become a charioteer, nor can what we might call an instinct, unrefined by thought and reflection (a description which at least fits the 'appetitive' part), be turned into a rational wish, though both spirit and appetite may be trained to desire and enjoy those things in their respective spheres which reason determines to be right for them.[35] Of course, any time and energy spent on those things which are attractive to the lower elements mean less time and energy for higher things, and vice versa; and this makes it natural for Socrates to use the image of the diversion of a stream, as he does in the *Republic*, 'we recognize, I suppose, that if a person's desires incline vigorously towards one thing, they are by this degree weaker in other directions, like a stream which has been diverted into that other channel'.[36] But the desires themselves remain distinct. The desire for, and impulse towards, Beauty and the other Forms, the objects of reason and intellect, must therefore belong to the reasoning part itself.

In that case the opposition in Plato between rational and irrational is not a simple one between reason and desire, except in so far as 'desire' is identified with the lower or bodily desires. This point coincides with the consistent way in which (as we have seen) philosophy is described in the dialogues, as above all a *passionate* pursuit. If philosophy is not literally *erōs*, passionate sexual love, because that must be directed towards people, it is nevertheless like it, and—so Socrates claims, on Plato's behalf—it provides a degree of fulfilment far greater than what we can expect from ordinary *erōs*. The way in which the *Symposium* puts the philosopher's goal, as a kind of union with the forms, at first sight suggests the sublimation of sexual passion. But if that entails the desire for one thing,

sexual union, being satisfied by another, 'being with' Beauty, such a scenario is —as I have already argued—incompatible with Platonic tripartition, and it is equally incompatible with any other conception of the soul which is represented in the dialogues (in the *Symposium* itself Socrates says nothing about what the soul is, or is like, just as he says nothing about its mortality or immortality). In terms of tripartition, the model for the soul adopted by that other dialogue on love, the *Phaedrus,* the 'ascent of love' would rather be a matter of the disguised substitution of the fulfilment of one sort of desire for the fulfilment of another.[37] But so remarkable will the experience of the philosopher's 'erotic' initiation be, on Socrates' account, that he will never miss what he once left behind.

The idea of reason as itself desiring and passionate also not only fits, but is demanded by, the sort of view of the soul which we found Plato favouring in the *Phaedo,* and to which he returns at the end of the *Republic,* even after having argued at length for tripartition.[38] If soul is in its essence rational and unitary, and capable of floating free through the universe, and perhaps especially if it activates and animates bodies, it cannot be pure rationality; thinking about things, even including doing them, by itself moves nothing. That is, without desire a unitary rational soul does not look like a remotely plausible candidate as a self-mover or source of movement for other things; it would, as we might put it, just lack a *motive* for doing anything.

Of course, the more reason appears like a separate agent, the greater the problems for the tripartite model. Similarly also in the case of the other parts: it will not be particularly helpful to analyse the soul, as a spring of action, into three more.[39] Perhaps that should encourage us to take seriously Plato's hint at the end of the *Republic,* and to suppose that he ultimately prefers a *Phaedo-type* view. But this is a less than completely satisfactory solution. The prominence of the idea of the tripartite soul, both in the *Republic* and elsewhere, reflects Plato's interest in the fact of internal conflict which it purports to explain, and makes it hard either for us or for him to set it aside. A better conclusion might be just that he finds the arguments for the two conceptions of soul equally balanced, and veers between the two as the context demands, just as he does between the different conceptions of humanity which they imply.

LITERATURE AND ART

Plato returns repeatedly to the subject of literature, particularly poetry, and his treatment of the poets is always hostile. One important passage which is often taken as an exception, and as marking a softening in his attitude, in fact includes some of the main themes of his attacks elsewhere. The passage is the one in the *Phaedrus* briefly referred to earlier, where Socrates is introducing the idea of erotic madness, and comparing it to other forms of madness. Third among these is 'possession and madness from the Muses', which issues in 'lyric and the rest of poetry', and 'by adorning countless achievements of past generations educates those who come after' (245a). Socrates contrasts this inspired poetry with poetry

produced by someone not affected by the Muses' madness, who 'has been persuaded that after all skill will make him a good enough poet'; the poems of the mad leave those of the sane nowhere.

We should not be misled by the fact that Socrates here claims to be supporting the proposition that 'the greatest of good things come to us through madness, provided that it comes by the gift of the gods' (244a). There are clear signs of playfulness in the context as a whole, and the structure of the passage about the poets echoes the central argument of the little dialogue *Ion*, whose polemical intentions are not in doubt.[40] The poets claim to educate people, which implies that they have something to teach: they know something. But in fact—Socrates argues against Ion—those who are any good are out of their minds, and their poetry has its real source not in them, but in the Muses. In *Republic* X, Socrates reports an ancient quarrel between philosophy and poetry, on the basis (or so it seems) of what the poets have said about people who claim to be wiser than them (607b-c); in Plato's hands, philosophy gives as good as it gets.

The attack on the wisdom of the poets is carried out nowhere more extensively than in the *Republic* itself. Large parts of three of its ten books (II–III, and X itself) are written against poetry, arguing for the conclusion that the poets should be expelled from the ideal city as corrupting influences on the citizens, young or old. So the charge is even stronger: not only do they themselves lack wisdom, but so do their products. Now if these are the products of the Muses, then (since on Plato's view the gods are good and without jealousy or malice) we should expect them to contain the wisdom that the poets, according to the *Ion* and the *Phaedrus*, themselves lack. But in fact, it seems, the argument there is an opportunistic one, whose point is just about the poets' ignorance, and therefore their lack of qualification for a teaching role. 'If, as you say,[41] your poems are inspired,' Socrates asks, in effect, 'won't that mean that they come to you from outside?' To which they would presumably reply that they mean nothing of the sort, only that their poetry either is or seems to be a joint product of skill and something else which they cannot explain; in other words they would simply reject Socrates' simplistic assumption that 'inspiration' excludes human skill.

However there is a serious point behind the strategy of the *Ion*.[42] This is about the way in which poetry works on its audience, and, as it happens, on those who perform it: Ion is a 'rhapsode', a professional performer specializing in Homer, who also lectures about him. Socrates uses the image of a chain of iron rings suspended from a magnet. Each successive ring holds the next, and is held by the previous one, not through any contribution of its own, but in virtue of the force emanating from the original source. Similarly (Socrates claims) poet, performer and audience are simply carried away by the poetry of the Muses; it is in each case a passive process, and an irrational one, which none of them can therefore explain. What gives the simile much of its purchase is that Socrates and Ion agree that the experience, for performer and audience alike, depends on the emotions: the rhapsode feels sorrow and fear with and for the Homeric heroes, and is able to make his listeners do the same.[43]

It is this tendency for poetry to speak to the emotions, or to the irrational part in us, which Plato seems to want to identify as the underlying cause of its faults. The chief evidence for this is in the *Republic*. Socrates' criticisms of poetry—along with the other parts of 'music', in the Greek sense[44]—in Books II–III have to do with the capacity which it has for instilling beliefs and forming character-traits, i.e. those dispositions to behaviour which are referred to under the headings of the virtues and vices. The discussion is about the early education of future philosopher-rulers, and begins with the sorts of stories (*muthoi*, 'myths') which they should be told. The chief purveyors of stories, which are by definition 'untrue' or 'false' *(pseudeis)*, either because simply fictional or because actually *lying*, are the poets, beginning with Homer and Hesiod, and many of their productions peddle seriously damaging 'untruths', particularly about the nature of the gods: that Kronos castrated his father Ouranos; that Zeus maltreated *his* father Kronos; that the gods fight and quarrel with one another. Gods must be represented to children as what they are, namely good, causes only of well-being (for our unhappiness, we are ourselves responsible), unchanging, telling only the truth. Only so will our future rulers grow up with the right attitudes towards gods and others who require their respect. Poetic descriptions of Hades constitute another category of untruth: to portray our fate after death as Homer does (and as Plato himself does, in his myths) is 'neither true…nor beneficial for those who are going to be good fighters'.[45] Descriptions of great men, and especially of gods, lamenting for the dead are also to be outlawed, on the grounds that if young people fail to laugh at them as they should, they'll be more likely to break into tears themselves; excessive laughter is to go too (in *Iliad* I, Homer has the gods bursting their sides with laughter as the lame Hephaestus bustles about: that won't do). Truthfulness, self-control, endurance—these are the qualities our poets should, and even occasionally do, encourage.

The last parts of Socrates' treatment of 'music' in this context turn out to offer a kind of bridge to his further, and crucial, defence of his position in Book X. The issue is first about how poets should address their audiences: through narrative, where the author speaks as it were for himself, or through *mimēsis*, which here seems to mean something like 'imaginative recreation' (the poet, and then the audience, take on the character being portrayed). The right mode, Socrates suggests, is combination of the two, but with a much greater proportion of straightforward narrative, because the only case where *mimēsis* will be acceptable is when the character involved is that of a good man, and one behaving as a good man should, failing in a few minor respects.[46] Finally, a choice is made about the modes of music which the young should hear, which turn out, unsurprisingly, to be the simpler ones, which contribute either towards the inculcation of warlike traits or towards a disciplined, harmonious, evenness of mind.[47] Both of these sections are essentially about the way in which literature ('music' in the wide sense) reaches into our souls, which is what will form the main plank of the argument in Book X. The allegation is, and will be, that the effects of poetry are insidious; that the poets, through the use of music and of

mimēsis, sneak past our reasoning selves undetected.[48] The rulers of a good city will take advantage of this powerful instrument, and turn it to good. But this would involve a major reform of poetry. Existing poetry is powerful and *dangerous*.[49]

This explains the space which is devoted to the criticism of literature in the *Republic*, and specifically the way in which Socrates returns to it in the last part of this mammoth work: it is a subject of vital importance. Book X begins with a direct reference back to Books II–III: 'we were absolutely correct in the way we proposed to found our city, and I say this not least with the subject of poetry in mind' (595a). More precisely, Socrates means 'our complete refusal to allow in all that part of it which is mimetic'. This is somewhat puzzling, since that was not what was proposed (some 'mimetic' elements were to be allowed), and it rapidly becomes clear that the target is going to be *all* existing poets. Thus a little later we find him saying 'So shall we lay it down that all poets [or "experts in the poetic art", *poiētikoi*], beginning from Homer, are *mimētai* of images of virtue and the other things they write about, and don't grasp the truth?'[50] This sentence, however, suggests a solution to the puzzle: Socrates is now attacking poets *in so far as* they are involved in 'imaginative recreation', but at the same time he is treating them as if that were the whole of poetry. The point that poetry could, ideally, contribute to the good life, or even sometimes actually does contribute to it, is now set aside, in favour of all-out attack. The attack in large takes its start from a negative reassessment of the whole idea of *mimēsis*: it is not now a neutral process, taking its colour from what is represented (or represented), but is itself something to be suspected and deplored. It is as if the stress had shifted from 'recreation' to 'imaginative'. At any rate, the *mimētai*, the poets, deal in *images (eidōla)*, by which is clearly meant insubstantial and false images;[51] and these images, Socrates suggests, they present to one of the inferior elements in us. That this is the basis of his argument in Book X receives confirmation from the continuation of the opening exchange, referred to above. We were absolutely correct in refusing to allow poetry into the city; 'and that we mustn't allow it in seems to me even more evident now that we have divided the soul into its categories'.[52] The complex argument that Socrates now mounts has the sole purpose of relating the effects of poetry to the lower part or parts of the soul, and marking them as bad for that reason.[53] (The usual view is that there are several different arguments involved; but the signs are that Socrates himself regards it as one long argument including a number of subsidiary ones.) We begin from the question about what *mimēsis* in general is. To find an answer to the question, Socrates takes the case of the painter, and contrasts his productions with those of the carpenter, and the Forms which (for the sake of the argument at least) are supposed to be in the carpenter's mind when he makes his bed or his table: the Bed Itself, the Table Itself. These are said to be 'in nature', and if anyone made them, it would have to be a god; by comparison with them, there is something counterfeit even about the carpenter's beds and tables, let alone those that the painter reproduces in his paintings.[54] By Greek counting, this puts the painter's products at third remove from the real thing, and the same will go for all other cases

of *mimēsis*. Because *mimētai* (now including the poet) are not dealing with reality, or how things really are, they must inevitably relate to how things *appear* to be. People say that in order to write well, poets must know the truth, but in fact they do not. If they did, they would not be satisfied with recreating mere images (mere surface views of things), but would prefer to try to recreate the real thing: thus if Homer really knew about medicine, he would have been a doctor, and if he knew anything about virtue, he would have been a lawgiver rather than a poet.[55] This is the route by which we reach the conclusion about 'all poets', that they are '*mimētai* of images of virtue', without grasping the truth, for if they do in any way represent good men in their poetry, saying and doing 'virtuous' things, it cannot be because of their knowledge of virtue itself. But they have the techniques which enable them to convince anyone else who is ignorant[56] that they do know something.

Then, after another piece of persuasive description[57] to establish the poets' lack of knowledge, we reach the last stage of the argument. If *mimēsis* operates at third remove from the truth, Socrates asks, to which aspect of the human being does it direct itself? Things may appear to have different shapes and sizes from the ones they really have (so, for example, a stick will appear bent if seen through water); in such cases, reason tells us one thing, which is contradicted by appearances. If we use the principle we used before, in the case of the soul, that the same thing cannot act or be acted upon in opposite ways at the same time, then it follows that the part[58] of the soul which thinks things are other than they really are must be different from the one that 'relies on measure and calculation' (603a), which is of course the best, reasoning or calculating, part; it must therefore be one of the low-grade[59] parts. So any sort of art concerned with *mimēsis* (so, again, poetry too) will be a low-grade sort of mistress, consorting with the low-grade.

There are some problems here: it looks as if we shall need some subrational part which is nevertheless capable of having beliefs (e.g. that 'this stick is bent'), and neither the 'spirited' nor the appetitive part, from descriptions of them in other contexts, looks particularly well suited for having this capacity. In that case, we shall need an extra 'part' of the soul, which is different both from the part that is reasoning or calculating successfully, and from both of the other parts which were argued for in Book IV. In the event, when he comes to the question of which aspect of the mind[60] is affected by poetry, Socrates at first avoids identifying it with either of these original two lower parts, and again simply talks about something which is different from what is best, though it does also take on the features of an individual: 'as for the part which draws us towards recollections of our suffering and towards lamentations, and is insatiable for these —shan't we say that it is unreasoning, and lazy, and fond of cowardice?' (604d). Eventually, however, when he passes on to what he calls 'the greatest charge' against poetry (that it can corrupt even the best), he comes clean: 'And in relation to sex, too, and anger, and all those aspects of the soul which have to do with desire and pain and pleasure,[61] which we say accompany every action, it's the case that

poetic *mimēsis* works similar effects [namely, carrying us away, so that we experience violent feelings of the kind that in ordinary life, outside the theatre, we forcibly repress]; for it nourishes these by watering them, when they ought to wither, and sets them in control of us when they themselves ought to be kept under control' (606d). We might fairly conclude that the problems which we saw affecting the original division of soul into 'parts' are back with a vengeance. Even if we allow the general point that poetry appeals to our feelings and emotions, Plato's own case—in Books II–III, but also as reinforced in the early part of Book X—is that it also instils *beliefs;* and in the sort of case which would parallel that of the straight stick which looks bent (while another part of us protests, ever more faintly, that it's straight), those beliefs will apparently have to be attributed to the irrational, unreasoning parts.[62] But the *Timaeus*, for example, located the appetitive part in the belly: can the belly have beliefs?

In the Greek context, that is not quite so absurd a suggestion as it might sound to us, for even Aristotle was prepared to take seriously the suggestion that the heart might be the organ of thought (and if Plato places reason in the head, it may be for peculiar reasons).[63] But on the whole Plato does not seem to want to locate beliefs in the 'irrational' parts; rather he prefers a model according to which our reasoning part is distorted and perverted, ceases to reason clearly, and so begins itself to harbour false notions. That, at any rate, appears to be what is entailed by the idea of the domination of the individual soul by the lower parts—which is precisely the idea which seems to re-emerge in the final stage of the argument ('sets them in control of us'). In terms of this model, poetry would work on, encourage, and 'water' the irrational parts, so that they came to shake the beliefs held by the reasoning part. In other words, it is not a case of contrary *beliefs* at all,[64] except in so far as poetry, in addressing the emotions and encouraging their expression, can be said to teach something ('that it is appropriate to give oneself over to violent emotions') which is contrary to what reason itself would teach. Whether that is, philosophically, a good position to adopt is another matter; what is clear is that it is the one Socrates finally reaches.

Plato's most prominent targets are usually, as in the *Ion*, the 'tragic', or 'serious', poets,[65] with Homer in first place because of his dominant position in Athenian culture. (Socrates speaks—again in *Republic* X—of the loving respect for him that he has had since his childhood; even the greatest poet of all, and teacher, is not to be exempted.) But comedy gets its share of attention too; and of course, Socrates specifically claimed to be talking in *Republic* X about all poets, poets of all kinds. Paradoxically, comedy gets a warmer welcome than tragedy in the the imaginary city of Magnesia constructed in the *Laws*. The tragedians would come in and set up in the agora in competition with the lawgivers (in this imaginary case, the philosophical participants in the conversation), using the fine voices of their actors to say about the same practices and institutions, 'not the same things as we do, but for the most part actually the opposite' (*Laws* 817a-c). They would be allowed in only if they could show that they were saying the right things. Comic playwrights, on the other hand, will be useful, even necessary, to

provide the citizens with an insight into the ridiculous. At first sight this allows the possibility of a distancing, an intellectual detachment on the part of the audience from dramatic productions, which Plato rarely acknowledges elsewhere.[66] His standard interpretation of audience reaction is exclusively in terms of emotional involvement; and in fact the *Laws* passage is no exception.

The question is about *how* comedy would give us its insights. We get an answer to this question from the *Philebus*, in which Plato develops what may be termed a theory of the dramatic emotions. Socrates is involved in establishing the posssibility of pleasures which are mixed with pain, and finds one of his star examples in tragedy: 'Shall we not find [anger, fear, longing, sorrow, love, envy, spite[67] and so on: i.e. the feelings in general] full of inexpressible pleasures?' So *anger* is undeniably pleasant, as is wailing and lamenting similarly when audiences watch tragedies, and 'enjoy weeping' (*Philebus* 47e—49a). (It is because we enjoy them, of course, that such experiences have the capacity to draw us in.) With comedies too, Socrates goes on, our state of mind is the same: a combination of pleasure and pain. The feeling that comedy arouses in us is 'spite' *(phthonos)*,[68] which along with other feelings has been agreed to be a 'pain of the soul' (or, as we might put it, a 'mental pain': one which does not have its source in the body). What we find comic or absurd is other people suffering misfortune, and especially the misfortune of not knowing their own limitations. They can think they are richer than they are, or better physical specimens than they really are. But the commonest delusion they suffer is about 'the things of the soul', especially wisdom. Now those in this last condition, if they are strong and powerful, are not objects of amusement at all, but dangerous and frightening, whether we encounter them in real life or in the theatre; it is only if they are weak and unable to defend themselves that they are amusing. So, Socrates concludes, 'our argument now indicates to us that in laments, in tragedies and in comedies,[69] not only on the stage but in the whole tragedy and comedy of life, pains are mixed in together with pleasures.'[70]

By this point, it has become obvious that what he is talking about is not actual comedy and comic audiences, but what comedy should be, and what its audience can and should get from it. By learning to laugh at the right things in the theatre, we will laugh at them, and avoid them, in life itself (and for Plato's Socrates, nothing is more to be avoided than ignorance and the pretence of wisdom). We will learn it through our feelings, by the same sort of process of habituation that the children of Callipolis in the *Republic* learned how to react to death and loss. But this will entail a new kind of comedy, which actually knows what is truly ridiculous. So also in the *Laws*: the comic play-wrights will have to change their act as much as the tragedians would have to change theirs. But there is no need for them, as there is for their comic counterparts, because a substitute is available: '*we* are ourselves poets, according to our ability,' says the Athenian who leads the conversation, 'of the finest and best tragedy there is; so our whole constitution is established as a *mimēsis* of the finest and best life, the very thing we for our part say is genuinely a tragedy of the truest kind.'[71]

No existing poet, then, whether tragic (or 'serious') or comic, knows the truth which his medium is potentially able to convey. This is one of the themes of the *Symposium*, in which Socrates meets, among others, two playwrights: Aristophanes, on the one hand, pre-eminent among writers of comedy, and Agathon, who has just won a victory with his tragedies (the occasion for the dinner-party). By the end of the proceedings, most of the company is asleep, but Socrates is still talking to the two poets, and 'compelling them to agree that it belongs to the same man to know how to write comedy and tragedy, and that the one who has the expertise to write tragedy will also be able to write comedy' (*Symposium* 223c–d). He has to 'compel' them to agree (by means of argument, of course) because, by and large, tragedians of the day did not write comedies nor comic writers tragedies,[72] and Agathon and Aristophanes were certainly cases in point. What lies behind Socrates' proposition is that anyone who knows about one member of a pair of opposites or contraries in a given sphere will know about the other. In just this way, he argues against Ion (in the *Ion*) that if he is an expert on Homer, best of poets, he ought to be equally expert on those who handle the same things in an inferior way; good and bad poetry must be objects of the same knowledge. The implication is that neither Agathon nor Aristophanes really knows his trade, and this has been demonstrated at length in the course of the dialogue, both through the juxtaposition of their speeches with Socrates' (every person at the feast has to make a contribution on the subject of *erōs*) and, in Agathon's case, through the demolition by Socrates of virtually everything he says.[73]

This represents a striking and paradoxical extension of the argument of the *Ion* and *Republic*. Socrates' claim—and since it seems to be given special emphasis, it is a claim that Plato evidently wants us to take seriously—is not only that poets are ignorant about the sorts of matters about which they pretend to teach, but that they do not even know about *poetry*. In fact, this second point follows directly from the first: existing poets are ignorant about poetry just because they are ignorant about the things they ought to be teaching. Poetry, for Plato, cannot avoid its teaching role, because it is so powerful; it must therefore get things right (for there is only one way of being right, certainly in the most important matters), and if it does not, then it must be at best bowdlerized and at the worst rooted out and replaced with something more reliable. What that might be is directly indicated by the Athenian in the *Laws*, when he describes the account that he and his partners in the conversation have given of the constitution of Magnesia as 'the finest and best tragedy we can write'. The *Symposium* itself will be a mixture of tragedy and comedy: comedy, because it puts comic figures like Aristophanes and Agathon on the stage,[74] and 'tragic' to the extent that, through its portrayal of Socrates (both as a character in the dialogue and as the object of Alcibiades' encomium) it is a '*mimēsis* of the finest and best life', which the *Laws* passage declared to be the truest kind of tragedy.

The consequence is that Plato himself is the true poet—not that he himself ever claims it, since he was not there to claim anything (he is mentioned only twice, with

apparent casualness, in the whole corpus, and never appears as a character). But this in itself raises a familiar question. If poetry is such a bad thing, and he attacks it so regularly, why does he so regularly borrow (or appropriate) its methods? That he does so will be true even without the argument just derived from the *Symposium* and the *Laws*, if it is an essential feature of poetry that it appeals to the irrational in us,[75] since the dialogues themselves frequently combine reasoned argument with techniques which rely directly on an emotional response from the reader (stories, persuasive descriptions, analogies, and so on).[76] The answer is straightforward enough: Plato uses such methods precisely because he recognizes their power, and because he is in business to persuade us. In any case he repeatedly suggests that poetry itself might be useful. It is only because existing poetry embraces ideals and teaches notions which are so different from his own that he must reject it (reluctantly, if he is anything like his Socrates). In particular, it portrays life in all its complexity and plurality, when—as he sees it—it should be describing the single, simple, best life.[77]

In the *Phaedrus*, Plato formulates a theory of philosophical writing in terms of 'rhetoric', the art of addressing audiences through the spoken and written word. In the ideal Platonic world, rhetoric too— normally the property of politicians and others allegedly more interested in style than in substance—would be reformed and become the ally rather than the opponent of philosophy.[78] The ideal writer will be someone who knows about both his subject and the nature of the soul, who is able to 'discover the form [of discourse] which fits each nature, and so arrange and order his *logos* [i.e. what he speaks or writes], offering a complex soul complex *logoi* containing all the modes, and simple *logoi* to a simple soul' (*Phaedrus* 277b–c). The 'simple' soul here appears to be the one dominated by reason, while the 'complex' or 'variegated' (*poikilos*, 'many-coloured') soul for its part recalls the democratic type of individual in *Republic* VIII, in whom no single element or desire is in firm control; for the latter, Plato acknowledges that a purely rational mode of address will not be sufficient, and will need to be supplemented by other means. Playing on the emotions of one's audience will cause nothing but trouble in the hands of the ignorant, whether he is an orator or a poet; for the knowledgeable writer and teacher, it is an indispensable tool if he is to address any but those already persuaded of the value of philosophy.

A distinction of the sort in the *Phaedrus* passage, between the simple and the 'many-coloured' is central to Plato's thinking about literature and art in general. The simple, straightforward, and unmixed tends to be identified as good; the varied, and especially what is *innovative*, as bad. The most extreme statement of such an idea is probably in the *Philebus*, where Socrates is identifying 'true', i.e. pure and unmixed, pleasures. These are related to beautiful colours and shapes; they include 'most pleasures of smell, and those of hearing', all those cases where there is no antecedent or concomitant pain. He then explains what he means by a beautiful shape in this context. It is not what 'the many' would mean by it, pointing to a living creature or a painting, but rather

> something straight—so my account goes—and (something) round, and then from these the planes and solids that are produced with lathes and with rulers and squares. For these I say are not beautiful in relation to something, like other things,[79] but are always beautiful in themselves, and have their own peculiar pleasures…and colours too which have this characteristic…
>
> (*Philebus* 51c–d)

Also included are smooth, clear sounds, which issue in some single pure tune; these too are beautiful 'in themselves'. This simplicity is what delights the rational mind, the mind of the Platonic mathematician; to it are opposed the intense and numerous pleasures of 'the many', the non-philosophical. Behind the whole idea is perhaps the contrast between the uniqueness of truth, in the Platonic view, and the multiple ways available for going wrong (we may think of the image in *Republic* X, which represents reason as a man, the appetitive part as a many-headed beast). It follows, of course, that innovation must mean deviation; the *Laws* deplores the decline in standards of literature and music at Athens, caused by too much attention to what the audience demands. But what ignorant people demand is no proper criterion of excellence in art of any kind. Art sinks deep into our souls;[80] if we are to live in an ordered society, peopled by ordered souls, art must be controlled by the best element in us.[81]

NOTES

1 As will become clear, our word 'mind' and the Greek word traditionally translated as 'soul' *(psuchē)* are not synonymous. But they are closely related, and what Plato says about *psuchai* or 'souls' will often have equal plausibility if applied to 'minds'; and both terms are in any case fairly elastic.

2 There is certainly a gulf between the conception of 'soul' with which Socrates operates in the 'early' dialogues at large and the 'soul' which, in the traditional, Homeric picture, flits off into the underworld at death. 'Soul', with Socrates, seems generally to refer to human beings in their moral aspect: so, for example, he urges us to 'care for our souls' by acquiring knowledge and virtue. A soul or 'shade' in the Homeric underworld, by contrast, is merely a mindless, insubstantial image of our physical selves.

3 In a traditional context, the idea of an *immortal* soul—one which continues to be alive, permanently, despite the intervention of death—has no place (see preceding note); and the exchanges between the characters of the *Symposium*, for all their intellectual and artistic pretensions, are firmly embedded in such a context: even Socrates frames his decidedly radical ideas in (deceptively) familiar language.

4 'Soul' in this medical context covers the 'mental' aspects of the human organism, as opposed to those physical aspects which are more immediately accessible to the doctor's art. For the evidence from the doctors, see Claus [12.4]; and for another, but somewhat different, philosophical development of this contrast, see Vlastos [6. 47].

5 In Homer, the existence of the dead is famously unenviable; the *Odyssey* portrays the once proud Achilles there in the underworld, openly declaring that he would rather be alive and a hired labourer than a king and dead. But there is also an equivalent to the Platonic philosopher's heaven, in the shape of the Isles of the Blessed; quite what the criteria are for entry is unclear, though Menelaus qualifies by having been the husband of a daughter of Zeus.

6 For Plato, as for Socrates, virtue—or at any rate premium grade virtue— probably always remains conditional on philosophical knowledge.

7 Mystery religions, such as the one associated with Eleusis in Attica, promised not so much immortality as *something*, and something desirable, for the initiated after death; but immortality, and an immortal soul, certainly played a role in Pythagoreanism, along with other ideas like that of the soul's transmigration, after the death of the original organism, into another body.

8 Plato's attitudes towards women are ambivalent: on the one hand, he has a low opinion of women as they actually are, comparing them for their irrationality with slaves and children; on the other, he is prepared to admit that some women have the potential to become philosophers, and there is some scattered, but good, evidence that women attended the Academy.

9 See especially *Timaeus* 89d–90d.

10 In some places, e.g. in the myth at the end of the *Phaedo* (114 c; see also 82 b–c), there are hints that exceptional souls may escape altogether. But it would be hard to distinguish between this kind of fate and becoming a god; and in general the dialogues seem to maintain a firm distinction between human and divine. One of the *loci classici* is at *Phaedrus* 278d, where Socrates says that to his mind, the title wise' *(sophos)* belongs only to gods, and the most to which human beings can aspire is to be called 'lovers of/seekers for wisdom', i.e. philosophers *(philo-sophoi)*. That appears to be contradicted by the *Republic*, which describes a city where philosophers have attained wisdom, and are thus qualified to rule; but that should probably count as part of the evidence for treating that central dialogue primarily—in its political aspects—as a thought-experiment.

11 Wisdom is 'what we desire and say we are lovers of (*Phaedo* 66e), where 'lover' is *erastēs*, the person who experiences *erōs* or sexual love for someone else.

12 The *Phaedo* is subtitled 'On Soul', which is certainly of fairly late origin, but is a reasonable indication of the main emphasis of the dialogue; at any rate, no other Platonic work has more to say directly about the subject.

13 See especially *Phaedo* 66b–68b.

14 Thus at 68e–69d wisdom has value because of its role in the production of the (other) virtues; and in the myth at the end of the dialogue, the catalogue of the rewards and punishments of the dead includes philosophers at one end and the worst criminals at the other.

15 The idea of the body as the prison of the soul was evidently in origin Pythagorean; the negative view of life which it implies is certainly not maintained consistently in Plato's dialogues. For him, the universe we know is not only the best of all possible universes, but also, in so far as it can be described as the work of reason, *good* (as the *Timaeus* tells us at length; cf. also *Phaedo* 98b–99c), and it seems to follow that life within such a universe must have positive value.

16 Although the *Phaedo* does include talk of the desires etc. 'of the body', it is unlikely that we should take this at face value. Without soul to bring life to it, the body is merely inert matter, and unable either to do or to feel anything.

17 The issue arises specifically in relation to the third argument for immortality, the so-called 'affinity' argument: see Rowe [12.18] and [12.2], 189.

18 In so far as that content would be memorable, in a Platonic world, it would be *true;* but in that case it would not distinguish any one excellent soul from another.

19 The chief difference will be that in the one case the soul can evidently lose its irrationality altogether, while in the other it must permanently retain it— if irrationality is part of its essence. Yet a soul which is both out of a body and has been trained to separate itself from 'bodily influences' might perhaps be said to have irrational elements only *potentially*, and then only if it is bound to be reincarnated. It might be partly this that Plato has in mind when in the *Timaeus* he calls the two lower parts 'mortal' (69e).

20 *Republic* 498d suggests that arguments heard in a previous life might affect a soul in a subsequent one; and evidently, if what was a human soul passes into the body of a donkey, that must have something to do with what that soul had become in its previous occupation of a body (i.e. donkey-like). But neither that soul nor any other will have any evidence to connect it with the earlier human person; it cannot even be inferred that Ned (the donkey) was previously Fred (a man), since donkeys' souls may presumably also have previously animated donkeys.

21 Elsewhere (*Phaedrus* 249b–c) it looks as if Plato may envisage a partial recollection of the Forms, which explains the formation of concepts presupposed by the ordinary, everyday use of language; but in the *Phaedo* what is being talked of is an experience which is evidently restricted to philosophers.

22 *Phaedrus* 246dff. According to the *Meno* (86a), the soul is perpetually in a state of *having* learned the knowledge in question, which seems to imply that there never was a point at which we actually acquired it.

23 In the *Meno*, the theory of recollection is introduced to resolve the general question about how one can look for something one doesn't know, or recognize it when one has found it. It is evidently the vividness of the experience in question, together with the way that what we remember allows things to *make sense*, which is supposed to rule out the possibility of false memory.

24 This expression should not be pressed too hard. The Forms, which are the objects of knowledge for the soul, are apparently 'outside' time and space altogether; divine souls (gods), on the other hand, appear to be part of the natural universe (except in the case of the creator god of the *Timaeus*—but whether we are supposed to believe literally in his existence is unclear), which is where all discarnate souls also seem to be located; on death souls simply move to some less well-known, but nevertheless physical, location.

25 An underlying assumption of the *Timaeus* is that if the world is as good as it can be, it cannot be any other way than it is, and will include all possible types of creatures.

26 From this perspective, the description of these two parts as 'mortal' (see n. 19) looks natural enough, in so far as their presence is a consequence of the soul's function in relation to the body, and the compound of soul and body is itself mortal. They would be actually mortal if a soul finally and permanently escaped the bodily condition.

27 The word is *sumphutos* (246a).

28 As Johansen points out to me, on the account in the *Phaedo* it is perhaps only the presence of the irrational or the 'bodily' which prevents the full flowering of the rational soul. But elsewhere, e.g. in the *Republic*, the removal of (undue) irrational influences is only a necessary, not a sufficient, condition of the acquisition of wisdom; training is required, and even if this is translated into terms of *anamnēsis*, it is not obviously just a matter of seeing off the irrational parts.

29 This is the traditional, and unsatisfactory, English rendering of the Greek *thumos*, which is connected primarily with anger and indignation.

30 For Plato, what is natural is not what is normally the case, but rather what should be the case, even if it rarely or never is.

31 Spirit, it seems, can and may listen to reason, like an animal adapted for domestication, and yet speaks the same language as the appetitive part, pitching emotion (especially shame, the reverse side of honour) against emotion. (The appetitive part is summed up in the image of the many-headed beast in *Republic* IX: even if it has some tame or domesticated heads, it cannot be reliably domesticated as a whole, only restrained and cut back.) Yet reason too has its own desires (see later in this section), and if so, it can apparently control the appetites directly, by opposing its own drives to them. In that case, it is not clear why it needs its alliance with the spirited part, however appropriate the corresponding idea might be on the political level; there reason, in the shape of the philosopher-rulers, will need a police force, for fear of being overwhelmed by the sheer numbers of the lowest group in society.

32 This analysis, in Books VIII and IX of the *Republic*, may be compared with the simpler one at the end of the *Statesman*, where the king or statesman's chief role is identified as the weaving together of the more aggressive and competitive type of citizen with the quieter and milder.

33 249d-e. It is in this sort of context that the description of Plato as *appropriating* other forms of discourse (see earlier in this section) seems particularly apt: the philosopher does everything the ordinary lover does (251dff.), but for entirely different reasons, and his experience is far more fulfilling than anything that ordinarily goes under the heading of *erōs* or sexual love.

34 The description—in the main part of Socrates' contribution to the banquet, which he puts in the mouth of the imaginary priestess Diotima—is couched in terms of an initiation, and an initiate would no doubt have had an instructor. If we see the 'ascent of love' as in part an allegory of a philosophical education, the guide will be the master-dialectician (I owe this suggestion to Robin Hard).

35 The reasoning part, by contrast, seems to be adaptable: *it* can be corrupted, and be pressed into the service of either of the other two parts (cf. *Republic* 587a). On the possibility of a different model of the relationship between reason and the irrational, in the *Symposium*, see especially n. 37 below.

36 *Republic* 485d; Socrates is here talking of the philosopher, and the way in which his preoccupation with 'the pleasure of the soul' will lead him to neglect 'those through the body', i.e. those which reach the soul through the senses.

37 It may be objected (and Penner in fact objected) that if Socrates does not introduce the topic of tripartition in the *Symposium*, we have no particular justification for introducing it ourselves, apart from what we think we can derive from conclusions about the relative chronology of the dialogues (the *Symposium* is normally

classified as 'middle', along with the *Phaedrus* and the *Republic*). If so, then we might in principle try interpreting the *Symposium* in terms of the ('Socratic') *Lysis*, which treats of *erōs* without bringing in irrational desires: there are only beliefs about what is good, together with a generalized desire for what is in fact good. This option is attractive, particularly in so far as the lover's advance in the *Symposium* is described in strikingly intellectual terms (there is at any rate little blind passion in evidence in the context). However, since an alternative explanation of this feature is available, namely in terms of the chosen metaphor of initiation, there is ultimately no more justification for importing this model of the Platonic soul than for importing the other one. What the *Symposium* offers, through the figure of Socrates, is above all a picture of how an individual's concerns may be redirected from (in Platonic terms) a lower to a higher level—a picture which is short on philosophy but long on persuasion.

38 'It is not easy…for what is put together out of many parts, and that not in the finest way, to be eternal': so Socrates says, having offered another attempt at proof of the immortality of the soul. He then makes his suggestion that the tripartite analysis applies to the soul as it appears in this life, encumbered with a body and its accoutrements as the sea-god Glaucus is with barnacles and seaweed (611bff.).

39 As Crombie points out ([10.36] 1:354), it is a necessary consequence of the argument of *Republic* IV that the parts are genuinely independent, since otherwise the principle (that the same thing cannot act or be acted upon in opposite ways at the same time) will be broken. But in that case there will be no such thing as a person's soul (in the singular), or even a person, or self. (In the next section, we shall discover a further problem with Plato's use of the principle in question.)

40 The clinching point is the low position of the poet in the grading of lives at *Phaedrus* 248d–e (sixth, after e.g. the earthbound gymnastic trainer and doctor, only just before the craftsman and farmer, then the sophist and the demagogue, and finally the tyrant). Lyric poetry, singled out in 245a, also figured earlier in the dialogue, at 235c, in the shape of the 'beautiful' Sappho and the 'wise' Anacreon, love-poets whom Socrates identified as possible sources for his own (inspired, poetic: 238c–d) praise of the non-lover. So much for his view of their 'divine inspiration'.

41 See e.g. Hesiod, *Theogony* 22–8.

42 The dialogue as a whole falls into three parts: (1) Socrates argues that Ion cannot perform or lecture on Homer through skill or understanding; (2) he must therefore be able to do it by divine gift (i.e. by being inspired or maddened); then (3) when Ion protests that what he has to say about Homer is anything but crazy, Socrates presses him to say what knowledge it is that he has about his subject, and when he cannot identify this knowledge, he has to choose between either saying he is no good at what he does, or that he does it in the way Socrates has suggested, i.e. by virtue of a kind of madness.

43 *Ion* 535d–e. There is a considerable degree of sleight of hand in Socrates' handling of Ion at this point. He first asks whether 'we should call sane a person who, adorned in colourful dress and golden crowns, weeps at sacrifices and festivals, when he hasn't lost any of these [namely, valuable possessions], or who is afraid when he's standing among more than twenty thousand people who like him, and no one has stripped him or done him wrong?' I suppose you must have a point, replies Ion. Socrates' next move is then to suggest that performers like Ion 'do the same'

to the majority of their audience—which Ion understands to refer to his ability to move them to emotion, while Socrates takes it as referring to his making them *mad*.

44 I.e. *mousikē*, which is broadly that part of human culture which belongs to the Muses, though usually it covers poetry and music, with or without dance, all three of which might be combined in performance (as for example in the theatre).

45 386b-c. Given that Plato himself fails to follow the instructions he puts into Socrates' mouth, e.g. to 'throw away all the horrible and frightening names, like Cocytus and Styx' (deployed to magnificent effect e.g. in the eschatological myth of the *Phaedo*), there must be more than a suspicion that the second criterion is more important than the first.

46 Or, alternatively, on those few occasions when a bad character happens to be behaving well. The asceticism of Socrates' approach to literature is mitigated slightly at this point (396d-e), when he is allowed to acknowledge that the listener might adopt an unworthy persona 'for the sake of amusement'. Occasionally, too, he hints at a feeling for the 'poetic' which is separate from the question about poetic 'truth': so e.g. at 387b, when he is talking about descriptions of Hades (though the concession 'not unpoetic' is immediately taken away by 'and pleasant for the many, *hoi polloi*, to listen to').

47 These are, interestingly, the two sorts of character that reappear at the end of the *Statesman* (cf. n. 32), but as two sorts of *character-types*, needing to be reconciled.

48 See especially 401c.

49 In 400cff., Socrates broadens out the argument to make it apply to all craftsmen: they must not make 'bad character, lack of self-control, meanness or unshapeliness' part of their productions, whether these are paintings or buildings or anything else; we must look for those craftsman who are 'able by their natural disposition to track down the nature of the beautiful and the well-formed' (401a). Growing up among beautiful things will encourage conformity with the true beauty of wisdom. All of this hints at, without fully articulating, a kind of theory of beauty.

50 600e. For the sense in which what the poets recreate are already *images*, see following paragraph.

51 They must be insubstantial and false because they are based on ignorance; poets go only by superficial appearances, Plato suggests—and by offering images of images (see following paragraph).

52 The word is again *eidē*, 'kinds of thing'.

53 It is not that the lower parts are necessarily bad, of course (though the image of the human soul at ;88b might give one cause for doubt at least about the lowest part, which is represented as a many-headed monster with some tame heads). Rather it is that the effect of poetry is so strong that it encourages the development of the irrational in us, which it is our business to keep in check.

54 596e–597b. The Form of bed is somehow *the* bed ('what [a] bed is', which is represented as *the real thing*: 597d), while the carpenter simply makes *a* bed, which 'something of the same sort as' the Form; the painter only 'makes' his bed 'in a certain way'.

55 Or again (600a), if he knew anything about generalship, he would have fought wars rather than writing about them. (That is, so Socrates implies, he would have been a truly expert general—or doctor, or lawgiver—who 'looks to' the relevant Forms,

like the carpenter.) This is one of many clear echoes of the *Ion* in this part of *Republic* X: what finally induces Ion's capitulation is his inability to explain why he hasn't actually been elected a general, if he knew about generalship (from Homer).

56 I.e. the majority of mankind. Plato begins from the assumption that poetry appeals to a mass audience, not just to a few; Greek epic and drama are from his perspective (and, on the evidence, in fact) parts of mass culture.

57 The painter may paint a picture of something useful, like a bridle. Now in this sort of case, it is the person who actually uses the thing who really knows about it; the craftsman who makes it just follows the instructions of the user, and so—as Socrates puts it—has merely 'belief about what makes a good example of whatever it is in question (we should call it 'second-hand knowledge'). The painter, for his part, will be able to paint it without having either knowledge or 'belief. Once again, the painter stands in for all *mimētai*, and what holds true of him is extended to all the rest; so the poet too, in so far as he is a *mimētēs*, will have a 'charming (lack of) relationship to wisdom', and his only criterion of success will be what appeals to the many. (But we know from earlier parts of the dialogue—see e.g. 590c–d—that the many are controlled by their appetites…)

58 In fact, Socrates works throughout without once using the term 'part' (*meros* or *morion*). Perhaps he is already looking forward to 611aff., when he will express doubts about whether the soul, in its essential nature, can really possess 'parts' at all. But it may also suit his purpose not to identify too precisely the element in the soul to which poetry is supposed to appeal; see following paragraph.

59 This translation of *phaulos* is borrowed from Waterfield [10.15].

60 Literally, the Greek says 'to this very (thing) of the mind *(dianoia)* with which the mimetic (art) of poetry associates' (603b-c), where *dianoia* suggests some kind of rational or intellectual capacity.

61 I.e. as the context shows, the 'aspects of the soul' ('aspects' is supplied, for the plain neuter plural of adjectives in the Greek) to do with lower desires and pleasures.

62 'We said, didn't we, that it was impossible to think *(doxazein)* opposite things simultaneously with the same (thing) simultaneously?' 'And we were correct to say it.' 'Then what in the soul thinks contrary to the (actual) measurements [i.e. the thing as measured by the reasoning part] will not be the same as what thinks in accordance with them' (602e–603a),

63 Specifically, that reason moves in circles (or can be represented figuratively as doing so, on the model of the motions of the heavens), and that the head is adapted to containing circular movements in virtue of its roughly spherical shape; see *Timaeus* 34bff., 42eff.

64 Even with the bent stick, it seems unnecessary to insist that the soul at any point both thinks that it is straight and thinks that it is bent; either it is confused (*tarachē*, 602c), or one belief comes to replace the other. The capacity of the 'best part' to see that the stick is straight, if only the 'appearance' were absent, seems to be treated as itself an enduring belief in its straightness. This is intelligible, in so far as the rational part is thought of as our essential selves.

65 These are defined, in Plato, primarily by contrast with the comic poets, who deal in the ridiculous or absurd (see following paragraph).

66 At *Republic* 396e, the concession that good citizens might sometimes impersonate inferior types 'for the sake of amusement' may refer to jesting in ordinary life rather

than to the theatre. (For the idea that they must *recognize* inferior or aberrant behaviour, see *Republic* 396a.)

67 The term is *phthonos*, which normally means something like envy, jealousy, or the feeling of someone who begrudges something; later in the *Philebus* it will be used specifically to mean taking pleasure in other people's misfortunes.

68 See n. 67.

69 'And in comedies' is not in the transmitted text, but seems indispensable to the sense of the argument.

70 *Philebus* 50b. Quite where the pain comes in is something of a puzzle; why should *phthonos* be treated as a 'pain of the soul', rather than simply a pleasure?

71 *Laws* 817b. The negative connotations of the term *mimēsis* which were present in *Republic* X are clearly absent here.

72 Cf. *Republic* 394e: 'the same people, I imagine, cannot even produce good examples of *mimēsis* in those cases where the genres seem close to one another, such as when they write tragedy and comedy'. Tragedians certainly wrote satyrplays, which have strong comic elements but were evidently still regarded as a distinct form.

73 No such demolition of Aristophanes' speech takes place, and many readers find his whimsical, moralizing tale so sympathetic that they look for a positive role for it within the argument of the dialogue. Its main point from Plato's perspective, however, seems to be the way in which it stresses the incompleteness of mere physical union, while being unable to suggest anything to replace it. It is Socrates, of course, who fills the gap.

74 According to the criterion suggested by the *Philebus*, both are ridiculous or laughable *(geloios)* in so far as they lay claim to a wisdom which they in fact lack.

75 See earlier discussion of *Republic* X; cf. also 387b

76 The use of dialogue form is itself another case in point; even where its dramatic possibilities are not developed to any great extent, elements like the perceived relationship between the interlocutors help to shape our attitude to what is being said, and make it more than a matter of the simple assessment of the strength and weakness of the arguments.

77 See Gould [12.6].

78 The new theory of writing in the *Phaedrus* cannot of course be developed explicitly in relation to Plato's own writing, since from the perspective of the fiction itself it is a spoken and not a written context. But that the lessons taught do apply to the dialogues is assured by the generality of the terms in which they are framed.

79 I.e. in this context, relative to some preceding lack or deprivation.

80 *Republic* 401dff. (with reference to all forms of art, including 'music', painting, sculpture, embroidery and so on).

81 I am grateful to Thomas Johansen for his comments on an earlier draft of the first section of this chapter, and to Terry Penner for his, on a second draft of the whole. Both helped to remove some errors and infelicites; neither may be supposed to be completely content with the final version.

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Glossary

Academy: Plato's 'school', which he founded about 387 BC; perhaps, at least in its original conception, mainly a kind of research institute rather than a place of formal teaching.

akrasia: ('weakness of will') a state of moral character, excluded by Socrates but admitted by Plato, whereby passions or pleasures either corrupt practical judgement or cause action contrary to it.

anamnēsis: see 'recollection'.

anthropomorphism: the practice of understanding the gods on the model of humankind, either in physical form or behaviour.

anthuphairesis, antanairesis ('alternate subtraction'): technique (now sometimes called the Euclidean algorithm) used to find the greatest common measure of two magnitudes (if they have one). Given two magnitudes a_1 and a_2, one subtracts the lesser a_2 from a_1 until one has a remainder a_3 less than a_2. If there is no remainder, a_2 is the greatest common measure of a_1 and a_2. If there is a remainder, one applies the same technique to a_3 and a_2, and continues until a common measure is found. It is not difficult to show that if there is a common measure this technique will find the greatest one. Twentieth-century scholars have argued that *anthuphairesis* was the basis of a pre-Euclidean theory of proportion, which they usually associate with Theaetetus. See also 'Commensurable'.

antilogic: see 'dialectic'.

application *(parabolē)* of areas: technique of constructing on a given straight line a figure having a given area and satisfying other conditions (e.g. being a square); one speaks of excess *(hyperbolē)* or deficiency *(elleipsis)* if the construction requires a straight line longer or shorter than the given one. See also 'geometrical algebra'.

aretē: virtue or excellence, a quality possession of which is partly constitutive of the good life. Also used collectively for the totality of such qualities.

aristocracy: (lit. 'rule by the best') rule by an elite, as opposed to democracy ('rule by the people').

Aristotelian: pertaining to Aristotle, the fourth-century BC philosopher.

atom: a necessarily indivisible physical particle.

atomism: the theory which maintains that atoms are the basic constituents of the physical universe.

atomist: an adherent of atomism.

capacity, Socratic: the translation of *dunamis* in Plato's early dialogues. A capacity or power, according to Socrates, is associated with a particular type of activity and a unique object or subject-matter. E.g. the capacity or power of sight is associated with the activity of seeing and its unique object is colour.

collection and division, method of: a method of classification, expounded in some of Plato's later dialogues, in which a general kind or concept is defined by systematically dividing it into its constituent sub-kinds, into which the particulars falling under the kind or concept are grouped or 'collected'.

commensurable *(summetros)*: having a common measure, as 24 and 16 have the common measure 8; applied mainly to geometrical magnitudes. See also *'dunamis'*.

concord *(sumphōnia)*: harmonious musical interval, the most important being the fourth, fifth and octave.

cosmogony: an account of or theory about the origin or creation of the world order *(cosmos)*.

cultural relativism: the awareness that values and conventional practices may be specific to a particular society.

Cynic: pertaining to the Cynic sect, a school of philosophers originating in the fourth century BC, characterized by austerity of life and extreme rejection of conventional social norms. An adherent of that sect.

definitional knowledge: see '"What is F-ness?" question'.

dialectic: from its original meaning 'discussion' the term 'dialectic' *(dialektikē)* acquired technical senses as follows: (1) (Pre-Platonic) a method of refutation by opposition of contrary theses, also called 'antilogic' (see ch. 7); (2) (Platonic) the preferred method for acquiring knowledge of the Forms (q.v.). In the dialogues of Plato's middle period it is a method of critical argument operating independently of the senses, involving question and answer. When a proposal is found that resists criticism, one may try to

further confirm it by deducing it from a 'higher' hypothesis. In the *Republic* the process is somehow grounded in the Form of the Good, but this is not clearly explained. In later dialogues 'dialectic' refers to the method of collection and division (q.v.), but also to argumentation exploring the interrelations between the most general kinds or concepts, such as Being and Difference.

doxography, doxographer: a second-hand compilation of répons about the views of a number of philosophers on some topic or topics. An author of such a compilation.

dunamis: (lit. 'power, capacity, potentiality') as a mathematical term, translated both 'square' and (with some anachronism) 'square root'. Euclid uses the word only adverbially in the dative, speaking of straight lines as being commensurable in *dunamis* (*dttnamei*, literally 'in potentiality') when the squares on the lines are commensurable.

eidōlon: (lit. 'image') (1) a technical term of atomism (q.v.) denoting a film of atoms emitted from the surface of, and reproducing the appearance of, a physical object. The impact of streams of *eidōla* on the sense-organs and on the atoms constituting the mind was responsible for perception and thought. (2) (Platonic) an insubstantial image or 'phantom', especially what is produced by inexpert, ignorant *mimētai* (q.v.).

Eleatic: pertaining to the fifth-century BC philosophers Parmenides and Zeno of Elea in South Italy, and to their followers. An adherent of Eleatic doctrine.

elenchus *(elenchos)*: (lit. 'refutation, test, cross-examination') a method of argumentation characteristic of Socrates, in which the beliefs of an interlocutor are shown to contain an inconsistency. It is debated whether Socrates is represented as attempting to show by this method that some particular belief of the interlocutor's is false, or merely that the set of his beliefs is inconsistent.

elenctic mission: Socrates' mission, which he appears to have believed to have been divinely inspired, to show by elenchus that his contemporaries lacked the moral wisdom which they claimed.

Epicurean: pertaining to a philosophical school founded by Epicurus at Athens at the end of the fourth century BC, which developed and popularized the doctrines of atomism (q.v.). An adherent of that school.

epimoric *(epimorios)*: standing in a ratio of n+1 to n, as three halves, four thirds, etc.

eristic: argument with the aim of defeating one's opponent, independently of truth.

Euclidean geometry: elementary plane geometry, as discovered in the Greek world in the fifth and fourth centuries BC, and expounded in the *Elements* of Euclid (*c*.300 BC). The geometrical constructions permitted are those using straight edge and compass only.

eudaimonism: (from *eudaimonia,* 'happiness, well-being') the view that the good is happiness or faring well. Once articulated by Socrates in the early dialogues of Plato it became a mainstay of ancient moral thought.

exhaustion, method of: modern (somewhat inappropriate) term applied to a rigorous technique of argumentation in which use is made of the possibility of constructing a figure which approximates the area of a given figure within any pre-assigned degree of accuracy. The method is applied in Book XII of Euclid's *Elements* and is thought to have been developed rigorously by Eudoxus in the fourth century.

expertise: a translation of *technē* (also 'art, skill, craft') in the early dialogues of Plato. An instance of expertise must satisfy the following conditions: rationality or regularity, teachability and learnability, explicability, inerrancy, uniqueness, distinctness of subject-matter and knowledge or wisdom. E.g. the expertise of medicine is the special ability to reach in all cases correct judgements concerning health and to engage in health-producing activities.

figurate numbers: modern term used to refer to the representation of positive integers as arrays of dots in simple geometric configurations. E.g. a triangular number would be represented by a sequence of n rows containing in order 1, 2, 3, 4,…n dots.

final causation: the causation of an event or process by a goal or end towards which the event or process is directed.

Form: (Platonic) an imperceptible, immaterial, eternal, changeless, perfect, intelligible and divine entity which exists apart from and independently of the sensible world. Plato posited Forms in order to explain various aspects of the world and our experience connected with the existence of generality.

geometrical algebra: modern interpretive term applied primarily to the application of areas: the term expresses the idea that underlying the geometric formulation of much of Greek mathematics are concerns familiar from modern algebra.

happiness: see ‘eudaimonism’.

heroic code: the range of behaviour held to be acceptable among the heroes of Greek epic poetry.

Hesiodic: pertaining to the archaic Greek poet Hesiod (*c.*700 BC), author of the *Theogony*, a poem describing the origins and family relationships of gods and goddesses.

Homeric: pertaining to Homer, the poet (?late eighth-cent. BC) to whom the authorship of the two great verse epics, the *Iliad* and the *Odyssey*, was traditionally ascribed.

homoeomerous: (Aristotelian technical term) having all parts of the same nature as the whole. E.g. flesh is a homoeomerous substance, since every part of a piece of flesh is a piece of flesh.

incommensurable *(assumetros)*: not commensurable.

indifference reasoning: reasoning relying on the Principle of Sufficient Reason. See ‘Sufficient Reason, Principle of.

instrumental, intrinsic: a good is instrumental if it serves as a means towards some distinct end, but intrinsic if it constitutes an end (or part of an end) in itself.

intellectualism, Socratic: a central tenet of Socratic morality, the doctrine that virtue is the expertise (q.v.) of the good, more frequently expressed as ‘Virtue is knowledge’.

interval *(diastēma)*: loosely defined term corresponding to the ‘distance’ between two musical pitches, often applied to the ratios associated with those distances.

Ionians: the collective term for those pre-Socratics (q.v.) who came from the Greek cities of Ionia, the central area of the coast of Asia Minor.

irrational: see ‘rational’.

***logos*:** this Greek term conveys a range of meanings related to language, calculation, proportion, rationality and system. It can mean ‘speech’ or ‘discourse’, or the reason or argument offered in support of a claim. It can also refer to the definition, or formula, that characterizes a thing.

mean *(meson)*: a magnitude or number intermediate in size between two others and satisfying some other condition. The

most frequently mentioned means between *a* and *b* are the geometric, where *a* is to *m* as *m* is to *b*, the arithmetic, where *a*+*b*=*m*+*m*, and the harmonic or subcontrary where *a* is to *b* as *a*−*b* is to *m*−*b*. Sometimes means are referred to as proportionals.

mimēsis: imitation or representation, especially artistic; in Plato generally associated with the production of inaccurate, misleading and insubstantial images or *eidōla* (q.v.).

mimētēs (pl. ***mimētai***)**:** a producer of *mimēsis*, e.g. (in Plato) a poet.

moral paradox: the view maintained by Socrates in Plato's early dialogues that no one ever acts viciously except out of ignorance of the good.

natural and unnatural motion: in Aristotelian theory, the natural motion of a substance is that motion which is intrinsic to it, i.e. with which it will move unless prevented (e.g. the motion of earth to the centre of the universe). Unnatural motion is motion contrary to natural motion, imposed on a substance by external force (e.g. the upward motion of a stone when thrown up).

nature *(phusis)*: the characteristic nature of a particular natural object or species. By extension the term also comes to mean the nature of things in general, i.e. the characteristic behaviour of the natural world as a whole. Generally opposed to *nomos*, law or convention.

Neoplatonism: a philosophical movement of late antiquity (second century AD on) which saw itself as expounding Plato, and gave an essentially Platonist interpretation of Aristotle and other early philosophers.

nominalist: (opposed to 'realist') adherent of a view that denies the reality of general properties or universals answering to general terms.

oral tradition: the body of stories told by a society or group in which they account for how they arrived at their current position.

Orphic poems: poems with esoteric religious content, related to Pythagoreanism (q.v.), which circulated from the sixth century BC on, and were ascribed to the mythical figure of Orpheus. 'Orphism', a supposedly well-defined set of beliefs or practices independent of Pythagoreanism, is not well attested.

participation: the relation between an individual and a Form (q.v.) which explains why the individual possesses the property answering to the Form.

Platonic: pertaining to Plato.

Platonism, Platonist: the doctrines of a range of schools of thought owing their inspiration to the work of Plato, including the Middle Platonist and Neoplatonist schools of the first to sixth centuries AD. (See also 'Neoplatonism'.) Pertaining to Platonism; an adherent of Platonism.

pre-Socratic: pertaining to the philosophers of the sixth and fifth centuries BC. Strictly speaking, the term is inaccurate, since a number of those philosophers, including Anaxagoras, Democritus and the sophists, were contemporaries of Socrates.

proportion *(analogia)*: an expression of the form '*a* is to *b* as *c* is to *d*' (*a:b* :: *c:d*). See also 'mean'.

Protagorean: pertaining to Protagoras, the fifth-century BC sophist.

protreptic: a method whose aim is to encourage the reader or hearer to seek wisdom.

prudential paradox: the view maintained by Socrates in Plato's early dialogues that no one ever intentionally acts contrary to his or her own good.

Pythagoreanism, Pythagorean: the religious and philosophical doctines and communal life-style traditionally said to have been initiated by Pythagoras (sixth century BC). Pertaining to Pythagoreanism; an adherent of Pythagoreanism.

quadrature *(tetragōnismos)* of a figure: production of a square equal in area to a given figure.

ratio *(logos)*: a loosely defined term for the relation of one magnitude to another; if *a* is to *b* as *c* is to *d*, then *a* is said to have the same ratio to *b* as *c* has to *d*.

rational *(rhētos)* and **irrational *(alogos)*:** In Book X of Euclid's *Elements*, the terms are defined for straight lines relative to a given straight line *l* in such a way that a straight line is called rational if it is commensurable (q.v.) with *l* or if the square with it as side is commensurable with the square with side *l*; otherwise the line is called irrational. This means that, for example, the diagonal of the square with side *l* is irrational. The ancient terms closest to the modern mathematical terms 'rational' and 'irrational' are 'commensurable' and 'incommensurable', but even in their case one has to note differences in style and content between ancient and modern mathematics.

realist: see 'nominalist'.

recollection *(anamnēsis)*: Plato's belief, expressed in the *Phaedo*, that we are born with latent knowledge of the Forms (q.v.) acquired before birth, and that we can recover this

knowledge through enquiry. In the *Phaedo* recollection explains our possession of general concepts, while in the *Meno* it explains our ability to discover general non-empirical truths. The *Meno* does not, however, explicitly connect recollection to the theory of Forms.

regular solids: the convex polyhedra contained by congruent equilateral and equiangular plane figures: the triangular pyramid contained by four equilateral triangles, the octahedron contained by eight such triangles, the icosahedron contained by twenty, the cube contained by six squares, and the dodecahedron contained by twelve regular pentagons. These solids are sometimes called cosmic or Platonic solids because of their cosmological role in Plato's *Timaeus*. They are investigated in the last book of Euclid's *Elements*, a book taken to derive from work by Theaetetus in the fourth century BC.

rhapsode: a professional performer of poetry, particularly that of Homer.

roots *(rizōmata)*: Empedocles' term for the four basic elements, earth, air, fire and water.

Sceptic: an adherent of one of the various schools of philosophers who, in the period after Aristotle, questioned the possibility of attaining knowledge. These schools, which include the Academic Sceptics (successors of the Platonic school) and Pyrrhonian Sceptics (followers of Pyrrho of Elis, fourth century BC) are collectively known as the Sceptics. Our main source for their interpretation of pre-Socratic (q.v.) philosophy is Sextus Empiricus, a Pyrrhonian Sceptic of the second or third century AD.

secondary qualities: qualities consisting in powers or dispositions to evoke a particular kind of sensory experience in an observer. The traditional list of secondary qualities includes colours, tastes, smells, and acoustic and tactile qualities.

seeds *(spermata)*: Anaxagoras' term for the primitive constituents from which stuffs and substances develop.

self-predication: Plato's doctrine that a Form (q.v.) exemplifies, to a superlative degree, the property which it is. For example, in the *Symposium* the Form of Beauty is the most beautiful thing there is, and therefore the supreme object of love.

Socratic: pertaining to Socrates; an associate of Socrates.

Socratic problem: the problem of determining which of the three portraits of Socrates, those by Plato, Xenophon and Aristophanes, is historically accurate. Many scholars believe that the problem is insoluble and so should be ignored in favour of explorations of the literary character, Socrates, in the works of our three main sources. Others have argued that the problem can be solved in favour of one or more of the three.

sophist: an intinerant intellectual. The fifth-century philosophers known collectively as 'The sophists' (see ch. 7) taught a wide range of subjects, including science and mathematics, but were particularly associated with the teaching of techniques of persuasion (rhetoric) and argument, and with rationalistic and critical attitudes towards traditional morality and religion.

soul *(psuchē)*: the Greek word is widely used to refer to the life-force which characterizes animate beings as opposed to the lifeless parts of nature. Animals and plants have souls in this sense. The soul also constitutes the identity or personality of a living individual, and can include intellectual and other mental capacities. In the traditional (Homeric, q.v.) conception, the soul is separated from the body at death and survives in Hades as a shadowy wraith, without mentality or consciousness. In Plato's thought, on the other hand, the claim that the soul survives death amounts to the claim that the mind is separable from the body and can survive independently of it.

Stoic: pertaining to a philosophical school founded by Zeno of Citium (third century BC), influential throughout the Hellenistic and Roman periods. An adherent of that school.

substrate: the underlying subject of predication or bearer of attributes.

Sufficient Reason, Principle of: the principle that for everything that there is, and for every event that occurs, there must be something that grounds a complete explanation for its being just as it is (and, in the case of an event, for its occurring just as it does) and not otherwise.

syllabary: a system of writing which employs a single different sign to represent each syllable.

symposium: a strictly regulated male drinking party at which those present compete in various ways: by singing poetry, making speeches, playing games, etc. Many Greek vases were made for and reflect the activities of the symposium, and both Plato and Xenophon set philosophical dialogues at a symposium.

temperance *(sōphrosunē)*: in general, a sane and healthy state of the soul; in particular, the virtue of being properly disposed in respect of one's appetite for pleasure. Within his tripartition (q.v.) of the soul in the *Republic* Plato defines it artificially as agreement between the parts of the soul as to which shall rule.

tetraktus: Pythagorean representation of the number 10 as a triangular number. See 'figurate numbers'.

Third Man Argument: the argument given in Plato's *Parmenides* for the conclusion that there is an infinite number of Forms (q.v.) corresponding to every property (so called because its application to the example of 'man' requires the acknowledgement of a 'Third Man', i.e. a further Form of Man in addition to particular men and the Form of Man). The conclusion of this argument contradicts Plato's belief that there is only one Form of F for every property F. His attitude to this argument is considered crucial for the question of whether the Theory of Forms underwent significant changes in the later dialogues.

transcendental argument: as used by Kant, an argument claiming to show that some feature of the world is necessary because it is a necessary precondition of our having experience of the world in the way we do.

transmigration or **metempsychosis:** the relocation of a soul *(psuchē)* from one body into another (an originally Pythagorean idea, appropriated by Empedocles and Plato).

tripartition: in Plato, the theory that the soul *(psuchē)* has three 'parts' or aspects (distinguished by contrasted aspirations but with a tendency to enter into conflict); reason, which pursues truth and the good of the whole soul, the 'spirited' part (*thumos* or *to thumoeides*), responsible for the higher emotions such as pride and self-respect, and appetite, which pursues bodily pleasure.

tyrant: a ruler who has achieved pre-eminence in a city by irregular means.

virtue, Socratic: the translation of *aretē* (q.v.) in Plato's early dialogues. For Socrates, virtue is the expertise (q.v.) of living well. See also 'eudaimonism'.

virtues, unity of: the view espoused by Socrates, but more doubtfully by Plato after his tripartition (q.v.) of the soul, that to have one virtue (*aretē*, q.v.) is to have all the virtues.

well ordered: of a set, having a linear ordering in which every subset has a first member.

'What is F-ness?' question: the question, generally asked about a particular *aretē* (q.v.), e.g. courage *(Laches)*, piety *(Euthyphro)*, or *aretē* in general *(Meno)*, which preoccupies the early dialogues of Plato.

wisdom, Socratic: Socrates' recognition that he alone among his contemporaries is aware that he lacks the expertise of virtue (q.v.).

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General editors' preface

The history of philosophy, as its name implies, represents a union of two very different disciplines, each of which imposes severe constraints upon the other. As an exercise in the history of ideas, it demands that one acquire a 'period eye': a thorough understanding of how the thinkers whom it studies viewed the problems which they sought to resolve, the conceptual frameworks in which they addressed these issues, their assumptions and objectives, their blind spots and miscues. But as an exercise in philosophy, we are engaged in much more than simply a descriptive task. There is a crucial critical aspect to our efforts: we are looking for the cogency as much as the development of an argument, for its bearing on questions which continue to preoccupy us as much as the impact which it may have had on the evolution of philosophical thought.

The history of philosophy thus requires a delicate balancing act from its practitioners. We read these writings with the full benefit of historical hindsight. We can see why the minor contributions remained minor and where the grand systems broke down: sometimes as a result of internal pressures, sometimes because of a failure to overcome an insuperable obstacle, sometimes because of a dramatic technological or sociological change and, quite often, because of nothing more than a shift in intellectual fashion or interests. Yet, because of our continuing philosophical concern with many of the same problems, we cannot afford to look dispassionately at these works. We want to know what lessons are to be learnt from the inconsequential or the glorious failures; many times we want to plead for a contemporary relevance in the overlooked theory or to reconsider whether the 'glorious failure' was indeed such or simply ahead of its time: perhaps even ahead of its author.

We find ourselves, therefore, much like the mythical 'radical translator' who has so fascinated modern philosophers, trying to understand an author's ideas in his and his culture's eyes, and at the same time, in our own. It can be a formidable task. Many times we fail in the historical undertaking because our philosophical interests are so strong, or lose sight of the latter because we are so enthralled by the former. But the nature of philosophy is such that we are compelled to master both techniques. For learning about the history of philosophy is not just a challenging and

engaging pastime: it is an essential element in learning about the nature of philosophy—in grasping how philosophy is intimately connected with and yet distinct from both history and science.

The *Routledge History of Philosophy* provides a chronological survey of the history of Western philosophy, from its beginnings up to the present time. Its aim is to discuss all major philosophical developments in depth, and with this in mind, most space has been allocated to those individuals who, by common consent, are regarded as great philosophers. But lesser figures have not been neglected, and it is hoped that the reader will be able to find, in the ten volumes of the *History,* at least basic information about any significant philosopher of the past or present.

Philosophical thinking does not occur in isolation from other human activities, and this *History* tries to situate philosophers within the cultural, and in particular the scientific, context of their time. Some philosophers, indeed, would regard philosophy as merely ancillary to the natural sciences; but even if this view is rejected, it can hardly be denied that the sciences have had a great influence on what is now regarded as philosophy, and it is important that this influence should be set forth clearly. Not that these volumes are intended to provide a mere record of the factors that influenced philosophical thinking; philosophy is a discipline with its own standards of argument, and the presentation of the ways in which these arguments have developed is the main concern of this *History*.

In speaking of 'what is now regarded as philosophy', we may have given the impression that there now exists a single view of what philosophy is. This is certainly not the case; on the contrary, there exist serious differences of opinion, among those who call themselves philosophers, about the nature of their subject. These differences are reflected in the existence at the present time of two main schools of thought, usually described as 'analytic' and 'continental' philosophy. It is not our intention, as general editors of this *History,* to take sides in this dispute. Our attitude is one of tolerance, and our hope is that these volumes will contribute to an understanding of how philosophers have reached the positions which they now occupy.

One final comment. Philosophy has long been a highly technical subject, with its own specialized vocabulary. This *History* is intended not only for the specialist but also for the general reader. To this end, we have tried to ensure that each chapter is written in an accessible style; and since technicalities are unavoidable, a glossary of technical terms is provided in each volume. In this way these volumes will, we hope, contribute to a wider understanding of a subject which is of the highest importance to all thinking people.

G.H.R.Parkinson
S.G.Shanker

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1 (1987), and *Cosmic Problems: Essays on Greek and Roman Philosophy of Nature* (1989). He was Editor of *Phronesis* (1968–72), and Joint Editor with R.E. Allen of *Studies in Presocratic Philosophy* I (1970) and II (1975). He was elected Corresponding Fellow of the British Academy in 1990.

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member of the team for *Theophrastus of Eresus,* eds W.W.Fortenbaugh and others (Leiden, Brill, 1992), and contributor to two commentary volumes (1995 and forthcoming). He is currently editor of *Phronesis*.

Chronology

Politics and religion BC		The arts BC	
338	Athenians defeated by Macedonians at Chaeronea		
336	Alexander succeeds to the throne of Macedon		
323	Alexander dies. Empire partitioned among Generals	*c.*324–292	Menander's comedies
		320–250	Life of Theocritus
322	Demosthenes dies		
		307	Museum and Library of Alexandria begun under Ptolemy Soter
285	Ptolemy II Philadelphus King of Egypt (dies 247)	285–46	Callimachus active (Alexandria)
280	Pyrrhus of Epirus invades Italy, withdraws 275		
264–241	First Punic War		

Science and technology		Philosophy	
BC		BC	
*c.*340	Eudoxus of Cnidos (astronomer) dies	347	Plato dies. Speusippus heads Academy: Aristotle leaves Athens for Atarneus, Assos, Lesbos
*c.*330	Callimachus (astronomer) active	342	Aristotle tutors Alexander, crown prince of Macedon
		341	Epicurus born in Samos
		339	Xenocrates heads Academy
		335	Zeno born in Citium (Cyprus). Aristotle returns to Athens, founds Peripatetic School in Lyceum
?325–250	Life of Euclid	*c.*325–275	Pyrrhon of Elis active (founder of Greek Sceptics)
*c.*315–?240	Life of Aratus (author of astronomical poem *Phainomena*)	322	Aristotle dies. Theophrastus heads Peripatetic School
		314	Xenocrates dies. Polemo heads Academy.
		313	Zeno of Citium comes to Athens, later founds Stoic School
		*c.*307	Epicurus founds school in Athens ('The Garden')
*c.*290	Herophilus *fl.* (anatomy and physiology)	287	Theophrastus dies. Strato of Lampsacus heads Peripatetic School
*c.*280	Erasistratus *fl.* (anatomy and physiology)	270	Epicurus dies. Hermarchus heads Epicurean School
280–*c.*232	Aristarchus of Samos active (astronomer, heliocentric hypothesis)	269	Strato dies. Lyco heads Peripatetic School until 225
		268	Arcesilaus head of Academy until 242
		263	Zeno dies. Cleanthes of Assos head of Stoic School

Politics and religion		The arts	
		*c.*250	Apollonius of Rhodes active (Argonautica)
247	Ptolemy III Euergetes King of Egypt	*c.*230	Temple of Horus at Edfu
*c.*219–201	Second Punic War: Rome defeats Hannibal of Carthage	*c.*205–184	Comedies of Plautus
		*c.*200–170	Ennius active
		*c.*170–159	Comedies of Terence

147	Greece ruled by Romans	106–43	Life of Cicero
146	Romans destroy Carthage	87–54	Life of Catullus
85	Sack of Athens by Sulla	86–35	Life of Sallust
60	Julius Caesar consul in Rome. First Triumvirate (Caesar, Pompey, Crassus)	70–19	Life of Vergil
		65–8	Life of Horace
44	Caesar murdered. Second Triumvirate (Antony, Lepidus, Octavian)	59–AD17	Life of Livy
		47	Alexandrian Library destroyed by fire
31	Battle of Actium: Antony and Cleopatra defeated by Octavian	43–AD18	Life of Ovid
30	Octavian virtual Emperor, renamed Augustus		

AD		AD	
14	Tiberius Emperor.	43–120	Life of Martial
37	Caligula Emperor.	58–138	Life of Juvenal
42	Claudius Emperor.		
54	Nero Emperor.		
60	Trial of St Paul in Rome		

Science and technology

c.247–212 Archimedes of Syracuse active (mathematician and inventor)

c.245 Eratosthenes (astronomer) head of Alexandrian library

c.200 Apollonius of Perge *fl.* (epicyclic/eccentric theory of planetary motion)

c.147–127 Hipparchus (astronomer) active in Rhodes

?c.100–50 Life of Asclepiades of Bithynia (corpuscular theory of physiology)

?c.62 Heron of Alexandria *fl.* (mathematician and inventor)

?c.50 Vitruvius *fl.* (Roman architect, engineer, historian)

Philosophy

232 Cleanthes dies. Chrysippus of Soli head of Stoic School

c.225 Ariston of Ceos head of Peripatetic School

207 Chrysippus dies. Zeno of Tarsus head of Stoic School

c.185–c.110 Life of Stoic Panaetius of Rhodes

c.160–137 Carneades head of Academy

159–84 Life of (Academic) Philo of Larissa

155 Philosophical embassy to Rome: Carneades, Diogenes (Stoic), Critolaus (Peripatetic School)

c.135–c.50 Life of (Stoic) Posidonius of Apamea in Syria (later Rhodes)

c.130–69 Life of (Academic) Antiochus of Ascalon

c.95–55 or 51 Life of Lucretius

c.50 Andronicus of Rhodes *fl.* (Peripatetic)

55–54 Cicero *De oratore*, *De republica*

54 Lucretius' poem mentioned by Cicero

45–44 Most of Cicero's philosophical works

4–AD65 Life of Seneca the Younger

AD Early 1st century Philo Judaeus *fl.* (in Alexandria)

Politics and religion		The arts	
69	Vespasian Emperor	68	Josephus' *History of Jewish War*
70	Destruction of Jerusalem. First diaspora	*c.*60–230	'Second Sophistic' (Greek rhetoric)
117–138	Hadrian Emperor	*c.*117	Tacitus' *Histories*
121–180	Life of Marcus Aurelius, Emperor 161–180		
135	Expulsion of Jews from Jerusalem	?*c.*150	Apollonius Dyscolus (Alexandrian grammarian)
286	Emperor Diocletian divides Roman Empire		
306–37	Constantine proclaimed Caesar: overcomes rivals; promotes Christianity		
325	Nicene Creed formulated by ecumenical council	314–*c.*393	Life of Libanius (rhetorician)
330	Foundation of Constantinople by Constantine	330–395	Life of Ammianus Marcellinus (Roman historian)
361–63	Julian 'the Apostate' Emperor in Constantinople	*c.*370–*c.*404	Life of Claudian (Latin poet)
410	Sack of Rome by Alaric the Visigoth		
452	Huns under Attila invade N. Italy		
527–65	Justinian Roman Emperor in the East	*c.*500–542+	Life of Procopius (Greek historian)

Science and technology		Philosophy	
		65	Suicide of Seneca
		Late 1st century	Epictetus *fl.* (Stoic)
AD			
146–*c.*170	Ptolemy (mathematician) active in Alexandria	*c.*100–150	Life of Aspasius (Peripatetic)
129–199/216	Life of Galen of Pergamum, court physician in Rome	205–269/70	Life of Plotinus (first Neoplatonist)
		*c.*200–?	Alexander of Aphrodisias *fl.* (commentator on Aristotle)
*c.*260–339	Eusebius of Caesarea (Christian apologist and historian)	234–*c.*305	Life of Porphyry (Neoplatonist)
*c.*320	Pappus *fl.* (mathematician)	*c.*245–*c.*325	Life of Iamblichus (Neoplatonist)
		354–430	Life of Augustine: Bishop of Hippo 396
		*c.*410–485	Life of Proclus (Neoplatonist)
		*c.*480–525	Life of Boethius
		6th century	Simplicius (Neoplatonist) and Philoponus (Christian Neoplatonist) commentators on Aristotle
		529	Emperor Julian closes Aristotle's school in Athens

List of Sources

The following are those ancient authors and works most frequently cited as sources in this volume. This list mentions English translations whenever possible. 'Loeb' indicates that a Greek (Latin)/English edition is available in the Loeb Classical Library published by Harvard University Press.

More detailed information in given in the bibliographies attached to individual chapters. Each bibliographic entry is given a number for reference. The twelve chapters of this volume can be seen as divided into four sections: books relevant to all chapters of the section are listed in its first chapter, or in the individual chapters in the case of sections (c) and (d).

(a) Aristotle and the Peripatetic School: chapters 1–5. See the bibliography of chapter 1: [1.1] to [1.59], pp. 34–7.
(b) Hellenistic Philosophy: chapters 6–8. See the bibliography of chapter 6: [6.1] to [6.24], pp. 218–20.
(c) Mathematics and Biology: chapters 9–10. See the bibliographies of both these chapters, pp. 315–19 and pp. 353–5.
(d) From the Classical to the Christian Age: chapters 11–12. See the bibliographies of both these chapters, pp. 385–7 and pp. 421–8.

Alexander of Aphrodisias. See Aristotelian Commentators.

Aristotelian Commentators. In Greek, *Commentaria in Aristotelem Graeca,* Berlin, Reimer, 1822–1909, with *Supplementum Aristotelicum,* 1882–1903. Some commentaries are now available in English translation: *Ancient Commentators on Aristotle,* General Editor Richard Sorabji, London, Duckworth, 1989 and continuing.

Aristotle. *The Complete Works of Aristotle,* ed. Jonathan Barnes, Princeton University Press, Bollingen Series LXXI, 1984. Also Loeb.

Augustine. Theologian and philosopher, AD 354–430. See [12.1] to [12.29].

Aurelius, Marcus. Roman Emperor and Stoic, AD 121–80. *Meditations* (Loeb).

Cicero. Roman statesman and orator; 1st c. BC. Philosophical essays: *De republica, De legibus, De finibus, De natura deorum, Academica, De fato, Tusculan Disputations*. Loeb.

Diogenes Laertius (abbr. DL). Probably 3rd c. AD. *Lives of the Philosophers*. Loeb.

Diogenes of Oenoanda. Eccentric author of an inscription on the stone walls of the agora of Oenoanda summarizing Epicurean philosophy; probably 2nd c. AD. See [6.28].

Epictetus. Stoic philosopher; mid-1st to mid-2nd *c.* AD. *Discourses*. Loeb.

Epicurus. 341–270 BC. Three Letters and *Principal Doctrines* in Diogenes Laertius book 10 (Loeb). Also (with *Vatican Sayings*) in Greek and English in Cyril Bailey, *Epicurus,* Oxford, Clarendon Press, 1926. Also with papyrus fragments of *On Nature* in Greek with Italian translation in G.Arrighetti, ed., *Epicuro, Opere,* Turin, Einaudi, 1960.

Eusebius. Biblical scholar and apologist; *c.* AD 260–339. *Ecclesiastical History* (Loeb).

Galen of Pergamum. 2nd c. A.D. Physician and prolific writer (in Greek) on medical theory and practice as well as logic and philosophy.

Heraclides of Pontus. Philosopher of Plato's Academy; later 4th c. BC. English translation of some texts in H.B.Gottschalk, *Heraclides of Pontus,* Oxford, Clarendon Press, 1980.

Iamblichus. Neo-Platonist philosopher; *c.* AD 245–c.325. See [11.38] to [11.40].

Lucretius. Latin poet, author of *De rerum natura;* early 1st c. BC. Major source for Epicureanism. Loeb, and many other English translations, for example C.Bailey [6.27].

Philo (Judaeus) of Alexandria. Philosopher; 1st c. AD. Some works in Loeb.

Philodemus. Epicurean philosopher; *c.*110–*c.*40 BC. Fragments survive on papyri at Herculaneum: *On Methods of Inference,* ed. with English translation by P.H. and E.A.De Lacy, Naples, Bibliopolis, 1978; *On Choices and Avoidances,* ed. with English translation by V.Tsouna-McKirahan, ibid. 1995.

Philoponus, John. 6th c. AD. See Aristotelian Commentators.

Plotinus. Neo-Platonist philosopher; 3rd. c. AD. *Enneads* (Loeb).

Plutarch of Chaeronea. Philosopher, biographer, essayist. Before AD 50 to after 120. *Moralia* (Loeb).

Porphyry. Disciple of Plotinus; AD 234 to *c.*305. See [11.29] to [11.33].

Posidonius. Stoic philosopher; 1st c. BC. *Fragments,* ed. L.Edelstein and I.G. Kidd, with English translation and commentary, Cambridge University Press, 1988.

Proclus. Neo-Platonist philosopher; 5th c. AD. See [11.41] to [11.45].

Seneca (the younger). Roman statesman and Stoic philosopher, *c.*4 BC to AD 65. *Natural Questions, Moral Essays, Letters*. Loeb.

Sextus Empiricus. (Some time in the early centuries AD). *Outlines of Pyrrhonism* (abbr. *PH*), and *Adversus mathematicos* (abbr. *M*) (sometimes subdivided into four: *Against the Professors, Against the Logicians, Against the Physicists, Against the Ethicists*). Loeb.

Simplicius. 6th c. AD. Commentaries on Aristotle's *Physics* and *On the Heavens*. See Aristotelian Commentators.

Stobaeus (John of Stobi). Anthologist; 6th c. AD. *Eclogae,* ed. Wachsmuth and Hense, Berlin, Weidmann, 1884.

Stoics (early). No complete works survive. See *Stoicorum veterum fragmenta* (abbr. SVF), ed. J.von Arnim, Leipzig, Teubner, 1921.

Strato of Lampsacus. Aristotelian philosopher; 3rd c. BC. Texts with German translation in vol. 5 of [5.57] F.Wehrli, *Die Schule des Aristoteles*. Some English translations in [5.58] H.B.Gottschalk, *Strato of Lampsacus: Some Texts*.

Themistius. Philosopher and rhetorician; AD 317–*c*.378. See Aristotelian Commentators. *Orationes* (Greek only), ed. Dindorf, Leipzig, 1832.

Theophrastus. Aristotle's successor; *c*.371–*c*.287 BC. *Metaphysics,* see [5.15]. Minor works, see [5.5] to [5.14]. *Historia plantarum* and *De causis plantarum* in Loeb. *Theophrastus of Eresus: Sources for his Life, Writings, Thought and Influence,* ed. Wm. W.Fortenbaugh and others (abbr. FHS&G), Leiden, Brill, 1992.

Introduction

David Furley

This volume aims to discuss the most significant works of classical philosophy written during the period from the mid-fourth century BC to the early fifth century AD. We begin with Aristotle, whose intellectual power and influence extend over the whole of this period, and beyond. We end with Augustine, who stands near the end of Hellenism and the beginning of Christianity as the dominant mode of thought in the Western world. In between is the Hellenistic period, when Alexander's conquests spread Greek culture through most of the Middle Eastern lands that after centuries of political turmoil were united in the Roman Empire.

The concept of philosophy during this period has variable boundaries. There were schools of philosophy, designated as such at the time of their existence, and much of what was taught there is recognizably similar to what is taught in the Departments of Philosophy in twentieth-century universities. On the other hand, philosophy then sometimes included much more than it does now—theology, astronomy, physics, physiology, zoology, literary criticism, and more. If this book included nothing but what is now recognized as philosophy, it would seriously falsify the achievements of the thinkers of the period. There were very great advances in mathematics, astronomy, biology and others of the special sciences, and something must be said about them here, though this is not the place for an attempt at a full summary. In chapters 9 and 10 below we find samples of Hellenistic contributions to mathematics and biology.[1] The Hellenistic period has sometimes been underestimated because its philosophers could hardly compare with the creative genius of Plato and Aristotle in metaphysics or moral philosophy. But it was very far from being a period of intellectual decline or stagnation.

First, however, comes Aristotle, the pupil of Plato. Aristotle himself was not an Athenian. He was born in 384 BC in Stagira in Chalcidice—a region colonized by Greeks from further south but much influenced throughout its history by close contacts, sometimes friendly, sometimes hostile, with its neighbour to the north-east, Macedonia. Aristotle's father, Nicomachus, was court physician to Amyntas II of Macedonia. When he was 17, Aristotle went to Athens to join Plato's school in the Academy, where he stayed for twenty years.

His personal relationship with Plato is obscure. Unquestionably he learnt more of philosophical method from Plato and his associates than from any other source: many of the most important questions addressed in his own surviving works can be traced to Platonic sources. On the other hand, he disagreed with Plato on crucial issues, and expressed his disagreement freely and at length. On the subject of Plato's conception of the Form of the Good, he remarked (*NE* 1.6, 1096a12) that to discuss it 'is an uphill task, because the Forms have been introduced by friends of our own. Yet it would perhaps be thought better, indeed to be our duty, for the sake of maintaining the truth, even to destroy what touches us closely, especially as we are philosophers; for while both are dear, piety requires us to honour truth above our friends.' *Amicus Plato, sed magis amica veritas*.[2] Aristotle quotes or refers to many of Plato's dialogues: the continuity of the philosophical tradition is unquestionable.

After Plato's death in 367, perhaps because he found it hard to work with Plato's successor Speusippus, Aristotle crossed the Aegean to Assos, where the ruler Hermeias (whose niece he married) supported a group of resident philosophers. Later he went across the strait to the island of Lesbos, the home of his student Theophrastus. His *History of Animals* shows detailed knowledge of the fauna of Lesbos.

After four years in these eastern regions, he was summoned by Philip of Macedon to his court in Pella to act as tutor to his son Alexander; his association for two or three years with the most powerful military figure of the fourth century has always stimulated the imagination of historians of philosophy—but the evidence for the influence of teacher on pupil, or vice versa, is very slender.

In 335 Aristotle returned to Athens to set up his own school there. As a non-citizen he could not own property, but he established himself as a teacher in the public sanctuary and gymnasium on the outskirts of the city, dedicated to Apollo Lyceius and called the Lyceum.[3] (The Academy, the site of Plato's school, was a similar place.) The school became known as 'the Peripatos' ('The Walk') because its main location for teaching was the covered walkway or cloister contained in its buildings. Aristotle remained there until the death of Alexander in 323, when anti-Macedonian sentiments grew powerful in Athens. A charge of 'impiety' was brought against him, as it had been many decades before against Socrates; he left, according to the biographers, 'lest Athens should sin twice against philosophy', leaving the school to Theophrastus. He died a year later in Chalcis.[4]

His writings can be divided into three kinds. First were the 'popular' works, mainly dialogues modelled to some uncertain extent on Plato's dialogues. These were famous in the period of his lifetime and for many years after his death; not one of them survives now, although there are fairly substantial quotations and translations into Latin from some of them, and many smaller references.[5]

Second, there were collections of research materials, by himself and others: his *Constitution of Athens* is the only surviving example.

In the the third group are almost all the works that survive. 'School-treatises' is the usual modern name for them. Except for some segments which show signs of more elaborate literary form, they are evidently designed as working materials for serious students of their subject. Sometimes they are called 'lecture-notes', but it seems unlikely that they could have been exactly that. It is more likely that they were read and re-read in privacy or in groups—perhaps after the manner of seminar papers for graduate students today. Some of them were probably collected under their present titles by editors rather than by Aristotle himself. Unlike Plato's dialogues, they are divided into chapters by subject-matter, often with clear opening and closing statements; sometimes there are duplicate versions, presumably composed at different times and not intended to co-exist in the same 'book'. Their history during the three centuries after Aristotle's death is obscure and controversial; for some years it seems that the 'published' works, now lost, were much better known than the school treatises. The latter were not published, in anything like the modern sense, until they were collected by Andronicus of Rhodes in the late first century BC, having been brought to Rome from Athens by the conquering army of Sulla.[6]

'Everyone by nature desires to know.' These are the famous opening words of Aristotle's *Metaphysics,* and the extraordinary range of his own inquiries testifies to the power of his own desire. The greatest pleasure, he claims, comes from knowledge of whatever in nature is eternal—that is to say, the cosmos itself, and especially the heavenly regions. But living nature also, not eternal but liable to generation and corruption, 'offers immeasurable pleasures to those who are philosophers by nature and are able to recognize causes'.[7] He himself wrote systematic studies in the fields of astronomy, meteorology, the structure of matter and material change, motion, zoology, embryology, botany (but this does not survive), perception, memory, sleep, life and death, ethics, politics, rhetoric and poetics. He was, as he claims,[8] the first to write about the logic of argument (as opposed to rhetoric). And he followed Plato in exploring the most fundamental concepts of language and thought in his *Metaphysics*.

Aristotle was the first in the Western world to set up an institution for teaching and research in which the subjects were systematically distributed into specialist branches. Each of his own surviving writings is devoted to a single subject-matter, unlike the dialogues of his teacher Plato. Some branches of knowledge were covered not by himself but by his students: for example Theophrastus wrote the major work on botany, Eudemus wrote on the history of mathematics, Menon on the history of medicine.[9] Moreover, the school founded by Aristotle in the Lyceum was the first to compile a systematic library; it was handed on after the founder's death to his successor Theophrastus (though its later history is confused).

It can rightly be claimed that he began the process of dividing the realm of intellectual research into specialized segments. But there is nevertheless a marked degree of unity in his own modes of thought: he did not, as it were, hold a number of different and separate Chairs. His own metaphysical concepts pervade the rest of his studies. His notion of an individual substance—something that *is* what it is in its own right, without dependence on some other being, distinguished thus from its subordinate properties, such as its qualities, quantities, relations with other things—serves as the primary metaphysical frame for all or most of his thought. Much of the technical vocabulary of later philosophy is derived from Latin versions of Aristotle's metaphysical terms: for example, 'substance', 'essence', 'quality', 'quantity' and 'category.'

The Aristotelian tradition continued for many centuries. From the first century AD the richest kind of philosophical writing took the form of commentary on the works of Aristotle. The famous German edition of the Greek commentaries on Aristotle occupies twenty-three heavy volumes, dating from Aspasius in the first century AD to Sophonias at the turn of the thirteenth to fourteenth centuries. It is only recently that a systematic effort to make the most important commentaries available in English has been undertaken, by Richard Sorabji and an impressive team of translators and interpreters.[10]

In chapter 5 of the present volume, R.W.Sharples reviews the work of the immediate successors of Aristotle in the Peripatetic School, especially Theophrastus, and discusses one of the earliest of the Greek commentators, Alexander of Aphrodisias. Later commentators fall outside the period covered by this volume; within the given limits, it is not possible to discuss the work of the Neoplatonist commentators such as Ammonius, Simplicius, and Olympiodorus, or of Christians such as Philoponus.

In the Hellenistic period, from the end of the fourth century to the first century BC, the most important schools of philosophy were the Epicureans and the Stoics (chapters 6 and 7 below), and Plato's Academy (chapter 8). There is a marked change of direction in the first two, in that emphasis is now laid more strongly on moral philosophy. It is not more than a change of emphasis, in that both schools continued the debate with earlier philosophers, as well as with each other, about the nature of the physical world, and indeed about fundamental metaphysical problems. The Stoics, too, from Chrysippus onwards, made vitally important contributions in the field of logic—though their importance was not fully appreciated until the twentieth century. But the historical importance of both schools was concentrated rather on their reasoning about the right way for human beings to live. The words 'Epicurean' and 'Stoic' have entered into ordinary language as descriptions of attitudes to human experience. The sense in which they are now used is something of a travesty of the original sense—especially in the case of the Epicureans—but it is not accidental that they are used with this kind of application.

It is interesting that they adopted opposite positions in the fields of physics and cosmology—Epicurus following the Atomist tradition of Democritus, the Stoics following Plato and Aristotle.

To study Plato and Aristotle, the modern reader has access to original works—to everything that Plato wrote, so far as we know, and the most important of Aristotle's writings. Things are very different with regard to Epicurus, the early Stoics, and the Sceptics of the Academy. 'Epicurus', says Diogenes Laertius (10.26), 'was a most prolific writer, and outdid everyone in the number of his books, which numbered up to three hundred rolls.' All that survives of them amounts to three open letters (rather similar in form to the letters of St Paul), two collections of brief 'thoughts', and the ruins of his great *Physics* on papyrus rolls at Herculaneum.

We are heavily dependent on other classical writers for knowledge of Epicureanism. Fortunately one of these is an outstandingly brilliant writer, and a devoted disciple of Epicurus—the Latin poet Lucretius. More than two centuries after Epicurus, Lucretius wrote his epic poem *De rerum natura,* which still survives to give us a comprehensive view of Epicurus' cosmology, and to provide reliable confirmation and expansion of our understanding of his epistemology and moral doctrines.

The Stoics are less fortunate. No work by an acknowledged Stoic survives before Seneca in the Roman Empire: for knowledge of Zeno the founder, Cleanthes and Chrysippus, we depend on second-hand reports. This is perhaps especially grievous in the case of Chrysippus, who was astonishingly prolific, and from all accounts much the most systematic and wide ranging philosopher among the early Stoics. The Stoic world picture was much less well known than Aristotle's in the medieval and early modern periods; the Roman Stoic writers who were relatively well known (especially Seneca and the Emperor Marcus Aurelius) wrote mainly about ethical subjects.

During the Hellenistic period the Platonic tradition took a somewhat surprising turn. The Academy under Arcesilaus, following the example of Socrates, perhaps, rather than that of Plato in his later life, concentrated its attention on criticizing claims to knowledge. The Stoics were apparently the most obvious targets, but the sceptical arguments were universal in their application. The development of different forms of scepticism is examined by Frede in chapter 8.

The most notable of the Academic Sceptics were Carneades, who became head of the school before the middle of the second century BC, and in the first century Philo of Larissa. After Philo, the sceptical Academy was criticized and abandoned by Antiochus of Ascalon, who reclaimed the more positive stance of Plato himself, adopted much from the Stoics, and also began the tendency, which later became much stronger, to emphasize the agreements rather than the differences between Plato and Aristotle.

With Antiochus there began the intermediate phase known as 'Middle Platonism', best represented by the many surviving works of Philo of

Alexandria (known also as Philo Judaeus) and the philosophical essays of Plutarch of Chaeronea (author of the more famous *Lives*).[11]

A very different interpretation of the Platonic tradition began in the third century AD, and proved to be a powerful influence on European philosophy for many centuries, through the Renaissance and into the early modern period. Neo-Platonism began with Plotinus, who studied in Alexandria, then moved to Rome, but wrote in Greek. His work survives, in the form of six sets of nine treatises (the *Enneads*). The tradition continued prolifically in Greek. The inspiration of Plato was always in the forefront, but that by no means entailed neglect of Aristotle.

Perhaps the most important mode of philosophizing in the centuries after Plotinus consisted of commentaries on Aristotle. The unity of Platonism and Aristotelianism was declared and defended by Plotinus' pupil, Porphyry, whose Introduction to Aristotle's *Categories,* known as the *Isagoge,* survives; and the unity thesis was defended and qualified through the following centuries.

Most of the philosophy and science studied in this volume was written in Greek. The Latin contribution begins in the first century BC with Lucretius and Cicero. The inestimable contribution of Lucretius to Epicureanism has already been mentioned. Epicurus' hedonism, his materialism, his denial of the immortality of the soul, and his rejection of divine providence, all combined to set the Christian tradition against him, and little of it survived, as we noted above. But Lucretius wrote an epic poem in Latin hexameters; Vergil referred to him with respect, and something of the high value attached to Vergil through the centuries was transferred to Lucretius. Even so, he only just survived: he was little known in the Christian Middle Ages until a manuscript of *De rerum natura* was found by Poggio in the early fifteenth century, copied, and thus made known to the scholars of Florence.

Cicero, a contemporary of Lucretius, is a different matter. His work was always regarded as an essential educational tool, and copies of many of his numerous books were not in short supply. His value in the history of philosophy is unquestionable, but it arises not from his own originality or a philosophical system of his own, but from his wide range of knowledge of earlier philosophers and the astonishing fluency of his Latin translations and commentaries. He is particularly valuable for his comments on Epicureanism (which he does not value highly) and Stoicism, and most of all for his account of post-Platonic Academic philosophy.[12]

Many of Cicero's philosophical works take the form of a dialogue, with representatives of the various schools as spokesmen. He wrote on logic and epistemology (two versions of *Academica,* extant only in part), on political philosophy (*De republica,* extant in part, and *De legibus*), on ethics (*De finibus, Tusculan Disputations,* and *De officiis*), and on philosophy of nature, especially on the relation of the gods to the natural world—a topic

on which Epicureans and Stoics were most sharply divided (*De natura, deorum, De divinatione,* and *De fato*).

Seneca (early first century AD) is the first avowed Stoic represented by works that have survived intact. Like Cicero, he was not a teacher or philosopher but wrote most of his works after retirement from politics—he was an adviser to the Emperor Nero. He was an essayist, rather than a writer of dialogues, treatises or textbooks. His *Moral Essays* present practical interpretations of Stoic ethics, and treat some subjects that are not so well represented elsewhere in classical philosophy (for example *On Anger*).

But the best known philosophical works of the early Roman period were written in Greek—the books of the Neoplatonists Plotinus, Porphyry, Proclus, the Commentaries on Aristotle, even the *Meditations* of the Roman Emperor Marcus Aurelius. It was the Latin language, however, that provided the crucial bridge between classical philosophy and Christianity. St Augustine, who represents the beginning of Christian philosophy in this volume (chapter 12), was a reader of Greek but learnt more from Cicero and from Latin translations of Greek classics. Boethius, in the sixth century, began a translation of Aristotle's books into Latin with the aim of adding these vital works to the content of Christian education, but died after completing the logical works (see chapter 11).

The classical Greek contribution to philosophy was in the main passed on without interruption to the culture of Western Europe, with the notable exception of Epicureanism. The hedonism that was the basis of Epicurus' morality was in fundamental conflict with Christian ethics; the mortality of the soul, and the denial of providential intervention in the world by God were of course equally unacceptable. Only the poetry of Lucretius, preserved in one manuscript in a monastic library, eventually caught the attention of literary men, and revived interest in the letters of Epicurus that had been transcribed in the tenth book of Diogenes Laertius. The 'one world' cosmology of Plato, Aristotle and the Stoics was thus left for several centuries without a competitor. The natural philosophy of the ancient Atomists, including Epicurus, was hardly taken seriously until the time of Gassendi, in the early seventeenth century.

NOTES

1 For more extensive treatment, see the bibliographies attached to these chapters.
2 This is a medieval Latin version, of uncertain origin; the same thought is also attributed to Plato with regard to Socrates. See [1.40] Guthrie, p.25, n.2.
3 The discovery of its site by archaeologists was announced in *The Times* of London in January 1998.

4 For textual evidence on the life of Aristotle, see [5.73] I.During, *Aristotle in the Biographical Tradition,* and for the history of the Lyceum see [5.3] J.P.Lynch, *Aristotle's School.*
5 They are collected in the Oxford Classical Text *Aristotelis Fragmenta,* and translated in the 12th volume of the Oxford translation, both by Sir David Ross. The most important are the *Protrepticus, On Philosophy, On the Good, On Ideas, On Justice.*
6 But the role of Andronicus has been questioned recently by J.Barnes, in [6.14] *Philosophia Togata* II, 1997.
7 *Parts of Animals* 1.5, 645a9.
8 In the last chapter of *Sophistici Elenchi.*
9 See chapter 5, 'The Peripatetic school'.
10 *Ancient Commentators on Aristotle,* London, Duckworth, 1987, in progress.
11 In the history of philosophy, the Middle Platonists are perhaps more valuable for the light shed by their surviving works on other philosophers than for their own positive contributions. For an accessible account of them, see [11.3] John Dillon, *The Middle Platonists.*
12 See chapter 8, below.

CHAPTER 1
Aristotle the philosopher of nature

David Furley

1
THE TREATISES ON NATURE

The subject-matter of the present chapter is what Aristotle has to say about the natural world—the subject that in classical Greek is most accurately rendered as *ta physika*. But of course this includes many topics that would not now count as natural science—indeed Aristotle's own book called *Physics* contains discussions that according to twentieth-century categories belong rather to philosophy or metaphysics. Book 1 criticizes the views of Aristotle's predecessors on the first principles of natural objects, and defends his own view that they are three—matter, form, and privation. Book 2 analyses the kind of explanation that is to be expected of the natural philosopher, introducing the doctrine of 'the four causes'. The third book deals with motion and change, and infinity; the fourth with place, void and time. The second quartet of books seems to form a separate entity —or perhaps two. Books 5, 6 and 8 are sometimes referred to by commentators under a separate title: *On Change* (*kinêsis*—the word may denote motion or change in general). Book 5 analyses concepts essential to the study of motion, book 6 deals with continuity, Book 8 argues for the eternity of motion and an eternal mover. Book 7 (part of which has been transmitted in two versions) perhaps contains a preliminary version of Book 8.

In the traditional ordering of Aristotle's works, *Physics* is followed by three theoretical treatises concerned with different aspects of the cosmos: *On the Heavens, On Generation and Corruption,* and *Meteorologica.* After a short essay *On the Cosmos,* generally and rightly held to be spurious, these are followed by a sequence of works on biology, which constitutes one fourth of the surviving Corpus Aristotelicum. First comes the treatise *On the Soul* (the principle of life), and a collection of related short essays concerning sensation, memory, sleep, dreams, etc., known as the *Parva Naturalia.* Then follow the three principal works of zoology: *History of Animals* (*Zoological Researches* would be a more appropriate modern title), *Parts of Animals,* and *Generation of Animals.* (The

traditional Corpus contains also a number of works on the natural world now held to be spurious: *On Colours, On Things Heard, Physiognomonics, On Plants, On Marvellous Things Heard, Mechanics,* and *Problems*.)

2
ARISTOTLE'S SCIENTIFIC METHODS IN *POSTERIOR ANALYTICS* AND ELSEWHERE

Before entering upon a discussion of Aristotle's researches into the natural world, something must be said about the book in which he theorizes about scientific proof—the *Posterior Analytics*.[1]

The book sets out a system of proof by syllogisms. We have scientific understanding of something, says Aristotle, 'when we believe we know the cause (the *aitia*)[2] of the thing's being the case—know that it *is* the cause of it—and that it could not be otherwise' (1.2, 71b10–12). From premisses that are known to be true, the scientific theorist draws a conclusion that is then also known to be true because it follows necessarily from the premisses. If the argument is to qualify as part of a science *(epistêmê)*, its premisses must have certain qualities: they must be 'true and primitive and immediate and more familiar than and prior to and explanatory of the conclusion' (1.2, 71b22–24, tr. Barnes).

Now when one turns to the treatises in which Aristotle sets out his philosophy of nature (the treatises listed above in section 1), it is at once obvious that they do not even attempt to meet these conditions. They are, in general, inquiries, or the records of inquiries, rather than proofs. They do not confine themselves to necessary truths, which cannot be otherwise. In many cases, particularly in the biological works, they start from propositions based on observation. They do not proceed by syllogistic proofs alone.

It is clear that we are dealing with two different phases in the presentation of science, and it is important that this be recognized if the reader is not to be disappointed by the apparent difference between the ideal set out in the *Analytics* and the more dialectical nature of the other treatises. The *Posterior Analytics* are generally held to describe the way in which a completed science should ideally be presented; the treatises on the natural world present the inquiries or researches that are preliminary to the finished product. 'In a perfect Aristotelian world, the material gathered in the *Corpus* will be systematically presented; and the logical pattern will follow the pattern of the *Posterior Analytics*' (Barnes [1.28], p. x).

It should be added that the pattern of the Analytics evidently suits the mathematical sciences rather than biology, and Aristotle would be in difficulties if he confined his biology to the knowledge that could satisfy exacting demands for necessary truths and syllogistic proof.

In the two treatises (*Physics* and *Generation and Corruption*) that deal with the concepts most fundamental to our study of the natural world, Aristotle uses methods that are based neither on the scientific syllogism nor directly on empirical studies of natural phenomena. Most typically, he starts from the views expressed by others—by his philosophical predecessors, or by educated and thoughtful ordinary men in general.[3]

For example, in book 4 of the *Physics* he analyses the concept of place. We should assume, he says (4.4, 210a32), whatever is rightly believed to belong to it essentially: i.e. that it is the first thing surrounding that whose place it is, that it is not a part of the thing, that it is neither bigger nor smaller than it; and that it is detachable from its content when the latter changes place. It is only because of locomotion, he adds, that we enquire about place. The object of the enquiry is to determine what place is in such a way that the problems are solved and the beliefs about its properties are shown to be true, and to show the reasons for the difficult problems about it.

The first of Aristotle's statements about place—namely that it 'surrounds' *(periechein)* its contents—turns out to be highly significant. This at once distinguishes 'place' from 'space'; Aristotle's place is a surface —the inner surface of a container that is in contact with the outer surface of the contents. Thus place is not measured by its volume, as space is, or as space would be measured if Aristotle allowed its existence. In fact, he denies it: it is not necessary, he claims, for the analysis of locomotion, because the concept of place will supply all that is needed (and he finds other problems with the idea of space).

It follows, in Aristotle's view, that there can be no such thing as the void. The void could only be an empty place: but place is a container, and a container is nothing if it contains nothing. When something changes place, its former place is occupied *pari passu* by something else, or else the former container collapses on to itself as an empty bag does.

In this analysis there are no experiments, no measurements, and no observations other than those of ordinary everyday experience. What we have is a study of descriptions of motion, and of the assumptions underlying these descriptions. We have also an exhibition of the problems arising from alternative and incompatible descriptions in terms of space rather than place.

There is a somewhat similar but more far-reaching conceptual analysis in book 1 of the *Physics*. It begins by asking: what are the *principles* of nature? That is to say, what are the things that are essential to the existence of any natural object? To find the principles, we have to start with what is familiar to us, because the principles themselves are not accessible directly to our minds, nor universally agreed. It is not principles that we are directly acquainted with, but the changing compounds of the natural world.

After a criticism of the ideas of earlier philosophers of nature about the principles, Aristotle continues with reflections on our common notions

about the essential features of *change,* since change is a necessary feature of everything in the sublunary natural world. Change takes place between opposites: things are said to change from hot to cold, for example, or from dry to wet, or from unmusical to musical. So opposites must be among the principles. But it is false to say that *hot* changes to *cold:* it is not the opposites themselves that change, but something that is characterized first by one opposite, then the other (or if not from one extreme to the other, from one position on the continuum between the two to another position *in the direction of* the other). What, then, is the 'something', the substratum, presupposed by such change?

Aristotle's answer is 'matter' *(hylê).* His concept of matter is one that would be thought of now as belonging to metaphysics rather than to physics. Matter is an abstraction: it is arrived at, in thought only, by stripping away from a physical object all the attributes that belong to its form. It never exists in separation from all attributes. The simplest kind of object with substantial existence in Aristotle's hierarchy of existent things is a piece of one of the four elements: but any such piece is analysable in theory into matter and certain qualities that give it form.

In the sublunary world, as opposed to the heavens, everything that exists is liable to change, from a quality to its opposite, from a given size to a larger or smaller one, or from being what it is to being something else (for example from being a table to being a heap of firewood, from being firewood to being smoke and ash, etc.). What underlies physical change is matter: matter has the *potentiality* for losing one form and taking on another.

A favourite example of physical change in Aristotle's works is the making of a piece of sculpture. An amount of bronze or stone is the matter: it has the potentiality for becoming an image of a man, and the sculptor gives it that form in actuality. But this is rather too static an analysis: at each stage of the process of making the statue, the material in its penultimate state is matter (potentiality) for the actuality of the next stage. Matter and form, and potentiality and actuality, are pairs of relative terms.

The elements themselves, better named 'the primary bodies'—earth, water, air, and fire—have the potentiality for changing into each other. For example water has the potentiality for vaporizing into 'air' or for solidifying into 'earth'—the names themselves in Aristotelian usage each denote a range of solid, liquid, gaseous, and fiery substances.[4]

3
ARISTOTLE'S WORLD PICTURE

We shall begin with an outline of Aristotle's picture of the natural world as a whole, contrasting it with others of the classical period, and continue with comments on his contribution to each of the major fields, from astronomy to biology.

The general character of Aristotle's interpretation of the natural world is determined primarily by two theses: that the cosmos had no beginning and will have no end in time, and that it is a finite whole that exhausts the contents of the universe.

The first main point—that the cosmos is sempiternal—is argued in book 8 of the *Physics*. The first premiss is that there can be no time without change: change is necessary, if parts of time are to be distinguished from each other. But according to Aristotle's analysis of change, there can be no *first* change, and correspondingly no *last* change. It follows that both change and time are eternal (*Physics* 8.1). Further argument (in *Physics* 8. 6) shows that if change is to be eternal, there must be both something eternal that causes change (we shall return to this all-important being in section 7), and something eternal in which this change occurs. This latter being is the 'first heaven', the sphere of the fixed stars. Since the rest of the cosmos is determined in its essentials by the motions of the heavens, the whole cosmic order is also eternal.

These claims (defended, of course, by arguments to which this bare summary does no justice) distinguish Aristotle from all major philosophers of the classical period, with the possible exception of Heraclitus. Anaxagoras held that the cosmos emerged from a primitive mixture of all its contents; Empedocles that it grows from unity, passes through a period of plurality, and returns to unity, in repeating cycles; the Atomists argued for a plurality of cosmoi, each with a finite lifetime; Plato maintained that the single cosmos is indeed eternal, but he wrote (in the *Timaeus*) a description of its creation at a particular point in time, which Aristotle at least believed was to be taken literally; the Stoics returned to a cyclic theory.

The second of these claims—that the universe is finite—follows from a set of prior assumptions and arguments. In *Physics* book 4, Aristotle argues that there can be no such thing as a vacuum anywhere in the universe, and hence that there cannot be an infinitely extended vacuum. What people mean when they talk about a vacuum or void, as Leucippus and Democritus did, is an empty *place*. But Aristotle produced arguments to show that there can be no such thing. The place of a thing is its *container,* or rather the inner boundaries of its container. According to our experience, when we try to empty a container, either the contents are replaced instantly by something else (usually air), or the container collapses upon itself. In either case we have no empty place. A place is always the place of something or other. It follows from this that there can be no void place within the cosmos, and it follows from Aristotle's theory of the motions of the elements (which we shall examine shortly) that there can be no place outside the cosmos, since all of the body in the universe is concentrated in the cosmos.

In order to show that the universe is finite, then, it remains to show that there cannot be an infinitely extended *body* or plurality of bodies.

This Aristotle aims to do in *On the Heavens* 1.5–7. He begins with an argument concerned with the 'first body'—i.e. the body of which the sphere of the fixed stars is composed (for which see section 5). Like most Greeks of the classical period Aristotle believed the earth to be stationary at the centre of the spherical heavens. The fact that it was stationary seemed to be given by experience: once that thesis was accepted, it followed that the heavenly bodies move around the earth. Before Aristotle's time, it had been established that there was a difference in the motions of the heavenly bodies: the stars appear to move in concert without changing their relative positions, while the sun, moon, and five 'wanderers' *(planêtai)* move around the earth in orbits different from each other and from the 'fixed' stars.

The appearance of the fixed stars suggests that they are placed on a sphere that rotates as a whole on its axis, with the earth at its centre. We observe that this sphere completes one revolution in a day. If it were infinite in radius, each radius drawn from the centre would sweep an infinitely large distance in every segment traversed. But that is impossible: it is not possible to traverse an infinite distance, since the infinite is 'that of which there is always more beyond' (*Physics* 3.6, 207a1).

In dealing with the four sublunary elements—earth, water, air, and fire—Aristotle takes as given his theory of their natural places and natural motions. *All* earth tends to move towards a single centre, *all* fire to a single circumference, and the other two to intermediate positions. Consequently there cannot be any portion of the four elements, either simple or in compounds, outside the boundary of the sphere of the stars. But neither can there be any empty place outside this sphere, since, as Aristotle has argued, all place must be the place of something. Hence the universe (not merely the cosmos bounded by the starry sphere) is finite.

4
THE NATURAL MOTIONS OF THE ELEMENTS

Aristotle's theory of the elements is defended in detail in his *On the Heavens;* books 3 and 4 deal with the four elements that had become traditional since the time of Empedocles—earth, water, air, and fire—while books 1 and 2 introduce what Aristotle calls 'the first element' or 'the first body' and subsequent writers called 'aether', the element of which the heavens are composed.

Observation of the natural world suggests a distinction between forced and natural motions: a stone can be thrown upwards, but falls downwards if not prevented; fire and hot vapours rise upwards unless confined by something above them. Aristotle systematizes these simple observations with the help of the geometrical picture of the cosmos described in the last section. 'Downwards' is defined as 'in a straight line towards the centre of the universe'; 'upwards' is the contrary direction, away from the centre.

These two rectilinear movements are contrasted with motion in a circle around the centre of the universe.

The rectilinear motions are natural to the elements contained within the sphere of the heavens—commonly called the 'sublunary' elements, since the moon is the innermost of the heavenly bodies. These motions are defined according to the 'natural place' of each element. Each element has a natural tendency to seek its natural place, if displaced from it. Earth and water move naturally downwards, towards the centre; fire and air upwards. The tendency to move in these directions is what is meant by 'weight' and 'lightness' respectively—thus lightness is not a relative property but an absolute one. Earth has more weight than water, and fire has more lightness than air.

It is important to note that Aristotle takes the centre, and therefore the elementary motions, to be defined by the spherical shape of the universe as a whole, not by the shape of the cosmos. Later philosophers abandoned Aristotle's notion that the sphere of the stars has nothing whatever outside it, and posited an infinite volume of empty space around the cosmos. In such a cosmology no centre of the universe as such could be defined, and Aristotle's theory of natural motion had to be changed. To deal with this problem, the Stoics made the highly significant claim that the body of the cosmos is naturally attracted towards *its own* centre. This theory of attraction began to make clear what Aristotle never elucidated: what is the *cause* of the natural motions of the elements? We shall discuss this problem later (section 7).

5
THE STRUCTURE OF THE HEAVENS

The natural motions of the four sublunary elements were rectilinear. But the heavenly bodies move in circular orbits, carried around on the surfaces of rotating spheres (we shall describe the arrangement of the spheres in the next sections). But physical spheres must have physical *body*. So Aristotle is faced with the question: what are the heavenly spheres made of? They can hardly be made of any of the four elements which have rectilinear motions. The motion of the heavens, according to Aristotle's view in the *On the Heavens,* requires us to posit a fifth element whose natural motion is not rectilinear but circular. Since he regards it as superior, in more than one sense, to the other four elements, he names it 'the first body'. But although he made a technical term out of it, the idea of a special element in the heavens was not his alone, and others referred to it with the old word 'aether'—originally used for the bright sky above the misty air. For convenience I shall adopt this term for Aristotle's 'first body'.

We can distinguish more than one argument for the existence of aether.[5] The main argument in Aristotle's *On the Heavens* is the argument from motion that we have just described. A second argument is also found there:

it may be called the argument from incorruptibility. Earth, water, air, and fire are perishable in that they are all liable to change into each other. But the heavens are eternal: they must therefore be made of a different element. This argument can be found, in rather disguised form, in Aristotle's *On the Heavens* 1.3 (there is a very similar statement of it in *Meteorologica* 1.3). It is disguised in this sense. Aristotle first states the argument for the existence of what he calls 'the first body' from the need for a body endowed with natural circular motion. He then *deduces* that it must be ungenerated, indestructible, and unchangeable. His reasoning is that all generation takes place between opposites, opposites have opposed motions, and there is no opposite to circular motion (it is not clear why he dismisses the notion that clockwise has its opposite in anticlockwise—if we may use such modern terms). Hence, the body that moves in a circle is not liable to generation and destruction. He continues the chapter with some less technical thoughts about this element. These include the idea that 'according to the records handed down from generation to generation, we find no trace of change either in the whole of the outermost heaven or in any of its proper parts'. Moreover, he says, the name 'aether' was given to the first body 'by the ancients…choosing its title from the fact that it "runs *always*" *(aei thein)* and eternally' (270b13–24). It is not, in other words, *circular* motion that is the primary characteristic of this element, but *eternal* motion. These ideas at least produce the materials out of which the incorruptibility argument for the existence of the fifth body can be constructed, and the etymology suggests that in Aristotle's view this might have been the earliest argument for its existence.

There are indications that Aristotle rather tentatively gave a role to aether in the sublunary world as well as in the heavens. Cicero knew something to this effect, from his acquaintance with some of the works of Aristotle that are now lost:

> He [sc. Aristotle] thinks there is a certain fifth nature, of which mind is made; for thinking, foreseeing, learning, teaching, making a discovery, holding so much in the memory—all these and more, loving, hating, feeling pain and joy—such things as these, he believes, do not belong to any one of the four elements. He introduces a fifth kind, without a name, and thus calls the mind itself *'endelecheia',* using a new name—as it were, a certain continual, eternal motion.
>
> (Cicero *Tusculan Disputations* 1.10.22)

It is hardly likely that Aristotle *identified* the mind with aether, but it is possible that at some time he wrote of the soul, or some of its faculties, as being based in an element different from the usual four. There is some confirmation of this in his own more cautious words:

> Now it is true that the power of all kinds of soul seems to have a connexion with a matter different from and more divine than the so-called elements; but as one soul differs from another in honour and dishonour, so also the nature of the corresponding matter differs. All have in their semen that which causes it to be productive; I mean what is called vital heat. This is not fire or any such power, but it is the breath included in the semen and the foam-like, and the natural principle in breath, being analogous to the element of the stars.
>
> (Aristotle *Generation of Animals* 2.3, 736b29–737a1)

The evaluative strain in this quotation is significant. The extra element is called 'divine' and is associated with the ranking in 'honour' of the soul that is based on it—this refers, no doubt, to a *scala naturae* which puts man, the rational animal, at the top and grades the lower animals according to their faculties.[6] Aether is not merely the element endowed with the natural faculty of moving in a circle, which is the main emphasis in the *On the Heavens*. It is also eternal, and therefore divine, and free from the corruption of the earthly elements.

Aristotle was committed to a dualism as sharp as Plato's distinction between the intelligible and unchanging Forms and the perceptible and perishable material world. The heavens are the realm of a matter that moves eternally in circles, is incorruptible, unmixed, divine. With the possible limited exception of the material base of the animal soul, everything in the cosmos inside the sphere of the moon—the sublunary world—is made of different materials, all of them rectilinear and therefore finite in motion, perishable, liable to mixture and interchange among themselves. This was a dualism that lasted, notoriously, until the time of Galileo and Kepler, when the telescope revealed the moon to be not so very different from the earth, and the idea of circular motion at last released its powerful grip on the astronomers' imagination.

6
THE BORROWED ASTRONOMY

> Plato (said Sosigenes) set this problem for students of astronomy: 'By the assumption of what uniform and ordered motions can the phenomena concerning the motions of the planets be saved?'
>
> (Simplicius *De caelo* 488.21)

Aristotle followed Plato in analysing the motions of the heavenly bodies entirely into circles with the earth as centre. The motions of the 'fixed' stars, during the time they are visible at night to an observer on the earth, are arcs of circles, and they are assumed to complete their circular paths in

the daytime, when they are invisible. But the planetary bodies, including the sun and the moon, appear to 'wander' (in Greek, *planân*) with reference to the fixed stars in the course of a year. In fact, however, they do not *wander,* Plato had said; Aristotle agreed that their paths could be analysed as being circular, but adopted a much more complex account of the circles than Plato's.

The basis for his account of the heavens was the work of two contemporary astronomers: Eudoxus of Cnidos and Callippus of Cyzicus.[7] They worked out what was basically a geometrical model of the paths of the heavenly bodies. Aristotle added what he considered to be necessary for a physical model (to be described in the next section).

The essence of the geometrical model is as follows. The fixed stars are assumed to be set rigidly in the outermost sphere of the heavens, which turns at a constant speed about its north/south axis once a day. Inside the outermost sphere are seven sets of concentric spheres, one set for each of the five known planets and the sun and the moon. The innermost sphere of each set carries the planetary body on its equator (this applies to the geometrical account: the physical model is still more complex). The outermost sphere of each set moves on the same axis and with the same direction and speed as the sphere of the fixed stars. It carries with it the poles of a second sphere, concentric with the first, rotating about its own, different axis at its own constant speed. The axis of the second sphere is inclined to that of the first so that its equator, as it rotates, passes through the middle of the signs of the zodiac (i.e. along the ecliptic circle). The second sphere of each of the planetary bodies has the same orientation relative to the fixed stars and the same direction of rotation as each other; they differ in the time taken to complete a rotation.

But the planetary bodies are observed to deviate from regular motion on the ecliptic circle: they do not keep to the same path. To account for the differences, Eudoxus posited a third and fourth sphere for each planet, nested inside the first two, rotating on different axes and completing their rotation in different times. The planet is assumed to lie on the equator of the fourth, innermost sphere. The third and fourth spheres are so arranged that the planet follows a path (relative to the ecliptic) known as a 'hippopede' or 'horse-fetter', roughly equivalent to a figure 8.[8]

All that is visible to the observer, of course, is the light of the heavenly bodies: the spheres are invisible. The visible heavenly bodies themselves do not move at all; they are carried around by the motion of the sphere in which they are set.

The seven sets of spheres are nested inside each other, in the order Saturn, Jupiter, Mars, Venus, Mercury, sun, moon.[9] In Eudoxus' scheme, there are no eccentric spheres and no epicycles, as in later astronomical theories. Consequently it was assumed that all the heavenly bodies remain at a constant distance from the earth: it is a weakness in the system that it

has no way of explaining differences in the brightness of the planets at different times.

This, then, was the astronomical model taken over by Aristotle. He acknowledges his debt to the mathematicians, but there are numerous obscurities in his account which raise doubts about the depth of his understanding of contemporary astronomy.[10] What is clear is that he constructed a physical description of the heavens, in which the spheres were not geometrical postulates but material bodies, and the most important element in this body of theory is his examination of the causes of the motions of the spheres.

7
FROM ASTRONOMY TO PHYSICS AND THEOLOGY

The astronomical model, as we have seen, used the motion of the sphere of the fixed stars as the base on which the other motions were overlaid. For the construction of a physical theory, this created a difficulty concerning the motions of all the planetary bodies except the outermost one, since the sets of planetary spheres are implanted in each other. Jupiter's set, to take an example, is inside the set of Saturn's spheres. But in the astronomical model the motion of the innermost of Saturn's spheres—the sphere that carries Saturn on its equator—is obviously not identical with that of the sphere of fixed stars; its function is precisely to justify Saturn's deviation from that motion. To preserve the geometrician's scheme, however, Jupiter's outermost sphere must move with the motion of the fixed stars. Consequently the physical theory must return to this base, by interpolating a set of spheres whose motions *cancel out* the special motions of Saturn.

Let S^1, S^2, S^3, S^4 be the spheres that explain Saturn's motions; S^4 is the one that carries Saturn. Then Aristotle postulates, inside S^4, a sphere S^{-4}, which rotates on the same axis and at the same speed as S^4, but in the reverse direction. Its motion is thus identical with that of S^3. He postulates S^{-3}, and S^{-2}, in similar fashion. Now S^{-2} has the same motion as S^1—i.e. the motion of the fixed stars. The first of Jupiter's spheres, J^1, has its poles fixed inside the sphere S^{-2}.

For some reason, a *complete* set of spheres, starting from the motion of the fixed stars, is postulated for each planetary body. The point is this. The outermost sphere belonging to Jupiter, J^1, moves with the motion of the fixed stars. But so does its outer neighbour, S^{-2}. So one of these is redundant. The same applies to all of the inner planetary bodies. It is not clear why Aristotle did not economize in this way.

In fact, Aristotle took over Callippus' modifications of the Eudoxan system, and held to the thesis of a complete and separate set of spheres for each planetary body. They can be listed as follows (positive followed by counteracting spheres):

Saturn	4	+	3
Jupiter	4	+	3
Mars	5	+	4
Mercury	5	+	4
Venus	5	+	4
Sun	5	+	4
Moon	5		

No counteracting spheres are required for the moon, since there are no heavenly bodies beneath it; so the total is 55. It seems that the outermost sphere of Saturn is identical with the sphere of the fixed stars, which is not counted separately.[11]

But before leaving the subject of the heavens, we must raise the question that from some points of view appears to be the most important of all: what is the *cause* of the motion of the spheres? Since Aristotle concludes that circular motion is natural to the element of which the heavenly spheres are made, it might seem that there is no further cause to be specified: it might be the case that it is just a fact of nature that this element moves in circles, unless something prevents it, and the position of the poles of each sphere and their relation to each other determines what particular circular orbit is traced out by each particular bit of the aetherial element. Since in *On the Heavens* he attacks Plato's theory that the heavens are moved by their soul, and is silent (in general) about the existence of an external mover, it is tempting to think that in the period when that work was put together Aristotle held a mechanical theory of the motions of the heavens.[12] The whole system of cosmic motions, both in the heavens and in the sublunary world, might then be held to work on the same mechanical principle—the natural self-motion of the five elements. This would fit well enough with one interpretation of Aristotle's well known definition of 'nature', in *Physics* 2.1, as an internal principle of motion and rest.

But it can hardly be so simple. Change in general, including locomotion, is analysed by Aristotle as the actualization of a potency: he insists that there must be some kind of agent that is actual in the required sense, and something that is not yet but can become actual in this sense; and that these two must be distinct. They may be parts or aspects of the same substance, but they must be distinct from each other. The nearest to an example of a self-mover is an animal: what moves it is its soul, what is moved is its body. But he contrasts this example explicitly with the motions of the elements: the elements cannot be self-movers even in this sense, because if they were, they could (like animals) stop themselves as well as put themselves into motion.

Aristotle never makes it entirely clear what causes the natural fall of earth or the natural rise of fire; but in the last chapters of *Metaphysics* 12 (Lambda) he introduces the external mover of the heavenly spheres. God is

their mover, himself unmoved whether by himself or any other being. This Unmoved Mover is pure actuality, with no potentiality for internal change. As such, he is the guarantor of the eternity of the motions of the heavens.

In the relation between mover and moved, the motion is often brought about in some way that necessitates a motion performed by the *mover*. for example an artist or craftsman produces something out of the available materials by *doing* something to them. The prime example of a motion that is *not* brought about in this way is one that is caused by the thought and desire of the moved object—that is to say, when the moved object conceives of the actuality represented by the mover as good and consequently desirable. This is, remarkably, the model chosen by Aristotle for the motions of the heavens.

The model entails a degree of animism in his cosmology: the heavenly spheres, if they are to be capable of thought and desire, must possess souls. Aristotle presents his theology in a notably impressionistic way. It seems (in *Metaphysics* 12.8) that each of the fifty-five spheres must have its own mover; yet we are not told how such beings can be individuated, and in some of the few paragraphs devoted to this all-important topic it appears that a single unmoved mover is envisaged. At least it is clear that if there is a plurality it is an organized plurality: Aristotle ends the book with a quotation from Homer: 'The rule of many is not good: let there be one ruler.'[13]

Aristotle's cosmic deities are remarkably non-providential: their function in his system is to sustain the motions of the cosmos eternally. They have no hand in the creation of the cosmos, since it had no creation but has existed in its present form from all eternity; and they have apparently no thought for the welfare of any particular species or for the whole, except in so far as the eternal survival of the whole system and of all its natural kinds is a matter of concern.

In the surviving works of Aristotle there is astonishingly little on this subject, which one might have expected to be crucial. In the theological chapters of *Metaphysics* 12 (Lambda), he speaks of God in the singular, but introduces plural gods as movers of the spheres without clarifying the change from singular to plural. He describes the activity of the 'first mover' in strikingly reverential words:

> On such a principle, then, depend the heavens and the world of nature. And its life is such as the best which we enjoy, and enjoy but for a short time. For it is ever in this state (which we cannot be) since its actuality is also pleasure. And thought in itself deals with that which is best in itself.... If, then, God is always in that good state in which we sometimes are, this compels our wonder; and if in a better, this compels it yet more. And God is in a better state. And life also belongs to God; for the actuality of thought is life, and God is that actuality.
>
> (Aristotle *Metaphysics* 12.7, 1072b14–29, tr. Ross)

But the content of God's thought is never described, and remains a matter of controversy.[14]

8
MATTER AND ITS QUALITIES IN THE SUBLUNARY WORLD

At the end of the fourth century, Democritus put forward the theory of atoms. All of the 'being' in the universe, in his view, took the form of unbreakably solid pieces of matter, invisibly small individually but capable of combining temporarily into compounds large enough to be perceived. The only other item in the universe, endowed with a kind of being but sometimes also contrasted with atoms and characterized as 'not-being', was void space—itself absolutely without any properties except spatial extension. All the objects in the familiar world perceived by us were composed of atoms with some quantity of void interspersed between them. The perceptible qualities of things were explained as the outcome of the number and shapes of the component atoms, the quantity of void between them, and their motions in the void.

Plato, in his cosmological dialogue *Timaeus,* rejected this simple 'bottom up' type of explanation, although he did not entirely abandon the concept of atoms. In his theory, the beings primarily responsible for the characteristics of the physical world are the immaterial Forms, accessible to the mind rather than directly to the senses. Physical objects derive their properties from the Forms that they 'partake in' or 'imitate'. The properties of perceptible bodies are, however, related to the nature of the particles which they contain. Plato describes the mathematical structure of particles of the four traditional elements, earth, water, air, and fire. The quality of heat, for example, is related to the sharply angled pyramidal shape of particles of fire. But Plato's particle theory is different from Democritus' atomism in that his particles are not described as having solidity or resistance. They may be regarded as a conceptual analysis of the qualities associated with them, rather than as results of a breakdown of a compound into material components.

Aristotle's theory was in more complete contrast with Democritus than Plato's, in that he abandoned corpuscles altogether in favour of a continuous theory of matter. He himself analyses the argument which, he says, induced Democritus to introduce 'indivisible magnitudes' into his theory. It was a response to the paradoxes of the Eleatic Zeno, and went like this, in brief (*De gen. et corr.* 1.2, 316a11 ff.). Suppose that there are *no* indivisible magnitudes: then every magnitude would be divisible ad infinitum. Suppose such a division ad infinitum were completed: then one must be left either (a) with a collection of undivided magnitudes (which

contradicts the hypothesis that every magnitude is divisible), or (b) with a collection of parts with no magnitude (which could never be put together to make a magnitude), or (c) with nothing at all. Hence, Democritus concluded, there must be indivisible magnitudes. Aristotle's response was that every magnitude is indeed divisible every-where, but not everywhere *simultaneously*. Hence there are no indivisible magnitudes, but in dividing one never arrives at an infinite collection of simultaneous parts.

It would be a comparatively easy business to describe his theory if he had made it clear what exactly composes his continuum. Difficulties arise because he fails to make clear whether or not we are to consider the continuum as being composed of 'prime matter', without any qualities beyond those of three-dimensional spatial extension and resistance, or as being invariably endowed with further qualities.

There is no doubt that he adopted the four elements first clearly identified by Empedocles, and taken over by Plato: earth, water, air, and fire.[15] He rejected Plato's theory that the four differ from each other because of the mathematical shape of their particles: instead he allocated to each of them (in addition to natural motion, upwards or downwards) a pair of the primary qualities, hot, cold, dry, and wet. Thus earth is cold and dry, water cold and wet, air warm and wet, fire warm and dry. Unlike Empedocles, he held that that the elements change into each other by exchanging qualities. For example, evaporation is analysed as the replacement of water's coldness by warmth.

But water is not *simply* coldness and wetness: cold and wet are qualities that give form to a substratum: water is *something* that is cold and wet. The 'something' that underlies the qualities is barely described by Aristotle; hence there arises a controversy as to whether or not he had a conception of 'prime matter'. His theory of elementary change does not require a stage at which there exists prime matter without any qualities: what changes into air, to continue with the example of evaporation, is water, and it changes directly, with no intermediate stage. But each of the four elements has three-dimensional extension and resistance, and these properties remain in place (in some sense, if not exactly) when a given quantity of water changes into air. If that is enough to constitute a theory of prime matter, then it seems undeniable that Aristotle held such a theory. But his account of change requires that there never exists an instance of prime matter without qualities.

The four elements are given the familiar names of earth, water, air, and fire, but that is misleadingly simple. The element 'earth' gathers in everything that is solid, water everything that is fluid or pliable, air everything that is misty or gaseous. Fire is to some extent *sui generis,* and does not fit well into this scheme.

9
FOUR LEVELS OF MATERIAL BEING

1 The four elements ('primary bodies')
2 Homoiomerous bodies
3 Anhomoiomerous parts
4 Organisms

The main point of this classification is to distinguish (2) from (3), and the distinction depends on whether the part *(meros)* has the same name as the whole. If we take a part of a substance such as blood or bone or skin, each of them has the same name as the whole: a bit of bone is bone, and so on. At the next level, the same is not true: a bit of a hand is not a hand (nor 'hand'), nor a bit of a face a face (or 'face'). 'Anhomoiomerous' means 'having parts that are dissimilar'. The anhomoiomerous parts are made of the homoiomerous tissues: a hand is made of skin, bone, muscle, etc.
This distinction serves only to distinguish level (3) from (4), not (1) from (2). Earth, water, air, and fire are homoiomerous.

10
THE FORMATION OF COMPOUNDS

> Out of the elements, the tissues: out of these, as matter, the whole of nature's works. But though they are all out of these said elements as *matter,* in respect of their *real being* they are [determined] by their definition.
>
> This is always clearer in higher-level things, and in general in things that are for an end, like tools. It is clearer that a corpse is a man in name only; similarly, then, a dead man's hand, too, is a hand in name only…; such things are less clear in the case of flesh and bone, still less in fire and water, because the final cause is least clear here, where matter predominates.
>
> …Such parts, then [sc. the simpler elements of organic compounds], can come-to-be by heat and cold…. But the complex parts composed of these—for example head, hand, foot —no one would believe to be composed in this way. Though cold and heat and motion are causes of bronze and silver's coming-to-be, they are no longer the causes of a saw or a cup or a box.
>
> (Aristotle *Meteorologica* 4.12, excerpted)

Aristotle's anti-reductionist stance, in strong opposition to Democritus, is clearly announced in this last chapter of book 4 of his *Meteorologica* (which I take to be a genuine book serving as a bridge between his physical

and biological works).[16] He has given an account of the four simple bodies and their motions; he has shown how they combine to make the next layer of his hierarchy of materials—the 'tissues', or 'the homoiomerous bodies', to use his own technical term. But he wants to make it clear that this 'bottom-up'procedure is *not* the way to analyse the physical world. Material elements are the ingredients, but they do not make the natural compound. Empedocles and Democritus were wrong.

Much more important than the material cause is what he designates here as the *logos,* which I have translated 'definition' in the passage above. We shall examine this again in the next section: for the moment, two points must be made.

First, Aristotle's claim is that to know what a thing really is is not just to know what it is made of, by taking it to bits, so to speak, nor just to trace the motions that its ingredients performed in composing it, but rather to know something about it as a present whole. In the case of an artifact, we shall want to know what it is *for*, the final cause; in the case of a living thing, we shall want to know what it *does* so as to survive and reproduce. So we know about *this* object (for example a saw), not when we discover what are the shapes, numbers, and dispositions of its component atoms or other material ingredients (although we shall want to know *something* about its components), but rather when we see that it is to cut wood and understand how its components enable it to do that. We know about *this* object (for example a frog) when we see where and how it gets a living and understand how its parts enable it to live and to reproduce.

So much is an epistemological point: form, or definition (which puts form into words), takes priority over material ingredients for the purpose of knowledge. But this is true about knowledge just because the same priority operates in reality. Matter-in-motion, by itself, does not make a saw or a cup or a box, still less a head or a hand or a foot. The forms or kinds that exist in nature are the primary data. As causes of the production of individual members of species they take priority over the earth, water, air, and fire that are used in the production. It is form that dominates. *How* it dominates and operates as a cause is what we must examine.

Aristotle's theory of the roles of matter and form in the processes of nature bears a strong resemblance to Plato's distinction in the *Timaeus* between Necessity and Mind. It is true that Plato locates the operation of these two causes in the *creation* of the physical world by the Craftsman God, whereas Aristotle uses them to explain the continuous cycles of coming-to-be and passing-away. But the function of the two causes is very much the same in both theories. Plato's Craftsman copies the Forms in a material base; he makes the best possible copies, given the limitations imposed by the Necessity of the materials. In Aristotle's theory, it is the forms themselves, without the designing mind of a Craftsman God, that shape and guide the potentialities of the four simple bodies and the material compounds formed out of them. For Aristotle, the materials represent

Necessity in two guises. Materials with certain definite qualities are *necessitated* by the nature of the form they are to take on—a saw-blade must necessarily be of metal, not wood, and a bone must be made of something rigid, not liquid. They are also *necessitating,* in that they necessarily bring with them the whole set of their own properties, whether or not these are all necessitated by the forms. Thus the saw's metal is necessarily liable to rust as well as being capable of being sharpened, the bone is necessarily fragile as well as rigid, if it is not to be too ponderous.[17]

Aristotle's point against the Atomists is not that simple kinds of matter have no necessitating or causative properties, but that these properties *alone* cannot bring about the complex forms observed in nature. What they *can* bring about is described in the fourth book of *Meteorologica,* where he distinguishes four layers of complexity of natural objects, as we have seen. The point Aristotle makes in the quotation at the beginning of this section is that the necessitating properties of matter become less and less dominant with each step up through the layers. They have the greatest effect in the formation of the homoiomerous tissues from the elements. The active powers of heat and cold in the simple bodies work on the passive qualities of moisture and dryness to produce compounds that differ from each other by being, in different degrees, solidified, meltable, softenable by heat, softenable by water, flexible, squeezable, ductile, malleable, fissile, cuttable, viscous, compressible, combustible, and capable of giving off vapours (this is Aristotle's list, in *Meteorologica* 4.8, 385a12–19). The nature of the homoiomerous bodies is determined by these properties, together with the degree of heaviness or lightness imported by the proportions of each of the simple bodies in their composition.

Given the heating action of the sun, then, and the seasonal changes in that action brought about by the sun's motion in the ecliptic circle, we may believe that the continuum of the four simple bodies must be so stirred up into qualitative interaction that many varieties of compound bodies may be formed withot the intervention of other causes. Even at this level, Aristotle's theory is not reductionist: he did not hold that all these different qualities were 'nothing but' different degrees of hot, cold, dry, and wet, nor that the homoiomerous bodies are 'nothing but' earth, water, air, and fire in different proportions. They are all to be thought of as real features of the natural world, generated by the interactions of the simple bodies but not reducible to them.

But even at this level, the generation of the complex out of the relatively simple is rarely caused solely by matter in motion. Homoiomerous tissues like oakwood, fishskin or cowhide are plainly enough *not* brought into being by the action of the sun and the natural properties of the four simple bodies, and nothing else. Aristotle says no more than that the causative action of form is *less* obvious at the lower stages, not that it is entirely absent.

11
THE FOUR CAUSES

The four are listed in *Physics* 2.3:

> In one way, that out of which a thing comes to be and which persists, is called a cause, for example the bronze of a statue….
>
> In another way, the form or the archetype, i.e. the definition of the essence and its genera, are called causes….
>
> Again, the primary source of the change or rest….
>
> Again, in the sense of end or that for the sake of which a thing is done….

These are traditionally referred to as the material, formal, efficient, and final causes. 'The causes being four, it is the business of the student of nature to know about all of them, and if he refers his problems back to all of them, he will assign the "why?" in the way proper to his science' (*Physics* 2.7, 22–25). But there are reasons for being hesitant about the word 'cause' as a translation of Aristotle's *aition* or *aitia*. No single translation is adequate for all contexts—the bronze of which a statue is made, for instance, is not naturally called a 'cause' of the statue. The basic idea is to classify those items which are responsible for a thing's being what it is. Closest to the modern 'cause' is the third in Aristotle's list, the efficient cause—the sculptor, in the case of the statue. But the bronze of which it is made may well be cited as being responsible for some aspects of its nature; so also its form, and the end or purpose for which it was made.

In the last chapter of the *Meteorologica,* quoted at the beginning of the last section, Aristotle insists that it is inadequate to mention material constituents alone as responsible for the nature of the compound: in anything but the simplest objects in the world, form is of much greater importance. But form alone is still insufficient: it is necessary to specify whatever it is that is responsible for giving *this* form to *this* matter—the efficient cause. And in many cases, for a full explanation we need to know the goal or end served by the possessor of this form in this matter. This simple schema dominates Aristotle's studies of the natural world. It guides his inquiries, and gives shape to his presentation of the results.

12
ARISTOTLE'S ZOOLOGICAL WORKS

The major works are *Parts of Animals (PA), Generation of Animals (GA),* and *History of Animals.*

The first of these provides two introductions to zoological studies. *PA* 1. 5 is a fluently written and rather elementary 'protreptic', urging students not to be contemptuous of biology as opposed to 'higher' studies such as

metaphysics or astronomy, which deal with eternal rather than perishable things. In the realm of biology, we have the advantage of being closer to the subject matter, and are therefore better able to study it. Moreover, the philosophical mind will find great satisfaction in discovering and analysing the causes at work in plants and animals, where Nature offers much that is beautiful to the discriminating eye.

PA 1.1 is a discussion of causes, and above all a defence of the view that the final cause is most prominent in the works of nature. Lacking a theory of the evolution of species, Aristotle treats as the starting point for biology the form of the grown specimen—the adult horse or man, the full-grown oak tree. This is in opposition to those who started from the material elements—for example, Democritus. The first step is to understand the mode of life of the animal, and to observe what it needs for survival and for reproduction. These are the two essentials for understanding structure and behaviour. Each animal exists in a particular kind of environment, and the nature of the environment determines what will be good for the animal's survival and reproductive capacity. The student of nature, therefore, will observe the animal and its parts, and decide first what contribution each part makes to survival and reproductive capacity. This is the 'cause' *for the sake of which* the part exists and has the structure that it is observed to have. The student will understand the nature of the animal when these causes are understood.

Aristotle uses the word 'cause' *(aitia)* in its usual Greek sense, as that which is responsible for the phenomenon to be explained. But he does not mean to imply that the parts of animals are *caused to grow* (in our sense of 'caused') by capacities that lie in the future: the hooked beak of the (individual) hawk is not caused by its capacity, when grown, to tear up the flesh of its prey. The key to Aristotle's teleology, in the biological realm, is the identity of the form of the (male) parent and the offspring.[18] The parental hawk (to continue the example) survived to produce offspring just because its beak was of a kind well adapted to its mode of life; such a beak was an essential attribute of the form of the hawk; and this form is transmitted to the offspring. The final cause—that 'for the sake of which' the part of the creature exists—is thus subsumed into the efficient cause. The semen of the parent carries the form of the parent and transmits it, as efficient cause in the process of generation, to the offspring.

The mechanism by which this transmission of form is achieved is described in detail in *Generation of Animals*. Aristotle dismisses the theory that the semen is drawn from all the parts of the parent's body (pangenesis). That theory, which is set out in the surviving Hippocratic treatise *On Seed,* and was probably also defended by Democritus, was based on the resemblances of children to their parents. Aristotle argues that this proves too much or too little. Children resemble their parents in characteristics such as their manner of movement which is not determined by physical structure. Moreover children sometimes resemble grandparents

or other family members, rather than parents. His own theory depends on his metaphysical distinction between form and matter. The matter of the embryo is provided by the mother, the form by the father.

The semen carries in it the 'movements' that will cause the parts of the embryo to grow in the proper order and form. These movements are not simply instructions, nor an abstract design or formula: they are derived from the soul of the adult parent, and they are embodied in a material substance carried in the semen, called *pneuma*. *Pneuma,* is a concept that plays a large part in Greek physiology, from the earliest times, when it is equated more or less exactly with the breath of life. But Aristotle's use of the concept is ill defined. He speaks of the 'connate *pneuma*'; it is clearly necessary for life, and is especially associated with the faculties of soul such as sensation and movement. It carries also the idea of vital heat. But he does not give it the precise and detailed description that forms an important part of Stoic theory, and he does not explain its relation to the four material elements. There is a single mysterious hint (*GA* 2.3, 737a1, mentioned above, in section 5) that it is 'analogous to the element of the stars'.[19]

The *History of Animals,* in ten books, has sometimes been taken to attempt a classification of animals—not by the process of 'dichotomizing' (dividing genera progressively by two into narrower classes) practised by Plato but rejected by Aristotle—but by more complicated methods. Recent researches, however, have shown that that the motivation of these treatises is rather to examine the differentiae of animals (for example the shape and size of legs, the apparatus of the senses, the modes of protection) and to relate them to the needs of the animal to get food, to ward off predators, and to bring up the next generation.[20]

Aristotle uses the terms *genos* and *eidos,* which became the standard words for what later biologists denote by 'genus' and 'species'. But it is clear from examination of the texts that *genos* in Aristotle can denote classes of varying degrees of generality, and *eidos* is not always subordinate to *genos*. What Aristotle seeks to do is to identify the kinds of animals there are, as defined by their mode of life in their environment, and to present comparative studies of the structure and organization of their parts as they are adapted to their function. Hence the supreme importance of the final cause. The biologist above all seeks to explain the connection between each of the characteristic actions of each animal kind, and the structure of the parts of the body that enable the animal to perform these actions.

13
PSYCHE

Psyche is usually translated by the English word 'soul', and it is convenient to use the word in spite of its misleading modern connotations.[21] Aristotle treats *the psyche* as the defining principle of life: the four material elements

have no *psyche,* in spite of their natural tendency to seek for their natural place in the cosmos; compounds of the elements have no *psyche,* unless they possess at least the faculties of nutrition and reproduction. Aristotle constructs a *scala naturae* in which each higher step of the ladder is distinguished by the addition of further faculties of the soul. Plants and animals have the basic faculties of nutrition and reproduction; in addition to these, animals have sensation, although not all of them have all of the five senses; some animals, but not all of them, have also the capacity to move themselves; man has all of the animal faculties, with the addition of imagination *(phantasia)* and reason, which are also shared, in some small degree, by the higher animals.

There is thus an ascending order of plant and animal species to be found in the world. This is not, however, an order produced by evolutionary processes: on the contrary, all of the species now in existence have always existed, in Aristotle's view, and will continue to exist. We will discuss the relations between the species briefly in the next section.

It is, of course, a crucial ingredient of Aristotle's theory that the soul is not an entity separate from the body, nor indeed separable in any way except by abstraction in thought (there could be no transmigration of souls in his theory). The soul is 'the first actuality of a natural body that is possessed of organs' (*On the Soul* 2.1, 412b5). If a body is to have soul, it must have the organs that give it the potentiality of carrying out some of the functions of life. The soul is described as the *first* actuality because it is not necessary for the functions of the living body to be *in action* to qualify the body as 'ensouled'. The eyes of a corpse or a statue are not alive, but the eyes of a sleeper are alive although they are not seeing. The soul is a state of readiness, in bodily organs, to perform their function. It can thus be described as a second potentiality, as well as a first actuality.

The conception of an ascending order among living species, with the stages defined by the number and complexity of functions capable of being performed by the plant or animal, gives Aristotle the conceptual apparatus for working out a comprehensive classification of species. There is indeed some evidence that such a classification was a goal of his biological work, but it is not achieved in his surviving writings, where he is concerned above all, it appears, with understanding the differences between animals, and especially with putting the differences into relation with the organic parts.[22] It has been remarked, too, that many of the ingredients of a theory of evolution of species are foreshadowed in his theory, but he was firmly against such an idea, as we have observed.

This is not the place for a lengthy assessment of Aristotle's achievement in biology, but a few points may be mentioned. He was handicapped by his belief, inherited from some earlier physiologists (against the view of Plato), that the heart, rather than the brain, is the seat of the sensitive soul.[23] The nerves had not yet been identified as such, and the blood was taken to be the vehicle for the transmission of messages from sense organs to the centre

and vice versa. Blood was thought to be, or to contain, food for the tissues of the body—the circulation of the blood was not, of course, discovered for many centuries after Aristotle. He took respiration to be a way of moderating the natural heat of the body of animals with blood in their system, although he had a use for the concept of *pneuma*. or breath, which has been mentioned in section 5.

The *Generation of Animals* contains a detailed study of the reproduction of many species. Aristotle did not understand the contribution of the female of the species to the reproductive process: in his theory semen is the vehicle that conveys the formal structure of parent to offspring, while the female contributes only the material constituents of the embryo, and (in some species) a protective site for its development. But there are remarkable insights in his analysis of the function and structure of semen. It contains both the formal and the efficient cause of the offspring: it contains in potentiality the specific form and some, at least, of the individual characteristics that will be passed on from the parent, and it contains also the 'instructions' for the motions needed to embody these in the embryo. The transmission takes place not by some crude exchange of materials, but in the form of 'encoded' messages.

An odd feature of his 'embryology' is his continuing belief in the spontaneous generation of members of some species. Some creatures *(testacea)* originate from sea water; some plants (for example mistletoe) and animals (grubs) from putrefying matter. What is supplied from sources other than parents in these cases is *pneuma,* which is the material vehicle of life, and warmth. So much is perhaps not hard to understand: there is more difficulty in understanding how matter and warmth alone can supply the form, which in the case of sexual generation requires the subtle and complex contributions of the semen.[24]

14
THE UNITY OF THE COSMOS

Plato's cosmos, as described in the *Timaeus,* was itself an organism—a *zôon* or animal; Aristotle never talks of the whole cosmos in such terms. He does, however, in various ways and from time to time indicate clearly enough that he regards the cosmos as being appropriately named: the word carries with it the idea of good order.

> We must consider also in which of two ways the nature of the whole contains the good or the highest good, whether as something separate and by itself, or as the order *(taxis)* of the parts. Probably in both ways, as an army does. For the good is found both in the order and in the leader, and more in the latter; for he does not depend on the order but it depends on him. And all things are ordered together somehow, but not all alike—fishes and fowls and plants—and they

> are not so disposed that nothing has to do with another, but they are connected. For all are organised together with regard to a single thing. (Aristotle *Metaphysics* 12.10, 1075a11–19, tr. Ross, slightly adapted)

In the context it would seem that Aristotle draws an analogy between the commander of an army and the supreme deity in command of the cosmos—perhaps the mover of the sphere of the fixed stars, or perhaps 'the divine' in a collective sense, meaning all of the movers of the spheres. The good that they achieve is the eternity of the cosmic order. That is to say, they ensure directly the eternal continuity of the motions of all the heavenly spheres, and hence the eternal interchange between contraries in the sublunary world, and the eternal continuance of all living species.

Aristotle repeats one brief sentence many times, in various contexts: 'nature does nothing without purpose' (*matên*, sometimes translated 'randomly' or 'in vain'). This is a notoriously puzzling claim: there seems to be no room in Aristotle's theory for a single personified 'Nature', acting purposively like a rational being. Each natural thing has its own nature, and some of the effects of the nature of a thing are purposive only in a very loose sense, if at all. The sentence seems to be a summing up of the manner of biological processes; it does not carry us far towards an understanding of the order of the cosmos as a whole.

There is a striking statement in the *Politics:*

> The viviparous species have sustenance for their offspring inside themselves for a certain period, the substance called milk. So that clearly we must suppose that nature also provides for them in a similar way when grown up, and that plants exist for the sake of animals and the other animals for the good of man, the domestic species both for his service and for his food, and if not all at all events most of the wild ones for the sake of his food and of his supplies of other kinds, in order that they may furnish him both with clothing and with other appliances. If therefore nature makes nothing without purpose or in vain, it follows that nature has made all the animals for the sake of men.
>
> (Aristotle *Politics* 1.3, 1256b13 ff.)

This is a claim that sounds more like Stoicism than Aristotelianism. In the zoological treatises, animals are described in a more autonomous fashion; it is not asserted that the function of any characteristic of oxen, for instance, is to supply beef or leather. Man is indeed the 'highest' of the animals, because man shares the divine capability of reason. But the function of the parts of animals is not, apparently, to provide for man, but to provide for the continued life of their own species.

What Aristotle has in mind is that we can observe a 'rightness' in the constituents of the cosmos and their modes of behaviour. It manifests itself

in different ways. In the case of the elements, it consists in their natural motions—towards, away from, or around the centre. In the heavenly spheres, it consists in their positions and in the regularity of their motions. In the case of the sun, it shows itself in the daily and annual cycles of light and darkness, summer and winter, which have their effects on the mode of life and generation of biological species. The complement of these features of the cosmic spheres is that each species has its 'niche' in the world. The species did not in any sense *find* their niche, or grow to fill a previous vacancy: it just is (Aristotle thought) an observable fact that the physical cosmos provides variously characterized environments, and the living species have just those features that enable them to take advantage of them.

Aristotle thus differs both from Democritus and from Plato. He differs from Plato's *Timaeus,* as we have observed, in denying that the cosmos is the work of a purposive Creator. But he differs even more from Democritus, in denying that the world comes about through accident or material 'necessity'. The cosmos just is as it is. It is like a well disciplined army, commanded by a good and effective General who keeps his troops up to the mark in performing their various traditional tasks.

NOTES

1 See Barnes [1.28]; for more detailed discussion of *Posterior Analytics,* see chapter 2, below.
2 See section 12 for discussion of the translation of *aitia* as 'cause'.
3 On this subject, see especially Owen [1.72, §8].
4 This subject is continued in section 8.
5 One argument is derived from Plato's *Timaeus,* although it was in fact used neither by Plato nor by Aristotle, and those who use the argument do not, it seems, think of aether as the element of the heavens. The argument is that there are five regular solids, and so there should be a fifth element corresponding to the dodecahedron, which was assigned by Plato to the shape of 'the whole'. This argument is found in the pseudo-Platonic *Epinomis* (981b ff.) and apparently in Plato's sucessor Xenocrates (fr. 53 Heinze, from Simplicius).
6 See section 13.
7 Aristotle acknowledges his debt to these two in *Metaphysics* 12.8.
8 The third and fourth spheres enable the model to accommodate the retrogradation of planets. But Aristotle is quite vague about the details of these motions, being content, apparently, to leave them to the mathematicians.
9 Later Greek astronomers put Venus and Mercury between the moon and the sun.
10 For comparison of Aristotle's description with astronomical theory, see [1.63] Neugebauer, *History* Part II, pp. 675–89, with diagrams in Part III, pp. 1357–8.

11 At 1074a12–14, Aristotle says that if the extra spheres added by Callippus to the sun and the moon are removed, the total should be 47. But something has gone wrong with the text or the calculation. If Aristotle states the condition correctly, the number should be 49.

Another interesting puzzle about the numbers may be mentioned at this stage; it was first raised, so far as I know, by Norwood Russell Hanson [1.87]. It turns on the question whether the axis on which each sphere turns should be regarded as an *axle,* with a certain thickness in diameter, or as a geometrical line. If it is an axle, and is fixed at its ends in the surface of its outer neighbour, then when its poles coincide with those of the outer neighbour it should rotate along with that neighbour. Thus we have a problem at the junction between two planetary sets. To take the example used above, S^{-2}, which has the rotation of the fixed stars, must impart its own rotation to the *axle* of J^1, and since J^1 rotates about its own axle with the motion of the fixed stars, the sphere J^1 will be rotating with *twice* that rotation, i.e. in 12 hours. The first sphere of Mars will rotate in 6 hours, the first of Venus in 3 hours, and so on.

The solution to this is simply to treat the axis of each sphere as a geometric construction and its poles as dimensionless points. This is consistent with the physical nature of the spheres themselves, and abolishes the consequence of a double rotation. The points of contact do not *rotate,* although of course they are carried around with the surface in which they are located whenever they do not coincide with the poles of the superior sphere.

12 For a clear discussion of the problems about motion in *On the Heavens,* see the introduction to [1.14] Guthrie.

13 *Iliad* 2.204; *Metaphysics* 12.10, 1076a5. The problems connected with the unmoved mover or movers of the spheres has of course been very much discussed. Some notable examples: [1.8] Ross, pp. 94–102; [1.14] Guthrie, introduction; [1.85] Merlan.

14 See recent discussions in [1.86] Norman, [1.83] DeFilippo, and [1.74] Waterlow.

15 See section 4, above.

16 See the discussion of this book in [1.62] Furley, chapter 12. Its authenticity has been, and still is, doubted by some scholars.

17 See [1.80] Sorabji, and [1.77] Cooper.

18 This is well explained in [1.81] Woodfield.

19 The fullest account of *pneuma* is found in *De motu animalium.* See [1.9] Nussbaum, especially pp. 143–64.

20 See especially [1.18] Balme, Introduction to books 7–10, p.17; [1.90] Pellegrin, and [1.64] Lloyd ch.1 and ch.12.

21 See also chapter 3, below.

22 See [1.64] Lloyd, ch.1 and ch.12.

23 See below, chapter 10, for Galen's refutation of Aristotle's view.

24 There is a considerable recent literature on Aristotle's theory of spontaneous generation. See, for example, [1.89] Balme, and [1.90] Lennox.

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CHAPTER 2
Aristotle's logic and metaphysics

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PART 1: LOGICAL WORKS

OVERVIEW OF ARISTOTLE'S LOGIC

The Aristotelian logical works are referred to collectively using the Greek term *'Organon'*. This is a reflection of the idea that logic is a tool or instrument of, though not necessarily a proper part of, philosophy. In the traditional ordering of these works the *Categories* comes first. It deals, among other things, with the simple terms (subjects and predicates) that when combined go together to form simple statements, and it characterizes primary substances as the ultimate subjects for predication. It also contains a treatment of ten categories, with particular emphasis on the four categories of substance, quantity, relation and quality. The *De Interpretatione,* which is placed second, discusses the statements that result from combining nouns and verbs, and includes a treatment of various modal relations between statements. The main topic of the two *Analytics* is demonstration *(epideixis),* the type of valid deductive argument, or syllogism, *(sullogismos)* involved in scientific knowledge *(epistêmê)*. The *Prior Analytics,* which contains a formal theory of syllogistic reasoning, shows how statements combine to form arguments, and in the *Posterior Analytics* demonstrations are analyzed as explanatory syllogisms from first principles. This work combines the notion of syllogistic inference with an account of the nature of scientific first principles in its analysis of the structure of science. The *Topics* is chiefly concerned with dialectical debate, and the work *On Sophistical Refutations* contains a treatment of various kinds of fallacies in dialectical argument. At the conclusion of this work Aristotle indicates that unlike his other inquiries, such as his treatment of rhetoric, that build upon the results of his predecessors, prior to his own efforts there simply was no general inquiry concerning syllogistic reasoning. The *Rhetoric,* not itself included in the *Organon,* is

concerned with the use of rhetorical argumentation for the purpose of persuading an audience.

PREDICATION, AND SUBSTANCE AS SUBJECT

Predication

In the *Categories* (using terminology not employed for this purpose outside that work) predication is characterized in terms of the two relations 'said of a subject' and 'present in a subject'. The relata are 'things that are' *(onta),* and this type of predication may be dubbed 'ontological'. Although the verb translated 'to be predicated' *(katêgoreisthai)* is used extensively outside the *Categories,* the way in which the phrases 'said of' and 'present in' are used here is idiosyncratic to this work. Due to the way it is connected with the notion of definition, it is convenient to describe the relation 'being said of a subject' as *essential* predication. Essential predications say what a subject is intrinsically, or *per se*.[1] By way of contrast, the relation 'being present in a subject', which in the *Categories* covers all types of predication other than essential predication, is *accidental* predication.[2]

Although these two relations are taken as primitives in the *Categories,* remarks there provide a partial characterization.[3] The 'said of' relation is transitive, and as will be seen below, is connected with definition in a way that the 'present in' relation is not. Given that *man* is predicable of Socrates, anything predicable of man, for instance, is thereby predicable of Socrates. The definition of the species man applies to him as well. The class of things 'present in a subject' are described as being present not in the way that a part is present in a whole, and as incapable of existing separately from some subject that they are in. These two types of ontological predicability help account for linguistic predicability (the application of a linguistic predicate to a subject). A simple subject-predicate sentence is used to make a simple affirmative statement in which one item is predicated of another, usually distinct, item. The linguistic predicates 'man' and 'grammarian' are applicable to some subject just in case the species man and grammatical knowledge, respectively, are ontologically predicable of that subject.

The notion of predication is employed in *De Interpretatione* 7 to distinguish particulars from universals. A 'universal' *(katholou)* is an item of such a nature as to be predicable of a plurality of things; a 'particular' *(kath' hekaston)* is an item that cannot be predicated, either essentially or accidentally, of a plurality. Aristotle sometimes uses the term 'individual' *(atomon)* for items not essentially predicable of other things (thus leaving it open whether an individual is accidentally predicable of something distinct from itself).

The *Categories* distinguishes between the simple linguistic expressions (things spoken of without combination) of which statements are composed, and the entities those expressions signify. The name 'man', for instance, and the verb 'runs' are simple significant expressions that combine to form the declarative subject-predicate sentence 'Man runs'. Although when used without combination, neither of these words has a truth-value, they may be combined to form a statement that is either true or false. The word 'man' signifies man, the word 'runs' signifies the activity of running, and one uses the sentence 'Man runs' to truly affirm some predicable (namely, *running*) of some subject (namely, *man*). The word 'man', which may serve as either a subject or a predicate expression, signifies a substance,[4] for it signifies the species man, and that is a substance. There are also particular substances, like Socrates, which are the signification of names that function as grammatical subjects, but never as grammatical predicates. The particular itself is always an ontological subject, and never a predicable.

According to *Categories* 4 the ten kinds of things that are signified by simple expressions are: substances, quantities, qualities, relatives, places, times, positions, states, doings and undergoings. Although Aristotle does not himself explain the rationale for this list, it is a classification of the kinds of things that could be said of something in response to a question asked about it. When we say of some particular substance what it is, as when we say of Socrates that he is a man, the simple expression (here 'man') signifies a substance. However, in addition to predicates offered in response to the question (1) 'What is it?' when asked of a particular substance, there are other kinds of linguistic terms that are given in response to other kinds of questions. For instance, we may ask of something (2) 'How large is it?' and elicit a reply such as 'six feet'. In a like manner each of the other entries on this list classifies a kind of answer to some other kind of question: (3) 'What is it like?' (to which we might answer 'pale'); (4) 'What is it in relation to something?' (A double, a half); (5) 'Where is it?' (in the Lyceum); (6) 'When was it?' (yesterday, last year); (7) 'What position is it in?' (lying down, or sitting); (8) 'What state is it in?' (armed); (9) 'What is it doing?' (cutting); or (10) 'What is being done to it?' (being cut). Just as questions such as 'What is Socrates?' and 'What is Bucephalus?' collect predicate expressions such as 'man', 'horse' and 'animal' that signify substances, these other nine questions collect predicate expressions that signify other kinds of predicables.

The ten kinds of things signified by these kinds of expressions are standardly referred to as the Aristotelian categories. Aristotle frequently uses the Greek word *'katêgoria'* to mean 'predicate', or 'kind of predicate'. When the term is used in this sense, particular substances are not themselves in the 'category' of substance (since they are always subjects and never predicates). Elsewhere when Aristotle makes use of a classification of 'categories', this full list of ten does not appear.[5] For instance, *Metaphysics*

Delta 7 correlates the various *per se* senses of 'to be' with an eight-fold categorial schema of the sort suggested by this list.

A subject's essential predicates are those that signify *what it is*. The subject is called what it is synonymously from such predicates. In the first chapter of the *Categories*, two things are *homonyms* just in case, although there is a term that applies to both, the definitions associated with the two applications are distinct; two things are *synonyms* just in case the same term applies to both, and the associated definition is the same as well. Some universal X is said of some subject Y if, and only if, both the name and the definition of X truly apply to Y. For this reason whenever a universal is said of a subject, the universal and its subject are 'synonyms'. The word 'man', for instance, is applicable to the particular man because the universal it signifies, the species man, is predicable of him. However, not only does the name of the species apply, its definition applies as well. The definition of man is an account saying what man is, and the definition that applies to Socrates is the definition of the species man. Assuming for illustrative purposes that the account that defines man is 'biped animal', it is true that whatever is a man must be a biped animal. The definition of the species man applies to particular men, and the species is predicated essentially of those particulars. The defining expression that signifies the essence of a particular just is the definition of its species.

In the *Organon* universals, not sensible particulars, are the objects of definition. The definition appropriate for a particular is the definition of the species to which it belongs. In order for a particular to be a logical subject, or subject of predication at all, it must be something essentially. The species to which a particular belongs, although not identical with the particular, is what the particular essentially is. It is the definable something the particular must be essentially if it is to be anything at all.

Not only substantial universals, but any object of definition whatsoever is a subject for essential predication. The color white, for instance, is a color, and hence color is predicable of white. Substances and non-substances alike may possess definitions, and hence be endowed with essential natures. In addition to the names of substantial universals, there are also names of the universals that are accidentally predicable of substances. Although, in some cases, the name of a non-substantial universal (the name 'white', for instance) applies to the substances to which the universal is present, in general not the name itself, but rather some linguistic predicate associated with the name, is applicable to all and only those things having the universal as an accidental property. Socrates is called 'brave', not 'bravery'. Despite this, the definition of any universal X that is accidentally predicable of a subject Y can never be truly applied to Y. Although the name 'white' applies to white particulars in virtue of the fact that they all have the color white, the definition of that color is not linguistically predicable of any of them. They are not called white in virtue of what they are.

If a non-substantial property is present in a subject, then (in general) its name does not apply to that subject, but there will be some associated expression that differs in ending, which is applicable to the subject. In such cases the subject is called what it is called *paronymously* from that property. Although the noun 'bravery' cannot be truly predicated of Socrates, the adjective 'brave' is applicable to Socrates because bravery is present to him. The brave thing is a paronym.

Substance as subject

Translators of Aristotle's Greek typically render the abstract substantive '*ousia*' as 'substance',[6] suggesting the idea that substances are the subjects of predication. In the *Categories* all beings except for primary substances are predicable (either essentially or accidentally) of primary substances. On the other hand, a primary substance is a primary substance because it is a subject *(hupukeimenon)* for the other things, but is not itself predicable of anything further. Each primary substance is an individual subject of predication that is not itself predicable of a substance, and as such is 'some this' *(tode ti)*.

In this treatise all primary substances are particulars—the particular man, the particular horse, and so on. Aristotle here treats individual men, horses, and the like as primary substances. In the *Metaphysics* he also considers the claims of their matter and form to be substance, but in this work the individual is not subjected to the hylomorphic analysis found both in his natural science and the *Metaphysics*. There is no discussion in the *Organon* of matter, nor of the relations between the individual man, his body and his form (or soul).

In the *Categories* primary substances are particulars, and their natural kinds (i.e., their species and genera) are universals. These natural kinds are called 'secondary substances', and are the only substances other than the primary substances. The only universals in the *Categories* are (1) secondary substances, (2) their differentiae, and (3) the various quantities, qualities, and other non-substantial items that are had by the substances.[7] Some linguistic predicates, such as 'man', signify universals that are essentially predicable of all the substantial particulars of which they are predicable. These terms classify particulars according to their natural kinds.

In addition to its distinction between primary and secondary substance, with the attendant designation of the primary substances as the subjects for everything else, the *Categories* also lists a number of the distinctive characteristics *(idia)* of substances, quantities, relatives and qualities. For instance, substances do not have contraries, nor do they admit of degrees. Most importantly, anything that can persist through time as numerically one and the same while receiving contrary properties must be a primary substance. One and the same individual man can be pale at one time, dark at another; hot at one time, cold at another; bad at one time, good at

another. In this way the ultimate subjects of predication are treated as the persisting subjects for accidental change.

THE STRUCTURE OF SCIENTIFIC KNOWLEDGE

Syllogistic

The theory of syllogistic reasoning in the *Prior Analytics* concerns the relation between the premises and the conclusion of a syllogism. The conclusion *follows of necessity from* the premises. In his account of this relation he appeals to characteristics of arguments that abstract from the content of the statements involved. He identifies a few obvious (perfect) cases of this relation, and then shows that all non-obvious (imperfect) cases can be reduced to the obvious.

The notion of syllogistic inference is utilized both in Aristotle's analysis of scientific reasoning and in his treatment of dialectical argument. A scientific demonstration is a syllogism that proves its conclusion by showing how it necessarily follows from its explanatory principles. Knowing scientifically requires this kind of argument from indemonstrable starting points. Reasoning from necessarily true explanatory principles to necessarily true scientific conclusions takes place in a variety of sciences that do not share a common genus or kind. This is why a general account of this relation must abstract from the particular content of the statements of any given science. In this sense his theory is sometimes described as 'formal'.

In a similar manner, the logical expertise exemplified by a dialectician in two person question-answer exchanges involves the production of valid inferences, and this ability is not confined to a single domain. In the first book of the *Topics* dialectical skill is characterized as the ability both to reason syllogistically from credible opinions *(endoxa)* to conclusions that necessarily follow from them, and to avoid being refuted by one's own concessions in argument. Dialectic is useful for intellectual training, for persuading a general audience and for philosophical knowledge. It enables one to develop and examine the arguments on both sides of philosophical puzzles *(aporiai),* thereby facilitating the discernment of truth. Furthermore, the dialectical scrutiny of credible opinions provides a path that leads to the first principles of the sciences. Unlike scientific arguments which argue from first principles and are concerned with items within a single subject genus, dialectical argument is possible concerning any subject matter whatsoever, and in this sense is topic neutral. Hence a general account of the way in which a dialectician shows that credible opinions and an interlocutor's concessions necessitate further conclusions requires abstraction from subject matter. In dialectical argument one asks questions, and produces syllogisms using the answers as premises. However, since such arguments do not reason from explanatory premises

already known by the respondent, they do not result in knowledge. Although credible opinions, which can include commonly accepted views as well as the opinions of the wise, must not be obvious falsehoods, they may in fact be false, and certainly need not be explanatory first principles. Reasoning from them is in any case no guarantee that the conclusions reached are true, and even where the premises are true, they (typically) do not explain the truth of the conclusion.[8]

In the first chapter of the *Prior Analytics* Aristotle informally characterizes a syllogism as an account[9] in which certain things being posited, something other than what has been posited follows of necessity in virtue of the former's being the case. He further explains that 'in virtue of their being the case' means 'resulting through them', and that this involves not needing any term outside of those in the premises for the generation of the necessity. A syllogism is a case of a valid argument in which the conclusion follows of necessity from the premises, and does so in virtue of the way subject and predicate terms are combined. The heart of his syllogistic is a general characterization of those valid arguments that contain a pair of simple statements as premises, have a simple statement as conclusion, and involve just three terms: major, middle, minor. In aid of generality, actual Greek terms (like 'animal' or 'pale') are replaced by Greek letters (like 'A' and 'B') used as schematic letters. The forms of the four basic types of statements (the 'assertoric' propositional forms) are characterized in terms of their quantity and quality, and his three syllogistic 'figures' are characterized by reference to the order of the major, middle and minor terms of an argument.[10] In addition, Aristotle presents a number of rules of conversion. He identifies within the three 'figures' the syllogisms, or valid arguments, and believes that every scientific demonstration and every syllogism in the informal sense can be captured by a string of two premise syllogisms from these figures (and ultimately from the first figure).

Although the *Prior Analytics* does not explicitly refer to the *De Interpretatione,* its account of syllogistic inference builds upon ideas about statements that can be found in the latter. There both designating terms and verbs are said to have a signification on their own (though not a truth-value). They can, however, be combined to form simple sentences.[11] A statement *(apophansis)* is a sentence that is capable of either truth or falsehood. The *Organon* has no further discussion of sentences that lack a truth-value (such as prayers), and leaves them as a topic of discussion for rhetoric and poetics. Every simple statement is either an affirmation *(kataphasis)* or a denial *(apophasis)* An affirmation affirms some predicate of a subject, whereas a denial denies some predicate of a subject.

Both particulars and universals may serve as the subjects of a statement, but the predicate of a statement is always universal. Where both the subject and the predicate are universals, one may further specify whether the affirmation or denial is of the subject taken as a whole, or merely as a

part. The statement that 'every animal is pale' affirms *pale* of its subject, *animal*, as a whole. Such a statement is called 'universal' in quantity. By way of contrast, 'some animal is pale' affirms *pale* of only a part of its subject. Such a statement is called 'particular' in quantity.[12] One may specify in terms of their quantity (universal or particular) and quality (affirmative or negative) the four so-called assertoric categorical propositional forms employed in Aristotle's syllogistic: universal affirmative, or A propositions (for example, every man is mortal); universal negative, or E propositions (for example, no man is mortal); particular affirmative, or I propositions (for example, some man is mortal); and particular negative, or O propositions (for example, some man is not mortal).[13] Aristotle tried to show that all valid arguments could be put into syllogisms constructed of premises and conclusions of these forms. However, his account does not give axioms or rules for the propositional connectives, or statements containing either nested quantification or relational predicates. This drastically limits its scope of application. An additional problem results from the fact that use of a categorical statement in a syllogism presupposes that its terms have instances. (For instance, if it is true that all men are mortal, it is also true that some men are mortal.)

There are logical relations that obtain between the different propositional forms. Consider four propositions, or statements, sharing the same subject and predicate but each exemplifying a different propositional form. The A and O propositions are *contradictories,*[14] as are the E and the I; the A and E are *contraries;* [15] I is the *subalternate* of A, and O the *subalternate* of E.[16] The *Prior Analytics* captures some further basic relations between the propositional forms by means of the following three conversion rules:

C1 if every S is P, some P is S
C2 if some S is P, some P is S
C3 if no S is P, no P is S

These are not themselves syllogisms, and function in effect as rules for valid arguments having a single assertoric premise and a single assertoric conclusion.

The syllogisms given formal treatment in this account consist of two premises and a conclusion, and each has both a *figure* and a *mood.* Statements are composed of terms, and the notion of *figure* is characterized by specifying the relationships between the terms occurring in the premises and the conclusions. The two *extreme terms* are the subject and the predicate of the conclusion, the *major term* being the predicate of the conclusion, the *minor term* being its subject. The *middle term* is the one that occurs in both premises, but not in the conclusion. The *major premise* is the premise containing the major term, and the *minor premise* is the premise containing the minor term. An argument is in the *first figure* if the major term is the predicate of the major premise, and the minor term is the

subject of the minor premise. In such cases the middle term is the subject of the major premise, and the predicate of the minor premise. An argument is in the *second figure* when the middle term is the predicate of both premises, and in the *third figure* when the middle term is the subject of both premises.

The syllogisms, or valid arguments within the three figures may be specified in terms of their *mood,* where the mood of a syllogism can be represented as a trio of propositional forms: the form of the major premise, the minor premise and the conclusion (in that order). *Prior Analytics* A4–6 states all the valid and invalid moods of the three figures. The valid moods of the first figure are AAA, EAE, AII, EIO (plus the subaltern moods AAI, EAO).[17] Invalid moods are shown to be such by producing counterexamples—that is, instances of a figure and mood combination in which the premises can be true, and the conclusion false.

Having specified the syllogisms of the first three figures, Aristotle reduces the so-called 'imperfect' syllogisms of the second and third figure to the 'perfect' syllogisms of the first figure. The perfect syllogisms of the first figure are basic cases in which nothing other than the premises themselves are needed in order for it to be evident that the conclusion follows of necessity from the premises. Although in an imperfect syllogism the conclusion does necessarily follow, in order to make this evident one must do more than simply present the premises. The reduction shows that a valid argument that uses second or third figure resources to derive a conclusion can be replaced by valid reasoning that derives the same conclusion from the same premises relying upon only the obvious inferences of the first figure, together with the conversion rules.[18] In some cases a direct reduction utilizing conversion is possible, but where this is not possible (second figure AOO and third figure OAO), he resorts to *reductio ad absurdum.*[19] A *reductio* argument shows that the premises have a certain syllogistic consequence by producing a direct deduction of the contradictory of one premise from the other premise taken together with the contradictory of the conclusion.

Demonstration and first principles

For Aristotle the universe can be rendered intelligible, or understood, by humans. *Metaphysics* Epsilon 1 divides all knowledge into the theoretical, the practical and the productive. Whereas the goal of a productive science is always some product distinct from the exercise of the science itself (such as a shoe, a statue or health), and the goal of practical knowledge consists of the activities of life, theoretical knowledge is an understanding of the truth merely for its own sake. Theoretical knowledge itself is divided into the mathematical sciences, the natural or physical sciences and theology. The practitioner of a theoretical science knows, or understands, something by grasping its 'why' or 'cause'. Knowledge is attained when something is

explained by means of starting points or principles *(archai)* that are even better known than what is explained.

The account in the *Posterior Analytics* of the structure of a demonstrative science is both patterned after and inspired by the way in which the Ancient Greek mathematical sciences, especially geometry, had developed in the direction of axiomatization. Ideally, the premises of a mathematical proof both *necessitate* the conclusion, and *explain* why it is true. It is with this ideal in mind that he says in *Posterior Analytics* A2 that we think that we have knowledge or understanding (in the unqualified sense) whenever we suppose both (1) that we know its 'cause' (the reason it is the case), and (2) that it could not possibly be otherwise. The word 'cause' is used here to translate the Greek term *'aitia'*, but it should be stressed that the range of applicability of the Greek term overlaps with, but is not coextensive with that of our word 'cause'. Anything that can be explained has an *aitia*, regardless of whether it is the type of thing that we would ordinarily describe as 'caused'. For instance, the premises of a mathematical proof, although not causes, nonetheless explain the truth of the conclusion, and may reasonably be said to be responsible for it. The *aitia* of something is what is responsible for its being a certain way, and as such is an explanatory factor the grasp of which constitutes knowing why something is the case. What is known in the unqualified sense of that term must be a necessary truth.

Building on his key insight that knowledge requires both an understanding of 'causes' and the necessity of what is known, the treatise goes on to discuss the different kinds of first principles, and how they are related to theorems. The necessary truths that constitute the body of a demonstrative science are exhaustively partitioned into indemonstrable first principles, and their demonstrable consequences. The former are understood through themselves. Their consequences, the theorems, are known or understood only through their 'causes' and principles. Our knowledge of the latter is demonstrative in that such knowledge involves deducing them from first principles that explain why they are the case.

Posterior Analytics A2 states that the principles must be true, primary, immediate, better known than, prior to and explanatory of those things of which they are the principles. Since a first principle is known through itself, and not through other things, there is no explanation as to why the principle is true. It is not explained or 'caused' by anything, and hence it cannot be known by tracing it back to causes. A first principle is indemonstrable, for it is both primary and immediate. To be immediate, it must be primary in the sense that there is nothing prior to it in terms of which it is understood or known. If it is a statement (such as a definition) with both a subject and a predicate, there is no middle term that explains or mediates the connection between its subject and its predicate. A first principle cannot itself be explained by deducing it from prior principles or causes, and in this way is indemonstrable.[20] The other necessary truths of a

science are explained or 'caused' by something other than themselves. They are known by tracing them back to principles, and 'causes' that are known through themselves. Such theorems are known only when one understands why they must be true. Theorems are known by deducing them from necessarily true first principles that are their 'causes', and the first principles must themselves be known independently of, and prior to demonstration. Demonstration itself is a scientific syllogism, a syllogism by virtue of which we know.

Aristotle thinks that all knowledge comes from pre-existing knowledge. In the case of knowledge of theorems, the pre-existing knowledge is the knowledge of the principles. However, since the first principles are better known than the conclusions of any demonstrative argument, although knowledge of them also comes from pre-existing knowledge, they must come to be known in some way other than demonstration. In connection with this topic Aristotle draws a distinction between what is known to us and what is known without qualification. What is known to us, prior to knowing first principles, is what we know through sense perception. This is not scientific knowledge, or knowledge without qualification. Our task is to move from what is known to us to knowledge of what is most knowable without qualification. These are the intelligible principles that will in turn explain and account for the original sensible phenomena from which we started. In the last chapter of the *Posterior Analytics,* B19, Aristotle explains that we come to know first principles through induction *(epagogê),* an argumentative procedure that proceeds to a generalization from some group of its instances. Aristotle is aware that such inferences are not deductively valid, and unfortunately does not develop a set of rules governing such inferences. Consequently, details of his views about this procedure cannot be described with confidence. What he does say indicates that induction is supposed to be the means by which an inquirer advances from what is initially knowable (to that individual) to what is knowable without qualification. In B19 it is said that *knowledge* of first principles is based on *experience,* that experience in turn is based on numerous *memories,* and finally that memories themselves result from numerous and repeated *perceptions,* All animals, ourselves included, have natural discriminative perceptual capacities. Perception provides the ultimate inductive basis for knowledge of first principles. The epistemic state the exercise of which constitutes knowledge of principles is called *'nous'*, or intelligence. Very little is said about it here, and when it is discussed elsewhere, in *De Anima* Gamma 4 and 5, the text is highly controversial and notoriously difficult.

Each demonstrative science has both a kind term that demarcates its subject matter and a set of attributes that it studies. *Posterior Analytics* A7 and A10 show that a demonstrative science makes use of first principles in order to prove its conclusions about those objects that are encompassed by the general kind that it studies. Such demonstrated conclusions ascribe

to these objects those properties that pertain to them *intrinsically*. A science studies items mentioned in the definitions of those things falling within the scope of its subject genus, as well as those definable things themselves, and their demonstrable attributes. These additional items are properties, or 'modifications' *(pathê)* either of the things within the scope of the genus, or of the genus itself. They are not included in the definitions of the subjects that possess them, and consequently demonstrations must be given to show that they belong to their subjects intrinsically. Geometry studies figures, and seeks causes and principles that govern each kind of figure *qua* that kind of figure. An example would be the proof of the theorem that the angles of a triangle equal two right angles. In general, the geometer appeals to first principles to explain what belongs to various kinds of figures insofar as, and because, they are figures.

Aristotle put forward his account of scientific knowledge in opposition to the Platonic conception of a general dialectical science of being. Whereas Platonic dialectic purported to yield scientific understanding of the principles of the departmental sciences, Aristotle's rival account was designed to uphold the independence or autonomy of the departmental sciences. The statements within such a science include propositional first principles as well as the theorems in which the 'modifications' of various types of figures are demonstrated.[21] Aristotle divided the first principles of a science into axioms and theses, and divided the latter into hypotheses and definitions. Whereas the definition of X is an account signifying what X is, a hypothesis is an existence postulate that states of what is defined *that* it is. The definitions and hypotheses of a science are employed only in that branch of knowledge, and being first principles are not demonstrated by some other science. A definition is immediate in the sense that the predicate of a definition signifies just what the subject is, and hence the connection between subject and predicate is not explicable by reference to a middle term.

By way of contrast with theses, the axioms are common to all sciences. Aristotle describes axioms as the principles from which reasoning arises, and as such they must be known in order to learn or scientifically understand anything at all. The two most important examples of axioms are the law of non-contradiction, and the law of the excluded middle (the principle that there cannot be an intermediate between contradictories). The axioms are common to all of the sciences, and knowledge of the axioms is common to all scientific understanders. This is relevant to Aristotle's conception of metaphysics as general ontology, a science which among other things investigates the axioms (for which see pp. 60–1).

A science does not study just any attribute that might happen to belong to its subject matter, for there is no science of the accidental. In order to determine which statements, terms and first principles are appropriate for a given science with a given subject matter, one must specify the *respect* in which the science in question studies the application of the various terms to

the subject it studies. For instance, the biologist does not study all the properties of living things, but only those that apply to them in respect of being living beings. Biology studies both the definitions of each species of living things and the properties that belong to each species *per se,* or intrinsically.

A science studies what must belong to a subject in some respect, and in so doing investigates what belongs to it intrinsically, or *per se*.[22] *Posterior Analytics* A4 distinguishes the following three distinct ways in which something can belong to a subject *per se*. First, if something is in the account saying what some subject is (i.e., in the definition of the subject) it belongs to that thing *per se*. It is in this way that both biped and animal belong to the species man intrinsically$_1$. In a second way something belongs to a subject intrinsically if that item is such that the subject in question is in its definition. It is in this way that 'male' and 'female' hold good of animal intrinsically$_2$. Finally, in still another way, an item is said to belong to a subject in respect of itself if that item belongs to the subject because of, or on account of the subject. In this third way, 'being-receptive-of-grammar' belongs to man intrinsically$_3$; 'having-interior-angles-equal-to-two-right-angles' belongs to triangle intrinsically$_3$. What does not belong to a subject intrinsically, or intrinsically$_2$ is sometimes called by Aristotle 'accidental'. Consequently, items that intrinsically belong to something in this third way are sometimes called *per se,* or intrinsic accidents. He also distinguishes things that are beings intrinsically from things that are beings accidentally. Something is a being intrinsically, or *per se,* just in case it is not called what it is called through being something else that happens to be that. By way of contrast, a pale thing, or a cultured thing, is a being accidentally since it is called what it is called (namely 'pale' or 'cultured') through being something else, a man, that happens to be called 'pale' or 'cultured'.

The first sense of 'intrinsic', or *per se,* is the most basic of all, and because of its connection with definition can be used to characterize the notion of essence. The essence of each thing is what it is said to be intrinsically$_1$, and it is essentially predicable of that of which it is the essence. *Topics* A5 states that a definition (*horos* or *horismos*) is an account *(logos)* signifying the essence of that thing. (Rather than using a single word to mean essence here, he employs a phrase that corresponds to the English 'what it is (for it) to be' *(to ti ên einai)*. The essence of something is the entity signified by the entire account saying what it is. Although he argues that the Platonic method of collection and division cannot demonstrate a definition, the influence of that method can be seen in Aristotle's own conception of definition as a complex expression that mentions both the *genus* to which the item belongs and the *differentiae* that distinguish it from other coordinate members of that genus.

A definition is an account signifying an essence. An account signifying what something is signifies its essence, and the definition of something is the account that says what it is.[23] If the definition of man is 'biped animal',

then biped animal is the essence of man. Just as the word 'man' signifies the species man, the definition of man signifies the essence of man. To predicate an essence of that of which it is the essence one may linguistically predicate the appropriate associated defining expression, thereby saying what that thing is. A definable item is one and the same as the essence signified by its definition. Whenever some universal is defined, the subject of the definition is the same as the essence signified by the definiens. Thus if man is correctly defined as 'biped animal', then the species man and the essence signified by the phrase 'biped animal' are the same thing.

For this reason definitions are immediate principles. The statement of essence says what a thing is intrinsically$_1$, and is even better known than any theorem, but its truth is not demonstrated by any argumentative procedure. His account of the nature of a deductive science is built around this idea of indemonstrable statements of essence. Scientists know things by knowing their essences. The essences signified by real definitions function as middle terms in scientific demonstrations. They are the 'causes' that explain the intrinsic connection between subject and predicate in a scientific theorem.

PART 2: METAPHYSICS

OVERVIEW OF ARISTOTLE'S *METAPHYSICS*

There is disagreement as to how much of the collection of fourteen treatises called the *Metaphysics* was originally intended to be part of a single work, but it is generally agreed that their final organization is not due to Aristotle. By the first century BC an Aristotelian corpus was organized following the Stoic division of philosophy into logic, natural science and ethics. The topics investigated in the *Metaphysics* do not readily fall under these headings, and it is possible that the title was meant to indicate a supra-sensible subject matter, or perhaps the fact that it is to be studied after natural science. However, this label may mean no more than 'the things after physics', and hence indicate no more than a decision to place it in the corpus after the treatises on natural science. The title is not Aristotle's own, and he himself described the science it investigates using the labels 'wisdom', 'first philosophy' and 'the science of "that which is" *qua* "thing that is"'. Different books of the *Metaphysics* give different characterizations of this science, and the treatise as a whole does not contain a completed overall project.

Many scholars have thought that at least Books A-elatton, Delta and K were added later by editors. A-elatton, the brief second book, deals with philosophy as the knowledge of truth, as well as the connection between the finitude of causes and the possibility of knowledge. It has the appearance of an introduction, and according to one tradition consists of

notes taken by Pasicles, the nephew of Eudemus of Rhodes, on lectures delivered by Aristotle. Delta, which may have circulated independently in antiquity, is a lexicon of philosophical terms, many of which play a crucial role in the *Metaphysics*. It includes entries on 'principle', 'cause', 'substance', 'being', 'prior' and 'posterior'. However, it lacks entries on many key metaphysical terms (for example, 'essence', 'subject', 'matter', 'form', 'some this' and 'separate'). Book K contains alternative versions of parts of B, Gamma and Epsilon, as well as some excerpts from the *Physics* on such topics as luck, change, infinity and continuity.

Book A begins with the famous dictum that all humans by nature desire to know. After a description of a progression starting from 'perception', and going through 'memory', 'experience' and 'skill' to 'theoretical knowledge', it describes the goal of the investigation as wisdom *(sophia)*, a kind of knowledge of the causes and principles of things. Such a science would involve a general account of the causes and principles of all things, and would involve an understanding of the highest good. In the course of arguing that it is pursued for its own sake, he explains that philosophy begins in wonder, and above all we engage in it when we are puzzled, and cannot explain why things are the way they are. Next, A3–9 presents a lengthy survey of the views of his predecessors on the causes of things. Having discussed, among others, Thales, Anaximenes, Anaxagoras, Empedocles, Democritus, Leucippus, Parmenides, the Pythagoreans and Plato, he concludes in A10 that nobody has employed a type of cause other than those he named in the second book of his *Physics:* the material, formal, final and efficient.

The organization of material in the treatise as a whole is in part a reflection of Aristotle's belief that investigation involves a methodology according to which one starts with what is familiar to us initially, and moves towards an understanding of first principles that are knowable by nature. He starts with a review of the previously held opinions. In a general way this is accomplished by the survey in Book A, but where relevant there are other references to what has been thought by others. Second, there should be a statement of the puzzles[24] that these views give rise to. Prior to arriving at explanatory starting points, an inquirer is in a state of ignorance and puzzlement-thought is tied up in knots. Concerning the nature, scope and subject matter of wisdom, the most general science of the causes, there are opposing views, each supported by considerations having at least some degree of credibility. Book B contains a collection of brief sketches of puzzles about the causes of things. Some are more thoroughly investigated and answered elsewhere in the *Metaphysics*. This list both initiates and structures metaphysical investigation, the goal of which is the understanding that results from the resolution of such puzzles. It includes both puzzles about the unity of what later turn out to be the various parts of metaphysics, as well as probing questions about the proper characterization of the highest explanatory entities. Insofar as these

arguments arise from *endoxa,* this part of philosophical investigation involves an exercise of dialectical skill. The final stage consists of a presentation of solutions, ideally making use of starting points or principles that are both natural and explanatory. Although sometimes there are clear indications that a solution is being offered, often it is not easy to determine whether a passage is presenting his own view rather than developing a puzzle to be solved.

Book Gamma asserts the existence of a general science that studies 'that which is' *qua,* 'thing which is'. By virtue of its generality it is contrasted with those sciences that study only some part of what there is. It also solves some of the puzzles of Book B by arguing, among other things, first that general ontology is also the science of substance, and subsequently that it studies those concepts, such as unity and plurality, that apply to things quite generally. General ontology also studies such basic logical principles as the law of non-contradiction and the law of excluded middle. In the course of pursuing the latter there is a lengthy examination and putative refutation of the Protagorean doctrine of truth.

Book Epsilon divides theoretical knowledge into mathematics, natural science and theology. Most parts of mathematics deal with things that are unchanging but do not exist separately; the physical sciences deal with realities that do exist separately (although their forms cannot exist except in matter), and are subject to change; finally, theology studies separate and unchanging substance. First philosophy will be theology if such substances exist (otherwise it will be natural science), and it is here claimed that first philosophy will also be the universal science that studies 'that which is' *qua* 'thing that is'. This book also reiterates a four-fold distinction found in Delta 7 according to which the word 'being' *(on)* can be used for (1) 'that which is' so and so *per accidens* (where the predicate does not belong intrinsically or *per se*[25] to its subject; for example, a human is cultured, but not in its own right), (2) 'that which is' so and so intrinsically or *per se* (where the predicate does belong *per se,* and typically the subject and predicate are in the same category of 'that which is'), (3) 'that which is' so and so either potentially or in actuality (i.e., the predicate belongs either actually or potentially to the subject) and (4) 'that which is' in the sense of that which is true. General ontology is not concerned with either the first or fourth. There simply is no science of the accidental (this happening neither always nor for the most part), and since truth depends upon the combination and separation of things in the mind, it is simply a modification of thought. Accordingly, the following three books begin with a discussion of 'that which is' in connection with categories, and later move to a discussion of the further division of 'that which is' into potential and actual.[26]

The so-called middle books, Zeta, Eta and Theta (as well as Lambda 1–5) are concerned with sensible substance, and draw on some of the basic principles employed in Aristotle's hylomorphic physics. Zeta presents a complex set of arguments that eventually leads to the view that the form

of a sensible substance, rather than its matter or the sensible composite itself, is a primary substance. It is argued that definition and essence belong primarily to substances, and that no universals are substances. Additionally there are arguments against the existence of Platonic Forms, and against the claim that particulars are definable.

In addition to the concepts of matter and form, the middle books bring in from his natural science a distinction between actuality (or activity) and potentiality. Books Eta and Theta make use of these concepts in an attempt to clarify further the relationship between the matter and form of a sensible composite, and the sense in which the form is an activity or actuality. Eta 6 treats the form of a composite and its matter as one and the same thing in the sense that the form is in actuality what the matter is potentially. Thus material composites are unities in their own right, and not merely one *per accidens*. The matter is not itself another actual substantial individual, and is 'some this' only in potentiality, not in actuality. A living thing is ultimately composed of inanimate materials (ultimately, of earth, air, fire and water), but its proximate matter is its organic body, and this is not separate from the substance of which it is the matter.

Book Iota is close in topic to other concerns of general ontology as construed in Gamma 2. It discusses the various kinds of unity and plurality, and in connection with the latter distinguishes the four forms of opposition: contraries, contradictories, privations and relative terms.

The discussion in Lambda 1–5 of the principles and causes of sensible things partially overlaps with the middle books. Lambda 1 divides substances into sensible and non-sensible, and further divides the former into the perishable (sublunary substances) and the eternal (the heavenly bodies). Non-sensible substances are both eternal and immutable, and it is pointed out that some have divided this group into (Platonic) Forms and mathematical objects.

Next, Lambda 6–10 present some of Aristotle's own positive theological views about non-sensible substance, and present arguments for the existence of an eternally actual unmoved mover of the outermost sphere of the cosmos. This is the god of his metaphysical system, and is identified with thought thinking itself.

Books M and N are concerned with rival views concerning whether there are, besides the sensible substances, any eternal, immutable substances. They contain an exposition and criticism of Platonist accounts both of the existence and nature of Forms and of the objects of the mathematical sciences (for instance, numbers, lines and planes). There are arguments challenging the explanatory role that Pythagoreans on the one hand, and various Platonists on the other, envisaged for numbers, as well as arguments against the existence of the Forms. Against the Platonist view that mathematical objects are separate substances it is argued that the mathematician studies physical objects *qua* indivisible units, or *qua* lines, or *qua* planes, etc., and that such things as lines, numbers and planes do not

have separate being. As for the Forms, alternative versions of the attacks on the existence and putative explanatory power of separate, Platonic Forms in chapters A6 and 9 are to be found in M4 and 5, together with some material not in the earlier book.[27]

METAPHYSICS AS GENERAL ONTOLOGY

The general science of causes is general ontology

Gamma 1 begins with the assertion that there is a science that studies 'that which is' *qua* 'thing which is' and what belongs to 'that which is' intrinsically, or *per se*.[28] By virtue of its generality this science is contrasted with the departmental sciences that cut off merely some part of 'that which is' and study the properties that are unique to that part. To study 'that which is' *qua* 'thing that is' is not to study some special object called 'that which is *qua* thing that is'. The *'qua'* locution is here used to indicate the respect in which this science studies its subject matter, and indicates that it deals with those ubiquitous truths that apply to each 'thing that is'. The metaphysician must *both* state the general (propositional) principles that apply to 'that which is' as such *and* treat of their properties or features. An example of a metaphysical principle that belongs to beings as such is the principle of non-contradiction (PNC). To study what belongs to 'that which is' *per se* also involves a study of the terms that apply to 'things that are' as such (for instance, 'same' and 'one'), and to investigate truths about them.

This concept of general ontology is further clarified by the way in which Aristotle proceeds to deal with issues raised by four puzzles stated in B1 about the nature of the metaphysical enterprise itself. These are four of the first five items on the list, and they concern the characterization of the universal science that deals in the most general way possible with the causes and starting points of all things. The second puzzle (995b6–10), for instance, assumes that this science will at the very least deal with the principles of substance, and inquires whether it will also deal with the common axioms—those principles 'from which everybody makes proofs'. Does it, for instance, study the PNC? Gamma 3 solves this puzzle by showing that the science of substance is the science that studies the common axioms. Gamma also provides answers to at least portions of the other puzzles, though without explicitly referring back to them. For instance, after Book B has queried whether the science of substance also studies the *per se* accidents of substances, it goes on to ask whether it will study in addition to these accidents such terms as 'same', 'other', 'similar', 'dissimilar', 'contrariety', 'prior' and 'posterior', and then concludes by asking whether it will also study even the *per se* accidents of these last mentioned items. This is to ask whether in addition to investigating the definitions of the *per se* accidents of substance, it will also study such issues

as whether each contrary has a single contrary. Gamma 2 is in part devoted to answering these last two questions in the affirmative.

In some respects, general ontology exhibits the kind of structure that is analyzed in the *Posterior Analytics*. It involves both a certain subject matter, and a set of items, both propositions and terms, that belong to its subject matter in respect of itself. However, the various kinds of 'things that are' are not themselves species of a single genus, and 'that which is' is not a generic kind predicable in common of all the 'things that are'.[29] Substance, quality, quantity and so on are different categories of being, but these categories cannot be subsumed under a single genus. Nonetheless, there can be a single science of 'that which is'. Such a science studies what belongs to a 'thing that is'in respect of its being a 'thing that is'—the things that pertain to it simply insofar as and because it is one of the 'things that are'.

General ontology as the science of substance

Aristotle uses his term *'ousia'* ('substance') for the fundamental explanatory principles of his general ontology. Strictly speaking, each science is the science of that primary thing by reference to which the other items within the scope of that science are called what they are called.[30] This strategy, when applied to the expression 'thing that is' allows him to conclude that the science of general ontology is in fact the science of substance.

As the first sentence of Gamma 2 declares, 'that which is', although spoken of in a plurality of ways, is nonetheless always spoken of in relation to a single thing, i.e., some single nature, and that single starting point is *ousia,* or substance. Although there is no single condition in virtue of which all 'things that are' are properly called 'things that are', some things are so called in a primary way, others in a derivative way, and a single science studies them all. The subject matter of ontology is not in the ordinary sense a generic kind, but this does not distinguish it from *all* special sciences. For instance, there is a single departmental science that studies everything that is healthy, despite the fact that the different kinds of healthy things do not come together under a single generic kind. A single science taking for its subject healthy things is possible because everything that is healthy is so called with reference to a single item, namely health. A diet is healthy because it maintains health, medicine because it produces health, a complexion because it signifies health, and a body because it receives health. In general, everything that is healthy is so called because it stands in some relation to a single thing, health. The relation of course varies for the different kinds of healthy things, but that with reference to which they are called 'healthy' is the same in all cases.

It is in this way that there is a sort of subject for general ontology as well. The term 'thing that is' is not ambiguous in its application to substances, qualities, quantities, and so on, and yet it applies primarily to

substances, and derivatively to all else. Substances are 'things that are' simply because they are substances. The applications of this label to things other than substances must be explained by relating them in appropriate ways to substances, the primary 'things that are'. Every non-substantial kind of 'thing that is' is a kind of 'thing that is' by virtue of bearing the right kind of relation to the primary kind, to substance. However, just as in the case of health, the relation varies from one kind of non-substantial 'thing that is' to another. There is no single explanation for the application of the term 'thing that is' to non-substances. Qualities, for example, are 'things that are' because for a quality to *be* just is for it to *qualify* a substance; quantities, of course, do not stand in this relation to substance, but rather are 'things that are' by virtue of being the magnitudes of substances.

How and why general ontology studies ubiquitous terms

In addition to its concern with principles that apply to all 'things that are' solely in virtue of being 'things that are', general ontology also deals with certain principles that do not apply to absolutely everything. Having asserted that there is a single, unified science that studies 'that which is' *qua* 'thing that is', and having explained that such a science studies the causes and principles of substance, the remainder of Gamma 2 shows that general ontology also studies the ubiquitous terms that apply to 'that which is' as such.

Gamma 2 argues that 'one', 'many', 'same', 'other', 'similar', 'dissimilar', 'equal', 'unequal', 'different' and 'contrary' are all examples of *per se* attributes of 'that which is'.[31] These are *per se* modifications, or *idia* of 'that which is' *qua* 'thing that is'. To study them, one both states their definitions and proves theorems about them. This is one respect in which general ontology conforms to the model for knowledge found in *Posterior Analytics*. For instance, one might define contraries as things differing maximally within the same kind, and then demonstrate a *per se* accident of contrariety by proving as a theorem that each contrary has exactly one contrary.

General ontology must study unity (the signification of the ubiquitous term 'one') for the following reason. There is a single science that investigates all of the types of 'things that are' *qua*. 'things that are', as well as their various sub-types. Since each 'thing that is' is in its own right, or *per se,* one thing that is, and there are just as many types of the 'that which is' as there are of 'that which is one', general ontology must study unity and its varieties. The three types of unity are sameness, similarity and equality, and so general ontology treats of the definitions of each of these. Furthermore, there is always a single science for opposites, and since plurality is the opposite of unity, general ontology must also study plurality and its forms. The three types of plurality are otherness, dissimilarity and inequality, and so general ontology also studies these and their various sub-

types. One type of otherness is difference, and contrariety is a type of difference. Contrariety, then, is one type of difference; difference is one type of otherness; otherness is one type of plurality; plurality is the opposite of unity; and finally, unity belongs *per se* to 'that which is'. Hence contrariety itself must be dealt with by the general ontology.

How general ontology studies basic logical principles

General ontology is not only the science that studies what it is for terms to be contradictories, but also studies truths about the subjects to which such terms can be applied. In this spirit Gamma 3 claims, alluding to one of the puzzles of Book B, that we must state whether the science of substance just described also investigates the things that are called axioms in the mathematical sciences. This question is answered in the affirmative because the science of substance is the general science of 'that which is' *qua* 'thing that is', and this studies what belongs *per se* to all 'things that are'. Each common axiom applies to all 'things that are' *qua* 'things that are', and does not have an application merely in one particular kind apart from the rest of what there is.

These common principles are indemonstrable, and metaphysical argument does not demonstrate their truth. However, this science can prove things *about* these axioms. Gamma 3, for instance, attempts to prove that the principle of non-contradiction (PNC) is the firmest of all principles. The PNC is the principle that it is impossible for the same thing (predicate) to belong and not belong to the same thing (subject) at the same time, in the same respect. This is equivalent to saying that it is impossible for both members of a contradiction to be true (at the same time, in the same respect, etc.).

According to the account given in *De Interpretatione* 6 a contradiction *(antiphasis)* is a pair of opposed *(antikeimena)* statements, one of which is an affirmation *(kataphasis)*, the other of which is a denial *(apophasis)*. The affirmation and the denial are statements about the same subject, but what is affirmed of the subject in the former is precisely what is denied of it in the other. In *Metaphysics* Iota 7 a 'contradiction' is characterized as an *antithesis* such that for anything whatsoever, one part or the other of the antithesis is present, there being nothing between the two members of the antithesis.[32] Iota 4 classifies contradiction as the primary type of opposition, the other three types being contrarieties, privations and relative terms (pairs such as master/slave).

Book B cites the PNC as an example of the common beliefs that all employ in proof, and Gamma argues that it is the firmest of all such principles in that one could never be in error with respect to it (since it is impossible to believe a contradiction). Being the firmest of all principles, it is the most knowable, and must be grasped and understood by anybody

who is able to understand anything at all, and can never be employed merely as a hypothesis.

To show the impossibility of believing a contradiction he argues as follows. He starts by asserting that it is impossible for contraries to simultaneously belong to the same subject. This is a consequence of the PNC. The notion of contrariety involved is that mentioned above and characterized in Delta 10. Contraries are those things belonging to the same kind that differ as widely as possible within that kind. Assuming that beliefs are attributes of believers, we are told that a belief that contradicts another is the contrary of that belief. Consequently, it is impossible for a believer to believe both members of a contradiction at the same time; for were somebody to have both beliefs, that person would be in contrary states—but that is impossible.

Gamma 4 claims that it has been proven by means of the principle itself that the PNC is the firmest principle. It then goes on to state that although the PNC cannot be demonstrated, it can be given a demonstration elenctically. In *Prior Analytics* 62b an *elenchus,* or refutation, is a syllogism, the conclusion of which is the contradictory of some proposition maintained by the opponent, and the premises of which are conceded by the interlocutor. The premises need not be, and typically are not, prior to and explanatory of the conclusion, and hence typically an elenctic demonstration does not yield knowledge of its conclusion.

The elenctic demonstration outlined in Gamma 4 begins by having an opponent signify something both to himself and to another. The elenctic proof that follows is intended to refute an interlocutor who denies the PNC, and to do so by showing that certain commonly known things that the opponent believes actually entail the PNC (or at least particular instances of it). As such this argument is not a scientific demonstration, but rather an *elenchus*. The *elenchus* shows that the principle is already known by anybody who knows anything. However, being a first principle no premises could possibly show why it is true, and a valid deduction of the PNC is not a demonstration, for nothing is prior to and explanatory of the PNC.

METAPHYSICS AS THE THEORY OF SUBSTANCE

Sensible substance: being as a definable 'this something'

Although *Metaphysics* Zeta and Eta may originally have formed an independent treatise on substance, they nonetheless do carry out an important part of the task of general ontology. As Z1 explains, its main question, 'What is substance?' is in fact the fundamental ontological question 'What is "that which is"?', a question over which both Aristotle and his predecessors have repeatedly puzzled. Accordingly, the inquiry into substance is pursued within the context of his program for general

ontology. The opening lines of Zeta begin this inquiry with the assertion that 'that which is' *(to on)* is spoken of in many ways, and then elaborate upon this claim by listing some of its significations in connection with the categories. On the one hand being, or 'that which is', signifies both 'what X is' *(ti esti)* and 'some this' *(tode ti);* additionally (now turning to other categories) it signifies either a quality ('what X is like') or quantity ('how much X' is), or each of the other things predicable in the way these latter things are. He takes it as clear that of the various significations of the phrase 'that which is', the primary signification is the 'what X is' which signifies a substance. That is, the most basic kind of being is the being expressed by a definition that answers the 'What is it?' question when asked of a substance. All other things are beings, or 'things that are', derivatively. Anything that is a 'thing that is', but not in the primary way, is properly called a 'thing that is' by virtue of standing in some appropriate relation of ontological dependence to something that is a 'thing that is' in the primary way. Some things are beings because they are qualities of substances; others because they are quantities of substances; and so on. As required by the account of 'being' (or 'that which is') given in Gamma 2, the term *'on'* applies primarily and without qualification to substances, and derivatively to all else. General ontology is indeed the science of substance.

Although Gamma proclaimed the ontological priority of substance, it did not explain what it is to be a substance. To advance the project of general ontology Zeta now initiates an investigation designed to arrive at an account of substance. For this general project to succeed, it must characterize substance in such a way that every type of 'thing that is' will be accounted for by reference to what substances are. In order for substances to play this role, their being (i.e., what they are) cannot in turn be explained by appeal to any causes or explanatory factors external to them. A substance cannot be a 'thing that is' by virtue of standing in some relation to something other than itself. Substances are 'things that are' simply because they are substances. Hence each substance is what it is intrinsically, or *per se*. A substance is *both* 'some this' and a 'what X is'. Being intrinsically a particular subject, it is 'some this'; being something essentially, it will also be a 'what X is'.[33]

Furthermore, Z1 states that substances are primary in all of the ways in which something can be primary. This is because: (1) only substances are separate, (2) the account of the being of each non-substantial item must contain an account of the being of some substantial item (from which that non-substantial item cannot be separated, and upon which its being depends), and (3) understanding, or knowledge, of each thing proceeds from an understanding of the substances signified by definitions. The subsequent investigation in the middle books aims at a general account of perceptible substance that meets these conditions on the primacy of substance. The last three conditions imposed upon the analysis of substance stem not from some particular theory of substance, but from the

single idea that strictly speaking the subject matter of general ontology is substance.

Here, as elsewhere, investigation must begin with what is known, or familiar, to the inquirer. Since Aristotle takes it that there is widespread agreement that at least some perceptible bodies are substances, his inquiry into substance must begin with them. The eventual goal is to have moved from these to an understanding of what is most knowable by nature. Aristotle investigates perceptible substances in order to consider later such questions as whether there is, in addition to the matter of sensible substances, another kind of matter, and whether we need to inquire into some other kind of substance (for instance, numbers, or something of that sort). Z17 says that the new starting point that it offers might help us to get clear about that substance that exists separated from perceptible substance.

Accordingly, in Z2 he starts by listing various types of things that have been thought to be substances. The items thought to be the clearest examples of substance are bodies. This includes not only the four basic elements (earth, water, air and fire), but also living things, both plants and animals, as well as their parts, and anything that is either a part of or composed of bodies. The entry on substance in Delta 8 explains why bodies are called substances. It is because they are not predicable of a subject, but the other things are predicable of them. This is the condition uniquely satisfied by primary substances in *Categories* 5. What makes something a primary substance in the *Categories* is that it satisfies this very condition. Z2 neither endorses nor rejects this or any other view about what things are in fact substances, or what makes them so. Z16 subsequently reveals that the parts of animals are not actual substances, but rather things that exist in potentiality in that they fail to be separate, and that the four elements are not substances in that they are like heaps rather than unities. In general, most of the things thought to be clear examples of substance (including items treated in the *Categories* as primary substances), turn out to be potential beings, and not substances in actuality.

Next, after also touching on various Platonist views that treat (separate) Forms and/or mathematical objects as substances, Aristotle says that what is needed is a consideration of such questions as whether there are any substances besides the sensible ones, and what is the manner of being for both the sensible substances and for whatever non-sensible substances there may be. Later he will argue that there are no (separate) Forms,[34] and Books M and N defend his view that there are no non-sensible mathematicals that enjoy the status of separate substances. However, before answering the question 'What things are substances?', Z2 advises that we first sketch out an answer to the question 'What is substance?' This involves determining what explains what makes it the case that some substance is a substance. The explanatory entity E that explains why some

substance X is a substance may be called 'the substance of X'. The task at hand is to say what it is for something to perform that explanatory role, and then to say in a general way which of X's causes is the entity E that performs it.

Z3 begins this search by listing as possible candidates for the substance of X four items that are familiar from Aristotelian logic:[35] its *essence,* a *universal* it instantiates, a *genus* to which it belongs or some *subject* associated with it. The first three correspond to the predicate position of a statement, and are items that a dialectician might invoke as an answer to the question 'What is X?' The fourth candidate for substance is a *subject* of which other items are predicable. The 'subject' is thought most of all to be substance, and Z3 explains that the 'subject' is that of which all other things are said, but is not itself said of anything further. Consequently, the substance of X would be something that is not said of a subject, but rather is that of which the other things are said.

This characterization of the substance of X as the subject for predication should be compared with the claim in *Categories* 5 that the primary substances are those things of which all else is predicable, they themselves being predicable of nothing further. Whatever its merits as a characterization of the class of substances, in Z3 it is found inadequate as a specification of the substance of some substantial being X. Within a hylomorphic context, the matter, the form and the composite may each be called a 'subject', and the logical subject condition for substance by itself does not provide an adequate account of what it is about a substance that makes it the case that it is a substance. Aristotle argues that on its own it leads to the materialist view that the substance of a material object (i.e., what it really is) is some matter that is the ultimate subject of all its predicates. By stripping off in thought all predicables, one arrives at an ultimate subject of predication that is nothing in its own right, and has whatever predicates it does only accidentally. However, such matter is neither separate nor 'some this',[36] and hence cannot be the substance for which we are searching. Although recent scholarship has raised serious problems for taking this to commit Aristotle to the existence of an indeterminate ultimate subject of predication, traditionally this chapter has been read as introducing Aristotle's own concept of prime matter. Prime matter has also been thought of both as a principle of individuation for numerically distinct material objects, and as the persisting substratum for the basic elemental transformations in his natural science.

The hylomorphic analysis of perceptible substance is invoked in Z3 without explanation as something already familiar. It is not entailed by the general characterization of the science of 'that which is' *qua* 'thing that is', nor is it involved in his logic. Rather it is taken over from Aristotle's natural science, and depends upon some of the basic constitutive principles of the science that treats of the general principles that govern natural bodies insofar as they are subject to change. Although the substances of the

Organon are persisting subjects for non-substantial changes, in the logical works there is no treatment of the causes of change, and substances are not analyzed as compounds of matter and form. The technical concept of matter is never employed in the logical works, nor is the correlative notion of form. In these works the word *'eidos'* is used not for the hylomorphic conception of form, but rather for a secondary substance, the species (and sometimes for the Platonic Form). The notion of form introduced in Z3 must be understood within the context of this kind of hylomorphic analysis. It is the formal component of a particular hylomorphic compound.

He turns next to a discussion of another candidate for substance: the essence. In connection with his inquiry into substance, Z4, 5 and 6 deal with the logical concepts of definition and essence. In the logical works an essence is simply the ontological correlate of a definition (an answer to a 'What is X?' question). Z4 and Z5 argue that only substances have definitions in the primary sense, and consequently there are essences (in an unqualified sense) only for substances. Nonetheless, in a derivative way, items from other categories are also definable and endowed with essences. Z6 attempts to establish the principle that all things that are primary, and called what they are called intrinsically, are one and the same as their essence. This thesis 'expresses the view that the definiens and the definiendum must, in a correct definition of a substance, signify one and the same entity. A substantial form is identical with its essence. However, neither accidental unities (such as a pale man) nor hylomorphic composites are identical with an essence.

On Aristotle's view the requirement that a substance be 'what X is' leads to the view that a primary substance is identical with a definable form. This form is not the species, for later[37] the species is analyzed as a universal composite of matter and form, and as such is not a primary substance. There is currently considerable scholarly controversy as to whether Aristotle considered substantial forms to be particulars, universals or neither particulars nor universals. One reason for holding that they are universals is that substances are first in the order of definition and knowledge, and definition is thought to be of the universal.[38] A chief reason for taking them to be particulars is that a substance must be a separately existing 'this something', but universals are ontologically dependent upon particulars.[39]

This initial discussion of definition and essence is followed in Z7, 8 and 9 by a treatment of the material, formal and efficient causes of natural, artistic and spontaneous generation. These three chapters argue that all generated objects are composites of matter and form, and that the formal component of a substance is its essence. This 'physical' conception of an essence is different from but related to the 'logical' notion of an essence (i.e., the signification of the definition of a thing). Z10 and Z11 resume the

inquiry into definition and essence within a hylomorphic context, and Z12 subsequently takes on the problem of the unity of definition.

Z3 listed the universal as a candidate for substance, and Z13, 14, 15 and 16 discuss various topics connected with the claim that universals are substances. The genus being one type of universal, these chapters also deal with its credentials for being substance. Since the objects of definition are thought to be universals, these issues naturally follow an exploration of definition and its objects. The claim of universals to be substances stems from the fact that to the Platonist they seem to satisfy best the requirement that a substance be 'what X is'. However, Z13 argues that since the substance of something is unique to that of which it is the substance, no universal is a substance. This would suggest that if the 'what X is' requirement is to be met at all, it is the essence that will meet it. However, in order to count as a substance, an essence would also have to be 'some this'. The essence, an item originally introduced as a predicable, should also satisfy the subject condition for substance. It is the essence that is identical with hylomorphic form that plays this role. If the 'what X is' requirement is to be met by one of the first three candidates listed in Z3, it is the essence that will meet it.

In order to count as a substance, an essence would have to be a particular, determinate subject, and not a universal. Aristotle thinks that the Platonic view that what is predicable in common of particulars is separate and a 'this something' leads to an infinite regress that he refers to as the 'third man'.[40] Although the reconstruction of this argument is difficult, it seems to have involved the idea that if the particulars have a Form in common, and this Form is a separately existing 'this something', then there must be an additional Form that both the particulars and the first Form have in common, and so on *ad infinitum*. According to Aristotle, however, the form of a perceptible substance does not exist separately, but always requires perceptible matter.

Although it is clear that Z13 presents arguments against the claim that universals are substances, these arguments are presented as part of an aporematic investigation, and as such are linked up with the results of earlier chapters in order to formulate a problem *(aporia)*. The problem is that no substance is composed of universals or of actual substances, and so substances must be incomposite, and hence indefinable; yet it was argued in the earlier treatment of definition in Z4 and Z5 that strictly speaking only substances are definable. However, if substances are not definable, then nothing is.

This problem is not directly solved in Z13–16, but Z17 makes a fresh start in the attempt to answer the question 'What is substance?' From its new perspective, the primary cause of being for a material composite is the essence that is responsible for the fact that the matter constitutes that composite. The substance of X is neither one of the material elements of which X is composed nor an element present in its essence, and is itself

both simple and definable. This cause is in turn identified with the form. The form of X is its substance, and is the primary cause of its being. A substantial form is separate in definition, and hence prior in both the order of definition and knowledge. Nonetheless, it cannot exist without matter, and in the case of perceptible things it is only the composite that is separate without qualification.

Sensible substance: actuality and potentiality

The substance of a living thing is its soul. It is because a soul is present to a body that the body constitutes a living, functioning organism. The body is the matter, and is the thing in potentiality, whereas the form is the activity or actuality that must be present if that body is to be actually alive. According to a hylomorphic theory of this sort, a person lives a human life in virtue of having the capacities assigned to the various parts of human soul, the principle of human life. Soul is that by virtue of which (in the primary sense) we live, think, perceive, etc. The form (or substance of) the species man is that form (i.e., human soul) that makes a human body alive in virtue of the fact that the body has it. The word 'man' is applicable to Socrates in virtue of his matter (his body) having a substantial form. The substantial form or essence is strictly speaking a 'this something', and Socrates is a 'this something' because of the form that his body has.

Book Theta initiates a more extended treatment of the distinction between 'that which is' in actuality, and 'that which is' potentially. To understand what an actuality *(energeia)* is, Aristotle begins by considering the kind of potentiality *(dunamis)* that is correlated with change, because this is the most basic and most familiar kind of potentiality. Change, unlike substantial form, is a kind of incomplete activity or actuality, but an understanding of the relation between change and the potential for change enables one to comprehend the way in which substantial form is an actuality (or activity). Theta 6 explains the concept of an *energeia* by means of a set of analogies. An actuality is something that stands to something else in the way that a change stands to its correlated potentiality. Both a substantial form and a change can be called 'actuality' (although the form is a more perfect actuality), for as a change stands to its potentiality, so the substance (i.e., the form) stands to its matter. Substantial form is an actuality that is the fulfillment of the potentiality the matter has for being 'this something'. As a goal and fulfillment, it is the primary cause of the composite's being what it is.

METAPHYSICS AS THEOLOGY

Aristotle has argued that in the sensible world there are substances, and what makes them such is their form. These forms are internal principles, or natures, and as such cannot exist without matter. The next major step in

the general ontological program is to investigate supra-sensible reality. There is reason to think that there are non-perceptible substances that exist separately, and perhaps they are the things entirely knowable by nature. The last three books of the *Metaphysics* are concerned with the various non-sensible items that have been thought to be substances. Although a discussion of this sort is needed to complete the general inquiry into 'that which is', these books may not have been written as a part of the larger work. They are not explicitly coordinated with the treatment of sensible substance in the middle books, nor do they attempt to put their topics within the framework of the general ontology of Gamma.

Books M and N argue that (1) although mathematical objects exist, they are not substances, and (2) Platonic Forms do not even exist. Nonetheless, there are on his view supra-sensible beings of a different kind, and at least one of these is the unmoved mover, or god of his metaphysics. Lambda 6–10 contains an account of this unmoved mover. Although itself unchangeable, it is an eternal source of the motion of the outermost celestial sphere, and being the final cause of that motion, it moves as an object of love. God is incapable of being other than it is, and as such has no matter, but rather is a being the substance of which is actuality *(energeia)*.[41] This actuality is activity of the best sort: intelligent activity *(nous)*. Being eternally engaged in the best kind of thinking, god is a living being. God's intelligence is not a thinking of us or of the universe, but rather is a thinking of thinking or intelligence itself (1074b34). He argues both that this activity is the good, and that it is the source of the order and goodness of the universe.

Although perceptible substances are the substances that are initially most familiar to us, metaphysical inquiry is ultimately for the sake of coming to an understanding of this first principle. One moves towards an understanding of divine substance by starting with the causes of the things that are most familiar to us and proceeding towards an understanding of the highest causes. Lambda 4 states that the causes and principles of different things are in one sense different, but in another sense, speaking generally and by analogy, they are the same for all things (1070a31–33). The unmoved mover is a cause analogous to those causes and principles of perceptible substances studied by the special sciences. God is the final cause of motion in the outermost sphere, and this is analogous to the way in which the nature of an animal of some type is the final cause of the coming-to-be of animals of that type. The eternal, continuous activity that is god's nature is analogous to the actuality of a perceptible substance. To understand actuality, we start with an understanding of the manner in which a change is an actuality, and then move to an understanding of the substance of a perceptible body as an actuality. However, the highest cause is grasped when we attain an understanding of the best and most perfect actuality, and this is an understanding of god.

NOTES

1 See p. 52 for the use of this phrase.
2 Aristotle sometimes employs other conceptions of the accidental, including one according to which the accidental is the contingent.
3 See *Categories* 2, 3, 5.
4 *(ousia):* see p. 000.
5 With the possible exception of the ten-fold list of predicables in *Topics* A9. This list begins with 'what x is' (instead of 'substance'), suggesting a classification of predicates answering to the various kinds of questions that can be asked about any subject at all, substance or otherwise.

Another way of classifying predicates is represented by the four-fold distinction in *Topics* A5 between genus, definition, *proprium* and accident. This classification is useful for his analysis of a science in terms of a subject genus, definitions of the items investigated, and theorems relating *propria* to the defined kinds it studies. The accidental is that which falls outside the scope of a science. See 51–52 below.
6 The translation is not ideal since it, unlike the Greek, has no connection with the verb 'to be'.
7 There is at present still debate as to whether the non-substantial individuals of *Categories* 2 are particulars or universals.
8 *On Sophistical Refutations* 2 classifies arguments used in discussion into four classes: didactic, dialectical, peirastic and eristic. Didactic arguments use as premises truths from some science that are not yet the beliefs of the learner, and such arguments are in effect demonstrations. Dialectical arguments deduce the contradictory of an opponent's thesis from *endoxa* (which may or may not represent the opponent's own beliefs), and peirastic arguments constitute that subset of dialectical arguments in which the premises are both believed by the respondent and must be known by anybody purporting to have knowledge. Eristic arguments are not dialectical, and produce either real or apparent syllogisms not from *endoxa,* but from apparent *endoxa.*
9 *Logos:* this Greek term is used in this context to mean something like 'argument'. The term has many uses for Aristotle, including its application to definition (for which see p. 52 below).
10 Here only the theory of the assertoric syllogism (i.e. one composed of statements) is discussed. Since scientific knowledge of a theorem involves knowing that it is necessary, an analysis of demonstration would seem to require a modal syllogistic dealing with statements of necessity and possibility. *Prior Analytics* A8–22 attempts to develop a theory of syllogistic inferences that involve modal categorical statements. It is unsuccessful in that its treatment of modality is inconsistent, and apparently conflates sentential and adverbial readings of the modal operators.
11 Since a sentence is a linguistic item, the terms of which it is composed should also be linguistic. However, I will follow Aristotle's usage in sometimes calling the objects picked out by its linguistic terms the 'terms' of a statement. Thus Socrates and the species man are sometimes referred to as the 'terms' of the statement that Socrates is a man.

12 Using this terminology in translations is potentially confusing since in calling a proposition 'particular' one is not thereby saying that its subject is a particular. Although occasionally Aristotle will use singular premises in syllogistic inferences, the theory he develops in fact applies solely to arguments composed of statements of A, E, I or O form.
13 The technical vocabulary of the *Prior Analytics* typically reverses the order of subject and predicate, and picks out the four forms corresponding to these kinds of schemata, labeled respectively 'A', 'E', 'I', and 'O': P *belongs to every* S; P *belongs to no* S; P *belongs to some* S; P *does not belong to some* S. The letters 'A', 'E', 'I', and 'O' are mnemonic devices taken from the first two vowels in the Latin words 'affirmo' and 'nego'.
14 Both cannot be true together, and both cannot be false together. For the application of this concept to singular statements, see p. 60.
15 They cannot both be true, but both can be false.
16 A entails I, and E entails O.
17 Following Aristotle, the major premise is listed first. These argument forms have come to be called Barbara, Celarent, Darii, Ferio (Barbari and Celaront), respectively, the vowels indicating the propositional forms. The valid moods of the second figure are EAE, AEE, EIO and AOO, plus the subaltern moods EAO, AEO (Cesare, Camestres, Festino, Baroco, plus Cesaro and Camestrop). Those of the third figure are AAI, EAO, AII, IAI, OAO, EIO (Darapti, Felapton, Datisi, Disamis, Bocardo and Ferison). A fourth figure (in which the major term is the subject of major premise, and the minor term is the predicate of minor premise) exists. The fourth figure is not discussed as such by Aristotle, although the *Prior Analytics* shows awareness of its valid moods AAI, AEE, IAI, EAO, EIO. (There is a subaltern mood AEO as well.)
18 He also shows that Darii and Ferio can be derived using Celarent.
19 He also shows how a third figure OAO (as well as AAI and IAI) can be established by a method of *ekthesis*.
20 Furthermore, Aristotle argues that demonstration of principles cannot proceed in a circular fashion, nor can there be an infinite series of principles which would enable each principle to be demonstrated by a prior principle (see *Posterior Analytics* A3).
21 This topic is pursued further below on pp. 59–60.
22 *Kath' hauto;* also translated as 'in itself' or 'in its own right'.
23 These remarks apply only to so-called 'real' definitions. *Posterior Analytics* B10 distinguishes various ways in which the term 'definition' is used, including so-called 'nominal' definitions (accounts of what a term signifies) and 'real' definitions (accounts that make evident why something is). At least some of the former are of non-existent things, whereas the latter never are.
24 *Aporiai.* When applied to a journey, the word *'aporia'* indicates a condition of difficulty (being without a way of passage) that prevents further progress towards one's destination. B1 applies this term both to the condition of the intellect when faced with credible, but opposing arguments, and to the arguments themselves.
25 In either of the first two senses explicated in *Posterior Analytics* A4. See p. 25.

26 See Z1, 1028a11–13 and Theta 1, 1045b27–1046a2.
27 See also M9.
28 'That which is *qua* thing that is' translates *'to on hêi on'*, an expression often rendered as 'being *qua* being'.
29 See *Posterior Analytics* B7, and *Metaphysics* B3.
30 Gamma 2, 1003b16–17.
31 Later the chapter adds without further argument: 'complete', 'prior', 'posterior', 'genus', 'species', 'whole' and 'part'.
32 It is an opposition to which the Law of Excluded Middle applies.
33 Despite the fact that the question 'What is it?' is answered by reference to a definable universal, it is nonetheless proper to apply the label 'what X is' to particulars as well. The phrase 'what X is' may be used as a place-holder for terms such as 'man' or 'horse.' For instance, 'what Socrates is' is a man. Since he is a man, it is correct to say that Socrates is 'what he is' (i.e., the definable species man).
34 In Z8, 14 and 16; see also M4, 5, 9 and A6 and 9.
35 See pp. 41, 44, 50–53.
36 Z3, 1029a26–28.
37 Z10, 1035b27–31.
38 Z11, 1036a28–29 with B6, 1003a5–17.
39 Z13, 1039a1–2 with note 38.
40 Z13, 1038b35–1039a3; also see passages in note 34.
41 1071b20.

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CHAPTER 3
Aristotle: Aesthetics and philosophy of mind

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AESTHETICS

Aesthetics, as that field is now understood, does not form the subject-matter of any single Aristotelian work. No treatise is devoted to such topics as the essential nature of a work of art, the function of art in general, the differences between art and craft, or the concepts of meaning and truth in the arts. Nor does Aristotle anywhere examine, in a general way, the status of what would now be called 'aesthetic judgments', or seek a rational foundation on which they might be based. He hardly even possessed a vocabulary in which such questions could be raised.

His writings nevertheless contain some of the most suggestive and influential remarks concerning the arts that have ever been penned. These are to be found mainly in the *Poetics*,[1] a short treatise on poetic composition, from which only the first of two books has survived. That work has provided principles of criticism which have lasting interest and relevance, not only for drama and epic, but for literary genres unknown to Aristotle himself, and also, though to a lesser extent, for the non-literary arts.

The most convenient starting point for consideration of Aristotelian aesthetics is provided by Plato's treatment of the arts (cf. *Routledge History of Philosophy,* vol.I, ch. 12), and especially by his notorious banishment of poetry from the 'ideal state' depicted in his *Republic*. Plato's own poetic impulse had evidently been a source of severe internal conflict. Especially in *Republic* X, his attack had been so vehement, and framed in such personal terms (for example 595b–c, 607e–608b), as to suggest that in banishing poetry he was renouncing an ardent passion of his own. Poetry had been branded as the arch-enemy of philosophy, and Socrates made to speak of a 'long-standing quarrel' between them (607b). Yet Plato would spare poetry if he could. For, in closing, he had made Socrates challenge lovers of poetry 'to speak on its behalf in prose', and to show 'that it is not only pleasant but beneficial' (607d–e).

The *Poetics* is, in effect, a response to that challenge. It is true that Plato is nowhere named in the treatise, and that Aristotle does not expressly

claim to be answering him. Nevertheless, in the dry phrases of the *Poetics* and in its major contentions we can hear the elements of just such a prose defence of poetry as Plato had invited.

The Poetics *and 'poetry'*

The treatise begins with a survey of poetry in relation to other art forms, a classification of its principal genres (chapters 1–3), and a short history of their development (chapters 4–5). The bulk of the extant work is devoted to a discussion of tragedy (chapters 6–22), followed by a shorter treatment of epic (chapters 23–4), solutions to some problems in literary criticism (chapter 25), and a comparative evaluation of tragedy and epic (chapter 26). The lost portion of the work probably included a discussion of comedy (promised at 49b21–2).

The project of the *Poetics* is announced in its opening sentence. Aristotle there proposes to consider 'the poetic craft itself and its species, the power *(dunamis)* that each species possesses, and how plots should be put together if the composition is going to prove successful' (47a1–3).

It is significant that plot-construction is introduced at the outset. For this at once reveals how Aristotle conceived of the subject. That subject was not 'poetry' as we now use the term. The *noun poiêsis* was formed on the verb *poiein,* which meant, quite generally, 'to make'. Although the noun can bear the wider sense of 'making', it was often used specifically for composition in verse, a curious narrowing of usage noticed in Plato's *Symposium* (205c–d). In the same context Plato had assimilated poetic composition to various other forms of creative activity, regarded as so many different expressions of love. But he had not challenged the limitation of literary *poiêsis* to metrical verse.

Aristotle does challenge this. On the first page of the *Poetics* he mentions the pre-Socratic cosmologist Empedocles. Although that thinker had composed his account of the world in Homeric hexameters, he deserves to be called a natural scientist rather than a poet (47b18–20). Later (51b2–4) Aristotle observes that if the works of the historian Herodotus were put into verse, they would still be 'history of a sort'. On the other hand, the mimes of Sophron and Xenarchus and Socratic dialogues, dramatic sketches and conversations in prose, are mentioned (47b10–11) as if they shared something in common with 'poetic' art.

Metre, therefore, is neither a sufficient nor a necessary condition for the craft examined in the *Poetics*. If it is taken for a defining property of 'poetic' utterance, it will follow that 'poetry' and its cognates are mistranslations of key terms in the treatise. Even the broader English use of 'poetic' to mark certain features of diction or style misses what Aristotle treats as central. The *Poetics* deals mainly with only two genres, epic and tragedy, both of which happen to use metre and poetic language. But those features are, for Aristotle, incidental to their status as *poiêsis*. What made

Homer or Sophocles masters of that craft was their skill in putting together a story.

This brings us to the nub of Aristotle's response to Plato. Plato's attack was misguided, in Aristotle's view, because it had misrepresented the nature and the impact of fiction. Aristotle's project was not, then, to give an account of all that we should call 'poetry', but to examine the foundation of the two fictional genres most highly developed in his time. In doing so, he not only 'answered' Plato, but became an effective mediator in the 'long-standing quarrel between poetry and philosophy'. For through his examination of poetic fiction, he showed how an art form, far from being an enemy of philosophy or the sciences, might be seen as their ally. To have shown that was no small contribution towards a philosophy of art.

Aristotelian mimêsis

In *Republic* II–III and X Plato had used the concept of *mimêsis* to denigrate artists and especially poets. The concept is no less central to Aristotle's aesthetics than it had been to Plato's. But Aristotle uses it to restore the poets to a place of honour. How does he achieve this?

The *Poetics* begins by classifying the major poetic genres along with music, dance and the visual arts, as so many different forms of *mimêsis* (47a13–18). These are differentiated according to the media they use (chapter 1), the objects they represent (chapter 2), and their mode of representation (chapter 3). The last of these differentiae turns upon the distinction between poetic narrative and dramatic enactment.

Unfortunately, however, the *Poetics* contains no explicit definition of *mimêsis* itself. In the broadest terms, we can understand it as 'making or doing something which resembles something else' (Lucas [3.6], 259). But that formula is too vague to be useful, and it harbours a tiresome obscurity which bedevils Greek discussions of the whole subject. *Mimêsis* can mean—as its English derivatives 'mime' and 'mimicry' suggest—enactment or impersonation. It was upon that sense of *mimêsis* that Plato had partly relied when he chastised the poets in *Republic* III (especially 394d–398b) for their use of dramatic enactment: poetry is 'mimetic' by virtue of mimicking the words or actions of characters whose roles are enacted.

But *mimêsis* can also mean producing a likeness or representation of some original subject, as painters depict pieces of furniture such as beds and tables, or human figures such as carpenters and cobblers. In the broader polemic of *Republic* X Plato had condemned poetry as 'mimetic', not for its mimicry, but on the wider ground that it represented particular objects, people, scenes or events in the sensible world. This charge had included epic poetry no less than drama. Indeed, by calling Homer 'the original teacher and leader of all those fine tragedians' (595c), Plato had deliberately blurred the distinction which he had himself drawn earlier

between narrative and enacted modes of poetic fiction (393a–b, cf. 394b–c).

Which of the two kinds of *mimêsis* has Aristotle in mind in the *Poetics?* With respect to poetry, at least, the answer is not always clear. In his sketch of the early history of poetry (chapter 4) Aristotle traces it to two 'causes', both natural (48b5). The first of these is the natural human tendency to 'imitate' *(mimeisthai),* evidenced by the earliest learning of children. Does *mimeisthai* here mean mimicry or representation? The human species is differentiated from others by virtue of being 'thoroughly mimetic' (*mimêtikôtaton,* 48b7). But does this mean that human beings alone tend to mimic and thereby learn from the behaviour of others, for example in learning to talk? Or does it mean that they alone are given to making likenesses of things, such as pictures or sculptures? The latter characteristic does in fact differentiate them more markedly than the former, since mimicry also occurs in non-human species (cf. *Historia Animalium* 536b9–21, 597b22–9). Elsewhere (*Politics* 1338a40–b2, cf. a17–19) Aristotle urges that children be taught to draw, not for its practical utility but because it makes them observers of physical beauty. When he speaks in the *Poetics* of 'the earliest lessons' of children (48b7–8), he is probably thinking of their drawing, painting or modelling before they learn to read or write.

It is clearer that he has representational *mimêsis* in mind when he turns to the second 'cause' for the development of poetry. For this is the human tendency to take pleasure in representational objects *(mimêmata),* which are exemplified by visual likenesses (48b9–12). Aristotle observes that we delight in viewing precisely detailed likenesses of things, even if their originals are inherently painful. The pleasure is attributed to 'learning' and 'inferring': 'it comes about that in viewing they learn and infer what each thing is, for example that this [person] is that one' (48b16–17). Here the composition of poetic fiction is treated as analogous to drawing or sculpting. We enlarge our understanding of the world both by making representations ourselves and by viewing those made by others. Thus Aristotle accounts for both the impulse to compose fiction and the widespread enjoyment of it. Both are traced to our natural desire to learn.

It is often objected that he here places undue emphasis upon mere recognition as a factor in the appreciation of a work of art. Neither artistic merit nor aesthetic pleasure depends upon a work's recognizable fidelity to a real original. The original may be quite unknown to us, or dead or non-existent, yet the work may still give pleasure, indeed greater pleasure than many a good likeness of a familiar subject.

In reply it is sometimes suggested that what is at issue is the recognition of the likeness as typifying a *class* of subjects, and as highlighting what is characteristic of that class. Such an interpretation, if it could be squared with the text, would fit neatly with Aristotle's later contention (51b6–11) that fiction deals with 'universals' rather than particulars. The

representational work, though it depicts an individual, is of interest as exhibiting features of a type: this is the way that such-and-such people will generally appear or behave. Aristotle's pronouns are, however, demonstrative, not sortal. So unless we emend them, he is plainly speaking of inferring the identity of an individual: 'this person (in the portrait) is that person (whom we already know)'. But then what does mere identification of a familiar individual have to do with pleasurable learning from a work of art?

Some light is thrown upon Aristotle's meaning by a closely parallel text from the *Rhetoric*.

> Again, since learning and wondering are pleasant, it follows that such things as acts of representation must be pleasant—for instance painting, sculpture, poetic composition—and every product of skilful representation: this latter, even if the object represented is not itself pleasant: for one does not delight in that, but there is an inference that this is that, with the result that one learns something.
>
> (1371b4–10, trans. after revised Oxford translation)

This passage anticipates the *Poetics* in stressing 'inference' and 'learning' from a representation, even of objects that are inherently painful. Its point is not, however, limited to the subjects of human likenesses, since the pronouns in the inference schema ('this is that') are neuter. Moreover, the pleasure taken in learning is derived from 'wonder'. The work prompts its viewers to ask questions of it, and presumably contains features from which answers may be inferred. Thus it both arouses and gratifies human curiosity. The pleasure lies in identifying something that is not expressly named or asserted, but is merely shown. Something is suggested by the representational object, which its viewers can learn only by figuring it out for themselves. In short, a representational work of art demands *interpretation*.

This point is crucial for grasping what is distinctive in the Aristotelian conception of *mimêsis*. When Aristotle insists upon the mimetic status of poetic fictions, he is, in effect, distinguishing their contents from the declarative assertions of history, philosophy or natural science (cf. Halliwell [3.17], 72–3, 172). By means of that distinction, he effectively undermines Plato's objection that poetic fiction is inimical to truth. A *mimêsis* lays no claim to assert truth, because it makes no explicit assertion at all. Whatever truth it contains is merely implicit, and its viewers are left to seek out and identify that truth for themselves.

This notion of *mimêsis,* though visible throughout the *Poetics,* is especially prominent in Aristotle's remarks about organic structure in tragic plot (chapters 7–8); in his distinction between poetic fiction and history (chapter 9); and in his concept of *mimêsis* in epic poetry (chapters 23–4). We shall consider these topics in turn.

Organic structure

Organic concepts and illustrations occur frequently in the *Poetics*.[2] They stem, in part, from Aristotle's conception of a poetic fiction as a *mimêsis* of its subject. He thinks of the subject as a living creature, whose likeness the poet aims to capture, as painters aim to capture the likeness of human or animal models. Greek used the same noun *(zôion)* for 'picture' as for 'animal', and the Greek word for 'drawing' or 'painting' *(zôgraphia)* embodied a connection between those arts and the living subjects they depicted. Accordingly, a representational work must, so far as its medium allows, be so structured as to exhibit the features of the creature which it represents.

Plato in the *Phaedrus* (264b–d cf. 268c–d, 2690) had already observed that in any composition, an organic principle should govern the ordering of the materials. Aristotle uses organic models extensively, especially in *Poetics* chapters 6–8, to enunciate several broad aesthetic principles, whose influence upon artistic composition and criticism has extended far beyond tragedy.

After giving a formal definition of tragedy (49b22–8), he deduces from its essential nature what he calls its six 'qualitative parts': plot, character, thought, diction, choral ode and spectacle. As noticed above, the 'part' to which he attaches prime importance is plot *(muthos),* He calls the plot of a tragedy its 'first principle and, so to speak, its soul' (50a38–9). The metaphor is derived from his psychology (see pp. 90–104 below). The 'soul' *(psuchê)* of an animal is the 'form' of its living body, i.e. the set of powers possessed by the adult member of its species, which determine its physical make-up and direct every stage in its growth. Likewise the plot of a tragedy determines everything that happens in it, shaping the entire action from beginning to end.

The primacy of plot is indicated also by a visual analogy. It is compared with an outline sketch of some definite object, in contrast with colours laid on at random (50b1–4). Here the 'action' represented by the play is conceived as an organism, whose structure the plot must reveal, just as a black-and-white figure reveals that of an animal.

The same idea underlies Aristotle's directions for plot-structure (chapters 7–8). The action must be 'complete' or 'whole'. 'Whole' is explicated in terms of the plot's containing 'a beginning, a middle and an end' (50b26–7). Aristotle thinks of its successive phases as analogous to an animal's head, trunk and tail. Just as the parts of the animal's body are connected, so the plot should represent a *nexus* of events, so arranged that each renders necessary, or at least probable, the one that follows it. Only in this way can a fictional *mimêsis* exhibit the sorts of causal connection that hold in the real world. Aristotle distinguishes causal order from mere temporal succession (52a18– 21), and sharply criticizes dramatists whose plots are 'episodic' (51b33–5). For a disjointed plot, lacking causal

connection between its incidents, cannot suggest those general truths about human character and conduct which it is the business of fiction to display.

Equally far-reaching are Aristotle's remarks regarding the proper length for a tragic plot and the criteria for beauty (50b34–51a6). Here the appreciation of a play is expressly compared with the study of an animal. A due proportion or balance between the parts and the whole is of prime importance in the appreciation of beauty, whether in natural objects or in artistic representations of them. The work must therefore be large enough for its parts to be separately discernible, yet not so large that the observer loses all sense of its unity or wholeness. A conspectus of the parts in relation to each other and to the whole is needed for the appreciation of a representational work, just as it is for the observation of an animal. In both cases we need to be able to grasp the contribution made by each element to a well co-ordinated, functioning whole.

Aristotle also emphasizes unity in plot. Here too his remarks have a wider aesthetic relevance, although the requirement of unity in drama has sometimes been extended in ways which lack any basis in his text. Nowhere does the *Poetics* insist upon 'unity of place' or 'unity of time'. All that it demands is 'unity of action'. Aristotle observes that this is not secured merely by stringing together unrelated episodes in the life of a single individual (51a16–22). Just as, in the composition of an animal, nature makes nothing without a purpose, so each element in a well-structured plot should be placed where it is for a reason. Everything that happens should have a discernible bearing upon what happens elsewhere in the play. A grasp of those relationships must be possible through a conspectus of the entire work. For only through a survey of the entire action can the viewer draw inferences regarding the import of the play. Because a structured and unified plot displays necessary or probable connections in the real world, the foregoing remarks lead Aristotle directly into his celebrated contrast between 'poetry' and history.

Poetic fiction and history

Whereas the historian's task is to record events which *have* occurred, the poet's is to speak of 'the kinds of events which *could* occur and are possible by the standards of probability or necessity' (51a36–8, trans. Halliwell). Here Aristotle implicitly rejects Plato's characterization of the poet as a mere 'imitator' of sensible particulars. For poetic fiction has a generalizing purpose. It aims to show the *sort* of thing that happens, by using plot-structures in which the behaviour of certain *sorts* of agent is displayed (51b6–11). Aristotle has here pinpointed the essential difference between history and fiction. The first duty of historians is not to exhibit general truths, but to record particular events, as they have grounds for believing them to have occurred. Authors of fiction, by contrast, can tailor the events of their stories to exhibit whatever general truths they wish to

suggest. This distinction between poetic and historical aims is clearer in comedy than in tragedy, Aristotle remarks (51b11–15), because comedy made more frequent use of invented plots.

Thus, 'poetry is more philosophical and more serious than history, since poetry speaks more of universals, history of particulars' (51b5–7). Poetic fiction aims to show truths that have a larger significance than particular historical facts, because they emulate the generalizations of scientific theory. Yet we must firmly grasp that a poetic *mimêsis* does not directly assert, but merely suggests, those truths about character and conduct whose workings it displays. Its audience must infer truths to which its action points, but which it does not expressly affirm.

The contrast between fiction and history, Aristotle further argues (51b29–32), need not prevent poets from basing their works upon fact, since real events may be as well suited as fictional ones to show the sort of thing that is likely to happen. 'Historical fiction' is not, indeed, a contradiction in terms. If Aristotle took the figures and events of traditional legend to have been real, then most of the tragic repertoire performed in his time would have been, for him, what Shakespeare's so-called 'histories' are for us. A sufficiently powerful fiction may sometimes acquire the status of fact. Shakespeare's Henry V and Richard III became, respectively, the warrior-hero and the arch-villain of English school history books. Nevertheless, to regard the content of such plays as being straightforwardly 'affirmed' by the dramatist is, from Aristotle's perspective, to misapprehend their purpose altogether.

Mimêsis in epic poetry

So far we have interpreted Aristotle on the assumption that poetic *mimêsis* generally means 'representation' rather than mimicry. But a vexing passage in his discussion of epic places this once more in doubt.

> Among Homer's many other laudable attributes is his grasp—unique among epic poets—of his status as a poet. For the poet should speak as little as possible in his own person, since it is not by virtue of that that he is a *mimêtês*.
>
> (60a5–8, trans. after Halliwell)

It is usually supposed that Aristotle here refers to the distinction that Plato had drawn in *Republic* III between narrative and *oratio recta*. For Plato had there used the expression 'speaking in his own person' (393a6, cf. 394c2–3) to contrast Homer's narrative sections with the frequent passages in which his characters speak directly. If that is what Aristotle means, then he has switched, without warning, to the sense of *mimêsis* in which it means 'mimicry', and he is suggesting that only in passages of *oratio recta* is the epic poet a genuine *mimêtês*. Yet that interpretation creates the

utmost difficulty. It restricts *mimêsis* more narrowly than Aristotle's usage in the treatise would generally suggest. It is flatly inconsistent with his own earlier distinction between narrative and enactive modes of *mimêsis* (48a19–29). And it is equally inconsistent with his repeated labelling of epic poetry as 'narrative *mimêsis*' (59a17, 59b33, 59b36–7).

Aristotle does not explain the phrase 'speaking in his own person', and we need not take him to mean exactly what Plato had meant. He goes on to castigate other epic poets as 'constantly competing in their own persons' and as 'representing few things on few occasions' (60a8–9). Here, as elsewhere (51a6–11, 51b35–52a1, 53b7–11, 62a5–11), he has his eye on the way in which artistic aims can be perverted by the pressures of performance. He means that inferior poets used a thin plot as a platform from which to harangue the audience in their own voice, instead of allowing a richly elaborated story to makes its own impact, as Homer did. Such an interpretation fits with what we have earlier said of *mimêsis*. For poets practise it not by virtue of what they directly assert, but by virtue of what they leave their audiences to infer.

The present text need not, therefore, be taken to restrict *mimêsis* to sections of direct enactment or *oratio recta*. Nevertheless, we can observe a special connection between those sections and what is distinctive about Aristotle's conception of *mimêsis*. Enacted drama and *oratio recta* in epic afford the clearest cases of mimetic utterance, because it is there that the authors' detachment from the content of their works is most obvious. They need not be identified with their characters' words, nor taken to endorse anything they say. Thus enacted drama and *oratio recta* exemplify authorial detachment in its purest form. They provide a standard of disengaged utterance to which all works of art should aspire. We have here, in embryo, a conception of representation in which literary artists are completely detached from all utterances in their works. The work speaks entirely for itself, with no direct statement or comment from its author (cf. Halliwell [3.17], 173–4). On such a view, to condemn artists, as Plato did, for failing to attain truth, is to misrepresent the very nature of their enterprise.

Mimetic pleasure

We can now return to our earlier difficulty regarding the pleasure taken in representational objects. Aristotle had said (48b17–19) that if we should not have seen the original of such an object before, it will not give pleasure *as* a representation, but only through such features as its workmanship or colour. We need to ask what analogue exists in tragedy or epic to satisfy this requirement. For, clearly, it is Aristotle's view that we do enjoy those genres as representations, and not merely for their workmanship or colour. Yet in what sense must we have 'previously seen' what they represent? In

order to enjoy, say, *Oedipus Rex* as a representation, what must the audience have 'seen before'?

Not, of course, the legendary Oedipus himself, whom no audience in historic times could be supposed to have seen. Nor could Aristotle have made it a requirement of enjoying Sophocles' play that one must have prior knowledge of the Oedipus story. For although most tragedies in his day used traditional stories for their plots, he expressly notes that they could give pleasure to everyone, even though the stories were 'familiar only to few' (51b25–6). He also notes that newly invented plots, whose stories were known to no one, could still give pleasure (51b21–3). Obviously, neither the characters nor the story of a wholly invented plot could be regarded as needing to be 'seen before' as a condition for enjoyment of the work.

Yet one phrase of Aristotle's suggests a sense in which the pleasure given by tragedy or epic requires prior acquaintance with its subject-matter, even when its characters are unknown or wholly invented. He calls tragedy a representation 'not of human beings but of actions and of life' (50a16–18, cf. 50b24–5, 52a1–2). The individual human beings may be quite unknown to us, and so may their particular stories. But what *is* already known to us is 'life', connected here as in the *Nicomachean Ethics* (1098a18–20, 1100a4–9) with human actions or fortunes over a period of time or an entire career. Sophocles' tragedy represents 'the changes and chances of this mortal life', no less familiar to ancient audiences than to modern ones. Life's dynamics, its changes from prosperity to adversity, its complex interplay of character with circumstance, its ambiguities and uncertainties, its moral dilemmas and mental conflicts, its ironies and contradictions, its surprises and coincidences, are already familiar to us, and their highlighting in fictional representation is a source of pleasure. We enjoy the tragedy of Oedipus because we can recognize in his story misconceptions, misfortunes, failings and follies, and a grim inevitability, that are typical of human life. Our pity and fear are evoked through our recognition of human frailty embodied in the story. Human vulnerability, and therefore our own, are powerfully brought home to us. The enjoyment with which we respond to all this is what Aristotle calls the pleasure that is 'proper' to tragedy (53b10–11, cf. 53a35–6, 59a21, 62b13–14).

This pleasure is neither limited to nor dependent upon theatrical enactment. It can be gained no less from reading or hearing a fictional narrative than from seeing a play performed (50b18–20, 53b3–7, 62a12, a17–18). Literary and theatrical values need not coincide, and they may, for Aristotle, even conflict (51a6–11). The pleasure 'proper' to tragedy does not require live performance because it depends crucially upon inferences from the content and structure of the plot. Even when a tragedy is performed, the pleasure proper to it cannot be fully experienced while the performance is still in progress, but can be gained only through a retrospect upon the completed action (cf. 53a30–9). That is why Aristotle

can treat metrical language, choral odes, and visual elements as mere adornments of tragedy, as 'seasonings' (49b25–9, 50b16) rather the main dish. The pleasure that they give is not integral to tragedy's distinctive function as a *mimêsis* of action.

What he says of 'spectacle' is especially revealing. He rates it as the element 'least integral to the poetic art' (50b17), as 'belonging more to the sphere of the property man than of the poet' (50b20). He dismisses as 'quite outside the sphere of tragedy' (53b10) those poets who relied on lavish staging to achieve sensational effects. For the pleasure proper to tragedy is not morbid. It depends not upon the horror that can be produced by terrifying stage-effects, nor upon the thrill caused by pain or cruelty, but upon the compassion we feel for fictional characters who are caught up in the events of a pitiful tale. We respond to an emotional content inherent in the play (53b13–14) rather than to the gimmickry of production.

Tragic katharsis

The emotional content of tragedy brings us, finally, to the much vexed question of tragic *katharsis*. Aristotle's formal definition of tragedy runs as follows:

> Tragedy is a representation of an action which is serious, complete, and of a certain magnitude—in language which is garnished in various forms in its different parts—in the mode of dramatic enactment, not narrative—and by means of pity and fear effecting the *katharsis* of such emotions.
>
> (49b24–8, trans. after Halliwell)

The concluding clause has generally been held to contain an 'answer' to Plato's condemnation of poetry for its harmful effect upon control of the emotions. But what was that answer? What did Aristotle mean by the tantalizing term *katharsis?*

We must first notice, and put aside, the modern use of 'catharsis' to mean the release of pent-up emotion. That is psychiatric jargon, which derives from an influential way of reading the present text, as a glance at the *Concise Oxford Dictionary* (s.v. 'catharsis') will confirm. If we insist upon reading that use back into Aristotle, we risk prejudging his meaning, even when we retain his own word.

Basically, *katharsis* meant 'cleansing', frequently, though not solely, through medical purging or religious purification. Neither of those metaphors, however, enables a satisfactory account to be given of *katharsis* in the context of tragedy.

First 'purgation'. A purging of pity and fear has sometimes been taken to mean their complete elimination from our emotional system. Against that, it has been rightly objected that, according to Aristotle's own ethical

teaching, the proper feeling of those and other emotions plays an indispensable part in human well-being. It has seemed inconceivable that he should defend tragedy on the ground that it eliminates the emotions altogether.

On the other hand, if 'purging' the emotions simply means venting them in the theatre, for example by having a good cry, the *katharsis* clause seems a cumbersome way of expressing that idea. For it seems, absurdly, to represent pity and fear as a means to their own discharge. Collingwood ([3.36], 51) glosses *katharsis* as an 'emotional defecation', which 'leaves the audience's mind, after the tragedy is over, not loaded with pity and fear but lightened of them'. Against this, one must protest that to interpret *katharsis* as 'emotional defecation' saddles Aristotle with a view of the emotions which he simply did not hold. Moreover, merely to reiterate the fact, well known to Plato himself and heavily underscored by him, that audiences gain a pleasurable sense of relief by discharging feelings of pity and fear, would do nothing to counter his argument that such discharges are psychologically harmful.

'Purification' of the emotions is equally problematic. In the *Nicomachean Ethics* (1105b19–25) Aristotle distinguishes between occurrent states of emotional arousal *(pathê)* and our natural capacities *(dunameis)* for feeling such states. Clearly, the former could not be purified, for to speak of 'purifying' a twinge of pity or a fit of terror is nonsense. 'Purifying' might possibly be a metaphor for improving our capacity to feel pity or fear, if tragedy could somehow cause us to feel them more appropriately than certain people do. Yet, although Aristotle has sometimes been credited with a therapeutic theory of that sort (cf. House [3.38], 108–11), it has never been made clear just how tragedy produces such an effect, or indeed why that should be necessary for an audience of ordinary sensibility and sound mind. One might even wonder whether tragedy could affect an audience at all unless its emotional apparatus were already more or less in order. Anyone who does not feel special revulsion, for example, at child-murder, matricide or incest, will hardly be moved, let alone improved, by watching *Medea, Electra* or *Oedipus Rex*.

Some scholars have therefore tried another tack. *Katharsis* is not the only word whose meaning is in doubt. The phrase usually rendered 'of such emotions' *(toioutôn pathêmatôn)* could also be translated 'of such afflictions'. The clause would then mean, 'accomplishing by means of pity and fear the *katharsis* of pitiful and fearful afflictions'. That would make good sense, if *katharsis* could be taken to mean, as several scholars have recently urged (for example Golden [3.50], 145–7; Nussbaum [3.39], 388–91, 502–3, nn.17–18), 'clarification'. On that construal, Aristotle would be saying that tragedy, through pity and fear represented in the play, achieves a clarification of just such afflictions in real life. Tragedy enlightens its audience by deepening their understanding of just such sorrows as are

typified by the play. For it traces those sorrows to various kinds of psychological conflict which are 'clarified' by its action.

Such an interpretation is attractive. Linguistically, it fits perfectly. It allows us to connect *katharsis* with Aristotle's remarks about 'learning' from mimetic works, and about the generalizing power of fiction. It also makes a claim about tragedy that can be amply supported from the experience of actual plays.

It founders, however, upon two reefs. First, it tends to beg the question against Plato's attack. Tragedy's power to move us is a familiar and incontestable fact. To defend it as serving a purely intellectual purpose, on the basis of a formal definition, is simply to ignore that impact which it is known to have, and for which Plato had condemned it.

Secondly, an intellectualist interpretation disregards a passage in the *Politics,* which—baffling though it is—cannot lightly be set aside. Aristotle there speaks (1341b32–42a16) of a *katharsis* induced in certain mentally disordered people by exposure to 'kathartic melodies' *(ta melê ta kathartika)*. He mentions a pleasurable 'lightening' effect produced by orgiastic music, alleviating their frenzied state. In a medical context (*Problemata* 955a25–6) the term 'lightening' *(kouphizesthai)* is used of the relief felt after coitus by people who suffer from excessive sexual desire. If the *katharsis* of the *Politics* has any bearing upon that of the *Poetics,* to which it expressly refers (1341b39–40), it seems unlikely that the latter should be understood as a purely cognitive experience. Tragic *katharsis* is unlikely, then, to mean 'clarification', but probably included a component of 'lightening' or relief. But if so, what was that component, and how was Plato 'answered' by making reference to it?

The *katharsis* clause can be interpreted as a pointed and effective response to Plato if we notice (following Sparshott [3.54], 22–3) that it contains a Platonic allusion which Aristotle's audience would readily have picked up, and which would account for the sudden introduction of the term *katharsis* without explanation. In the *Phaedo* Socrates had exalted the true philosopher as one whose soul is cleansed by achieving freedom from bodily appetites and passions. He speaks (69b–c) of the philosopher's virtues as 'a kind of *katharsis* from all such things [sc. pleasures, fears and all else of that sort]' (6901) and of wisdom herself as 'a kind of purifying rite' *(katharmos tis)*. Plato here describes neither a purging nor a purifying *of* the emotions, but a liberation of the soul *from* them (reading the Greek genitive as 'separative'), in which the philosopher achieves the serenity, and especially the immunity from fear of death, so conspicuously shown by Socrates himself. It is not the emotions which are purified or purged, but *the soul* which is cleansed from servitude to them through release from its bondage to the body. In Aristotle's reference to the '*katharsis* from such emotions', which echoes Plato's wording at 6901 almost exactly, we can still catch an allusion to that very *katharsis* which Plato had extolled. Paradoxically, it is by means of the emotions aroused in tragedy that that

state of tranquillity is achieved. Pity and fear, enacted by the performers and aroused in the audience, so far from causing surrender to such feelings, are the very means by which we may be delivered from their power. The emotional harrowing of tragedy enables us to accept our own frailties as the common lot of mankind, and thereby raises us above a self-absorbed pity, fear or grief.

Tragedy has this mysterious, uplifting power. Through compassion and admiration for its victims, we are somehow elevated above our own selfish turmoil. This response is evoked especially when we behold exemplary magnanimity or dignity in face of undeserved suffering. George Orwell once remarked that' [a] tragic situation exists precisely when virtue does *not* triumph but when it is still felt that man is nobler than the forces which destroy him' (*Collected Essays,* vol.4, 338). That sentiment is profoundly Aristotelian (cf. 53a4–17), and it could be illustrated by any number of tragedies, ancient or modern. An immortal illustration, however, lay at Aristotle's elbow, as it still lies at ours. In the *Phaedo* Socrates had shown miraculous nobility in face of monstrous injustice and a universal human terror. Though not a tragedy by all of Aristotle's formal criteria, its impact exemplifies the very *katharsis* which it stresses itself, and it has made just such an impact upon its readers across the centuries.

Aristotle responds to Plato, then, by claiming for tragedy precisely that effect which Plato had extolled and achieved in the most moving of his own dialogues. Poetic fiction, rightly understood, can provide just that benefit which Plato had claimed for philosophy. Thus, as Aristotle says, 'poetry is both more philosophical and more serious than history' (51b5–6): 'more philosophical', because it implicitly suggests 'universals' which are the domain of philosophy; and 'more serious', not because it is more edifying than history, or shows virtue as any more triumphant, but because it celebrates the power of the human spirit to rise above injustice, misfortune, suffering and death.

On that interpretation, it is mistaken to ask whether *katharsis* is intellectual *or* emotional, cognitive *or* affective. For the response just outlined evidently has both intellectual and affective elements. Feeling and thought are interactive. The more thoroughly we understand a tragedy, the more deeply it will engage our emotions. Conversely, the more deeply we are moved by a play, the more we shall be disposed to seek meaning in it. Emotional impact and the quest for understanding are mutually reinforcing. Precisely in that sense *katharsis* is achieved 'through pity and fear'. Those feelings are not a means to their own discharge or improvement. Rather, their arousal through a poetic *mimêsis* is a means to spiritual peace.

On the view defended above, *katharsis* is the attainment of a calm or tranquil frame of mind, an outlook that is 'philosophical' in a popular sense of the word also traceable, ultimately, to the *Phaedo*. It is paradoxical (and Aristotle's wording in the *katharsis* clause reflects this), that emotional arousal should be a means to emotional serenity. But the

paradox needs no sophisticated medical theory of 'homoeopathic cures' to ground it. It is simply common experience, not only of tragedy but of other high art forms, that they can move us profoundly, yet thereby leave us more at peace with ourselves and with the world we inhabit. That experience lies at the core of Aristotle's aesthetic; and his single reference to it deserves attention, not as mere *ad hominem* polemic in an ephemeral debate with Plato, but because it points towards a wider account of art which holds perennial truth.

PHILOSOPHY OF MIND

Aristotle's chief contributions to the philosophy of mind are to be found in *De Anima (DA),* a general preface to his lectures on zoology, and in a collection of essays now known as the *Parva, Naturalia (PN)*. Also relevant are a short work on animal movement, *De Motu Animalium,* and the zoological treatises, *De Partibus Animalium* and *De Generatione Animalium*. The account that follows will be based mainly upon *De Anima* and the *Parva Naturalia*.[3]

De Anima has come down to us in three books. The first contains a survey of problems about the 'soul' and a critique of previous theorists. The second begins with Aristotle's own general account of the soul. Its remainder, together with the whole of the third book, deal with the various powers possessed by living things. The order of discussion corresponds, albeit very roughly (cf. Hutchinson [3.62]), with the hierarchy of powers in plants, animals and human beings, ascending from the powers of nutrition and reproduction shared by all organisms to those possessed only by animals (perception and imagination), and then to the power of intellect, which is possessed (within the natural order) by mankind alone. Animal desire and locomotion are also discussed.

The essays of the *Parva, Naturalia* form a series of appendices to *De Anima* covering a variety of special subjects in psycho-biology. Those of greatest mterest for present-day philosophy of mind are the first five in the series, which deal with sense-perception, memory, sleep, dreams, and divination through sleep.

The expression 'philosophy of mind' does not, however, map neatly on to either *De Anima* or the *Parva Naturalia*. On the one hand, they include empirical psychology and physiology as well as philosophy. On the other hand, many questions now central to the philosophy of mind find no place in them at all. If we ask of them, for example, how mental events are related to physical ones, or how we can know the existence and contents of minds other than our own, we shall ask in vain. Such questions are, in effect, by-passed in Aristotle's approach to the whole subject.

The difficulty in aligning *De Anima* with 'philosophy of mind' is connected with the problem of translating its title term, *psuchê*. 'Soul', though it will generally be used below, has religious associations which are

alien to Aristotle's scientific interests. Although he sharply criticizes earlier scientists, he shares their concern to explain the powers of growth and self-movement which distinguish living from non-living things, and the perceptual, emotional and cognitive powers which distinguish animals from plants. At the outset (*DA* 402a7–8) he characterizes *psuchê* as 'the principle of animal life'. He expressly warns against limiting the inquiry to human beings (*DA* 402b3–9), and subsequently attributes *psuchê* to all living things. Since we do not credit plants, or even animals, with souls, there are many places where 'soul' as a translation of *psuchê* will sound unnatural.

Traditionally, the *psuchê* had been thought of as a shadowy simulacrum of the living body, which can survive its death, and persist in a disembodied state in Hades. It foreshadowed the concept of a ghost, an entity whose *post mortem* existence is of its very essence (as remains true of 'soul' in English). Aristotle, in effect, undermined this tradition by linking the concept of *psuchê* with that of organic life, and by considering, more closely than his predecessors had done, the implications of that linkage. Thus, he transformed what had been a partly religious concept into a wholly scientific one. Against that background, the question whether the *psuchê,* or any aspects of it, can exist separately from the body naturally played a larger part in his debate with earlier thinkers than it has played in more recent philosophy of mind.

Equally dubious, as a translation of *psuchê,* is the English 'mind'. In its ordinary use, as roughly equivalent to the human intellect, it is too narrow for the range of powers associated by Aristotle with *psuchê,* since it does not include nutrition, growth or reproduction, and is not generally attributed to animals. As for its extended use by philosophers since Descartes, to mean the subject of conscious awareness or thought, although Aristotle may be said to have possessed the idea of such a subject, he explicitly resists its identification with the *psuchê.* In a f amous passage, to which we shall return, he observes:

> to say that it is the *psuchê* that is angry is as if one were to say that it is the *psuchê* that weaves or builds. It is surely better not to say that the *psuchê* pities or learns or thinks, but rather that the *human being* does this *with* the *psuchê.*
>
> (*DA* 408b11–15)

One further aspect of *psuchê* needs to be dissociated from *De Anima* and the *Parva Naturalia.* Aristotle is unconcerned in these treatises with the 'true self', that precious element in human beings whose well-being had been a matter of paramount concern for Socrates and Plato. Even in his ethical writings, talk of *psuchê* is different in tone from Plato's. Although he defines human well-being in terms of 'activity of *psuchê*' (*Nicomachean Ethics* 1098a16), he tends not to speak of 'souls' *(psuchai)* as entities either

possessed by or identified with individual human subjects. In his mature psychology the individual soul as a subject of moral attributes, or as a moral agent, receives no attention.

This important difference stems largely from Aristotle's rejection of Platonic dualism, the notion that the soul is an independent substance, lodged within the body during life, yet capable of separate existence. Although Aristotle had embraced that idea in his youth, the treatises of his maturity present a strikingly different picture. That picture is drawn, in broadest outline, in the first three chapters of *De Anima* II, to which we may now turn.

Soul and body

Aristotle's central thesis is that the soul of a living thing is related to its body as 'form' *(morphê)* is related to matter *(hulê)*. The soul is the structure whereby bodily matter is so ordered as to form a living animal or plant. Soul and body are not two separate entities, somehow temporarily conjoined. Rather, they are, like form and matter in general, complementary aspects of a single entity, the whole complex living creature. This thesis is sometimes called 'hylemorphism'.

The 'form' of a living thing is attained when the potential of its constituent matter becomes actualized in a full-grown member of its species. In attaining that form, a creature develops certain powers, whose exercise is necessary for its preservation and well-being, and for the perpetuation of its species. Most of these powers are exercised by means of 'organs', parts of the body conceived as tools fashioned for specific tasks. Indeed, the very word *organon* means a tool or implement. Tools and bodily organs both provide Aristotle with models to illustrate his account of the soul.

An axe is not just wood and iron, but wood and iron so structured as to be an implement for chopping. Its chopping purpose dictates both its form and its matter, and is essential for grasping its essential nature, 'what it is to be an axe' (*DA* 412b10–15). Aristotle distinguishes, moreover, between its 'first actuality', attained when the wood and iron have been fashioned into an implement with power to chop, and its 'second actuality', attained when it is being used for chopping. The axe's essential nature is given by the 'first' actuality rather than the 'second'. For it does not cease to be an axe when the woodsman lays it aside, but only when it becomes so blunted or otherwise damaged that its chopping power has been lost.

Similarly, an eye is not just a lump of translucent jelly, but gelatinous material so structured and situated within the body that its owner possesses the power of sight. Should that power be destroyed, the jelly will remain an 'eye' in name only (*DA* 412b18–22). The connection between the eye and sight is not, indeed, a merely contingent one. We cannot see with anything except our eyes, nor can we use our eyes for any purpose

except seeing. It is sight which defines the eye; and it does so in terms of the 'first' actuality rather than the 'second'. For the organ does not cease to be an eye at times when its owner is not seeing anything, for example while asleep or in the dark. What is necessary for its being an eye is simply that under appropriate conditions its owner be capable of seeing with it.

We can now understand the phrases in which Aristotle formally defines the soul. He calls it 'the first actuality of a natural body which potentially has life' (*DA* 412a27–8), and immediately explicates this as 'the first actuality of a natural body possessing organs' (*DA* 412b5–6). As sight stands to the eye-jelly, so does the complete set of powers possessed by an organism stand to its body as a whole. To ascribe soul to it, then, amounts to saying that it is a body *in working order*. To credit X with soul, it is not necessary that X should now be absorbing food, reproducing itself, walking, seeing, imagining, remembering, feeling angry, thinking or talking. It is only necessary that it should possess the capacity for whichever of those activities are characteristic of its species.

From this account it follows at once that soul can no more exist separately from body than an axe's chopping power or an eye's power of sight can exist when the axe or the eye has been destroyed. It is a gross conceptual error to regard an animal's soul as some sort of receptor or motor within its body, whether a material one, as certain pre-Socratic thinkers had supposed, or an immaterial one, as Plato's Socrates had affirmed in the *Phaedo*. It is, in terms made famous by Gilbert Ryle, a 'category mistake' to view the soul as a substance in its own right, rather than a set of powers which living things possess. For any given animal or plant species, its 'soul' cannot be understood without reference to the bodily apparatus needed to exercise the powers in question: 'it is not a body, but is something relative to a body. That is why it is *in* a body, and in a body of some definite kind' (*DA* 414a20–2, trans. after revised Oxford translation).

This idea is anticipated in a sharp criticism of theories of transmigration. Such theories, Aristotle drily observes, are akin to saying that the art of carpentry could enter into flutes: 'just as a skill must use its own tools, so a soul has to use its own body' (*DA* 407b25–6). Carpentry uses, amongst other tools, saws. To cut timber, a saw must have teeth. Since a flute lacks teeth, its use for sawing is not even imaginable. It is therefore absurd to suggest that carpentry could be practised with tools designed to serve the ends of a quite different skill. If an animal's soul is a certain set of capacities, then it can only belong to a body equipped to exercise those capacities. Just as the idea of a flute's being used for carpentry is (not just false but) absurd, so it is absurd to suppose, with Plato's Socrates, that the body of a donkey might house the soul of a human being, or that the soul of a bee might enter a human body (*Phaedo* 82a–b). For the body of a donkey does not equip it to weave a cloak or build a house; no more does a human body enable its owner to pollinate flowers or to produce honey.

As we saw earlier, Aristotle prefers to say that 'the human being does things with the soul', instead of ascribing those activities to the soul itself (*DA* 408b13–15). He compares saying that the soul is angry with saying that the soul weaves or builds. Here too he is combating the idea of the soul as a separable inner agent which can have experiences or perform actions independently of the body. Since bodily movements play an essential part in weaving or building, the absurdity of attributing those tasks to the soul alone is clear. Similarly, Aristotle argues, to attribute anger, pity or other mental phenomena to the soul alone is to disregard the bodily apparatus through which the relevant capacities must be displayed. To say that a person does things 'with the soul' is to say that certain capacities are exercised through the appropriate physical apparatus.

In a similar vein, Aristotle distinguishes a physiologist's account of anger, 'a boiling of the blood and hot stuff around the heart', from a philosopher's definition of it, 'a desire for retaliation' (*DA* 403a29–b1). The latter account gives the 'form' of anger, the former provides the 'matter' in which it has to be realized. Aristotle also suggests that the true student of nature will combine both sorts of account. The physiology of the emotions plays an essential part in a full understanding of them. Anger is not a pure state of feeling, but is inseparable from the bodily responses in which it is vented. Yet it cannot be simply equated with those responses. The bodily arousal typical of a given emotion may be present when there is little or no occasion for that emotion to be felt (cf. *DA* 403a19–24). To identify an emotional state specifically as one of anger, we do not take a man's pulse or measure his blood-pressure. Rather, we interpret his bodily reactions and behaviour as part of a pattern, a wider context within which anger is typically provoked and displayed, and in the light of which it has to be understood.

Modern philosophy has pressed further the question of how mental events or states are related to bodily reactions or behaviour. It is assumed that there are radically distinct sorts of item: private experiences on the one hand and observable processes on the other. But from Aristotle's perspective that distinction is entirely problematic. Anger, understood as the urge to retaliate, can occur only in animals that respond to attack or injury with certain bodily reactions or overt behaviour. If we insist upon asking how their urge to retaliate is related to their physical response, Aristotle would reply that 'one need not inquire whether the soul and the body are one, any more than whether the wax and its shape are one' (*DA* 412b6–7), Just as the wax and the impress made in it by a seal are inseparable aspects of a single waxen object, so a certain bodily response and the urge to strike back are inseparable aspects of the single phenomenon that we call anger. A purely chemical or neurological description of anger, however minute its detail, if it makes no reference to the kinds of stimulus that typically provoke anger, the goals sought by an angry animal, and the role of anger

in an animal's preservation and well-being, will miss what is of primary significance in the whole phenomenon.

Basic to Aristotle's account of the soul, then, are the tasks that a creature can perform with its body. To speak of its soul is to refer, compendiously, to the set of powers possessed by creatures of its type. In the higher animals, and especially in mankind, these powers are both numerous and complex, and a full account of them will vary widely from one species to another. This theory, as Aristotle observes (*DA* 414b20–8), is too general to provide information for any specific form of life. In his zoological writings, however, it is applied fruitfully to a huge variety of animal species. It is there shown in marvellous detail why different species develop the organs they have, and how those organs are fitted for the tasks they must perform if they are to contribute to the survival and well-being of the whole animal. In *De Anima,* by contrast, we find only a broad survey of the various powers possessed at each level of life. These must now be considered in turn.

Nutrition and reproduction

The powers of growth, nourishment and reproduction are attributed by Aristotle to the 'nutritive' soul. Because they are shared by all living things, 'living' is defined with reference to them alone (*DA* 415a23–5). So long as they remain operative, an animal or human being may be said to 'live', even should its higher faculties be impaired. Aristotle calls the intake of food and reproduction the 'most natural of functions for living things' (*DA* 415a26–7). For it is through them that living things achieve the only sort of permanence available to them. Although they must perish individually, they are enabled, through the generation of offspring like themselves, to perpetuate their species. Thus 'they share in the eternal and the divine in the only way that they can' (*DA* 415a29–b1). This recalls the teaching of Diotima in Plato's *Symposium* (207a–208b): the reproductive urge in all animals is an aspiration to immortality, in which mortal creatures unconsciously emulate the divine.

The capacities of the 'nutritive' soul will strike most philosophers of mind as falling outside their province. Since growth, nourishment and reproduction are not 'mental' processes, they seem to raise no 'mind-body problem'. No philosopher now asks, for example, how mind and body are related in the digestion of food, since we normally remain unconscious of that purely 'physical' process. Only with *in*digestion can the philosopher of mind get a foothold, by asking how dyspepsia is related to the sensation of heartburn. But nothing could illustrate better the shift that has occurred in the locus of philosophical concern. Ever since Descartes, the central issues for the philosophy of mind have arisen only with respect to sentient creatures. Because growth and nutrition can occur in non-sentient substances, those processes fail to qualify, as it were, for 'mental' status.

Aristotle's map, however, is differently drawn. The question of how *psuchê* is related to the body arises for any sort of living thing, whether sentient or not. For plants as for animals, we may distinguish form from matter, actuality from potentiality. Plants may be seen as conforming, no less than animals, to Aristotle's definition of the soul as 'the first actuality of a natural body possessing organs'. Their parts can be viewed as rudimentary organs with specific jobs to perform: 'for example the leaf serves to shelter the pod, and the pod to shelter the fruit; the roots are analogous to the mouth, since both take in food' (*DA* 412b1–4). In the case of plants, we cannot, of course, ask how sensations, feelings or thoughts are related to their physical make-up. But we may well ask how their capacities for nourishment and reproduction are related to their material constituents. And we may take a set of chemical processes in a plant (for example the absorption of heat and moisture through its roots) to constitute the material basis for realization of its form. It is only when those processes are explained as the intake of nourishment and a means to growth, that we have understood their significance in the plant's life.

Perception

Animals are distinguished from plants by their powers of perception. These powers enable them to move about, seek food, adapt to their environment and defend themselves, and thus to survive and flourish (cf. *DA* 434a30–b8; *PN* 436b8–437a3). The minimal power, found even in the simplest animals, is the sense of touch. But most species possess a more complex apparatus, in which several different sensory powers are somehow combined in a single, unified system. How are these powers related to one another and to the bodily organs through which they are exercised? And how, in detail, does Aristotle understand what happens in perception?

In this connection, he repeatedly uses phrases which need a word of explanation. He will speak of certain items as 'inseparable, yet separate in account', or as being 'the same yet different in their being'. By this he means that a single thing can answer to two or more different descriptions. A lump of sugar, for example, is both white and sweet. 'The white thing' is identical with, or inseparable from, 'the sweet thing'. Yet its 'being white' is different from its 'being sweet': we would give distinct accounts of what it is to be white and what it is to be sweet. The two descriptions have, as we should say, different senses but the same reference. The relation of the morning star to the evening star is a familiar modern example.

This point plays an important part in Aristotle's view of the relation of the senses to one another and to an animal's other powers. He will often say of two or more powers that they are 'the same, yet differ in their being' (for example *DA* 413b29–32, 424a26, 427a2–3, 432a31–b4, 432a31–b3, 433b21–5; *PN* 449a14–20, 459a15–17). For he wishes to insist both upon their inseparability, as belonging to a single, unified system, and upon the

need for distinct accounts of their respective operations. He regards the sense-organs as different parts of a single, connected apparatus centred in the heart. Perception can occur only when the impulses initiated by an external object's impact upon the organs have travelled to the central sensorium. This centre, and the apparatus which it controls, will be differently described for each of the various functions it enables its owner to perform.[4]

In his essay on sleep (*PN* 455a20–2), Aristotle writes: 'For there exists a single sense-faculty, and the master sense-organ is single, though its being differs for the perception of each kind of thing, for example of sound or colour.' Similarly, in his treatise on sense-perception (*PN* 449a16–20) he argues that there must be a single sense-faculty, yet each of the modes in which it operates (visual, auditory, etc.) is different. A single apparatus is capable of receiving data from a variety of external stimuli through several different types of receptor. Hence different accounts of what it is (the 'being' of this apparatus) will be required for each mode of its operation.

Why must there be a single central sensorium upon which all the sense-organs converge? Because, Aristotle argues, it is one and the same subject that sees, hears, imagines, desires, thinks, moves and acts. All of these powers alike can be exercised by a single animal when it is awake, and all alike are cut off when it is asleep. Our ascription of perception, desire and movement to a single creature requires that it be possessed of a single central apparatus, where all input from the sense-organs is registered, and from which all its responses originate.

We might think of the central sensorium as analogous to a multipurpose tool, a single thing, yet also as many different things (for example knife, corkscrew, screwdriver) as the functions which it enables its owner to perform. A full understanding of 'what it is', of its 'being', calls for a differentiated account of its role in each of those tasks. But it remains a single 'master' organ, whose functioning is essential for every part of the creature's sensory apparatus, and much else within it, to work. Aristotle calls it the 'primary sense-organ'. Although he himself identified it with the heart, in modern physiology it finds a close analogue in the brain.

Since the sensory apparatus is centred at the heart, it is understandable that Aristotle should sometimes speak as if the soul were in the heart. Thus, he can speak of conscious awareness (for example being angry or frightened) as due to movements or changes within the heart (*DA* 408b5–11). But such language should not be taken to mean that consciousness resides in some spatial region of the heart. The power of sight is 'in' the eye, but unlike the eye it has no spatial extension (*DA* 424a24–8). It is not 'in' the eye in the sense in which the pupil is in it. Similarly, to assign the soul to the heart is not to locate consciousness there, but is simply to say that an animal's perceptual (and other) powers can function only if certain physical processes occur in the central organ.

Aristotle's hypothesis of a single centre controlling all sensory (and other) functions of higher animals is intelligible in broad outline. But much detail in his account of perception remains obscure. We have spoken of input from the sense-organs as 'registered' in the central sensorium, and of the animal's 'responses'. What exactly is the nature of this 'registering' or of these 'responses'? Aristotle's answer is elusive and controversial. He says that the power of perception is 'the capacity to receive the sensible forms without the matter' (424a17–19, 425b23–4). But how is that to be understood? Perception obviously differs from nutrition in that the matter of perceived objects is not absorbed into the percipient's body. A piece of bread must be ingested if it is to nourish, but not if it is merely seen, touched, smelt or tasted. But in what sense can an object's 'sensible form' be received without its matter? Is it meant that when we see a red flag, for example, the eye-jelly takes on its properties, literally reflecting the flag's redness? Or does 'receiving the form' refer to a change in the percipient's consciousness, the visual awareness of red? Or does it refer to both of these, regarded as two different aspects of a single event?

Aristotle compares what happens in perception with the impress received by wax from a bronze or golden seal: the shape of the seal is reproduced in the wax, whereas the bronze or gold is not (424a19–21). When someone sees a red flag, its matter is not absorbed into the percipient's body, yet its redness is somehow transmitted to the observer. Aristotle supposes that a continuous series of impulses is relayed from the flag to the eyes, and thence to the heart. These impulses must preserve (in some fashion which is not made clear) the structure of the flag's sensible properties, yet without importing into the percipient any of the matter of the flag itself. This account has been well compared with the modern idea of signals emitted from physical objects, and relaying their sensible properties in coded 'messages' via the sense-organs and nervous system to the observer's brain (Ackrill [3.29], 67). Aristotle probably does not mean that the eye-jelly is literally reddened. For he says only that the seeing organ is coloured 'after a fashion' (*DA* 425b22–3). It could, however, receive a structure which represents the flag's red colour, without itself turning red. Such a structure would suffice to explain, as Aristotle says, why, for example, after-images can persist in the sense-organs when the external stimuli have gone (*DA* 425b24–5; cf. *PN* 459b5–18).

Aristotle's use of the waxen imprint as a model for what occurs in perception recalls his caution, quoted earlier, that 'we need no more inquire whether the soul and the body are one than whether the wax and its shape are one' (*DA* 412b6–7). Perceiving should not be described either in purely physiological terms or in purely psychological ones; and a description of the latter type, which gives the 'form', is not reducible to one which gives the 'matter'. If that interpretation is correct, it will follow that for perception, as for the analogous case of anger, both sorts of story need to be told for a complete account. And, as in the case of anger, it needs to

be shown how perceptual powers are conducive to the subject's preservation and overall well-being. Beyond this, as we have seen, Aristotle recognizes no 'mind-body' problems of the kind that have dominated modern philosophy of mind.

Imagination and related powers

Aristotle next turns to imagination *(phantasia),* a power of great importance in human beings and in the higher animals. His main account of it is given in *De Anima* III. 3, but it also plays a major role in the essays on memory, sleep and dreams in the *Parva Naturalia,* and on desire and movement in *De Motu Animalium.*

Aristotle relates imagination to the power of perception in the terms he had used to express the relationship of the different senses to one other and to the primary sense-faculty: they are 'the same yet differ in their being' (*PN* 459a14–16). That is, they share a common physical basis in the sensorium centred at the heart. But since that apparatus works differently in its different roles, a separate account is needed for its 'imagining' operations.

The story of those operations forms a sequel to Aristotle's story about ordinary perception, later crystallized in Thomas Hobbes's phrase 'decaying sense'. Movements produced by external objects in an animal's sense-organs will often persist as traces in the organs when the original stimuli are no longer present. These movements are carried from the sense-organs, through the veins, to the heart, where (by a process which remains obscure) they are stored, and may later be reactivated. They are then experienced as mental images, memories or dreams. Imagination thus enables waking animals to visualize or recall objects in their absence, and to be attracted or repelled by them, according as they are envisaged as pleasant or painful. It also collaborates with desire and (in human beings) with thought, to produce movement. An animal's desire for pleasure and its aversion to pain impels it to pursue objects envisaged as pleasant or beneficial, and to shun those envisaged as painful or harmful.

So far the role of imagination is limited to the storage of sense-impressions and their retrieval as mental images. But Aristotle's account has a further dimension, which reflects the kinship of the word *phantasia* with 'appearing'. Modern descendants from the same word-group include 'fancy', 'fantasy' and 'phantom'. The word-group covers many kinds of phenomena, including not only 'appearances' in ordinary perception but also what 'appears' pleasant or good, and is 'fancied' as an object of desire. It also covers deceptive appearances (for example optical and other sensory illusions), after-images, dreams, delusions, apparitions and hallucinations.

No single English word is wide enough to cover all these 'appearances'. 'Imagination' is an acceptable translation of *phantasia* where mental imagery is involved. But in several cases mentioned by Aristotle as

instances of *phantasia,* images find no place: the sun 'appears' only one foot across (*DA* 428b3–4; *PN* 458b28–9, 460b18–20); a single stick held between crossed fingers 'appears' as if it were two (*PN* 460b20–2); to a person gripped by strong emotion, a stranger 'appears' as a loved one or an enemy (*PN* 460b3–11); to feverish patients, cracks in their bedroom walls 'appear' as animals (*PN* 460b11–16); land 'appears' to be moving to those who are sailing past it (*PN* 460b26–7); the likeness of a man or a centaur may be seen in shifting cloud-formations (*PN* 461b19–21). In such cases *phantasia* signifies the way an experience registers with, or is interpreted by, the subject. At its broadest, it is the capacity whereby things presented to an observer, in any mode of experience, appear to that subject in the way that they do. It determines what content the objects have for the observer, what they are seen *as*. We may conveniently label it 'interpretive *phantasia*'.

Phantasia in this broad sense has received much attention in recent philosophy of mind, and Aristotle shows a powerful insight in calling attention to it. Yet it remains unclear whether he holds any unifying theory linking it with the capacity for forming mental images, or indeed what such a theory would look like. For the latter capacity can be exercised, on Aristotle's own showing, only in the absence of the original objects whose sensory traces produce images. By contrast, interpretive *phantasia* must be exercised concurrently with the experience itself: a stick is felt as two only while it is being touched with crossed fingers. On the face of it, image-formation and interpretive *phantasia* seem quite different. The hypothesis of 'decaying sense' has no apparent relevance to the latter, and it is not obvious how both can be explained as operations of a single power.

Aristotle rightly distinguishes between imagination and belief or judgment *(doxa)*. The exercise of interpretive *phantasia* is compatible with widely differing beliefs as to whether things really are the way they appear. A paranoid man may be firmly convinced that a stranger is his enemy, whereas someone who assimilates a cloud to a centaur does not believe for a moment that it is one. Patients may or may not think that the cracks in their walls are animals, depending on the severity of their illness. When we say of an object seen indistinctly, that 'it appears to be a man', we register uncertainty as to whether or not it really is one (*DA* 428a13–15). Judgment, then, may either endorse or oppose the deliverances of imagination, or it may remain non-committal.

More dubious are two further distinctions between imagination and judgment (*DA* 427b16–24). First, we can imagine things at will, whereas we cannot judge them to be the case at will. Secondly, 'when we judge something terrible or fearful, we straightway feel accordingly', whereas with imagination we are in the same state as people viewing terrible things in a picture. The first of these points is plausible only with respect to voluntary image-formation; with respect to *interpretive phantasia* it seems far more debatable. The second distinction seems clearly untenable, at least

with respect to some workings of the imagination: bad dreams or memories may be as terrifying as things judged terrible in reality. In comparing the imagining of terrible things with viewing them in a picture, Aristotle does not say, and is unlikely to mean, that we feel no emotion at all (cf. Belfiore [3.35], 243–5). For it would then be hard to explain the power of mimetic objects to stir our emotions, so clearly recognized in the *Poetics*. But the present text does suggest a distinction, perhaps implicit also at *Poetics* 53b12, between the full-scale pity or terror aroused by events judged to be real, and the 'distanced' feeling of those emotions in response to a representational work of art.

Aesthetic experience, however, receives virtually no attention in either *De Anima* or the *Parva Naturalia*. Their focus is upon the role of imagination in animal desire and goal-directed movement. Aristotle's interest, as usual, lies in the faculty's contribution to animal survival and well-being. This circumscribes his treatment rather narrowly. For the imagination, as we think of it, is not merely the capacity for forming images or interpreting experience. It includes creative or inventive powers, especially those displayed in mimetic works of art. Poetic fictions are pre-eminent among its products. Aristotle may, indeed, have recognized a connection between *phantasia* and artistic ability. He identifies aptitude for poetic metaphor with an inborn flair for 'seeing resemblances' (*Poetics* 1459a6–8), a gift which has obvious connections with *interpretive phantasia*. Yet he nowhere explores the role of that power in artistic creation as a subject in its own right.

Intellect

No aspect of Aristotle's thought is more controversial than his treatment of the intellect *(nous)*. Nor is anything in his writings more puzzling or harder to reconcile with his wider philosophical outlook.

In general, as we have seen, he treats mental faculties as inseparable from their physical basis. In line with this, we should expect the intellect to be realized in an appropriate kind of matter, and therefore to exist only within a living human body. Aristotle sometimes entertains this view, especially when making thought dependent upon imagination. Thus he writes: 'But if this too [sc. thinking] is a form of imagination or does not exist apart from imagination, it would not be possible even for this to exist without the body' (*DA* 403a8–10). Since the soul is later declared never to think without imagery (*DA* 431a14–17), and since both practical and theoretical thinking are said to require imagery (*DA* 431b7–10, 432a8–14), we might infer that the intellect can exist only within a living human being. For thought requires imagination, imagination in turn requires perception, and both the latter powers are inseparable from a properly functioning body.

Yet Aristotle remains unwilling to draw that inference. His remarks about intellect are tentative in tone and cryptic in content, but they

consistently postulate a special status for it, exempting it from material embodiment, hence from perishing: 'the intellect seems to be engendered in us as some sort of independent substance and not to be destroyed' (*DA* 408b18–19); unlike our capacity for memory or love, which ceases with bodily decay, 'the intellect is probably something more divine, and is unaffected' (*DA* 408b29); 'it seems to be a distinct kind of soul, and it alone admits of being separated, as the immortal is separable from the perishable' (*DA* 413b25–7); and, by contrast with powers requiring bodily activity (such as walking, nutrition, perception), 'it remains that only intellect enters from outside and only intellect is divine. For its activity is not bodily activity' (*De Generatione Animalium* 736b27–9; cf. *DA* 413a7, 429a22–7). Alone among our mental faculties, then, the intellect is no mere aspect of a formmatter composite, but is pure form without matter. Since it needs no material embodiment, it can exist separately from the body, and is therefore capable of surviving death. It has an equally privileged status in Aristotle's ethics, where its exercise in philosophical study *(theôria)* affords the highest happiness and the only immortality possible for mankind (*Nicomachean Ethics* 1177a11–18, 1177b26–1178a3).

Two factors, in particular, mark the intellect as exceptional. First, it requires no bodily organ for its exercise. In thinking we can apprehend all manner of objects, far and near, material and immaterial, sensible and abstract. Objects of thought, unlike those of perception, require no bodily apparatus to be apprehended. They are grasped directly, yet without physicsl contact. Moreover, thought, unlike perception or emotion, is attended by no bodily changes or processes of which we are conscious while we think.

Secondly, thinking is not restricted to human subjects, but is also, in Aristotle's larger scheme of things, a function of immaterial beings, including God, whose sole mode of activity it is. Human thinking is conceived, analogously, as the operation of a divine element within us, a substance in its own right, whereby we can imitate, albeit imperfectly and intermittently, the continuous and eternal thinking of God.

In an enigmatic chapter of *De Anima*. (III.5) Aristotle distinguishes 'active' or 'productive' intellect from 'passive' intellect, and says of the former that 'in its separate state it alone is just that which it is, and it is this alone which is immortal and eternal' (430a22–3). The point of this distinction remains obscure, and it may not embody any doctrine that was ever clearly formulated by Aristotle himself. Possibly, he would have distinguished two levels of intellectual activity: (1) a mundane level at which thought requires images, is dependent upon the body, and must therefore perish with it; and (2) a loftier level at which neither images nor their bodily correlates are required, because the objects of thought are purely abstract or formal in nature. If the second level were the domain of the 'active' intellect, its capacity for separate existence might be defended (not very cogently), on the ground that imageless thought needs no

physical embodiment. Aristotle's remarks suggest, however, that the active intellect is somehow operative in *all* human thinking, enabling even the passive intellect to function in its own domain. Without a divine operator at work in us, we could not think at all. Whether the operator is merely god-*like* or whether, as one tradition of commentary has maintained, it is to be identified with God himself, has been the subject of an age-old and still inconclusive debate (cf. Rist [3.33], 177–82).

That debate belongs more to the history of Aristotle's metaphysics and theology than to his philosophy of mind. One may in fact doubt whether he would ever have arrived at a doctrine of separable intellect had he been concerned with human psychology alone (cf. Wilkes [3.47], 116). The doctrine is so strongly redolent of Platonic dualism that many would happily write it off as an outmoded relic from an early stage of Aristotle's development. In view of its persistence throughout *De Anima,* and its appearance in the biological and ethical treatises, it cannot be so easily dismissed. Yet it remains in tension with the generally monistic tenor of Aristotle's psychology. He may well have been aware of the tension himself. For on this topic, above all, he gives the impression of wrestling with problems rather than presenting cut-and-dried solutions: 'concerning the intellect and the power of thinking, nothing is clear as yet' (DA 413b24–5). After more than two millennia, those words remain as true as ever.

In conclusion, we may recall Aristotle's characterization of the plot of tragedy as its 'soul' (*Poetics* 50a38–9). The full significance of that remark should now be apparent. We have seen that the soul of a living thing is the structure which enables a plant or an animal to exercise the powers characteristic of its species. Similarly, the plot of a tragedy is the structured nexus of events which enables the power characteristic of that genre to be exercised. Just as without soul there can be no living thing, so without plot there can be no tragedy. The declared aim of the *Poetics* is to examine the 'power' *(dunamis)* which each species of poetry possesses (47a8–9). A tragedy or an epic is designed to make a certain impact. Its 'soul' is the structure whereby it can move and enlighten its viewers concerning the vicissitudes of human life. A poetic fiction, like other mimetic objects, complements scientific inquiry into human powers, by displaying them at work and by engaging them in the service of self-understanding.

According to Aristotle's ethical teaching, human well-being lies in excellent 'activity of soul', i.e. in the best use of those capacities for rational thought and action by which mankind is differentiated. We have seen how those capacities are exercised with pleasure in the experience of poetic fiction, and of other mimetic objects. As representations of human behaviour, those objects depict, and give play to, the very powers which define their makers and their viewers. Through their distinctive appeal to the mind and the senses, they satisfy needs rooted in our nature. Hence the two themes of this chapter are, at bottom, interconnected. Aristotle's

aesthetics complement, as they are also conditioned by, his philosophy of mind. His work in both fields reflects the naturalism which is the dominant strain in his thought, and the scientific outlook which is its hallmark.

NOTES

1 All references to the *Poetics* are to R.Kassel's text [3.5], with the initial '14' omitted from Bekker page-numbers. References to other Aristotelian treatises are to the relevant Oxford Classical Texts. Translations are my own unless otherwise noted.
2 For a fuller study of them, see Gallop [3.49]. With permission, some material from that study has been used below.
3 References to *De Anima* and the *Parva Naturalia* are to W.D.Ross's texts [3.12] and [3.14], with titles abbreviated to *DA* and *PN*. Translations are my own except where noted.
4 See Gallop [3.8], pp. 124–6. I draw upon this study occasionally below.

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CHAPTER 4
Aristotle: Ethics and politics

ETHICS
Roger Crisp

BACKGROUND AND METHOD

Aristotle wrote no books on ethics. Rather, he gave lectures, the notes for which subsequently were turned by others into two books, the *Nicomachean Ethics (NE)* and the *Eudemian Ethics (EE)*. There is much dispute over the relative dating and merit of these works, but the traditional view is that the *Nicomachean Ethics* represents Aristotle's philosophical views on ethics in their more developed form, perhaps at around 330 BC, the *Eudemian Ethics* probably having been composed earlier for a more popular audience (though see Kenny [4.12]). There is a third ethical work sometimes attributed to Aristotle, the *Magna Moralia,* but this is probably post-Aristotelian.

NE contains ten 'books', while *EE* contains eight. Oddly, they have books in common: books 4–6 of *EE* are the same as books 5–7 of *NE*. Scholarly disagreement has focused particularly on which work these books properly belong to. Controversy continues, but the more widely held view, based on study of Aristotle's discussion of pleasure in the common books, is that they belong to the *EE*.

It is *NE* which has traditionally been studied, along with the common books, so it is on that work that we shall concentrate. But *EE* should not be ignored by serious readers of Aristotle. Its differences from *NE* are subtle and interesting, and even if *EE* is earlier, it illuminates how Aristotle's ethical thought developed. Whatever the relation between the works, it cannot be denied that *NE* is one of the most important works in ethics ever composed, both from the historical point of view and that of contemporary moral philosophy.

Aristotle lectured in a room containing a three-legged table, wooden sofas, a whiteboard, and a bronze statue and globe. On the walls were, among other things, lists of virtues and vices, and depictions of Socrates.

His audience would have consisted primarily of young men, of more than humble origin, who might hope to make their way in a career that was at least partly political. As Aristotle spoke from his notes, it is almost certain that he would have expanded upon or clarified certain points, perhaps in response to questions from his audience. The style in which we have NE has had the result that much Aristotelian scholarship has been, and continues to be, pure interpretation of what he says. But in the last few decades in particular, his views have been seen as the foundation for a modern ethics, based on virtue.

Aristotle's audience would have been able to make a difference to fourth-century Athens, and *NE* is explicitly practical in intent. This is most certainly not an anthropological work, attempting dispassionate study of the common morality of the day. Aristotle, like Socrates and Plato before him, believed that certain aspects of that common morality were deeply mistaken. He wished to persuade his readers of this, intellectually and practically: 'Our present study is not, like the others, for intellectual purposes. For we are inquiring into what virtue is not so that we may know, but to become good men, since otherwise it would be pointless' (1103b26–9).

What, for Aristotle, is ethics? A modern work on ethics will concern duties, obligations, responsibilities, rights. Those notions do have analogues in Aristotle's ethical treatises, but he is primarily concerned with the question of the good life for human beings. The central ethical question for Greek philosophers was not, 'What morally ought I to do or not to do?', but, 'What is *eudaimonia*?' *Eudaimonia*. is usually translated as 'happiness', and we shall conform to that usage (see Kraut [4.22]). But some prefer to use notions such as 'well-being' or 'flourishing', in order to remove any implication that *eudaimonia* is a matter of contentment or short-term pleasure. It should not be forgotten, either, that *daimon* is Greek for 'luck', and that *eu* means 'well'. In *NE* 1.9, indeed, Aristotle discusses the question of whether happiness is merely a matter of good fortune.

Greek culture was a culture of excellence, in the sense that young men were widely encouraged to compete with one another in many areas of life, including, of course, athletic, intellectual and aesthetic activity. (The Greek word for excellence, *aretê,* has its root in *anêr,* 'man', as opposed to 'woman'.) One of the central questions asked by Socrates, who provided the inspiration for Plato and hence the whole of Western philosophy, was, 'What is *aretê*?' *Aretê* has traditionally been translated 'virtue', and we shall again conform to tradition. But it should be remembered that, according to ancient Greek usage, a horse that ran fast or a knife that cut well could be said to have an *aretê,* as could a person who told good jokes, as we shall see below.

Greek philosophers, then, were concerned to map the relations of happiness and virtue. Most of what we know of Socrates is through the

depiction of him in Plato's dialogues, but from these it appears that Socrates held that virtue is knowledge. This has the implication, as radical then as now, that the person who performs a vicious action does so out of ignorance. Socrates held also that knowledge, virtue and happiness were very closely related, and, indeed, put his view dramatically into practice. Given the chance to escape the death penalty imposed upon him by the city of Athens, he chose to remain, believing virtue to be 'the most precious possession a man can have' (Plato, *Crito,* 53c7).

Plato continued the Socratic tradition, identifying *dikaiosunê* (usually translated 'justice', though the term covers morality more broadly) with an ordering of the parts of the soul in which reason governs desire and the emotions. For both Socrates and Plato, then, virtue was an extremely important component in human happiness, just how important being a central issue in modern discussions. Aristotle is most plausibly seen as working within the same tradition, asking the same sorts of questions and employing the same sorts of concepts, though his account is of course informed by the philosophical apparatus he developed in other areas of his own thought. Two things set him apart from Socrates and Plato. First, and here again we meet Aristotle's emphasis on practicality, virtue itself is of no value; what matters is actually performing virtuous actions. Secondly, for Aristotle virtuous activity is the only component of happiness. Again, this has some very radical philosophical implications.

The methods of the three philosophers were, however, quite different. Socrates proceeded by asking questions of those around him, and then subjecting the answers he received to searching scrutiny. Plato wrote his philosophy down, in the form of dialogues between Socrates and others. But in his later work, the dialogue form is merely a way to express his own radical metaphysical and moral views. Aristotle was quite reflective about method in ethics, and *NE* 1145b2–7 is one of his clearest statements. Here he says that, when considering an ethical issue, one should first set out *(tithenai)* the *phainomena* (which here means the views long accepted by most people, and the views of philosophers), then formulate the *aporiai* or puzzles that emerge, and finally do one's best to resolve these puzzles in the light of the original *phainomena*.

The way Aristotle goes on to treat the problem of *akrasia* just after this statement is a good example of this method at work. (For our purposes, we can translate *akrasia* as 'weakness of will', though we should not forget that there is some dispute about whether the Greeks had a concept of the will.) On the one hand, nearly everyone accepts that reason can come into conflict with desire, and lose. I know that this large cream cake will make me feel sick, but my desire for it is such that I cannot resist. On the other hand, because virtue is knowledge, Socrates refused to allow that people knowingly took what they knew to be the worse course of action. Aristotle seeks to resolve the puzzle by suggesting that people do indeed do what they know to be worse, but that they 'know' only in an attenuated sense.

When I say, 'I know this cake is going to make me sick', I am merely spouting the words, like a drunk or an actor on stage, without a full grip on their content.

Aristotle faces the problem all philosophers face, that he can set out the views of others and the philosophical problems that arise only from his own perspective. It can be questioned whether he really keeps to his methodological principles, and, if so, whether he is not heading in the direction of conservatism. There is no doubt that the *tithenai* method is often quite far from his mind, when he is engaging in straightforward philosophical argument, based either on premises from elsewhere in his philosophy or on what is generally believed. But even here, as we shall see in the case of his discussion of happiness, he is keen to show that his view chimes with the views of the many and the wise. That is something Socrates and Plato in their ethics never tried to do. They have more in common with those moral philosophers known as 'intuitionists', who suggest that there are certain fundamental truths about ethics which many people cannot see. Aristotle's moral epistemology has some similarity to the forms of 'coherentism' which dominate contemporary philosophy, such as the 'reflective equilibrium' of John Rawls, which attempts to bring philosophical principles into harmony with our reactions to particular cases (see Rawls [4.52]). But, as already suggested, some of Aristotle's views in ethics, and indeed in politics (see below), were far from conservative.

Aristotle's audience, as we saw, would have consisted primarily of well-off young men. They also had to be well brought-up. There is no point, Aristotle suggests, in those who are too young to understand ethics coming to lectures on the subject. In that respect, ethics is unlike mathematics, where prodigies are possible. The reason is that ethical understanding comes not only through philosophy, but first through ethical activity itself. We learn by doing. So to benefit from Aristotle's lectures—to become better—you will need what he calls *to hoti,* 'the that', a basic grasp of the notions of virtue, happiness, and all that they entail. After reflection, aided by the lectures, will come *to dihoti,* 'the because', an understanding of the principles that lie behind ethics (*NE* 1095b6–7).

Because of the importance of practical experience, ethics is unlike mathematics in its capacity for precision (and the same goes for politics: see pp.127, 133). This is something that Aristotle stresses several times early in *NE* (1.3; 1098a20–b8). A mathematics lecture can tell you exactly how to carry out a particular differential calculus, but an ethics lecture can give you only rough guidance on how to act in a particular case. The circumstances of human life are indefinitely complex and unpredictable, to the point that often experience is the only guide. As we shall see below, cultivating the intellectual virtue of *phronêsis* ('practical wisdom') will consist partly in developing a sensitivity to the salient features of particular cases that does not consist in mechanically subsuming the case under an explicit rule one has learned.

This aspect of Aristotle's understanding of ethics also explains something that some of his readers find peculiar. The core of *NE,* rather than offering us sets of principles or rules, consists in a set of portraits of the virtuous man. The point of these portraits, however, is to enable us to 'latch on'to the nature of the virtue in question, and what it requires, so as better to be able to develop and to practise that virtue ourselves.

HAPPINESS

Aristotle is keen to point out to the potential politicians in his audience that ethics is a preliminary to politics (*NE* 1.2). He places the fields of human understanding in a hierarchy, those above in the hierarchy governing those below. At the top is politics, which governs the other disciplines in that it legislates when they are to be studied. Now the point of studying ethics is to understand the nature of individual human happiness; this is the 'end' of studying ethics. Politics will include that end, in the sense that it will decide how the human good is to be pursued within a city, and how the good of one person is to be balanced against that of another.

Just as now, there was no shortage of views in fourth-century Athens concerning the human good. Aristotle splits the most common of these views into three (*NE* 1.5). First, he suggests, most people identify happiness with pleasure (this is the view known as hedonism). Aristotle dismisses the life of pleasure as the life of an animal, leaving it to later philosophers such as Epicurus and John Stuart Mill to draw attention to conceptions of happiness that stressed the non-bodily pleasures. Politicians are more sophisticated, he claims, seeing happiness as consisting in honour, the second view. This, however, is to be rejected because it depends on the opinions of others. We tend to believe that the basis of happiness is not as fragile as this. And, anyway, people pursue honour only to assure themselves of their own goodness, so that virtue is prior to honour. But virtue cannot be happiness either, since one could be in a coma or suffering the worst evils and be virtuous, and no one would count a person in such a position as happy. The third type of life Aristotle mentions is the contemplative life, and this receives substantial discussion at the end of *NE* (10.7–8).

We can already see how Aristotle allows commonly accepted views about happiness—such as that the person in a coma cannot be happy—to shape the argument alongside his own philosophical arguments—such as that virtue is prior to honour. The two methodologies come together shortly afterwards in his putting certain conceptual constraints on the notion of happiness, which are intended to be uncontroversial (1097a15–1097b21). Again, the notion of a hierarchy of goods or ends is central. Some goods or ends are clearly subordinate, or less 'final' *(teleios),* than others. When I go to town to buy a flute, my goal—the flute—is merely subordinate to some other goal, such as enjoying music. The highest good,

Aristotle suggests, is thought to be unconditionally final, in the sense that it is never sought for anything else, while other things are sought for it. Happiness is unconditionally final, since we choose it for itself and not for other things, while we choose other things—flutes, honour, pleasure, the lot—for the sake of being happy.

The notion of 'self-sufficiency' *(autarkeia)* was important in the philosophical world at the time *NE* was composed, and Aristotle points out how reflection upon this notion shows us something about the nature of happiness: 'We take a self-sufficient thing to be what, on its own, makes life worthy of choice and lacking in nothing; and this is what we think happiness does' (1097b14–16). Again, then, happiness is final. Nor should happiness be counted as one good among others, since then it would not be self-sufficient or the most worthy of choice of all goods. For it would always be improvable.

Quite what Aristotle means here has been subject to a great deal of philosophical discussion (see, for example, Ackrill [4.18]; Crisp [4.20]; Keyt [4.24]; Kenny [4.23]; Kraut [4.22]). On one view, ascribing to Aristotle what is called the dominant view of happiness, he is arguing that happiness must be the most worthy of choice of all goods, and so superior to other goods. As we shall see below, there are strong reasons for identifying such a good with 'contemplation' *(theôria)*. On another view, Aristotle holds an inclusive view of happiness, believing it to be the most final good in the sense that it includes all others. Flutes, honour, pleasure, and so on, are all, in some sense, parts of happiness.

The inclusive view, on the face of it, seems to fit better with Aristotle's stress on a hierarchy of ends the higher items of which 'include' (*periechoi, NE* 1094b6) those below. His famous 'function' argument, which we shall discuss below, does throw up a serious problem for the inclusivist interpretation, but we should first attempt to be clearer about just what notion of inclusion is in play.

Help is at hand in the form of Aristotle's discussion of Eudoxus at *NE* 1172b23–34. Eudoxus had argued that pleasure was the good (that is, the highest good), since pleasure, when added to any other good, makes it more worthy of choice, and the good is increased by the addition of itself. This is a poor argument, of course, but what matters here is Aristotle's comment upon it. He says that all Eudoxus proves is that pleasure is one of the goods, and goes on to note that Plato uses the same sort of argument to show that pleasure is not the good. The pleasant life, Plato argued, is more worthy of choice when combined with wisdom, so it is not the good. For the good is such that nothing can be added to it to make it more choiceworthy.

Aristotle does not mean in his claims about finality either that a happy life has to contain all the goods or that a happy life cannot be improved upon. The discussion of Eudoxus and Plato shows that he is primarily thinking of conceptions of happiness when he speaks of inclusion. A

conception of happiness—that is, a list of the things that happiness consists in—must be complete. If I can add some good (such as wisdom) to a proposed list, then that list is, to that extent, faulty. So the correct conception of happiness must include all the goods there are. As we shall now see, this poses a serious problem of interpretation of Aristotle's own view.

Having set out the conceptual requirements on any conception of happiness, Aristotle suggests that we may be able to identify exactly what happiness consists in if we can discover the *ergon,* or 'function', of a human being (*NE* 1097b24–1098a20). Again, though there are problems with it, 'function' is the traditional translation here, so we shall continue to use it. The *ergon* of X is X's characteristic activity, the sort of thing engaging in which makes X what it is. Thus, the *ergon* of a knife is to cut. That is also its function, of course, but the notion of function introduces the notion of some external purpose which is not present in the Greek.

What, then, is the function, the characteristic activity, of a human being? It cannot be nutrition or growth, since these are common to humans and plants. Nor can it be sense-perception, since that is common to humans and other animals. All that is left is rationality or reason. Now the function of a lyre-player is to play the lyre, and the function of a good lyre-player to play the lyre well. So if we assume that the human function is that activity of the soul that expresses reason, then the good man's function is to do this well. Doing anything well is doing it while expressing a virtue, so the human good turns out to be that activity of the soul that expresses virtue.

Happiness, then, is virtuous action. This explains why Aristotle spends most of *NE,* a work concerning happiness, offering accounts of the nature of virtuous action. Before going on to consider the conclusion of the function argument in the light of the conceptual requirements that precede it, let us first consider the function argument itself. Aristotle's argument here is a form of perfectionism, that is, a view which holds that the human good consists in the perfection of human nature. An old objection to his argument is its proceeding by elimination. Why should the human function not include, say, sense-perception? And how can excelling in rational activity be characteristic of human beings when the gods engage in just such activity?

This objection, however, fails to take into account an obvious assumption lying behind the function argument, namely that plants and animals are not the sort of beings to which we ascribe happiness. So, given that humans are happy, it makes sense to seek the characteristic that distinguishes humans from plants and animals. True, this characteristic may be, indeed is, shared with the gods, but that does not matter for the purposes of the argument here.

Another objection is more serious. Aristotle, it is said, forgets the distinction between 'the good man' and 'the good for man' (Glassen [4.21]). I may well accept that the good or paradigm example of a human

being is one whose life exemplifies the virtues. But it does not follow that such a life is the best life for the person who lives it. For it could be that by going against one's nature one can obtain a life that is better for oneself.

Finally, there is a general concern about perfectionist arguments as a whole, that they come too late. Most perfectionists imply that they are carrying out an independent inquiry into human nature, and then allowing their conception of the human good to be shaped in the light of their understanding of human nature. But all too often it can be suggested that the perfectionist is allowing his already-formed views of what happiness consists in to guide his conception of human nature itself. So the notion of human nature is left as a wheel spinning idly. In our conclusion below, we shall discuss the important role the notion of human nature plays in Aristotle's politics, and raise a similar concern.

There are, then, problems with the function argument. But the function argument is not Aristotle's only way of arguing for his conception of happiness as virtuous activity. As we suggested, the portraits he paints of the attractions of the virtuous life, and the bad features of the vicious life, particularly in the middle books of *NE,* can be seen as speaking in favour of the virtuous life.

Two further problems concerning Aristotle's conception of happiness remain. The first concerns the relation between the conceptual requirement of inclusiveness and the idea that happiness consists in virtuous activity. Recall how the argument of Plato referred to in the Eudoxus discussion worked. If I suggest that happiness consists in pleasure, my claim can be refuted by showing that a life that contains wisdom as well as pleasure is better than a life which contains (the same amount of) pleasure. My list is incomplete, and I must add wisdom to it. The conclusion of the function argument leaves Aristotle with one item on his list: virtuous activity. Why should we not criticize him in the same way, by insisting that he add other goods, such as pleasure, wisdom or friendship, to his list?

Arisotle's response here would be that virtuous activity itself includes these goods (*NE* 1.8). The virtuous man will find true pleasure in virtuous actions, the exercise of virtue essentially involves wisdom, and friendship is one of the virtues. Aristotle even has a response to those who suggest that happiness requires 'external goods', such as money. For virtuous action will itself require such goods. You cannot, for example, be generous unless you have something to be generous with.

Aristotle's view of happiness, however, does have a very radical implication, so radical that it throws some doubt on the plausibility of the view. According to Aristotle's account of happiness, there is nothing good in the life of the vicious person, since happiness consists in virtuous activity. This is a brave and interesting claim, and solidly within the Socratic-Platonic tradition, but it is too strong. Aristotle's response to the objection just discussed above fails properly to individuate goods. For him to demonstrate that pleasure need not be added to the list, he has to show not

only that virtuous activity involves pleasure, but that there is no pleasure independent of virtuous activity. This, however, would seem very hard to support. Can the vicious man not enjoy a good meal as much as the virtuous man? Some pleasures, and some other goods, are independent of virtuous activity, and will provide some rationale for the vicious life. Aristotle would then have to retreat to the less exciting, but more plausible, view that virtuous action offers the best prospects of happiness. This, however, would be enough for his view to be of practical import for his audience.

The other problem of interpretation concerns the relation between the virtues 'of character'—courage, generosity, and so on—and the activity of contemplation. Aristotle begins *NE* 10.7 as follows: 'If happiness is activity expressing virtue, it is reasonable that it express the highest. This will be the virtue of the best thing.' He goes on to suggest that the 'best thing' is understanding *(nous),* the activity expressing which is contemplation *(theôria),* and to defend the claim at length that contemplation is 'final' *(teleios)* happiness.

There are many interpretations available of these claims of Aristotle, from the idea that he is straightforwardly inconsistent in his views concerning happiness to the notion that these chapters are an 'end-of-term joke', at the expense of Plato (Ackrill [4.18]; Moline [4.26]). One of the most common views has been that contemplation is indeed what Aristotle has meant all along by virtuous activity: the function argument does, after all, conclude that, if there are more virtues than one, happiness will be that which expresses the best and 'most final' (*NE* 1098a17–18).

Aristotle throws dust in our eyes by attempting in *NE* to answer several questions at once. One is the question of what goes on the list of goods that constitute happiness, and his answer there is virtuous activity. Such activity can involve either contemplation or the virtues of character, and happiness can be found in either (1178a9). Another question, however, is, given this conception of happiness, which activity is the most conducive to happiness. And here his answer is, in the ordinary way of things, contemplation.

It may have been that some in Aristotle's audience were disappointed by the conclusion of *NE*. For Aristotle gives no explicit guidance on which kind of life to go for, that of the philosopher or of the politician. But he would have argued that which life is likely to be the happiest for any one individual depends on the particular circumstances of the case. His general advice is that contemplation is peculiarly valuable, so if one is capable of it in any reasonable degree, the life of the philosopher is probably the one to aim for. But if one is not a talented thinker but an excellent politician, one should probably choose the life of action. And there is nothing to prevent one, in the manner perhaps of Plato's 'philosopher kings', attempting to combine both activities within the same life.

To sum up our discussion so far. Aristotle's enquiry is essentially a political one, concerning the running of a city. Political arrangements will be concerned with the promotion of human happiness, and this turns out to be virtuous activity. So from happiness, we are, like Aristotle, led into discussing virtue. And virtue, Aristotle points out (*NE* 1102a7–13), is again anyway a central topic of politics, since the 'true politician' spends more time on attempting to instantiate virtue in his citizenry than on anything else.

VIRTUE

Happiness is virtuous activity, and virtuous activity is activity of the soul. So it is important, Aristotle says, for the politician to have some understanding of the soul itself (*NE* 1.13). The soul can be divided into rational and nonrational parts. The rational part, with which, for example, we contemplate, is correlated with the 'intellectual virtues', the most important of which in connection with ethics is *phronesis,* or 'practical wisdom'. The nonrational part can be subdivided, one of its subdivisions being concerned with nutrition and growth. The other part, however, has more in common with reason. We know that it exists, as Plato pointed out in the *Republic,* because there is something in us that struggles with reason in certain circumstances, such as when we are weak-willed. This part is also capable of obeying reason, as in the case of the continent man. Its virtues, the 'virtues of character', are courage, generosity, temperance, and so on. *NE* is concerned primarily with the virtues of character, though, as we shall see below, intellectual virtues have an important role to play in full virtue.

Virtue of thought comes mostly from teaching, and there are some cases in which it is acquired very early. Think, for example, of a mathematical prodigy. But the virtues of character arise through habit *(ethos)* (*NE* 2.1). Teaching, of course, is important in steering people into the correct habits, but there is nothing in acquiring virtue analogous to the 'flash of inspiration' one finds in learning mathematics. Becoming virtuous is more like learning a skill, such as building. One learns to build a wall by doing it, and if one does it well, one will become a good builder. So performing just actions or courageous actions will result in one's becoming just or courageous. Since the habits we get into are very much a result of the guidance we receive, it is essential for the moral educator—a parent at the individual level, a politician at the social level—to understand the role of habit.

Someone might here raise a puzzle (*NE* 2.4). Surely, a person who is building is already a builder, and similarly someone who is performing just or generous actions is already virtuous? Aristotle points out that someone learning to build may just be following instructions, and notes that, for an agent to be virtuous, he must not only perform virtuous actions, but

perform them in the right way: knowing what he is doing, choosing them for their own sake, and doing them out of a well-grounded disposition.

The second of these three conditions provides a possible link between Aristotle's ethics and the later ethics of Immanuel Kant (1724–1804). According to Kant, moral worth attaches to an action only in so far as it is motivated by respect for the moral law. This has seemed objectionable to some philosophers, who believe, for example, that an action motivated by a loving concern for another person is morally praiseworthy. Here we find Aristotle telling us that a virtuous action is chosen for its own sake, not, for example, so that another person can be helped. Elsewhere he says that the virtuous man chooses virtuous actions for the sake of *to kalon,* 'the fine' or 'the noble' (*NE* 1115b12–13), and it is plausible to see this as, for him, equivalent to choosing them for their own sake. Again, however, there is no reference to concern for others: the focus is on oneself and on the quality of one's actions.

Virtues, then, are dispositions *(hexeis),* engendered in us through practice. Aristotle characterizes the nature of virtue using his famous 'doctrine of the mean' (*NE* 2.6). The idea of the mean had developed in Greek medicine, the basic thought being that the different bodily elements should be neither excessive nor deficient, but in harmony. Aristotle was probably influenced also by Plato's conception in the *Republic* of the harmony of the elements in the best soul. Virtue of character aims at the mean in the following way:

> We can, for example, be afraid or be confident, or desire, or feel anger or pity, or in general feel pleasure and pain both too much and too little, and in both ways not well; but at the right times, about the right things, towards the right people, for the right end, and in the right way, is what is intermediate and best, and this is proper to virtue. Likewise, there is an excess, a deficiency and a mean in the case of actions as well.
>
> (*NE* 1106b18–24)

It is important to be clear that Aristotle is not advocating here a doctrine of moderation. In the case of anger, for example, one should be moderate only if moderate anger is required in the circumstances. In some cases, such as a mild slight, mere crossness will be called for, in others, absolute fury. It all depends on the case.

In the case of anger, then, the person with the virtue of even temper will feel angry at the right times, about the right things, in the right degree and so on. Imagine that something happens to me at three o'clock, the reasonable and virtuous response to which is anger. How is this 'in a mean'? For Aristotle cannot intend us to think that it is in a mean between getting angry at two o'clock and getting angry at four o'clock!

In the case of anger, you can err in two ways regarding when you get angry. You can get angry when you should not, or you can fail to get angry when you should. Both will be vicious, and if you have a disposition to either, you have a vice. The same goes for the other conditions: you can get angry with the wrong people, or fail to get angry with the right people, get angry for the wrong reasons, or fail to get angry for the right reasons, and so on. So, as Aristotle says, there is only one way to get it right, but many ways to go wrong (*NE* 1106b28–35).

The passage quoted above primarily concerns feelings, and some authors have written as if there is a feeling underlying each of Aristotle's virtues of character. But this is not so, for example, in the case of a central virtue, generosity (*NE* 4.1). In fact, more to the fore in Aristotle's discussions of the individual virtues are the actions that exemplify them. And our account above shows how to understand the notion of an action's being in a mean. Generosity is concerned with the giving away of money. The generous man is the one who gives it away, for example, at the right times, whereas the prodigal man will give it away at the wrong times, and the ungenerous man will fail to give it away when he should.

It is sometimes suggested that there is something almost tautologous about the doctrine of the mean: you should do what is right, and what is right is what is not wrong (see Barnes [4.15]). But in fact the doctrine of the mean represents an important ethical discovery by Aristotle. He divides human life into certain central 'spheres', concerning the control of money, social life, sexual desire, common emotions such as anger or fear, and so on, and notices that there is a right way to act or to feel in each of these spheres, depending on the circumstances. And unlike an ethics of constraint (a list of 'don'ts'), Aristotle sees that ethics requires positive action or feeling, not mere avoidance. Each sphere is, as it were, neutrally characterized: if I know that you have given away money, I cannot yet tell whether that is vicious. The virtuous man is the one who acts and feels well, and the vicious are those who perform the same actions and feel the same feelings at the wrong time or in the wrong way, or fail to do so when they should.

What, then, are the virtues of character, according to Aristotle, and what are their spheres? Consider the following table:

Virtue	*Sphere*	*Discussion in NE*
Courage	Fear and confidence	3.6–9
Temperance	Bodily pleasure and pain	3.10–12
Generosity	Giving and taking money	4.1
Magnificence	Giving and taking money on a large scale	4.2
Magnanimity	Honour on a large scale	4.3
(Nameless)	Honour on a small scale	4.4

Even temper	Anger	4.5
Friendliness	Social relations	4.6
Truthfulness	Honesty about oneself	4.7
Wit	Conversation	4.8

Aristotle also briefly discusses shame, which he says is not really a virtue, and righteous indignation (*NE* 1108a30–b6; 4.9). He devotes the whole of book 5 to justice, and his notorious attempts to force this virtue into his framework fail (1133b29–1134a13). The reason for this should be clear from our discussion above: in the case of justice there is no neutrally characterizable action or feeling which the virtuous man can do or feel at the right time. Books 8 and 9 of *NE* concern another virtue, *philia,* usually translated as 'friendship', though it is in fact wider than this.

Justice, then, is a problem with the doctrine, and there are more technical difficulties with particular virtues such as courage. But the doctrine of the mean on the whole provides Aristotle with a sound framework in which to discuss and systematize the virtues and vices. The list is interesting, in that it contains nothing corresponding to what we might call benevolence or kindness, a general concern for others at large. Some have said that this demonstrates the size of the cultural gap between pre- and post-Judaeo-Christian societies. But one might suggest that the core of the virtue of benevolence is located elsewhere by Aristotle, primarily in the virtue of friendship. The Aristotelian virtuous man may perhaps be excessively concerned with 'the fine', but this does not make him heartless. It has to be admitted that the notion of general benevolent concern for humanity at large does not play any significant role in Aristotle's ethics. But it must also be admitted that general benevolent concern, as opposed to concern for those with whom the agent has some personal connection, plays a smaller part in modern ethical life than many of us like to admit.

What is the relation of the intellectual virtues to the mean and to the virtues of character in general? Aristotle begins his discussion of the intellectual virtues in such a way that it sounds as if he is agreeing with those who find the doctrine of the mean to be empty (*NE* 6.1). Telling someone that the right action is in a mean between two extremes, he says, is rather like telling an ill person to take the drug the doctor would prescribe. But we should remember here Aristotle's insistence that the listener to his lectures should have a basic grasp of the elements of ethics. Someone who has that can then use it as a starting-point for reflection on the nature of the virtues, and consequent character change. I might, for example, reflect upon the large number of times I have been angry with students over the last few weeks, and follow Aristotle's advice to steer myself in the opposite direction in future.

But really getting it right on every occasion, Aristotle says, will require that one's feelings and actions are in accordance with 'correct reason'

(orthos logos). This is not a matter of habituation, but something more intellectual, and will require the possession of the intellectual virtue of practical wisdom.

Practical wisdom is broad, and includes an ability not only to find the right means to certain ends, but the ability to deliberate properly about which ends are worthy of pursuit (*NE* 6.8–9; 6.12). The person with practical wisdom, then, will have the correct understanding of happiness, and the role of virtue in constituting happiness, and be able to apply his understanding in everyday life.

But practical wisdom is not like, say, mathematical ability, which can be acquired early and operates according to the application of certain explicit rules. Practical wisdom, like the virtues of character, develops with experience, and has as much to do with seeing the salient features of certain situations, and acting and responding appropriately in the light of them, as with any ability for explicit deliberation. Some have seen Aristotle's discussion of practical wisdom as disappointing, perhaps because they hope for some explicit and detailed ethical rules by which to live. Aristotle does offer some pretty specific rules—such as that you should ransom your father from pirates rather than repay a debt to someone (*NE* 1164b33–1165a2)—and the general rules 'be virtuous' and 'aim at the mean' are of course always in the background. But Aristotle is insistent, and surely correct, that one cannot learn virtue solely from philosophical books or lectures.

Practical wisdom, since it involves seeing in the right way, is a necessary condition for possessing any virtue. And if in any particular case you have the general capacity to see what is right and do it, you will have it in all cases. So, though Aristotle is prepared to distinguish one virtue from another, he is not ready to allow that one can possess one virtue and lack another (*NE* 6.13). One cannot, for example, be generous and cowardly. One important reason for Aristotle's holding this view is his thought that virtue requires getting it right. For vices can distort the deliverances of any disposition, however close it may be to being a full-blooded virtue. In a situation where generosity required conquering fear, the person might not do the generous thing, and that would mean that he lacked the virtue. Good intentions are not enough.

ARISTOTLE AND CONTEMPORARY ETHICS

Aristotle's ethics were immensely influential. They were the focus of Hellenistic ethics, and were also extremely important in the Christian tradition, most strikingly in the work of Thomas Aquinas (*c.*1225–1274). Of course, it was not only the Aristotelian ethics which were significant during this period, but the whole Aristotelian world view. With the scientific revolution of the seventeenth century, however, Aristotelian science began to decline in importance, and the ethics met with the same

fate. In the place of Aristotelian ethics developed modern systems of ethics, many of them employing notions alien to Aristotelian thought. The two main developments were Kantian ethics, according to which morality is a universal law of reason and individual rights are sovereign, and utilitarian ethics, according to which one should act so as to produce the greatest amount of happiness.

In science, the move away from Aristotle was not complete. In his famous work on the circulation of the blood, for example, William Harvey refers to Aristotle more than to any other thinker. And the same is true in ethics: the Kantian emphasis on reason in ethics cannot help but remind us of the function argument (see p. 115) and practical wisdom, while utilitarian concern for happiness has its roots in Greek eudaimonism. But over the second half of the twentieth century, there has been a self-conscious attempt by certain philosophers to return to a more explicitly Aristotelian ethics. This movement began in 1958, with the publication of Elizabeth Anscombe's article 'Modern Moral Philosophy' [4.46]. Anscombe, following Schopenhauer, argued that modern ethics revolved around notions of legalistic obligation which made little sense in the absence of a divine lawgiver. She suggested that philosophers desist from moral philosophy, and turn to psychology. 'Eventually', she claimed, 'it might be possible to advance to considering the concept "virtue"; with which, I suppose, we should be beginning some sort of a study of ethics' (Anscombe [4.46] 15).

This was the beginning of what has come to be known as 'neo-Aristotelian virtue ethics'. The 'neo-' here is, however, rather important. For certainly these writers have not sought to revive Aristotelian ethics. Indeed it might be argued that the differences between their views and those of Aristotle are such that the link between them is only as strong as the link between Aristotle and Kant or Aristotle and the utilitarians.

Virtue ethicists, like Aristotle, begin with the notion of *eudaimonia*, or human flourishing, considering the agent and his life as a whole, rather than concentrating on individual and isolated right and wrong actions. But this is not a difference in substance between them and the Kantians and utilitarians, for these latter theorists can also offer an account of the good life and moral character. It is just that often they have not bothered.

No modern writer has adopted the strong Aristotelian view that happiness consists only in virtuous activity. Indeed many modern virtue ethicists, such as Philippa Foot [4.48] or Alasdair MacIntyre [4.50], are sceptical about objective accounts of the human good. Even those who are less sceptical, such as Rosalind Hursthouse [4.49], tend to see the virtues as instrumental to human flourishing, understood independently from the virtues themselves, thus taking the 'best bet' strategy we mentioned above.

Another important difference between Aristotle's eudaimonism and that of most modern writers is his apparent acceptance of egoism, the view that reasons justifying action must ultimately rest on the agent's own self-

interest. There is nothing in the Aristotelian corpus to suggest other than that Aristotle's aim was to offer to his listeners an account of the best life for a human being in order that they might pursue it for themselves. The idea of reasonable self-sacrifice for others is quite absent, since there is no gap between self-interest and the virtues (*NE* 9.8).

Perhaps the most direct Aristotelian influence can be seen in the writings of John McDowell [4.51], David Wiggins [4.54], and others who stress the notion of a sensitivity to the morally salient features of situations as constituting the heart of virtue and morality itself. But even here the importance of 'mother wit' in Kant, or the role of perception in the deontological intuitionism of W.D.Ross (1877–1971), himself a great Aristotelian scholar, should not be forgotten. The utilitarian tradition, it is true, has tended to place more emphasis on calculation than moral perception, but again this is a matter of contingency. Utilitarians need some account of practical wisdom or moral judgement as much as any other moral theorist.

The above discussion is intended to suggest that the distinctions drawn between different schools in modern ethics are not as precise or useful as many believe them to be. Ultimately, the real difference between one moral philosopher and another lies in how they tell us to live, and the reasons they give for living in that way. No one now speaks ordinarily of *megalopsuchia* (usually translated as 'magnanimity', but not meaning what is now meant by that term), which for Aristotle was the crown of the virtues (*NE* 4.3). The magnanimous man thinks himself worthy of great things, and has one concern above all others: honour. He stirs himself only when some great achievement is at stake. There is indeed much to be learned from Aristotle's account of the virtues, but his moral ideal is a long way from 'neo-Aristotelian' modern writers, particularly those who emphasize the virtue of care for the vulnerable.

Most importantly, perhaps, we should remember the political context in which Aristotle was writing (see below). His virtues are intended for fourth-century Athenian noblemen, inhabiting a city-state with a population of tens of thousands rather than of millions. This is not to say that Aristotle is any kind of relativist, grounding his account of virtues in whatever social context they were to appear in. Rather, he believed that the Greek polis was, universally, the best form of human society, and that the virtues that it made possible were largely the reason for this. For this reason, it is dangerous to draw conclusions about what Aristotle would have thought about how individuals should live in modern societies entirely different in their details and general nature from the Greek polis. Perhaps the correct way to approach Aristotelian ethics is not to claim him as an ally in or authority for one's own views about modernity. Rather, he should be read carefully and sensitively, with an understanding of historical, social and political context, as one of the best sources of insight into the human ethical condition available to us.

THE *POLITICS*

Trevor J.Saunders

INTRODUCTION

It is a fair test of a political philosopher to ask him to describe what in his view is the best form of communal human life. Aristotle would give you this reply: 'It is to live as a citizen in that special kind of aristocracy which I describe in my *Politics,* in what you moderns call "books" 7 and 8. You and your fellow-aristocrats would not be numerous: you would be able to address them all in a single gathering. The territory of your state would be correspondingly modest. Your citizenship would be granted you on the strength of your high moral and political virtue, which you would have acquired as a result of systematic exposure to a carefully contrived programme of private and state education. The other members of your household would be your wife, children, servants, and slaves. Your resources, ample but not great, would come from your land; but you would not need to bother your head much about that, as your slaves would do the work. Trade and handicrafts would be confined to free men who are not citizens; for such people, though necessary to the state, would not be *parts* of it. You would spend much of your time on leisure activities—not just play, but rather the serious intellectual and cultural pursuits of what you would now call a gentleman. Why do I think this the ideal life? Pray read the rest of my *Politics*.'[1]

Taking the Master's advice calls for effort. Though of the highest importance and influence, the *Politics,* unlike the *Nicomachean Ethics,* is a rather ragged work. Aristotle employs his usual elegantly plain style, which can at times be spare to the point of sketchiness and even obscurity. But that is not the real bother. Though substantial stretches of the text are structured and beautifully written wholes, there are frequent puzzles in the detail: unclear references back and forth, enquiries left incomplete, and sudden changes of subject-matter and standpoint. To reconstruct Aristotle's full thought on a given subject, it is usually necessary to thumb through the entire work and collect the relevant passages—which are not always consistent with each other. The abundant references given below are designed to speed the reader's thumb. (Unless otherwise stated, all references are to the *Politics*.)

On the global scale too, the structure and sequence of the eight books seem strange, and have prompted many commentators into reordering them in accordance with *a priori* views about the natural disposition of their contents, or with theories about Aristotle's philosophical development. The debate was substantially enriched by Jaeger in 1923 ([4.84] 259–92), who argued powerfully for an Aristotle gradually freeing himself from Platonic political assumptions and methods, an emancipation traceable in various strata of the text. But this controversy, though inky,

has proved inconclusive, and 'genetic' analyses are not now in vogue. It is perfectly reasonable to do what most interpreters now do in practice, that is take the *Politics* as it comes, and to assume that however Aristotle composed the parts, he intended to present the ensemble as we have it, failing only to tighten the nuts and bolts.[2]

Nevertheless, a brief survey of three of the more conspicuous difficulties of structure will serve to provide some idea of the contents of the work as it has come down to us. (1) Book 2, on certain theoretical utopias (notably Plato's *Republic* and *Laws*), and on three historical states (including Sparta) in fine repute, looks as if it may have been written first, as the standard Aristotelian review, at the start of a work, of his predecessors' contributions to the subject in hand. Why then does book 1, a strongly sociological analysis of the state and its parts, and philosophically the richest book of all, precede it? Does it contain theoretical groundwork of which Aristotle realized the need only when composing the rest of the *Politics?* (2) Why is the closing sentence of 3, a book devoted to questions of political power in the various constitutions, similar to the opening one of 7, on the ideal state? Both speak of the need to examine the 'best' constitution. But books 4–6 are full of historical analysis, and advice on the reform of existing and *imperfect* states. So have they been inserted between 3 and 7 by some clumsy editor? Even if they have been, the implications for our understanding of the *Politics* as a whole are mysterious. (3) Why does book 8, the last, break off in mid-discussion? It is unlikely that Aristotle simply became bored with political theory, since on his own showing knowledge about the working of the state, *politikê epistêmê,* is the supreme, all-embracing knowledge, that is of how to achieve the highest human good (*NE* 1.2, *Politics* 1.1 ad init.). Perhaps he died pen in hand. If that is so, it suggests that books 7 and 8 are not his early thoughts, inspired by Plato-style idealism, but the genuine conclusion and practical aspiration of the entire work.

Perhaps the best advice to give a reader of the *Politics,* particularly a new reader, is to be aware of such specialized academic problems, for they can affect interpretation, but not to become obsessed by them. For in spite of variations in detail, Aristotle's political philosophy is clearly a fundamentally consistent whole, underpinned by firm and constant philosophical foundations.

NATURE

In 1.2, utilizing a long-established optimistic and progressivist tradition in Greek historical anthropology, Aristotle tells the following story. Civilization 'has advanced sequentially, through three 'associations', *koinôniai:*

1 household *(oikos),* formed of the two primitive 'associations' of man-woman, master-slave;
2 village *(kômê),* formed of several households;
3 state *(polis),* formed of several villages.

The naturalness of each association is stressed heavily. Man-woman: they have a natural urge to breed; master-slave: natural ruler and natural ruled; household: formed by nature for everyday purposes; village: 'by nature to an especial degree, as a colony of a household—children and grandchildren'; state: it exists by nature, for all men have a natural impulse towards such an association.

Each stage incorporates its predecessors, and brings an increase in material resources, presumably because of increasing specialization of function and opportunities for exchange of goods and services. In part, material comfort and security are what all these associations are for. But at stage 2 Aristotle's ulterior preoccupation begins to emerge: the village is formed for 'other than daily purposes'; and at stage 3 the state, which is a 'complete' association and totally self-sufficient, 'came into being for the sake of life, zên, but exists for the sake of the good life, *eu zên*'. By 'self-sufficiency' Aristotle means here not merely an assured supply of all necessary material goods from domestic or foreign sources, but the opportunities afforded by the complex demands of life in a polis for the full exercise of a man's natural potentialities for rational conduct in conformity with the moral virtues (on these, see pp. 118–22 above). Such conduct both leads to, and is, human 'happiness', *eudaimonia;* it is the 'good' life for which the state exists (cf. 7.1, 13, *NE* 1097b1 ff.). Hence, in Aristotle's celebrated formulation, man is a *phusei politikon zôion,* 'an animal (fit) by nature for (life in) a polis' (cf. 1278b15 ff.). For this animal is unique in possessing reason and speech, and a capacity for shared moral values (1253a7–18). Hence again, a man who does not live and act in a state is a man indeed, but no more a full man, i.e. a fully functional man, than a hand made of stone is a functional hand. He is functionally stunted, and the measure of happiness he attains is limited.

This latter point is worth developing. To Aristotle, it is no more a matter for surprise or indignation that one man should by nature be better equipped than another for acquiring virtue and thereby achieving happiness than that he should be by nature stronger physically, with a greater potential for (say) weight-lifting. 'Happiness' is on a sliding scale: one can have more or less of it (1328a37–40, 1331b39–1332a7). Hence he has an immediate answer to the objection that vast numbers of people ('barbarians', i.e. non-Greeks) live and apparently flourish in societies other than *Greek poleis*. That they are happy up to a point, he would concede; that they are fully so, he would deny. In a Greek polis, did they but know it, they would be happier (cf. 7.7). Happiness is not, or not only, a subjective feeling of satisfaction in achievement (see p. 110): it is an

objective and definable state of affairs, of human flourishing, that is to say rational activity in accordance with the virtues; for this is man's natural function (see p. 115).

Further objections spring up, as many as the heads of the Hydra. Several, centring on the notion of 'function' in human behaviour, have been explored already (pp. 115–16). In addition: (1) Even in terms of Aristotle's own natural philosophy, in which the paradigm of the 'natural' is biological growth (see *Physics* 2.1), the state is hardly natural. It is much more like an artefact, full as it is of elaborate constitutional and social contrivances that certainly do not develop naturally, as an embryo develops naturally into an adult member of its species, of its own accord, given all facilitating conditions (see Keyt [4.86]. (2) But even if we grant that the development from primitive pairings through household and village to state may properly be conceived on a biological model, in virtue of natural urges to develop such associations, difficult questions confront us: for example, can the same analysis be applied to a process involving many individuals in many changing relationships as is applied to a single individual's physical growth into an adult? (3) More generally, how far ought we to privilege certain human characteristics, or certain patterns of human social behaviour, on the strength of either parallels to them or differences from them in the characteristics or behaviour of animals?[3]

Perhaps the best we can do for Aristotle is to extend the notion of 'natural' to embrace anything which is the product of man's natural faculties, conspicuously reason, and which conduces to his happiness; and indeed Aristotle himself at times speaks in this way (for example 1279a8–13, 1287b36–41; on his 'political naturalism', see Miller ([4.91], 27–66). But as we shall see, he is prepared to be very specific indeed about 'anything'; for human institutions are, he believes, capable of normative assessment. Some things conduce to happiness, some do not. Human skill should follow and supplement nature (cf. 1337a1–3). Consequently, relativism in social and political values and institutions is to be firmly rejected. No doubt all sorts of theoretical and practical controversies are possible; but in the end they are capable of definitive solution by reference to the fulfilment of men's natural capacities, to the *sort of being* a man naturally and peculiarly is.

Aristotle's natural teleology has three important consequences for political theory and practice. (1) A man in a state of nature is not someone living in simple primitive 'happiness' in a nudist camp; nor is he Hobbes' natural man, naked and shivering in the wind before achieving such protection and comfort as society affords him. Rather, to be in a natural condition is to be a functionally fulfilled member of a polis: one goes not back to nature, but forward to it. (2) Though the state is indeed a device to ensure peace and protection, its role is not simply to hold the ring in a minimalist or merely contractualist manner, between socially or commercially contesting individuals or groups (3.9). It should take

comprehensive care of every department of life, economic, social, political, military, private, public, secular, religious; in particular, it should take extreme pains to ensure the proper moral formation of its members (8.1). (3) Despite that, the state is not a super-entity, with interests and purposes independent of, or superior to, those members' happiness; for happiness is ultimate: men can have no higher aim (see p. 114); and that aim is the 'common task', *koinon ergon,* of the association, *koinônia,* which is the state. The polis is therefore essentially a communal and co-operative enterprise, depending heavily on reciprocal services and mutual benefits. These benefits are to be won not by men conditioned or brainwashed into being social and political robots, but by men with discretion founded on *phronêsis,* practical wisdom (on which see pp. 121–2).

Hence, although Aristotle has much to say about the ways in which one section of a polis may pursue its own interests at the expense of other parts, or of the whole, he never confronts directly the issue so vital to us in this century, of 'totalitarianism', the subjugation of the interests of the individual and of subordinate organizations to the interests of the state itself, as a superentity. The point of the thesis at 1253a18 ff., which sounds so alarming, that the state is 'prior by nature' to household and individual, is that while the state can flourish without any particular individual, no individual can attain 'happiness' without *it,* i.e. when he is not fully functional as one of its citizens. Aristotle drives no wedge between the interest of the individual and those of the state: to him, a totalitarian polis would not be a polis at all.[4]

AIMS AND METHODS

How then does Aristotle tackle the political theory and practice of his day? Four strands in his text are readily discernible:

1 Theoretical fixed points: a technique of analysis based on a cluster of such concepts as nature, function, virtue, and happiness, deployed teleologically.
2 Practical fixed points: the institutions of the 'best' state, in which the concepts of 1 are instantiated in as feasible a form as possible (1328b35–9).

But the best state does not exist (though it could). So the great bulk of Aristotle's discussion is taken up with:

3 Description and analysis of the (mistaken) theoretical underpinning and actual practices of less-than-ideal constitutions or states existing or merely proposed, with comment which at times becomes exceedingly censorious. Aristotle is nevertheless prepared to judge a state or constitution in the light of its success or failure in achieving its

'hypothesis', i.e. its own political aims and standards, as in book 2 *passim*; for such standards can have some limited merit. In general, he has considerable respect for *endoxa,* common reputable opinions (cf. pp. 111–12, and his handling of the controversies about slaves and about justice in constitutions, pp. 137 and 131–2).

4 Implicit in (3), recommendations for correcting existing theory, and for improving existing practice in order to make it approximate more closely to the ideal; for the 'statesman' (citizen active in state affairs, see p. 132 and n. 11 below) has a 'duty of care' even to inferior constitutions (4.1).[5]

These four strands mesh in complex ways; and the abundant historical detail which Aristotle cites (sometimes with impressive induction) as evidence for his arguments lends his text both colour and authenticity.[6] In short, he is at once philosopher, don, critic, data-processor, and political reformer.

APPLICATIONS

Admittedly, Aristotle as a political reformer is not a familiar figure. There is a common idea that it was Plato who was the reformer *par excellence* (consider only the Philosopher-Kings of his *Republic*), whereas Aristotle stuck more closely to the realities of Greek life—so closely, in fact, as make his political philosophy a mere rationalization of the status quo. This is a half-truth at best. Aristotle's conceptual apparatus, in which nature is central, is capable of yielding the most radical political ideals, very much askew to the standard assumptions of his day. I take four examples.

1
Constitutions and citizenship

Aristotle defines a 'constitution', *politeia,* in terms of a power-structure which embodies and promotes the state's social aims and moral values. It is 'an ordering *(taxis)* which states have concerning their offices *(archai)*—the manner in which they have been distributed, what the sovereign *(kurion)* element of the constitution is, and the purpose *(telos)* of each association (*koinônia,* i.e. state)' (1289a15–18, cf. 1.1, 1295a34–b1). His typology of constitutions contains therefore both a formal element and a moral element: the identity, number, and economic status of the sovereign rulers, and the character of their rule. It is also interlarded with lengthy analyses of the social, economic, and psychological factors which make for the preservation and destruction of the various constitutions. The texts are lavish but scattered, mainly in 3.6–18 and books 4–6. For a new reader, 3. 6–8 and 4.2 form the best introduction, followed by the 'chief texts' listed below.

Straight or correct constitutions, operating in the common[7] interest:

Kingship, *basileia:* a species of 'rule by one' *monarchia.* Aristotle considers this to be ideally the best constitution, provided that a monarch of supreme virtue and political wisdom is available; but he never is. Chief texts: 3.13–18; 5.10, 11.

Aristocracy, *aristokratia:* 'power of the best', *aristoi.* Rule by few, typically of noble breed, wealthy, cultured, and virtuous. Chief texts: 3.18; 1289a30–3; 4.7–8; 5.7.

Polity, *politeia* (awkwardly: this is also the general word for 'constitution'): rule by many, specified variously. For there appear to be three forms: (i) rule by heavy-arms bearers; (ii) a 'mixed' system, judiciously combining elements of oligarchy and democracy; (iii) rule by a large middle class, i.e. persons who are neither rich nor poor, and who have only moderate appetites for wealth and power; this composition of a state is 'by nature' (1295b27–8).[8] Chieftexts: 1265b26–9; 3.7; 4.7–9, 11, 13; 1307a5–33.

Bent or deviated constitutions, operating in the interests of the rulers only:

Tyranny, *turannis:* a species of 'rule by one' *monarchia.* Chief texts: 4.10; 5.11, 12.

Oligarchy, *oligarchia:* 'rule by few'; *oligoi,* typically wealthy. Chief texts: 4.4, 6; 5, 1, 6, 9, 12; 6.6, 7.

Democracy, *dêmokratia:* 'power of the people', *dêmos.* Rule by many, typically poor. Chief texts: 1284a17 ff.; 4.4, 6, 9, 12; 5.1, 5; 1310a22 ff.; 6.2, 4. On restricted democracies, see 1274a11 ff., 1281b21 ff., 1297b1 ff.

This schema, which has antecedents in Plato and elsewhere, is fundamental to the entire *Politics;* and it is subject to numerous and at times bewildering refinements and elaborations, which reflect the extraordinary variety of Greek political practice. But Aristotle gives us more than static description of complex constitutional facts: he provides a dynamic, psychological analysis of how they come about. The root cause, he claims, is varying perceptions of 'the equal' *(to ison),* and 'the just' (*to dikaion* 5.1 ff.). Democrats argue that since they are equal in one respect, free birth, they ought in justice to be equal in all, i.e. political power; oligarchs believe that since they are unequal, i.e. superior, in one thing, wealth, they ought in justice to be unequal in all, i.e. they ought to have greater political power. When political facts collide too sharply with these political beliefs, civil strife, *stasis,* can break out; hence the frequent modifications to, and indeed complete changes of, constitutions. Aristotle, by contrast, thinks that the sole proper claim to political power is political virtue, that is the practical

ability to further the purposes for which the polis naturally exists (3.9, 12, 13); and in this endeavour political power ought to be distributed differentially to different degrees of political virtue, more to more, less to less,[9] though both wealth and numbers have some contribution to make (3. 11; 1283a16–22, b27–34, 1293b34 ff., 1309a4–7). By ensuring that constitutions are not extreme, and by cultivating the political beliefs and habits of the population in the spirit of the existing constitution, a measure of stability can be won (1260b8 ff., 1310a12 ff.). Finally, the rule of impartial law is essential to the very existence of a constitution (1291b39–1292a38).

Aristotle's functional analysis of entitlements to rule dovetails with his functional definition of a citizen (3.1–2): 'he who shares in deliberative and judicial office'.[10] That is, a *citizen, politês,* is one who is active in 'running the affairs of the polis', *politeuomenos,* in accordance with its constitution, *politeia,* as a *'statesman', politikos.*[11]

From all this it follows, in Aristotle's view:

i that across the entire range of constitutions, the number of citizens strictly conceived varies sharply: few or very few in oligarchies and aristocracies, many or very many in democracies;[12]

ii that in all oligarchies and in some democracies (those with some property-qualification for citizenship) there will be variable numbers of native free adult males who are not citizens in the full sense, but only equivocally (like women and children, cf. 1278a4–5); slaves and foreigners, of course, qualify in no sense;

iii that in devisted constitutions, although the citizen-body, *politeuma,* operates in its own interests, it may, and prudentially should, pay some attention to the interests of others. The few rich, if sovereign, should not 'grind the faces of the poor', and the numerous poor, if sovereign, ought not to 'soak the rich' beyond endurance; for either excess may lead to *stasis* (1295b13 ff.; 4.12; 1308a3 ff., 1309a14–32, b14–1310a12; *also* 5.11, on tyrannies);

iv that there is a distinction to be *made* between the good citizen and the good man. The former is befitted by his personal sympathies, virtues, and attainments to be a citizen under a particular imperfect constitution; the latter is befitted by his to be a citizen under the 'best' constitution (cf. 8.1). The virtue of the former is pluriform, for there are many imperfect constitutions; the virtue of the latter is not only perfect but single, for there is in principle only one best constitution (3. 4; 1310a12 ff., cf. *NE* 1135a3–5);

v that both good citizens and good men exercise their virtue, i.e. that of practical *wisdom, phronêsis,* most fully when ruling; but since they are all equal, and since obviously not all may rule simultaneously, they must take it in turns to rule and be ruled, in some principled manner laid

> down in the constitution (1279a8 ff., 1332b12 ff.). Their virtue is therefore twofold: to know how to rule and be ruled well; indeed, by engaging in the latter they learn to do the former (1277a25 ff.).[13]

Given, then, that the ideal single ruler does not exist and is never likely to, and that the natural capacity of men for developing virtue and thereby achieving 'happiness' varies widely, it is scarcely surprising that Aristotle, in seeking the 'best' state, should look to some form of aristocracy. For only in an aristocracy are good man and good citizen one and the same person, because the criterion for office-holding is not only wealth but virtue (3.18; 4.7, 8). Aristotle's fundamental intentions are plain: what he wants to see above all in his citizens is education and virtue; for these are at once the conditions of 'happiness' (7.1, esp. 1323b21 ff.; 8.1), and the criteria for the holding of office (cf. 1326b15, 'merit'); and in an aristocracy, by definition, the best *(aristoi)* men exercise power.[14]

Nevertheless, Aristotle never calls his 'best' state an aristocracy, perhaps because as aristocracies go it is highly unusual.[15]

i The members of an aristocracy, i.e. its citizens, are typically wealthy. But the members of Aristotle's aristocracy do not value wealth: they are to possess only moderate resources, which are all that is necessary for life; what matters to them is the 'goods of/concerning the soul' (7. 1, cf. 1. 8–10).

ii The members of an aristocracy are normally few, in relation to the total free adult male population of the state (aristocracy is a kind of oligarchy, 1290a16–17). Yet it is possible, though Aristotle gives no figures, that the restricted level of private resources in his own aristocracy would permit it to be more widely diffused: a few dozen or even a few hundred members look rather too few for his purposes.[16] But it is clear that he would not wish to see any approximation to Plato's diffused aristocracy (Magnesia) in his *Laws,* where the adult male citizens number 5040; such a total, he believes, is outrageously large (1265a10 ff., cf. 7.4). (In many other respects, however, there are marked similarities between Magnesia and Aristotle's best state (Barker [4.71] 380–2).)

iii According to Aristotle's typology of constitutions, aristocracy is the rule of a few virtuous persons over many non-virtuous, but in the common interest. In his own best state the position seems to be subtly different: the aristocrats' interests *are* the common interests—simply because there are no other citizens: the aristocrats *are* the state.[17] That is, there is no body of persons other than themselves with a claim on their strictly *poli*tical attention. At any rate, Aristotle is quite explicit, indeed emphatic, that all other adult males—agricultural workers (who are preferably to be slaves, 1330a25 ff., cf. 1255b30–40), artisans, and

traders (and of course their dependants)—are not 'parts' of the state:[18] they are merely its essential conditions. How far this would matter in practice is hard to judge: Aristotle's aristocrats presumably cannot ignore such people, and have to make some arrangements for their activities and welfare (for example 1331b1–4); and a poor person is not necessarily worse off materially just because he lacks the formal but ambiguous status of 'citizen' without the citizen rights of office-holding, etc., except perhaps that Aristotle's aristocrats can afford to be generous to him less well than historical aristocrats. But there can be no doubt that Aristotle has sharpened the political distinction between citizens and others.

iv The cultural and artistic activities Aristotle recommends as pursuits for his citizen aristocrats (book 8) look very different from the huntin'-shootin'-fishin' engaged in by historical landed aristocrats.

v Aristotle allocates the civic functions of his best state by age-groups: as a young man, one's function is to be a soldier, not to hold political office; later, at some unspecified mature age, one exchanges being ruled (exclusively) for the alternation of being ruled and ruling, and deliberates and judges; in old age one assumes a priesthood (7.9; 1332b25–7). This three-fold division is more systematic than common historical practice; for to deprive arms-bearers of office is remarkable, and Aristotle is at pains to justify it (1329a2 ff., 1332b32 ff.); see further Mulgan ([4.74], 95–6).

Aristotle's best state is therefore both like and unlike historical states. It is something of a hot-house plant, nurtured in the rich soil of natural teleology; for all the above conditions are justified, immediately or implicitly, by an appeal to nature.

i In one way or another, nature provides for most of our needs, in sufficient but not excessive quantities; agriculture is an especially natural source of supply (1.8). To seek to acquire endless wealth is a misuse of our faculties, and so unnatural (1258a8–10).

ii A small aristocracy is justified on a variety of pragmatic grounds, but notably the danger of a large population making the natural aims of the state hard to achieve because of its sheer size and complexity (7.4–5).

iii Many free men perform only the lowly tasks of manual work, crafts, and trade, which preclude them from virtuous activity and therefore happiness (1323b21–2), and approximate them to slaves (1260a36 ff., 1278a9–11, 20–1, 1328a37–9); and indeed some men are slaves by nature (1.6).

iv Cultural pursuits promote virtue (1341b11), which is necessary to happiness, our natural aim.

v This sequence follows the dictates of nature: the human body and soul just naturally develop like that—bodily strength when one is young, wisdom when older (cf. 1336b40–1337a3; *NE* 1094b27 ff.).

2
Trade

One prominent category among the non-citizens of the best state is traders. They are recognized as essential to its economic self-sufficiency, but their activities are kept at arm's length in an area separate from the leisured pursuits of the citizens (1321b12 ff; 7.6, 12). Yet there is a paradox here; for in 1.9–10 (taken with *NE* 5.5) Aristotle pronounces trade to be unnatural.[19] How then can it be both unnatural and essential?

Briefly, Aristotle believes that trade tends to undermine civic order. The key terms in his analysis are acquisition, exchange, proportionality, equality and justice. The natural forms of *acquisition* are (a) from nature (farming, etc.), (b) by exchange, which beneficially irons out unevennesses in supply: I breed many pigs, you make many shoes; let us therefore *exchange* pigs for shoes in a certain proportion (6 pairs of shoes for 1 pig, *vel sim.*); or (c) let me purchase shoes from you using money which I have received in the past from someone else for my pigs, and which I have found it useful to keep, as a mere substitute for goods, until I need your shoes. The proportion in which the pigs and shoes are exchanged between us leaves us equal: each of us is in the same economic position after the transaction as before (each of us 'has his own', 1132b11–20), and neither can feel aggrieved. So far, so natural: exchange facilitates the economic life of the polis; 'by proportionate reciprocity the state endures'.[20]

Trade befouls the purity of this model, and not only or primarily because traders are commonly small-minded persons obsessed with maximizing their monetary profit, since they assume (Aristotle claims) that just as the aim of the art of medicine is unlimited health, the aim of the art of acquisition is unlimited wealth; whereas in truth wealth is not an end but a means to life, and life does not require a vast amount of it (1257b25 ff.). His real point is sharper, and is apparently contained in the cryptic statement that the skill of acquisition from trade 'is justly censured, since it is not in accordance with nature, but is *from each other*' (1258b1–2). That is, presumably, the trader's profit is to the disadvantage of the buyer, who pays more that the 'proportionate' value;[21] he comes off worse, and resents it as an injustice; and injustice in general is, according to Aristotle, precisely the deprivation of that which would enable a person to live a virtuous life, in accordance with his natural potentialities; for such a life demands a certain level of material goods.[22] This resentment of injustice can be corrosive of the social and political structure; for it does not make for harmony, *homonoia,* and friendship, *philia* (*NE* 9.6).[23] Usury, Aristotle claims, attracts even greater odium than trade; of all modes of acquisition,

it is the most contrary to nature: it is 'money born of money'. Trade at least achieves that for which money was invented: the exchange of real goods.

If this reconstruction of Aristotle's admittedly problematical texts is correct, his assessment of trade, like his economic theory as a whole, is driven philosophically, by reference to first principles, the natural purposes of the polis; and it draws support from (what he takes to be) common perceptions about equality and justice. Nevertheless, pioneering and radical though he may be in point of theory, he nowhere recommends radicalism in practice; for clearly the suppression of trade would bring any existing state to a stop, and the remedy for the ills generated by traders would be worse than the disease. In his 'best' state, trade simply slots into place as the imperfect activity of imperfect persons, who are not fully capable of *eudaimonia,* but who are essential to the state even if not 'parts' of it.

How the estates of the aristocrats are to be insulated from trade Aristotle does not say. Presumably their managers would traffic with traders (1255b30–7, 1331a30–b13), and they themselves would not feel resentment concerning profit; they are after all not in a relationship of 'political justice' with persons who are not parts of the polis (cf. *NE* 1134a25 ff.)

3
Slaves[24]

From a modern point of view, perhaps the most surprising thing Aristotle says about slavery is that it is a benefit to the slave, *doulos*. This is because his relationship with his master is symbiotic (cf. 1252a24–34). The master has powers of reason, the slave has them only minimally: 'he participates in reason so far as to apprehend it but not so far as to possess it'; he wholly lacks deliberative capacity (and therefore *eudaimonia,* 1280a32; *NE* 1177a8–9). Presumably this means he can understand the orders he receives, but could not have worked out independently in advance what he should do. His function is manual work, and the performance of essential routine tasks is his benefit to his master, who possesses him as a 'living tool' (*NE* 1161b4), and who benefits him in turn by controlling his life by reason. In a similarly minimal way the slave possesses enough virtue[25] to carry out orders in a willing spirit. Nevertheless, the master who can afford it has little to do with his slaves, and employs an overseer of their work; but he himself should be responsible for inculcating their virtue.

Aristotle's statements about slavery are not always consistent, partly because the several different models (for example master is to slave as soul is to body, or whole to part) by which he attempts to express the essence of slavery and the master-slave relationship seem to have conflicting implications (cf. Smith ([4.95]). More crucially, the relationship of mutual benefit sketched above is undercut elsewhere (1333a3–5; *NE*

1160b30) by a grimly instrumental one, in which apparently the only benefit is to the master; 1278b32–7 tries to marry the two positions. On the other hand, Aristotle frankly admits that the slave's ability (presumably thanks to his minimum rationality and virtue) 'to participate in law and contract' creates the possibility of friendship between him and his master (1255b12–14; *NE* 1161b4–6); but even here there is a heavy qualification, that the friendship is 'not with slave *qua* slave, but *qua* man'.

Aristotle never questions the justice of the institution itself; but in one complex chapter (1.6), in which he arbitrates in a contemporary controversy about it, he subjects it to sharp restriction. Some people, he reports, assert that slavery is just, on the grounds that what is captured in war belongs to the conqueror; others attack it as unjust, since it is imposed by force. Aristotle thinks both sides are right, and both wrong. Only *natural* slaves—i.e. persons whose natural mental and physical capacities befit them to be slaves—should be *actual* slaves; for that is expedient and just. Hence the defenders of slavery are correct up to a point: natural slaves may be forcibly enslaved (cf. 1255b37–39, 1256b23). Conversely, the attackers are also right in part: those who are not slaves by nature ought not to be enslaved. Aristotle in effect admits that some men are slaves who ought not to be, and vice versa. In his own best state, presumably, only natural slaves will be actual slaves (1324b36–41); but how this is to be contrived he does not say. He apparently assumes that natural slaves will breed natural slaves. Nor does he face the obvious possibility that a naturally 'free' man, *eleutheros,* may become slavish by habituation.

The point is this. By a clear application of natural teleology Aristotle arrived at a view of slavery which, if anyone had ever tried to put it into effect, would have caused uproar; for at least some slaves—those with high natural potential—would have had to be freed, and some free men—those of low natural talent—would have had to be enslaved. Aristotle lacks such practical reforming zeal; but his ideas are dynamite to the basis of contemporary practice.[26]

4
Women

Aristotle's view of women is in one fundamental and obvious respect the same as his view of slaves; for both are ruled by their natural superiors in point of reason and virtue (1252a31–4, 1254b12–15). Like a slave, a woman needs specific virtues in a form which equips her to fulfil her function (1259b40–1260a24). But the slave needs 'little' virtue, whereas the woman (i.e. the free woman, typically the wife of the free male) needs more: she has to be 'good' (*spoudaia,* 'sound', 1260b14–19). Unlike the slave, she possesses deliberative capacity—but it is 'without authority' (1260a13). The precise nature of the deficiency is unclear; but presumably

the man possesses deliberative capacity in some stronger or more synoptic form, which entitles him to overrule her choices (cf. Fortenbaugh [4.80]).

There is nothing here to disturb the view of women commonly held by the Athenian male, unless he makes the mistake of treating his wife like a slave (see 1252b4–7). Perhaps more radical in its implications is the remark in 1.12 that a man rules over his wife *politikôs,* 'in the manner of a statesman', 'as one statesman rules another'. Yet it is important not to over-estimate the significance of this. 'Political' rule is over free and equal persons by turns (see pp. 133–4); but, as Aristotle hastens to explain, a woman is not the equal of a man: she is inferior, and therefore never rules, either in state or in household (except presumably over children and slaves). By *politikôs* Aristotle probably means not merely that a man rules his wife with a concern for her welfare, but accepts that in so doing he is one rational agent dealing with another, who needs persuasion, not orders. This is a considerable corrective to any view of women as essentially emotional and witless things (there is plenty of such prejudice on display in Greek literature). At any rate, Aristotle sees an important continuity between a man's treatment of his fellow-citizens in the public arena and his treatment of his wife in the private.

CONCLUSION

Natural teleology, then, makes Aristotle a far more potent challenger to contemporary ethical values and political practices than he may appear to a reader who merely notices that often enough the teleology endorses them. But even then, it is not intrinsic to natural teleology that it should confer approval on the status quo unquestioningly. For instance, so far from challenging the institutions of the private household and of private property, he vigorously condemns Plato's proposal to abolish them for his Philosopher-Guardians of the *Republic* (*Politics* 2.1–5). He subjects both to critical examination, and pronounces both conducive to happiness.[27]

But Aristotle faces three linked problems: (1) He assumes that, in some sense pertinent to the achievement of happiness in activity, the nature of each individual man is the same, variations being deficiencies in the ideal. He cannot accept that someone with (say) a natural bent towards manual work has a nature as effective for achieving happiness as the nature of someone with a natural bent towards politics or philosophy. (2) Even if we grant his assumption, however, deciding precisely what human characteristics or activities are natural can seem arbitrary; and some of his attempts to distinguish them are to say the least more plausible than others (cf. p. 116). (3) Why has nature a special status? Can we not seek to rise above it? Why do we assume that nature is best for us? If we need not assume that, then as Keyt ([4.70], 147) has neatly put it, 'The bedrock upon which Aristotle's theory comes to rest is also the rock on which it founders.' Nevertheless, nature as a standard of conduct has a seductive

allure: it seems to be sure and fixed, and to offer an unchallengeable alternative to ethical and political relativism, liberalism, and individualism, and in fact to any creed that in principle not merely tolerates but encourages a plurality of values and practices in an 'open' society.

It is for this reason that some modern communitarians, for example MacIntyre [4.89], have looked to Aristotle for inspiration and support (cf. p. 123). Now communitarians are a rather various school, but their core belief is that it is essential to the mental health of the individual and to the cohesion of society that the latter should espouse some single moral, social and political tenet, or coherent set of tenets, with a range of reciprocal rights and duties derivable therefrom. For a single tenet (or set) can be shared across a whole society; conflicting tenets cannot (cf. 1253a15–18). For these purposes Aristotle's natural teleology is ready-made. For one has only to assume a single human nature, and lay out a set of social and political structures and relationships based (allegedly) on what man essentially is. But obviously that singleness does not have to be either 'natural' or specifically Aristotelian.

NOTES

1 Good discussions of Aristotle's 'best' state are Mulgan [4.74] 78–101, and Huxley [4.82].

2 For accessible overviews of the problems of structure see Keyt and Miller [4.70] and Rowe [4.93].

3 On the biological dimension in Aristotle's political thought, see Mulgan [4.92], Kullmann [4.87]; on Aristotle and Darwinian biology, Arnhart [4.75].

4 Some crucial texts: 1280b29 ff., 1323b21 ff., 1325a7–10, b23–32, 1332a3–7; 8.1. The whole issue, too large for consideration here, is debated by Barnes and Sorabji [4.77], and by Miller ([4.91] 191–251). For related questions of political rights and duties in Aristotle, see in general Everson [4.79], Miller [4.91]; on the resolution of conflict, Yack [4.96].

5 1289a1–7. One has to say 'implicit' recommendations, because although the purpose of political knowledge is action (*NE* 1094b27 ff.), Aristotle does not on the whole give direct advice to statesmen 'in the field' on how to set about tactically the amelioration of an imperfect state or constitution. He sets targets, or approximations to them (cf. pp. 112–13), and shows that policy or practice or situation *a* will achieve them, and *b* will not; and he then assumes that statesmen, after reading the *Politics*, will choose *a* not *b*. But the 'true' statesman needs more than empirical rules of thumb: he needs to grasp the first principles of 'political knowledge', notably of how politics embraces ethics (*NE* 1.1–2; 1102a5 ff., 10.9; cf. pp. 113, 118). 8).

6 For most of his historical evidence he presumably relied on the research reports, compiled in the Lyceum, of the constitutions of Greek states (see *NE* 1181b17). There were 158 'Constitutions', but only one survives, and only in part: *The Constitution of the Athenians*.

7 For an analysis of Aristotle's application of this slippery adjective, see Miller ([4.91] 191–213).
8 The tangled (and controversial) relationships between these three are investigated by Robinson ([4.66b] 99–103), Mulgan ([4.74] 76–7), and Johnson ([4.85] 143–54)
9 That is, by 'geometrical' equality (equality for equals, inequality for unequals, cf. 1325b7–10), not 'arithmetical' equality (for example one man one vote): see Harvey [4.81].
10 'Executive' office seems assumed. Aristotle discusses various difficulties in the definitions, which may be passed over here. 'Judging' refers to courts, with or without popular juries; what we would now call 'civil' and 'criminal' cases often had political importance.
11 'Statesman' is obviously a bad translation, but it is sanctioned by usage. 'Politician' is misleading, since it suggests professionalism.
12 Strictly, a tyrant or king would be the sole citizen; persons delegated to particular duties of ruling would not have authority in their own right.
13 There are some problems here, for example (a) What is one to do with one's *phronêsis* when being ruled? (b) Is the reciprocity of ruling and being ruled consistent with Aristotle's preference for an ideal monarchy? (c) What is the relationship between the 'contemplative' life and the 'active' life of a *politikos?* See 7.2–3 and pp. 117–18 above.
14 1279a35–7, where the alternative etymology, 'because [it looks to] the best for the state', seems improbable.
15 Indeed, Johnson ([4.85] 15 5–69) argues that the 'best state' is in fact the 'middle' constitution of 4.11. Cf. Huxley [4.81], Kraut [4.66d] 52.
16 At any rate, to judge from 1295a25 ff., 1324a23–5, *NE* 1099b18–20. Aristotle is also aware of the practical dangers of a 'shortage of men': 1278a26–34, 1299a31-b13, 1326b2–3; cf. 1297b26; but contrast *NE* 1171a6–8. (Greek poleis were in size much more like our towns or even villages than like our cities; Athens, which had *c.*30,000 adult male citizens in the fourth century, was 'off the scale'.)
17 1332a34–5: 'for us/for our purposes' (i.e. the best state) 'all the citizens share in the constitution.' But artisans etc. do not so share; therefore they are not citizens, even in a technical attenuated sense—or so it seems.
18 7.9. It is this point that formally exempts Aristotle's constitution from the charge of being itself a 'deviated' constitution, as pursuing its members' interests only; for there are no other interests embraced by the state for it to pursue.
19 I assume what I argue in Saunders ([4.66a] 88–90), that these three chapters essentially cohere, though they are different in immediate preoccupation. The following two paragraphs are a bald summary of my extended discussion there. For a complete analysis of Aristotle's economics see Meikle [4.90].
20 Aristotle assumes, and in *NE* 5.5 tries to identify, a fixed basis of commensurability; but he fails. As a sighting shot, he suggests 'need'.
21 Hence, in modern terms, while Aristotle recognizes in a commodity both use-value and exchange-value, and possibly labour-value (1258b25), he fails to acknowledge the value of distribution as a legitimate charge on the buyer.
22 *NE* 1099a31 ff., 1129b17–19; on justice, see Miller [4.91], esp. chs 3 and 4.

23 On 'political' friendship, i.e. as between one *politês* or *politikos* and another, co-operating in the purposes of the polis, see Cooper and Annas [4.78].
24 Except where otherwise indicated, this section is based on material in 1.3–7 and 13.
25 That is, the virtue of being ruled, not of ruling; master and slave possess different virtues, which are not on the same scale; see Saunders ([4.66a] 98–100).
26 Schofield ([4.94] 11) puts the same point more gently, in an excellent discussion of the relationship between Aristotle's 'ideology' (in a 'broadly Marxist' sense of the word) of slavery and his philosophical analysis of it.
27 Private property he defends by an intriguing combination of economic, social, and psychological reasons: Irwin ([4.83] 200–25), Miller ([4.91] 321–5), Saunders ([4.66a] 118–20). But he imposes certain conditions, notably a considerable degree of common use: 1263a21 ff., 1329b39–1330a2.

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CHAPTER 5
The Peripatetic school[1]

Robert W.Sharples

THE HISTORY OF THE SCHOOL AND OF ARISTOTLE'S WRITINGS

The history of Peripatetic philosophy after Aristotle falls into two phases, divided by the renewal of interest in the works we now possess after their publication by Andronicus in the first century BC.

Initially, Aristotle's own associates in the Lyceum and their successors carried on the work of the school. When Aristotle left Athens for Euboea at the news of the death of Alexander the Great in 323 BC, the headship of the school passed to Theophrastus of Eresus, who had collaborated with Aristotle at least since the latter's stay in Assos in Asia Minor in 347–345 BC. When Theophrastus died in 288/7 or 287/6 BC, he was succeeded by Strato of Lampsacus, who remained head of the school until his own death eighteen years later. The school was initially a centre of Macedonian influence in Athens, as it had been in Aristotle's own lifetime; Demetrius of Phalerum, a member of the school, was regent in Athens for Cassander from 318 to 307, and it was probably he who gave Theophrastus, though a resident alien, the right of owning property. The philosophical schools were expelled from Athens for a year after Demetrius' fall, and this may well have been motivated by hostility to the Peripatetics in particular.

The early activity of the school was characterised, as it had already been in Aristotle's lifetime, by the collection and interpretation of information in every field, and by the raising and the attempted resolution of theoretical difficulties. Examples of two very different themes in the collection of information are provided by the best known of the surviving works of Theophrastus. The *Characters* is a series of sketches of more or less imperfect personality types; it has been variously interpreted as material for a study of comedy, for the presentation of character in rhetoric, or for the study of character which the ancients called 'ethics' but we might rather classify as psychology. Theophrastus' botanical writings, the *Researches on Plants (Historia plantarum)* and *Explanations of Plants (De causis plantarum)* are the earliest systematic botanical texts to survive. The contrast between the *Researches* and *Explanations,* between the collection

of data and the more theoretical work, reflects Aristotle's own practice in his zoological writings; but we should beware of assuming that the collection of material, and particularly its arrangement, is not already guided by theoretical considerations. The botanical subject-matter indeed requires conscious consideration, or tacit re-adjustment, of the Aristotelian theoretical framework; what is unnatural may become natural with time (*Explanations of Plants* 4.11.7), and the way in which art helps nature in the cultivation of plants, both art and nature setting out to achieve what is best, prompts consideration of whether the true end of a tree's growth is to produce fertile seed or edible fruit—edible by humans, that is (cf. especially *Explanations of Plants* 1.16). Theophrastus is prepared, in discussing wild and cultivated species, to speak about natural kinds in a flexible way, describing reversion from cultivated to wild varieties as changes of kind *(genos)*.[2] But—whatever view one takes of Aristotle's own position on the fixedness of natural kinds in zoology[3]—Theophrastus does not explicitly present his approach to natural history as different from that of Aristotle.

The Lyceum was also active in collecting the views of earlier scholars: Eudemus compiled a history of mathematics, Menon of medicine, and Theophrastus the opinions of earlier philosophers about the natural world and about sense-perception. Among other historical activities were the work of Theophrastus' contemporaries Aristoxenus (on music) and Dicaearchus (on cultural history and biographies of philosophers and poets). Theophrastus' fellow-townsman Phainias wrote on botany (fragments 36–49 Wehrli) and on political history. Theophrastus' concern with earlier writers was not, however, purely historical; like Aristotle himself, he discussed their views as a basis for establishing his own[4]—though he does seem to have gone into more detail than Aristotle, and some interest in historical detail for its own sake cannot be excluded.

There are similarities between the activity of the Lyceum in this period and those of the scholars and scientists of Ptolemaic Alexandria. The two traditions indeed overlapped; Hermippus, described as a 'Peripatetic' biographer (of a somewhat sensationalist kind) was a follower of the Alexandrian scholar Callimachus, and other historians too are described as Peripatetics. The contributions of the two centres differed in different fields. In zoology the Peripatetics wrote as natural scientists, the Alexandrian scholars as literary scholars and encyclopaedists, at one remove from their scientific subject-matter and concerned especially with the explaining of classical literary texts. In human anatomy and physiology, on the other hand, the Alexandrians, aided by their practice of dissection, were in the forefront.[5]

It has often been held that Theophrastus, and to an even greater extent Strato, changed the emphasis of Peripatetic philosophy, with a progressive movement towards on empiricism and materialism. There is *some* truth in this picture; the pseudo-Aristotelian *Problems,* and other works wrongly attributed to Aristotle such as the *Mechanics* and *On Things Heard (De*

audibilibus) which show this tendency, derive from this period of the school, and a notable example of empirical observation is Strato's proof that falling bodies accelerate, from the fact that water which falls as a continuous stream breaks into separate droplets further down (fragment 73 in [5.57]). But the contrast with Aristotle himself can be overstated. For our knowledge of much of Theophrastus' activity and all of Strato's we are dependent on fragmentary reports by later writers. Writers like Plutarch, a Platonist, and Cicero, emphasising the differences between philosophers of the same school in the interests of neo-Academic sceptical debate, may not be the best guides to whether or not Strato is a good Aristotelian.[6] Plutarch indeed explicitly presents Strato as denying the involvement of purpose in the natural world, but this may be tendentious; for Aristotle also, in *Physics* 2, nature is not a *conscious* force.

To show that there is a basis in *some* passages of Aristotle for a position adopted by Theophrastus or Strato does not indeed establish that it is not in some sense un-Aristotelian; divergence can take the form of selective emphasis and omission as well as of straight contradiction. But such divergence may be unconscious and unintentional; and since selective emphasis of particular aspects of Aristotle's thought is not confined to Theophrastus and Strato, or even to Plutarch and Cicero, but is found among modern interpreters as well, we need to be aware of the standpoint from which a judgement of what is or is not Aristotelian is being made. Those who regard metaphysics as the central philosophical issue and theology, in the sense of the study of incorporeal principles, as central to metaphysics may well regard not only Theophrastus and Strato but later ancient Peripatetics too as neglecting or rejecting what *they* regard as Aristotle's chief contributions. In a recent masterly short account of Aristotle, Jonathan Barnes devoted just two pages ([5.164] 63–5) out of eighty-eight to Aristotle's theology and the theory of the Unmoved Mover. This might have surprised St Thomas Aquinas and some other leading interpreters of Aristotle, ancient, medieval and modern; but Theophrastus and Strato might have found Barnes' Aristotle more familiar than Aquinas'.

One of the Theophrastean works to survive is his so-called *Metaphysics* (the original title is unknown). This has often been described as 'a fragment'; it seems in fact to be complete, but it raises questions rather than answering them. In questioning two central Aristotelian doctrines, the explanation of natural phenomena in terms of purpose and the theory of the Unmoved Mover, it can readily be seen as indicating Theophrastus' rejection of central Aristotelian doctrines—especially when Theophrastus can be seen as paving the way for Strato. However, Most in [5.50] has shown that some (but only some) of the examples of purpose in nature apparently rejected by Theophrastus are ones equally rejected by Aristotle himself, and has suggested that Theophrastus' discussion is aimed not against Aristotelian teleology but against a more thorough-going Platonist

version. And Theophrastus' treatise does have a positive message, which is that the universe is an organised system in which the same degree of purposefulness and goodness should not be expected at every level (2 6a2, 5 8a3, 7 8a27; cf. Laks in [5.50] 237 ff.)—a theme we shall find recurring in later Peripatetics too. Theophrastus also emphasises the need for limits to enquiry (*Metaphysics* 8 9b21 and fragments 158–9 FHS and G).

That Theophrastus did reject Aristotle's Unmoved Mover seems probable enough; but Aristotle did not accept the theory of the Unmoved Mover throughout his career, and in any case raising objections is a thoroughly Aristotelian way of proceeding. Critics have been too ready to forget the problematic and exploratory nature of much of Aristotle's own surviving works, and too ready to interpret his successors as abandoning what they themselves regard as crucial features of Aristotelianism rather than as continuing Aristotle's enquiries (or sharing in them, for there is no reason to suppose that Theophrastus' *Metaphysics* was not written in Aristotle's lifetime).[7]

Even where Aristotle's own position can be easily determined those of his successors are not always clear. Steinmetz in [5.41] claims, as will be discussed in detail later, that Theophrastus modified the Aristotelian system of four sublunary elements. Theophrastus certainly begins his surviving treatise *On Fire* by raising general questions about the Aristotelian theory, but, characteristically, then turns aside from the general questions to investigate particular phenomena—concerning which some of his remarks do seem to reveal un-Aristotelian assumptions. At this point we may, like Steinmetz, suppose that Theophrastus did indeed develop a distinctive theory of his own, and look for other reports of Theophrastus' views that seem to confirm this; or we may, with Gottschalk ([5.65] 80–1; [5.42] 2.4–6), suppose that Theophrastus couples a general adherence to an Aristotelian framework with a flexibility and readiness to speculate in particular details. Gottschalk stresses, indeed, that Theophrastus paved the way for Strato to adopt a more revolutionary approach to physics.

After Strato the Lyceum rapidly fell into decline. Strato's successor Lyco (head of the school for forty-four years from 270/69 or 269/8 BC) was notable for his oratory, social standing and love of luxury rather than for science or philosophy; his successor Ariston of Ceos was noted chiefly for his biographical studies. It is probably to Ariston that we owe the preservation of the wills of Aristotle and Theophrastus, and perhaps the list of Aristotelian titles in Diogenes Laertius. In the second century Critolaus, who accompanied the Academic Carneades and the Stoic Diogenes of Babylon in their visit to Rome in 155 BC, was philosophically active, chiefly in defending Aristotelian positions (the eternity of the world, the fifth heavenly element, and the inclusion of bodily and external goods as well as virtue as a constituent of happiness) against the Stoics; but he seems to have been the exception rather than the rule.

Those for whom the most important aspects of Aristotelianism are those which they see Aristotle's immediate successors as questioning, rejecting or neglecting have tended to see the decline of the Peripatetic school as a natural consequence of the change of emphasis. Others, themselves favouring an empiricist approach to the natural world, have seen Theophrastus and Strato as advancing scientific enquiry where Aristotle's attitudes hindered it;[8] this equally seems to overstate the contrast between Aristotle and his successors.

The real reasons for the decline of the Lyceum may be harder to recapture. Certainly the special sciences in the Hellenistic period developed an impetus of their own in institutions other than the Lyceum—notably medicine in Ptolemaic Alexandria; but that does not explain why zoology and botany, the sciences Aristotle and Theophrastus had made their own, declined in the Lyceum without developing elsewhere. Where philosophy in a narrower sense is concerned, the answer may be easier. Aristotle's thought is guided by certain structures and assumptions, but within that framework it is characteristically questioning, open-ended and provisional. And Aristotle explicitly stressed, against Plato, the relative independence of the different branches of philosophical enquiry. For those who were attracted by comprehensive and dogmatic philosophical systems the Lyceum had nothing to offer that could compare with Epicureanism or the Stoa;[9] while for those who rejected dogmatism the Aristotelian approach must have seemed a poor second-best to the aggressive scepticism introduced to the Academy by Arcesilaus in the middle of the third century BC. Strato's successors emphasised those aspects of the school's activity, present indeed from the outset, that related to the general literary and rhetorical culture of the period, and this too may have lessened the distinctive appeal of the school. There is nothing un-Aristotelian in attention to the views and concerns of people in general, as a glance at the *Nicomachean Ethics* will show; but for Aristotle himself it was only the foundation on which he built.

To speak of how Aristotle's 'unpublished' writings might have seemed to Hellenistic readers assumes, indeed, that those who might have wanted to read them could have done so. The decline of the Lyceum is linked by Strabo and Plutarch with a story that Aristotle's and Theophrastus' writings, left by Theophrastus not to Strato but to Neleus of Scepsis in the Troad, passed from Neleus to his descendants. They, having no interest in philosophy, hid the books in a cellar to prevent their seizure by the kings of Pergamum, who wanted to create a library to rival the one in Alexandria. Thus, according to the story, the 'unpublished' works of Aristotle—those which we now have, the originally 'published' works having been lost later in antiquity—were inaccessible until rediscovered in the first century BC, and the Peripatetics were unable 'to do philosophy in a systematic way' without them. The manuscripts were eventually recovered by the bibliophile Apellicon, who took them to Athens and published them, but

inaccurately; they were then seized by the Roman general Sulla when he sacked the city in 86 BC, and taken to Rome, where they were copied by the grammarian Tyrannio. From his copies a new collection, which is the basis of the arrangement of Aristotle's writings that exists today, was produced by Andronicus of Rhodes; this also included some works of Theophrastus.[10]

It is true, as we shall shortly see, that the revival of Aristotelianism dates from Andronicus, and that it is different in character from what had preceded it; where the earlier Peripatetics had sought to continue Aristotle's work, later writers are essentially looking back to it and commenting upon it. It is significant that Strabo supposes that one *could not be* a Peripatetic philosopher without access to texts of Aristotle himself; concentration on the study of canonical texts was a general characteristic of the period.[11]

What is much less certain is that Aristotle's works were indeed inaccessible in the intervening period. It is unlikely that even 'unpublished' works existed in only one copy; we know that different, and differing, copies of Aristotle's *Physics* existed in the lifetime of Theophrastus, for Eudemus (fragment 6 Wehrli) wrote to him about a variant reading, and Strato left to Lyco 'all the books, apart from those I have written myself' (Diogenes Laertius 5.62).[12] The possibility remains that, if Aristotle's works were little read in the Hellenistic period, this was not because they were unavailable but because—however strange this may seem to modern interpreters for whom Aristotle is a central figure in the whole history of philosophy—they were not considered of great interest.

Aristotelian doctrines were indeed still referred to; but characteristic of the Hellenistic period is, not the study of Aristotle's own works, but the compilation and use of summaries of the sort that underlie Cicero's knowledge of Aristotle and the account in Areius Didymus (below). Examples of this type of writing include the 'Aristotelian Divisions' preserved in Diogenes Laertius' life of Plato and in a manuscript in Venice[13] and the source of the account of Aristotelian philosophy in book 5 of Diogenes Laertius' *Lives of the Philosophers*.[14]

The revival of Aristotelian studies which began with Andronicus' collection (on which see Gottschalk [5.77] 1089–97) was different in kind from what had gone before, for the status of Aristotle's text had changed. Aristotle's immediate successors had indeed taken his works as a starting point; Eudemus' *Physics* essentially followed Aristotle's while clarifying certain issues (Wehrli [5.57] vol.8:87), and Boethius presents Theophrastus (fragment 72A FHS and G) as filling in the points that Aristotle had not fully covered. But for the early Peripatetics it was a matter of continuing Aristotle's work, not of regarding him as the canonical authority to be interpreted.

The writing of summaries of Aristotelian doctrines did not cease; but use was now made—to differing extents—of the treatises edited by

Andronicus.[15] Nicolaus of Damascus, a courtier of Herod the Great, compiled, in addition to historical and ethnographical writings, a summary of Aristotle's philosophy which collected together material on similar topics from different Aristotelian texts. This survives in a Syriac summary and in other fragments. A treatise by Nicolaus on plants, possibly part of the compendium, was translated from Syriac into Arabic in the ninth century AD, thence into Latin in the second half of the twelfth century, and thence back into Greek. In the process it became mis-attributed to Aristotle himself, and it is this re-translation that appears as *On Plants* in modern editions of Aristotle, though the falsity of the attribution was already realised in the Renaissance.[16]

Areius Didymus, a Stoic and 'court-philosopher' to the emperor Augustus, wrote summaries of the teachings of the various schools. Of his treatment of the Peripatetics we possess the section on ethics, quoted at length by Stobaeus, and fragments of the section on physics; the doctrines they present are Aristotelian in content, and Areius sometimes used the texts made available by Andronicus, but the terminology and emphasis reflect Hellenistic preoccupations and Areius' concern to stress the similarities between Peripatetic and Stoic ethics.[17]

Other scholars, however, concentrated on the writing of commentaries on the newly popular Aristotelian texts. The earliest of these are now lost except for scattered quotations, having been replaced by later, often Neoplatonic works. Andronicus and his pupil Boethus[18] commented on the *Categories* and on other works; so too did Alexander of Aegae, teacher of the emperor Nero. The earliest surviving complete commentary is that of Aspasius (first half of the second century AD) on the *Nicomachean Ethics;* Adrastus of Aphrodisias' explanations of the literary and historical references in the *Ethics* were incorporated into the later anonymous commentary on books 2–5.[19] But the earliest author from whom a considerable number of commentaries survives is Alexander of Aphrodisias, described as '*the* commentator' by his successors; though even of his works only a part survives. Interest in Aristotle's 'published' works declined as that in the 'unpublished' works in Andronicus' collection developed; for Cicero, who either did not know of or was not interested in the texts edited by Andronicus, Aristotle still meant the Aristotle of the 'published' works, but he is perhaps the last major writer for whom this is true.

The Lyceum may have ceased to exist as an institution at the time of Sulla's sack of Athens.[20] But Athens continued to be a centre for philosophers of all schools. In AD 176 Marcus Aurelius established posts there for teachers of the four principal philosophies (Platonic, Aristotelian, Stoic and Epicurean), and it may be to an appointment at Athens that Alexander refers in the dedication of his treatise *On Fate,* written between AD 198 and 209. Alexander of Aphrodisias would not in any case have been the first holder of the Athenian post; that may have been his older namesake, Alexander of Damascus. The institution of the imperial

appointments only confirmed a situation that already existed; philosophers of the different schools were teaching in Athens—and engaging in lively polemic against each other—throughout the second century AD.

Alexander's commentaries do not yet show the adaptation to a context of formal teaching apparent in the later, Neoplatonic commentaries. They are discursive and open-ended, presenting alternative interpretations without always indicating a preference between them.[21] They seem to reflect the results of teaching and discussion rather than an actual record of the process. We also possess some collections of short discussions attributed to Alexander; there were once more that are now lost. Some of these take the form of problems in Aristotelian doctrine, or in the interpretation of particular texts, followed by solutions; others are expositions of particular passages, or summaries of texts or doctrines. Whether they are by Alexander himself has to be considered text by text. Since many of them are connected with themes dealt with in Alexander's commentaries or in monographs by him, it is natural to assume that they at least originate from his school. But it has recently been suggested that some of them may be considerably later in date, though still concerned essentially with Aristotelian issues.[22] And this highlights a problem: that of the second disappearance of Aristotelianism, or rather its absorption into Neoplatonism.

We know the names of Alexander's teachers, and can identify some of their doctrines and his reaction against them. But we do not know the names of any of his pupils; and with one exception all ancient commentators on Aristotle after Alexander whose writings are known to us are Neoplatonists. There had long been a tendency on the part of Platonists to incorporate Aristotelian ideas into their expositions of Plato; some, notably the second-century AD Platonist Atticus, rebelled against this, but they were in the minority. Plotinus himself had the works of Aristotle and the commentaries of Alexander, among others, read in his school (Porphyry, *Life of Plotinus* 14). Subsequently, with the formalisation of the Neoplatonic philosophical curriculum, selected works of Aristotle were studied as a preliminary to the reading of Plato. The emphasis was on the logical and physical treatises and the work *On the Soul*; that explains why Aspasius' commentary on the *Ethics* survived—there was no incentive to replace it—and why we have to wait until the twelfth century AD for commentaries on the *Parva Naturalia,* the zoological works, and the *Rhetoric*.[23]

The exception to the general dominance of Platonists after Alexander is Themistius, who in the fourth century AD combined epideictic rhetoric with the production of explanatory paraphrases of Aristotle's works. But Themistius' Aristotelianism has no clear heritage; we cannot trace either its immediate antecedents or his successors. There are occasional references to other individuals as 'Peripatetics', such as the bishop Anatolius of Alexandria in the third century AD; and as late as AD 500 Dorus from

Arabia is described as having spent more of his life in the study of Aristotle than he should have, before being introduced to the higher study of Plato by Isidorus.[24] But none of this amounts to the continued existence of a distinctive Aristotelian tradition.

The second decline of Aristotelianism is a topic we will return to. First, however, it will be convenient to consider developments in each branch of Aristotelian philosophy in turn throughout the period of the five centuries separating Aristotle from Alexander.

LOGIC

Theophrastus and Eudemus continued and developed the study of formal logic which Aristotle had instituted in the *Prior Analytics*. There are two areas in which they made a particular contribution. The first is in modal logic, the logic of necessity and possibility. Aristotle had utilised a notion of possibility according to which 'possible' excludes not only what is impossible but also what is necessary; while this is intuitive (it is not natural to say 'it is *possible* that 2+2=4', for example), it removes the expected parallelism between statements of possibility and statements of fact. For with this type of possibility 'it is possible that all B are A' implies 'it is possible that no B are A', and 'it is possible that no B are A' does not imply 'it is possible that no A are B' (for it may be that all B have the possibility of either being A or not being A, but that there are some other A that cannot be B at all). Second, while it may seem natural to suppose that a conclusion cannot be stronger than the weakest of the premisses from which it follows —the 'weakest-link-in-the-chain' principle, or, as medieval logicians put it, *sequitur conclusio partem deteriorem,* 'the conclusion follows the weaker part'—Aristotle argued that it made a difference which premiss was concerned. For him 'necessarily all B are A' and 'all C are B' yield 'necessarily all C are A', while 'all B are A' and 'necessarily all C are B' yield only 'all C are A' and not 'necessarily all C are A'.

On both these issues Theophrastus and Eudemus, who are regularly cited together in our sources, adopted the opposite view; in both cases the effect is to make modal logic simpler and tidier. Statements of possibility now behave like statements of fact, and the modality of the conclusion in all syllogisms is determined by a simple rule. If Aristotle was influenced in taking the view he did by extra-logical considerations (for example, that being as a matter of fact a member of a group implies possessing necessarily the properties that all members of the group possess necessarily), the changes made by Theophrastus and Eudemus may indicate a move from logic conceived in terms of its applications in the real world to logic as a purely formal system. It is, however, one thing to assert this with hindsight, quite another to claim that Theophrastus and Eudemus would have seen the change in these terms.

Theophrastus also developed the study of argument forms mentioned by Aristotle but not fully discussed by him. It seems highly probable that these included the forms of argument with conditional, conjunctive and disjunctive premisses which were to form the basis alike of Stoic logic and of modern propositional logic. But it also seems likely that Theophrastus saw these simply as one among several types of secondary argument form, the categorical syllogism remaining primary, and that he did not anticipate Chrysippus' development of propositional logic as a comprehensive system.[25]

The eventual decline of the Stoic school, and the adoption of Aristotelian texts into the Neoplatonic curriculum, ensured the victory of Peripatetic logic over Stoic logic as the subject of formal study. But the contribution of Aristotelian writers after Theophrastus and Eudemus to the development of logic was not great. The innovations came from writers outside the school, such as Galen (even though it is not true, as once thought, that Galen discovered the fourth figure of the 'Aristotelian' syllogism[26].) Alexander wrote extensive commentaries on Aristotle's logical works (only those on *Prior Analytics* 1 and on the *Topics* now surviving) and a separate monograph, now lost, on *Syllogisms with Mixed Premisses* (that is, premisses of differing modalities).

PHYSICS AND METAPHYSICS; FATE AND PROVIDENCE

Aristotle defined time as the numbered aspect of motion (*Physics* 4.11 219b5), indicated most clearly by the movement of the heavenly sphere, though not to be identified with this (*Physics* 4.14 223b23). Theophrastus and Eudemus followed Aristotle's view, but Strato rejected it on the grounds that motion and time are continuous whereas number is discrete[27] and defined time as quantity or measure both in motion and in rest, thus giving it an existence independently of motion (fragments 75–9 Wehrli). He was followed in this by Boethus.[28] Alexander explicitly rejected such a theory, and identified time as the number of the motion of the outermost heavenly sphere more definitely than Aristotle himself had done. Where Aristotle had suggested that there could be no time without soul, as without soul there could be no numbering (*Physics* 4.14 223a21 ff.), Alexander argued that time is in its own nature a unity and is divided by the present moment only in our thought. This suggests that time itself can exist without any actual *numbering;* and Alexander appears to identify time in this sense with the continuous *numerable* movement of the outermost heavenly sphere. Characteristically, Alexander's approach combines a claim to be stating and defending the 'Aristotelian' position with a new development and emphasis of his own.[29]

Theophrastus assembled a series of difficulties for Aristotle's definition of place as the innermost unmoved limit of what surrounds a thing

(Aristotle *Physics* 4.4 212a20; Theophrastus fragment 146 FHS and G.) We do not know whether these difficulties led Theophrastus actually to reject the Aristotelian conception of place. The Neoplatonist commentator Simplicius, after outlining the view of place held by his predecessor Damascius, mentions in passing that Theophrastus seems to have anticipated this, interpreting place as the proper position of a part in a complex whole.[30] Strato (fragment 55 Wehrli, cf. fragments 59–60 Wehrli) certainly rejected Aristotle's view of place, and defined it instead as the interval or extension delimited by the outermost surface of what is contained or the innermost surface of what contains it—which amounts to saying that the place of a thing is, not as for Aristotle what contains it, but the space that it occupies.[31]

For Aristotle sublunary things are composed of the four elements, earth, air, fire and water (which can be and are transmuted into each other), while the heavenly spheres are composed of ether, the fifth element, which has the capacity for movement but for no other kind of change; fire and air naturally move upwards, towards the heavens, and earth and water downwards. Steinmetz [5.41] argued that Theophrastus both rejected the fifth element and argued that fire requires a substrate in a way that the other elements do not. It is true that in the opening section of *On Fire* Theophrastus draws attention to the fact that terrestrial fire needs a constant supply of fuel, which might be thought to conflict with its status as a primary element; and he also speculates over whether the sun, if not actually fire, may not be at least hot.[32]

Such thoughts might lead to a world-picture radically different from Aristotle's—if indeed Aristotle's own views were consistent throughout.[33] It is not, however, clear how far Theophrastus pursued the implications. For the introductory discussion of *On Fire* ends inconclusively, and Theophrastus turns to more specific questions, not before pointing out that the need for replenishment applies not just to fire but to all the sublunary elements (*On Fire* 8). As for the fifth element, Philoponus suggests that Theophrastus (fragment 161A FHS and G) retained it, and the evidence to the contrary is at best dubious.[34] Strato (fragment 84 Wehrli) certainly rejected the fifth element and held that the heavens are composed of fire. He also held that all the elements naturally move to the centre of the universe (fragments 50–2 Wehrli).[35] The fifth element was later rejected also by Xenarchus, a Peripatetic of the time of Augustus.[36]

Steinmetz also suggested that Theophrastus emphasised the role of heat, especially that of the sun, in causing physical change, and that he modified the Aristotelian explanation of meteorological phenomena by dry and moist exhalations from the earth and the water on it, reducing the dry one to mere reflection of the heat of the sun. But both Theophrastus' *Meteorology* and his treatise *On Fire* suggest less divergence from Aristotle's views than Steinmetz supposed.[37] And, once again, there is the question of Aristotle's own consistency; for Longrigg ([5.67] 216–21), who

argues that Theophrastus treated fire as active and the other three elements as passive, finds that both this and Theophrastus' distinction between the generative heat of the sun and terrestrial fire develop themes already present in Aristotle's physiological and biological writings, as opposed to his general physical theory. The Stoics rejected a fifth element and gave a major role to fire, and later, with Chrysippus, *pneuma,* as embodiments of the active principle in the universe; but the presence of similar tendencies in Aristotle's own successors does not mean that their enterprise of continuing and developing Aristotle's thought should be seen only as a transition paving the way for Stoicism.

Although Theophrastus denied the existence of the Unmoved Mover, he continued to hold, like Aristotle,[38] that the heavens are ensouled (fragments 159, 252 FHS and G). That the heavens are ensouled was later the belief of Alexander of Aphrodisias, and of his teacher Herminus (Simplicius, *On the Heaven* 380.3 ff.).[39]

Aristotle maintained the infinite divisibility of matter and the absence of any void. Scholars have drawn particular attention to contexts where Theophrastus, in the explanation of physical processes, makes use of the notion of passages or pores (notably *On Fire* 42). There is no inconsistency between this and Aristotelian physical theory, unless we are to suppose that the pores contain vacuum; they may well be thought of rather as containing matter more tenuous than what surrounds them. Strato was certainly prepared to allow the existence of 'microvoids' within material bodies (fragment 65a Wehrli).[40] Theophrastus *did* it seems employ the principle of 'nature abhorring a vacuum' in the explanation of winds,[41] but this and the idea of microvoids are not equivalent, as Furley [5.68] 156 ff. points out. Both ideas influenced the Alexandrian physician Erasistratus, who had been a fellow-pupil of Theophrastus with Strato, in his explanations of physiological processes; and the influence of Strato's theory has also been seen in the technological writer Hero of Alexandria.[42] But all this is still far removed from the Atomist conception of discrete particles of matter moving within an otherwise empty space. A tendency to materialistic explanations can be seen in Theophrastus' introduction of material effluences into the explanation of odour, which Aristotle had interpreted rather as the propagation of a change in the intervening medium. Even light was explained by some Peripatetics in material terms.[43]

On issues of physical theory such as these the Peripatetics of the Roman Empire, concerned as they were to explain the Aristotelian texts, returned to more orthodox Aristotelian positions. (Alexander of Aphrodisias had a particular interest in the theory of vision, inherited from his teacher Sosigenes.) But on other aspects of the organisation of the natural world later Peripatetics found themselves constrained to develop 'Aristotelian' positions on issues to which Aristotle himself had devoted little or no direct attention. The Stoics, in particular, had made fate and divine providence central topics of philosophical debate. Aristotle himself had little to say

about the former, and his account in *Metaphysics* Λ of the Unmoved Mover as engaged in self-contemplation, causing movement as an object of desire without itself being affected, seems to rule out divine providence altogether.

The nature of divine involvement with the universe forms the climax of the treatise *On the World (De mundo),* attributed to Aristotle (and so contained in our standard editions) but probably in fact a composition of the Roman period.[44] In this treatise God is likened to the Persian King, ruling by delegated authority; divine influence is present in the world, but God himself is remote in a way that is appropriate to his dignity. Aristotle himself in *Metaphysics* Λ 10, arguing that goodness is to be located both in the Unmoved Mover and in the orderliness of the world dependent on it, but more in the former than in the latter, had employed the images of a military commander and the head of a household; these were to play an important part in subsequent discussion, as we shall see. Other interpreters, however, took a harsher line, and the standard view attributed to Aristotle in both pagan and Christian sources—among them Areius Didymus and Diogenes Laertius—is that the heavens are the objects of divine providence while the sublunary region is not. This view may derive originally from Critolaus (fragment 15 Wehrli).[45] The Platonist Atticus (fragment 3 des Places) in the second century AD attacked Aristotle vehemently for holding such a view (and also for denying the immortality of the soul, of which more later); Aristotle's views, he argued, are really no different from those of Epicurus, but at least Epicurus had the courage of his convictions and denied providence altogether, whereas Aristotle allows its existence but only in a context where it cannot directly benefit us.

It was apparently in reply to Atticus that Alexander of Aphrodisias developed an alternative 'Aristotelian' theory of providence, preserved partly in his treatise *On Providence* which survives in two Arabic versions, and partly in various short texts attributed to him. Providence is located in the heavens, he argues, in the sense that it is exercised from the heavens over the sublunary region, which, being subject to coming-to-be and passing-away, is the only part of the universe that actually needs providential care. However, providence extends to the sublunary only in preserving the eternity of natural kinds; there is no involvement of providence in the lives of individuals. Alexander can thus account for the occurrence of misfortunes in the lives of individuals, and also avoid an involvement of the divine in things that would be beneath its dignity—something for which he repeatedly criticises the Stoics.[46]

Alexander's theory of providence is a re-working of authentically Aristotelian materials in a new guise. That the movements of the heavens, and especially the seasonal movements of the sun, preserve the continuity of sublunary coming-to-be and hence of natural kinds is argued by Aristotle himself in the penultimate chapter of his *On Coming-to-be and Passing-*

away, and the eternity of natural kinds had been used as an argument for that of the world by Critolaus (fragment 13 Wehrli).[47]

Similarly where fate is concerned Alexander's position is an adaptation of Aristotelian themes. For Aristotle what is natural applies for the most part but not always; and Alexander, in his treatise *On Fate*, states that an individual's fate is their nature or, quoting Heraclitus, their character, which for the most part determines what happens to them, but not always. Alexander may not have been the first to put forward this view; certainly one of the texts attributed to him endeavours to read such a notion of fate back into Aristotle's own two uses of the adjective 'fated', into Theophrastus and into an otherwise unknown Polyzelus.[48]

What Alexander's view of fate emphatically rules out is the Stoic concept of fate as inexorably determining everything. The unity of the universe, he argues, is preserved not by the chain of causes and effects, but by the regular movement of the heavens; as in a household, so in the universe minor variations in matters of detail do not affect the orderliness of the whole (Alexander, *On Fate* ch. 25). The similarity to Alexander's theory of providence is apparent; so too is the place in Peripatetic thought of the conception of the universe as a hierarchy in which the same degree of order, goodness and perfection is not to be expected at every level. It is tempting to see the remoteness of God in the *De mundo*, and Alexander's attacks on the Stoics for involving God in every detail of the management of the world, as reflecting the increased remoteness of earthly rulers when the Greek city state was replaced first by the Hellenistic monarchies and then by the Roman Empire; but the fact that the hierarchical picture is already implicit in Aristotle *Metaphysics* Λ 10 itself may argue for caution here.

Theophrastus and Strato devoted little attention to problems of general metaphysics such as the nature of universals; indeed, Strato's materialism is reflected in his emphasising the effect of one element in overcoming another rather than the division into matter and form (Gottschalk [5.58] 150, cf. Brink [5.1] 948). With the revival of Aristotelianism and the placing of the *Categories* at the beginning of the whole sequence of Aristotle's works the status of universals became a central issue. Once again, the thinker on whose views we are most fully informed is Alexander, though his views were anticipated by Boethus,[49] and some of the evidence comes from short texts which may not all be by Alexander himself. Definitions, it is argued, are of specific or generic forms; these do not include any of the peculiarities of individuals due to their matter, such as Socrates' snub nose, and yet are not in themselves *universal;* the nature of human being would be the same even if only one human being existed. Socrates exists because 'human being' exists, and not the other way round; yet 'human being' would not exist if no individual human being at all existed. The implication seems to be that each human being has the same nature or form, the form of the species human being, but that my form and

yours are the same only in kind (or 'form'; the Greek is the same), not numerically; or, putting it another way, to speak of 'the same form' does not mean that there is a single numerically individual form that you and I share.[50]

Alexander's position has been criticised both in ancient and in modern times for being nominalist and hence un-Aristotelian. Some of those criticisms are, however, from a Platonist standpoint.[51] For Aristotle as well as for Alexander universals have their existence as *post rem* mental constructs;[52] but it is important that those mental constructs are not arbitrary but reflect the fundamental reality of the specific forms. The latter are the product of the abstracting power of intellect (Alexander, *On Soul* 90.2–11), but that does not mean that it is up to us which features we abstract. On the contrary, the important thing about every human being is that he or she is a *human being,* the various accidents due to matter being secondary to this. This explains why texts attributed to Alexander can say that the universal is prior to any *particular* individual;[53] and, while it may be questionable whether we should use ideas from one area of Alexander's philosophising to settle an issue in another, the emphasis in his theory of providence on the preservation of the species agrees with an emphasis on the reality of specific form. Lennox [5.175] indeed sees eternity in species through reproduction as the context for understanding what is meant by 'being one in form'.

Alexander has also been regarded as un-Aristotelian in diminishing the role of form in comparison with that of matter. But this is chiefly in the context of his doctrine of soul, to which we should now turn.

SOUL

Aristotle defined the soul as the form of the living creature. It is thus neither a separable immaterial entity (as Plato had supposed), nor a distinct material ingredient in the whole creature (as Epicurus for example was to argue). But neither is it, for Aristotle, simply a product of the arrangement of the bodily parts, reducible to the latter; body is to be explained in terms of soul, and in general compounds of matter and form are to be explained in terms of the latter. A human body has a certain structure in order to enable the human being to function in the way that human beings do.

However, that body is to be explained in terms of soul and not vice versa need not mean that a certain arrangement of bodily parts is not a necessary condition for the existence of a certain type of soul. In the case of perceptive soul the bodily organ that relates to a particular soul-faculty is evident; the eye in the case of sight, the ear in that of hearing. It is less obvious how we are to relate the soul to the body in general—both in terms of how soul and body interact, and in terms of whether some part of the body plays a particularly vital role. Aristotle had seen 'connate spirit' *(pneuma)* as the physical means by which soul operated, and the heart as

the particularly vital organ, the first to develop in the embryo. He had also asserted that intellect, alone of the soul-faculties, was not correlated with any particular organ, and had spoken, in the notorious chapter 3.5 of *On Soul,* of a distinction in intellect between 'that which makes everything' and 'that which becomes everything', apparently presenting the former, active intellect as imperishable in a way in which the latter, passive intellect was not. The history of subsequent Peripatetic psychology is largely that of attempts to clarify these issues, attempts that were affected to varying extents by contemporary attitudes and the positions of other philosophical schools. It will be convenient first to discuss the nature of the soul as a whole and its relation to the body, and then to consider the question of intellect separately.

Among Aristotle's immediate pupils, Dicaearchus is said (fragments 11–12 Wehrli) to have regarded the soul as a 'harmony' or mixture of the four elements in the body, a view which some reports present as equivalent to denying the existence of the soul at all (fragments 7–8 Wehrli). Annas [5.160] 31 sees Dicaearchus' theory of the soul as eliminativist, with the *caveat* that our sources may be tendentious). Aristoxenus, too, is said (fragments 119–20 Wehrli) to have regarded the soul as a harmony or attunement of the body, simply. It is possible that both writers were prompted by Plato's attack on the Pythagorean theory of soul as a harmony in the *Phaedo* (86ad, 92a–94e) and that their interest was chiefly in attacking Plato's position. We do not know whether they actually presented their interpretations as 'Aristotelian'. Strato certainly brought some highly pertinent criticisms (fragments 122–7 Wehrli, cf. Gottschalk [5.58] 164 ff.) against Plato's arguments for immortality in the *Phaedo,* and was followed in this by Boethus.[55] Even less interest in Aristotle's theory is shown by Heraclides of Pontus (a pupil both of Aristotle and of Plato's successor Speusippus; he is a follower of the Academy rather than a Peripatetic, though sometimes treated as such), and by Clearchus, another writer on the fringes of the Peripatetic school; both were interested in 'out-of-the-body' experiences.[56]

Strato emphasised the role of *pneuma,* 'breath' or 'spirit', in the functioning of the soul. Aristotle and Theophrastus had used *pneuma* to explain bodily processes,[57] and for Strato (fragments 119–20 Wehrli) soul-activities were explained by *pneuma* extending throughout the body from the 'ruling part', which he located not in the chest (as both Epicurus and the Stoics did) but in the head, or more precisely in the space between the eyebrows. The term for 'ruling part' in our sources *(hêgemonikon)* is Stoic, but even if Strato did not use this actual word the idea is implied. Tertullian illustrates Strato's theory with the analogy of air in the various passages of a musical pipe (Strato, fragment 108 Wehrli); the Stoics were to use that of the tentacles of an octopus (*SVF* 2.836). Strato was influenced here by developments in contemporary medicine and anatomy; Erasistratus investigated the function of the nerves by dissection and argued that they

contained 'psychic' *pneuma* extending from the brain. All sensation, Strato held, was felt in the ruling part of the soul, rather than in the bodily extremities (fragments 110–11 Wehrli); all sensation involved thought (fragment 112 Wehrli), and there is no thought not derived from sensation (fragment 74 Wehrli). Some have drawn a contrast between Strato's views on thought itself and those of Aristotle, emphasising Strato's empiricism; but the contrast sometimes depends on attributing to Aristotle himself a belief in intuition as a mode of cognition distinct from the senses, and this is at least questionable.[58]

Lyco's successor Ariston of Ceos may have stressed the distinction between rational and irrational soul, against the Stoics,[59] but perhaps in an ethical rather than a psychological context. Critolaus described the soul as made of ether, the fifth element (fragments 17–18 Wehrli; Annas [5.160] 33). It has been suggested that soul itself and ether were more closely linked in Aristotle's 'published' works than in those that survive; but this is questionable.[60] Cicero says that Aristotle identified the soul with ether, but this may reflect a misunderstanding, aided by the familiarity of materialistic theories of soul in other schools, of a reference in Aristotle's early *Eudemus* to soul as a fifth *incorporeal* nature besides the four material elements recognised at that stage.[61]

Andronicus defined the soul as the power arising from the mixture of the bodily elements,[62] and was followed in this by Alexander (*On Soul* 24.21–3). Alexander has been criticised for interpreting Aristotle in a materialist way, treating soul as form, indeed, but making form secondary to matter.[63] His treatment of soul as the culmination of an analysis which starts from the simple physical elements and builds up through successively more complex structures does suggest that he sees form in general and soul in particular as the product of material arrangement. However, it is not un-Aristotelian to say that a certain bodily arrangement is a *necessary condition* for the existence of soul.[64] Indeed, Alexander may have intended to defend an authentically Aristotelian position against more materialist interpretations. His view does indeed exclude any personal immortality; but so does Aristotle's own, with the *possible* exception of his cryptic remarks about the Active Intellect (see p. 165).

Andronicus probably, and Alexander certainly (*On Soul* 22.7 ff.), compared soul as a principle of movement with the nature of the simple bodies, for example the weight of earth. It was by appeal to this conception of nature (itself Aristotelian enough; Aristotle, *Physics* 2.1 192b21) that Alexander explained the application to the simple bodies of Aristotle's claim that everything that moves is moved by something (Aristotle, *Physics* 8.4 254b24), defending it in a treatise surviving only in Arabic.[65]

INTELLECT

Discussion of Aristotle's theory of intellect begins already with Theophrastus, who suggests that the reason that we are not always thinking is because of the mixture of the active intellect with potential intellect and body (Theophrastus fragments 320–1 FHS and G). A further problem was how intellect, which can have no nature of its own if it is to be able to receive all intelligible forms, can ever begin to perform the task of abstraction by which it separates forms from their matter (cf. Theophrastus fragments 307, 309, 316–17 FHS and G). Alexander *On Soul* 84.24–7 later expresses the point by saying that our intellect, at birth, is not so much like a blank wax tablet as like the blankness of the wax tablet; and Xenarchus suggested, whether seriously or as a *reductio ad absurdum,* that potential intellect was to be identified with prime matter. It was natural to see Aristotle's remarks in *On Soul* 3.5 about an active intellect which 'makes all things', contrasted with the passive intellect 'which becomes all things', as indicating some solution to this problem.

In the treatise *On the Generation of Animals,* moreover, Aristotle refers, in passing and with no very clear explanation, to intellect, alone of our soul-faculties, as entering into the father's seed, 'from outside' (Aristotle *Generation of Animals* 2.3 736b27) At some point this was linked with the Active Intellect of *On Soul*. One of the minor works attributed to Alexander, *On Intellect,* records—only to criticise in its turn—an answer to the objection that such an intellect could not 'come from outside' since, being immaterial, it could not change place at all. The objection and reply follow on a previous section introduced as 'from Aristoteles'; this is probably to be taken as a reference to its content being an interpretation of Aristotle's own doctrines, and in any case the identity of the person whose views are reported in this section, and of the originator of the following reply to the objection concerning change of place, are uncertain—the text may be disjointed.[66]

The section introduced as 'from Aristoteles' explains the role of the Active Intellect. It is not an element in the soul of each individual separately; rather, it is identified with the supreme intelligible, the Unmoved Mover, and acts upon our intellects to develop their potentiality through our thinking of it. The objection concerning movement is then answered by the argument that the Active Intellect is present everywhere throughout the world, but can only produce intelligence in those parts of matter that are suitable—i.e. human beings (and any superior intelligences there may be). To this the author of *On Intellect* himself replies with objections similar to those which Alexander elsewhere brings against Stoic pantheism, complaining that involvement of the divine in the sublunary world is inconsistent with the divine dignity. Gottschalk [5.77] 1160–2 stresses, however, that the rejected account differs from Stoicism in not regarding its omnipresent intellect as *material*.

The author of *On Intellect* shares the view that the Active Intellect acts upon our intellects; it does so by our becoming aware of it so that it becomes, as it were, a paradigm of the intelligible for us. The difficulty with this view is that it suggests that God is the first thing we think of, whereas it would be more plausible for awareness of him to be the culmination of our understanding. And in Alexander's own, certainly authentic *On Soul* we find two other explanations of the role of the Active Intellect; being the supreme intelligible itself, it must be the cause of other things being intelligible, and it is also the cause of things being intelligible because, as Unmoved Mover, it is the cause of their having being in the first place (Alexander, *On Soul* 88.24–89.8 and 89.9–19 respectively).[67] Neither explanation, however, indicates *how* the Active Intellect causes us to have intelligence; they simply provide ingenious grounds for asserting *that* it does so. Such concentration on solving the immediate problem is typical of Alexander. An explanation would indeed be available if we were to suppose that the divine intellect already contained within itself the thoughts that we can come to apprehend; but that is essentially the position of Plotinus, and while he may be indebted in various respects to Alexander's account of intellect, there is no indication that Alexander himself took this particular step.

It has been debated whether Alexander's *On Soul* is an attempt to improve on *On Intellect,* or the reverse. Both accounts alike, by identifying the Active Intellect with God rather than with a part of the individual's soul, deny personal immortality. Since thought, for Alexander as for Aristotle, is identical in form with its objects, and the Unmoved Mover is pure form without matter, our minds in a sense become the Unmoved Mover while they think of it, and can thus achieve a sort of temporary immortality; but that is all (*On Soul* 90.11–91.6).[68] Whether this claim is to be seen in mystical terms, or whether it is simply the by-product of Alexander's undoubted ingenuity in attempting to clarify Aristotelian doctrine, is debatable. It is also questionable as exegesis of Aristotle; Aquinas was later to argue, against Alexander and Averroes, that Aristotle *had* intended the Active Intellect to be a personal element in each individual's soul and had thus intended a personal immortality.

ETHICS, POLITICS, RHETORIC

Throughout our period Peripatetic ethics are characterised by a contrast with the paradoxical extremes of Stoicism. Cicero repeatedly portrays Theophrastus as weakening virtue by recognising external goods, subject to fortune, as necessary for happiness (Theophrastus fragments 493, 497–9 FHS and G; so too Ariston of Ceos, cf. Wehrli [5.60] 580). Theophrastus' position is not that far removed from some aspects of Aristotle's; the latter had after all said that to call someone being tortured happy is absurd (*Nicomachean Ethics* 7.13 1153b19; cf. Cicero *Tusculan*

Disputations 5.24, and Fortenbaugh [5.30] 218–23). Lyco is attacked by Cicero (*Tusculan Disputations* 3.77= Lyco fragment 19 Wehrli; cf. 3.76) for seeking to reduce distress by arguing that it is caused by disadvantages of fortune and of the body, not by evil in the soul.

The claim that happiness involves all three classes of goods, of the soul, of the body, and external, is attributed to Critolaus (fragments 19–20 Wehrli), though he also argued that if those of the soul were placed on one side of a balance and bodily and external goods on the other, the former would far outweigh the latter (fragments 21–2 Wehrli). Areius Didymus (cited by Stobaeus *Ecl.* 2.7.3b p. 46.10–17 Wachsmuth), however, seeking to reconcile Peripatetic and Stoic ethics, explicitly rejects Critolaus' view, which he interprets as making all three types of goods *parts* of human excellence; this is also the view attributed to Aristotle by Diogenes Laertius (5.30; Moraux [5.87] 276). For Areius bodily and external goods are rather *used by* virtuous activity; a similar view is later held by Aspasius (*On the Nicomachean Ethics* 24.3 ff.[69] Areius holds that there is no happiness without external goods as well as virtue; however, while lack of external goods does not necessarily lead to actual unhappiness, lack of virtue always does.[70]

Opposition to extreme Stoic ethical views played a part in the renewed interest in Aristotelianism on a popular level in the Imperial period. It is particularly notable in the treatment of *pathos* or 'emotion', which Aristotle had regarded as fundamental to ethics. The Stoics confined the term to emotional reactions that went beyond right reason, and therefore regarded *pathê* as such as uniformly bad (though also recognising a class of 'good feelings', *eupatheiai,* such as 'watchfulness' by contrast with fear; Critolaus rejected this distinction, fragment 24 Wehrli, cf. Wehrli [5.57] vol. 10 p. 69 and [5.60] 588). The Peripatetics characteristically recommended not the absence of passions, *apatheia,* but *metriopatheia,* moderation in the passions; as Aristotle himself had taught, failure to show anger when anger is due is a shortcoming (*Nicomachean Ethics* 2.7 1108a8; cf. Diogenes Laertius 5.31; Philodemus, *On Anger* XXXI.31–9 Wilke; Cicero, *Tusculan Disputations* 4.43–4; Aspasius *On the Nicomachean Ethics* 44.12–19; Moraux [5.75] 282 n. 197, [5.87] 278).

According to Areius Didymus (Stobaeus *Ecl.* 2.7.1, 38.18–24 Wachsmuth), Aristotle regarded *pathos* not as an excessive movement of the soul but as an irrational movement *liable* to excess. Andronicus and Boethus too defined it as a movement of an irrational part of the soul (Aspasius, *On the Nicomachean Ethics* 44.20 ff.); but Andronicus shared with the Stoics the view that all *pathos* involves a supposition that something is good or bad, and Boethus held that it was a movement possessing a certain magnitude. Aspasius rejected both these points, distancing the Peripatetic position further from the Stoic one (Aspasius, *On the Nicomachean Ethics* 42.13 ff.).

Aspasius' role in the development of Aristotelian ethics as a subject of study has been a topic of recent debate. His commentary on the *Nicomachean Ethics* includes the 'common books' which are transmitted both as part of the *Nicomachean Ethics* and of the *Eudemian* (*Nicomachean Ethics* 5–7=*Eudemian* 4–6). It is from the time of Aspasius that the *Nicomachean Ethics* rather than the *Eudemian* is the work regularly studied and cited (as in the *Ethical Problems* attributed to Alexander, for example). Perhaps it was Aspasius who was responsible for the placing of the 'common books' in their Nicomachean context, but this seems more questionable.[71]

The Stoics based their ethics on the 'appropriation' *(oikeiôsis)* or recognition by living creatures of their own selves. The most fundamental impulse was that to self-preservation, which developed in two ways in human beings as they grew older, firstly by the person coming to recognise virtue and reason as true self-interest, and secondly by the recognition of other people as akin to oneself. Attempts have been made to trace the origin of this Stoic doctrine to the post-Aristotelian Peripatos.[72] It was indeed attributed to Aristotle by Areius Didymus (ap. Stobaeus, *Ecl.* 2.17.3, 116.21– 128.9 Wachsmuth),[73] Boethus and Xenarchus (Alexander of Aphrodisias, *Supplement to the book On the Soul (De anima libri mantissa)* 151.3–13), but this may simply reflect Stoic influence and, in the case of Areius at least, a desire to assimilate Stoic and Aristotelian thought to one another.[74] Theophrastus spoke of 'affinity' *(oikeiotês)* between all human beings and animals (fragment 531 FHS and G; cf. fragment 584A FHS and G), but this is hardly the same as the process of 'appropriation' described by the Stoics. Some have argued that the account of moral development in terms of 'appropriation' at Cicero, *On Ends* 5.24–70 derives from Theophrastus, even though the book as a whole represents the views of the syncretising Antiochus of Ascalon,[75] but this is at best open to debate.

Dicaearchus in his *Tripoliticus* (fragments 70–1 Wehrli) set out the doctrine of the mixed constitution, a combination of monarchy, aristocracy and democracy superior to each of these. The concept was already present, applied to Sparta, in Plato (*Laws* 4.712d) and Aristotle (*Politics* 2.6 1265b33);[76] it was later to be applied to Rome by Polybius (6.11.11) and Cicero (*Republic* 1.69–70, 2.65) and appears in Areius Didymus (ap. Stobaeus *Ecl.* 2.7.26, p. 151.1 Wachsmuth). Cicero presents Dicaearchus and Theophrastus as advocates of the active and contemplative lives respectively, continuing a debate already present in Aristotle *Nicomachean Ethics* 10.7–8 (Dicaearchus fragment 25 Wehrli, Theophrastus fragment 481 FHS and G).

Theophrastus developed Aristotle's study of rhetoric, elaborating from Aristotelian materials a doctrine of the four virtues of style (correctness, clarity, appropriateness, and ornament) which became standard for later writers, and dealing with rhetorical delivery, a subject

Aristotle had neglected. Theophrastus' *Characters* may well relate to the rhetorical portrayal of character as much as to comic drama or the study of ethics; these purposes are not indeed mutually exclusive. Subsequently, however, the study of rhetoric became a subject in its own right and grew apart from Peripatetic philosophy.[77]

CONCLUSION

The history of Aristotelianism as a separate tradition in the ancient world comes to an end with Alexander and Themistius. Part of the reason for Alexander's having no distinguished followers in his own school is undoubtedly the decline in interest in formal higher education in the third century by contrast with the second. But that does not on its own explain why Aristotelianism declined where Platonism did not. Once again, as in the third century BC, the lack of a distinctive doctrinal appeal may have played a part; where Platonism had a radical and distinctive message, Aristotelianism appealed to scholars and, on a different level, to common sense. The difference was that, where Aristotelianism in the Hellenistic period lacked a distinctive identity except in so far as the pursuit of enquiry itself provided one, the revived Aristotelianism of the Empire was limited in its scope by being too closely tied to the exposition of the Aristotelian texts. More might indeed have been made of those texts and their implications; but if Alexander had developed his ideas concerning intellect further, he would, as already indicated, have been adopting a position not unlike that of the Neoplatonists themselves.

Merlan ([5.2] 122–3 n.4) and Movia ([5.128] 63–81) both assess Alexander in terms of a tension between naturalism and mysticism. Merlan goes further, suggesting that the whole history of the Peripatetic tradition in antiquity can be seen in terms of an uneasy oscillation between a materialism insufficiently distinct from Stoicism, on the one hand, and a belief in immaterial principles insufficiently distinct from Platonism, on the other; the school declined because it lacked a distinctive enough position of its own (Merlan [5.2] 122. Merlan's perspective is indeed explicitly Platonist; but it was after all Platonism that eventually prevailed).

In another sense, however, the decline of Aristotelianism was only apparent. The continued study of Aristotle's writings was a fundamental part of the Neoplatonist curriculum, and Greek philosophy passed to the Islamic world in a form which combined Platonic and Aristotelian elements. It was the latter which, in a new guise indeed, became central to the philosophies of Avicenna, Averroes, Aquinas and many others. But to tell that story now would take more space than we have already used.

NOTES

1 It will be immediately apparent how much the following account owes to the writings of others, and in particular to those of Paul Moraux and of Hans Gottschalk. Important too is the survey of Peripatetic writers from Theophrastus to Nicolaus of Damascus in Wehrli [5.60]. I am particularly grateful to Fred Schroeder for his permission to refer to work in progress at the time of writing. Numbered references in [brackets] are to the bibliography; for fragments of Peripatetic writers, Wehrli=[5.60] and FHS and G=[5.25].

2 Theophrastus, *Explanations of Plants* 1.9.1, 1.16.12, 1.18.2. Cf. Einarson and Link [5.6] vol. 1, xvii–xviii. I am grateful to Geoffrey Lloyd for emphasising the importance of this to me.

3 Cf. Pellegrin [5.184]; Lennox [5.176].

4 See Steinmetz [5.41] 334–51; Gottschalk [5.42] 20; Mansfeld [5.153], [5.179] and [5.180] especially 67–70.

5 See Annas [5.160] 26–8.

6 Plutarch, *Against Colotes* 14 1114F=Strato fragment 35 Wehrli; Cicero, *On the Nature of the Gods* 1.35=Strato fragment 33 Wehrli; cf. *Academica Posteriora* 1.121=Strato fragment 32 Wehrli. Repici [5.62] 117–56; on the other side, van Raalte [5.51] 203.

7 Cf. Devereux [5.49], especially at 182. Balme [5.53] similarly argues that Theophrastus' views on spontaneous animal generation antedate Aristotle's own latest views.

8 So, recently, Isnardi-Parente [5.173] 125–8 and Marenghi [5.69] 9–11, 33–6.

9 This is not to deny that both these schools showed philosophical acumen and subtlety; the loss of interest in Aristotle was not a loss of interest in philosophical argument as such.

10 Strabo 13.1.54; cf. Plutarch *Life of Sulla* 26.1–3 and, for Andronicus, also Porphyry, *Life of Plotinus* 24. I use 'published' and 'unpublished' as equivalents for the traditional 'exoteric' and 'esoteric' respectively; the latter, in particular, could have misleading connotations. That Andronicus produced a definitive *edition* in the sense of a standard text, as opposed to a standard arrangement of works, has been called into question by Barnes in [5.79] and in his contribution to [5.98]. Against Düring's claim that Andronicus produced his collection in Rome cf. Gottschalk [5.77] 1093.

11 Gottschalk [5.77] 1088, 1098 11.96, and 1173. Cf., for the second century AD in particular, Ebbesen [5.165] vol. 1, 54–6.

12 Moraux [5.87] 248–9. Cf. also Athenaeus 1.4 3ab with Gottschalk [5.77] 1084–6, who suggests that the books inherited by Neleus may never have left Athens and (speculatively) that Apellicon may have stolen the books and made up the whole story to conceal the fact.

13 Ed. H.Mutschmann, Leipzig: Teubner, 1906. Translation and commentary in Rossitto [5.90].

14 On which see Moraux [5.87], emphasising Diogenes' use of a Hellenistic source which, he suggests, impressed him because of its antiquity.

15 Cf. also Gottschalk [5.77] 1129–31, on the classifications in the pseudo-Aristotelian treatise *On Virtues and Vices* and the adaptation of this, combined with Stoic material, in the work *On Passions* falsely attributed to Andronicus himself.
16 On Nicolaus see Moraux [5.74] 445–514; Gottschalk [5.77] 1122–5. On the treatise *On Plants* in particular Moraux [5.74] 487–9, with bibliography, and Drossaart-Lulofs and Poortman [5.86]. For the reception of the work in the Renaissance, cf. Schmitt [5.185] 299–300, 307–8.
17 On Areius see Moraux [5.74] 259–444; Fortenbaugh [5.82]; Gottschalk [5.77] 1125–9; Hahm [5.83]. For the historical evidence for his personal relationship with Augustus see Hahm [5.83] 3035–8. The identity of the author of our texts with the friend of Augustus has recently been called into question by Göransson [5.167].
18 On Boethus see Moraux [5.74] 143–79.
19 In [5.94]; cf. Gottschalk [5.77] 1155, against Kenny [5.95] 37 11.3, who attributed the *whole* commentary to Adrastus. On Adrastus generally cf. Moraux [5.75] 294–322.
20 So Lynch [5.3] 161–2, 200–7. Gottschalk [5.77] 1093–4, however, argues that the school continued to exist in some sense at least for the rest of the first century BC, and that Andronicus was its head.
21 Gottschalk [5.77] 1159–60 notes the same tendency in Alexander's teacher Sosigenes, and suggests it may have been a didactic technique. Cf. Moraux [5.137] 169 n. 1; Sharples [5.131] 97.
22 Schroeder [5.117]. Cf. also, on *Quaestio* 1.11, Sharples [5.119] 50 n. 126.
23 There is a convenient list of the published commentaries in Sorabji [5.78] 27–30.
24 Damascius ap. Suda s.v. Doros (no. 1476, vol. 2 p. 137.3–15 Adler). Dorus is also mentioned in Damascius' *Life of Isidorus,* 131. Cf. Brink [5.1] 947.
25 So Barnes [5.40]; cf. Ebert [5.166] 15–19, arguing against Barnes that there is no evidence for Theophrastus using variables to represent propositions rather than terms, as the Stoics did. On Theophrastus' logic in general cf. Kneale and Kneale [5.174] 100–12.
26 Cf. Kneale and Kneale [5.174] 183–4; Gottschalk [5.77] 1171.
27 Simplicius *On the Physics* 788.34 ff.=Theophrastus fragment 151B FHS and G =Eudemus fragment 91 Wehrli=Strato fragment 75 Wehrli.
28 Simplicius *On the Categories* 434.2 ff., cf. Gottschalk [5.77] 1108.
29 Cf. Sharples [5.139] and Gottschalk [5.77] 1168.
30 Theophrastus fragment 149 FHS and G. Cf. Sorabji [5.44] and [5.186] 158, 202–15; Algra [5.45]; [5.25] commentary volume 3.1, 54–60.
31 Cf. Gottschalk [5.58] 169; Sorabji [5.186] 158.
32 Cf. on this [5.25] commentary volume 3.1, 89–90, 115–16; Battegazzore [5.43].
33 Cf., on the question of the fifth element, Furley [5.68] 193–5.
34 On Theophrastus fragment 232 FHS and G—a report of Xenophanes' views, not of Theophrastus' own as Steinmetz and others have supposed—see most recently Runia [5.47].
35 Furley [5.68] 159. Theophrastus at *On Winds* 22 already seems to imply that *air* naturally moves downwards, Longrigg [5.67] 221.

36 Gottschalk [5.77] 1119. On Xenarchus see Moraux [5.74] 197–214.
37 As Gottschalk ([5.42] 24) has pointed out.
38 Cf. Guthrie [5.170] xxix–xxxvi.
39 Zeller regarded this as un-Aristotelian in Herminus and Alexander, and Gottschalk ([5.77] 1159) describes it as startling; but if it is so it is as a return to Aristotelian orthodoxy.
40 Gatzemeier [5.66] 94–7 argued that no more than a theory of potential void was to be attributed to Strato; but cf. Furley [5.68] 151–3, Algra [5.159] 58–69, and, against Gottschalk's attribution of a belief in actual void to Theophrastus, Furley [5.68] 141–3.
41 Steinmetz [5.41] 30; and see now Daiber [5.14] 279, 283 and Kidd [5.46] 303, against Gottschalk [5.42] 24 and [5.58] 159 ff., who regarded the relevant section of Theophrastus' *Meteorology* (13.13–17 and 13.50, pp. 28–9 in Daiber [5.14]) as contaminated by Strato's views.
42 Cf. Furley [5.68] loc. cit., and references there.
43 Cf. Gottschalk [5.58] 155, [5.65] 76.
44 Cf. Moraux [5.75] 1–82, Gottschalk [5.77] 1132–9. Reale [5.89] claimed that the *De mundo* is a genuine early work of Aristotle himself, but this has not found general acceptance.
45 Cf. Moraux [5.87] 282 and Gottschalk [5.77] 1126 and n. 237; Mueller [5.182] 155 n. 42 is, however, more doubtful.
46 See further Sharples [5.127] 1216–18, and references there.
47 Moraux [5.141] 199–202, before the Arabic text of *On Providence* was known, criticised Alexander's theory of providence for being 'mechanistic'; in fact the Arabic text makes it clear that Alexander does want to assert that the divine is aware of its beneficial effects on the sublunary, though how he reconciled this with *Metaphysics* A we do not know.
48 Cf. Donini [5.129] 159–61 and [5.151] 182; Sharples [5.127] 1218–19 and references there.
49 Cf. Lloyd [5.144] 52, Gottschalk [5.77] 1109.
50 The first way of putting it suggests a doctrine of individual forms (not, of course, in the sense that each person's form will include individual *peculiarities*); the second, that a form is the sort of thing to which questions of numerical identity or difference do not apply. Cf. Lloyd [5.144] 49 ff., especially 54, and Lennox [5.175] 77–8. (But Lennox goes further, arguing that we should not speak of 'the same *form*', or of your form and mine being the same in *form,* at all; it is *compounds* of form and matter that are or are not the same as each other. Ibid. 88–9.) The question whether or not *Aristotle* believed in 'individual forms', and if so in what sense, has been a major topic of contemporary debate; cf., recently, Halper [5.171] 227–55.
51 Simplicius, *On the Categories* 82.22; Dexippus, *On the Categories* 45.12. Cf. Sharples [5.127] 1199, and references there.
52 Lloyd [5.144] 2 ff., 49 ff., though noting expressions in Alexander which could encourage what he calls 'back door Platonism'.
53 Cf. Sharples [5.127] 1201 against Lloyd [5.144] 51, but also [5.122] 50 11. 126.
54 So Annas [5.160] 30–1. See also Gottschalk [5.168].
55 Gottschalk [5.77] 1117–19.

56 Cf. Annas [5.160] 30–2. The testimonia to both writers are included in Wehrli [5.57]. Cf. also Gottschalk [5.61] 98–108.

57 Cf. Solmsen [5.70] 560–3, 567–8, arguing that in Aristotle the theory is in the early stages of its development and that there is no indication of channels through which *pneuma* passes in the body; with a rather different emphasis, linking *pneuma* with the blood in the blood-vessels, Peck [5.183] 593. Cf. also Verbeke [5.188] 198, Annas [5.160] 18–19, and Longrigg [5.178] 173–4. There is, however, no hint in either Aristotle or Theophrastus of the distinctive position of Praxagoras and Erasistratus (below) that the arteries normally contain *only* air, the veins blood.

58 Cf. Barnes [5.163] 256–7. On Strato's psychology cf. further Gottschalk [5.58] 164 and Annas [5.160] 28–9. At 33 Annas describes him as the only member of the Hellenistic Lyceum with interesting views on the soul.

59 This depends on whether a report at Porphyry ap. Stobaeus *Ecl.* 1.49.24 p. 347.21 Wachsmuth is to be assigned to him, as it is by Movia [5.181] 150–5, Ioppolo [5.182] 272–8 and Annas [5.160] 33, but not by Wehrli [5.57] vol. 6, or to the Stoic Ariston of Chios (=*SVF* 1.377).

60 Cf. Gottschalk [5.61] 106–7.

61 So Easterling [5.64]; see also Moraux [5.63] 1206, 1229–30, and Theophrastus fragment 269 FHS and G.

62 Galen, *Quod animi mores* 44.18 Müller. Cf. Moraux [5.74] 132–4, Gottschalk [5.77] 1113. Galen himself argues for it being the mixture, simply.

63 Moraux [5.141] 29–62, comparing Alexander here with Strato; Robinson [5.145], especially 214–18. See Sharples [5.127] 1203 and references there; also my reply to Robinson at *Classical Review* 43 (1993) 87–8.

64 Gottschalk [5.77] 1114, while stressing the similarity of Alexander's position to that of Dicaearchus and Aristoxenus, notes the affinity of Dicaearchus' view with Aristotle's *own* position—though his source for this is the Platonist Atticus, whose intentions are hostile.

65 See Pines [5.136], and for a full translation of the text Rescher and Marmura [5.138]. Alexander's view is seen by Pines as an ancestor of the impetus theory used by Philoponus to explain the forced motion of projectiles and passed on to medieval science; where projectiles are concerned Alexander himself holds the orthodox Aristotelian view that their movement is caused by the transmission of movement through the air behind them.

66 Moraux [5.99] interpreted the remark as a reference to Alexander's teacher Aristoteles of Mytilene, arguing that the doctrines in *On Intellect* are *not* in fact contained in the works of Aristotle (the Stagirite). That does not mean that the ingenious might not have found them there; that the reference is after all to the Stagirite has been re-asserted against Moraux by Thillet [5.123] xv–xix and Schroeder and Todd [5.116] 22–31. Accattino and Donini in [5.115] xxvii n. 77 side with Moraux. I am grateful in particular to Jan Opsomer for illuminating discussion of this passage, to be developed more fully elsewhere. The identification of the person referred to does not affect the fact that an identification of the Active Intellect and the 'intellect from outside' was asserted by someone early enough to be criticised, and defended, before the work *On Intellect* attributed to Alexander criticised the defence in its turn. However, Schroeder [5.117] has raised doubts not only about the attribution

of *On Intellect* to Alexander (which has long been debated; cf. Sharples [5.127] 1211–14) but also about its date (see above, n. 22).

67 On the first argument cf. Lloyd [5.177] 150, defending it against Moraux [5.141] 90–2 who criticises it as based on Platonist rather than Aristotelian suppositions. The second argument will apply more easily to things subject to coming-to-be and passing-away than to those that are eternal. Cf. Sharples [5.127] 1206–8 and nn.

68 In the sixteenth century Nicoletto Vernia argued that Alexander did believe in personal immortality, but this is a misinterpretation; cf. Mahoney [5.142].

69 Cf. Moraux [5.87] 276; Gottschalk [5.77] 1127; Hahm [5.83] 2981, 3010.

70 For an assessment of Areius' position as an interpretation of Aristotle, and a favourable comparison in this regard with Antiochus of Ascalon, see Annas [5.161] 415–25.

71 Cf. Kenny [5.95] and Gottschalk [5.77] 1101, 1158.

72 Cf. Brink [5.55], Gottschalk [5.77] 1117, 1127–8, and the references they provide.

73 Cf. Görgemanns in [5.82] and Hahm [5.83] 2991, 2998–3000.

74 Cf. Hahm [5.83] 3001–11, and, for a comparison between Areius' account of *oikeiôsis* and Aristotle's theory of friendship, Annas [5.161] 279–87.

75 Cf. Gigon [5.56]; Magnaldi [5.84].

76 Also of Athens under Solon, Aristotle, *Politics* 2.12 1273b38.

77 This process is traced in Fortenbaugh and Mirhady [5.71].

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CHAPTER 6
Epicureanism

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It is tempting to portray Epicureanism as the most straightforward, perhaps even simplistic, of the major dogmatic philosophical schools of the Hellenistic age. Starting from an atomic physics, according to which 'the totality of things is bodies and void' (*Hdt* 39 (LS 5A)),[1] Epicurus proposes a resolutely empiricist epistemology, secured on the claim that every appearance (and not merely every perception) is true, maintains a materialist psychology and espouses hedonism in ethics. Indeed, it is perhaps not too far-fetched to see in Epicurus' work an attempt to return to the natural philosophy of the pre-Socratics, and especially that of his atomist predecessor Democritus. However, even if there is some truth in this, the natural philosophy we find in him is much more sophisticated than any produced before the work of Plato and Aristotle. Epicurus certainly eschews dialectic and rejects the central role given to definition in the acquisition of *epistêmê*, understanding, but he nevertheless builds on the sophisticated empiricism we find in Aristotle. Again, whilst he returns to an earlier tradition of natural philosophy in denying the place accorded to teleological explanation by Plato and Aristotle, unlike his predecessors he is duly aware of the need to meet the challenge posed by those who deny that natural change and the development of natural substances can be properly explained without the use of such explanation. Moreover, whilst Epicurus is at pains to reject natural teleology, he seems not to renounce formal as well as final causes: we find no attack on Aristotle's contention that one must distinguish a substance from its material constitution. Most importantly, perhaps, Epicurus is concerned to provide the kind of systematic ethical theory which was simply unknown before the *Republic* and the ethical writings of Aristotle.

The temptation to render Epicurus more simple than he actually is is perhaps made more intense by the fact that his philosophical ambitions are congenial to a scientifically minded contemporary taste. Not least, of course, Epicurus seeks to explain all natural phenomena as the result of the motion of atoms through space. Furthermore, his system is a firmly naturalistic one. What he attempts is precisely to explain the behaviour of material substances (including those material substances which are human beings) in a way which is consistent with his atomistic materialism.

Abstract objects, such as Platonic Forms or the objects of Aristotelian *nous* play no role in his system. His theories are moreover radically constrained by the available perceptual evidence and he does not seek to crown his enquiry by the acquisition of the sort of necessary universal knowledge required by Plato and Aristotle. In contrast to Plato, who mistrusted the evidence of the senses, and Aristotle, who, whilst renouncing this Platonic mistrust nevertheless denied the ability of the senses to provide genuine knowledge, Epicurus places perception (together with the related capacity for *prolêpsis*) right at the centre of his scientific method and is very cautious about forming beliefs that go beyond what is given in perception. In his espousal of materialism and empiricism, Epicurus seems a very modern ancient philosopher, someone who rejects precisely those parts of Platonism and Aristotelianism which can make them appear alien to the contemporary reader. Materialism and empiricism can take many forms, however, and, as we shall see, we must be careful not to assimilate Epicurus too quickly to their popular contemporary versions.

LIFE AND WORKS OF EPICURUS

Although an Athenian citizen, Epicurus was born on the island of Samos in 341 BC, where his father had gone from Athens as a settler ten years before. It is possible that he was first introduced to philosophical enquiry by Pamphilus, a Platonist who also lived on the island, and possible too that, when still young, he came under the influence of Nausiphanes, a follower of Democritus. Certainly he acquired a knowledge of early atomism from Nausiphanes, although this may have been after he visited Athens. When Epicurus was 18, he went to Athens to do his military service, and it is reported that he went to the Academy to hear Xenocrates lecture. After his two-year stint in the army, Epicurus joined his father in Colophon, where the latter had gone after the Athenian settlers had been ordered out of Samos by Perdiccas. Little detail is known of the next fifteen years of his life. He probably worked as a school teacher in Colophon, before moving to Mytilene in 311 to teach philosophy. A lost polemical work, *Against the Philosophers at Mytilene,* suggests that he did not fit in to the philosophical scene there very happily, and he seems to have left quite soon for Lampsacus, forming there a philosophical circle around himself. In 307 he returned to Athens, and, in order to set up a philosophical school, he bought a house which came to be known as the 'Garden'. Epicurus lived there until his death in 271 BC. Although there is strong secondary evidence that Epicurus was a keen and vitriolic literary polemicist, there is also compelling evidence that he was a highly good-natured man in person, and inspired great loyalty amongst his students.

He wrote a great deal. Forty-one works are cited in Diogenes Laertius' biography of him (in book X of his *Lives of the Philosophers*), but this list is of Epicurus' 'best works': according to Diogenes, his complete works ran

to around three hundred rolls, so that he surpassed all previous writers in the number of his books (X.26). Unfortunately, very little of this has come down to us. Diogenes reproduces three philosophical letters written to Epicurus' followers: the *Letter to Herodotus (Hdt.),* in which he provides an epitome of his natural science; the *Letter to Pythocles (Pyth.),* an outline of his theories about celestial phenomena; and the *Letter to Menoeceus (Men.),* which gives the basics of his ethics. Diogenes also cites forty 'Principal Beliefs' *(Kuriai Doxai, KD),* and a further collection of maxims survives in a manuscript in the Vatican *(Vaticanae sententiae, VS).* In addition, some of the papyri found at Herculaneum have contained fragments of perhaps his principal work, the *De Natura,* which, according to Diogenes, ran to thirty-seven books.

In addition to these few works which have survived, we have various other sources for Epicurean doctrine. Most important is the *De Rerum Natura* of the first-century BC Roman poet Lucretius, in which he sets out Epicurean teaching in helpful detail. The papyri discovered at Herculaneum have also contained works by Philodemus, another Epicurean of the first-century BC.More bizarrely, many fragments have been found in central Turkey of a wall erected by one Diogenes of Oenoanda to set out the principles of Epicureanism. In addition to these Epicurean sources, there is quite a lot of evidence for Epicurean philosophy in the work of Cicero and Plutarch, two opponents of Epicureanism. Given the state of our evidence, we do not have much reason to find developments either in Epicurus' own work, or even in that of his followers. Thus, later writers are generally taken to provide pretty straightforward evidence for Epicurean claims and arguments. I shall follow that practice here, but it is worth noting at least the possibility that later Epicureans may manifest doctrinal shifts from Epicurus' own claims.

One reason perhaps why Epicurus' philosophical system has seemed more simple than those of Plato and Aristotle and of his Hellenistic opponents is that the most accessible of his own writings to have survived are the letters, which are precisely intended to present introductory outlines of his views and arguments. It is clear from the works which survive on papyrus, both those of Epicurus himself and of Philodemus, that there was a proper place for detailed and technical argumentation within Epicureanism, but this has so far played a minor role in forming our general sense of the nature of Epicurus' work, not least perhaps because deciphering the remains of the papyri is a tremendously difficult and uncertain process.

PERCEPTION AND COGNITION

Throughout his work, Epicurus shows himself to be epistemically cautious. He is keenly aware of the danger of holding false beliefs and is duly anxious to provide a method which, if followed, will allow one to believe

only truths. Central to this method is a reliance on perception—which, together with *'prolêpseis'* and the 'primary affections' of pleasure and pain, provide the 'criteria of truth' (DL X.31).

Epicurus provides an reasonably elaborate account of what happens in perception, according to which we perceive when we are struck by the films of atoms *(eidôla)* which are constantly emitted from the solid bodies around us. These preserve the shape of the objects from which they emanate (*Hdt.* 46 (LS 15A1)) and it is by coming into contact with these *eidôla* that we see and think of shapes (*Hdt.* 49 (LS 15A6)), since these delineations penetrate us 'from objects, sharing their colour and shape, of a size to fit into our vision or thought, and travelling at high speed, with the result that their unity and continuity then results in the impression' (*Hdt.* 49–50 (LS 15A8)). Hearing, too, involves the reception of atoms: it 'results from a sort of wind travelling from the object which speaks, rings, bangs or produces an auditory perception in whatever way it may be' (*Hdt.* 52 (LS 15A14)). Smell, too, 'just like hearing, would never cause any affection if there were not certain particles travelling away from an object and with the right dimensions to stimulate this sense, some kinds being disharmonious and unwelcome, others harmonious and welcome' (*Hdt.* 53 (LS 15A18)).

Thus, we are able to perceive because we are receptive to the various kinds of atoms emitted by the solid objects around us. Indeed, perception just is the conscious reception of these atoms, its content entirely determined by their nature and properties: 'all perception, says Epicurus, is irrational and does not accommodate memory. For neither is it moved by itself, nor when moved by something else is it able to add or subtract anything' (DL X.31 (LS 16B1–2)). The content of a perception is thus not to be explained by reference to anything other than what produces that perception, although the objects of perception are distinct from the direct causes of the perception. In *Hdt.* 46, we are told that the *eidôla* have the same shape as the solid objects from which they emanate, but are much finer than the things which are apparent—what are apparent in perception, then, are not the *eidôla* themselves but the solid objects (cf. Lucretius IV. 256 ff.). (It is for this reason, of course, that Epicurus has to argue for his account of how we perceive: if we perceived the *eidôla* which cause the perceptions, then the truth of that account would be given in perception and not stand in need of argument.)

Since the *eidôla* in fact preserve the relevant properties of the objects from which they are emitted, the perceptual affection reports correctly the nature of the solid object:

> And whatever impression we get by focusing our thought or senses, whether of shape or of properties, that is the shape of the solid body, produced through the *eidôlon's* concentrated succession or after-

> effect. But falsehood and error are always located in the belief which we add.
>
> (*Hdt.* 50 (LS 15A9–10))

It is the passivity of perception—its inability to add or to subtract anything from the stimulus—which secures its utter epistemic reliability, and it is not until the mind begins to work with the perceptual reports that the possibility of error arises. Whilst the content of perception is entirely determined by the nature of the stimulus which produces it (and so by how things are), the content of belief is not so constrained and our beliefs can thus mis-report how things are.

The claim that all perceptions are true is, of course, an extremely strong one. The occurrence of perceptual conflict was, after all, something which had been the subject of epistemological scrutiny since Protagoras' move to global subjectivism in order, if we are to believe Plato's *Theaetetus,* to preserve the reliability of perception despite the occurrence of prima-facie conflicting appearances. Thus, if, for instance, the same wind seems cold to one person and warm to another, the mistake, according to Protagoras, would be to think of these perceptions as both seeking to represent the same state of affairs—in this case, the temperature of the wind—when, of course, they could not both be true. Rather, each correctly reports a distinct state of affairs; the wind's temperature relative to the individual perceiver. The wind is in fact warm for the one perceiver and cold for the other. Perceptions report truly how things are for the perceiver (and, importantly, not merely how they seem to the perceiver).

Protagoras' wholesale subjectivism—the account is intended to apply not just to temperatures and colours but to all properties universally—was an extreme, and not obviously coherent, reaction to the possibility of perceptual conflict, and it did not find favour with either Plato or Aristotle, who had to find other ways to deal with the problem. Plato did so by denying that perceptions can be true or false at all: he treats them as mere sensations which provide the materials for beliefs. Aristotle, who did allow perceptions themselves to have propositional content, and so to be capable of being true and false, avoided the difficulties of perceptual conflict by denying that all perceptions are true: thus, in a case of perceptual conflict, at least one of the conflicting perceptions will be false and will be the result of a defect on the part of the perceiver.

Against this background, Epicurus' re-affirmation of the truth of all perceptions, without a move to any kind of subjectivism, can be seen to be very bold indeed—so bold, indeed, as to seem like hopeless epistemic optimism. Moreover, the argument which Diogenes Laertius cites as supporting this claim seems to be clearly insufficient to do this:

> All perception, he says, is irrational and does not accommodate memory. For neither is it moved by itself, nor when moved by

> something else is it able to add or subtract anything. Nor does there exist anything which can refute perceptions: neither can like sense refute like, because of their equal validity; nor unlike since they are not discriminatory of the same things; nor can reason, since all reason depends on the senses; nor can one individual perception, since they all command our attention.
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> (DL X.31–2 (LS 16B1–7))

Thus, there is nothing which can convict any particular perception of error, since in any case where some state seems to cast doubt on the truth of a perception, that state can itself have no greater epistemic security than the perception which it calls into question. Even if this were right, however, it would not give Epicurus the conclusion he needs, since it would be consistent with this that there are indeed false perceptions, even though we can never have sufficient reason to believe of any particular perception that it is false.[2] Since there is nothing here to block the possibility of conflicting perception, the most sensible response when that possibility is realised would seem to be that of the sceptic; suspension of judgement. Indeed, in a case of two conflicting perceptions of the same sense, it would seem to be impossible to assent to both, since this would be to believe a contradiction.

We are given a different argument by Sextus:

> For just as the primary affections, that is pleasure and pain, come about from certain agents and in accordance with those agents—pleasure from pleasant things and pain from painful things, and it is impossible for what is productive of pleasure not to be pleasant and what is productive of pain not to be painful but that which produces pleasure must necessarily be naturally pleasant and that which produces pain naturally painful—so also with perceptions which are affections of ours, that which produces each of them is always perceived entirely and, as perceived, cannot bring about the perception unless it is in truth such as it appears.
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> (*Math.* VII.203)

Here it is the passivity of the senses which secures their veridicality: they are such as to present the cause of the perception just as it is. This provides a much better route to Epicurus' conclusion—and, indeed, it accords with the very start of Diogenes' report of what Epicurus has to say about perception (and also with the remark at Cicero *De Finibus* 1.64 that one will not be able to defend the judgement of the senses without knowing the nature of things). It also provides a rather different kind of epistemological strategy from what we would have if we took the burden of the argument for the claim that all perceptions are true to be carried by the argument for the irrefutability of perceptions. The latter might look very much like an a

priori epistemological argument, but the argument from the passivity of the senses is part of a theory about the way in which we are related perceptually to the world—and not itself given in experience. Given this, it is better to take the irrefutability argument as a subsidiary argument, an attempt to show that the universal conclusion—that all perceptions are true—is consistent with the available perceptual evidence, and thus does itself not fall foul of Epicurus' scientific methodology. *Eidôla* are theoretical entities which we have reason to believe in because they explain things which are apparent. It is not part of the content of perception that we perceive because we are struck by atoms from the solid objects around us.

His argument for the role of *eidôla* in perception, then, is an instance of his general method for establishing the truth of claims which are not directly supported by the evidence of perception itself. Unfortunately, our evidence for the details of this method is sketchy. In his brief report, Diogenes simply uses Epicurus' technical terms without explicating their meaning: a belief will be true if it is 'attested or uncontested' and false if it is 'unattested or contested' (DL X.34 (LS 18B)). There is a much fuller account in Sextus, although doubt has been cast on its reliability. According to this, attestation is 'apprehension through what is evident of the fact that the object of belief is such as it was believed to be', and non-contestation 'is the following from that which is evident of the non-evident thing posited and believed'. Contestation, alternatively, conflicts with non-contestation, being 'the elimination of that which is evident by the positing of the non-evident thing', whilst non-attestation 'is opposed to attestation, being confrontation through what is evident of the fact that the object of belief is not such as it was believed to be'. Sextus concludes his report: 'Hence attestation and non-contestation are the criterion of something's being true, while non-attestation and contestation are the criterion of its being false. And the evident is the foundation and basis of everything' (*Math.* VII.211–6 (LS 18A)). One obvious question here is why Epicurus needed two modes of assessment for beliefs rather than just one. The answer to this would seem to be that different types of belief will be assessed in different ways. Thus, if a non-perceptual belief (i.e. one which does not derive directly from perception) is nevertheless about something which can be perceived, then it should be assessed for whether it is attested or non-attested by perception. Sextus' example of this is that of seeing someone from a distance: if I believe that the far-off figure is Plato, then that belief, which is not currently given by the perception itself, can be attested or non-attested by a later perception when the person is closer. In contrast, there are theoretical beliefs which can never be directly verified by reference to perception—such as Epicurus' beliefs about *eidôla*—and it is these which are contested or non-contested by the perceptual evidence.

Now, whilst it is reasonably straightforward to understand what it is for a belief to be either attested or contested by perceptual experience, matters are more difficult when it comes to construing the other two epistemic

relations, those of non-attestation and non-contestation. The trouble is that whilst the words themselves, and perhaps also Epicurus' own practice, suggest that nothing more or less than simple consistency with the perceptual evidence is sufficient for it to be either non-contested or non-attested (depending on what type of belief it is), Sextus' account clearly places much stricter constraints on what the relations between beliefs and perceptions can be if the former are to be non-contested or non-attested by the latter. Furthermore, there would seem to be very good reason for this more restrictive view, since to accept a theoretical belief just on the grounds that it is consistent with the evidence seems extraordinarily lax, and to reject (rather than merely to hold in doubt) a perceptual belief just on the grounds that it is not attested by perception seems extraordinarily strict. What we should rather expect are three categories in each case: beliefs which our perceptions provide reason to accept, beliefs which they provide reason to reject, and those for which there is not perceptual evidence either way. Diogenes indeed does report a category of beliefs as those which 'await'—'for example waiting and getting near the tower and learning how it appears from near by'—(DL X.34 (LS 18B)), and this suggests that Epicurus did allow that there could be beliefs which were neither contested nor un-contested, nor attested nor un-attested.

There is much room for interpretative manoeuvre on this point, but no space to effect that manoeuvring here. What can be said is that consistency with the perceptual evidence must certainly be a minimal condition for a theoretical belief to stand as non-contested—and a condition Epicurus is indeed concerned to show is satisfied when arguing for such beliefs—but that it may be that more is required than this. Indeed, the more minimal the constraints on what it is for a belief to be non-contested, the less important will be that notion for Epicurean science. Thus, whilst Epicurus introduces the *eidôla* at *Hdt.* 46 (LS 15A1), merely by saying that it is not impossible that there are such delineations of atoms, he continues by claiming that *eidôla* provide the most effective way of producing perception (*Hdt.* 49 (LS 15A6–8)). The theory is thus secured by something stronger than mere consistency with the perceptual evidence—what recommends it is not just that it provides a possible explanation of the evidence, but that it provides the best explanation of it. Again, at *Hdt.* 55–6, when he argues that we should not think that there are atoms of all sizes, he supports this by saying that 'the existence of every size is not useful with respect to the differences of qualities', where this seems to mean that we do not need to posit all sizes of atoms in order to explain the various qualities of visible bodies. If the only constraint imposed on theoretical claims was that they should not conflict with the perceptual evidence, however, then there would be no good reason to restrict the range of properties one attributed to the atoms. In the light of this, and of both Sextus' report and the presence of the category of 'that which awaits' in Diogenes Laertius, there is some reason to think that non-contestation of a tbeoretical belief

requires that it should be needed for an adequate explanation of the perceptual evidence. Even if we resist this, however, we can accept that in practice the Epicurean justification of theoretical beliefs did not stop at showing the mere consistency of those beliefs with the evidence of perception, and that if this is indeed all that is required to demonstrate that they are non-contested, then Epicurus seems to have required more for theoretical justification than non-contestation.

In any case, the irrefutability argument in Diogenes can now be seen not to be a piece of a priori epistemological reasoning, but rather an attempt to show that the theoretical claim that all perceptions are true meets the minimal condition for acceptability—that it does not conflict with the perceptual evidence. The best explanatory account of perception gives us reason to think that our perceptions are always true and this claim is consistent with our perceptual experience itself, despite the fact that one might think that there are perceptual conflicts.

I have so far been contrasting beliefs with perceptual evidence, but this is slightly misleading, since Epicurus' criteria of truth are not limited to perception itself. The proper contrast is, as we have seen, between belief and what is evident, and things can be evident to us not merely through perception, but also through prolêpsis (plural: *prolêpseis*). If we are to understand Epicurus' epistemology—and hence his natural science—we need to have some sense of the cognitive role played by *prolêpsis*. Perception is an entirely passive process, and the nature of the perceptual affection is determined entirely by the nature of the stimulus which produces it. In bringing *prolêpseis* into his account of cognition, Epicurus is able to extend the range of information the subject is able to receive. According to Diogenes' brief exposition of *prolêpsis* (DL X.33), it is, for instance, in virtue of having the *prolêpsis* of man or horse that one can think and talk about men or horses and such *prolêpseis* are both self-evident and acquired through perception. Thus, what *prolêpseis* someone has depends upon his previous perceptual experience, and so these will differ between subjects. Thus, someone can talk and think about, say, cows and horses because he has *prolêpseis* of cows and horses—and he will have these if he has had sufficient previous perceptual experience of cows and horses.

This is not, however, to say that he has had previous perceptions whose content is about the condition of cows and horses. Thus, the *eidôla* flowing from a horse will preserve the shape and colour of the horse, and so, in receiving them, one will have the perception that an object of a certain shape has a certain colour. This is guaranteed by the mechanism of the reception of the *eidôla,* but is not yet sufficient for the subject to have an experience with the content that that horse is that colour. In order to have an experience with that content, the subject must have some concept of a horse and it is here that *prolêpseis* come into play. In acquiring a *prolêpsis* of something, the subject acquires a recognitional ability for things of that

kind. This requires repeated perceptual exposure to such things, after which one will be able to recognise newly perceived examples as similar to the ones he has already seen. This does not require any articulated theorising about what it is to be that kind of thing: it is important for Epicurus' cognitive theory that *prolêpseis* operate prior to the level of belief, since this is what secures their ability to stand as criteria of truth for beliefs. People will differ in what *prolêpseis* they possess—in virtue of differing in their perceptual histories—but the acquisition of a *prolêpsis* is just as non-rational as having a perception. If someone has sufficiently many perceptions caused by horse-*eidôla,* he will come to have the *prolêpsis* of a horse and so will be able to distinguish horses from other types of thing both when he perceives them directly and when he thinks about them.

ATOMS AND VOID

Our direct experience is of solid objects in the world around us. In virtue of perception proper we can know that these objects have certain properties —such as size, shape and colour—and in virtue of *prolêpsis* we can come to recognise what sorts of objects they are (although this will always be in terms of properties which are perceptually apparent). Theory is required, however, if we are to come to know how these solid objects are materially constituted and how this explains their behaviour. In this section, I shall provide a brief outline of Epicurus' theory of matter, generally citing his claims and arguments rather than discussing them. This is not because those arguments are uninteresting—indeed Epicurus' arguments for the nature of the atoms are some of his more sophisticated—but because to discuss them seriously would require more in the way of historical context (in particular, Aristotle's arguments for the continuous nature of matter and against the existence of void) than is possible here. As it is, this section should be seen just as an exposition of Epicurus' basic physical theory.

Epicurus begins the exposition of his physical theory in the *Letter to Herodotus* by affirming the temporal infinity of the basic constituents of the universe. 'Nothing', he claims, 'comes into being out of what is not—for in that case everything would come into being out of everything with no need for seeds' (*Hdt.* 38 (LS 4A1)). Epicurus thus secures his claim on something we observe, which is that when things are generated, they are generated from the relevant kind of seed (cf. Lucretius I.169–73 (LS 4B4–5)). Thus, in order to grow an oak tree, we need to start with an acorn—for it is only an acorn which has the potential to generate an oak tree. If things could be generated *ex nihilo,* however, then there would be no necessary determinate conditions for their generation, and so no need for seeds. (Of course, it might be objected that Epicurus moves too quickly here from the generation of things with which we are acquainted to the claim that nothing can be generated *ex nihilo.* After all, we have no

perceptual evidence that atoms do not come into existence spontaneously, merely that composite bodies do not, and this might be a respect in which the non-evident is dissimilar from the evident.) In any case, Epicurus holds to the analogy between the observed and the unobserved in this respect, and takes the universal need for composite things to be generated from bodies which possess the potential to generate those things to confirm the general thesis that nothing can be generated *ex nihilo*. He also maintains that nothing can pass away into nothing: if it could, then everything would already have perished. Given these two claims—that things cannot be created from nothing and they cannot perish into nothing, we can accept that the basic constituents of the universe persist for ever, since they will not have come into existence and cannot go out of existence.

Epicurus' next move is to establish the nature of those basic constituents:

> Moreover, the totality of things is bodies and void. That bodies exist is universally witnessed by perception itself, in accordance with which it is necessary to judge by reason that which is non-evident, as I said before; and if place, which we call 'void', 'room', and 'intangible substance' did not exist, bodies would not have anywhere to be or to move through in the way they are observed to move. Beyond these nothing can even be thought of, either by imagination or by analogy with what is imagined as completely substantial things and not as the things we call accidents and properties of these.
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> (*Hdt.* 39–40 (LS 5A))

According to Epicurus, there are two basic kinds of substance (existing thing): bodies and void. Now, this is not yet a statement of atomism, since Epicurus tells us that the fact that bodies exist is given in perception, and we do not perceive atoms. Thus, the bodies which we know through perception to exist are the solid bodies which, he will argue, are composed of atoms. For Epicurus' present purpose, however, this is quite sufficient, since we do perceive that there are solid bodies and this is enough to show that there are bodies which are extended and tangible. In itself, however, this does not show that void exists—what does show *that* is not that we perceive material objects, but that we see that they move. What is distinctive of void is that it is not solid: it offers no resistance. If all space were occupied by things which were solid, then solid objects would not be able to occupy a different space from the one they occupy at any time, and so could not move. Since we know from perception that bodies do move, we can infer that there is space which offers no resistance to the impact of bodies, and thus that void exists.

Having established the existence of both bodies and void, Epicurus moves to discuss the nature of bodies. All bodies are either compounds or the basic constituents of compounds, and the latter are incapable of either alteration or dissolution: 'the primary entities, then, must be atomic

kinds of bodies' (*Hdt.* 40–1 (LS 8A)). Epicurus' atoms are uncuttable: it is physically impossible to split them. This is because, unlike those bodies which have atoms as constituents, they contain no void, and it is the presence of void in a body which renders it vulnerable to alteration (cp. Lucretius I.528–39 (LS 8 B2)). In expounding the existence of bodies which could not be divided, Epicurus was returning to the physical theory of Democritus and Leucippus in opposition to Aristotle, who had argued that matter must be continuous, that is, infinitely divisible. Epicurean atomism was more radical than that of his predecessors, however, since not only did he maintain that there are bodies which are physically indivisible, but he argued that there are minima which, whilst extended, have no parts at all—that is, they cannot be divided even conceptually. Each atom is perpetually in motion and if it were able to travel through the void without interference from other atoms, it would be carried downwards by its weight, and all atoms would travel at the same speed.[3] However, the trajectory of atoms, although not their velocity, can be affected by collisions with other atoms, so that one can have, for instance a system of atoms constituting some solid object. Although each atom will indeed be constantly moving, the trajectories of the constituent atoms will be such that the object which is constituted by them remains stationary.

The basics of Epicurus' atomic theory, then, are that matter is not continuous, but atomic, and that the physical atoms—the bodies which cannot be further divided physically—are constituted by minimal parts which are not even conceptually divisible. Every body—that is, every entity which is extended and solid—is either an atom or constituted by atoms. There are infinitely many atoms, and an infinite space for them to occupy and move about in. Each atom, because of its weight, has a natural tendency to move downwards (at a speed 'as quick as thought'), but the locomotive history of many atoms is limited by the fact that they collide with other atoms. A collection of atoms can constitute a stable solid object when the atoms mutually deflect each other's motion so as to maintain each other in a pattern. Even then, the atoms will not be at rest but will oscillate at their natural speed.

SOUL, BODY AND PROPERTIES

Atoms and void are the primary entities of Epicurean physics, and bodies and void are the only things which exist *'per se'*. Although Epicurus does not want to deny, for instance, that there are properties, he takes these to be parasitic on the existence of *per se* existents. Indeed, he is careful on this point:

> Now as for the shapes, colours, sizes, weights, and other things predicated of body as permanent attributes—belonging either to all bodies or those which are visible, and knowable in themselves

> through perception—we must not hold that they are *per se* substances: that is inconceivable. Nor, at all, that they are non-existent. Nor that they are some distinct incorporeal things accruing to the body. Nor that they are parts of it; but that the whole body cannot have its own permanent nature consisting entirely of the sum total of them, in an amalgamation like that when a larger aggregate is composed directly of particles, either primary ones or magnitudes smaller than such-and-such a whole, but that it is only in the way I am describing that it has its own permanent nature consisting of the sum total of them. And these things have their own individual ways of being focused on and distinguished, yet with the whole complex accompanying them and at no point separated from them, but with the body receiving its predication according to the complex conception.
>
> (*Hdt.* 68–9 (LS7B1–2))

There are some properties which all bodies must have (shape, size, weight) and some which all visible bodies must have (colour). These are 'permanent' attributes of bodies: as Lucretius reports, they are those properties which 'can at no point be separated and removed without fatal destruction resulting—as weight is to stones, heat to fire, liquidity to water, tangibility to all bodies, and intangibility to void' (I.451–4 (LS 7A3)). Such properties are thus not merely permanent, but necessary. This necessity is not merely physical, but conceptual: one cannot conceive of the body without that property. They are not, however, *per se* substances like bodies themselves—they exist only as the properties of bodies, and so their existence is in that way derivative. In addition to these permanent properties, bodies can also have accidental properties: 'by contrast slavery, poverty, wealth, freedom, war, peace, and all other things whose arrival and departure a thing's nature survives intact, these it is our practice to call, quite properly, accidents' (I.455–8 (LS 7A4)).

Epicurus' distinction here between visible and invisible bodies makes it clear that he does not think that atoms possess all the properties possessed by complex bodies. The only properties which atoms possess are those of shape, weight, size and the necessary concomitants of shape (*Hdt.* 54 (LS 12D1)), and so one cannot in general explain the fact that a complex body has some property by appealing to the possession of that very property by its constituent atoms. This is again made clear by Lucretius, who says that 'you should not suppose those white objects which you see before your eyes as white to consist of white primary particles or those which are black to be the product of black seeds' (II.731–33 (LS 12E1)). This, he points out, actually allows for a more satisfying explanation of the behaviour of coloured objects:

> Besides, if primary particles are colourless, and possess a variety of shapes from which they generate every kind of thing and thus make colours vary—since it makes a great difference with what things and in what sort of position the individual seeds are combined and what motions they impart to each other and receive from each other—it at once becomes very easy to explain why things which a little earlier were black in colour can suddenly take on the whiteness of marble, as the sea when its surface has been churned up by great winds, is turned into waves whose whiteness is like that of gleaming marble. All you need to say is that what we regularly see as black comes to appear gleaming white as soon as its matter is mixed up, as soon as the ordering of its primary particles is changed, as soon as some particles are added and some subtracted. But if the sea's surface consisted of blue seeds, there is no way in which they could turn white. For things that are blue could never change to the colour of marble, no matter how you were to jumble them up.
>
> (Lucretius *De rerum natura,* II.499–514 (LS 12A3))

Given that Lucretius allows here that atomic change to a complex body can involve not merely the re-arrangement of atoms but also their loss and addition, the argument here doesn't quite work—since one could accept that individual atoms cannot change, but maintain that when the sea changes colour it is indeed because there are blue atoms on the surface which are displaced by white atoms. Nevertheless, the passage is important because it suggests strongly that Epicurus accepts that the properties of a complex substance (a substance which has atoms as constituents) are determined by the properties—including the arrangement and motion—of its constituent atoms. For Lucretius infers the claim that the different atomic shapes and arrangements make the colours of a substance change from the general claim that the primary particles 'possess a variety of shapes from which they generate every kind of thing'. That Lucretius feels entitled to infer from this that they are responsible for colours, and changes in colour, shows that what are 'generated' by the atoms are not just objects, but their properties as well—that is, that there is a particular arrangement of atoms of particular shapes that will determine not just that there is a certain kind of complex substance, but that that substance has the properties it does.

The Epicurean treatment of the relation between macroscopic and microscopic properties can perhaps be best illustrated by considering his account of the *psuchê*—the 'soul'—as this represents his most sustained attempt to explain the nature and behaviour of complex substances by reference to the nature and arrangement of their constituent atoms. For Epicurus, an animal body, like all solid objects, is a compound of atoms, and the *psuchê* is itself a material part of a living body: it is a 'fine-structured body' diffused throughout the whole (*Hdt.* 63 (LS 14A1)).

Thus, the *psuchê* is itself a body—that is, it is an individuated entity with its own distinctive atomic constitution. According to a report in Aetius, Epicurus took the material constitution of the *psuchê* to be specific to it: 'it is a blend *(krama)* consisting of four things, of which one kind is fire-like, one air-like, one wind-like, while the fourth is something which lacks a name' (Aetius 4.3.11 (LS 14C)). Although it is thus possible to specify the atomic constituents of the matter of the *psuchê,* what is important for the explanation of psychic functioning is that they form a 'blend'. This is emphasised by Lucretius:

> The primary particles of the elements so interpenetrate each other in their motions that no one element can be distinguished and no capacity spatially separated, but they exist as multiple powers of a single body…. Heat, air and the unseen force of wind when mixed form a single nature, along with that mobile power which transmits the beginning of motion from itself to them, the origin of sense-bearing motions through the flesh.
>
> (III.262–5; 269–72 (LS 14D1))

Because the elemental atoms are blended, they constitute a body which has particular powers lacked by things which are not so constituted—when contained within a larger body, it is, for instance, capable of sensation and thought.

This last qualification is important for Epicurus, who enthusiastically denies that the *psuchê* can survive the death of the body, and emphasises the mutual dependency of psuche and the body which contains it. So, whilst it is indeed the *psuchê* which is responsible for perception, it is only able to produce that capacity in virtue of being contained within the body. Once the body disintegrates, the atoms of the *psuchê* are dispersed and so it loses its own capacities (*Hdt.* 63–4 (LS 14A3)). Neither the *psuchê* nor the body can survive the demise of the other, and it is the combination of body and *psuchê* which constitutes the living animal, not the *psuchê* by itself: 'since conjunction is necessary to their existence, so also theirs must be a joint nature' (Lucretius, III.347–8). Thus, it is not just the *psuchê,* but the whole body, which enjoys perception, which is, as Lucretius says, an affection which is common to the mind and the body (III.335–6).

From the mere fact that Epicurus takes the *psuchê* to be itself a material body, one can tell very little about what relation he postulates between the psychological properties of the living animal and the movement of the atoms which constitute the *psuchê.* However, this becomes clearer if one reflects on his arguments for this materialist thesis.[4] The psuche must be material since, if it were not material it would be void, and 'void can neither act nor be acted upon, but merely provides bodies with motion through itself' (*Hdt.* 67 (LS 14A7)). Since it is evident that the *psuchê* does act on things and is, in turn, acted on, the idea that it is incorporeal is

incoherent. That is, it is evident that there are psychological causes and effects, and if this is so, then what is changed and produces change must be something material, since immaterial things cannot be the agents or patients of change. The claim that only material things can bring about or undergo change will be well-motivated if it is assumed that all changes are either themselves atomic events, or are determined by those.

That Epicurus accepts that psychological events require the occurrence of atomic events is clear from his arguments for the nature of the *psuchê's* atomic constitution. So, according to Lucretius, the mind is 'exceedingly delicate and is constituted by exceedingly minute particles' (III.179–80):

> Nothing is seen to be done so swiftly as the mind determines it to be done and initiates; therefore the mind rouses itself more quickly than any of the things whose nature is seen plain before our eyes. But that which is so readily moved must consist of seeds exceedingly rounded and exceedingly minute, that they may be moved when touched by a small moving power.
>
> (III.182–8)

In accordance with Epicurean scientific method, Lucretius starts off from something evident—that the mind produces its effects more rapidly than anything else does—and infers from this that the atoms of the *psuchê* are smaller and rounder than any other atoms. For this inference to work, however, psychological changes must require atomic changes, otherwise there would be no necessity that the atoms should be able to move as rapidly as the mind works. Again, when Lucretius comes to explain the occurrence of emotions, he does so by reference to the atoms which constitute the mind. When one is angry this is because of the heat in the *psuchê* and when one is frightened, this is the result of its coldness, 'the companion of fear, which excites fright in the limbs and rouses the frame' (III.288–93). Here there is a material explanation for the effects of the emotion. When one is afraid and one's limbs shake, this can be explained by reference to the cold, the 'companion' of fear. For the emotion to have the effects it does—and that psychological states have causes and effects is the datum from which Epicurean theorising about the *psuchê* begins—there must be atomic events which determine those effects.

In trying to understand Epicurus' natural science, it is tempting to think that he must be a reductionist just because he espouses atomism—which can strike the contemporary reader as somehow an intrinsically 'scientific' theory of matter. This temptation should be resisted, however. There is no sign that Epicurus attempted to identify, say, the mental properties or events of people with their atomic properties or events. The cold is, after all, only the companion of fear and not the emotion itself. In this respect, Epicurus is perhaps more Aristotelian than he is sometimes given credit for being—for Aristotle too accepted a genuine role for material explanation

within his natural science and psychology. Aristotle distinguished efficient causation from material causation: changes involving material substances are to be explained both by reference to the capacities of the agent and patient of the change and to the underlying material events on which the changes supervene. That Epicurus maintains an atomic theory of matter rather than one according to which matter is continuous, and that he renounces a teleological explanation of natural phenomena, puts no pressure on him to give up the distinction between efficient and material causes—and there is good reason to think that he does not give it up (even if he does not continue with the terminology). For if it is the properties of the *psuchê* which have causes and effects, and if Epicurus does not identify those properties with the arrangements of atoms which generate those properties but still thinks that the operations of the *psuchê* can be explained by reference to the arrangements of its constituent atoms, then, like Aristotle, he must distinguish antecedent causes from material causes and allow both a role in the determination of changes.

ACTION AND RESPONSIBILITY

Lucretius gives the following account of the causation of action:

> Now I shall tell you…how it comes about that we can take steps forward when we want to, how we have the power to move our limbs, and what it is that habitually thrusts forward this great bulk that is our body. First, let me say, images *(simulacra)* of walking impinge on our mind and strike it, as I explained earlier.[5] It is after this that volition occurs. For no one ever embarks upon any action before the mind first previews what it wishes to do, and for whatever it is that it previews there exists an image of that thing. So when the mind stirs itself to want to go forwards, it immediately strikes all the power of the spirit distributed all over the body throughout all the limbs and frame: it is easily done because the spirit is firmly interlinked with it. Then the spirit in turn strikes the body, and thus gradually the whole bulk is pushed forward and moved.
>
> (IV.877–91)

Here we have, as we should now expect, an account of what happens when we act which makes use of a mixture of both psychological and material causation. In order to walk, for instance, the person needs to form the intention to walk, and so needs to think about walking. For this to happen, he must have an image, or images, of walking and these come in the form of *eidôla* from outside.[6] These images have both a psychological and a material aspect: they are constituted by atoms whose impact on the mind will have mechanical effects, but they are pictorial in that they present an image to the mind. As the mind decides to walk, it transmits an impulse to the

spirit which in its turn strikes the relevant parts of the body so that they move. We thus have a story which can be told at two levels. Mechanically, the atoms of the image strike those of the mind which impact those of the spirit which impact those of the body, whilst, psychologically, the mind responds to the image of walking by deciding to walk, thus causing the person to walk. The person walks because he decides to (and, in order to decide to, he must think about walking). This causal explanation is taken to be consistent with the determination of these psychological events by the material events which underlie them.

Allowing that psychological events are determined by the movements of the atoms which constitute the person's *psuchê* and body, however, was taken by some to raise the threat of a determinism inconsistent with moral responsibility. Epicurus deals with this threat in the remnants of Book 25 of his *De Natura*. There he distinguishes between a person's atomic constitution and what he calls 'developments'—and it is in virtue of the latter that we are responsible for actions (XXXIV.21–2 Ar2 (LS 20B)). The passage is notoriously obscure, but it is most happily read as providing a response to someone who seeks to excuse bad behaviour as the result of material causation, that is, as brought about by the motions of one's constituent atoms. Epicurus is thus not concerned with the sort of determinist argument against moral responsibility which has become more familiar—that if our actions are caused by our mental states, which are themselves caused, then we are cannot be held responsible for how we act. Epicurus, like Aristotle, does not think that the fact that our actions are the effects of our practical deliberations provides any reason at all to deny that we are responsible for them. His response to his opponent here is to point out that our actions are not, or not only, determined by the motions of our constituent atoms, but by the 'developments', which, presumably, are our psychological states. The determinist's mistake is to seek to explain our actions only by reference to their material causes, and so to leave out of account the psychological states which are the antecedent causes of our actions.

Some have seen in this an Epicurean rejection of physicalism—a denial that our psychological states are in fact determined by the motions of our constituent atoms.[7] This is not required by the text, however, and would, as we have seen, go against the position we find implied elsewhere. Moreover, when Epicurus does move to deny determinism as such, he does so by positing indeterminacy at the atomic level. So, Cicero reports that, in order to avoid 'the necessity of fate', Epicurus posits an atomic swerve, fearing that 'if the atom's motion was always the result of natural and necessary weight, we would have no freedom, since the mind would be moved in whatever way it was compelled by the motion of atoms' (*De Fato* 22–3 (LS 20 E2–3)). Thus Epicurus, it seems, modified his atomic theory so that not only could atomic motion result from the atom's own weight, and from the impacts of other atoms, but it could also occur spontaneously as a

minimal deviation from its existing trajectory—a swerve. This was introduced in order to preserve the ascription of moral responsibility. Epicurus seems to have accepted that if all atomic events were determined by previous atomic events, and if psychological events were determined by atomic events, then we could not properly ascribe responsibility to people for their actions. In order to preserve the *prolêpsis* that we are so responsible, he modifies the atomic theory so as to introduce indeterminacy at certain points, so that the chains of causation do not stretch back infinitely. That he was driven to this, however, confirms rather than casts doubt on the thesis that atomic events determine psychological events, since, if this were not so, there would be no need to deny that all atomic events are determined.

It is difficult to regard Epicurus' doctrine of the swerve as a great success. For, even if it does introduce indeterminacy into his system, it would not seem to do so in the right way. For, whilst it will serve to deny that there are infinite chains of atomic causes, it does nothing in itself to make these relevant to the determination of mental events and of actions, and it is difficult to see how Epicurus thought the mere denial of infinite causal chains of atomic events could make a relevant and constant difference to the determination of actions.[8] It is hard here not to support Carneades' judgement, reported by Cicero, that in fact Epicurus did not need his swerve, but, having accepted that 'a certain voluntary motion of the mind was possible', this in itself provided what was needed against those who would deny that we are responsible for our actions: 'a defence of that doctrine was preferable to introducing the swerve, especially as they could not discover its cause' (Cicero, *De Fato,* 23 (LS 20E4)).

PLEASURE AND THE GOOD LIFE

Epicurus thus sees no conflict between the thought that we are material substances whose behaviour can be explained by reference to the movements of our constituent atoms, and the fact that we are capable of intentional action and practical deliberation. Such deliberation, according to Epicurus, is always conducted by reference to pleasure: 'we recognise pleasure as the good which is primary and congenital; from it we begin every choice and avoidance, and we come back to it, using the affection as the yardstick for judging every good thing' (*Men.* 129). Whenever we act, we do so to gain some pleasure, and our actions will be successful in so far as they achieve this. Pleasure and pain, the 'primary affections'; are, we remember, Epicurus' third criterion of truth, along with perceptions and *prolêpseis*—they have the same kind of epistemic reliability as these other states.[9] If something seems pleasurable to someone, then it is pleasant, and if it seems painful, it is indeed painful.

That pleasant things are to be pursued and painful things avoided is evident to anything which is capable of experiencing pleasure and pain: 'as

soon as it is born, every animal seeks after pleasure and rejoices in it as the greatest good, while it rejects pain as the greatest bad and, as far as possible, avoids it; and it does this when it is not yet corrupted, on the innocent and sound judgement of nature itself' (Cicero *De Finibus* 1.30 (LS 21A2)). This 'cradle argument' should not be taken simply to express an unhappy prejudice in favour of untrained, infantile or animal tastes: the point is that the badness of pain, and the goodness of pleasure, are evident simply in their perception. The judgement is 'nature's' because it is delivered by the causal interaction with the world around us: it is not something whose truth needs to be established by theorising. '[Epicurus] thinks these matters are sensed just like the heat of fire, the whiteness of snow and the sweetness of honey, none of which needs confirmation by elaborate arguments' (I.29).

This provides the foundation for Epicurus' account of the good life, which he identifies with a life of pleasure (properly conceived). He maintains, that is, not just that pleasure is a good but that it is the highest good, the final end of action. This is stated clearly by Torquatus, the spokesman for the Epicurean school in Cicero's *De Finibus:*

> We are investigating what is the final and ultimate good, which as all philosophers agree must be of such and such a kind that it is the end to which everything is the means, but is not in itself the means to anything. Epicurus situates this in pleasure, which he wants to be the greatest good, with pain the greatest bad.
>
> (I.29 (LS 21A1))

The terms here are Aristotelian, and it was indeed Aristotle's discussion of happiness *(eudaimonia)* which set the terms for Hellenistic ethical discussions. According to Aristotle, happiness is formally the final end of action: it is something which cannot be chosen for the sake of anything else, whereas other things are chosen for its sake. Thus, 'we call that which is never desirable for the sake of something else more final than the things which are desirable both in themselves and for the sake of that other thing, and therefore we call final without qualification that which is always desirable in itself and never for the sake of something else' (*Ethica Nicomachea* 1.7, 1097a31–5). That happiness is final without qualification is a formal condition on any substantive account of happiness, and Aristotle's own substantive account satisfies this by distinguishing between those things which are desirable both for themselves and for the sake of happiness—such as virtue, intellectual activity and pleasure—and happiness, which is only valuable for itself. One achieves happiness precisely by engaging in those activities and having those things which are intrinsically valuable and are thus the components of happiness.

The difference between the Aristotelian and Epicurean conceptions of happiness will immediately be apparent. Aristotle, like Epicurus, takes

pleasure to be something intrinsically valuable (although he would not accept the claim that our perceptions of what is pleasant are incorrigible), but whilst he places pleasure as a constituent of happiness, along with other goods, Epicurus moves actually to identify it with happiness. A further formal condition which Aristotle set down for any account of happiness was that a happy life should be 'self-sufficient'—that is, it must be such that it lacks nothing of value (otherwise there would a better good which would consist of happiness together with whatever it lacks, and this further good would then be more final than happiness itself). The danger for Epicurus' identification of happiness with pleasure is that it will fail to meet this condition, because it will leave out of account those things other than pleasure which are intrinsically valuable, thus allowing a life which included these as well to be better than a life of pleasure. To make good his identification of the final end with pleasure, Epicurus will need to show either that other things are not in fact intrinsic goods or that, even if some are, we can, and perhaps always do, also desire these things for the sake of pleasure.

There is no reason in principle why Epicurus' conception of happiness should be radically less complex than that offered by Aristotle. Whether it is will depend, in part, on how he understands the relation between pleasure and what affords it. So, if he were to think of pleasure as a feeling or sensation which is produced in one by doing things, then his account of happiness would certainly be more simple than Aristotle's: a happy life would just be one in which the subject enjoyed a great deal of that feeling, and enjoying that feeling would be the only thing worth pursuing. Other things will only be instrumentally valuable—valuable just in so far as they give rise to this feeling. If, alternatively, he were to identify pleasure with pleasurable activity, or make the degree and quality of the pleasure dependent on the type of activity which produces it, then his idea of what happiness would be like need not be substantially different from Aristotle's. The happy life could just be one which involved the enjoyment of valuable activities, where the activities are pleasurable precisely because they are themselves valuable. This would allow Epicurus, for instance, to treat virtuous activity as Aristotle does—something which is desirable in itself and, for that reason, something which can be chosen for the sake of happiness.

These different conceptions of pleasure will result in accounts of happiness which differ in another respect as well. Treating pleasure as a feeling leads naturally to a subjective account of happiness, for if one takes pleasure to be a feeling which can be produced indifferently by various things, then those activities will be pleasurable for someone just if they happen to produce that feeling in him, and there is no reason to require that the same activities will be pleasant for everyone. Although it will be the case that for everyone to lead a happy life is to enjoy (a great deal of) the feeling, how one acts to achieve that can differ between people. If,

alternatively, one takes pleasure to be dependent on the value of the activities and experiences which give rise to it, then one might be able to specify those activities and experiences which will be part of a happy for life for anyone.

When we turn to consider what Epicurus has to say about pleasures, it would seem that he is no subjectivist:

> So when we say that pleasure is the end, we do not mean the pleasures of the dissipated and those that consist in having a good time, as some out of ignorance and disagreement or refusal to understand suppose we do, but freedom from pain in the body and from disturbance in the soul. For what produces the pleasant life is not continuous drinking and parties or pederasty or womanising or the enjoyment of fish and the other dishes of an expensive table, but sober reasoning which tracks down the causes of every choice and avoidance, and which banishes the beliefs that beset souls with the greatest confusion.
>
> (*Men.* 131–2 (LS 21A5))

Someone whose life was focused on what are sometimes called the pleasures 'of the flesh' would not, according to Epicurus, achieve happiness through these. His conceptions of happiness and of pleasure, then, are not sympathetic to the idea that it does not matter how one lives if one is to be happy, so long as what one does produces pleasure.

This is not because he thinks, as some have, that such pleasures are not genuine pleasures or denies that they are good. Rather, as this passage suggests, they turn out to be the wrong kind of pleasure to be identified with the final end. They are, that is, kinetic pleasures, whereas the states he identifies with being happy, *aponia* and *ataraxia,* freedom from bodily and mental pains, are what he calls *katastematic,* or static, pleasures. In the *De Finibus* the distinction is illustrated by the difference between the pleasure one gets from quenching thirst and the pleasure of having had one's thirst quenched (II.9). The first is an active pleasure—a pleasure of doing something or, perhaps, having something happen to one—whilst the second is static and results from the absence of pain or distress. It is not clear from our sources whether Epicurus thinks that whenever we have satisfied a desire there is a corresponding static pleasure; this would perhaps be a somewhat odd thing to think (how long would such a pleasure last?). Instead of taking the pleasure to be that, for instance, of having quenched one's thirst (a different static pleasure from that of, say, having satisfied one's hunger), one could rather take it to be the condition one is in when one has no unsatisfied desires and is not in pain or distress. If one were thirsty, then one would need to drink to achieve this, and if one were hungry, one would need to eat. The static pleasure which would result in

the two cases would be the same (and its achievement would be contingent on the absence of other causes of bodily distress).

The importance of the distinguishing between kinetic and *katastematic* pleasure is that it makes more plausible the identification of happiness, objectively conceived, with pleasure. According to Torquatus in the *De Finibus,* the greatest pleasure we experience is not any kind of gratification, but what is perceived once all pain has been removed: 'For when we are freed from pain, we rejoice in the actual freedom and absence of all distress' (*De Finibus* 1.37). Pleasure is the necessary consequence of the removal of pain, since there are no states which are neither painful nor pleasurable. This thesis is central to Epicurus' hedonism. Whenever one is not suffering from pain or distress, one will be in a state of pleasure, and, further, this condition is not one which can be made more pleasurable: 'Epicurus, moreover, supposes that complete absence of pain marks the limit of the greatest pleasure, so that thereafter pleasure can be varied and differentiated but not increased and expanded' (*De Finibus* 1.38).[10] Thus, the combination of *aponia,* the absence of bodily pain, and *ataraxia,* the absence of mental distress, places one in a condition which one cannot rationally wish to improve. Once one has achieved these, life cannot get any better.

At first sight this looks very odd. Epicurus accepts that every pleasure is something good (*Men.* 129), and this must include kinetic as well as static pleasures, but seems to deny that one's life can be made better by pursuing more kinetic pleasures. Whilst pleasure is a good, it is not the case that more pleasures are better. That one should find this paradoxical is a sign, for Epicurus, that one has misunderstood the nature of pleasure, and so will not be able to organise one's life to achieve what he takes everyone to aim at, i.e. the most pleasant life. For to pursue different kinetic pleasures as a means to achieving a more pleasurable life assumes that one can be in a state which is intermediate between pleasure and pain—and this, of course, is just what Epicurus denies. As long as one is not in pain or distress, then one is in a state of pleasure, and since there are not degrees—but merely varieties of—pleasure, one's state cannot be improved by adding particular kinetic pleasures.

Aponia and *ataraxia* thus together constitute happiness, which is the final end of action—that for which everything else is desired. Now, one could grant happiness this status without having to claim that whenever one acts one does so in order to achieve it. The claim could merely be that whilst all others goods can intelligibly be chosen for the sake of happiness, it cannot be chosen for the sake of anything else. Epicurus, however, seems to maintain the stronger thesis. Having identified happiness with *aponia* and *ataraxia,* he claims that achieving these is the goal of every action: 'this is what we aim at in all our actions—to be free from pain and anxiety' (*Men.* 127 (LS 21B1)). Again, this seems an absurdly strong thesis to hold. At least generally, one's desires are for more specific things, such as eating or

sleeping or listening to music or playing soccer—and even if one were to accept that in pursuing such things one was thereby aiming at achieving a good life, it is vastly implausible that their role in achieving this higher end is because they free one from pain. Epicurus, however, does not need to maintain that we always do, in fact, act in order to achieve *aponia* or *ataraxia:* his claim need be only that when we act, we always do so in order to get some pleasure or other. However, once we understand the nature of the static pleasures, we will see that these can, and should, provide the goal for our practical reasoning. Thus, he is clear that whilst all pleasures are good, not all are choiceworthy, so that whilst one always has some reason to choose something which will afford pleasure, there can be stronger reason not to choose it. 'No pleasure is something bad *per se:* but what produces some pleasures produces stresses many times greater than the pleasures' (*KD* 8 (LS 21D1)). Thus, the rational agent will resist some pleasures because satisfying the desire for them will lead to greater overall distress than leaving it unsatisfied. If such calculations are to be properly made, the choice must be referred to the goal of achieving *aponia* and *ataraxia*.

To help with the successful pursuit of that goal, Epicurus classifies desires into three classes: 'Some desires are natural and necessary, some natural but not necessary, whilst others are neither natural nor necessary but arise from empty belief' (*KD* 29). This is explicated by a *scholion* which has survived in our manuscripts of Diogenes Laertius' text, which reports that the first class of desires are for things which bring relief from pain, the second for things which will vary pleasure rather than remove pain, and the third are for such things as crowns and the erection of statues (DL X.149 (LS 21I)). In the *Letter to Menoeceus,* Epicurus himself expands on what it is for a desire to be necessary: 'of the necessary, some are necessary for happiness, others for the body's freedom from stress, and others for life itself' (*Men.* 127 (LS 21B1). This classification of desires is not immediately obvious—in particular, it is not obvious how a desire can be natural without being necessary. If what it is for a desire to be natural is for it to be such that, given our nature, we cannot avoid having it, then how could such a desire not be necessary? Taking our cue from Epicurus' own explication of necessary desires, we should think of necessary desires here as desires whose satisfaction is necessary for happiness, *aponia* or survival. These desires will not be as specific as, for instance, is the desire for some expensive food. What is necessary for survival is just the desire to eat. Nevertheless, the desire to eat an expensive food is clearly not unrelated to that necessary desire but is rather a specific instance or version of it.[11] Epicurus can thus intelligibly take it to inherit its naturalness from the more general desire, although its satisfaction is not necessary for the person's survival. Indeed it is not important for its being non-necessary that it should be a desire for some expensive food: all particular types of food are such that a desire for them is not necessary. This is why Epicurus

recommends that we stick to the more general desires, since the more general the desire, the less likely it is to go unsatisfied.[12] (Of course, desires for expensive things are, in the normal course of things, more likely to go unsatisfied than desires for things which are cheap and readily available.)

All desires are either natural or empty, and empty desires according to *KD* 29 are empty because they are based on 'empty' belief. We know from Epicurus' methodological discussions that empty beliefs are false beliefs which are not secured by reference to the criteria of truth. Thus, to reject a perception will be to confound perceptions with 'empty belief' and so actually to lose the criterion of perception altogether (*KD* 24 (LS 17B1)), and if one does not grasp the relevant *prolêpsis,* the words one uses will also be 'empty' (*Hdt.* 37 (LS 17C1)). Emptiness in one's beliefs and language is the consequence of not securing them on the criteria of truth. As empty words are words which do not succeed in picking anything out, and empty beliefs are those which do not correspond to how things are, so empty desires will be those which are not for things which are genuinely pleasant. Thus, Epicurus can allow that people can have desires which arise from bad evaluative theories of the world—so that, for instance, they are persuaded, in whatever way, that crowns and public renown are pleasurable things to have—and they will not in fact gain pleasure from the satisfaction of these desires. Thus, although Epicurus accepts the primary affections of pleasure and pain as criteria of truth, this does not force him to accept that anything anyone believes to be pleasant is so, since such beliefs can be, and no doubt often are, unsecured by the appearances.[13]

THE GOOD LIFE AND OTHERS

For Epicurus, then, as for Aristotle, happiness is the central notion for practical reasoning. One worry for a theory of this kind is that it can seem to provide a necessarily selfish account of practical reasoning, since it looks as if all actions are ultimately to be judged by reference to whether they contribute to the agent's own well-being. Aristotle escapes this—as do the Stoics after him, who identify happiness with virtue—because he takes the constituents of happiness to be desirable in themselves: they are constituents of happiness just because their value is autonomous. Thus in order for virtuous activity to contribute to the agent's happiness, it must be chosen for its own sake, and not merely as something instrumental to his happiness. The virtuous person will indeed take pleasure in acting virtuously, but this pleasure comes from his awareness that he is acting well, that he is doing what he has reason to do anyway, and does not motivate his action. It is less clear that Epicurus, in identifying happiness with pleasure, even the static pleasures of *ataraxia* and *aponia,* can similarly escape the charge that he renders all practical reasoning ultimately selfish, concerned only with the good of the agent himself.

The difference in principle between the two accounts can perhaps be helpfully illustrated by a non-ethical component of Aristotelian happiness: intellectual activity. Aristotle takes such activity to be the highest activity of which we are capable, and so the most valuable. Because of this, gaining a scientific understanding of the world is the most pleasurable activity and a component of the good life. For Epicurus, in contrast, understanding the world is not something autonomously valuable: if we were not alarmed by celestial phenomena and the prospect of death, there would be no need to study natural science (*KD* 11). Such study is necessary, since 'one would not be able to banish fear about the most important things, if one did not know the nature of the whole universe' (*KD* 12). People have a fear of the divine and of death, and they need to come to understand the nature of the gods and of the *psuchê* to see that neither of these fears is justified. If the gods exist at all, they lead a completely happy life, unconcerned with human lives and so of no threat to human happiness. Similarly, once one recognises that the *pshchê* perishes at the death of the person, one will see that one cannot be harmed after death and so death is 'nothing to us'.[14] However, if we were not inclined to take cosmic events as signs of divine wrath or to think of death as a grave harm, we should have no need to understand the nature of the universe. The study of natural science is useful just because it dispels mental distress and so helps to achieve *ataraxia*. Its value is merely instrumental to the achievement of pleasure and thus happiness.

Of course, this difference between Aristotle and Epicurus might have arisen just because Epicurus took a more philistine attitude to intellectual activity than did Aristotle, but it certainly exemplifies a general concern with his account of happiness. So, he says that 'if you fail to refer each of your actions on every occasion to nature's end, and stop short at something else in choosing or avoiding, your actions will not be consequential on your theories' (*KD* 25 (LS 21E)). From this it looks very much as if Epicurus sets up as the over-arching principle of practical reasoning that whenever one acts one should do so in order to achieve pleasure for oneself. This was indeed the view of practical deliberation we find attributed to the Cyrenaics, who denied that happiness was the final end of action and who thought that one should act towards other people just so as to gain the most pleasure and least pain for oneself.[15] Epicurus, however, was no Cyrenaic and precisely seems to have wanted to allow that one can rationally be concerned with the good of others. The difficulty is seeing how this might be so, given his hedonism.

Thus, Epicurus placed great store in the importance of friendship, saying that even though it will at least initially be motivated by utility, it is nevertheless something intrinsically valuable (*Vatican Sayings* 23). However, if one's relationships with other people are motivated and controlled by a concern for one's own pleasure, then whatever relationships they are, they won't be much like friendships. It is clear from

a passage in *De Finibus* I that the Epicureans were themselves worried by this, since Torquatus there reports different Epicurean accounts of the relationship between pleasure and friendship (without, unfortunately, ascribing any to Epicurus himself). Some, it seems, bit the bullet and allowed that 'the pleasures which belong to friends are not as desirable *per se* as those we desire as our own' (*De Finibus* 1.66 (LS 2201)). Even according to these Epicureans, however, we come to care about our friends as much as we do for ourselves, even though our concern is mediated by our own pleasures:

> Without friendship we are quite unable to secure a joy in life which is steady and lasting, nor can we preserve friendship itself unless we love friends as much as ourselves. Therefore friendship involves both this latter and the link with pleasure. For we rejoice in our friends' joy as much as in our own and are equally pained by their distress. The wise man, therefore, will have just the same feelings towards his friend that he has for himself, and he will work as much for his friend's pleasure as he would for his own.
>
> (*De Finibus* I.66–7 (LS 22 O))

This, however, seems to restate and preserve the problem rather than to resolve it, maintaining both that one has to care about one's friend for his own sake and that one's own pleasures are more desirable *per se* than those of one's friend.

Of course, the fact that one treats something as having value in itself does not commit one to thinking that it has as much value as other things one values: one could accept that one's friend's pleasure is *per se* desirable whilst denying that it is as *per se* desirable as one's own pleasure. However, this would not provide a satisfactory reconciliation. One would hardly think someone a proper friend if he were willing to promote one's interests just so long as they never conflicted with his own. In fact two different strategies are suggested in the text for reconciling hedonism and the demands of friendship. The first is to maintain both that a friendship is something which is in one's own overall interests, but also that it cannot be conducted unless one does take one's friend's interests to have equal value to one's own. Thus, as a matter of practical rationality, one would decide, in respect of one's friend, to put into abeyance the general principle of referring every action to the criterion of one's own pleasure, allowing the friend's interests equal weight with one's own. The second way would be to appeal to the psychological fact that one comes to be co-affected with the friend: one comes to rejoice in one's friend's joy as much as in one's own and to be equally pained by his distress. Once this has happened, one can in fact appeal to the principle of pursuing one's own pleasure in order to act in the interests of one's friend, since, for instance, knowing that he is

hungry or thirsty will disturb one's own pleasure as much as if one were hungry or thirsty oneself.

Whilst this is consistent with maintaining that one's own pleasure is more desirable *per se* than that of other people, one can see why other Epicureans might have felt it unstable. These Epicureans, according to Torquatus, 'though intelligent enough, are a little more timid in facing the criticisms from you Academics: they are afraid that if we regard friendship as desirable just for own pleasure, it will seem to be completely crippled' (*De Finibus* 1.69 (LS 22 O)). It would be at least slightly odd to maintain that one does have as much reason to promote one's friend's interests as one's own, but only because one will be pained as much as he will if one does not. Thus, the second Epicurean response is to allow that whilst one does first make contact with people and form relationships with them for the sake of one's own pleasure, once 'advancing familiarity has produced intimacy, affection blossoms to such an extent that friends come to be loved just for their own sake even if no advantage arises from the friendship' (*De Finibus* 1.69 (LS 22 O)). This is a more interesting, if perhaps less subtle, position than the first, and accords with what Epicurus himself seems to have said in *VS* 23. It is more interesting, because it seems to allow the extension of the goodness of pleasure from oneself to other people. That is, in coming to love the friend for himself, his interests in themselves will provide one with reasons for action. One can still refer one's actions to the criterion of whether they produce pleasure, but the range of relevant pleasures will have been extended to include those of one's friend. It is not, of course, that one will not take pleasure in his well-being, but, in contrast to the first view, this is no longer the motivation for particular acts of friendship.

There is nothing in Epicurus' account of pleasure to provide an obstacle to such an extension: certainly we need first to experience our own pleasure in order to understand its nature, but, having grasped that, we can then understand what it is for someone else to gain pleasure and recognise this as a good. We do not, however, find in Epicurus any wholesale move in this direction as we do, say, in Mill: there is no attempt to argue that having come to recognise the goodness of pleasure, we should recognise that it is equally good whoever's pleasure it is. Our ability to love the friend for himself comes about because we are close to him, and there is no argument to the effect that we should seek to extend this sort of concern beyond our friends.

If Epicurus allowed this move to secure his account of friendship, it was not available to him when he came to place the virtues within the good life. This is a particular difficulty in the case of justice, since this requires that one take into account the interests of other people even when one has no affection for them. However, just as Epicurus was concerned to reconcile his official hedonism with the practices of friendship, so he assiduously maintained that it was compatible with virtue. Indeed, he maintained that

the happy life was not possible unless the agent was virtuous. So, prudence 'teaches' that one cannot live pleasurably without living prudently, honourably and justly, and if one lives prudently, honourably and justly, one must live happily: 'for the virtues are naturally linked with living pleasurably, and living pleasurably is inseparable from them' (*Men.* 132 (LS 21B6)). One's first reaction to this, however, is that it is just too blithe: one wants to know how it is that prudence—practical rationality—teaches this, and Epicurus does not go on to provide an argument here. As we have seen, Aristotle could allow that acting virtuously can contribute to one's happiness just because such activity is intrinsically valuable. The virtuous agent will indeed take pleasure in acting virtuously. This is where Epicurus' identification of happiness with the static pleasures causes difficulty—for the pleasure of acting well, even if he recognised it, would be a kinetic pleasure, and thus not something which could be a component of happiness. Although he avoids the dangers of subjective hedonism by identifying happiness with *aponia* and *ataraxia,* the effect of this identification is to make difficult any attempt to bring acting in other people's interests within the sphere of the agent's own happiness (except in the case of friendship).

So, although the Epicurean wise man will, we are told, act in accordance with virtue, this has to be just because he is himself better off by doing so, and not because he recognises any reason to do so which is independent of his own well-being. In *De Finibus* I (42–54), Torquatus is duly at pains to show that the Epicurean will act virtuously. So, we are told that vices such as rashness, lust, cowardice and injustice trouble the mind by their very presence (50). Moreover, if one acts unjustly, one can never know that this will not be discovered, and so one will be troubled by the possibility of punishment. As Torquatus points out, reasonably enough, someone who has attenuated his desires in line with the Epicurean injunction to follow only those which are natural and necessary will in fact have little reason to act unjustly (52–3). Nevertheless, properly speaking, justice is not to be chosen for itself, but because it provides pleasure (53). It does so because if one treats other people properly, one will gain their affection, which is pleasant in itself, and one's life will be made more secure. Thus, although Epicurus recognises that there are requirements of justice—requirements which he seems to have taken to be generated by social contracts—he does not allow that these do not provide reasons for action because justice is in itself a good thing (or injustice a bad thing, *KD* 34 (LS 22A4)) but rather because acting unjustly will produce more distress than acting justly: 'The just life is most free from disturbance, but the unjust life is full of the greatest disturbance' (*KD* 17 (LS 22B3)).

Epicurus' theory of the good life is thus a strange mixture of the revisionary and the conservative. It is perhaps in its account of pleasure that it is most revisionary: the states of *aponia* and *ataraxia,* the static pleasures, look very unlike the sort of things which had ben taken to be

pleasures. Having set these up as the pleasures which are constitutive of happiness, however, Epicurus is then able to provide hedonistic arguments for restricting the rational agent's pursuit of kinetic pleasures: once one has achieved them, one's well-being cannot be increased through the addition of more of the latter. This prevents the Epicurean from espousing a view according to which one will be happier the greater number of pleasures one can experience. Given this, it is indeed plausible enough to think that the Epicurean wise man will in fact lead a life which does not violate the norms of virtue (although it will no doubt be easy enough to imagine situations where he might). However, Epicurus does not manage to show that his account of the good can accommodate the idea that the virtues present reasons for action which are autonomous: when the Epicurean acts virtuously this is because he regards this as the most effective means of achieving *ataraxia*. In the case of friendship, Epicurus is able to allow genuinely altruistic action because of the fact that one can come to care as much about the friend's well-being as one does about one's own. In the case of justice, however, his motivational concerns are not ultimately displaced from his own well-being.

ABBREVIATIONS

Sources frequently quoted are abbreviated as follows:
DL Diogenes Laertius, *Lives of the Philosophers*. X=book 10
Hdt. Epicurus, *Letter to Herodotus*
KD Epicurus, *Kyriai Doxai (Key Doctrines)*
Math. Sextus Empiricus, *Adversus mathematicos*
Men. Epicurus, *Letter to Menoeceus*
Pyth. Epicurus, *Letter to Pythocles*
VS Vaticanae sententiae (words of Epicurus found only in a Vatican MS)

NOTES

1 Where possible—and, fortunately, this is frequently—I cite the translation given by Long and Sedley [6.3] in their *The Hellenistic Philosophers*, although I have very occasionally adapted their translations. Thus 'LS 5A' refers to passage A in section 5 of that work. I have done this not merely out of laziness, but because it seems to me helpful if the texts one cites, even in translation, have an existence which is independent of their employment in a particular context, so that the reader can more readily check up on how properly they are employed. Of course, one still needs to remember that these are translations of the real thing and not the thing itself.

2 In fact the argument as it stands is not a good one, even for the weaker conclusion, since it might well be that a series of perceptions can cumulatively provide compelling evidence against a single deviant perception, particularly if one has a theory of how that perception was produced. The

argument would seem to miss the point, for instance, of Aristotelian warnings against accepting the perceptions of sick people rather than providing a rebuttal of such a strategy.

3 For the claim that all would travel downwards see Lucretius I.984–991 (LS 1064), and for the claim that all atoms travel at the same speed, see *Hdt.* 61 (LS 11 E1).

4 Perhaps it is helpful here just to clarify a distinction between what I shall call 'materialism' and what I shall call 'physicalism'. I take a materialist thesis to concern substances: materialism about a certain kind of substance requires that one accept that substances of that kind have a material constitution. Physicalism, in contrast, is concerned with the relation between events (and perhaps states of affairs), and will give some sort of priority to physical events. Although Epicurus is straightforwardly a materialist about the *psuchê,* it is not yet obvious whether he thinks that, for instance, psychological events are determined by physical (in context, atomic) events.

5 Lucretius *De rerum natura* IV.722 ff.

6 It is not just perception which requires the impact of external *eidôla,* but all appearances and thoughts.

7 This is argued by David Sedley in his 'Epicurean anti-reductionism', in J.Barnes and M.Mignucci (eds) [6.8].

8 Long and Sedley argue that volition itself can cause an atomic swerve, but there is no direct evidence for this, and if it were correct then all Epicurus' opponents on this matter would be guilty of *ignoratio elenchi.*

9 See Sextus *Math.* VII.203, cited above p. 193.

10 Cf. *KD* 3: 'The removal of all pain is the limit of the magnitude of pleasures. Wherever pleasure is present, as long as it is there, pain or distress or their combination is absent.'

11 This elucidation here is the same as that offered by Julia Annas [6.18], Chapter 11.

12 See *Men.* 130–2(LS 2164–6).

13 Even non-necessary natural desires can arise from empty beliefs (when, however strongly felt, their frustration would not lead to pain—*KD* 30 (LS 21E3)): presumably the thought is that one might form a strong desire, say, to listen to minimalist music because it was fashionable, so that this desire, although a specific version of a natural and necessary desire, would not give rise to pleasure when satisfied.

14 'Accustom yourself to the belief that death is nothing to us. For all good and evil lie in perception, whereas death is the absence of perception. Hence a correct understanding that death is nothing to us makes the mortality of life enjoyable, not by adding infinite time, but by ridding us of the desire for immortality. For there is nothing fearful in living for one who genuinely grasps there is nothing fearful in not living' (*Men.* 124 (LS 24A1)).

15 Pleasures for the Cyrenaics were firmly of the kinetic kind—they had no truck with taking such things as *aponia* and *ataraxia* to be genuine pleasures.

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CHAPTER 7
Stoicism[1]

Brad Inwood

1
FROM SOCRATES TO ZENO

More than eighty years passed between the death of Socrates in 399 BC and the arrival in Athens of Zeno in 312. Athenian society had undergone enormous upheavals, both political and social. The Greek world had been reshaped by the rise of Macedonian military and political power and by Alexander the Great's conquests in the East, which opened up new regions for commercial and political expansion. This was also one of the most creative periods of philosophical development in the history of the ancient world. It encompassed the careers of Plato and Aristotle; the schools which carried on their legacy developed and matured. There was continued Pythagorean activity. Mathematics and geometry flourished. Other philosophical movements arose in surprising numbers; some of these, like Epicurus' Garden and the Stoa itself, were to thrive and become a permanent part of the philosophical landscape, though many were ephemeral.

Zeno, the founder of Stoicism, came to Athens from Citium on Cyprus when he was in his early twenties (DL 7.28); according to one source (DL 7.31), his appetite for philosophy had already been stimulated by reading 'Socratic books' brought back by his father, a merchant, from his voyages.[2] Zeno himself is said to have come to Athens on a commercial voyage, but it is hard not to suspect that the real attraction was philosophy. And when he arrived the philosophical scene was rich and varied. Plato, of course, had been dead for a generation. The fourth head of his school, Polemo, had just taken over; Platonic dialogues were standard reading. Aristotle had fled Athens and died in Euboea ten years before. His associate Theophrastus was still at the head of the school founded to continue Aristotle's programme of work. Philosophers from nearby Megara were also active on the Athenian scene; one of them, Stilpo, was a sophisticated practitioner of dialectic and also had strong interests in ethics and metaphysics. Other dialecticians contributed to a heady atmosphere of argument and logical challenge: perhaps the most famous was Diodorus

Cronus. A particularly striking feature of Athenian intellectual life at the time was the emergence of the 'Cynics'. These were a loose group of philosophers who claimed Socratic inspiration for their distinctive interest in ethics, in the cultivation of the excellences of character as the key to human fulfilment. They combined radical social criticism with an ascetic devotion to natural simplicity and frank speech; equally Socratic was their dedication to the rational articulation of their social ideals. For the Cynics, ethical and social norms were only as good as the justification that could be given for them. They claimed to stand for 'nature', as opposed to baseless social convention; they aimed to undermine, by their speech and their example, what they regarded as the empty and hypocritical conventions of Greek city life.

This double concentration, on reason and on nature, must have appealed to Zeno. After arriving in Athens he drifted by a book shop, where book two of Xenophon's *Socratic Reminiscences* was being read aloud;[3] Zeno enthusiastically asked where he could find men like the ones described there (DL 7.2–3). A Cynic philosopher, Crates of Thebes, was passing by, and the bookseller said 'follow him'. Zeno did, and spent many years in his company. Crates, of course, had been a follower of Diogenes of Sinope. Diogenes, in turn, was supposedly an associate of Antisthenes, a close follower of Socrates, a contemporary and rival of Plato, and (according to tradition) the founder of Cynicism.

The dual influence of Socrates and Cynicism shaped the central concerns of the Stoic school from its foundations. Zeno's predilection for ethical and political philosophy no doubt had its roots in his years with Crates. But Zeno was a restless philosopher, and sought out other teachers too. The Megarian Stilpo left his mark on many aspects of Zeno's philosophy. Diodorus Cronus led him in the direction of serious work in logic, which remained a central interest of the school for centuries. There was even a longish period of study in the Academy. Polemo's special expertise in ethics can only have confirmed the Socratic interests which had brought Zeno to philosophy in the first place. The impact of the Academic division of philosophy into logic, ethics, and physics was fundamental for the development of Stoicism; but the strong systematizing tendencies of the school may also owe something to the influence of Aristotle's followers, who laboured away in the Lyceum of Theophrastus. Zeno never joined that rather specialized group of scientists and philosophers, but he can hardly have ignored the influence of a lecturer like Theophrastus, who was apparently able to draw a crowd of two thousand for his public lectures.[4]

Zeno obviously took advantage of the wealth of philosophical opportunity available to him in Athens, and when he began to give his own public lectures in the famous Painted Stoa his system showed the influence of this breadth of education and interest. This breadth is sometimes disparaged as evidence of a merely synthetic philosophy, but a mere synthesis would never have had the impact of the school which Zeno

founded, a school which lasted for half a millennium and which for much of that time was the leading philosophical movement of the day. It is more plausible to think of his lectures, and the system which developed out of them, as being the result of a rich tradition of theory and argumentation, focused by the critical intelligence of Zeno and his successors.

2
NATURE AND PHILOSOPHY

'Nature' as a philosophical concept had a long history in Greek culture. The emergence of philosophy itself is closely connected with the demarcation of what is 'natural'—what happens apart from the intervention of anthropomorphic beings—as a subject of investigation. The understanding of nature as what functions without anthropomorphic intervention came into renewed prominence in the sophistic movement of the fifth century, with the contrast between nature and 'convention' *(nomos);* here the foil for nature is human society, its values, and its institutions.

In such contrasts nature usually has a positive value. To say something is natural is to claim that it is reliable in a way that nothing can be which is dependent on changeable personal decisions or social norms. Speaking in broad terms, nature is viewed with approval because it is in principle stable and consistently explicable, and these are traits regularly favoured by philosophers, ancient and modern. Hence in the fourth century BC philosophers frequently claimed as natural those features of their systems which they regarded as fundamental. For Plato the Forms and certain facts about moral and political reality are 'natural'; Aristotle finds that goal-directedness is a basic feature of the natural world ('Nature does nothing in vain'); Epicurus calls the basic entities of his physical system, atoms and void, 'natures' and grounds his hedonism on the belief that all animals naturally desire and pursue pleasure. The Cynics urged that we should follow nature, properly understood, and not mere convention; hence the famous slogan of Diogenes 'deface the currency' *(nomisma),* which plays on the etymological linkage between *nomos* and *nomisma.*

Stoicism, though, is the ancient school most solidly associated with the concept of nature. In their ethics the Stoics claimed that the key to human fulfilment lay in living a life according to nature; they devoted a great deal of intellectual energy to physics, the study of the natural world; they argued that a godlike rationality was the central feature of human nature and even identified nature with god. Nature was formally defined as 'a craftsman-like fire, proceeding methodically to creation *(genesis)*' (DL 7.156): the rational plan controlling the organization and development of the world and materially immanent in it. Zeno's decision to build his new system around the concept of nature was triggered by the influence of Cynicism,

but the rich conception of nature which he built into so many parts of his philosophy brings together the entire tradition.

A striking feature of Stoicism was its insistence on the unity and co-ordination of all the traditional aspects of philosophical activity. From the beginnings until the time of Plato philosophical enquiry ranged widely over many kinds of subject matter: the physical world, the nature of human perception and understanding, the organization of society, the nature of a good life, etc. Even in Plato there is no neat division between ethics and metaphysics, between epistemology and logic. But in the late fourth century philosophers became more self-conscious about the relationships between the various subjects philosophy dealt with. Epicurus grouped what we might call epistemology, logic, and scientific method under the heading 'canonic'; and two of Plato's followers, Xenocrates and Aristotle, developed their own views on the branches of philosophical enquiry. Aristotle's division is complex and based on the belief that different subject matters had their own independent first principles of explanation. But Aristotle matters less than the Platonist Xenocrates, who first divided philosophy formally into three parts: logic, physics, and ethics. Zeno seems to have adopted this division from his teacher Polemo and it became the standard for the school. With the exception of Aristo of Chios, who rejected everything but ethics (and was later regarded as unorthodox), all Stoics accepted this division, calling the branches variously 'topics', 'species', or 'kinds' (DL 7.39). Cleanthes subdivided further into six parts: logic into dialectic and rhetoric, ethics into ethics proper and politics, physics into physics proper and theology (DL 7.41).

Philosophy as a whole was variously described as 'the pursuit of wisdom', as 'the pursuit of correctness of reason', and as 'the knowledge of things human and divine and their causes'. But the formal division of philosophy does raise questions about the relationship between the parts and their appropriate pedagogical order. Here there was a natural and healthy difference of opinion within the school. The disagreement was expressed through a variety of similes describing the relationship of the parts to each other (DL 7.40). Some compared philosophy to an animal: logic was the bones and sinews, ethics the flesh, and physics the soul. Or it was like an egg: logic is the shell, the white is ethics, and the yolk is physics. Alternatively, logic is the wall around an orchard, with physics being the land and trees and ethics the fruit.[5] Various pedagogical orderings were proposed, though all Stoics seem to have agreed that since the separation of parts was not absolute the teaching would also have to be mixed to some extent. Plutarch (*Stoic Self-contradictions* 1035ab) preserves the view of Chrysippus, the third head of the school (after Cleanthes), whose views are often treated as the standard version of early Stoicism; he preferred the order logic, ethics, physics, ending with theology.

In practice it was impossible for the school to maintain a clean separation between the parts of philosophy, however those parts were

conceived: those Stoics who championed the inseparability of one part from another, both in substance and in teaching, were proven right.

3
LOGIC AND *LOGOS*

Logic must be understood in two distinct senses. As the Stoics themselves used the word, it designates that part of philosophy which deals with *logos,* reason or articulate speech, in any of its various aspects. The narrower sense of 'logic' is more familiar to modern readers: a systematic and formal study of propositions, arguments, their relationships to each other and their validity. The Stoics are of enormous importance for the history of logic in this narrower sense, but it is important to bear in mind that this was only one part, perhaps in their eyes not the central one, of the study of *logos*.[6]

In the broad sense, logic is divided into two branches of knowledge.[7] Rhetoric is the study of relatively long, continuous speeches and dialectic is the study of discussions conducted by means of short questions and answers. Each aims at speaking well in its own domain. But what are those domains? Traditionally, rhetoric aimed at persuasion as such, rather than at knowledge. This goal could be held in contempt, as it was by Plato in the *Gorgias,* or taken at face value, as it was by most rhetorical theorists, or rehabilitated philosophically, as it was by Aristotle. This traditional understanding of the goal could not have been irrelevant to the Stoics, since they also followed the tradition in their division of rhetoric into forensic, deliberative, and encomiastic (panegyric) or epideictic, and in their breakdown of the parts of the standard forensic speech (DL 7.42–3). Yet they could not accept that rhetoric, as a kind of knowledge and so as a part of the life of the virtuous wise man, aimed at no more than persuasion, disregarding the truth and the purpose of the speech. 'Speaking well' also meant speaking truly and virtuously.

Rhetoric was taught by the Stoics, but in such a way that it challenged rather than accommodated the more conventional understanding of rhetoric and its function.[8] Its aim seems to have been the same as that of dialectic: the attainment of truth through ordered discourse and argument. The difference between rhetoric and dialectic, then, came down to a matter of form: rhetoric is broader and more extensive in its presentation of argument; dialectic denser and more compact. Zeno tried to illustrate this difference with a comparison. Dialectic is a like a tightly closed fist and rhetoric like the same hand opened out with fingers extended. Same hand, different configuration. We don't know how far Zeno wanted this comparison to be pushed, but one might note that a fist typically has a great deal more power and impact than an open palm. Dialectic could punch; rhetoric merely slapped.

This conception of rhetoric drained much of the strength from traditional rhetorical practice. Lawyers and politicians do not limit themselves to giving sound arguments for what they believe to be true conclusions. But Stoic rhetoric hobbled speakers in yet another way. The style used by the Stoic orator was to be plain, simple, direct, and unemotional. No wonder that Cicero dismissed the rhetorical theory of Cleanthes and Chrysippus as fit only for someone who wants to learn the arts of silence (*De Finibus* 4. 7).

Dialectic is by far the more important part of logic. In contrast to rhetoric, it deals with discourse in question and answer format, in the tradition represented by Plato's Socratic dialogues and Aristotle's *Topics*. The root meaning of the term 'dialectic' in Greek is 'conversation', and the context of live philosophical encounter was never far from centre stage. It was a crucial part of philosophical activity in the early years of the school's history. Arcesilaus, head of the Academy and chief Platonist of his day, only philosophized orally. Carneades, some decades later, did the same. The Megarian style of argumentation also reflects oral debate.

But the characterization of dialectic as knowledge of what is true, what is false, and what is neither true nor false points to a much broader and more ambitious study of human discourse and its relation to what is real. The standard breakdown of dialectic into its component topics confirms this (DL 7.43–4). Dialectic, we are told, covers the content of human discourse, i.e., what is signified by our utterances, as well as the utterances themselves. 'What is signified' covers both the representational contents of sense perception (presentations, *phantasiai*) and the propositions and predicates which depend on them. Thus most of what we would consider epistemology could be treated as a part of dialectic by the Stoics. But since the ontological status of things like propositions is evidently problematic (not least for a school which held a form of materialism) this area of dialectic also touches on metaphysics and philosophy of mind.[9]

'Utterance' itself is also understood quite broadly. It includes (among other things) what we would call purely linguistic and grammatical phenomena: a physical account of utterance as sound appropriately set in motion by the speech organs; a discussion of the letters of the alphabet and the phonemes native to the Greek language; regional dialects; the canons and criteria used to settle questions of proper usage and good style; and the linguistic phenomena distinctive of poetry. The analysis of the parts of speech is also part of the study of utterance.

It is curious that the parts of speech (name, common noun, verb, conjunction, article)[10] are treated under the heading of 'utterance' as linguistic and grammatical matters, while apparently similar matters (the categorization of sentences into types such as propositions, questions, oaths, imperatives, the difference between active and passive propositions, and so forth) should be treated under the heading of 'things signified'. The reasons for this are not particularly clear in our sources,[11] but for present

purposes two points are most important. First, as professional philosophers the Stoics influenced and were influenced by professional grammarians, providing a philosophical rationale (however unclear it might be to us now) for their analysis which competed with the more straightforwardly descriptive principles developed by grammarians. Second, the Stoic analysis of grammar is the culmination of the philosophical contribution to grammar which began with the Sophists in the fifth century BC and continued in the work of Plato, Aristotle and their followers. After the creative interaction of grammar and philosophical analysis of language in the Hellenistic period,[12] Greek grammar more or less went its own way, marked for ever by the contribution of Stoicism.

Let us now turn to the narrower and more familiar sense of logic, the study of forms of inference, arguments, and validity. One view about the role of logic in the Stoics' system suggests that logic has a defensive function —it is like the wall around a garden or the shell around an egg (DL 7.40); Posidonius compared logic to the bones and sinews of an animal, which suggests a more integral role for logic, giving shape and definition as well as strength to the flesh and soul (physics and ethics).[13] That dialectic is a virtue, though, seems to be the view of all orthodox Stoics (Aristo of Chios apparently disagreed—DL 7.160–161). It was valued for its contribution to the living of a stable and orderly life as well as for its help in establishing the truth; most Stoics would have thought these two functions to be intimately connected. Here is one account of the contribution made by dialectic and its parts:

> They say that the study of syllogisms is extremely useful; for it indicates what is demonstrative, and this makes a big contribution towards correcting one's opinions; and orderliness and good memory indicate attentive comprehension.... Dialectic itself is necessary and is a virtue which contains other virtues as species. Freedom from hasty judgement is knowledge of when one ought to assent and when not. And level-headedness is a strong-minded rationality with respect to what is likely, so that one does not give in to it. And irrefutability is strength in argument, so that one is not swept away by it to an opposite opinion. And intellectual seriousness is a disposition which refers presentations to right reason. Knowledge itself, they say, is either a secure grasp or a disposition in the reception of presentations not reversible by argument. And the wise man will not be free of error in argument without the study of dialectic. For truth and falsity are distinguished by it and persuasive and ambiguous statements are properly discerned by it. And without it methodical question and answer are impossible.
>
> Hasty judgement in assertions has an impact on events, so that those who are not well exercised in handling presentations turn to unruliness and aimlessness. And there is no other way for the wise

> man to show himself to be sharp, quick-witted and, in general, clever in arguments. For the same man will be able to converse properly and reason things out and also take a position on issues put to him and respond to questions—these are the characteristics of a man experienced in dialectic.
>
> (DL 7.45–48)

As Ian Mueller puts it, logic had 'both an epistemological and a moral significance for the Stoics'.[14] It helps a person to see what is the case, reason effectively about practical affairs, stand his or her ground amid confusion, differentiate the certain from the probable, and so forth. Moreover, it protects him or her from being misled by captious argumentation and fallacies, such as the *sôritês*. Beyond that, the study of argument and inference had become an independently interesting and important part of philosophy. The formal study of logic began with Aristotle and was further stimulated by the deliberately provocative use of paradoxes and puzzles by the Megarians; and the Stoics (especially Chrysippus), unlike the Epicureans, sought to develop logic as a discipline.

Aristotle's syllogistic deals primarily with the relations between terms (usually symbolized by letters of the alphabet) which are connected into statements and arguments by means of quantifiers ('all', 'none' or 'some') and predicating expressions ('is' and 'is not'). The fundamental and simplest syllogistic form is:

All B is A
All C is B
∴ all C is A.

This form of inference and a few others are self-evidently valid ('perfect'), and Aristotle's formal logic is largely taken up with study of these inference forms, their relations to each other, and their relation to other valid inference forms. Aristotle held that the validity of any valid inference form could in some way be derived from the perfect syllogisms. These, consequently, are basic to his system.

Unlike Aristotle, the Stoics took propositions (symbolized by ordinal numbers) to be the basic units of analysis in logic. They worked with a small set of operators which they used to link propositions: 'if', 'and', 'not', and exclusive 'or'. They recognized five basic inference forms, or indemonstrable arguments, and seem to have held that any valid argument form could be derived from these indemonstrables by purely logical means. This gave the Stoics a sound procedure for assessing and explaining validity. The five indemonstrables are as follows:

I
If the first, the second.

But the first.
∴ the second.
II
If the first, the second.
But not the second.
∴ not the first.
III
Not both the first and the second.
But the first.
∴ ∧not the second.
IV
Either the first or the second.
But the first.
∴ ∧not the second.
V
Either the first or the second.
But not the second.
∴ the first.

It is not clear how much effort Stoic logicians put into the attempt to show *formally* that any valid inference form could be reduced to these forms. But it is known that they had at least four 'rules' or logical principles which they used in the analysis of arguments and argument forms. One example of this sort of analysis is preserved for us by Simplicius in his commentary on Aristotle's *De Caelo* (236.33). The third 'rule' is this: if from two propositions (a, b) a third (c) follows, and from this conclusion (c) and a further proposition (d) another conclusion (e) follows, then the final conclusion (e) follows from (a), (b), and (d). The example given by Simplicius is from physics.

(a) Every body which is in a place is perceptible.
(b) No perceptible body is infinite.
(c) No body which is in a place is infinite.
(d) What is outside the heavens is in place.
(e) There is no infinite body outside the heavens.

There is also a Stoic criterion for validity (Sextus Empiricus, *Outlines of Pyrrhonism* 2.137): an argument is valid if a conditional which has the premisses of the argument as antecedent and the conclusion of the argument as consequent is itself sound. Suppose the argument to be tested for validity is:

If it is day it is light
But it is day
∴ it is light.

This will be valid if the following conditional is sound:

If (it is day) and (if it is day it is light)
then it is light.

In such a simple case the criterion will not tell us anything that our logical intuitions do not already recognize. But for more complex or less clear argument forms such a test could be quite useful.

The logical relations used by the Stoics deserve a brief comment. As noted, the 'or' they employed is exclusive; by contrast modern formal logic generally uses an inclusive 'or'. 'And' is straightforward, while the main point of interest about 'not' is the care which the Stoics took to be clear about the scope of the negation. Sometimes 'not' negates a term in a proposition, and sometimes it negates an entire proposition. In Stoic logic, which works with propositions rather than terms, 'not' can be used deliberately to negate whole propositions and normal Greek word order is violated to make this clear. It is as though we were to re-express 'Socrates has not conversed with Aristotle' as 'Not: Socrates has conversed with Aristotle' or 'It is not the case that Socrates has conversed with Aristotle'. The rephrasing sounds awkward, but can be very useful in clarifying the meaning of a sentence and therefore avoiding fallacies which turn on ambiguity. The use of logical analysis to diagnose and avoid fallacies and sophisms was an important function of dialectic for the Stoics, and we have abundant evidence of their ongoing interest in the sort of logical puzzles prized by the Megarians (for example DL 7.25). One such is known as the Nobody argument. In one version it goes like this (DL 7.82, cf. 7.187):

If someone is here, he is not in Rhodes.
But someone is here.
∴ there is not someone in Rhodes.

The conclusion, that there is no one in Rhodes, is evidently false, Care about the handling of negation and about the use of the indefinite pronoun (which is used equivocally in this sophism) dissolves the paradox.

The conditional ('if'…'then') is a crucial logical relation. From a logical point of view, 'if' can mean a number of different things. We know of several ancient interpretations of 'if' (Sextus *Outlines of Pyrrhonism* 2.110–12): One of these, attributed to Philo the Megarian, is equivalent to the material conditional and has a strictly truth-functional meaning: a conditional is sound if it does not have a true antecedent and a false consequent. Diodorus Cronus held that a sound conditional was one of which it neither was nor is possible that it should have a true antecedent and a false consequent. Knowing of these interpretations, the Stoics

adopted a third instead: a conditional is sound when the opposite of the consequent conflicts with the antecedent. The Stoic interpretation certainly renders at least part of their logic non-truth-functional, and so from a modern formal viewpoint less powerful. But the applicability of the conditional to inferences about facts and relations in the world is enhanced by their interpretation. When we find an intelligible connection in nature, the Stoic conditional will express it adequately. 'If you release a stone in mid air it falls' is true, and expresses something important about a world which has an intelligible causal structure; it is properly expressed in a Stoic conditional because there is a clear conflict between the release of the stone and having it not fall. Compare a Philonian conditional: 'if it is day, I am conversing'. This must be regarded as sound whenever it is day and I am conversing. But such a conditional tells us nothing of interest about facts and relations in the world. The Stoics used their logic not just to solve paradoxes, but as a tool for physics.[15] It is worth noting that when discussing astrological predictions Chrysippus was careful *not* to express the (allegedly) regular connections between astral and terrestrial events by means of the conditional (Cicero *De Fato* 12–15). It may be that it is not the case both that Fabius was born at the rising of the dog-star and that Fabius will not die at sea. But Chrysippus would not express this as 'if Fabius is born at the rising of the dog-star he will not die at sea' precisely because he was not convinced that there was a necessary causal linkage between being born at that time of year and dying on dry land; such a view would conflict with his attempt to develop a non-necessitarian determinism (see p. 239). Chrysippus preferred the negated conjunction; Philo, whose conditional was truth-functional, would have seen no difference between the two ways of expressing the matter.[16]

We thus come back to the question of the use of logic within Stoicism. It prepares the philosopher for paradoxes and helps him to solve them; this is vital, since the persistence of paradoxes threatens the belief that the world is a well-ordered and rational whole. Stoic logic is also designed to be of use in discovering and expressing causal relations. The use of dialectic to explore all the arguments for and against a given position,[17] which was cautiously approved by Chrysippus, is essential to the establishment of a true and stable understanding of the world.

Aristotle handled the basic question of how humans come to know the world around us in a number of different works. The *Posterior Analytics* has an important chapter (2.19) on the perceptual foundations of our knowledge of the world; the *Metaphysics* opens (1.1) with reflections on a similar theme; the theory of human perception which attempts in part to explain how this works is found in a treatise on natural philosophy, *On the Soul*. Similarly, the Stoics handled epistemological issues throughout their philosophy; the theory of how our sensory apparatus works is part of physics, but dialectic includes their account of the representational content of sense perception.

If dialectic is to be used to discover the truth about an explicable and rationally ordered world, then clearly we humans must have access to reliable basic information about that world. Sense perception is the source of information, and in Stoicism we can see the nascent empiricism of Aristotle's theory developed more fully.[18] The Stoics held that our senses, when in good condition and used under normal circumstances, tell us the truth about the world. The truths of sense perception form the basis of our knowledge of the world. If one could show in some way that sense perception cannot be relied on to tell us the truth about the world, then the entire edifice of our knowledge about the external world collapses. The building is only as solid as its foundations.

Sceptics, in particular Academics like Arcesilaus and Carneades, aimed to undermine the claims of Stoicism in exactly this way. The target of their epistemological critique was the key theoretical item in Stoic epistemology, the presentation *(phantasia)*. A presentation is an 'impression'[19] in the physical stuff of the soul, a physical alteration caused by changes in the matter of the external world. Such an impression also carries information; it reveals both itself and the external event or thing which causes it (*SVF* 2. 54). The informational content of the presentation is conveyed, in rational animals, as non-corporeal 'meanings' or *lekta*. Just how this was accomplished is one of the more puzzling features of Stoic philosophy of mind. But the account preserved in Diogenes Laertius makes the basic point clear: 'the presentation is first, and then the intellect, which is verbally expressive, puts into rational discourse what it experiences because of the presentation' (DL 7.49. Cf. DL 7.63, Sextus M 8.70). The intelligible content of our perceptions is then either accepted by the perceiver or not. The assent given to the content of the presentation may be conscious or unconscious, and belief ensues when our mind accepts the presentation as representing the world. Hence the Stoics can readily account for the common experience of seeing but not believing.

This alteration and its informational content can be stored as a memory; it also contributes to the process of shaping of our basic conceptions and beliefs about the world. Hence our concepts and untutored beliefs are only as secure as our presentations. When sceptics attacked the reliability of presentations as sources of information about the world, the Stoics had to respond. The debate which ensued is too complex for summary here,[20] but one or two general remarks should be made. First, the clear isolation of assent from other aspects of the process of perception and belief obviates some sceptical moves; the Stoics do not claim that humans are passive prisoners of their perceptual experience. It is up to us to judge among our presentations. So if (to use the hackneyed example which originates in this debate) the straight oar looks bent under water, we can deny assent to the perception; and we will do so since it conflicts with the information received from other perceptions or because we understand the refraction of light in different media.

But this ability to choose which presentations to accept requires us to have some criterion to apply in doing so. Here the Stoics' response to sceptical challenge is less successful. They claim that the criterion is a special kind of presentation, which they designated with a rather rebarbative label: cataleptic. A cataleptic presentation is stipulated to be one which exactly represents a part of the external world just as it is and has in addition a distinctive feature which indicates that it could not have been caused by any other source. It is allegedly self-validating. If, the Stoics say, we base our knowledge of the external world on such presentations, we will not err. The difficulty with this claim, however, is that a determined sceptical attack can easily reveal it as being either circular or arbitrary. In the end, the prolonged and complex debate between sceptics and Stoics about the criterion for reliability in sense perception reached no satisfactory resolution. The Stoic position ended where it began, with a commonsensical confidence in the veridical nature of sense perception, and the sceptical attack revealed that it is impossible to provide a foundational justification of what is itself meant to be a foundation for human understanding.

4
PHYSICS AND COSMOLOGY

'Let us begin from Zeus.' With these words the Stoic astronomical poet Aratus opened his *Phaenomena,* one of the most influential didactic poems in antiquity. As a Stoic, Aratus celebrates the omnipresent beneficence of Zeus and emphasizes that we humans are 'of his race'. In Aratus' view, the well-organized character of the natural world and the fine articulation of the heavenly constellations are the work of Zeus, father of gods and men; the entire cosmos was organized as a sign for humans of how best to live.

Zeus was, of course, central in Greek religious thinking, and in particular for Hesiod, whose poetry had a profound impact on the early Stoics, not just on Cleanthes, the second head of the school (who was even moved to imitate him by writing his own epic verse in honour of Zeus.[21]) But the broader tradition of Greek philosophical cosmology also influenced the Stoics. Perhaps foremost they looked to Plato's *Timaeus,* with its creator god and its thorough-going teleological account of the physical world. But the Presocratics were also important, none more than Heraclitus (at least as he was understood in the period after Aristotle), who emphasized the central role of fire in the physical explanation of the world and also looked to Zeus as an organizing symbol for his thought about the relation of man to the cosmos. The influence of Empedocles is also detectable. The selection of the four basic forms of matter recognized by the Stoics (earth, air, fire, water) might also be the result of Platonic or Aristotelian influence, and the idea of a cosmic cycle might also be

influenced by Pythagoreanism or the myth of Plato's *Statesman*. But Empedocles was also an important forerunner.

As Epicureanism represented the current version of atomistic thinking about the nature of the universe, so Stoicism represented, in the Hellenistic period, the most widespread and up-to-date version of the traditional non-atomistic cosmology. The cosmos, as the Stoics saw it, is finite and spherical, with the earth at the centre. The four basic types of matter (earth, water, air, and fire)[22] are arranged in roughly concentric spheres around the centre of the cosmos, which coincides with the centre of the earth. For the Stoics, as also for Plato and Aristotle, the four basic types of matter are not unchangeable. Empedocles had worked with the assumption that they are elemental and not derivable from each other or from any simpler physical reality. Stoicism offered a theory about the nature and derivation of the four basic types of matter which resembles Aristotle's theory more closely than it does Plato's.

Another point of difference from earlier cosmologies lies in the Stoic view about what is outside the cosmos. For Aristotle the answer was simple. Nothing is outside the cosmos just because the cosmos is the sum total of all physical reality. This view flew in the face of atomistic claims that our cosmos (like all the others) is surrounded by an infinite void. The Stoics accepted some of their arguments that there must be infinite void outside the cosmos. But it is open to question whether they interpreted 'infinite' in the same sense as the atomists did. Not having an infinity of material stuff or an infinity of worlds to find a place for, they did not need actual infinity of the sort that Aristotle argued against in his *Physics*. Perhaps, then, they understood 'infinite' in the older sense found in Anaximander: the void outside the cosmos was indefinitely large.

Another reason for the Stoics to accept extra-cosmic void lies in their commitment to the theory that the cosmos has a beginning and an end in time. Like Epicurus and many Presocratics (but emphatically unlike Aristotle), the Stoics believed that the cosmos was created by the cosmogonic activity of Zeus and would one day end by being reabsorbed into the cosmic fire out of which it was born. And when it did end in the grand conflagration destined for it, it would expand in volume (as does anything when it is heated or burned). Evidently, the Stoics reasoned, if the cosmos will one day expand then there must be empty space for it to expand into. That, they held, was the extra-cosmic void.

The life of each cosmos begins with the death in conflagration of its predecessor. In the form of fire, the entire raw material of the universe is in its most divine state and is identified with Zeus, the craftsman-god. The first cosmogonic act of Zeus/fire is the generation of the four elements:

> In the beginning, then, he was by himself and turned all substance into water via air; and just as the seed is contained in the seminal fluid, so this, being the spermatic principle of the cosmos, remains

> like this in the fluid and makes the matter easy for itself to work with in the generation of subsequent things. Then it produces first the four elements: fire, water, air, earth.
>
> (DL 7.136)

Starting out as fire, Zeus produces four elements, one of which is fire. These four are then the stuff of which the world as we know it is generated. What is striking here is the dual role of fire, both as the fundamental cosmic principle which alone survives the cycle of destruction and re-creation, and as a created element. This double role for fire is reflected in the immanence of divine powers in the world. For the intelligent guiding power represented by Zeus/fire is omnipresent and ever-present in the world. As Zeno said, the entire cosmos and the heaven are the substance of god.[23] Hence Stoicism has often been seen as a forerunner of various later forms of pantheistic thinking.

It is, in fact, crucial to Stoicism that the creative and shaping force active in the world should be immanent. For this power is a causal power, and the Stoics took as the foundation of the physical theory a carefully considered corporealism which rested on the argument (derived ultimately from Plato's *Sophist*)[24] that the only realities are things which can act and be acted upon, and that these are bodies. So for the Stoics, anything which is going to have causal efficacy must be a body.[25] If god is going to control and govern events in the world, then he must be a body in the world. The presence and force of the divine in the physical world become manifest in several ways.

We see it first in their account of the basic formation of the elements. The Stoics distinguished between elements (earth, air, fire, water) and principles. The principles are the 'active' and the 'passive'. These principles are eternal and interact to create the elements, which perish at each conflagration. Moreover, the principles are formless, whereas elements take on definite characteristics. Most importantly, the principles are corporeal. Consequently the elements and the cosmos made up of them are a blend of the active and passive principles. When, therefore, they go on to identify the active principle with god and the passive principle with matter, they lay the foundations for a simple but elegant corporealism built on the foundations of Platonic and Aristotelian thought about the physical world. The power of god is everywhere in the active and explicable causal structures we see in the world at every level of analysis. In so far as any material object has shape and definite characteristics it has in it something comprehensible and therefore divine.

Stoic corporealism attempts to answer some of the problems left unresolved by the Stoics' predecessors. The explanatory gap between the intelligible and the physical was a crux for Plato, and in some sense he had to relegate physical objects to a lesser ontological status. Their relationship to the intelligible realities which alone could actually explain things was

always doubtful. Aristotle's mature hylomorphism bridged this gap to some extent, by recognizing that the individual object was an inextricable composite of form and matter, neither of which could exist separately from the other. Yet even in Aristotle problems remained, both in the area of psychophysical causation and in theology. For Aristotle's god, the teleological cause of the order in the natural world, is remote from that world and of a different order of being. In the ancient world as in the modern, there has always been dissatisfaction with the notion that god only moves the world by being loved, that the first cause itself *does* nothing. For many, and certainly for the Stoics, that is not an adequate account of causation.[26] The suggestion that god could be identified with the active cause structuring each object and rendering it formally complete and intelligible, though it leaves problems about the relation between this principle, fire *and pneuma* (for which see below), brings divine teleology and causal explanation together in a novel and relatively satisfying way.

At some point, probably with Chrysippus, the Stoic attempt to grapple with these problems was reconfigured so that less emphasis fell on the element fire and more on a physical stuff best thought of as being composed of fire and air.[27] *Pneuma* became, in mature Stoicism, the principal locus of divine immanence in the natural world. It was used to account for a wide range of phenomena, from the cohesion of the cosmos itself (always a problem for the Stoics, who did not rest content with Aristotle's explanation in terms of natural motion) to the nature of the human soul.[28] In all of its manifestations the most useful characteristic of this kind of matter was its elasticity and tensile strength. *Pneuma,* then, was alleged to be omnipresent, and its tensional or vibratory motion gave objects of any magnitude their internal cohesion and basic physical properties.[29] The fact, then, that it penetrated the whole cosmos explains its cohesion. That it penetrates, for example, stones explains their solidity and density. Its presence in iron explains its hardness. Its presence in silver explains its shiny colour. It is but a slight extension of this idea to use the notion of *pneuma* as an organizing principle for the cosmos as such, using variations in its tensility to explain the basic categories of beings in the world. It is a quirk of our sources that Philo of Alexandria preserves some of the clearest descriptions of this hierarchical description of the natural world (see *SVF* 2.458), but the authenticity of the basic idea is confirmed by more conventional sources, such as Diogenes Laertius.[30]

Pneuma is present in stones and other inert objects in the form of a basic disposition *(hexis);* at the next highest level of organization it is found in plants as nature *(phusis)*. In animals *pneuma* appears as soul *(psychê),* and in rational animals it appears as reason *(logos)*. As *hexis* it holds an object together and gives it unity and its basic physical characteristics. This is a function of *pneuma,* which is also found in plants, though in them *pneuma* also creates powers of growth, nutrition, and reproduction. Clearly the lower functions are subsumed in the higher, and this is

continued all the way up this *scala naturae*. Because the higher powers subsumed the lower ones, all entities remained satisfactorily unified in Stoic physics.

Interesting results begin to appear at the highest level of description, the cosmos itself. For *since pneuma* is the organizing power of Zeus in the world, it is not out of place to describe the world as a single entity unified by the same *pneuma* which explains the objects which form parts of the whole. If there is one *pneuma,* then the world is one object. Evidently it is alive—at least as much as plants are. So it is proper to describe the world as being or having a nature. Indeed, Stoics often identified the world and god with nature.[31] But it also lives as animals do. For how else could it produce and contain animals? So it has a soul and is a living animal—just as Plato held when he described a world soul in his *Timaeus*. But it is also rational, being governed by and identical with Zeus, evidently run according to a well-organized and providential plan, a plan of the sort so admired by Aratus. But if that is so, then the world is a rational animal, and an immortal one as well. Indeed, it is a god, the very Zeus whom Aratus hymned in his *Phaenomena*.

But if on this cosmic level of description the world is a single thing, then everything else, no matter how unified it might be on its own, is but a part of the whole. And yet human beings have the same rationality as Zeus. Are we not, then, as Seneca said with typical terseness (*Letters on Ethics* 92. 30), his allies as well as his parts? It follows, at least for a Stoic, that in looking at the place of human beings in the world as described by Stoic physics one must always use bifocal spectacles, considering human beings under both descriptions, both as separate entities and as parts of a larger and more fully rational whole.

The cosmos which is organized by Zeus runs on strictly causal principles. That is only natural, since the basic manifestation of Zeus' power in the world is through the causal power operating in every thing. To be caused by an organized and structured power like Zeus is to be explicable; the Stoic cosmos, then, is in principle fully determined. There is, in the Stoic view, a cause for every event in the history of the cosmos, without exception. Any other state of affairs would jeopardize its rational comprehensibility. At least from the time of Chrysippus, and possibly from the foundation of the school,[32] Stoics held that fate consisted in the causal determination of each and every event in the history of the cosmos. Nothing corporeal could escape the nexus of cause and effect, and nothing incorporeal can have effects or be caused.

Stoic determinism is grounded in their logic as well as their physics. Diodorus Cronus had forced the issue with his Master Argument.[33] Chrysippus, whose strong support of the principle of bivalence even for future-tense propositions[34] already committed him to a form of determinism which we would regard as merely logical, evidently had to find a compromise between fate and moral responsibility as we normally

understand it. The solution he came to is a compromise, perhaps one that neither determinists nor libertarians would welcome.[35] Human actions, for which we are normally held to be responsible, are explained in terms of their causes, which are twofold. There is an external stimulus to act (a presentation) and an internal state of character or moral temperament. Actions occur when the conjunction of these two factors causes an assent, which is in turn the cause of the action. Thus no human action is uncaused and determinism is preserved; but the causal chain necessarily runs through the character of and events in the soul of the agent, so that there is a reasonable basis for holding the agent responsible for his or her actions. Chrysippus attempted to argue that this kind of causation did not *necessitate* human action (Cicero *De Fato* 41–3), and in so doing made use of a complex theory of different kinds of causes; but in the end the important point is that human action is fully determined by the nexus of cause and effect and that nevertheless it is perfectly reasonable to hold agents responsible for their behaviour. The Stoics aimed to avoid the kind of fresh starts and breaks in causal sequence associated with Epicurean and Aristotelian theory, and to defend the meaningfulness of our habits of praise and blame. To judge the success or failure of this endeavour requires of the modern reader a clear sense of his or her own philosophical position.

5
ETHICS AND THE FRUITS OF PHILOSOPHY

Logic is the wall around the garden; physics is the soil and the trees; ethics is the fruit growing on those trees. Ethics is the part of philosophy which justifies its claim to be an *ars vivendi,* a craft concerned with how to live. In ancient thought, a craft is characterized by at least three features: it will be based on a body of knowledge; it will consist in a stable disposition of the craftsman; and it will have a function and goal. Ethics is based fundamentally on a knowledge of the nature of the cosmos and man's place in it and, more particularly, of the value of things. The disposition of the agent is his or her character, ideally virtue. And the goal of the art of living is 'happiness', *eudaimonia.*[36]

Most ancient ethical theories work from the assumption, best articulated by Aristotle (*Nicomachean Ethics* 1095a14–20; note the striking anticipation by Plato, *Symposium* 205a), that everyone agrees that *eudaimonia* is the goal of life, the major dispute being about what happiness consists in. Some might say that it consists in a life of physical pleasures, others in a life of political power or social prominence; others might think that complete happiness lies in a life characterized by an abundance of intellectual endeavour and achievement, or in a life of selfless devotion to the welfare of others. In each case, the conception of happiness

adopted would affect one's whole life, serving as a reference point for actions and decisions.

Zeno's characterization of this goal of life was simple. 'Zeno first, in his book *On the nature of man,* said that the goal was to live in agreement with nature, which is to live according to virtue' (DL 7.87). Another source gives us a more nuanced picture of development and clarification in the school:

> Zeno defined the goal thus: to live in agreement, i.e., to live according to one harmonious *logos,* since those who live inconsistently are unhappy. His followers refined the definition and proposed the following: to live in accordance with nature, supposing that Zeno's formulation was a deficient predicate.[37]
>
> (Stobaeus *Eclogae* 2.75.11–2.76.3)

Our source goes on to credit Cleanthes with the refinement and to report at length on the different formulations of the goal given by later Stoics from Chrysippus ('to live in accordance with experience of what happens by nature') to Antipater. The significance of the differing formulations lies partially in Stoics' attempts to defend their view against Academic criticism. The main point throughout the school's development is clear, though. The goal, the basic reference point for human life, is nature.[38] And nature clearly guides us to virtue as the exclusive[39] source of the happiness which constitutes the fulfilment of human life.

Nature guides human beings to virtue by processes immanent in us; as Cleanthes said, every human has a natural inclination to virtue (Stobaeus *Eclogae* 2.65.8), and the very conception of good is in some way natural to us (DL 7.53). As soon as we are born (and the Stoics held that we are born in an uncorrupted state) it becomes apparent that we (like all other animals) are committed to the preservation and enhancement of our own selves. This basic commitment is a feature of nature as such, and it is even shared with plants (whose distinctive level of organization is, as we have seen, described as 'nature'). A summary account attempts to show how this fundamental attachment to oneself and one's own nature is related to the claim that virtue is natural to us.

> They say that an animal's first impulse is to preserve itself, because nature made it committed to itself from the beginning, as Chrysippus says in book one of *On Goals,* stating that for every animal its first commitment is to its own constitution and the reflective awareness of this. For it is not reasonable that nature would make an animal alienated from itself, nor having made the animal, to make it neither committed to nor alienated from itself. Therefore, the remaining possibility is to say that having constituted the animal she made it committed to itself. For in this way it repels injurious influences

> and pursues that which is proper to it. The Stoics claim that what some people say is false, viz. that the first impulse of animals is to pleasure.[40] For they say that pleasure is, if anything, a by-product which supervenes when nature itself, on its own, seeks out and acquires what is suitable to the animal's constitution. It is like the condition of thriving animals and plants in top condition. And nature, they say, did not operate differently in the cases of plants and of animals; for it directs the life of plants too, though without impulse and sense-perception, and even in us some processes are plant-like. When, in the case of animals, impulse is added (which they use in the pursuit of things to which they have an affinity), then for them what is natural is governed by what is according to impulse. When reason has been given to rational animals as a more perfect governor, then for them the life according to reason properly becomes what is natural for them. For reason supervenes on impulse as a craftsman.
>
> (DL 7.85–6)

The Stoic commitment to nature emerges here very clearly. It is not just human nature, for (like the Cynics and Epicureans) the Stoics use animals to illustrate the patterns of desire and satisfaction which define the inevitable and undeniable foundation of human excellence and happiness, and in doing so they reveal both the universal immanence and the overall teleology which are key features of their physics. A greater challenge for the Stoics, though, lies in explaining how human beings progress from their initial and apparently animal-like state of concern with self-preservation to a mature and rationally articulated commitment to a rational life as such. To judge from a later Stoic account, in *Letter* 121 of Seneca, the answer must be that as humans mature our constitution develops, so that our commitment to our constitution develops along with it. When our nature becomes fully rational at the age of fourteen, our commitment develops into a desire to preserve and enhance that rationality. Hence the Socratic commitment (see Plato *Crito* 46b, 480 and *Gorgias passim*) to do whatever is dictated by the best argument is grounded by the Stoics in a well-developed theory of human character development. To consider the extreme case: should it turn out that the argument dictates that our own life be sacrificed in the name of rationality, then the commitment to our rational nature will override our commitment to self-preservation. Hence Socrates calmly allowed himself to be executed and the Stoics consistently maintained that a well-thought-out suicide was a reasonable option in extreme circumstances.

It follows for the Stoics that one of the principal jobs of ethics, as a branch of philosophy, is the working out of what reason dictates. The principal reference point for doing so was the Socratic tradition in ethics, especially the version of it that we know through Plato's 'Socratic' dialogues. Perhaps the first Socratic passage to reflect on is *Meno* 77–8,

which appears to establish that the good (in the sense of what one believes to be beneficial to oneself) motivates every agent. 'Benefit' becomes crucial in establishing the difference between what is good, what is bad, and what is indifferent (i.e., neither good nor bad), both for Socrates (*Meno* 87–9, *Gorgias* 467–8, *Euthydemus* 278–82, cf. Xenophon *Memorabilia* 4.6.8) and for the Stoics (DL 7.102–3). The apparent good (as Aristotle termed it) always motivates a rational agent, but obviously if one is wrong about what is beneficial then one will also act incorrectly. On Socratic and Stoic principles, a genuine good is what invariably gives the agent true and lasting benefit. However, few of the goods as conventionally understood provide this: wealth, social standing, even bodily health can all lead to unpleasant results in some circumstances. This was common ground among the Stoics, as even the debate between Aristo of Chios and more conventional Stoics shows (M 11.64–7).[41] In fact, it is argued, there really is nothing except virtue (and, of course, things which participate in virtue) which can be relied on to produce real benefit in every circumstance. Other things are all indifferent to the achievement of happiness, the goal of life.

But such things are not for that reason absolutely indifferent, as are things like the exact number of hairs on one's head. For some things obviously make a positive contribution to the kind of life for which we humans have been designed by nature, while others actively hinder such a life. The former, then, are termed 'preferred' and the latter 'dispreferred' (a typical instance of Stoic neologism): health and prosperity and reputation are preferred because they make a real contribution to a normal human life, while disease and poverty and social disapproval are the opposite (see DL 7.103–5). Nevertheless, the Socratic argument which lies at the heart of Stoic ethics urged that such things, considered on their own, could not make a person happy, that all that mattered is how one uses them. Even disease and death can be handled by a virtuous person in such a way that good will come of it. The key, of course, is virtue. With it, happiness is assured, and without it one is bound to fall short.

The Stoics also followed Socrates in accepting some version of the Socratic thesis of the unity of the virtues, best known from the *Protagoras*. Yet they also adopted the Platonic schematization of the virtues into a canonical set of four distinct virtues (prudence or practical intelligence, courage, justice, temperance or self-control (DL 7.92)), with the others organized as subtypes of these. There was debate within the school over the relationship between these individual virtues and their foundation (which is a form of practical and critical intelligence, properly oriented towards the fulfilment of human nature as part of a larger and rational cosmos). Aristo is identified with the view that there really is in the human soul only one condition which constitutes virtue, though it is called by different names as it is applied in different circumstances and in the face of different challenges and various human weaknesses. When applied to threatening situations, it is courage, but if we are tempted by pleasures, we call it self-

control, and so forth. Chrysippus, on the other hand, held that each virtue represented a genuinely distinct feature of the state of our souls, but that these distinct virtues are inseparable in fact so that the presence in the soul of one entails the presence of all. As far as we can tell, Zeno's view seems to have been somewhere between these two extremes. But all Stoics seem at least to have held that the virtues are inseparable and that they are based on *knowledge* of what is good, what is bad, and what is indifferent, a knowledge which is a fully habituated state of the agent's soul.

Virtue, then, depends in large measure on knowing the value of things. The awareness that things like health are preferable but not good (in the relevant technical sense—for Chrysippus sensibly allowed the normal and looser meaning of 'good' as well) will affect the way an agent acts (see Plutarch *Stoic Self-contradictions* 1035cd and 1048a) For the Stoics (again, starting with Zeno) distinguished clearly between actions which are appropriate and reasonable for humans to do and those which are also virtuous. Appropriate actions *(kathêkonta)* are defined as those which 'when done admit of a reasonable justification' (LS 59B) (and the reasonableness can be relativized to the nature of the agent). Thus animals, too, can carry out appropriate 'actions'. In contrast, actions which are appropriate and in addition flow from the virtuous disposition of an agent are described as 'right actions' *(katorthômata)*. The distinction between appropriate and right actions is crucial for an understanding of how Stoic theories about the value of things and the goal of life were meant to be put into practice.

Appropriate actions are described at two levels of generality. Sometimes our sources describe general types of action as being appropriate for humans, such as taking care of one's health, earning a living, attending to one's family, engaging in political activity; the opposites of such actions are stigmatized as inappropriate; other types of action are classed as neither appropriate nor inappropriate, such as holding a pen or picking up a stick. Yet in concrete circumstances any of these actions can in fact become the appropriate thing to do. Stoic interest naturally centred on actions which in general are inappropriate or irrational (such as maiming oneself) but on some occasion, as a result of peculiar circumstances, turn out to be the reasonable thing to do; they are labelled 'appropriate in the circumstances'. The justification which lies behind the general prescriptions for appropriate actions is often easy to intuit; what is less clear from our sources (except late ones, like Cicero's *De Officiis* and Seneca's *De Beneficiis*) is the kind of moral reasoning which the Stoics recommended as a way of determining the best and most justifiable action in a given circumstance. Yet it is clear that the Stoics did regard this as a matter of reasoning, for one standard characterization of appropriate actions is 'what reason constrains us to do' (DL 7.108)—interestingly, this is exactly the phrase used by Plato's Socrates to describe his own commitment to reasoning out the best thing to do in a given circumstance.

Reasoning about what to do and what not to do is extraordinarily difficult for humans, in view of our relative ignorance and fallibility, especially about the future. (Overcoming this, to the best of our abilities, is one of the main applications of logic and physics.) Another later Stoic, Epictetus (who worked in the late first century AD), preserves Chrysippus' reflections on the problem:

> as long as it is unclear to me what comes next, I always cling to what is naturally more suited for getting what accords with nature; for god himself made me prone to choose things. But if I really did know that it is now fated for me to be sick, then I would even pursue that.
>
> (Epictetus *Discourses* 2.6.9–10)

Even illness, then, and death can be the objects of rational choice, *if* one has a clear enough view about the plan worked out for oneself by the providential order of the world; but normally one does not, so that normal prudence guides the vast majority of our actions. Only when it is clear that fate is drawing us on to some definite outcome do we abandon that endeavour and follow fate, knowing of course that it is all for the best in the larger cosmic pattern.

But appropriate actions are only the foundation of morality. No action, however reasonable and well justified, is *right* unless it is done from a virtuous disposition. This, of course, is the principal difference between appropriate and right actions, and in considering right actions it is crucial to recall that they are defined as a subset of appropriate actions: they are 'perfect' or 'complete' appropriate actions. Even the genuinely virtuous person, who is wise and perhaps as rare as the mythical phoenix, needs to figure out the appropriate thing to do, and there is no reason to believe that this process is any different for the person of virtue than it is for the ordinary person making moral progress.[42] It is difficult to determine in detail how the possession of virtue changes each action. Our sources seem to emphasize the completeness of a right action (it covers all the 'aspects') and the firmness of the moral disposition which produces the action (Ecl. 5. 906.18–5.907.5=LS 59 I). The nature of the motivation (knowing that what is done is done for its own sake) may also have been important. The crucial points, though, are that only a completely virtuous person can perform a right action, and that only the wise man has virtue. The rest of mankind are, strictly speaking, fools and full of vice.

Much of Stoic ethical writing, then, focused on fools—Panaetius, in the second century BC, made a point of emphasizing this aspect of Stoic ethics (see Seneca *Letter* 116.5), but he was certainly not alone in this. In all periods of the school's long history Stoics wrote about appropriate actions at least as much as they did about virtue and the sage. Their appeal lay not just in the clear and uncompromising conception of virtue and right action; it lay also in the emphasis they placed on moral progress and the writings

they devoted to promoting it. Perhaps the most important aspect of their campaign to promote virtue is their focus on the passions. For here, though it is clear that their theory of the passions (such as pleasure, pain, fear, and desire) was based on their rigorous conception of the good and virtue, the recommendations they made for fighting against such passions were calculated to work even for those who had not and would not attain wisdom and complete virtue.

The Stoics' theory of passions is based on their analysis of the human soul; the key position is one on which they disagreed with both Plato and Aristotle, though they no doubt thought they were in the spirit of Socratic intellectualism: they rejected any fundamental difference between cognitive and affective parts or functions of the soul, maintaining that every function of the soul has both a cognitive and an affective aspect and that the cognitive aspect is the causally important one. Within this framework, they defined a passion as an irrational and excessive movement in the soul.[43] It is treated as a cognitively determined event in the soul—either identical with or the inescapable result of an assent to a seriously incorrect proposition about the value of things. It is when one judges that (for example) the death of one's sister is bad (and not just dispreferred) or that wealth is good (and not just preferred) that one falls into the kind of overreaction which constitutes a passion—in these cases grief and desire. Ideally all such mistakes would be avoided; that would lead to freedom from passion or *apatheia*—a mental condition far from that connoted by our word 'apathy'.

The Stoic view seems to be that confusion about the kind of value things have lies at the heart of our tendency to unhealthy emotional reactions. These reactions are wrong not because they engender subjectively unpleasant feelings (in fact, some of them are quite enjoyable—pleasure is an irrational 'uplift' in the soul), but because they invariably produce inconsistency and vacillation, cloud our judgement, over-commit us to certain short-term courses of action and feeling, and block our normal rational concern with longer-term planning. Passions are also wrong because they routinely put us into conflict with the naturally and providentially ordained course of events—this is one of the senses of irrationality captured in the definition—and deprive us of the adaptability which any rational agent must have to survive and prosper in a determined but unpredictable world.

The ideal state of mind, then, is not the absolutely unfeeling condition suggested by our term 'stoical', but an affective life characterized by stable and healthy emotional reactions to events. But how does one get to this condition? What is the cure for passions? Obviously, to get straight about values, to learn the difference between what is really good or bad and what is merely preferred or dispreferred. For Stoics, who did not think that there was a distinct emotive part of the soul, this ought, in principle, to be the proper cure, and this was apparently promoted by Cleanthes as the only

cure for such mental confusion. But although this accords well with the school's intellectualist philosophy of mind, its impracticality will be immediately obvious to anyone actually counselling a friend in the grip of a strong passion. The practicality of the school's approach to ethics is confirmed by Chrysippus' improvement on this (Cicero *Tusculan Disputations* 3.76): he thought that the starting point would have to be to convince the patient (for the Stoics made extensive use of the medical metaphor in discussing passions) that it was not reasonable or right to overreact to one's feelings, and to leave until later the fundamental issue of the nature of good, bad, and indifferent.

6
CONCLUSION

The guiding ideas of Stoicism throughout its history are nature and reason. Though much changed in the school over its history (Stoicism avoided the static character of Epicureanism as well as the extraordinary variability seen in the Platonic tradition), the centrality of these notions never varied. Nature, whether on a large or a small scale, is rational and reasonable, and so at heart is every human being. Hence, they thought, we fit into nature not as merely physical objects, but as rational animals. Perhaps they saw themselves as having found the ideal middle ground between two tempting positions: the notion that man's rationality puts him fundamentally at odds with the physical world; and the idea, represented by other materialists in the ancient world, that we are our physical selves and nothing more. The bold claim made by the Stoics was that the natural and the rational are in the final analysis identical, and that human beings can only find themselves by looking to nature, to the orderly, purposive, and explicable whole of which they are privileged parts.

7
DEVELOPMENT IN THE SCHOOL

In this discussion I have treated Stoicism as a single whole, with considerable emphasis on the early stages which determined its basic character. There were, of course, significant developments over its nearly 500–year history. But I believe, although this is a controversial claim, that the differences and developments which one can detect and document are on matters of detail. Here and there we find doubts about the literal truth of the idea of conflagration or cosmic recurrence, strong Platonic sympathies in psychology, or Aristotelian leanings in natural philosophy (these last two items associated with Posidonius, perhaps the most innovative of later Stoics). Certainly each Stoic writer was a unique individual, so that there are real differences of outlook among a 'professional' philosopher like Chrysippus, a court adviser like Seneca, an ex-slave like Epictetus, and a

Roman emperor like Marcus Aurelius Antoninus. But because the central ideas of the school were shared by all (and because Stoicism never asked that its adherents follow blindly a canonical version of its tenets), an account of the divergences and developments in the school's history would require a degree of detail incompatible with the limits of a chapter like this one. On these matters, as on many others, the interested reader will have to find his or her own way with the assistance of some supplementary reading (listed in the bibliography).

ABBREVIATIONS

Sources frequently quoted are abbreviated as follows:
DL Diogenes Laertius, *Lives of the Philosophers* [7.6]
Ecl. John Stobaeus, *Eclogae* [7.7]
FDS Hulser, K., *Die Fragmente zur Dialektik der Stoiker* [7.1]
LS Long, A.A. and Sedley, D.N., *The Hellenistic Philosophers* [6.3]
SVF Arnim, H.von, *Stoicorum veterum fragmenta* [7.2]

NOTES

1 I would like to thank the Social Sciences and Humanities Research Council of Canada for a subvention which contributed to the writing of this chapter.
2 Themistius (*FDS* 101) points to the *Apology of Socrates* (presumably Plato's) as influential; but we have no idea what evidence he relied on.
3 It would be interesting to know which part of book 2 was supposed to have had this effect on young Zeno. Perhaps it was the allegory of Heracles and virtue in 2.1.21 ff.
4 There is considerable controversy about how much influence Aristotelian ideas had on Zeno and other early Stoics. If—and this is to my mind an open question—we can believe the stories about the disappearance of Aristotle's library when Theophrastus died, then any influence of the Peripatos on Stoicism was most likely to have occurred in the 25 years during which Zeno was at Athens and Theophrastus led the Peripatos. While Theophrastus lived, the library was surely available to those who were interested; and if Zeno never formally studied with him, his younger contemporary, the Academic Arcesilaus, certainly did, and his critical attacks certainly shaped Stoic thinking on a number of issues. I suspect, however, that Aristotelian books and ideas were pretty generally available to serious philosophers in Athens throughout the Hellenistic period, and that their influence was a significant factor in the development of Stoic thinking. See, however, F.H.Sandbach [7.20].
5 The comparison of philosophy to a 'city, beautifully fortified and administered according to reason' does not tell us much about the partitioning of philosophy.
6 There is an excellent discussion of Stoic dialectic by A.A.Long, 'Dialectic and the Stoic sage' in Rist [7.17].

7 Or rather, at least two. Some Stoics also included as distinct branches of logic the study of definitions and a form of epistemology. See DL 7.41.
8 The best general discussion of Stoic rhetoric and its relation to dialectic is by Catherine Atherton, 'Hand over fist: the failure of Stoic rhetoric', *Classical Quarterly* 38 (1988), 392–427.
9 It is hard to be sure how much of this material would be treated under dialectic and how much under physics. But it is clear that dialectic was meant to include at least partial coverage of these themes.
10 Our traditional grammatical categories for the parts of speech are obviously related to these, but there are differences. Note, for example, the absence of 'adverb' in this classification. The Stoics built on earlier and cruder analyses; professional grammarians, in Greek and Latin (and then in vernacular languages during the Renaissance and after) expanded and refined the theory. One feature of interest is the Stoic distinction between name and common noun: in DL 7.58 the difference is expressed in metaphysical rather than grammatical terms (names indicate individual quality and common nouns indicate common quality), despite the fact that the parts of speech are discussed under the heading of 'utterance'.
11 The best discussion of these issues is by Michael Frede, 'The principles of Stoic grammar' in Rist [7.17].
12 One other feature of this creative period is the debate over 'analogy' and 'anomaly' in the analysis of the workings of language. This is too large a topic to develop here, but it clearly turned in part on the Stoics' views about etymology and word derivation. Here again one might best treat this as a moment in the history of linguistics, but for the Stoics the questions were essentially philosophical ones: nothing which dealt with *logos* and its relation to reality could be treated as anything but philosophical.
13 DL 7.40, Sextus M 7.19. Sextus gives a reason for this order further on in the passage. In M 7.23 he notes that physics comes last because it is more 'divine' and intellectually demanding. In DL the Posidonian view is not attributed to him by name, and reverses the positions of physics and ethics, making physics the analogue of the soul. This is either a confusion in DL or further evidence of the variety of positions taken on this question.
14 In Rist [7.17]. This is a splendid overview of Stoic logic, from the perspective of formal logic. See also Mates [7.16].
15 Their views on determinism are worked out in part through reaction to Diodorus Cronus' so-called Master Argument, which is closely linked to his own understanding of the conditional.
16 One might also note the use of the negated conjunction in formulating *sôritês* arguments (DL 7.82).
17 See Plutarch *Stoic Self-contradictions* chs 8–9, DL 7.182–4.
18 Epicureanism also moved sharply in the direction of well formulated empiricism at about the same time. The philosophical climate obviously inclined in this direction, and this was not just a result of Aristotle's influence. But it is precisely in epistemology and philosophical psychology that our sources present Stoic ideas in a form most closely related to Aristotle's.
19 Either literally an impression or figuratively. Chrysippus held that by impression Zeno meant 'alteration'; see DL 7.50; M 7.227–31, 7.372–73.

This improved the theory and protected it from some criticisms. But the main thrust of Academic attack is not diverted by this clarification.

20 Basic evidence and clear philosophical discussion can be found in LS [7.3] 39–41.

21 The *Hymn to Zeus* is extant (see LS [7.3] 541), and there are short quotations from other poems.

22 The Stoics distinguished two types of fire: terrestrial fire, which was destructive, and 'craftsmanlike fire' which played a creative role in cosmogony. The latter was identified with the fire of the heavenly bodies and the animal heat which sustains life. They did not, therefore, follow Aristotle in postulating a fifth kind of element for the heavenly bodies. Another difference between Aristotle and the Stoics is that Aristotle described his elements in terms of *two* of the basic qualities (hot, cold, wet, dry) and an underlying substrate while the Stoics only posited *one* basic quality for each element.

23 DL 7.148. This is the orthodox view; note that Boethus, a later Stoic, wanted to restrict god's substance to the sphere of the fixed stars.

24 See Long and Sedley [7.3], commentary on §45. For discussion of the nature and philosophical motivation of Stoic corporealism, see LS §§27–30, and J. Brunschwig in [7.10] 19–127.

25 The exceptions to this corporealism are few: void, place, time, and *lekta*. Souls, however, are bodily (though made of a very different stuff from the body). Certain problems are created by this doctrine for Stoic philosophy of mind, since intelligible contents (for example *lekta*) are incorporeal; yet to hold that the content of our thoughts has no causal influence on the actions of our bodies is most strange. The Stoics had no trouble with the notion that souls influenced bodies; but how, one must ask them, can thought contents be related to the physical events in our souls? Limitations of space preclude a discussion of the important Stoic analyses of time and of spatial concepts.

26 It is in the Hellenistic period, and in particular in Stoicism, that the notion of cause began to narrow towards the idea of active causation which we most often use. See M.Frede, 'The Original Notion of Cause' in [7.22], 217–49.

27 Air and fire are described as the sustaining elements, being the locus of the cold and the hot; *pneuma* is made up of them.

28 It has been suspected that the Stoic emphasis *on pneuma* had its roots in Aristotle's later work on animal psychology. The *De motu animalium gives pneuma* a prominent role in bridging the gap between soul and body in explanations of animal action. It also had a special role in explanations of reproduction. The Stoics also share with Aristotle (against Plato) the view that the central and cognitive functions of the soul are carried out in the heart. But it is worth noting *that pneuma* was generally important in Hellenistic biology, and that the Stoic development of a corporeal account of the perceptual and motor systems, based on *pneuma* and with the heart at the centre of activity, parallels the empirical results generated by contemporary medical scientists in Alexandria, at least some of whom practised dissection. The medical discovery of the arterial system seems to have been particularly important for supporters of the heart-centred model of soul.

29 One interesting problem which bulks surprisingly large in our sources for Stoicism arises from this theory. If *pneuma* is a physical stuff and what it organizes is a physical stuff, then how are we to describe the mixture of them? The Stoics described the mixture as 'complete' *(di' holou)* and they compared it to the mixture between fire and iron in a piece of red-hot iron.
30 More evidence is gathered and discussed in chapter 2 of my *Ethics and Human Action in Early Stoicism* [7.14].
31 The standard Stoic definition of nature was: 'a craftsmanlike fire proceeding methodically to generation' (DL 7.156).
32 Long and Sedley ([7.3] 1, 392) argue that neither Zeno nor Cleanthes adopted the all-inclusive causal understanding of fate which Chrysippus embraced and hence that they did not share his need to reconcile fate with moral responsibility.
33 He seems to have argued that the following three propositions are incompatible: (1) everything past and true is necessary; (2) something impossible does not follow from something possible; (3) there is something possible which neither is nor will be true. Diodorus himself rejected (3) and so supported his own definition of the possible as 'what either is or will be true'; Cleanthes rejected (1); Chrysippus, somewhat implausibly, denied (2). See Long and Sedley [7.3] §38.
34 Contrary to the view taken by Aristotle, *De Interpretatione* 19.
35 The literature on this problem is enormous. See, for example, Charlotte Stough, 'Stoic determinism and moral responsibility', ch. 9 in Rist [7.18]; A.A.Long, 'Freedom and determinism in the Stoic theory of human action', ch. 8 in his *Problems in Stoicism;* and various chapters of Richard Sorabji's *Necessity, Cause, and Blame* [1.80]. In the ancient world, the Aristotelian commentator Alexander of Aphrodisias gives the most effective and sustained argument against the Stoic view in his *De Fato*.
36 'Happiness' is a notoriously unsatisfactory translation for the Greek term, but I will retain the traditional term for the sake of simplicity and familiarity. It should be understood throughout as a term of art.
37 This phrase is a technical term in the analysis of *lekta,* indicating that the verbal expression was elliptical and needed to be completed by a noun in an oblique case, viz. 'with nature'.
38 As to the sense of nature being invoked, Chrysippus held that the 'nature, in consistency with which we must live [is]…both the common and, specifically, the human nature. Cleanthes includes only the common nature, with which one must be consistent, and not the individual' (DL 7.89). Why Cleanthes took this view is not clear. But since humans are parts of universal nature, the difference between the two heads of the school was probably only one of emphasis.
39 Notoriously, the Stoics held that virtue is not just necessary but also sufficient for happiness. Peripatetics argued against this position, as did the Academic Antiochus of Ascalon. But it remained official school doctrine until the end.
40 This is a criticism of the Epicurean argument in favour of hedonism. For discussion of these arguments, see J.Brunschwig, 'The cradle argument in Epicureanism and Stoicism', ch. 5 in [6.7].

41 Aristo argued that there could be no meaningful distinction among things, except that between virtue and vice. Mainstream Stoics disagreed. The debate is an important one, but here I limit myself to a presentation of the mainstream Stoic doctrine.
42 See G.B.Kerferd, 'What does the wise man know?', in Rist [7.18].
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CHAPTER 8
The sceptics
Michael Frede

INTRODUCTION

When we speak of 'scepticism' and of 'sceptics', we primarily think of a philosophical position according to which nothing is known for certain, or even nothing can be known for certain. There are certain ways in which we go about things when we try to find out the truth about something or other. But these ways at best are such that, in following them, we come to believe something which actually is true, but they are never such that what we come to believe, given the way we came to believe it, is guaranteed to be true. Hence, we never know for certain whether what we come to believe to be true actually is true. We perhaps hope that it is, or even are confident that it is, but it might be not.

This, though, is not what those ancients who called themselves 'sceptics' *(skeptikoi)* for the most part meant by 'scepticism'. To the contrary, the very term 'sceptic', at least sometimes, was meant to suggest, among other things, that a sceptic is not going to claim that nothing can be known. *'Skepsis'* is a word which in Greek ordinarily was used to refer to one's looking at or considering or reflecting on something. But it also came to be used to refer to one's inquiry into a matter, and thus became, along with *'zêtêsis',* a term to refer to any kind of inquiry, but in particular the kind of methodical inquiry philosophers and scientists are engaged in. And it surely is no accident that ancient sceptics not only were called, or called themselves, 'sceptics', but also 'zetetics' (DL IX, 69; *Pyrrh.* I, 7). Given the formation of the words, a sceptic or zetetic should be a person who is prone or inclined to inquire into things, or shows particular ability or persistence in doing so. So a sceptic should be somebody who is not going to content himself with any conclusion, until the inquiry has run its full course and all possibilities have been explored. As Sextus Empiricus, himself a sceptic, tells us at the end of the second century AD in his introduction to scepticism, the *Outlines of Pyrrhonism,* we talk of 'scepticism', because sceptics inquire (*Pyrrh.* I, 7). We would like to know why the sceptics think of themselves as inquisitive in a way which singles them out. Sextus begins his account of scepticism (*Pyrrh.* I, 1–4) explaining

precisely this. He says that of those inquiring into something, there are (1) those who at some point think they have found the answer; there are (2) those who give up the inquiry, claiming that the question or problem cannot be resolved; but there are (3) also those who think that the question so far has not been resolved, and thus go on inquiring. The suggestion is that both the first and the second group, each in their own way, give up on the inquiry, before it has come to an end. The first group of inquirers are so eager to have an answer to the question that they jump to a conclusion, though it is not warranted by the inquiry so far. The second group of inquirers similarly terminate the inquiry, before it has come to an end, with a rash verdict, namely the verdict that the matter cannot be resolved, though not everything that could perhaps be said about the matter has been taken into consideration. It is only the third group of inquirers who insist, like the second group, that the matter has not yet been resolved, but also insist that not all possibilities to resolve it have yet been explored and that hence any final verdict is out of place.

Many interpreters do not take this self-characterization of the sceptic seriously; they might even regard it as disingenuous. For, according to these interpreters, the sceptic surely must believe, whatever he says, that no question can be resolved, that the truth cannot be known; and hence it is disingenuous of the sceptic to claim that he continues to look for an answer to the questions which have arisen or arise. But this criticism seems to be guided by an unjustified preconception of what a sceptic is; it fails to take into account the fact that the sceptic is quite right in insisting that, though at any point in our inquiry we may be able to say that the question has not been resolved, there seems to be no point in our inquiry at which we can say that it cannot be resolved, given that we have not considered everything which could be brought to bear on the issue. So the sceptic perhaps thinks that no question has been resolved so far. And he may have little expectation that any questions will be resolved. But it is a big step to go beyond this to claim that no question can be resolved. And, as we will see, there is a further consideration which will possibly discourage a sceptic from taking this step.

In any case, Sextus identifies the three kinds of inquirers as (1) the dogmatics, properly so called, those who believe that they have found the answers to at least some questions, for instance the Peripatetics, or Epicureans, or Stoics; (2) the Academics, who believe that the questions one inquires into cannot be resolved, that the truth cannot be grasped or known (they are dogmatic in a wider sense in that they at least claim that nothing can be known for certain); (3) the Pyrrhoneans, who will claim no such thing, but will go on with the inquiry. So at least Pyrrhonean sceptics reject any suggestion that they claim that nothing can be known for certain.

But we also have to take into account that Pyrrhoneans in general, and hence also Sextus, have some difficulty in justifying their own existence by

claiming that their position is radically different from that of the Academics. As we will see, Pyrrhonean scepticism, the kind of scepticism Sextus Empiricus is an exponent of, arose as a reaction against the particular form Academic scepticism had taken in the first century BC. At that time Academics claimed that nothing can be known for certain, as we can see from Cicero's *Academica*. And it was in part for this reason, as we can see from Photius' report (*Bibliotheca* c. 212, 169b 38 ff.), that Aenesidemus, the founder of Pyrrhonean scepticism, rejected the Academic scepticism of his time. But we can also see that this had not always been the position of Academic sceptics, and that Sextus himself is aware of this (cf., for example, *Pyrrh*. I, 226; 232). So, both Pyrrhoneans and Academics down to a certain time refused to claim that nothing can be known for certain.

It is also easy to see why they would refuse to make such a claim. If the way we come to believe something is questionable in that there is no guarantee that, given the way we have come to have this belief, the belief is true, because at any point on the way we may have taken the wrong turn, then our having taken this way not only does not guarantee that our belief is true and hence allows us to claim that we know, it does not even provide any justification for just having the belief. In any case, the argument of the Pyrrhoneans and the early Academics, like Arcesilaus, is that for any reason you offer in support of your belief to justify it, there is a reason to the contrary to undermine your justification, and thus your belief is unjustified, even if it should happen to be true. Thus Pyrrhoneans and early Academics not only do not claim that nothing can be known, they do not make any claims whatsoever. They do not make any claims whatsoever because they think that the questions that these claims purport to answer have not been settled, and that, short of settling them, one has no justification for any claim as to how they should be answered. Hence sceptics in antiquity also are called 'aporetics' (DL IX, 69; cf. *Pyrrh*. I.7) and 'ephectics' (ibid.). However far we have got in an inquiry, as long as the question is not settled, they are at a loss as to how to answer the question. And hence they suspend judgement, refrain from taking a position on the matter. Now, there is also a question as to whether anything can be known for certain or not. Hence it would be curious, if sceptics who refused not only to assume that any question was definitively settled, but even to assume that one could take any position on a question which was not settled, of all questions would make an exception for this question, and claim that nothing can be known for certain. They not only do not believe that they know that nothing could be known for certain, they do not even take any kind of a position on this question, so as to claim that nothing can be known. This, then, is the standard understanding of scepticism in antiquity.

Nevertheless, it is easy to see, at least in broad outline, how the term 'scepticism' came to be understood in the way it standardly is

understood nowadays. There were, towards the end of the history of Academic scepticism, sceptics who did claim that nothing can be known for certain, and who, quite generally, were ready to espouse beliefs or opinions, provided it be understood that they did not know for certain that these beliefs are true. It was these Academics who prompted Aenesidemus to restore scepticism in the form of Pyrrhonean scepticism. But this late form of Academic scepticism which is attacked by Aenesidemus is represented in Cicero's *Academica*. In fact, it is the form of Academic scepticism espoused by Cicero himself. It also is the form of scepticism attacked by Augustine in his 'Contra Academicos'. And given the enormous authority and influence both Cicero and Augustine had, it is not surprising that it was this position which came to be associated with the term 'scepticism'; and this all the more so, as the rivalling view that a sceptic should not even have any belief as to the answer to the questions which arise, plausibly seemed so untenable, given the needs of ordinary life.

Hence, to study ancient scepticism in its own historical setting, we will have to consider Academic scepticism and Pyrrhonean scepticism, even if most of these sceptics in their scepticism were not even prepared to commit themselves to the claim that nothing can be known. But, we first of all will have to have at least a brief look also at some earlier philosophers, especially given that the Academics themselves appealed to them as their precursors. And we will also, before we can turn to Academic scepticism, have to look at a philosopher in the generation before Arcesilaus who was some sort of sceptic, namely Pyrrho. We will have to do this not just because Pyrrho is a figure of considerable interest in his own right in the history of scepticism understood in a broader sense. His position also is relevant, because, though Arcesilaus himself did not appeal to Pyrrho as a precursor, already some of Arcesilaus' contemporaries believed they could claim or suggest that there are important similarities between Pyrrho's and Arcesilaus' position (DL IV, 33). Moreover, when Aenesidemus in the first century BC tried to revive a more radical scepticism, he at least claimed to be articulating a position which went back to Pyrrho. Hence scholars for a long time were quite prepared to believe that Pyrrho had been at least a proto-Pyrrhonist. And, to the extent that one was prepared to believe this, it also was difficult to resist the temptation to believe that the striking similarities between Pyrrhonean scepticism and Arcesilaus' position, which Sextus Empiricus himself acknowledges (*Pyrrh*. I, 232), were in part due to Pyrrho's influence on Arcesilaus.

ARCESILAUS' PRECURSORS

Arcesilaus obviously felt that he somehow had to explain why it should be thought to be appropriate that he, given his radical scepticism, should be the scholarch of Plato's Academy, the guardian of the venerable tradition

going back to Plato and beyond to Socrates. It is reasonably clear that Arcesilaus did make an effort to explain in which way his work was in the best tradition of the Academy. We will discuss this, when we come to deal with Arcesilaus in detail. But it also seems that even without the efforts of Arcesilaus himself, at least later Academics tried to explain that Arcesilaus' scepticism could rely on a tradition of sceptical thought going back to philosophers from Xenophanes to Metrodorus of Chius (cf. Cicero, *Ac. Post.* I, 44; *Ac. Pr.* II, 13 ff.; 72 ff.). And, indeed, we find enough evidence for some form of scepticism or other in the modern sense of the term among these earlier philosophers, that Sextus Empiricus, possibly partly in light of such Academic claims, thinks it necessary to argue, for instance, that Democriteanism should not be confused with scepticism (*Pyrrh.* I, 213 ff.). Such appeals to Presocratic predecessors, of course, are easier to understand if they come from later Academics who did believe that nothing can be known for certain, rather than from Arcesilaus, who would have had to argue that these philosophers had taken a first step in the direction of scepticism, but had failed to take the further step or further steps, just as he is supposed to have claimed to have gone a step beyond Socrates in not even allowing himself to say that he knows that he knows nothing (*Ac. Post.* I, 45).

It is easy to see why sooner or later doubts would arise about the possibility of knowledge, if not of any knowledge whatsoever, then at least of any knowledge which went beyond the trivial and which for that very reason one might aspire to, a deeper knowledge and understanding of why the world works the way it does. I do not have the space to consider how these doubts actually arose, for instance with Xenophanes (cf. DK B18; B34) or Alcmaeon (cf. DK B1). Such doubts were unavoidable, once Parmenides had claimed that reality is not at all as it appears to us in perception and as, on the basis of this, we think about it. For, according to Parmenides, thought shows that there is no motion, no change, no coming-into-being, no plurality, no diversity. So the senses are utterly unreliable, and hence also all belief based on observation. But, one had to ask, why should we believe that reason can be relied upon? The problem became acute with Democritus. Democritus thought (cf. Aristotle, *De generatione et corruptione* 325a 23 ff.) that in order to explain why, if reality is so different from what it appears to be, it nevertheless appears in the way it does, one at least has to assume that there is motion. So he assumed that in reality there are just atoms moving in a void, and that everything else, including colours and tastes, are just a matter of belief and convention (DK 69). But in saying this Democritus makes reason rely on the senses, to then in turn reject their judgement. For the only reason we have for saying that in reality there are many atoms moving, is that we perceive a changing manifold. So Democritus (DK B125) lets the senses complain, 'you wretched mind, you first take the evidence we offer and then overthrow us. But our overthrow is your downfall.' For, if we cannot trust the senses

beyond their suggestion that we are dealing with a changing manifold, atoms moving in a void, we will never know in any particular case what we are dealing with, except atoms in the void (DK B6, 7, 8, 9, 10). And even this is questionable, as it relies on our perception of a changing manifold.

It is clear that Democritus must have used language like 'a thing is no more sweet than it is bitter' (cf. DK B156). Given what we have said, this should mean that in reality it is neither. And this is how Sextus Empiricus interprets this sort of language in Democritus (*Pyrrh.* I, 213). But there was another interpretation, the one Sextus Empiricus rules out. Already Democritus is claiming that, if different beings have conflicting perceptions or beliefs concerning something, one should say that the thing is no more this than that, because either it is neither, or it is utterly unclear which of the two it is. This will become important when we turn to Pyrrho.

Obviously under the influence of Democritus, a generation or two later, Metrodorus of Chius will conclude 'None of us knows anything, not even this whether we know or do not know' (*PE* XIV, 19, 9, DK B 1). Obviously, the addition 'not even this…' already involves a minimal refinement which presupposes some reflection on the bland claim 'none of us knows anything', for instance the kind of reflection we find in *Lucretius* IV, 469 ff. that somebody who believes that nothing is known also must think that this itself is not, or even cannot be, known. More intriguingly, Cicero (*Ac. Pr.* 73), like Eusebius, refers to the beginning of a book by Metrodorus, but then does not quote the remark quoted by Eusebius, but rather what looks like a further comment on the bland statement that we do not know anything. Unfortunately the translation of this comment is controversial, too. But it seems to run like this: I deny, he says, that we know whether we know anything or know nothing; we do not even know what it is not to know or to know; nor do we know whether there is anything or rather nothing. This would suggest that Metrodorus was aware of the possibility that the answer to the question whether anything is known also might depend on what we take knowledge to be. And, most tantalizingly, there might be the thought that there is no reality for us to know, against which the beliefs we have, following appearances in the conventional way, could be measured. If this is what Metrodorus was thinking about, we already have a rather developed state of the question whether anything can be known for certain.

With Metrodorus we also are within a generation or so of Pyrrho. Eusebius, having quoted Metrodorus as saying that we know nothing, not even this, whether we know or not, goes on to say that Metrodorus had prepared the way for Pyrrho (*PE* XIV, 19, 9). And there is no doubt that Pyrrho belongs to the group of philosophers influenced by Democritus that includes, for instance, Anaxarchus of Abdera, of whom Pyrrho is said to have been a student (DL IX, 61) and an associate (for example DL IX, 63).

PYRRHO

Pyrrho lived roughly from 365 to 275 BC. His main philosophical concern was ethical. He seems to have argued that everything was utterly indifferent, neither good nor bad, neither just nor unjust, and to have tried to live a life which dispenses with such value-judgements, but hence also is not burdened by the anxieties such beliefs cause us. His attempt to live such a life gave rise to a number of anecdotes, but the doctrine concerning the absolute indifference of things fell into oblivion, or was just remembered as a curious possible doctrine. In any case, Cicero in the *De finibus* repeatedly (for example V, 23), but also in the *Tusculans* (V, 85), speaks of it as a doctrine which had long been abandoned. It seems to be a fair judgement that Pyrrho would have disappeared almost without a trace from the history of philosophy if there had not been something more to his position, namely a side to it which made him appear to later Pyrrhoneans as their precursor. It is telling that the first thing Diogenes Laertius has to say, when he turns to Pyrrho's philosophy, is that Pyrrho was the first to introduce the idea of the *akatalêpsia* of things, of their unknowability, and of the suspension of judgement. So, supposedly, Pyrrho did not just say that nothing can be known, he also took the further step, crucial for the standard understanding of scepticism in antiquity, that the appropriate moral to draw from this is not just that our beliefs are mere opinions, but that one should suspend judgement altogether and have no beliefs.

But we have to proceed with utmost caution. Pyrrho himself did not leave any philosophical writings. There are anecdotes about him, some of them early, for instance those which were drawn from Antigonus of Carystus' biography of him (cf., for example, DL IX, 62). There are some important doxographical notices about him, some of which, certainly the most important one, goes back to Timon, a student of Pyrrho's, whose testimony, though, has to be treated with caution, as it is only too obvious that he tries to present Pyrrho as a philosophical hero by far superior to, for instance, Pyrrho's and his own Athenian contemporaries, including Arcesilaus.

Let us consider the first story, told by Diogenes Laertius (IX, 62) to show how consistently Pyrrho followed his doctrine in his life, a story drawn from Antigonus and taken by scholars to be particularly revealing: Pyrrho did not avoid anything or beware of it, faced everything: wagons, if it so happened, or precipices, or dogs, or whatever else of this kind. He entrusted nothing to his perceptions and was only saved because his acquaintances were following him around. Now the story could be interpreted in the following way: it is not that Pyrrho did not realize and believe that a wagon was coming his way or that a few steps separated him from a precipice. But he thought that everything was entirely indifferent and that hence it did not matter a bit, one way or another, whether he would be run over or not, or fall down the precipice or not. Moreover, by hard practice, he had learnt to take an attitude towards things which

corresponded to what they are like, namely an attitude of indifference. It is not just that he thought they were indifferent, that they did not matter, he also had brought it about that, because they did not matter, they did not matter to him. And this he did not find easy, as another anecdote shows (DL IX, 66). He was reproached for being scared of a dog. He answered that it was difficult to shed humanity—indeed a fight and struggle—but that one could try to become indifferent, first by practising, but then, if needed, by thinking about things. Apparently many thought that Pyrrho had attained a remarkable and admirable degree of indifference and imperturbability. But all this has nothing to do with scepticism. To the contrary, it would seem that Pyrrho tries to be indifferent, because he believes things to be utterly indifferent. Nevertheless, the interpretation which is put in Diogenes Laertius on the story about precipices is that Pyrrho did not entrust anything to the senses. That is to say, he withheld belief as to what he saw, even if it was a wagon coming his way, or a precipice in front of him. The story is interpreted as if the other story about the dog who scared him had the moral that it is so difficult to learn not to believe that a dog is pursuing and attacking one, when in fact the moral clearly seems to be that it is so difficult to learn, in theory and in practice, that it does not matter whether a dog is attacking one. But where does the sceptical interpretation come from, and is there any justification for it?

Let us next look at what Diogenes Laertius IX, 61 refers to as evidence to explain in which way Pyrrho was the first to introduce suspension of judgement, before, in IX, 62, he proceeds to tell the story about wagons and precipices as evidence that Pyrrho followed this theory in real life. Diogenes refers to an otherwise unknown Asconius of Abdera as his source. The explanation is that according to Pyrrho things in truth, in the nature of things, in reality, are neither good nor bad, and that human beings only act the way they do out of convention and habit, whereas things are no more this than that. It should be immediately clear that Pyrrho is not saying that we do not know whether something is good or not, or bad or not, and hence should suspend judgement. For he clearly is saying that in reality they are neither good nor bad, and that it is just in people's belief that they are just or unjust. This does not seem to have anything to do with scepticism. There is no suspension of judgement even just concerning values, it seems, except in the sense that Pyrrho will refuse to believe that things are good or bad. So why does Diogenes Laertius, or his source, adduce this as evidence for Pyrrho's scepticism?

This time, though, there is one element in the account which might provide a clue: Pyrrho's supposed claim that each thing is no more this than that, that is, presumably, no more good than bad, no more just than unjust, and so forth. To begin with, the parallelism to Democritus is striking. Democritus, too, had said, for instance with reference to sensible qualities, that things are not red or green, that they are red or green just in conventional belief, that they are no more red than green. And there was an

interpretation of the 'no more this than that' phrase, rejected by Sextus, which would have turned Democritus into a sceptic. So perhaps Pyrrho could be interpreted as saying, or even meaning to say, that depending on how you look at them, things appear to be good or bad, but either they are completely indifferent or there at least is no way to tell whether they are good rather than bad, or bad rather than good.

But the obvious parallel to Democritus might also invite the thought that Pyrrho assumes that things are completely indifferent in every respect, not just as far as their evaluation is concerned, but also as far as their phenomenal characteristics are concerned, and that he was just particularly interested to make this point concerning the good and the bad, the beautiful and the ugly, and such characteristics, though he took the point to hold also for phenomenal characteristics. But in this case, again, we do not get suspension of judgement in the appropriate sense. It is not true that we suspend judgement as to whether what we see is a wagon about to run us over or not. For, on this view, we believe that there is no such thing as a wagon about to run us over. To believe otherwise would already be to believe that things are not indifferent. So, again, we would need a different interpretation of the 'no more this than that' phrase. But, on the face of it, the evidence Diogenes Laertius provides rather seems to suggest that Pyrrho did not understand indifference in this general way, but as being limited to evaluative predicates; and it also rather suggests that Pyrrho, if he used the 'no more this' phrase, did not understand it in the sense that things might be indifferent, insofar as we cannot tell whether they are good or bad; for he seems to have thought that they actually were neither good not bad, and, for this reason, to have assumed that, if we think that they are good or bad, this must have its source, rather than in the things, in our conventional way of thinking about them.

With this we can turn to our most important testimony concerning Pyrrho's thought. It is preserved in Eusebius' *Praeparatio evangelica,* XIV, 18, 2–4, which is mainly drawn from Timon.

According to Timon, if one wants to attain *eudaimonia,* one has to focus on these things: (1) what are things like in their own nature; (2) which attitude we should have with regard to them; (3) what is going to happen to one if one has this attitude. Timon then goes on to give us Pyrrho's answers to these questions. This at least suggests that these questions, their sequence, and their purported point reflect Pyrrho's thought. And, given what we have said so far, the thought behind them would seem pretty clear: if you want to have a good life, first of all you have to be clear about the fact that it is not things in themselves which are good or bad. Hence, secondly, you should not have an attitude towards them as if they were good or bad. Thirdly, if you manage to have the right attitude towards them, you will be rid of all your anxieties and be happy. These questions in their sequence in any case do not suggest any scepticism. To the contrary, they suggest that you can find out what things really are like, as opposed to

what people say they are like. They suggest that it only seems reasonable to take an attitude towards things which is based on what things really are like, rather than on what they are customarily believed to be like. And they suggest that one can reasonably expect a tangible benefit from taking such a reasonable attitude.

Now the answers Pyrrho actually gives to the first two questions, according to Timon, are these: (1) things in themselves are indifferent and cannot be judged *(anepikrita);* (2) hence our perceptions and our beliefs concerning them are not true or false; hence one should put no trust in them, but remain without belief and unmoved, and think in each case that the thing is no more this way than not this way, or that it both is and is not this way, or that it neither is, nor is not this way; (3) Timon says that the answer (presumably Pyrrho's answer is meant here) is that the result will be first speechlessness, and then imperturbability.

Now, this report deviates from our expectations in various ways. And it does so systematically in the sense that most of the deviations correspond to the second understanding of the ambiguous 'no more this than that' phrase. 'Indifference' now does not mean 'neither this nor that', but rather 'neither this nor that, or at least we cannot tell which one'. Hence the inference now is not that perceptions and beliefs cannot be trusted, because they are false, but because we cannot say either that they are true or that they are false. Nor will we just say in each case that the thing is no more this than that, meaning that it is neither, but something a great deal more complicated. Indeed, this is Timon's understanding of the phrase 'no more', which in his *Pytho* he claimed to indicate that one did not determine anything to be the case, but withheld assent (DL IX, 76). The other major deviation is that Timon understands the indifference not to be restricted to evaluative predicates.

Given the complexity of the evidence, it may turn out to be impossible to reconstruct a reliable view of Pyrrho's, as opposed to Timon's, position. In fact, it seems to me that the way forward is, to begin with, to leave aside Pyrrho and reconstruct Timon's position in its own right, in order then to see what Pyrrho's position may have been. It is clear enough, at least in outline, what Timon's position was. He did think that things were indifferent in the sense that they were neither this nor that, or, if they were, we could not tell whether they were this or that, and that hence all we could do is to follow appearances, not worrying whether things actually are this or that.

ACADEMIC SCEPTICISM

ARCESILAUS

Arcesilaus of Pitane (316/15 BC–241/40 BC) became head of the Academy around 273, to govern it for more than 30 years. He is the founder of

Academic scepticism. Under his scholarchate the Academy turned sceptic in the ancient sense of the word. Though initially there was some resistance to the new direction the school took with him, this direction was consolidated, it seems, under his successor Lacydes. There is no reason to insist that Arcesilaus was in no way influenced by Pyrrho. Arcesilaus must have been familiar with Pyrrho's thought through Timon. He was well read. He went out of his way, it seems, to refer to sceptical elements in the thought of earlier philosophers, and so would have had no difficulty acknowledging Pyrrho's scepticism. But there is, at the same time, plenty of reason to insist that one has to be able to understand Academic scepticism as a development within the Academy. Arcesilaus would not have managed to become, or to retain his position as, scholarch, if he had not been able to present himself with some plausibility as continuing the tradition of Socrates and Plato. It was his opponents who had an interest in presenting him as constituting a break in the tradition of the school, as somebody who relied on a tradition alien to the spirit of the Academy, for instance on Pyrrho.

It is rather difficult to reconstruct Arcesilaus' thought with the kind of detail that his position would, no doubt, deserve. Nevertheless, there does seem to be enough evidence to reconstruct Arcesilaus' position in rough outline. It seems, for instance, that we can rely on the evidence that suggests that Arcesilaus appealed to Socrates, and to a lesser extent to Plato, for his scepticism, but also on the evidence according to which Arcesilaus' position was formed in part in opposition to the Stoic Zeno's epistemology. In order to understand this, it may help to briefly consider the historical position Arcesilaus found himself in.

As is well known, Socrates had assumed that whether we attain the good life depends on whether we attain wisdom, the knowledge of what is good and what is bad and related matters. Also, notoriously, Socrates did not believe that he himself had attained this wisdom. Indeed, he thought that if he had any claim to any kind of wisdom, it lay in precisely this, that he did not pretend to have a knowledge he did not have, a pretence which obviously would stand in the way of making any effort to attain real wisdom. Hence Socrates in his search for the truth questioned others to see whether they knew more than he did, and to free them, if necessary, from the false conceit of knowledge. There was a method, later known as the Socratic *elenchus,* which admirably suited this purpose. It involved a questioner and a respondent. The questioner would elicit a thesis from the respondent. He would then ask a series of yes-or-no questions of the respondent, in answer to which the respondent would commit himself to a position on these questions. But the questioner would ask these questions in such a way that the answers to them, if possible, would form the premisses of an argument the conclusion of which would contradict the original thesis. The respondent, having given the answers he did, could not honestly fail to respond to the appropriate final question but by answering

it in contradiction to his original thesis. The way Socrates is presented in Plato, Socrates was a formidable dialectician who always managed to reduce his respondents to contradiction, thus showing that they were ignorant on the matter in question. For somebody who knows will not contradict himself on a question within the area of his expertise.

It is important to draw attention to several features of this practice. The 'refuted' interlocutor not only has been shown not to know the truth, he also has been put into a situation in which he no longer feels in a position to answer the original question at all. He is, as it is called, in an *'aporia'*. He will have had some reason for the thesis, and he has now been revealed to also have reason for asserting the contradictory. And torn between these two opposing reasons, he no longer rationally can assert either the thesis or its contradictory, let alone claim that he does so as a matter of knowledge. And, if this is at least part of the point of the practice, it should be clear that the argument advanced against the thesis cannot be understood as a proof that the thesis is false. Otherwise there would be no *aporia*.

As to the questioner, we should note that he can engage in this questioning without knowing the truth concerning the thesis or the questions he asks. He can do this without even having a mere belief as to the truth concerning his questions. He certainly does not commit himself to a view in questioning the respondent. The answers are all the respondent's, and so is the argument. It is the respondent who assumes that he is faced with an argument which forces him to contradict himself. Now, if the questioner does think, as Socrates did, that he does not know the answers to the questions he asks, he also should think that he himself would not be able to withstand questioning, if properly questioned, without being made to contradict himself. And thus he would think himself to be in a genuine *aporia* as to what to answer to the questions he asks. It is not only that he thinks that he does not know, he also thinks it unwise even to just make a claim on the matter, which upon questioning would turn out to be indefensible and futile.

Now philosophers after Plato (who in writing dialogues constantly reminds us of Socrates and his practice, but also himself manages to avoid committing himself to any position, since it is others who in the fiction of a dialogue commit themselves to the positions which get discussed in the dialogue) unlike Plato increasingly forget Socrates' caution. They begin to produce ever more, and ever more extravagant and speculative, theories, built on mere belief and producing nothing but more mere opinions. Both Epicureanism and Stoicism are in part reactions to this situation which these philosophers try to remedy by developing an epistemology which is supposed to show how we can overcome mere opinion and attain true knowledge and wisdom. In fact, for the Stoics Socrates, in his single-minded quest for practical wisdom and his refusal to content himself with mere opinion, is a paradigm of a philosopher. But, they think, Socrates was mistaken in thinking that his kind of elenctic questioning or, more

generally, his kind of dialectical argument, however much one excelled in it, would ever lead to knowledge. Argument based on mere belief will just lead to more mere belief. What we need to realize is that, in addition to mere belief and knowledge, there is cognition. Cognition, unlike mere belief, which at best just happens to be true, is bound to be true, given the way it has come about. It still falls short of knowledge in that, unlike knowledge, it can be destroyed by rational means, for instance by dialectical questioning. One can have clearly realized something to be the case, only later to be talked out of it on the basis of false assumptions incompatible with it, which one also holds. That cognition is different from mere opinion we can see from perception. If one clearly perceives something to be the case, one's belief that it is the case surely is not just a matter of mere opinion. More specifically the Stoics suggested that nature in its providence provides us with the ability to form impressions of things, the so-called cognitive impressions, for instance perceptual impressions, which, given the way they come about, cannot fail to be true. If we, then, accept these impressions, we will have cognition, rather than mere belief, and in cognition, unlike mere belief, we will have a solid basis for knowledge.

This, then, is the situation Arcesilaus found himself in. We readily understand why Arcesilaus was as scandalized by the endless production of more empty philosophical opinion as the Stoics and the Epicureans were. But we also understand why Arcesilaus might have decided to curb, or put an end to, empty philosophical speculation by reverting to the Socratic *elenchus* to test the philosophical theses proposed, or rather by applying to philosophical theses a scrutiny which in substance amounts to the same as a Socratic *elenchus,* though in outward form it differs from Socrates' questioning. Arcesilaus did not go to the market to question his fellow citizens, but rather asked students in his school to propose a philosophical thesis which he then would argue against. Or he would take a thesis which had its adherents, and then himself would produce the arguments for and against. And, in arguing against it, he might not entirely rely on premisses endorsed by the advocates of the thesis in question, but also on premisses they at least could not just dismiss, especially since Arcesilaus also was prepared to provide arguments for those premisses which his opponents might not want to endorse.

This procedure, though in format it somewhat differs from Socrates' questioning, still has the same crucial features of the *elenchus.* Arcesilaus can reduce the adherents of a thesis to complete *aporia,* without having to claim any knowledge for himself, indeed without even committing himself to a position on the matters raised. In fact, we should expect Arcesilaus, too, to claim to be at a complete loss himself, and not to make any claims, knowing well that his claim would not be able to resist similar questioning, either. Thus it is easy to understand, against the background of Socrates' elenctic practice, a continued tradition of various forms of dialectical

argument in the Academy, and Arcesilaus' concern over his philosophical colleagues' disregard for Socrates' strictures against mere opinion, how Arcesilaus might decide to avail himself in a Socratic spirit of a variety of forms of dialectic to stem the tide of speculative dogmatism. We thus would understand why Arcesilaus would be a sceptic concerning philosophical theses or beliefs, that is to say, why he would not only refrain from claiming any knowledge on philosophical matters, but even refuse to take any stand on the matters at issue. He could see himself as somebody who is at loss for an answer in these matters. It is tempting to think that the term 'aporetic', as an alternative name for a sceptic (*Pyrrh*. I, 7; I, 221), has its origins in this Academic context.

There is one respect, though, in which Arcesilaus does not just resume what he takes to be the tradition of Socrates and Plato, abandoned by Speusippus, Xenocrates, and their followers down to Zeno and the Stoics. It is not just their questionable speculations which seem to make Socratic questioning more indicated than ever. There is a deeper problem, made obvious by the attempts of the Epicureans and the Stoics to show what Socrates and his interlocutors would have had to do to gain the wisdom Socrates was after. The question was whether there was not another diagnosis for Socrates' failure to attain the wisdom he thought we ideally should have, or we would have to have, to guarantee us a good life. Perhaps it turns out that this wisdom is a matter of realizing that one has not attained it, that one may not attain it, but that it is worth while to make every effort to attain it, even if one does not attain it. For obviously Socrates down to the end of his life did not regret his rather single-minded effort to attain something which, by his own admission, he had not attained (cf. Aenesidemus' remark in Photius, *Bibliotheca* c. 212, 169b 27–9, for a parallel).

Tradition, though, presents Arcesilaus not just as a sceptic in a much stronger sense. It presents him as an unqualified sceptic, as a sceptic on any question, matter or issue, however trivial it may be. He is supposed to have counselled complete suspension of judgement or belief. There is nothing in the evidence concerning Socrates which suggests such a radical scepticism. It is true that Socrates must have said something to the effect that his own claim to wisdom, if any, would just be this: that he was aware of the fact that he did not know anything. But nobody would naturally infer from this that he claimed not to know anything about anything. One takes him naturally to refer to his scepticism concerning the issues discussed by philosophers of nature, but primarily to his ignorance concerning the questions he is presented as discussing in Plato's early dialogues, ethical questions. Socrates also is often presented as not letting on what he himself believed, but, however we interpret this, we do not think that it means that Socrates had no beliefs as to, for instance, the gate of the city one would enter if one came from Larissa. Arcesilaus' position, it seems, is much more radical; it is a position of complete suspension of belief. To understand how

this comes about, or at least how the appearance of it comes about, one has to take into account that the dialectical situation has radically changed. Socrates had to discuss such questions as whether and how virtue can be acquired. Arcesilaus also had to discuss such questions as to whether and how real knowledge can be acquired, in particular the knowledge which Socrates was after and which constitutes wisdom and virtue. Arcesilaus had to discuss the epistemological theses of the Epicureans, but in particular those of the Stoics which were meant to show that and how we could break out of the circle of mere opinion, attain knowledge, and in particular the knowledge which Socrates was after. These theses crucially involved the assumption that perceptions constitute the secure basis on which all knowledge rests. A dialectical response to these theses could not but involve arguments to the effect that knowledge is not attainable, or that even if we perceive something, there is no reason to suppose that the belief which we have on the basis of our perception is more than mere opinion, but cognitive, a solid basis of knowledge. And such a dialectical response cannot but also call all our beliefs into question, to the extent that they are based on perception and the experience which it gives rise to.

Now, obviously Arcesilaus did also attack these epistemological theses. In fact, what is very conspicuous and striking about the evidence concerning Arcesilaus we have, is precisely this that, though Arcesilaus in his teaching addressed whatever philosophical theses his audience was ready to propose, his own thinking seems to have been very much focused on Zeno's attempts to show how knowledge and thus ultimately wisdom were possible. A crucial part of Zeno's theory was this: to believe something is to give assent to an impression which represents something as being a certain way; some impressions deserve assent, and some do not; an impression deserves assent if it has its origin in something which is the case and represents matters precisely as they are the case. So your impression that this book is green deserves assent, if your impression has its origin in a fact and if it precisely and accurately represents this fact. Tradition has it that Zeno, pressed by Arcesilaus, went one step further. He stipulated that impressions, in order to deserve our assent, had to represent things in such a clear and distinct way that they could not possibly be false. That is to say, if the book is red, but you have the impression that it is green, then your impression lacks the kind of clarity and distinctness which it would have, if the book were green and you saw it under normal conditions. Such an impression Zeno calls cognitive, because assent to it constitutes a cognition, and not just a mere opinion. And cognitions are the basis of all our knowledge.

The debates between Stoics and Academics from Arcesilaus' time onwards were focused on the question whether there are such cognitions and cognitive impressions. Academics found a plethora of arguments to question the existence of such impressions which by their very character are guaranteed to be true. For instance, they referred to vivid

hallucinations, which seem, at least to those affected, to have the same character as impressions we have under normal conditions; also to the possibility that God or gods might induce an impression in you which in no way differs from the kind of impression you would have if you saw something under ideal conditions, but which nevertheless was false (Cicero, *Ac. Pr.* 49–50). It is difficult to determine which of these arguments go back to Arcesilaus.

But it is reasonable to assume that at least this much of the argument goes back to Arcesilaus. Suppose there are two men, twins, who look exactly alike. They also are dressed exactly alike. The visual conditions are ideal. You have the impression, looking at one of them, that Castor has a white dress on. This impression has its origin in a fact, rather than just being the product of an abnormal state of your mind, and it represents the fact with as much faithfulness as you could possibly desire. But what you see, under ideal conditions, actually is Pollux with a white dress on, who looks exactly like Castor with a white dress on. The Stoic response is that there are no two things which are not distinct, and that distinct things do not exactly look alike. Arcesilaus' answer is to question whether there are no two things which are exactly alike, and the Stoics have no way to definitely settle this question in their favour. We should note in passing that this indicates that Academic arguments do not have to rely exclusively on premisses accepted by the opponent. In order for the argument to count as dialectical, it suffices, if a premiss cannot just be dismissed by the opponent. In any case, it seems in response to arguments like the one concerning the twins that Zeno stipulates that an impression, in order to be cognitive, has to be clear and distinct in such a way that it could not possibly be false. Hence, given that Castor and Pollux are distinct, the impression that Castor has a white dress on, if it is clear and distinct, cannot have its origin in the fact that Pollux is standing in front of one with a white dress on. For the impression, to be clear and distinct, will have to represent Castor as having a look which Pollux, being distinct, can never have.

Once this further stipulation is made, though, Arcesilaus argues that there is no impression, under however ideal circumstances it may have been obtained, such that one could not find an impression exactly like it which was false. And so he produced examples of impressions which we clearly would not trust to be true, because they are formed under abnormal conditions, but which arguably are exactly alike the impressions we form under ideal conditions. Hence, the Stoics had to argue that no impressions formed under abnormal conditions can have the character of clarity and distinctness which impressions obtained under normal conditions have, without, though, being able to settle this question. And, as this question was not settled, Arcesilaus felt free to assume that there are no cognitive impressions, that is to say impressions which could not possibly be false, given their character as impressions.

Now, presupposing these arguments, Arcesilaus could argue in the following manner. A wise man will not give assent to impressions which do not deserve assent, that is to say a wise man will not hold mere opinions. But there are no impressions which deserve our assent because they are cognitive. Hence a wise man will not give assent to any impression. For to do so would be to hold a mere opinion.

So Arcesilaus does argue that it is wise not to give assent to any impression, and, by implication, that it is wise not to have any beliefs whatsoever. This argument is the major source for the assumption that Arcesilaus advocated total suspension of judgement. But this argument does not constitute any evidence for this assumption. It is just another dialectical argument. That it contains a premiss not shared by the Stoics does not mean that it is not dialectical. In fact, it rests on a number of assumptions, for instance the assumption that there are no cognitive impressions that one could wisely assent to, which themselves are the conclusions of dialectical arguments which rest on assumptions of which it is difficult to see why Arcesilaus should commit himself to them, or even could himself commit to them, if he wanted to argue non-dialectically that one should always suspend judgement. It rests on the Stoic notion of cognitive impressions and the Stoic assumption that only cognitive impressions deserve assent. This particular argument, then, is just another dialectical argument to whose conclusion Arcesilaus is in no way committed. Its point is to put the Stoics into the awkward position to have to acknowledge that it is not clear, as they assume it is, that wisdom presupposes the existence of cognitions and cognitive impressions, as without them we would never attain knowledge. If the Stoics are so determined to defend the existence of cognitive impressions as they conceive of them, it is because they think that there is no other way in which we will be able to escape mere opinion and attain knowledge and wisdom. But the argument presents us with an alternative: we can avoid mere opinion by suspension of judgement, and perhaps this is what wisdom consists in, at least the wisdom attainable by us.

There is, apart from this argument that a wise man will suspend judgement, another major reason which might make one think that Arcesilaus actually advocates universal suspense of judgement. Obviously Arcesilaus' opponents challenged Arcesilaus' conclusion, claiming that life without belief is impossible. We should note that this claim can be understood in two ways. It might be the claim that a genuinely human life, a good life, is not possible without some assumptions about the nature of the world and about what is good and what is bad. This is what both Epicureans and Stoics claimed. This is what seems to have motivated late Academic sceptics to allow for beliefs. And this prompted yet later ancient philosophers to espouse views about the world and what is good, even if the epistemic status of these views seemed dubious even to them. But it also might be the more radical claim that life is impossible, if you do not allow

yourself even such trivial beliefs as the belief that a wagon is coming your way, rather than just such beliefs as 'losing one's life is a bad thing'. But let us assume that the claim was the more radical claim. Now it is clear that Arcesilaus did accept the challenge by arguing that the sceptic in practice would follow what is reasonable *(eulogon),* without thereby giving assent to anything, making any judgement as to what is true or false (*Math.* VII, 158). It is tempting to infer from this that Arcesilaus, as he accepted the challenge, must have thought that he actually was committed to the view that one should never give assent to anything. But, though it is tempting to think this, to think so is to overlook the fact that Arcesilaus may not have felt committed to the thesis that one always should withhold assent (which, in any case, would have involved some kind of contradiction), but may have felt that the dialectic of this argument forced him to defend the possibility of a life without assent. For the argument to the effect that a wise man will always suspend judgement will not constitute a threat to the Stoic position, if its conclusion is not dialectically sustainable. The assumption of a life without assent is no threat to the assumption that there must be cognitive impressions, if there is to be wisdom, if it cannot be dialectically defended. The conclusion that it is wise always to withhold assent contradicts the Stoic thesis that it is wise sometimes to give assent, namely when one has a cognitive impression. This contradiction is no threat to the Stoic thesis, if the contradictory just can be dismissed. Arcesilaus' answer as to how one might wisely live without assent is no more than a dialectical move to ensure that the argument to the effect that it is wise to always suspend judgement retain its dialectical force.

Such an interpretation of Arcesilaus' arguments as being dialectical seems to me to be the best explanation of the evidence. To adopt such an interpretation is by no means to adopt the view that all Arcesilaus was concerned with was to expose the questionability of each and any philosophical thesis. Socrates clearly was concerned with the beliefs which guide us in what we think and what we do in daily life. The Stoics had a similar concern. The point of Stoic doctrine was to convince one, for instance, that only wisdom and virtue are a good, and that hence in real life one should not get excited, or anxious, over the mere thought that one had a lot of money in the bank. We should assume that Arcesilaus had a similar concern. And part of this concern must have been that what we think and what we do in everyday life is questionable to the extent that it is guided by beliefs which philosophically are questionable, like the beliefs which the Stoics want us to guide our lives by, for instance the belief that only wisdom and virtue are a good, or that we should only believe something if we have a corresponding clear and distinct impression, because only this will guarantee cognition. A prerequisite for our being able to see how questionable these beliefs are, is that we are disabused of the idea that we, or some authorities, know them to be true. To disabuse us of this idea, and

at the same time to show how questionable these beliefs are, dialectical arguments are the ideal means.

CARNEADES

There is no clear evidence of any significant philosophical development in the Academy in the period between Arcesilaus and Carneades. The situation is dramatically different once we come to Carneades. According to Apollodorus (DL IV, 65) he was born in 214/13 BC; according to another tradition (*Ac. Pr.* 16) some five years earlier. He died in 129/28 BC. He succeeded Hegesinus as scholarch (DL IV, 60), certainly before 155 BC, when he was a member of an Athenian embassy to Rome whose other members, the Peripatetic Critolaus and the Stoic Diogenes, were scholarchs. That Carneades' scholarchate marked a new period in the history of the school is reflected, for instance, by the fact that, according to Sextus Empiricus (*Pyrrh.* I, 220), a third and New Academy (as opposed to the Old Academy of Plato and the Middle Academy of Arcesilaus) begins with Carneades. There is a good deal of evidence concerning Carneades' philosophical activity, and the evidence is a good deal better than the evidence we have for Arcesilaus. Though Carneades, like Arcesilaus, did not leave any writings, he had in Clitomachus an able successor who was a voluminous writer and who tried to defend Carneades' position, as he understood it, though there was a dispute about the correct interpretation of Carneades' position among Carneades' students. Moreover, Cicero, himself an Academic sceptic and our main source for Academic scepticism mainly through his *Academica,* was near enough in time to Carneades to know people who had listened to, or even had been students of, Carneades, for instance his Academic teacher Philo. Thus, whereas Arcesilaus already by the time of Cicero had become a shadowy figure of the distant past, interpreted and reinterpreted on the basis of very little hard evidence to suit the interests of his Academic successors and their opponents, the evidence we have concerning Carneades is much more direct, more detailed, and more vivid.

There are certain obvious differences between Arcesilaus and Carneades. Whereas Arcesilaus seems to have focused very much on Stoicism, and hence on Stoic epistemology, Carneades cast his net wider. Carneades also discussed ethical questions in a way which has left a mark in our evidence. And it seems, to judge from his discussion of the end of life, that he made an effort not just to attack particular actual theses on a given topic, but to think of them systematically as different possible theses to hold on a particular question, which would open up the way for a discussion of new possible theses which had not yet been espoused.

Another striking difference between Arcesilaus and Carneades is this. In the evidence concerning Arcesilaus we repeatedly find the claim that Arcesilaus thought not only that one could argue for and against any

thesis, but that the arguments would balance each other out, would be of equal force *(isostheneia),* and hence would lead to suspension of judgement. There are obvious difficulties about this thought, if we want to avoid construing it as a dogmatic claim. Perhaps it is no more than the thought that if we look at dialectical arguments, for instance Socrates' arguments, it seems that for any thesis an equally plausible case always can be made on the other side of the question. Now, conspicuously, in the evidence concerning Carneades such a reference to the equal force of arguments on both sides is missing. There still is the assumption that there are arguments on both sides, but there is not the additional suggestion that they will balance each other out. This might reflect an attempt to avoid what might seem like a dogmatic claim. But it also might reflect the thought that, however much we argue on both sides of a question, there still is the possibility that, in the end, we find one view a lot more plausible than the other. And one reason for this might be that we have a view or a belief quite independently of any arguments we have to justify this view or belief. If I see a green book and believe that the book is green, it is not on the basis of an argument with the conclusion that this book is green that I have this belief. If challenged to produce an argument, I could try to do so. But there will be an argument to the contrary. And this might convince me that my argument is not conclusive, in fact that I have no justification for my belief. But it might still seem to me—I might still have the impression—that the book is green. I might still think that it is plausible that the book is green. And this might be so, not because I am stubborn and not open to reasoning. For I have understood and granted that my argument is not conclusive. But neither is the argument on the other side, and I did not have the belief on the basis of an argument in the first place. There are at least three different kinds of cases we need to distinguish here. There are beliefs which are induced by nothing but an argument. We would not have these beliefs, unless we had arguments to support them. Correspondingly, such beliefs will disappear, once we see, in the light of arguments to the contrary, that we have no justification for our belief. But there also are beliefs which we hold, not, or not just, on the basis of arguments, but, for instance, by appeal to authority, for instance the authority of scientists. Now, one might also successfully question whether one was rationally entitled to these beliefs. But then there are beliefs which one not only does not have for a reason, but of which it seems unreasonable to demand that one should only have them, if one has an argument to support them, though it may not be unreasonable to demand, given the appropriate circumstances, a justification for the belief. A case in question is the belief that the book in front of me is green. That I will not be able to come up with a conclusive argument to prove that the book is green, does not necessarily mean that it is just a reflection on my rationality, if I continue to have the impression or even the belief that the book is green. Whatsoever the arguments on either side, it still seems to me to be highly

plausible that the book is green, especially if the arguments on the other side do not appeal to any features of the particular situation to cast doubt on my belief.

There are two kinds of evidence to suggest that in the case of Carneades such considerations may not be irrelevant. First, Cicero (*Ac. Pr.* 67) reports that Carneades advanced an argument which is an exact counterpart to the argument of Arcesilaus, which we discussed above, that the wise man will never give assent. Carneades' argument, however, in addition to the first premiss, that if the wise man ever gives assent, he will have mere opinions, took as a second premiss the denial of Arcesilaus' conclusion, to infer the denial of Arcesilaus' second premiss, and thus to conclude that even the wise man sometimes will have opinions. This again can be interpreted as a merely dialectical argument. Even if the first premiss will not be accepted by the Stoics, they cannot just dismiss it, because they can only reject it by relying on the questionable assumption that there are clear and distinct impressions. Without this assumption, on their own view, they would have to grant that even the wise man will sometimes have mere opinions. But, if cognitive impressions were just introduced to avoid this conclusion, not much progress seems to have been made. In fact, Arcesilaus' and Carneades' argument as a pair seem to confront the Stoic with the choice to assume either that the wise man will never give assent to anything or that he will sometimes hold mere opinions, unless they can produce reason to believe that there are cognitive impressions which substantially goes beyond the claim that otherwise we will never get beyond mere opinions.

But some Academics obviously interpreted Carneades' argument, as we can see from the passage in Cicero, not as a merely dialectical argument, but as expressing Carneades' view, just as they took the conclusion of Arcesilaus' argument to express Arcesilaus' view. As a result we would have a very substantial disagreement between Arcesilaus and Carneades. And the kinds of considerations adduced earlier would explain why one at least interpreted Carneades in this way. There are impressions and beliefs such that the bearing arguments can have on these impressions and beliefs is intrinsically limited, even if there is some bearing, as in the case of the belief that this book is green.

Secondly, there is all the evidence according to which Carneades distinguished different kinds of impressions. To begin with, just as Arcesilaus had said, in order to evade the argument that life without belief is impossible, that the sceptic will follow what seems reasonable *(eulogon),* without giving assent to an impression, so Carneades said that the sceptic will follow what seems plausible *(pithanon),* without giving assent. The term *'pithanon'* was rendered by Cicero as *'probabile'*. It is crucial that this term not be misunderstood. Cicero translates the term in this way, because Cicero himself believes that, if impressions have a certain kind of plausibility, are well considered, one can approve of them even as a sceptic, in a sense assent to them, as long as one keeps in mind that it is not certain

whether they are true. And the reason why Cicero thinks this, is that he also thinks that impressions we have on the basis of due consideration of the matter are more probable in the sense of being more likely to be true. But, unless we take Carneades' argument that the wise man will sometimes have mere opinions to express his own view, we should assume that by 'plausible' Carneades does not mean 'something which is likely to be true'. For Carneades, plausibility to whatever degree is one matter; truth and probability are another matter. And for Carneades, evidence, similarly, is one thing; truth another (cf. *Ac. Pr.* 34). However evident it might seem to you that this book is green, this does not mean that it is true that it is green. For something to be plausible, or even evident, it suffices that something strikes you as being this way, however much you think about it and take the arguments to the contrary into account.

In fact, Carneades talks about the various ways in which we can test our impressions (*Ac. Pr.* 33; 36; *Math.* VII, 175–89; *Pyrrh.* I. 227–9). There is some confusion in our sources concerning these tests. But it seems to me that Carneades' idea is simply this. In the case of perceptual impressions, for instance, the Stoics themselves seem to take the view that an impression is guaranteed to be true, if it has come about in the right way, namely under normal conditions. So, one thing you can do to test an impression, is to check the conditions under which it arose or arises. Obviously, this is not in the spirit of the Stoic theory. For, according to Stoic theory, cognitive, that is to say clear and distinct, impressions are criterial, and hence, to rely on further evidence to establish their cognitivity, would be to give up on their status as criteria. Nevertheless, we can check impressions in this way, as the Stoics themselves assume we do. If the object is too far away, we move closer to establish normal conditions. But we can also test impressions for coherence with other impressions of the same object which we already have or might obtain. For any given impression to be tested we can use both tests. Obviously it does not matter in which order we do so. What does matter is that the further impressions we have, or obtain, on either test to use them as evidence, can themselves be subjected to both tests, which involves the use of further evidence which again can be evaluated critically. It is clear that this procedure, for however long we follow it, will never guarantee that the impression to be tested at the outset is true, because for this the evidence against which we test it would have to be guaranteed to be true. So this test will not allow us to establish an impression as cognitive, unless we already assume that we can decide that certain impressions are cognitive without some such test. But how then do we know that they are cognitive? If the answer is that they are clear and distinct or evident, we will again argue that evidence is no guarantee for truth.

There is another way, though, to understand Carneades' remarks about differences between impressions according to whether they pass certain tests. They can be understood as part of Carneades' answer to the question

as to what one does in life, if one universally suspends judgement. The answer may be that one does what everybody else does. One follows one's impressions, and depending on how important and how urgent the matter is, one will test one's impressions to the extent that this seems possible and worth while, so as to content oneself in the end, for the purposes at hand, with an impression of which one knows, though, that it is not guaranteed to be true, since one always could continue the test. Such a response again could be understood dialectically. But it also could be interpreted as an observation by Carneades as to what people, including sceptics, actually do, it being understood that this in no way conflicts with their scepticism. The fact that an impression passes such a test up to some level does not mean that it is true, and need not be taken to mean that it is true by somebody who relies on such an impression for practical purposes.

So there are at least two aspects of Carneades' arguments which might make one wonder whether Carneades did not allow for the possibility that, even as a sceptic, one might have an impression which one accepts concerning the matters one perceives, or even concerning the matters which are the subject of philosophical debate. Whether this, then, should be called a 'belief' or not, in part is a matter of terminology, ancient and modern, in part a matter of how we should conceive of beliefs.

One thing, though, is rather clear. Carneades cannot unequivocally have said that a sceptic may have beliefs concerning matters at issue in philosophy. For otherwise his own students would not have disagreed as to whether this had been his view. And, if Carneades himself had such beliefs, he clearly managed remarkably well never to unequivocally commit himself to such a belief. For Clitomachus, his long-time follower, could claim that he was never able to find out what Cameades' view was.

CLITOMACHUS AND PHILO

Whatever Carneades' own view on the matter of beliefs may have been, it became a subject of controversy among Carneades' students: not only what Carneades had thought on the matter, but also what one as a sceptic should think about it. Metrodorus, later followed by Philo of Larissa, took the position that the sceptic can have beliefs, even concerning philosophical matters, as long as one is clear that there is nothing to guarantee the truth of these beliefs. This was to become the dominant position in the Academy under Philo. But it was Clitomachus who succeeded Carneades as scholarch, and Clitomachus took a very different view.

Clitomachus is the first sceptic we know of to distinguish two senses of 'withholding assent', and hence, by implication, two senses of 'assent' (*Ac. Pr.* 104). In the first sense of 'withholding assent' one will never in any way assent to anything. In the second sense one will withhold assent, if one refuses to answer questions in such a way as to approve or disapprove of anything, to say or deny anything. The way this is put is somewhat

confusing and has raised doubts as to the text. But the explication which follows seems to make it clear enough what is meant. 'Assent' can be either understood in the sense of 'unqualified assent', or it can be understood in the sense of the assent involved when one accepts a perceptual impression or in a discussion answers questions with 'yes' or 'no', depending on whether one finds something plausible or not. Hence, if it is said that the wise man will withhold assent, this can be understood in two quite different ways. It can be understood in the sense that the wise man will never give his unqualified assent to anything. But it also can be understood as meaning that the wise man will never give his assent in the sense involved in accepting a perceptual impression or in answering questions. And Clitomachus seems to claim that the way one should understand the remark that the wise man always withholds assent is in the former sense, rather than in the latter. So, according to Clitomachus, there must be a qualified sense of assent, in which even a sceptic will give assent, both in everyday life, when, for instance, it comes to things one perceives, but also in discussions.

Such a distinction of two kinds of assent, and, correspondingly, of two kinds of senses of 'withholding assent' or 'suspending judgement', seems crucial to the further history of scepticism in antiquity. The distinction was drawn in different ways, but it seems subsequently to have been drawn by everybody, by Academics and then by Pyrrhonean sceptics. It allowed them all to continue to insist that a sceptic does universally suspend assent or judgement, namely unqualified assent, while at the same time allowing for assent in some qualified sense. This is the position of the pre-Roman Philonean Academics in Cicero, *Ac. Pr.* 148. It is the position of Aenesidemus, when he says in his *Pyrrhonean Discourses* that Pyrrho does not determine anything dogmatically, because of the arguments on both sides (DL IX, 106). The claim is not that Pyrrho does not determine anything unqualifiedly, that is to say that Pyrrho does not say anything, one way or the other, in whatever way or sense of 'determining' you wish. The claim rather is that Pyrrho does not say anything, one way or the other, dogmatically. For, as Aenesidemus continues, Pyrrho will follow the phenomena, that is to say accept and rely on what he cannot help but think about things, given how they appear to him. This seems to correspond to the distinction drawn by Sextus Empiricus, *Pyrrh.* I, 13, between two senses of 'dogma', of which only one is rejected. In fact, Sextus, too, explicitly says here, and will repeat in I, 15, that the sceptic will assent in certain cases in a certain way, namely when he is affected by the appearance of things in such a way that he cannot help but think about them in a certain way.

Now, to see more clearly what Clitomachus may have in mind, we should first see in which way he could intend to draw the distinction so as to yield a position which differs from that of Metrodorus and Philo, with whom, as we know, he disagreed. Perhaps we have to begin with the fact

that on the Stoic view we just have assent to impressions. There may be a distinction between the sense in which children, or even animals, might be said to assent to impressions, and the sense in which mature, rational human beings assent to impressions. So there is a Stoic distinction in place, which a sceptic could make use of. But, as to mature human beings, in Stoicism there is just one kind of assent, namely an assent to a rational impression which constitutes a belief, more precisely, depending on the impression, a cognition or a mere opinion. In every case, in the case of mature human beings, assenting to an impression involves taking it to be true. Let us call such an assent to an impression which involves taking the impression to be true an unqualified assent. When a sceptic says that he withholds assent he means to say that he withholds unqualified assent, that is, he does not take an impression to be true. Now, Philoneans seem to think that we are able to refine our impressions in such a way that they are true, or if not true, pretty much like the truth or likely to be true, though we cannot tell in any case whether they are true. So, they might give qualified assent in the sense that they accept an impression, not in the sense that they take it to be true, but in the more complex sense that they take it to be, if not true, pretty close to the truth, or at least likely to be true. And one would understand why they thought that such an assent still would constitute a belief or an opinion. For they might agree that, if we have an opinion, this does not mean that we believe that what we, for the purpose at hand, take to be the case, actually is true, let alone that we are certain that it is true. There is a certain tension here, but this may be largely due to our use of the word 'belief', as opposed to the Greek word *'doxa'*. But we certainly understand what it means to take something to be the case for the purposes at hand, or to go on the assumption that something is the case, without committing oneself unqualifiedly to the view that it actually is the case.

Now Clitomachus, to have a different view of the matter, just has to hold on to Carneades' understanding of the plausible, or at least his interpretation of Carneades' understanding. An impression may be plausible or even evident, but, however plausible it is, this does not mean that it is true, or even that it is pretty much like the truth or likely to be true. So one can take an impression to be highly plausible, but this, quite straightforwardly, does not mean that one gives assent to it in the unqualified sense in which this involves taking it to be true. And, if one is a Clitomachean, rather than a Philonean, one does not even take it to be likely to be true. So, what then is the qualified sense in which one as a Clitomachean might give assent to an impression? Here we should also take into account that it is characteristic of the Metrodorean and Philonean position that even a wise person may have opinions, whereas Clitomachus denies this. So the kind of assent Clitomachus allows for should be such that giving assent does not amount to having an opinion. This we can achieve, if we distinguish between a view and an opinion. Having a view is just having an impression one contents oneself with, perhaps after having

considered the matter carefully, if it needs careful consideration. So this is the view one has, but however carefully one has considered the matter one does not even have the slightest inclination to think that it is true. Nevertheless, this is one's view. Having a view, even having a carefully considered view, does not involve believing that it is true, nor even that it is likely to be true, or pretty much like the truth. Pyrrhoneans later, in their attempt to create a distance between themselves and the Academics, will interpret Carneades and Clitomachus along Philonean lines. Just as a Philonean might be strongly inclined to think that something is true, as long as he does not unqualifiedly take it to be true (*Ac. Pr.* 148), so Pyrrhoneans will suggest that the followers of Carneades and Clitomachus, unlike Arcesilaus, follow the plausible with a strong inclination to take it to be true (*Pyrrh.* I, 230). But, though this is true of Philo and the Philoneans, it is not true of Carneades and Clitomachus. If, then, we assume that Clitomachus relied on such an austere notion of a view, such that having a view did not even entail believing it to be probably true, or being inclined to believe it to be true, we also understand why Clitomachus would have thought that a view, construed thus austerely, did not amount to a belief or an opinion. And so he could continue to say that the sceptic will have no beliefs or opinions, though he will have views, that is to say accept or give assent to impressions in this qualified sense.

Now the views a Clitomachean sceptic may have, according to Cicero, *Ac. Pr.* 104, explicitly were said to be of two kinds: they are the kinds of views one relies on in everyday life, like, for instance, perceptual views concerning the colour of things. But they are also views concerning the matters under discussion, for instance philosophical views. No matter how much one argues about the existence of motion or places, one might in the end still have the impression that things move and that they move to some place. This does not mean that one believes that there is motion or that there are places, but it does mean that, if one is asked what one thinks, one would say that one thinks that things move to some place.

Now Clitomachus also seems to claim, though, that he is interpreting Carneades. In any case, in the debate about Carneades' position, referred to in Cicero, *Ac. Pr.* 78 (cf. 108), Clitomachus claims that Carneades just agreed dialectically that the wise man sometimes will have opinions. But how will this be compatible with Clitomachus' claim that he never found out what Carneades' view was? Even, if we distinguish between a view and an opinion, there still will be the problem why Carneades avoided revealing his view, if, according to Clitomachus, there is nothing wrong for a sceptic not only to have a view, but also to say what it is. Perhaps Carneades in fact did not think that there was anything intrinsically wrong with saying what one's view is, but still systematically refrained from doing it, since he thought that it would be of no help to anybody to tell them his view, indeed it might be of some harm, because it might be thought that there was something authoritative about his views.

Against this background we can be brief about Philo of Larissa who succeeded Clitomachus as scholarch around 110 BC, and presided over what looks like the collapse of the Academy as an institution in the wake of Sulla's capture of Athens in 87 BC in the course of the Mithridatic War; Philo actually had already taken refuge in Rome where he continued to teach for almost another decade.

To understand the conflicting notices about Philo we have first of all to keep firmly in mind that Philo at least twice changed position in a radical way. He started out as a follower of Clitomachus and Carneades. He then adopted the kind of position for which he was best known, which he taught as scholarch in Athens, and to which he also converted Cicero. But finally, in his Roman days, he again switched position quite radically, to the surprise and, it seems, dismay of some of his earlier followers. For what he taught now, it seems, was no longer that the truth about things ultimately is beyond our firm grasp, that nothing can be known for certain. He now taught that things naturally can be known, that it is just that we do not have a criterion of truth of the kind the Stoics were claiming we had, which would allow us in any individual case to be certain that we actually did have knowledge of this particuiar matter. So there are lots of things we know, for instance the colours of things, but also many other things. For we are by nature constructed in such a way as to generally get things right, for instance in perception. It is just that we can never be sure in a particular case whether we got it right (*Pyrrh.* I, 235; *Ac. Pr.* 18). This view still can be called 'sceptical', in that it still involves the assumption that one should never give unqualified assent, since one never knows in a particular case whether what one assents to is true.

What infuriated some (cf. *Ac. Pr.* 11–12) was that each time Philo changed his position he rewrote the history of the Academy so as to make it appear that his new position had been the true position of the school all along. The first change was accompanied by a reinterpretation of Carneades, and perhaps also of Arcesilaus. The second change again was presented as in line with the teaching of the Academy from its very beginnings. Philo apparently argued that the position that nothing can be known, which by now had become identified with the Academic position, due to Metrodorus and his own teaching, was a position Arcesilaus had developed only relative to the Stoic doctrine of cognitive impressions and the conception of knowledge which goes with it (*Ac. Pr.* 18; *Pyrrh.* I, 235). So, it is relative to a conception like the Stoics have that nothing can be known. But Arcesilaus had never meant to argue that nothing can be known in any sense, Philo now claimed.

Philo's final turn seems not to have gained him any new followers who could have carried on the traditions of the sceptical Academy. His most important student, Antiochus, had decided already, in reaction to Philo's dogmatic and probabilistic scepticism, to declare the history of the Academy from Arcesilaus onwards an aberration, and to return to the doctrine of the

Old Academy, which he set out to distil out of Plato, Aristotle, and the Stoics. There was some attempt to revive the Philoneanism of the pre-Roman period (*Ac. Pr.* 11), but there was no philosopher of sufficient stature to carry on this tradition. Academic scepticism of one form or another continued to have its adherents, for instance figures as diverse as Plutarch and Favorinus of Arelate. But it had ceased to exist as a school.

PYRRHONEAN SCEPTICISM

AENESIDEMUS

It is generally agreed nowadays that Pyrrhonean scepticism, whatever its precise relations to Pyrrho may be, owes the particular form in which we know it, primarily through the works of Sextus Empiricus, to Aenesidemus. It also seems that Aenesidemus must have written in the first century BC; recent scholarly opinion has moved away from a date late in the century, primarily to accommodate Cicero's silence on Pyrrhonism, to a date early in the century which, among other things, would best fit Aenesidemus' remarks on his Academic contemporaries.

What motivated Aenesidemus in his work is clear enough. Aenesidemus objected to the turn the sceptical Academy had taken under Philo. In his view, Academics had become virtually indistinguishable from Stoics, holding philosophical views, in fact more or less the same views, for instance in ethics, except that the Academics, equally dogmatically, claimed that, of course, nothing can be known. Photius, who reports this (*Bibliotheca* c. 212, 169b40 ff.), also talks as if Aenesidemus had been, or even had presented himself, as originally an Academic (169b33).

Aenesidemus wrote a good deal, for instance an *On Inquiry* (DL IX, 106), or an *Outline of Pyrrhonism* (DL IX, 78), but a major work of his was the *Pyrrhonean Discourses,* in 8 books (DL IX, 106), and we are fortunate in that for this work we at least have the short abstract made of it by Photius in his *Bibliotheca* (c. 212). The first book constituted some kind of introduction, presumably rather like the first book of Sextus Empiricus' *Outlines of Pyrrhonism;* it dealt at length with the difference between Academic scepticism and Pyrrhonism, but also gave a brief outline of the Pyrrhonist position as a whole. Books II to V dealt with questions of cognition and questions of nature, while the remaining three books were devoted to ethics. Obviously in the last book Aenesidemus argues against the claim that there is such a thing as the end of life, but in particular also against the claim that *eudaimonia* constituted the end (Photius, *Bibliotheca* c. 212, 170b31 ff.). Nevertheless in the introductory book, he holds out as a promise for those who follow the Pyrrhonean way that it will lead to *eudaimonia* (ibid. 169b27).

Scepticism in the ordinary, modern sense had been supported from the fifth century BC onwards by a number of observations which turned into

commonplaces, for instance the observation that different people perceive the same things in different ways. Aenesidemus, it seems, collected them under ten headings as ten tropes, or modes of argument, one might avail oneself of in trying to question any given claim in order to achieve suspension of judgement. Obviously Pyrrhoneans set great stock on these tropes. Their discussion takes up paragraphs 36–163 of the first book of Sextus' *Outlines of Pyrrhonism*.

Pyrrhonism after Aenesidemus enjoyed a long history, though there is no indication that it ever gained a large following. DL IX, 116 provides us with a list of Pyrrhoneans which takes us to the beginning of the third century AD with Saturninus, another Empiricist doctor. But, though the school has a history of almost three centuries, we get no sense of a philosophical development. There are a good number of Pyrrhoneans we can identify and attach this or that fact or view to, but this never adds up to a distinctive philosophical profile. Obviously the doctrine of tropes was developed. The list of ten tropes was rearranged. A clever scheme of five tropes was introduced by Agrippa (DL IX, 88–9; *Pyrrh*. I, 164–77) whom we, though, cannot further identify. As Barnes has shown, they were almost certainly based in part on a reflection on Aristotle's remarks at the beginning of the *Posterior Analytics* about the need for first principles which do not require any proof, if there is to be demonstrative knowledge. For three of the five modes are the modes of infinite regress, of circularity, and of hypothesis, to which are added the modes of disagreement and of relativity. The modes apparently are meant to form a system such that in any discussion of any question they will jointly guarantee that one is able to neutralize any dogmatic claim.

SEXTUS EMPIRICUS

If we are quite well informed about Pyrrhonism, it is because two writings by its last major exponent in antiquity, Sextus Empiricus, have come down to us: the *Outlines of Pyrrhonism* in three books, and the *Adversus Mathematicos* in eleven books. The former consists of two parts: a general exposition of Pyrrhonean scepticism in book I, and arguments against dogmatic positions in logic, physics and ethics in the last two books. The *Adversus Mathematicos* is entirely adversarial. The first six books criticize the doctrines within the liberal arts, apart from dialectic, the last five books criticize the philosophical doctrines in dialectic or logic, physics and ethics. Sextus Empiricus seems to have written before AD 200.

In Sextus Empiricus there is at least superficially a clear demarcation between dialectical arguments and remarks, on the one hand, and remarks *in propria persona,* as it were, on the other. There is an attempt on a large scale to systematically neutralize all major dogmatic theses in philosophy by dialectical arguments to the contrary. And there is at least some attempt to do the same for the liberal arts. These arguments often are layered in the

sense that they not only question the thesis, but also the crucial notion involved in the thesis, arguing that it is ill-formed or at least controversial, such that it is not even clear what the dogmatic wants one to assent to. But it is clear that according to Sextus as a Pyrrhonean one not only suspends judgement concerning theses in philosophy or in the arts, but concerning any claim whatsoever, even concerning things which manifestly appear to be the case, the phenomena (*Pyrrh.* I, 8). Since there are conflicting phenomena or arguments advanced against particular claims of whatever kind, obviously these arguments are not to be understood as proving the claims to be false, but as showing them to be questionable. They are dialectical.

Now, as to the remarks make by the sceptic *in propria persona,* for instance the remarks made by Sextus Empiricus in *Pyrrh.,* book I, they are not to be understood straightforwardly, either, that is to say as claims to the truth. Sextus, right from the outset, in *Pyrrh.* I, 4, puts a rider on whatever he is going to say: he is just reporting his impressions, how things strike him at the moment, in the way an Empiricist doctor reports on his medical cases *(historia)*. Sextus, towards the end of *Pyrrh.* I, in 187–209 (cf. DL IX, 74–7), has a long section on how particular sceptical phrases have to be understood, namely non-dogmatically, as not involving any claim to the truth.

But within these remarks thus qualified by a general caveat, Sextus also tries to explain how this scepticism of unlimited scope still leaves room for the sceptics' having certain impressions or views, rather than others, for instance the impressions or views Sextus reports them as having in book I of *Pyrrh.* And they obviously are not restricted to reports of perceptual impressions or views, but include thoughts and reflections, for instance as to what philosophers are trying to do, what they have done, and whether they have succeeded in what they have been trying to do. After all, as Sextus points out, we are beings who not just naturally perceive, but also think about things (*Pyrrh.* I, 24). And perceiving or thinking about things, there are certain impressions which one seems to be stuck with. However much you think about motion, in the end it still leaves you with the impression that things move. And Sextus is even willing to say that the sceptic gives his assent to such impressions, as he cannot help but have them (*Pyrrh.* I, 13; 19). He does not seem to be particularly concerned whether we call this an 'impression' or a 'belief' (*Pyrrh.* I, 13), as long as it is understood that there is nothing dogmatic about it, that such an acceptance of, or assent to, an impression does not in the least involve the assumption that it is true. Such impressions, which a sceptic cannot help but have, will offer him enough guidance to pursue his life.

The suggestion had been, in particular the Stoic suggestion had been, that a rational, a meaningful, a good life is impossible unless one has the right view about the world and about what is good and what is bad. This is why philosophers had tried to acquire wisdom. In the light of this

assumption a sceptical life seems to be bound to be a failure, since it is not guided by such views. In fact, scepticism has the inherent tendency to eliminate such views, as one can help having them. So where does this leave the sceptic?

Sextus suggests that it turns out that it is the sceptic who will achieve, precisely because of his scepticism, what dogmatic philosophers had set out to achieve, namely peace of mind to the extent that this is a matter of our views or beliefs, and a minimum of suffering to the extent that this is unavoidable (*Pyrrh,* I, 25 ff.): in short happiness to the extent that this is attainable. The reason is this: the sceptic discovers that one can well live without having settled all the questions the dogmatic philosophers thought one had to have settled to have a good life. And the sceptic also discovers that being unencumbered by all these beliefs one actually can do without, one is no longer worried about things in the way one used to worry about them, when one had these beliefs. One may still worry about an illness, but one does not have the additional anxiety generated by the assumption that illness is an evil, or by assumptions as to what one might have to face, if one is going to die from this illness.

It would be a mistake, though, to think that a good life thus conceived of, namely a life unencumbered by self-imposed worries and concerns generated by dogmatic beliefs, was the end or ultimate aim of the sceptic in the sense in which philosophers talk about the end of life. It is not that the sceptic becomes a sceptic to attain this sort of life. It is that, having become a sceptic, he finds himself with this sort of life as a benefit, as it were. Nor is it the case that the sceptic all of a sudden turns into a dogmatic philosopher and claims that this is the good life, that this is the end which we should all aim at in all that we are doing. He is just making an observation, namely the observation that a sceptical life, far from being a disaster, in fact turns out to be the sort of life dogmatic philosophers in fact may have been looking for.

This life, the way Sextus imagines it, is not at all like the life of Pyrrho as suggested by the anecdotes about Pyrrho. It, at least on the face of it, is a rather conventional life (*Pyrrh.* I, 23–4). We follow the impressions we cannot help but have, given the way we perceive and think about things, we eat when we are hungry, we accept the traditional customs even in religious matters, and we exercise whatever art or craft we have learned. All this is possible, without being dogmatic about anything.

Needless to say, this attitude, however attractive it may seem to us, by the end of the second century AD increasingly seemed utterly unattractive, as people more and more obsessively were looking for the knowledge, or at least a set of beliefs, which would save the soul and which would provide some understanding of, and comfort in, a world in which one increasingly felt helplessly exposed to dark and obscure forces, which at any point might cruelly interfere with one's life, however piously one had followed the traditional customs of one's community. In any case, after the beginning of

the third century AD we no longer hear of any Pyrrhoneans. There lingered on still, at least in the West under the influence of Cicero, a kind of enlightened scepticism, which is represented by Caecilius in Minucius Felix's *Octavianus,* and which at one point attracted Augustine. But, with the conversion to Christianity, the days of even such vestiges of scepticism were counted, too.

ABBREVIATIONS

The following abbreviations are used in this chapter.

Ac. Post. Cicero, *Academica Posteriora*

Ac. Pr. Cicero, *Academica Priora*

DK Diels, H. and Kranz, W., *Fragmente der Vorsokratiker,* 6th edn, Berlin, Weidmann, 1951

DL Diogenes Laertius, *Lives of the Philosophers* [6, 1]

Math. Sextus Empiricus, *Adversus Mathematicos (Against the Professors)*

PE Eusebius, *Praeparatio evangelica*

Pyrrh. Sextus Empiricus, *Pyrrhôneiai hypotupôseis (Outlines of Pyrrhonism)*

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CHAPTER 9
The exact sciences in Hellenistic times: Texts and issues[1]

Alan C.Bowen

Modern scholars often rely on the history of Greco-Latin science[2] as a backdrop and support for interpreting past philosophical thought. Their warrant is the practice established long ago by Greek and Latin philosophers, of treating science as paradigmatic in their explanations of what knowledge is, what its objects are, how knowledge is obtained, and how it is expressed or communicated. Unfortunately, when they turn to the history of ancient science, these same scholars usually remain too much under the spell of the ancient philosophers. Granted, it is true that Greco-Latin science often served as a model and touchstone for philosophy and that, on occasion, this philosophy may have inspired science. But the marked tendency to follow Greek and Latin writers in viewing ancient science through the complex, distorting lens of ancient philosophy has hindered recognition that the various sciences of antiquity sometimes differ significantly from one another as well as from philosophy in their intellectual, literary, and social contexts. Moreover, it has encouraged scholars to ignore or even disparage clear indications that some of these sciences were deeply indebted in the course of their history to work outside the Greco-Latin tradition, in Akkadian, for example. And, what is worse, out of ignorance and neglect of the various contexts of ancient science, modern scholars have misrepresented the past fundamentally in numerous ways by resorting to alien predilections and concerns when trying to explain the origins, character, and development of Greek and Latin science.[3] In sum, the amorphous system of learned belief expressed now in handbooks on ancient science and currently underlying the modern interpretation of ancient philosophy, for instance, is largely inadequate and erroneous.

This failure of previous scholarship challenges historians of ancient science today to re-think the entire project from its beginning. In effect, it compels one to start afresh by imagining oneself the first modern scholar confronted with all the extant literary documents (papyri, inscriptions, manuscripts) and material artifacts (instruments) that come to us from the ancient Mediterranean and Near Eastern worlds. Such a prospect is admittedly daunting and brings to mind a variant of Meno's question (cf. Plato, *Meno* 80d–e): how can you seek to understand ancient science if you

do not already know what it is, and how will you know that you have understood it? There are, of course, several well known ways to answer this in the abstract. But the real task is to work out a credible solution in the particular, that is, in the process of analyzing historical data. And, as I have found in studying ancient astronomy and harmonic science, this process involves a vital, corrective interplay between historical analysis and reflection on how this analysis proceeds. In fact, the process is, I think, heuristic in the sense that medicine was said to be heuristic on the grounds that the goal of the physician's craft, health, is articulated and known only through treating specific patients.

Given that the standard accounts of Greco-Latin science are at best controversial and should be abandoned in most part, and since the development of alternative accounts is still in its earliest stages, I must decline in what follows to attempt a survey. Instead, I propose to confine my remarks to a few sample texts in Greek written in the interval between the death of Alexander the Great in 323 BC and the beginning of the third century AD. There is no great significance to this period so far as the exact sciences themselves are concerned: it simply covers the range in time of the documents I have chosen to discuss. And I select these texts because they provide the earliest direct evidence of certain features of ancient science that will, I trust, be of interest to historians of science and philosophy.

In describing a text as direct evidence for some claim or other, I mean that the text itself is a sufficient basis for verifying the claim. Such direct evidence stands in sharp contrast to indirect evidence in the form of citations (that is, quotations, translations, paraphrases, and reports). For, one cannot verify a claim on the strength of indirect evidence alone; what one needs in addition is independent argument for maintaining that the citation is accurate and reliable. Since there are no general rules validating the accuracy or reliability of indirect evidence, such argument must be made case by case and is, in my experience, both difficult and rarely successful.

Restricting attention primarily to direct evidence may seem unduly cautious at first. But it is, I submit, the only policy that makes sense at the outset of any radically critical, historical investigation of the sort now called for. In any case, this policy does offer substantial advantages. To begin with, confirmation by recourse to direct evidence introduces an order of certainty that cannot be attained on the basis of indirect evidence or citations. The reason is that much of our indirect evidence concerns documents no longer available for inspection; thus, the most one may hope for in justifying reliance on this evidence is an argument for the probability of its accuracy. Such arguments, however, usually fail because they involve reading the historian's own expectations into the past, expectations often concerning empirical matters about which there may be considerable uncertainty and reasonable doubt. Next, if one is strict about how evidence is used and does not introduce indirect evidence except when it is

demonstrably credible—and even then one should decline to build on it, since probabilities diminish when multiplied—the preference for direct evidence will counteract a major failing in traditional histories, the valorization of certain texts and authors at the expense of others. Finally, in dating the occurrences of concepts, theories, and the like, the historian may rely on direct evidence to identify the *latest* (that is, most recent) date possible for their introduction. This will seem a small gain, particularly to those who think it the proper business of historians to conjecture *earliest* possible dates. But such a program of conjecture is an enterprise to which there is no end except by convention. Moreover, by discouraging full appreciation of the documents we actually have, this fascination with the earliest dates assignable for the occurrences of concepts and theories in Greco-Latin science underlies in part the scholarly neglect of the Akkadian and Egyptian scientific traditions which, in various forms and sometimes through intermediaries, interacted with the Greek and Latin traditions.

The preceding will have to suffice as an *apologia* for my deciding to present the history of the exact sciences in Hellenistic times by way of narrowly defined case-studies. Though such an approach is not without precedent (cf., for example, Aaboe 1964), it is admittedly a departure from the great number of general surveys and narrative accounts currently available.[4] The texts I have selected are: Archimedes, *De lineis spiralibus* dem. 1; Geminus, *Introductio astronomiae* ch. 18; and Ptolemy, *Harmonica* i 1–2. These texts have no explicit connection. Nevertheless, they raise fundamental issues in the history of ancient science that are well worth pursuing (in studies that are, of course, suitably cognizant of historiographic matters). Indeed, there are running through these texts thematic concerns about the conception and mathematical analysis of (loco) motion, the nature of scientific communication, and the role in such communication of observation and mathematical theory.

MOTION IN MATHEMATICS: ARCHIMEDES

In his *De lineis spiralibus,* Archimedes (died 212 BC) analyzes fundamental properties of a curve of his own invention, now called the spiral of Archimedes. In the letter prefacing this treatise, the statement of the conditions under which this curve is produced comes first in a list of propositions about the spiral that are proven in the treatise proper (cf. Heiberg 1910–23, ii 14–23). Later, immediately after the corollary to dem. 11, this same statement reappears virtually unchanged as the first of a sequence of definitions. According to the latter formulation,

> if a straight line is drawn in a plane and if, after being turned round as many times as one pleases at a constant speed while one of its extremities is fixed, it is restored again to the position from which it started, and if, at the same time as the line is turned about, a point

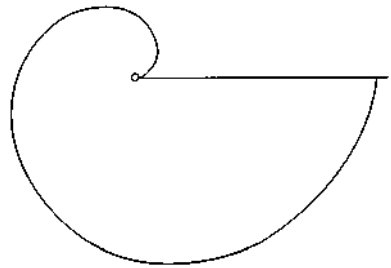

Figure 9.1 Archimedes' spiral (one revolution)

> moves at a constant speed along the straight line beginning at the fixed extremity, the point will describe a spiral in the plane.
>
> (Heiberg 1910–23, ii 44.17–23; cf. 8.18–23)

The first eleven demonstrations of the *De lineis spiralibus* establish what is necessary for the subsequent theorems on the spiral itself. The first two of these auxiliary demonstrations are devoted to properties of the motion of points on straight lines at constant speeds. In dem. 1 (Heiberg 1910–23, ii 12.13–14.20), Archimedes proposes to show that

> if a point moving at a constant speed travels along a line and two segments are taken in the line, the segments will have the same ratio to one another as the time-intervals in which the point traversed the segments.

The argument opens by specifying the task as follows (see Figure 9.2):

> let a point move along a line AB at a constant speed, and let two segments, CD and DE, be taken in the line. Let the time-intervals in which the point traverses CD and DE be FG and GH respectively. It is required to prove that the segment CD will have the same ratio to the segment DE as the time-interval FG will have to the time-interval GH.

Next, Archimedes makes some assignments:

> let AD, DB be any multiples of CD,DE respectively, So that AD>DB; (1)
>
> let LG be the simple multiple of FG as AD is of CD, and (2)
>
> (let) GK be the same multiple of GH as BD is of DE. (3)

The assignment in (1) is based on a lemma that Archimedes has stated in his covering letter to the treatise:

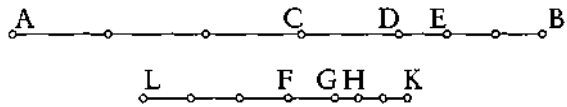

Figure 9.2 Archimedes, De lineis spiralibus dem. 1

> if there are unequal lines or areas, the excess by which the greater exceeds the less can, when added to itself, exceed any assigned [magnitude] belonging [in kind] to those which are compared with one another. (4)
>
> (Heiberg 1910–23, ii 12.7–11: cf. *De sphaera et cylindro* post. 5; *Quadratura parabolae* praef.)

That is, in modern terms,

> if a and b are magnitudes and $a>b$, there is a whole number n such that $n\cdot(b-a)>c$, where c is any magnitude of the same kind as a and b[5]

The reasoning behind the assignment in (1) seems to be as follows. Any magnitude such as a line or area is divisible into a whole number of smaller magnitudes of the same sort. Thus, given any point D in AB and any whole numbers p and q, it is always possible to specify CD and DE such that

$$\text{AD} = p \cdot \text{CD} \text{ and } \text{DB} = q \cdot \text{DE}. \quad (5)$$

(This holds true, of course, regardless of whether AD and DB are commensurable or incommensurable, or whether AD>DB or AD=DB or AD< DB.) Now, since CB>DB and given the lemma in (4), there is, then, a whole number n such that

$$n \cdot (\text{CB} - \text{DB}) > \text{DB} \qquad \text{that is, } n \cdot \text{CD} > \text{DB}. \quad (6)$$

$$\begin{aligned} &\text{But, either} \quad n \cdot \text{CD} \leq \text{AD} \qquad \text{or } n \cdot \text{CD} > \text{AD}, \\ &\text{that is, in light of (5), either } n \leq p \qquad \text{or } n > p. \\ &\text{Thus, from (6) it follows that if } n \leq p, \text{ then AD} > \text{DB}, \end{aligned} \quad (7a)$$

which is the case Archimedes considers,

$$\text{and that if } n > p, \text{ then AD} < \text{DB}, \quad (7b)$$

if one assumes also that n is the least number to satisfy (6).

After stipulating (1), (2), and (3), Archimedes draws attention to the fact that the point moves at a constant speed along AB. Obviously, he says, this point will then traverse each of the segments of AD that is equal to CD in the same time that it takes to traverse CD. Thus, given (2), he infers that LG is the time-interval in which the point traverses AD; and, similarly, given (3), that GK is the time-interval in which the point traverses DB. Accordingly, he maintains, since AD is greater than DB, the point will take more time to traverse AD than DB; that is,

$$\text{since AD} > \text{DB, therefore LG} > \text{GK.} \tag{8}$$

Likewise, he says by way of generalization, if one takes any multiple of FG and any multiple of GH so that one of the resultant time-intervals exceeds the other, it will be proven that the line-segment corresponding to the greater time-interval will be greater, because these line-segments are to be produced by taking the corresponding multiples of CD and DE. In other words,

$$\text{if } r \cdot \text{FG} > s \cdot \text{GH, then } r \cdot \text{CD} > s \cdot \text{DE} \tag{9a}$$

or

$$\text{if } r \cdot \text{FG} < s \cdot \text{GH, then } r \cdot \text{CD} < s \cdot \text{DE.} \tag{9b}$$

where r and s are whole numbers.

Finally, Archimedes concludes that

$$\text{CD has the same ratio to DE that FG has to GH.} \tag{10}$$

This conclusion that CD:DE :: FG:GH rests on an unstated condition for asserting that magnitudes are in the same ratio, a condition of the sort given by Euclid in *Elementa* v. def. 5:

> magnitudes are said to be in the same ratio, the first to the second and the third to the fourth, when, if any equimultiples whatever be taken of the first and third, and any equimultiples of the second and fourth, the former multiples alike exceed, are alike equal to, or alike fall short of, the latter equimultiples respectively taken in corresponding order.
>
> (Heath 1956, ii 114: cf. 120–6)

Thus, (10) specifically requires (9a) and (9b) as well as that

$$\text{if } r \cdot \text{FG} = s \cdot \text{GH, then } r \cdot \text{CD} = s \cdot \text{DE} \tag{9c}$$

all which follow readily from the basic fact that the motion is constant.

A striking feature of the *De lineis spiralibus* is that Archimedes nowhere gives an explicit mathematical or quantitative definition of constant speed. The locutions he uses to express this concept suggest that he is starting instead from the qualitative notion that a body moves at the same or constant speed *(isotacheôs)* if it changes place at the same speed as itself (Heiberg 1910–23, ii 12.13–14: cf. 8.21, 44.21–2), that is, if it is unchanging in its swiftness or speed *(tachos)*. This point will, of course, be

lost if one insists on modern convention and supposes that, for Archimedes too, the speed of a body is the quotient of the distance it travels divided by the time taken to travel that distance. But this is not, in fact, how Archimedes *presents* speed: for instance, he characterizes sameness of speed not as an equality of quotients obtained when distances are divided by time-intervals, but by identifying the ratio of line-segment to line-segment and the corresponding ratio of time-interval to time-interval. This may, admittedly, be an artifact of the 'rules' of mathematical exposition during his time, in particular, of the formal condition that ratios be defined only between magnitudes of the same kind (cf. Euclid, *Elementa* v defs. 3–4); and so it may not be a sure guide to the way Archimedes actually conceived speed. (In the next section, I consider a text from the first century AD in which quotients of unlike quantities are in fact computed, though it is still not said that these quantities stand in a ratio to one another.) Accordingly, let us leave open the question of how Archimedes thinks of speed or swiftness and concentrate instead on how he expresses it. And, on this count, I find in dem. 1 and the rest of the *De lineis spiralibus* that he talks of speed as a quality of bodies that is quantifiable only in relation to other instances of this quality; and, moreover, that constancy of speed is to be understood as the sameness of this quality over time in a given body.

The next question, however, is whether such talk is supplanted by a quantitative definition in dem. 1. That is, does Archimedes, as some suppose, *posit* that traversing line-segments in equal times is just what motion at a constant speed is; or does he *infer* that a point will traverse equal line-segments in equal times from the fact that it moves with a constant speed (cf. Dijksterhuis 1987, 140–1)? The critical passage

> now, since it is posited that the point moves at a constant speed along the line AB, it is clear that it travels CD in the same amount of time as it also traverses each of the segments equal to CD.
>
> (Heiberg 1910–23, ii 12.30–14.4)

is, regrettably, not decisive. Nevertheless, there is, I think, compelling reason to maintain that Archimedes does not in fact identify motion at a constant speed with traversing equal segments of a straight line in equal times. For, as he is well aware, in the course of each revolution, though the generating point of the spiral always describes equal angles in equal times about the spiral's origin, that is, about the fixed extremity of the generating line, and though it always traverses equal segments of the generating line in the same equal times as well, this same point traces out arcs of the spiral itself that are not equal to another (cf., for example, dem. 12). In other words, the very construction of the Archimedean spiral entails that the generating line (and, hence, any point on it) will by virtue of its constant revolution define equal angles in equal times about the fixed extremity; and that the generating point will by virtue of its constant motion on the

generating line traverse equal segments of this line in equal times. Yet, the combined motion of the generating point and line has the result as well that this point will not describe equal arcs of the spiral in equal times. Thus, from the vantage point of Archimedes' *De lineis spiralibus,* the qualitative idea of motion at a constant speed has to be more fundamental than the quantitative ideas of traversing equal segments of a straight line or equal angles of a circle in equal times. In fact, since these are the relevant ways of quantifying the motion of the generating point, and since they are not equivalent here, it would be a serious blunder to open a treatise on spirals with a demonstration presupposing that motion at a constant speed is to be *defined* simply as traversing equal segments of a straight line in equal times.

Let us now consider briefly the preface to Autolycus' *De sphaera quae movetur*. Autolycus begins by declaring that

> a point is said to move smoothly *(homalôs)* when it traverses equal or similar magnitudes in equal time-intervals. If a point moving smoothly along some line[6] traverses two segments, the ratio of the time-intervals in which the point traverses the corresponding segments and the ratio of the segments will be the same.
>
> (Mogenet 1950, 195.3–8)

The first sentence gives clear indication that smooth motion has been defined mathematically in terms of line-segments and time-intervals, albeit not as a quotient. In short, though this treatise and the *De lineis spiralibus* agree that motion can be characterized quantitatively, Autolycus' treatise alone stipulates that smooth motion is just traversing equal line-segments in equal times. Indeed, that Autolycus calls the point's motion smooth *(homalês)* rather than constant *(isotachês)* may signify that this definition was seen to obviate any need to present such motion in terms of a point's moving at the same speed as itself. Yet, while Autolycus explicitly defines (or reports a definition of) smooth motion, he simply states the theorem about the proportionality of time-intervals and line-segments. That is, he does not offer a proof covering the case of straight lines (such as Archimedes does in *De lineis spiralibus* dem. 1) or the case of circular arcs on a sphere, the latter of which is crucial for his treatise.

Two points emerge from this. First is that our understanding of the history of the exact sciences can only advance if proper attention is given to the language in which it is expressed. For example, any interpretation that renders both Archimedes' 'at a constant speed' and Autolycus' 'smoothly' by 'uniformly' will obliterate the complexity in the conceptual and linguistic apparatus that underlies the difference in their terminology. Indeed, to see that the very idea of 'uniform' motion is itself problematic in ancient texts, the reader should consult Aristotle, *Physics* 228b1–30. Second is that, so far as I can tell given the documentary evidence

available, Archimedes was first to appreciate the complexity of the 'equal segments of a straight line in equal times', the 'equal arcs in equal times' and the 'equal angles in equal times' formulae in curvilinear motion and to ground them all in the qualitative idea that a body moving at a constant speed changes place at the same speed as itself.

Was Autolycus, then, the first to realize that, in the special case of a point's circular motion at a constant speed, the first formula was irrelevant, that the latter two formulae were equivalent, and that such motion (here called smooth) could be defined in terms of either? This question is difficult to answer. Perhaps he was, but the same ideas figure in the *Phaenomena* attributed to Euclid. Now, this treatise itself can be dated only to the period from the third to the first centuries BC.[7] Thus, to affirm priority for Autolycus in the mathematical definition of constant circular motion would require knowing his dates relative to Euclid's[8] and whether Euclid actually wrote the *Phaenomena,*[9] since the case for assigning Autolycus to the period from 360 to 290 BC (Aujac 1979, 8–10; cf., for example, Mogenet 1950, 5–7, 8–9) is nugatory.[10]

Apart from these concerns about the history of the idea of constant motion, it is important to realize that Archimedes' very inclusion of motion of any sort in the definition of his spiral is also remarkable. In the works of Euclid, for example, motion is limited to the construction of figures defined statically (cf. for example, *Elementa* i defs. 15–22, dem. 46) and to serving as a hidden assumption in proofs of such relations among figures as congruence (cf. Euclid, *Elementa,* i not. com. 4, with Heath 1956, i 224–31).

Now, a common way of interpreting this contrast is to suppose that Euclid belongs to a stage in the history of Greek mathematics earlier than Archimedes. The case offered thus far for this view, however, is unavailing, resting as it does on no more than an ancient inference concerning an anecdote told also of Menaechmus, a mathematician of the fourth century BC, and Alexander the Great, as well as on two suspect citations in Archimedes' *De sphaera et cylindro* (see Bowen and Goldstein 1991, 246 n30). But, if Euclid's work is not demonstrably earlier than Archimedes', should one continue to view it as earlier in substance or form? This too is a difficult question, in part because it requires what has yet to be undertaken in any serious way, a critical study of the ancient *testimonia* about Euclid and the early history of Greek mathematics. In such a study of Proclus' reports, for example, the alternatives against which the claims are judged will have to be founded on more than the simple-minded dichotomy that Proclus is either lying or telling the truth. Indeed, it will have to be rooted in a full examination of Proclus' historiography, an examination informed by awareness of the numerous ways in which the ancients use history to make their cases and persuade their contemporaries. And should it turn out that Euclid's work draws on and even recasts earlier mathematical theory, it will still be valuable to discover its intellectual and cultural context, as

this context was defined in the third century when Archimedes was active. This will, of course, require paying attention to philosophical, technical, and social issues bearing on the understanding and treatment of motion that have too long been ignored in the scholarly haste to locate Euclid in relation to Aristotle and the Academy.

THE ARITHMETICAL ANALYSIS OF LUNAR MOTION: GEMINUS

The *Introductio astronomiae* by Geminus dates from the century or so prior to Ptolemy (*c.*100–*c.*170 AD; cf. Toomer 1978, 186–7).[11] It is, accordingly, one of a number of valuable witnesses to the character of the astronomical theory which Ptolemy inherited and transformed. Of particular interest is Geminus' account of lunar motion in chapter 18. For it is here that Geminus not only shows some awareness of Babylonian astronomy, he undertakes to state its *rationale*. Granted, his account is historically incorrect, as we now know (cf. Neugebauer 1975, 586–7). But to focus on this is to miss the fundamental point that this chapter is the earliest Greco-Latin text available today that tries to explain the structure and derivation of a common Babylonian arithmetical scheme for determining the daily progress of a planet, the Moon.[12] So, let us turn to his account and examine it in detail.

Chapter 18 (18.1–19) begins by introducing the *exeligmos,* which Geminus describes as the least period containing a whole number of days, months, and lunar returns.[13] By 'month' Geminus understands a synodic month, that is, the period from one coincidence of the Sun and Moon at the same degree of longitude on the ecliptic (conjunction) to the next, or from one full Moon to the next. As for 'lunar return', Geminus explains that the Moon is observed traversing the ecliptic unsmoothly *(anômalôs)* in the sense that the arcs of the ecliptic which it travels increase day by day from a minimum to a maximum and then decrease from this maximum to the minimum. Thus, a lunar return—nowadays called an anomalistic month—is the period from one least daily lunar motion or displacement *(kinêsis)* to the next.

After claiming that, according to observation,

one synodic month is nearly 29 ϛ $\overline{33}$ (= 29;31,49,5) days, (1)

and

one anomalistic month is nearly 27 ϛ $\overline{18}$ (= 27;33,20) days,[14] (2)

Geminus remarks that the problem was to find the least period containing a whole number of days, months, and lunar returns, that is, to discover the *exeligmos*. This period, he says (*Introductio astronomiae* 18.3; cf. 18.6), has been observed to comprise

669 (synodic) months, or
19,765 days, (3)

in which there are

717 lunar returns (anomalistic months), or
723 zodiacal revolutions plus 32° by the Moon.

According to Geminus, since these phenomena, 'which have been investigated from ancient times' are known, it remains to determine what he calls the Moon's daily unsmoothness *(anômalia)* in longitude. Specifically, he continues, this means finding out what is its minimum, its mean *(mesê)* and its maximum daily displacement, as well as the daily increment by which this displacement changes, taking into account the additional observational datum that

$$11° < m < 12° \text{ and } 15° < M < 16° \tag{4}$$

where m is the minimum daily displacement and M the maximum daily displacement. From (3), Geminus reckons that the Moon's

$$\text{(periodic) mean daily displacement} = \frac{723 \cdot 360° + 32°}{19756} = 13;10,35°, \tag{5}$$

a value which he suggests the Chaldaeans discovered in this way, and that

$$1 \text{ anomalistic month} = \frac{19756}{717} = 27;33,20 \text{ days}. \tag{6}$$

My insertion of 'periodic' in parentheses in (5) is for the reader's benefit, because throughout this chapter Geminus writes of two different and independent sorts of mean motion or mean daily displacement without making any terminological distinction. Thus far, he has computed the Moon's mean motion by taking the *periodic* relation stated in (3), converting the number of sidereal cycles to degrees, and dividing the resultant number of degrees by the number of days.

As for the computation in (5) itself, it actually yields 13; 10, 34, 51, 55… ° as the value for the periodic mean daily displacement of the Moon; but Geminus' 13; 10, 35 may be excused as a rounding (cf. Aujac 1975, 95 n1). More puzzling, however, is the computation of the length of the anomalistic month in (6), since

$$\frac{19756}{717} = 27;33,13,18,19\ldots\text{days}, \tag{6a}$$

which differs somewhat from Geminus' 27; 33, 20 days. (The difference amounts to 1; 20 days in one *exeligmos*.)

One possibility is that Geminus has wrongly taken it for granted that his computation of the length of the anomalistic month in (6) yields the value stated in (2), namely, . Another possibility is that Geminus is here 'telescoping two different (Babylonian) methods into one' (Neugebauer 1969, 185: cf. 162). For, if one follows Neugebauer (1975, 586) and focuses only on the parameters of Geminus' account, it seems that Geminus is drawing on two different Babylonian text-traditions, namely, on texts from Uruk presenting a scheme in which the lunar displacement is 13; 10, 35o/d and the length of the anomalistic month is 27; 33, 20d, and

on Babylonian Saros-texts, the Saros being a cycle in which the length of the anomalistic month is 27; 33, 13, 18, 19…days. A third possibility, and perhaps the most charitable, is that Geminus actually understands the number of anomalistic months in the *exeligmos* to be derived from the length of the anomalistic month by computing

$$\frac{19756}{27;33,20} = 716;57,5\ldots \approx 717 \text{ anomalistic months.} \tag{6b}$$

Next, Geminus divides the anomalistic month of 27; 33, 20 days into four equal subintervals such that

$$I(m, \mu) = I(\mu, M) = I(M, \mu) = I(\mu, m) = 6;53,20 \text{ days,} \tag{7}$$

where, for example, I(m, μ) is the interval from the day of minimum lunar displacement to the day of (arithmetic) mean lunar displacement (μ). Then, he argues, since the Moon's

$$\text{(arithmetic) mean daily displacement} = \mu = \frac{M + m}{2} = 13;10,35^\circ \tag{8}$$

$$\text{(cf. (5)), it follows that } M + m = 26;21,10^{\circ/d}. \tag{9}$$

This argument introduces a second type of mean motion. For here, Geminus presents μ as what I propose to call an *arithmetic* mean daily displacement, that is, the simple average of two extreme values for daily lunar displacement in longitude.

Now, according to Geminus, the sum of the maximum and minimum daily displacements is known from observation to be only 26°; the fractional part, 0; 21, 10°, apparently escapes observation by instruments. This means, he says, that one has to assign 0; 21, 10° to *M* and *m* in a way that meets three conditions (see (4), (9)):

$$M + m = 26;21,10^{\circ/d},\ m \gtrdot 12^{\circ/d}, \text{ and } M \gtrdot 16^{\circ/d}.^{15} \tag{10}$$

To do this, Geminus first reiterates that in each of the four subintervals of the anomalistic month (see (7)), the daily difference *(d)*—which is either incremental or decremental—is the same; this means, he remarks, that one has to find *d* such that

$$\begin{gathered} d \cdot 6;53,20 = k \\ 11^\circ < (\mu - k) < 12^\circ \qquad 15^\circ < (\mu + k) < 16^\circ, \text{ and} \\ ((\mu - k) - 11^\circ) + ((\mu + k) - 15^\circ) = 0;21,10^\circ \end{gathered} \tag{11}$$

(see (9)), where *k* is the Moon's total displacement in longitude in 1/4anomalistic month.

The value for the daily difference, he flatly declares in conclusion, is 0; 18°. For,

$$\begin{aligned} &\textbf{if} && d = 0;18^{\circ/d} \text{ and } \mu = 13;10,35^{\circ/d}, \\ &\textbf{then} && k = 0;18^{\circ} \cdot 6;53,20^{d} = 2;4^{\circ} \\ &\textbf{and} && M = \mu + k = 13;10,35 + 2;4 = 15;14,35^{\circ/d} \\ & && m = \mu - k = 13;10,35 - 2;4 = 11;6,35^{\circ/d}. \end{aligned} \tag{12}$$

This declaration of the scheme's basic parameters is, however, a *non sequitur*. Geminus does not supply enough information to deduce the value for the daily difference in the Moon's longitudinal motion. In fact, what he gives suffices only to specify a range of values for d. To see this, consider the values for d when $m(=\mu-k)$ and $M(=\mu+k)$ take on the extreme values of the range of possible values indicated in (11). Suppose, for instance, that

$$m = \mu - k = 11^{\circ/d}.$$

From (8) and (11) it would follow that

$$d = \frac{13;10,35-11}{6;53,20} = 0;18,57\ldots^{\circ/d}.$$

Similarly, if

$$m = \mu - k = 12^{\circ/d},$$

then

$$d = \frac{13;10,35-12}{6;53,20} = 0;10,14\ldots^{\circ/d}.$$

Accordingly, given (4),

$$0;10,14,\ldots^{\circ/d} < d < 0;18,57\ldots^{\circ/d}. \tag{13}$$

Likewise, if

it would follow from (8) and (11) that

$$d = \frac{15-13;10,35}{6;53,20} = 0;15,52\ldots^{\circ/d};$$

$$\textbf{and, if} \qquad M = \mu + k = 16^{\circ/d},$$

$$\textbf{that} \qquad d = \frac{16-13;10,35}{6;53,20} = 0;24,35\ldots^{\circ/d}$$

Again, given (4),

$$0;15,52\ldots^{\circ/d} < d < 0;24,35\ldots^{\circ/d}. \tag{14}$$

Therefore, from (13) and (14), it follows that

$$0;15,52\ldots^{\circ/d} < d < 0;18,57\ldots^{\circ/d}. \tag{15}$$

Obviously, one could select a value for d by rounding the lower bound in (15) upwards to $0;16^{\circ/d}$ or by truncating the upper bound to $0;18^{\circ/d}$ (cf. Neugebauer 1975, 587). It is, of course, not possible to decide in light of the text alone whether Geminus' claim that d is $0;18^{\circ/d}$ was reached by truncation. Indeed, one should not discount the possibility that the value

Geminus assigns *d* was given at the outset or entailed in the information he had.

Chapter 18 is the earliest text extant in Greek or Latin to present an account of an arithmetical scheme of a type now associated with the Babylonians. Since Geminus mentions the Chaldaeans, and since he ascribes this account to no one else, it would seem that he is in fact reconstructing what he takes to be the theory underlying information that ultimately came to him from Mesopotamia. So one may reasonably ask, what did he actually have? Presumably, he had access either to tabular data itself, to a set of procedures for entering the data, or to an account of how this data was organized data. Unfortunately, there is no way to determine which was the case.

Still, it is true that in chapter 18 Geminus describes the arithmetical principles and parameters underlying tables for daily lunar motion, of a sort we now have from Uruk (Neugebauer 1969, 161–2; 1975, 480–1). In modern terms, these ephemerides are said to be structured according to a linear zigzag function (see Figure 9.3) in which

$$\begin{aligned} &M = 15;14,35^\circ && \mu = 13;10,35^\circ \\ &m = 11;6,35^\circ && \text{amplitude } (\Delta) = (M - m) = 4;8^\circ \\ &d = 0;18^\circ \end{aligned} \qquad (16)$$

and, thus,

$$\text{period } (P) = \frac{2D}{d} = 27;33,20 \text{ days (cf. (12); Neugebauer 1975, 374–5).} \qquad (17)$$

At the same time, Geminus' account of the *exeligmos* derives from a Babylonian eclipse-cycle now called the Saros (cf. Neugebauer 1969, 141–2). According to the Saros-cycle,[16] in a period of 223 synodic months, as the New or Full Moon returns 242 times to the same position relative to the same node, the Moon completes 239 cycles of its unsmooth motion in longitude, and travels through the zodiac 241 times and 10; 30° (see Britton and Walker 1996, 52–4). In other words,

223 synodic months = 239 anomalistic months=242 draconitic months[17]
= 241 zodiacal revolutions by the Moon and 10; 30°[18]
= 6585; 20

This cycle was certainly known in some form to Greco-Latin writers in Geminus' time. Pliny (*Historia naturalis* ii 56), for example, affirms that eclipses recur in cycles of 223 months.[19] The *Introductio astronomiae,* however, would seem to be the oldest surviving Greek or Latin text to introduce the *exeligmos,* an eclipse-cycle three times as long as the Saros-cycle, albeit without giving any indication of its purpose or its essential structure.[20] Geminus does not, for instance, connect the *exeligmos* with

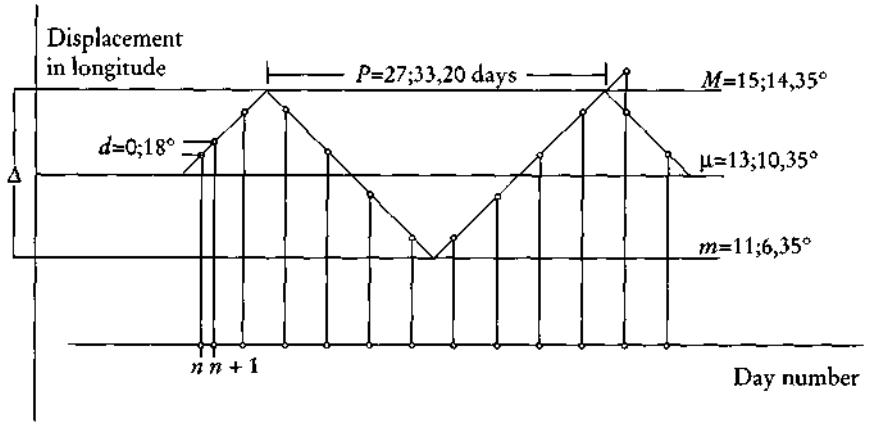

Figure 9.3 A linear zigzag function for lunar motion in longitude

eclipses explicitly, and he does not mention the critical correlation of 669 (=3·223) synodic months with 726 (=3·242) draconitic months. Indeed, for a full statement of the *exeligmos* by a Greco-Latin writer, one must turn to Ptolemy, *Almagest* iv 2.[21]

Geminus is silent about the relation between his *exeligmos* and the Babylonian Saros. Now, it is possible that this is due to his ignorance of the fact that Saros is an eclipse-cycle and that the *exeligmos* is a longer version of the Saros. Yet, at the same time, it is also possible that he has suppressed this information in order to present the *exeligmos* as just another calendrical cycle of the sort he describes in *Introductio astronomiae* ch. 8. So, his silence permits no conclusions about the condition and form of the data that he reconstructs in chapter 18. Still, it is clear that, at the very least, he had Babylonian values for the Moon's mean daily displacement in longitude (13; 35, 10°), the daily difference in the Moon's displacement in longitude (0; 18°), and the mean anomalistic month (27; 33, 20^{d}), as well as the equation,

19756^{d}	=	669 (synodic) months
	=	717 anomalistic months
	=	723 revolutions by the Moon+32°.

Though Geminus is right that the Babylonians had long ago identified the *exeligmos,* his claim about how they did it is unwarranted and implausible. Indeed, when one considers Babylonian lunar ephemerides of the sort that lie behind his account (cf. Neugebauer 1955, nos 190–6), it is difficult not to conclude that he was either unfamiliar with them or that he failed to realize that their schematic character makes it virtually impossible to determine their observational basis.

Nevertheless, on its own terms, Geminus' account in chapter 18 of the *exeligmos* and of lunar motion in longitude is noteworthy, in the first place, because he seeks to derive the scheme by which the data in these ephemerides are organized from a few parameters. Granted, this derivation does not come with an epoch or starting-point for the anomalistic month: Geminus neither gives such a date nor indicates how to determine one. Thus, he does not recognize, or allow for, any interest there might be in actually determining the Moon's position in longitude at a given time. Next, Geminus' account is also notable because he identifies fundamental parameters as observational data. Admittedly, this is scarcely credible even on Geminus' own terms, if, as he reports (*Introductio astronomiae* 18.14), the best observation can do (with the aid of instruments) is to determine the sum of *M* and *m* to the nearest degree, a remark which is at odds with his claim that the values for the synodic and anomalistic months reported in (1) and (2) have been observed. And, as I have said, so far as history is concerned, though there is certainly some observational basis to the Babylonian Saros-texts and to the lunar tables from Uruk, there is no warrant for supposing that it consisted in observing the fundamental parameters of the arithmetical schemes structuring these tables. Still, Geminus' assumption that these basic parameters were observed is important as an indication of how he understands astronomy and its use of mathematics. For Geminus, apparently, his arithmetical scheme actually describes the Moon's unsmooth motion in longitude, and the accuracy of this description is guaranteed by the fact that it derives from arithmetical manipulation of observed parameters. Regrettably, he leaves unanswered pertinent questions about what counts as an observation, how observations are made, and so on.

Moreover, within the context of the *Introductio astronomiae,* Geminus' arithmetical account of lunar motion in longitude is also remarkable for two reasons. First is that it contrasts sharply with the rest of the treatise. Only in chapter 18 (and chapter 8, which concerns calendrical cycles) does Geminus introduce quantitative argument. Elsewhere, his remarks are qualitative and geometrical. Thus, in his account of the Sun's unsmooth motion in longitude (*Introductio astronomiae* 1.18–41), for example, though he supposes that it is only apparent because the Sun moves at a constant speed on a circle eccentric to the Earth, Geminus does not use his values for the lengths of the seasons (cf. 1.13–17) to specify the eccentricity of this circle and so on (cf. Neugebauer 1975, 581–4).

Second, and more striking, is that Geminus' account of lunar motion in chapter 18 is at odds with principles laid down earlier in the treatise. For, as he writes:

> It is posited for astronomy as a whole that the Sun, Moon, and five planets move at a constant speed *[isotachôs]*, in a circle, and in a direction opposite to [the daily rotation of] the cosmos. For the

> Pythagoreans, who first came to investigations of this sort, posited that the motions of the Sun, Moon, and five planets were circular and smooth *[homalas]*. Regarding things that are divine and eternal they did not admit disorder of the sort that sometimes [these things] move more quickly, sometimes more slowly, and sometimes they stand still (which they call stations in the case of the five planets). One would not even admit this sort of unsmoothness *[anômalian]* of motion regarding a man who is ordered and fixed in his movements. For the needs of life are often causes of slowness and speed for men; but as for the imperishable nature of the celestial bodies, it is impossible that any cause of speed and slowness be introduced. For which reason they have proposed [the question] thus: How can one explain the phenomena by means of circular, smooth motions?
>
> Accordingly, we will give an explanation concerning the other celestial bodies elsewhere; but just now we will show concerning the Sun why, though it moves at a constant speed, it traverses equal arcs in unequal times.
>
> (*Introductio astronomiae* 1.19–22)

This means that the arithmetical scheme presented in chapter 18 does not describe the Moon's real motion in longitude; at best, it can represent the Moon's apparent motion—assuming, for the moment, with Geminus that the daily variations in the Moon's longitudinal displacement are indeed observable. But, if so, Geminus has yet to supply the account of the Moon's real motion in longitude that he has promised. Such an explanation would, of course, have to overcome a serious problem; namely, that there is no way, using resources presented in the treatise thus far, to construct a coherent argument that begins with the qualitative geometry of the Moon's real motions and concludes with the arithmetical detail of his scheme for the Moon's apparent motion. In short, by introducing the sort of arithmetical detail that he does in his account of the Moon's 'observed' variable motion in longitude, Geminus undermines his ostensible project of explaining this motion in terms of the smooth circular motion(s) that it supposedly makes in reality. In effect, chapter 18 exposes a problem at the heart of Greco-Latin astronomy of the time that becomes evident once it attempts to incorporate in its explanatory structure arithmetical procedures and results from Babylonian astronomy.

Geminus' mean daily displacement can only be an *apparent* lunar motion in longitude and not one the Moon *really* makes, if the mean in question is arithmetic. If the mean is periodic, however, the Moon's mean daily displacement can become a basis for specifying its true or real motion. But it would take Ptolemy to straighten out Geminus' conflated notion of mean motion and its relation to real and apparent planetary motion. Indeed, part of Ptolemy's genius lay in seeing that texts such as Geminus' *Introductio astronomiae* were typical of what was wrong with the astronomy of his time;

that, in assimilating Babylonian astronomy, earlier and contemporary Greco-Latin writers betrayed a confused, inconsistent, and insufficiently sophisticated grasp of the proper role of arithmetic, geometry, and observation in astronomical argument (see Bowen 1994).

HEARING AND REASON IN HARMONIC SCIENCE: PTOLEMY[22]

In the opening chapter to his great astronomical work, the *Almagest,* Ptolemy presents himself as a philosopher. What this actually means to Ptolemy is a question that involves understanding not only his literary and scientific context but also how he appropriates and transforms this context in his own highly technical work.[23] Granted, there are scattered throughout Ptolemy's treatises tantalizing passages in which he talks of method and indicates a conceptual framework in which the sciences discussed somehow fit. There is even a treatise, the *De iudicandi facultate,* in which Ptolemy sets out an epistemology that is intended to explain and justify what one finds in his scientific works (cf. Long 1988, 193–6, 202–4). But research on these issues is still at a primitive stage primarily because scholars have yet to interpret this treatise and the related passages found in Ptolemy's other works in the light of the technical, scientific matters which give them their real meaning.[24] Yet the promise of such research is great, since Ptolemy is a pivotal figure in the history of western science.

Accordingly, in this final section, I will make a preliminary assault on the question of Ptolemy's philosophical views by examining the first two chapters of the first book of his *Harmonica* (Düring 1930, 3.1–6.13) with occasional reference to the *De iudicandi facultate*.[25] In these chapters, Ptolemy focuses on the question of criteria in the domain of music and on the related matter of the goal of the harmonic theorist, though he does mention astronomy and astronomers as well.

By Ptolemy's time, argument about the criteria of truth was prominent in intellectual circles: in fact, by then, the problem was to explain the contributions of reason and the senses to knowledge of external objects, and to determine what infallible means there are for distinguishing particular truths about these objects from falsehoods (cf. Long 1988, 180, 192). But Ptolemy recasts the problem. To begin, he decides to ignore the technical vocabulary current among philosophers of his time in favor of a simpler vocabulary that suffices to aid non-experts and to clarify reflection on the realities signified (cf. *De iudicandi facultate* 4.2–6.3). Accordingly, he proposes to use 'criterion' *(kritêrion)* to designate (a) the object about which one makes judgments, (b) the means through which and the means by which judgments about such objects are made, (c) the agent of judgment, (d) the goal of the judgments made, as well as the more usual sense, (e) the standard(s) by which the truth of judgments is assessed (cf. Blumenthal 1989, 257–8). Thus, given that in his view truth is a criterion

qua goal of judgment (cf. *De iudicandi facultate* 2.1–2), Ptolemy represents the general problem as one of discovering the criterion of what there is (cf. 1.1). In the context of harmonic science *(harmonikê)*, this becomes the problem of determining the criteria of what there is in the domain of music, that is, the criteria of *harmonia*, where *harmonia* is ultimately tunefulness or the way pitches should or do fit together properly.

Chapter 1 of the first book of the *Harmonica* opens with the assertion that

> Harmonic science is a capacity for apprehending intervals of high and low pitch in sounds,[26] while sound is a condition of air that is struck —the primary and most general feature of what is heard—and hearing and reason are criteria of tunefulness *[harmonia]* though not in the same way.
>
> (Düring 1930, 3.1–4)

I take this to mean that harmonic science is a branch of knowledge by which one is able to account systematically for intervals among pitches and to determine their *harmonia*. Obtaining and exercising this knowledge, however, is to draw on two faculties, hearing and reason, that serve as criteria in different ways:[27] as Ptolemy says, 'hearing is [a criterion] in relation to matter and experience *(pathos)*; but reason [is a criterion] in relation to form and cause'.[28] To explain why hearing and reason are united in this way in developing or using harmonic science, Ptolemy first points out that

> even in general that which can discover what is similar *[to suneggus]* and admit precise detail *[to akribes]* from elsewhere is characteristic of the senses; while that which can admit from elsewhere what is similar and discover precise detail is characteristic of reason.
>
> (Düring 1930, 3.5–8)

That is, he continues,

> since matter is defined and delimited only by form whereas experiences [are defined and delimited] by the causes of motions, and since [matter and experience] are proper to sense-perception but [form and cause] are proper to reason, it follows fittingly that our sensory apprehensions are defined and delimited by our rational apprehensions, in that, at least in the case of things known through sense-perception,[29] the sensory apprehensions first submit their rather crudely *[holoscheresteron]* grasped distinctions to the rational apprehensions and are guided by them to distinctions that are precisely detailed and coherent.
>
> (Düring 1930, 3.8–14)

The key to understanding Ptolemy's account thus far of the roles of reason and the sense of hearing in harmonic science is the distinction between *to suneggus* and *to akribes*. One possibility is that Ptolemy is concerned with truth, that he means to affirm the approximate character of perception and the accuracy of reason. Thus, as Barker translates the critical lines:

> …it is in general characteristic of the senses to discover what is approximate and to adopt from elsewhere what is accurate, and of reason to adopt from elsewhere what is approximate, and to discover what is accurate.
>
> (Barker 1991, 276)

The problem here, in the first place, is that Ptolemy does not actually say that the senses characteristically discover *to suneggus* and so forth. What he maintains instead is that some thing, which is capable of discovering *to suneggus* and admitting *to akribes* from elsewhere, is characteristic of the senses. Likewise for reason, he does not say that it characteristically discovers *to akribes* and so forth, but that some thing, which is capable of discovering *to akribes* and admitting *to suneggus* from elsewhere, is characteristic of it. Now these items are, I submit, the *perceptum* and thought, respectively. Second, it is important to realize that Ptolemy is not here directly concerned with truth but with how information is transformed into knowledge. In short, as his talk of matter and form suggests, the contrast he has in mind is one between sensory information before and after it has been articulated as knowledge, and not one between the approximate and the accurate.

Thus, I take Ptolemy's point to be that the scientific analysis of pitch requires hearing to discern similarity and difference among pitches and intervals, and reason to articulate this similarity or difference by quantifying it numerically according to a theoretical system. This process of informing or articulating and thereby appropriating what hearing discerns into a system of knowledge involves introducing precision or numerical detail. Thus, for Ptolemy, what hearing grasps is rather crude *(holoscheresteron)*, either because it is not numerically quantified at all or because it is quantified in a way not involving theory (as when someone hears an interval and simply says that it is a fifth, for instance). Thus, what is *holoscheresteron* is rather crude because it lacks the sort of precise detail it must have to be scientific knowledge, which does not mean of itself that it cannot be exact or accurate.[30]

Reason and the senses are criteria of science in the ways they are because, as Ptolemy says,

> it happens that reason is simple, unmixed, and, thus, complete in itself, fixed, and always the same in relation to the same things; but that sense-perception is always involved with matter which is confused and in flux. Consequently, because of matter's instability, neither the sense-perception of all people nor even that of the same people is ever observed to be the same in relation to objects similarly disposed, but needs the further instruction of reason as a kind of cane.
>
> (During 1930, 3.14–20; cf. *De iudicandi facultate* 8.3–5, 9.6).

In other words, assuming the principle that cognitive faculties are like their objects, reason alone is fit for articulating consistently what is grasped by the senses: the senses themselves cannot do this.

In saying this, Ptolemy has raised the related issues of disagreement among listeners and error. If hearing does not on every occasion discern the same distinction in what is heard though the circumstances are such that it should, it is important to discover whether reason may ever rely on hearing and in what way, if one is to account fully for the roles of reason and hearing in harmonic science. The question is, then: does hearing ever discern similarities and differences among pitches correctly and, if so, whose hearing is it?

Ptolemy answers by pointing out first that hearing may be brought to recognize its errors by reason.[31] So, under some circumstances at least, it is possible for hearing to discern things accurately. Then, Ptolemy affirms the stronger thesis that sometimes what hearing presents to reason does not need any correction at all. Let us consider these claims in turn.

Ptolemy maintains that reason can bring hearing to a knowledge of errors in its apprehensions, by way of an analogy:

> So, just as the circle drawn by the eye alone often seems to be accurate until the circle made by reason brings [the eye] to the recognition of one that is in reality accurate *[akribôs echein]*, thus when some definite interval between sounds is taken by hearing alone, it will initially seem sometimes neither to fall short nor to exceed what is appropriate, but is often exposed as not being so when the interval selected according to proper ratio is compared, since hearing recognizes by the juxtaposition the more accurate [one] as something genuine, as it were, beside that counterfeit.
>
> (Düring 1930, 3.20–4.7)

Evidently, hearing is corrigible if reason, on the strength of theory, produces in sound what is correct (i.e., an interval defined by the proper ratio) so that hearing may apprehend it and thereby come to discern error.[32] Obviously, reason will be obliged to be equip itself with an instrument that it can employ in a way consistent with theory in order to produce the correct sounds—a point Ptolemy makes explicit later. In any

case, Ptolemy clearly holds that both reason and hearing can detect errors in the apprehensions of hearing. But, though this entails that the apprehensions of hearing are sometimes accurate, it does not yet follow that reason may rely on hearing for information about differences among sounds.

The analogy illustrating how reason can bring the eye and hearing to discern error when none was recognized previously also suggests that the senses are better as judges than as producers of *percepta*. But to establish that hearing may apprehend distinctions correctly unaided by reason, Ptolemy must evaluate the capacity of the senses to make distinctions on their own.

He begins by affirming that it is in general easier to judge something than it is to do it. His elaboration of this premiss makes it clear that hearing will have better results in recognizing that an interval or melody is out of tune than when it guides the production of the interval or melody by means of some instrument such as the voice or *aulos*. Indeed, he explains,

> this sort of deficiency of our sense-perceptions does not miss the truth by much in the case of [our] recognizing whether there is a simple difference between them [*sc.* our sense-perceptions] nor, again, in the case of [our] observing the excesses of things that differ, at least when [the excesses] are taken in greater parts of the things to which they belong.[33]
>
> (Düring 1930, 4.10–13)

The locution here may strike the modern reader as odd. The deficiency in question is, I think, the deficiency of the senses in apprehending what is in reality accurate, which he has just described. Now, as I understand it, the claim that this deficiency 'does not miss the truth by much' is a figure of speech: Ptolemy actually means that, when the senses discern a mere difference or report the amount of this difference (providing that the amount is suitably large), they do not under these circumstances miss the truth at all.[34] In other words, I maintain that, for Ptolemy, the apprehensions of hearing are in fact correct and accurate, when hearing attends to the mere occurrence of an interval between sounds or when it reports the amount of this interval (if the amount is large enough).

It is important that the amounts of the differences between the sounds be large in comparison to the sounds, that is, for example, that the difference between two intervals be large in comparison to the two intervals. As Ptolemy says of the senses in general, if the amounts of the differences they apprehend are a relatively small part of the things exhibiting them, the senses may not discern any difference at all; yet, when such apprehensions are iterated, the error or difference accumulates and eventually becomes perceptible.

The upshot is that Ptolemy assigns the senses a well-circumscribed reliability: sensory apprehensions of sameness and difference are for the most part deemed unreliable. Only in apprehending the fact of difference or the amount of this difference (when the amount is suitably large) do the senses such as hearing provide a reliable and fitting empirical basis for science (cf. *De iudicandi facultate* 12.4),[35]

The question of whose hearing it is still remains, and Ptolemy approaches it by considering the class of those instances when hearing by nature goes astray. After all, what hearing apprehends or reports can become scientific only when integrated by reason in an explanatory system;[36] and this means that reason will often have to deal with error in what hearing reports. As he says,

> just as for the eyes there is a need for some rational criterion through appropriate instruments—for example, for the ruler in relation to straightness and for the pair of compasses in relation to the circle and the measurements of parts—in the same way as well there must be for the ears, which are with the eyes especially servants of the theoretical or reason bearing part of the soul, some procedure *[ephodos]* from reason for things which [the ears] do not by nature judge accurately, a procedure against which they will not testify but will agree that it is correct.
>
> (Düring 1930, 5.3–10)

Ptolemy begins chapter 2 by identifying the instrument for correcting aural apprehensions as the harmonic canon or ruler *(kanôn)*, adding that the name is taken from common usage and from its straightening *(kanonizein)* things in the senses that fall short regarding truth (cf. Düring 1930, 5.11–13). But what is this rational criterion of harmonic science, the third criterion that Ptolemy has designated as such thus far in the opening chapters of the *Harmonica*?

According to Ptolemy,

> it should be the goal of the harmonic theorist to preserve in every way the rational hypotheses *[hupotheseis]*[37] of the canonas never conflicting in any way with the senses in the judgment of most people, just as it should be the goal of the astronomer to preserve the hypotheses of the celestial motions as in agreement with their observed periods, hypotheses that while they have themselves been taken from obvious and rather crude *[holoscheresteron]* phenomena, find things in detail accurately through reason so far as it is possible. For in all things it is characteristic of the theorist or scientist to display the works of nature as crafted with a certain reason and fixed cause, and [to display] nothing as produced [by nature] without a

> purpose or by chance especially in its so very beautiful constructions, which sorts of things the [constructions] of the more rational senses, seeing and hearing, are.[38]
>
> (Düring 1930, 5.13–24)

This third criterion, to which reason may appeal in distinguishing truth from falsehood in musical sound and on which it may rely, turns out, in fact, to be the consensus of the majority about what is heard when the canon is properly set up according to theory and actually struck.[39] For this criterion entails that, on such occasions, the standard of accuracy in determining not only the fact of differences among sounds but also, under certain circumstances, how great these differences are, is what most people hear. In sum, the hearing that stands as the reliable counterpart of, and standard for, reason in harmonic science is that of the majority.[40]

In the remainder of chapter 2, Ptolemy explains how rival schools fail to pursue this basic goal of the harmonic theorist (cf. Bowen and Bowen 1997, 111–12). But rather than pursue this, by way of conclusion I will now briefly address the question 'What does the harmonic theorist actually know?'

In the first place, the harmonic theorist understands *harmonia,* that is, the organization of differences in pitch. To say more than this, however, it is necessary to discover just what it is that the majority reports about such differences. In particular, one should at least ask whether the consensus of the majority concerns a subjective experience or the objects underlying this experience. Now, Ptolemy's answer to this question comes in the next chapters (*Harmonica* i 3–4), which discuss (a) the causes of high and low pitch in sound *(psophos)*, and (b) musical notes *(phthoggoi)* and their differences. But this very distinction between sounds and musical notes suggests another feature of *harmonia* that one must not neglect, namely, that *harmonia* is fundamentally an aesthetic phenomenon, that the differences in pitch have an intrinsically aesthetic character. That is, implicit in Ptolemy's account of the third criterion is the view that *harmonia* is ultimately defined by the musical sensibilities or tastes of a community—no matter whether one assumes (as I do) that the phrase *kata tên tôn pleistôn hupolêpsin* means 'in the opinion of most people' or that it means 'in the opinion of most experts':[41] in either case, the harmonic theorist is to appeal to, and to rely on, a shared sense of differences in pitch and their melodic propriety.

It would seem, then, that in answer to the question 'What does the harmonic theorist know?', one might point out that harmonic science articulates systematically by means of number a communal sense of musical propriety. But, if so, does this science change over time? There is, after all, a tension in Ptolemy's account between reason and what most people hear, and I suspect that it is essential to his understanding of

harmonic science itself: such tension is certainly built into his third criterion to the extent that agreement or consent is an issue.

One way to cast the problem is to ask, does hearing ever correct or bear witness against theory? Obviously, it must as the theoretical account of the music characteristic of a culture becomes more scientific and accurate, a possibility implicit in Ptolemy's criticism of contemporary and earlier theorists at the close of chapter 2, for instance, and elsewhere. But does theory ever have to adapt to changes in what most people hear when the canon is set up according to theory and struck? This is a question to bring to a careful reading of the *Harmonica*. For if Ptolemy denies that musical sensibility changes over time, harmonic science has a perfection it can reach in articulating the sense of musical propriety shared by most people. But, if he allows that it does change, then harmonic science must too and so it cannot have a final form. In this case, then, what most people hear when the canon is set up according to theory and then struck will serve not only to confirm theory and to correct practice, it will on occasion serve also to confirm practice and to correct theory.[42] And if observation may take on such a role in harmonic science, may it do the same in astronomy?[43]

CONCLUSION

It is perhaps appropriate to finish with a question, since a series of case-studies will hardly generate global results. To philosophers it is often given that one may grasp the universal in the particular; but rarely is this granted to historians of ancient science. Thus, for now, I content myself with the more mundane hope that the preceding studies of particulars in detail will at least raise questions leading to other particulars in a fruitful way.

NOTES

1 I take the exact sciences to include arithmetic, geometry and all those sciences involving arithmetic and geometry in a significant way (for example, astronomy, astrology, harmonics, mechanics, and optics). Isolating these sciences as a class is not a uniform characteristic of Greco-Latin thought. Still, it is a useful starting-point, particularly if one considers the various exact sciences throughout their histories and inquires of each whether it was in fact (always) viewed as scientific by the ancients, and to what extent the role of mathematics affected this decision.

2 When writing of Greek and Latin science, philosophy, and so on, I refer only to the respective languages in which the relevant texts are written.

3 See, for example, the critical studies by von Staden (1992) and Pingree (1992).

4 Of these, Lloyd 1984 is a useful and instructive contribution.

5 Following Dijksterhuis 1987, 147–9. According to Dijksterhuis, though this lemma bears an obvious formal resemblance to Euclid, *Elementa v* def. 4

(which posits that, if a and b are magnitudes and $a<b$, there is a whole number n such that $n \cdot a > b$), it is essential to Archimedes' indirect calculations of magnitudes by means of infinite processes (cf. Dijksterhuis 1987, 130–3), because, in so far as it entails that the difference between two magnitudes is a magnitude of the same kind, it excludes the possibility of infinitesimals such as one would admit if the difference between two lines, say, were a point.

6 In the present context, the lines will be circular arcs on a sphere. Such arcs may be equal or similar: they are similar if they lie on parallel circles and are cut off by the same great circles (cf. Aujac 1979, 41 nn2–3).

7 The use of the names of the zodiacal constellations to designate the twelve equal arcs of the ecliptic in the *Phaenomena* would seem to place it after the fourth century and perhaps in the third (cf. Bowen and Goldstein 1991, 246–8). But note, however, that according to Berggren and Thomas (1992: cf. Berggren 1991), the aim of this treatise is to account qualitatively for the annual variations in the length of daytime, a concern characteristic of the second and first centuries BC. (Hypsicles' *Anaphoricus*, a treatise presenting a Babylonian arithmetical scheme for determining the length of daytime throughout the year, is commonly thought to belong to the second century BC.)

8 It is difficult to determine the relative dates of Autolycus and Euclid. The argument from evidence internal to their treatises (cf. Heath 1921, i 348–53) that Autolycus is prior to Euclid is, as Neugebauer (1975, 750) points out, 'singularly naive': there is no reason to dismiss the possibility that Autolycus and Euclid were contemporary.

9 See Bowen and Goldstein 1991, 246 n30.

10 See Bowen and Goldstein 1991, 246 1129.

11 Geminus' dates are uncertain. Scholars have traditionally supposed that he was active in the first century BC; but Neugebauer (1975, 579–81) has argued for a date in the first half of the first century AD.

12 So far as I am aware, P.Hibeh 27 (third century BC) is the earliest Greek text which organizes information according to a (modified) Babylonian scheme of the sort which Geminus attempts to explain: cf. *MUL.APIN* 1.3.49–50, 2.2.43–2.3.15; Bowen 1993, 140–1.

13 There are periods shorter than the one Geminus actually identifies as the *exeligmos:* see pp. 300–1 below, on the Saros.

14 Geminus represents numbers in two ways, either as whole numbers plus a sequence of unit-fractions (in decreasing order of size) or as sexagesimals. I will follow convention by writing unit-fractions by means of numerals with bars over them: thus , stands for 1/n and for 2/3 (cf. Neugebauer 1934, 111). Moreover, I shall use the semicolon to separate sexagesimal units and the sixtieths, and commas to separate sexagesimal places to the right of the semicolon. See *Introductio astronomiae* 18.8, for an explanation—Manitius views this as a marginal gloss that has been moved into the text—of Geminus' nomenclature for sexagesimal fractions of a degree: first sixtieths are units of ; second sixtieths, units of ·; and so on.

15 Since (4) rules out and , it follows that and

16 For texts and analysis, see Aaboe, Britton, *et al.* 1991.

17 The draconitic month is the period of the Moon's return to the same node or point where its orbit crosses the plane of the ecliptic in the same direction. Determining the length of the draconitic month is useful in understanding eclipses, since they occur only when the Moon is at or near the nodes.
18 That is, 241 returns to the same star or sidereal months plus 10; 30°. The Sun completes 18 zodiacal revolutions (sidereal years) and 10; 30° in the same period.
19 Not all the manuscripts of Pliny, *Historia naturalis* ii 56 have 223 as the number of synodic months: cf. Mayhoff 1906, 144; Neugebauer 1969, 142.
20 In Geminus' version of the *exeligmos*—as in Ptolemy's (*Almagest* iv 2)—the Moon makes 723 zodiacal revolutions and then travels 32° farther, whereas, if one triples the Babylonian Saros-cycle, the Moon circles the zodiac 723 times but then travels only 31; 30° farther.
21 Ptolemy's accounts of the shorter cycle (the Babylonian Saros) and of the *exeligmos* are consistent: he posits that in one Saros the Moon makes 241 zodiacal revolutions and 10; 40°,and that the Sun makes 18 such revolutions and 10; 40°.
22 I take the opportunity in what follows to revise and develop the analysis given in Bowen and Bowen 1997, 104–12.
23 See Grasshoff 1990, 198–216 and Taub 1993 for two recent attempts to discover Ptolemy's philosophical views.
24 See Bowen 1994 on Taub 1993: cf. Lloyd 1994.
25 Barker's translation (1989, 276–9) of *Harmonica* i 1–2 is helpful, albeit misleading in critical matters of philosophical and technical detail.
26 Cf. Gersh 1992, 149. See Bowen and Bowen 1997, 137 1122 for criticism of Solomon's analysis (1990, 71–2) of Ptolemy's definition of harmonic science.
27 Hearing and reason are both instrumental, though the mode of their instrumentality differs, as Ptolemy's use of different instrumental constructions at *De iudicandi facultate* 1.5, 2.2–4 indicates: hearing, like any other sense, is 'the means through which' one makes judgments and reason is 'the means by which' one does this. Note that one of the basic meanings of *'kritêrion'* is 'instrument': cf. *De iudicandi facultate* 2.3; Friedlein 1867, 352. 5–6.
28 In this analogy, matter is, I presume, to be taken in relation to form and *pathos* in relation to explanation. Barker renders *pathos* by 'modification'; but it makes little sense to compare hearing to a modification (that is, to a change or enmattered form) in the present context. So, I propose instead to render *pathos* by 'experience': cf. Ptolemy, *De iudicandi facultate* 8.3, 10.1–3; Barker 1989, 280 n20.
29 Cf. Düring 1930 3.13: Barker (1989, 276) has 'at least in the case of things that can be detected through sensation'. See Ptolemy, *De iudicandi facultate* 10.5 which allows that there are things known by reason without the aid of the senses.
30 This is consistent with Ptolemy's usage in the *Almagest* (cf., for example, Heiberg 1898–1907, i 203.12–22, 270.1–9; ii 3.1–5, 18.1–5, 209.5–7). In most cases, the astronomical observations criticized by Ptolemy involve measurement; so number is already present in what the eyes report to reason: the problem is that the means by which these measurements were made is not

known. One should compare Geminus' use of *akribes* and *holoscheresteron* at, for instance, Manitius 1898, 100.16–20, 114.13–18, 116.20–3, 118.10–12, and 206.17–21.

31 At this point, when Ptolemy turns to the problem of error, the meaning of *akribes* changes from 'detailed' to 'accurate' or 'true'.

32 The force of this analogy is not, as Barker (1989, 277 n9) supposes, that hearing alone can detect its unreliability (cf. *De iudicandi facultate* 8.3–5, 10. 1–3). Reason, for example, may well avail itself of visual information to determine (again on the basis of theory) that the sound produced is incorrect. In *De iudicandi facultate* 10.4–5, Ptolemy writes that on certain occasions reason may choose to correct sense-perception through the means of sense-perceptions. Thus, if a sense is affected in a way inappropriate to the object sensed, reason may determine the error either through similar, unaffected or uncorrupted sense-perceptions when the cause of error involves the sense-perceptions, or through dissimilar sense-perceptions of the same object when the cause does not involve them but something external.

33 On Solomon's version (1990, 73–4) of these lines, see Bowen and Bowen 1997, 140 n33 and Barker 1989, 277.

34 Barker (1991, 118) does not recognize a rhetorical figure here, though the fact that hearing does sometimes disclose the truth is assumed in the next lines, when Ptolemy considers how imperceptible error in sense-perception may accumulate and eventually become perceptible. Cf., for example, Düring 1930, 23.19–24.8.

35 Long's claim (1988, 193) that, for Ptolemy, 'sense-perception is limited to the immediate experiences it undergoes and it cannot pass judgment on any external objects as such', though it neglects *kai epi poson apallagentôn* at *De iudicandi facultate* 8.5, does draw attention to an important puzzle. According to 8.4, sense-perception judges only its experiences *(pathê)* and not the underlying objects. The same is said at 10.1–3 (cf. 11.1), except Ptolemy here remarks that sense-perception sometimes reports falsely about the underlying objects perceived. This latter claim makes sense, however, only if the senses may sometimes report truly about these objects as well.

In any case, the question raised by Ptolemy's argument thus far in the *Harmonica* becomes, 'when hearing reports veridically about the occurrence of sounds and certain of their differences, does it simply report truly its experiences or does it somehow disclose true information about the physical state of affairs producing these experiences?' At issue is Ptolemy's idea of what sound and, in particular, musical sound, is (see p. 310).

36 In *De iudicandi facultate* 2.4–5, Ptolemy distinguishes *phantasia,* which is the impression and transmission to the intellect of information reached by contact through the sense-organs, and *ennoia* (conception), which is the possession and retention of these transmissions in memory. The conceptions are what may become scientific if integrated into theory (cf. 10.2–6).

37 In the *Almagest,* Ptolemy uses *hupotheseis* in reference to his planetary models: cf. Toomer 1984, 23–4.

38 Where I have 'in its so very beautiful constructions, which sorts of things the [constructions] of the more rational senses, hearing and vision, are', Barker (1989, 279) proposes 'the kinds [*sc.* constructions] that belong to the more

rational of the senses, sight and hearing'. It is not clear just what these constructions belonging to sight and hearing are supposed to be. They are most likely not the objects of these senses: Ptolemy's meaning here is that the theoretician is duty-bound to maintain the reliability of sight and hearing, not the intelligibility of their objects. Cf. During 1934, 23.

39 Cf. Long 1988, 189. The claim made by Blumenthal, Long, *et al.* (1989, 217) that Ptolemy nowhere uses '*kritêrion*' to signify a standard is apparently mistaken.

If one recalls the various meanings of 'criterion' that Ptolemy lists at *De iudicandi facultate* 2.1–2, the argument of *Harmonica* i 1–2 would seem to indicate that: *harmonia* is a criterion *qua* object of judgment; hearing and reason are criteria *qua* means through which and means by which, respectively; the harmonic theorist is a criterion *qua* agent of judgment; what most people hear when the canon is set up according to theory and struck is a criterion *qua* standard; and preserving truth, that is, the concordance of the hypotheses of harmonic science with this standard, is a criterion *qua* goal.

40 Thus Ptolemy counters scepticism that harmonic science does in fact constitute knowledge, because of the acknowledged variations in hearing from person to person, and so on (cf. Düring 1930, 3.17–21).

41 There is, after all, no evidence in Ptolemy's preceding remarks that he limits this criterion to experts or *cognoscenti*.

42 Until such matters are settled, I hesitate to follow Long (1988, 194) in inferring that the *De iudicandi facultate* presents science as 'a stable and incontrovertible state of the intellect, consisting in self-evident and expert discrimination', especially since there is, so far as I can tell, nothing in this treatise that favors this view and excludes the role of third criterion I have just indicated.

43 On progress in astronomy, see *Almagest* i 1 with Toomer 1984, 37 n11. At its most general, the question is, How does Ptolemy understand the *Almagest* and its place in the history of astronomy?

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CHAPTER 10
Hellenistic biological sciences

R.J.Kankinson

The five centuries that separate Aristotle's death in 322 BC from Galen's ascendancy in Rome in the latter part of the second century AD were fertile ones for the biological sciences, in particular medicine. Nor is the period solely of interest to historians of science—for the methodological debates characteristic of the life sciences of the time shadow, and in some cases foreshadow, those which raged between the contemporary Sceptical and Dogmatic schools. If our knowledge of the medicine of the period is necessarily circumscribed by the fragmentary nature of almost all of our sources, and if the project of reconstructing the science is consequently all the more difficult, the enterprise is none the less a rich, fascinating, and exciting one.

EMPIRICISM AND AETIOLOGY

When Aristotle died, scientific theories, their nature and status, had already been the subject of intense debate for at least a century. The more theoretical of the Hippocratic doctors, such as the authors of *On Regimen* 1.2 (who analysed human physiology in terms of fire and water) and *Nature of Man* (who introduced the theory of the four humours: blood, phlegm, black and yellow bile), took issue with their empirically-minded colleagues, notably the writer of *On Ancient Medicine,* who eschewed such arcana, championing instead the cause of explanations grounded in experience. That debate revolved around the issue of what science properly investigates, and what sorts of explanation it should produce. Should it deal in grand theoretical structures, postulating hidden entities in terms of which the course of ordinary observable events is to be determined (and, for the practising physician, altered)? Or must it rather simply concentrate on establishing a secure body of data concerning which phenomena are observed to go along with which others? What, crucially, is the analysis and role of the notion of cause in science?

These questions were posed with unprecedented sharpness in Aristotle's theoretical works on science, most particularly in *Posterior Analytics* and *Parts of Animals* 1. Aristotle stressed that science must start from an empirical base (*Parts of Animals* 1.1, 639b3 ff., 640a14 ff.; although

precisely how it should do so is obscure: *Posterior Analytics* 2.19); but it must also aspire to final exhibition in the form of a complete and rigorous deductive structure, whose theorems can be seen to flow from its fundamental axioms and definitions. Science's explanatory force resides in that dependency: a fact is explained when it is shown to follow as a deductive consequence of some causally prior and more basic facts about the domain in question (*Posterior Analytics* 1.2; cf. 113, 2 16–17). Aristotelian science seeks to make patent the total structure of reality, and is thus strongly realist in conception. The axioms are not merely arbitrary postulates: they are the bedrock foundational facts upon which everything else depends. Yet such realisms are, of course, notoriously prone to epistemological attack; and Aristotelian realism was no exception. It is one thing to assert that science ought to have some such form; quite another to explain how we can know when we have actually arrived at it. Such difficulties form the core of the empiricist, and later the sceptical, onslaughts upon the scientific pretensions of those they called the Dogmatists.

DIOCLES OF CARYSTUS

Let us begin, however, with Diocles of Carystus:

> Those who think that one should state a cause in every case do not appear to understand first that it is not always necessary to do so from a practical point of view, and second that many things which exist are somehow by their nature akin to principles, so that they cannot be given a causal account. Furthermore, they sometimes err in assuming what is unknown, disputed, and implausible, thinking that they have adequately given the cause. You should disregard people who aetiologize in this manner, and who think that one should state causes for everything; you should rather rely upon things which have been excogitated over a long period on the basis of experience *[empeiria];* and you should seek a cause f or contingent things when that is likely to make what you say about them more understandable and more believable.
> (Diocles, in Galen, *On the Powers of Foodstuffs* VI, 455–6 Kühn [10.10])[1]

Diocles was a doctor. His dates are controversial, but he is very likely a younger contemporary of Aristotle: and that text has unmistakable Aristotelian echoes, so much so that Jaeger [10.55] was moved to make Diocles a more or less orthodox Aristotelian. However, this is clearly an exaggeration: although Diocles agrees with Aristotle that not everything requires causal explanation, his reasons are not Aristotle's.

Aristotle took genuine first principles to be indemonstrable—that is what it *is* to be a first principle (*Posterior Analytics* 1 2; *Metaphysics* 4 3). Diocles however says only that some things are akin to first principles—he does not say that they *are*. Moreover, anticipating a familiar Sceptical trope (the Fourth Mode of Agrippa: Sextus Empiricus, *Outlines of Pyrrhonism* (hereafter *PH*) 1 168, 173–4), he notes that theorists frequently merely assume, without argument or justification, some hypothetical starting-point for their systems in spite of its being a matter of controversy. The physician should offer explanatory accounts only where they are pedagogically helpful, basing his actual practice firmly on *empeiria*. Indeed, Diocles does not even insist that such accounts be true—they function simply as useful heuristic and persuasive tools.

Diocles was concerned to combat what he took to be an overly simplified view of the powers of particular foodstuffs:

> those who think that things which possess similar juices [? humours] or smells or degrees of heat or anything else of this sort have identical powers *[dunameis]* are mistaken, for one may point to many cases in which dissimilar things arise from things which are similar in these ways.
>
> (*ibid*., Fragment 112 Wellmann)

One rather needs to realize that 'their nature as a whole is the cause' of their particular powers. Diocles does not, then, reject theory or the offering of *aitiologiai,* causal accounts; and he is happy to recognize the existence of powers or faculties (quite what this involves will be of paramount importance in what follows). But he opposes what he takes to be the too naive and typological view adopted by some of his opponents (in this case probably Pleistarchus), a position which is at least compatible with the description of him (by Celsus: *On Medicine* Proem 8) as a Hippocratic.

HEROPHILUS

This tentative attitude towards causal explanation was shared by the great Alexandrian physician, anatomist, and physiological theorist Herophilus of Chalcedon (fl. *c.* 260 BC). Herophilus was perhaps the first Greek doctor to practise systematic anatomical researches upon human beings based upon dissection (the evidence is collected in von Staden [10.15—hereafter VS] ch. VI, T 60–129; see also 139–53), although he was not the first systematic dissector. That honour, like so many others, belongs to Aristotle: and Herophilus was perhaps indebted to Aristotle in other respects as well.

A methodological injunction of his is preserved, in slightly different forms, in two sources:

> let the *phainomena* be said [*legesthai*: perhaps 'be stated'] first [*prôta*: perhaps 'to be primary'], even if they are not first.
> (Herophilus T 50a VS; cf. T 50b VS: the bracketed words point to the interpretative problems).[2]

This text has been compared (VS p.118) to the methodological proem to *Parts of Animals* (1.1, 639b3–11), where Aristotle asks whether the natural scientist should ape the mathematical astronomers by first studying the *phainomena* and only then going on to state their causes. At 640a14–15 he answers his own question affirmatively; and our passage apparently echoes this (particularly if '*legesthai*' is translated as 'be stated'). If Herophilus really intends to recall Aristotle, then it is significant that his dictum makes no mention of causes or causal explanation (although as it stands it leaves room for such explanations). Rather (on what is, on balance, the most plausible interpretation) Herophilus urges us to treat the phenomena as being of primary importance, even if they may not (in the genuine metaphysical order of things) be really basic. Whatever else may be true, we need to start from the apparent facts, and only then (if at all) proceed to discover their underlying causes. This has an obvious Dioclean ring; and it appears too that Herophilus is offering a more circumspect version of Anaxagoras's celebrated dictum: 'the *phainomena* are a glimpse of the non-evident *(ta adêla)*' (Fragment 21a).

This is empiricism with a small 'e': science must start from the *phainomena:* these are what need, in the famous Greek slogan, to be saved (cf. Lloyd [10.57]), and which science, ideally, tries to explain.

Other texts attest to Herophilus's reliance on experience, *empeiria*:

> We find, however, that this Herophilus concedes no small importance to experience, nay indeed, to speak the truth, he makes experience all-important
>
> (T 52 VS)

and he is said (T 53 VS) to have given an account of pulse-rhythm based on observation and experience, rather than abstract rational theorizing.

On the other hand, he did not reject theory altogether; indeed in the immediately preceding passage (T 147 VS), Galen says that he 'surpassed the great majority of the ancients, not only in breadth of knowledge but in intellect', citing as an example his 'rational account' *(logos)* of the arterial pulse. In fact, the historian Polybius went so far as to stigmatize the 'Herophileans' (although not directly Herophilus himself) for relying purely on theory, and hence being about as much practical use as a pilot who navigated from a book (T 56 VS). And while that charge is clearly unjustified if levelled against Herophilus himself, none the less it is clear that he was perfectly prepared to countenance theoretical speculation of

the type that was to become anathema to the medical Empiricists (see below, p. 33), whose stance Polybius represents.

What, then, was the relation for Herophilus between theory and experience? This question is peculiarly difficult to answer, and not only because of the fragmentary nature of our evidence; for that evidence, although incomplete, appears to ascribe to Herophilus two quite distinct and on the face of it incompatible attitudes. Let us approach them, however, by way of a brief treatment of Herophilus's anatomical achievements.

Only three actual citations from his *On Anatomy* survive (60–2 VS); but a wealth of testimonia attests to his comprehensiveness and to his influence in the field of general human anatomy. He gave a far more complete account of the structure of the brain than any of his predecessors (T 75–9 VS; cf. [10.15] 155–9), distinguishing its main ventricles, discovering the 'calamus scriptorius', and bequeathing to his modern successors the name and description of the 'torcular Herophili'.[3] His dissections of the eye were of a calibre and detail quite unparalleled by any of his forebears (T 82–9 VS): he was the first to distinguish the four membranes of the eye, as well as isolating the optic nerve. Indeed he is usually (and justifiably) credited with the discovery of the functions of the nerves in general (Solmsen [10.69]; it *is* disputed whether he or Erasistratus was the first to distinguish between motor and sensory nerves: T 81 VS).

Herophilus applied himself, then, to dissective anatomy with unprecedented vigour and attention to detail. However, he

> does not think that anatomical descriptions of the type which say that 'this part has its natural origin in that' can produce any general preconception relevant to theoretical knowledge…; for the faculties *[dunameis]* which control us are discovered from other *phainomena,* and not simply from inspection of the part itself.
>
> (T 57 VS)

It's no good basing your account of the functioning of the body simply on its apparent structure, presumably because (and this was to be a Galenic commonplace: see Furley and Wilkie [10.5] Introduction IV; Hankinson [10.45]) such structures, considered simply as inert constructions, tell you nothing about how they actually work. Thus we need to examine 'other *phainomena*', in this case presumably the observable effects of cutting or ligating the connections between them in a living animal (again as Galen was to do: see below, p. 349).

At this point we may introduce another controversy. Herophilus and his rough contemporary Erasistratus were both associated in an ancient tradition with the deliberate vivisection of live human beings. The most detailed (although by no means the only) evidence comes from Celsus:

> So it is necessary [sc. according to Rationalist doctors] to dissect the bodies of the dead in order to examine their viscera and intestines. And they say that Herophilus and Erasistratus did this in the best way by far, by cutting open criminals provided by kings from prison, and inspecting, while they were still alive, those parts which nature had previously hidden as to their position, colour, shape, size, arrangement, hardness, softness, smoothness, connection, and the projections and concavities of each, and whether anything is inserted into something else and whether anything receives into itself a part from some other.
>
> (T 63a VS: cf. T 63b–7)

This story has often been questioned, although not with good cause; and there is no reason not to accept it. Celsus does not say that Herophilus (and Erasistratus) vivisected in order more directly to investigate functions as such—but it is a highly plausible conjecture, since only by such experimentation on live creatures could the difference between motor and sensory nerves be discovered.

And equally obviously it is only in living creatures that faculties *(dunameis)* in this sense can be detected. T 57 VS cautions against too straightforward and unreflective a set of mechanical assumptions regarding the causal relations that hold between the parts of the body: merely observing that one is inserted into another is not enough to determine whether the two are causally related, and if so how and in what direction. Such inferences can only be made on the basis of the observation of the structures at work. Herophilus apparently posited four faculties of living creatures (131 VS), one of which was the vital faculty (T 164 VS)—but our evidence for these is exiguous in the extreme.

The 'vital faculty' may be that which is transmitted through the coats of the arteries (in Herophilus's view) to produce the pulse (which was of supreme importance in Herophilean diagnostics; he invented a water-clock for more accurate time-keeping: T 182 VS; cf. VS pp. 282–4); and if he did indeed distinguish motor and sensory nerves, that would provide a physiological basis for two more faculties (with thought as the fourth?)—but this is conjectural.

At all events, Herophilus seems to have started with a conceptual analysis of what it is that animals (perhaps particularly humans) standardly do—and then to have proceeded, on the basis of anatomical investigation, to try and isolate the media via which these faculties were transmitted. But as to precisely what the faculties consisted in, he perhaps maintained a prudent reserve.

This brings us to the issue of Herophilean scepticism. On the basis of the following reports in Galen's *On Antecedent Causes* (hereafter CP),[4] Kudlien [10.56] saw Herophilus as an important figure in the history of Greek scepticism:

> Some people say that nothing exists as a cause of anything, while others, like the Empiricists, dispute whether or not there is a cause, and still others, like Herophilus, accept it on a hypothetical basis, and others again—whose leader he [sc. Erasistratus][5] was—rejected, among the causes, the antecedent…causes as not very plausible.
>
> (T 58 VS)

> What, then, does Herophilus say? 'Whether or not there is a cause, is by nature undiscoverable; but in my opinion[6] I believe I am chilled, warmed, and filled with food and drink.'
>
> (Herophilus T 59a VS)

Presumably, to accept causes on a hypothetical basis[7] is to accord them a merely provisional status: we may make causal ascriptions on the basis of the phenomena, but the phenomena do entail them—and hence we can never know for certain that our causal hypotheses are correct (this is reminiscent of, but more sophisticated than, Diocles' position). Thus Herophilus anticipates the second mode of Aenesidemus against the aetiologists (Sextus, *PH* 1 180–1). This picture derives modest support from T 59a, provided that we understand ablatives of agency (for example 'by the wind', 'by the sun') with 'chilled' and 'heated' to square them with the repletion example. Herophilus then does not doubt that he is being (phenomenally speaking) chilled, heated, or filled up—but he cannot be certain that the sun (or whatever) is responsible for it (hence the cause is 'undiscoverable by nature': although it is worth noting that Celsus reports that he held that all diseases have their causes in the humours: *On Medicine* Proem 14). That coherent and moderately sophisticated attitude in regard to causal ascriptions represents, I think, an improvement on Aristotle's theory of science.

Thus the sceptical Herophilus seems to be a chimaera. Yet elsewhere in the same passage, Galen accuses Herophilus of lacking the courage of his convictions:

> Having expressed doubt about every cause with many strong arguments, he is himself subsequently detected using them, by saying 'it seems this way to everyone'.
>
> (T 59a VS)

This suggests that Herophilus offered an antithetical set of considerations, both for and against causes, in a manner reminiscent of the Pyrrhonists (cf. Sextus, *PH* 3 13–30), where the majority opinion that causes exist is weighed against contrary abstract argument. Indeed immediately afterwards Galen presents as Herophilean three general arguments against the very conceivability of causes which were later to find a natural home

in Pyrrhonism (they are rehearsed by Sextus: *Adversus Mathematicos (M) 9* 210–36). The arguments are similar in form, so one example will suffice:

> (1) If there are causes, then either (a) bodies cause bodies, or (b) incorporeals cause incorporeals, or (c) bodies cause incorporeals, or (d) incorporeals cause bodies;
> but
> (2) neither (a), nor (b), nor (c), nor (d);
> so
> (3) there are no causes.

That argument is sceptical both in form and content; and from it 'he drew the inference that nothing is the cause of anything'.

It is not clear what to make of these passages, but they are not obviously compatible with the earlier causal hypotheticalism—indeed, they seem clearly in conflict with it. It is one thing to have epistemological doubts about our access to the causal facts of the matter, quite another to impugn their very metaphysical coherence. I confess I can see no very satisfactory solution to this problem; but perhaps if we stress the fact that it is by nature (or perhaps 'in their nature') that causes are undiscoverable, we might attempt one along the following lines. The difficult, perhaps impossible, metaphysics of causation undermines any purely rationalistic attempt to create an aetiology: hence we can never give a satisfactory account of what causal powers and causal transmission really are. On the other hand, empirical experience and investigation provide us with clear examples of causal correlation—and we need no grand metaphysical theory in order to investigate and establish them. It is perhaps no accident that Herophilus talks neutrally of the 'powers' *(dunameis)* of the body: these are uncontroversial, empirically determined place-holders for whatever arcane, hidden facts in fact underlie them.

ERASISTRATUS

Herophilus's great contemporary (and accomplice in the charge of human vivisection), Erasistratus, probably also lived and worked for some at least of his life in Alexandria.[8] He too was an innovative theorist in anatomy (the differentiation between motor and sensory nerves is also attributed to him: Fragment 39 Garofalo [10.6]—hereafter G), and in physiology, where he introduced the theory of *triplokia,* the triple plaiting of three basic types of vessel (nerve, artery and vein), which he held to be the fundamental elements of all bodily tissue (Fragments 86–90 G. See further G, pp. 32–3).

Our main source for Erasistratus is Galen; and he is generally hostile to him (although he is much sharper with Erasistratus's latter-day followers), pouring scorn on his rejection of 'natural faculties' of attraction, repulsion,

and excretion (with which Galen chose to account for the functions of the bodily organs) in favour of the principle of *horror vacui* as the agent of internal movements of material in bodies (Fragments 93–6 G).[9] But behind Galen's polemic we may discern an Erasistratean attempt to reduce the physical mechanisms needed to explain metabolism and general physiological functioning to the bare minimum required to explain those processes—and if Galen is sometimes justified in his particular criticisms, we may none the less applaud Erasistratus's reductionist zeal. Indeed we may best proceed by following the outlines of Galen's rebuttal of the Erasistratean position.

Erasistratus is lambasted by Galen for his anti-teleological belief that some organs (including the spleen and the omentum) fulfilled no function at all (*On the Natural Faculties* II 33, 91, 132, 134; Fragment 81 G). Yet Erasistratus was not opposed to teleological explanation as such—in fact, he considered it to be the proper business of the philosopher (Fragment 114 G; Fragment 83 G; cf. Fragments 77–8 G; and G pp. 45–6); his attitude seems rather to be closer to that of Aristotle,[10] for whom some structures of the body are not susceptible of direct teleological explanation. But for all that, and in spite of the relative exiguousness (and partiality) of the sources, an Erasistratus committed as far as possible to the explanation of biological functioning on mechanistic principles emerges with reasonable clarity. Erasistratus further rejected the humoural theory of human constitution (Fragment 92 G), for which once more Galen takes him to task. But even Galen is not always hostile to him, admiring his diagnostic acumen;[11] and Erasistratus was held in the highest regard in antiquity.

From our point of view, Erasistratus's most significant doctrines concern causes. First of all (from a practical perspective) he held that all fevers are caused by inflammations, which are in turn caused by transfusion *(paremptôsis)* of blood from the veins (where it naturally belongs) to the arteries, where its presence is, for Erasistratus, pathological (Fragment 109 G).

The most important Erasistratean claim, however, concerns the status of what came to be known as antecedent causes *(aitia prokatarktika)*,[12] the external factors responsible (in some medical theories, Galen's included) for triggering the already-existing disposition of the patient into illness. The bulk of Galen's *On Antecedent Causes* is devoted to refuting Erasistratus's causal 'sophisms', by which he seeks to remove *aitia prokatarktika* from the causal lists. Antecedent causes of disease include, standardly, such items as overheating, refrigeration, overwork, over-indulgence in food, drink, or sex, and the like. Such factors may not affect all equally—but none the less (so at least Galen thinks) they are pathogenically relevant. This is precisely what Erasistratus denies. His greatest mistake in pathology, according to Galen's view, was to deny the importance of external heating and chilling upon the human body, which are (Galen holds) of great pathogenic moment; yet Erasistratus holds them responsible

only for surface alterations in animals' conditions, having no effect on their internal dispositions (Fragment 75 G).

But Erasistratus's rejection of such antecedent causes is theoretically motivated. He contends that heat and cold cannot be the causes of illness, since they are not invariably followed by it, and do not persist at the time of the illness:[13]

> In this way sophists find reasons for their arguments that attempt to show that, even if on some occasion these things [i.e. antecedent heat, cold, etc.] harm weak bodies, not even then can they properly be called causes. For if indeed they do act because of their own internal nature, and this action derives from themselves, then they must be seen to have an effect at all times.
>
> (Galen, *CP* i 9–10)

Later, Galen quotes from Erasistratus directly:

> Most people, both now and in the past, have sought the causes of fevers, trying to ascertain and learn from the sick whether the illness has its origin in being chilled or exhausted or repletion, or some other cause of this kind; but this kind of inquiry into into the causes of diseases yields results neither true nor useful. For if cold were a cause of fever, then those who have been chilled the more should suffer the greater fever. But this is not what happens: rather there are some who have faced extreme danger from freezing, and who when rescued have remained unaffected by fever…. [And] many people who experience far worse exhaustion and repletion than that which coincides with fever in some others yet escape the illness.
>
> (Erasistratus, *CP* viii 102–3; cf. xi 141–4; xiii 166–8)

Similar arguments were, unsurprisingly, deployed by the Sceptics (Sextus, *M* 9 242–3). This argument has the effect of radically restricting the class of items allowable as causes: in effect, it stipulates that all causes must be *aitia sunektika,* containing causes. The notion of containing causes originated with the Stoic idea that every existent object required some internal tensile force to account for its persistence, that force being labelled its *aition sunektikon.* But the concept was soon redeployed by the doctors to cover not merely the persistence of objects, but the necessary and sufficient conditions of events and processes. Sextus defines *aitia sunektika* as 'those in the presence of which the effect is present, and with the removal of which it is removed, and with the lessening of which it is lessened' (Sextus, *PH* 315).

Thus, containing causes are strongly functionally-correlated with their effects (Sextus's example is of the relation between a noose and strangulation: the tighter the noose, the greater the strangulation).

In this way Erasistratus seeks to deny the status of cause to anything which does not meet these stringent requirements. It is however another matter whether he need be committed by this thesis concerning the proper application of the term 'cause' to the view that no item, unless constantly conjoined with some other, can have any causal relevance to it. Galen sometimes tries to pin this on Erasistratus—but it is by no means apparent that Erasistratus need accept this consequence. In fact Erasistratus allows that over-eating and exhaustion are implicated in the triggering of disease, although he apparently refused to grant them the title of causes.[14]

The crucial component in the Erasistratean pathology of fever was *plêthôra*. *Plêthôra* is vascular congestion caused by an influx of undigested food into the veins (Fragment 161 G). If the digestive system cannot cope with the excess of nutriment, and if evacuation does not take place by other means, the undigested food enters the veins, compressing the blood and forcing it through the valves *(anastomôseis)* between the veins and arteries (which normally contain only *pneuma*), causing inflammation and fever (Fragment 198 G). However, *plêthôra* can be treated before disease itself sets in; but once *paremptôsis* takes place, disease is unavoidable. Even so, these inflammations can be reduced by encouraging the blood to flow back through the *anastomôseis* into the veins.

Galen is concerned to emphasize the fact that external antecedent causes are causally relevant to that patient's subsequent condition. Erasistratus asks why, of a thousand people who attend the theatre on a hot afternoon (and hence who are exposed to the same external conditions) only four get overheated, and of these only one develops a full-blown fever: and infers that antecedent heating cannot be a cause of illness. Galen replies that it is not the *sole* cause (which fact accounts for the differential response to it; some people are more constitutionally susceptible than others). But even so, how can something no longer present be the cause of anything? The overheating occurs, *ex hypothesi*, several hours before the actual onset of the illness.

Erasistratus thus adopts two distinct theses:

(1) nothing can be a cause unless it is actually producing its effect; and

(2) nothing can be a cause unless it invariably produces its effect.

Effectively, Galen rejects both of them, rightly: but Erasistratus's position is not negligible, and it requires a certain sophistication in causal analysis to rebut it.

Erasistratus held that x was a genuine cause of y only if x at least initiated a sequence which was such that, other things being equal, y was bound to result. Thus he treats *paremptôsis* as being responsible for the fever, even though the disease can still be alleviated by the appropriate

interventions, since if left to run its own course, disease inevitably results. *Plêthôra*, on the other hand, cannot be a genuine (i.e. proximate) cause, although Erasistratus allows its causal relevance. However, he clearly rejects the notion that anything prior to the *plêthôra* can be a cause, on the basis of thesis (2).

THE EMPIRICISTS

Thus the theoretical contributions of the Alexandrians bring into centre-stage the preoccupation with the analysis and classification (as well as the epistemic justification) of the causal relation that was to characterize later Greek philosophy and science. Central to this debate were the doctors of the medical sect known as the Empiricists. Empiricism had a long history. The founding of the school is usually attributed to Philinus (fl. 250 BC) and Serapion (fl. 225 BC), although, following the ancient penchant for creating long and prestigious intellectual pedigrees, some Empiricists traced their ancestry back to the fifth-century Sicilian doctor Acro.

Serapion was connected with Herophilus; and it is plausible to see Empiricism proper as an outgrowth of the epistemological and explanatory caution which we have seen evinced by Herophilus. But the Empiricists go a good deal further. Their method simply consists in the observation and recording of phenomenal concurrences of events: therapies (both appropriate and inappropriate) are indicated by the past course of events. If I see that pomegranates are efficacious in one case of diarrhoea, I shall be moved to try them on another—and if that turns out well I shall be well on the way to forming what the Empiricists called an experience, an *empeiria*. Crucial to this is personal observation, *autopsia*, although the initial discoveries are held to be the result of luck:

> The Empiricists say that the art comes about as follows: one has observed many affections in people. Of these some are spontaneous, both in the sick and the healthy (for example nose-bleeds, sweating, or diarrhoea, or something similar which brings harm or benefit), even though one cannot see what it was that produced the effect. In other cases, the cause is obvious, although they too occur as a result of chance, not choice. Thus it just so happened that someone fell, or was hit or wounded in some other way, and that there followed a flow of blood, or that somebody who was sick satisfied his appetites by drinking cold water or wine, or whatever, each of which had either a harmful or beneficial effect. The first kind of beneficial or harmful effect they call 'natural', the second 'chance'. But in both cases they called the first observation of such an event an accident, choosing this name because one happens upon these things not by design. The accidental type of experience, then, is roughly like this. The extemporary kind, however, is characterized by the fact that we

> deliberately come to try something, led either by dreams or by something else to form an opinion as to what should be done. But there is further a third kind of experience, the imitative…where something which has proved to be beneficial…is tried out again for the same disease. This sort of experience has contributed the most to their art. For when they have imitated, not just two or three but very many times, what has turned out beneficial in the past, and when they discover that it has, for the most part, the same effect in the case of the same diseases, they call such a memory a theorem, and think it to be credible and to form part of the art. But when they had collected many such theorems, the whole collection formed the art of medicine. …Such collections came to be called *autopsia* by them… [which] consists in a certain kind of memory of what one has often perceived to happen in the same way. But they also called the same thing *empeiria*. History, however, they called the report of an *autopsia*.
>
> (Galen, *On Sects (SI)* 2, 2–3 Helmreich: trans. after Frede)[15]

That sketch of the Empirical method prompts several questions which will be taken up in the next section. But its general outline is clear enough. What the Empiricists are reacting against is the tendency of the theoretically-minded physicians (whom they compendiously lump together as the 'Dogmatists' or 'Rationalists') to explain both disease and therapy in terms of hidden internal conditions of the body which they must infer on the basis of the *phainomena*, the appearances. For the Empiricists all that there is are the appearances, and the theorems that are built up as a result of them.

Thus the debate between Rationalists (among whom are standardly enrolled Diocles, Herophilus, Erasistratus, and Asclepiades) and Empiricists turns, among other things, on the possibility of our having epistemic access to a purely theoretical domain; and in turn it forms part of the central Hellenistic debate among the philosophers about the nature and acceptability of certain types of sign-inference. Here is not the place to do more than sketch that debate (reproduced most fully in Sextus: *PH* 2 97–133; *M* 8 141–299); but crucial to it is the classification of different ways in which something may be non-evident *(adêlon)*:

> Of matters, then, according to the Dogmatists, some are (a) pre-evident, some (b) non-evident; and of the non-evident, some are (i) totally non-evident, some (ii) temporarily non-evident, and some (iii) naturally non-evident. Pre-evident are those which come to our knowledge from themselves, e.g. that it is day; totally non-evident are those which are not of a nature to fall under our knowledge, such as that the number of the stars is even; temporarily non-evident

> are those which, although they possess an evident nature, are now not evident to us because of certain external circumstances, as the city of Athens is to me now; while the naturally non-evident are those which do not possess a nature such as to be evident to us, such as the theoretical pores.
>
> (Sextus, *PH* 2 97–8)

Things in category (a) are unproblematic—likewise no one claims to be able to have any sort of access to the items under (b i). Moreover, all alike agree that the contents of (b ii) are accessible, by way of 'commemorative signs': I see smoke on the horizon, although I cannot now see any fire; but knowing that there's no smoke without fire, I infer that there must be a fire there, temporarily hidden from me. What distinguishes the Sceptic or the Empiricist from the Dogmatist is their attitudes towards category (b iii).

The Dogmatists hold that we can legitimately infer purely theoretical entities: in the paradigm case of such an inference (which will be of importance in the next section), the fact of sweating is an indicative sign (as they called them) of the existence of invisible pores in the skin. It is the latter type of reasoning (or *analogismos*, as they call it) that the Empiricists reject. The important difference between it and the smoke-fire case is that, in the latter, we may simply perceptually verify the inference; but in the case of (b iii), no direct perceptual confirmation can, by definition, be forthcoming. In a manner significantly reminiscent of the philosophical Sceptics, Empiricists chide Dogmatists for the rashness of their theorizing, for the way it outruns its evidential base. The only things they will allow are the Humean concatenations of evident events that make up the general theorems to be used in commemorative sign-inference—and even that is, in principle, defeasible.

The Dogmatists treat the indicative sign as being 'an antecedent proposition in a sound conditional, which is revelatory of the consequent' (Sextus, *PH* 2 101). The Empiricists, like the Sceptics, urge that there can be no such uniquely revelatory conditionals: there is in principle always more than one way to account for the evident facts (cf. The Eight Modes of Aenesidemus against the Aetiologists: Sextus, *PH* 1 180–5); and in in any case the Dogmatists are unable to agree among themselves as to what their 'signs' are signs of:

> In the case of fever patients, flushing and prominence of the vessels and a moist skin and increased temperature and quickening of the pulse and all the other signs…do not appear alike to all; but to Herophilus, for example, they seem to be definite signs of good blood, to Erasistratus of the transference of the blood from the veins to the arteries,[16] and to Asclepiades of the lodgement of theoretical particles in the theoretical interstices.
>
> (Sextus, *M* 8 219–20; cf. 189)

And, again in obvious tandem with Pyrrhonian scepticism, the Empiricists point to the endemic and irresoluble disputes among the Dogmatists as proof that their 'signs' are nothing of the sort (*SI* 5, 11–12 Helmreich).

Moreover, there is no need for such theorizing: everything necessary to medical science can be discovered on the basis of experience. Thus the Empiricist accumulates collections of instances in which certain things follow upon certain others. This collection is an *empeiria*; and if it is big enough, it will constitute a general theorem. It is worth noting that, for the Empiricists, the relations that hold between the items in such theorems do not have to be universal and affirmative. They outlined a five-fold typology of connection and disjunction according to whether things were seen to go together always, for the most part, half the time, rarely, or never: all of these are valuable in determining which therapies are, and which are not, appropriate.

None the less, some Empiricists did allow another way in which therapies could be obtained, their 'transition to the similar' *(hê tou homoiou metabasis)*. Transition is a form of analogical reasoning, to be used in cases of

> diseases which had not been encountered previously, or which were known, but for which there was no ready supply of medicines proven by experience. Hence they turned transition to the similar into a means for finding remedies. By its means they transfer the same remedy from one ailment to another and from one affected place to another, and they move from a previously discovered remedy to one similar to it.
>
> (Galen, *SI* 2, 3–4 Helmreich)

Similar ailments may yield to similar medicines; and what works on one part of the body may well work on another similar part. Transition, then,

> amounts to a method of discovery, but not yet to discovery itself, prior to testing. But as soon as you put what is expected to the test, it is already as credible (if the test is positive) as if it had been observed many times.
>
> (ibid. 4)

Thus transition does not itself generate theorems; but it suggests likely testable candidates for them—and the Empiricists have a high degree of confidence in successfully tested transitional solutions.

Even so, they are at pains to point out the distinctions between this limited acceptance of inference and the opposing position of the Dogmatists:

> Logical [i.e. Dogmatic] transition based on the nature of things lays hold of knowledge by means of indication *[endeixis]*.[17] But the Empirical variety relies on what is discovered by experience, not because it is persuasive or plausible that the similar should be productive of something similar, or require similar things, or undergo similar things; it is not on the basis of this, or anything else of this sort, that they think it justifiable to make the transition, but on the basis of the fact that they have discovered by experience that things behave this way.
>
> (Galen, *Subfiguratio Empirica* 9, 70 Deichgräber)

Thus transition for the Empiricists is not, supposedly, grounded in any conviction that its past successes render it objectively probable that the procedure will deliver useful results; rather the Empiricist simply acts directly on the basis of past experience. It is plausible to assimilate their position here (as elsewhere) to that of Hume—we can provide no rational basis for our reliance on the procedures involved: but we are simply constrained by nature to behave in such a way.

But even so, transition was a source of internal controversy within the Empiricist school itself. This probably arose in the course of the debates with the Rationalists, in response to the latters' accusations that the basic Empirical practice of *autopsia* supplemented by *historia*[18] is fatally circumscribed: it is simply not rich enough to discover the whole art of medicine on its own (Galen, for example, claims that the cupping-glass could never have been discovered by Empiricist extemporaneousness alone: *On the Affected Parts* VIII 154). Thus, as a result of the on-going debate between the medical schools on the nature of allowable inference (paralleled of course in the great philosophical debates), some Empiricists come to relax their original epistemological hard line:

> the question has been raised whether Serapion too believed that transition to the similar is a third constitutive part of medicine as a whole. Menodotus taught that it was not, but that the Empiricist only makes use of transition, it not being the same thing to make use of something and to treat it as a part. Cassius the Pyrrhonian even tries to show that the Empiricist does not even make use of transition of this sort.... Theodas did better in saying that transition constituted reasonable experience. Others still have held that transition is more like a tool.
>
> (*Subfiguratio Empirica* 4, 49–50 Deichgräber)

Galen's caution about Serapion shows that by his day little was known for sure about the early history of Empiricism. Menodotus was the leading Empiricist of the middle of the second century AD (and hence the author of

the Empiricism Galen is familiar with). The intriguing Cassius probably flourished in the middle of the first century BC; and just as Aenesidemus abandoned an Academy gone soft and Stoic in epistemology to refound Pyrrhonism, so too Cassius reacted against the increasingly watered-down nature of Empiricist epistemology in order to rediscover its pristine originality.

These debates, then, concern the acceptability of certain types of reasoning, and what attitude the Empiricist should take to them. Effectively, Menodotus refuses to enshrine transition as a proper part of the Empiricist method of discovery. He allows that Empiricists do, in the course of their practice, make use of such manoeuvres: but it is one thing to employ a procedure, quite another to endorse it.

However one interprets the complex and shadowy history of Empiricism, it is clear that the more the Empiricists are prepared to allow some form of reasoning (and perhaps hence of rational justification) into their practice, the harder it becomes to distinguish them from their Dogmatic opponents: and indeed Galen, true to his syncretist tendencies, discerned a convergence between the practices of the better Empiricists and the more reputable Dogmatists. None the less, there will remain for even the most relaxed Empiricism a sharp distinction between what entities (and hence what types of explanation) each school will allow. The Dogmatist will happily admit theoretical entities into his structures, and will use them in both physiological and therapeutic explanations: the *phainomena* are indications *(endeixeis)* of the hidden conditions of the body which are ultimately causally responsible for its funtioning well or ill. By contrast, the only indications the Empiricists allow are those afforded by commemorative sign-inference, or *epilogismos*, direct psychological suggestions of therapies that have proved appropriate in similar conditions in the past; and they will countenance no theory at all involving things by nature non-evident. A corollary of this is that all explanation for the Empiricists will be epistemic in form: an Empiricist physician can explain why he adopts a certain course of action, in the sense of saying what prompts him to do so—but he will have no views whatsoever on the metaphysical reasons (if any) why it should be effective.

Of a piece with this rejection of theory is the Empiricists' refusal to have anything to do with anatomy, which they consider to be, for the most part, entirely useless (see Galen, *On Anatomical Procedures* II 288–90). They attacked the Alexandrian practice of vivisection as being not only cruel but also pointless (Celsus, *On Medicine Pr.* 74–5; cf. 23–6, and Ts. 63b–c VS), since what if anything a physician needed to know was how the body functioned under normal circumstances—but there is nothing normal about a body undergoing vivisection.[19]

But if the Empiricists will have nothing to do with hidden causes and conditions, it appears that they are none the less prepared to admit antecedent causes, *aitia prokatarktika:* for these are indeed evident events,

and hence can be put into suitable Humean correlations with further evident outcomes. Thus when Galen seeks, in *SI*, to offer a brief, thumbnail characterization of the differences between the major schools, he allows that the Empiricists (unlike the Methodists, for instance: see below, pp. 340–2) will admit antecedent causes into their account of the general set of circumstances, surrounding the illness or *sundromê* (*SI* 8, 18–20 Helmreich). Yet on the other hand Galen also reports (*CP* xiii 162) that the Empiricists refuse either to affirm or deny the existence of antecedent causes. This apparent contradiction is, I think, easily resolved. What the Empiricists refuse to allow is any theory of causal interaction—hence they will have nothing to do with the Dogmatists' theoretical accounts of how antecedent causes of the sort embraced by Galen and rejected by Erasistratus can have the effects they apparently do. But that does not mean that they cannot treat them, in sound Empiricist fashion, as signs that produce expectations of future occurrences. Why then call them causes? Simply, the Empiricists (like the Pyrrhonists) do not bother themselves with terminological disputes. Thus there is no real inconsistency in the positions ascribed to them by Galen.[20]

ASCLEPIADES

The last section situated the development of Empiricism within the context of their long-running dispute with their Dogmatist opponents that paralleled the contemporary epistemological debates of the philosophical schools. A key figure in that debate is Asclepiades of Bithynia (fl. *c.* 125 BC). Galen's early text, *On Medical Experience*, rehearses a debate between a Dogmatist and an Empiricist: the debate is fictional, but the bulk of the Dogmatic polemic is ascribable to Asclepiades (Menodotus lies behind the Empiricist reply). Asclepiades made a great reputation for himself in Rome, not least because of the pleasantness of the treatments he prescribed (a fact which earned him the scorn of Pliny: *Natural History* 26 12–15). But he was not merely a panderer to public tastes: he elaborated a theory of disease in which the main pathogenic factor was the lodgement in and blockage of invisible pores in the body of invisible corpuscles (this feature has often led people to assume that Asclepiades was an atomist of sorts: as Vallance [10.70] demonstrates, that conclusion is unfounded and premature). Moreover, as far as we can tell (the evidence is fragmentary and very difficult to assess) he accounted for motions of fluids within the body (and perhaps outside it) on the principle of 'movement towards the rarefied' *(pros to leptomeres phora)*, a modification of Erasistratus's *horror vacui*.[21] Galen takes him to task both for this and for his abandonment of teleology (for example *On the Function of Parts* III 464–71), and considers him to be in the same case as Epicurus (*On the Natural Faculties* II 30–57).

But most important from our point of view is his attack on Empiricism. Pliny takes him to task for being a medical parvenu, insufficiently versed in

autopsia and *empeiria* (*Natural History* 26 12); but it is clear from Galen's *On Medical Experience* that he was an implacable foe of Empiricism. First of all, he attacks the Empiricists' right simply to help themselves to a pre-theoretical notion of similarity, a notion he takes it that they require in order to ground their theorems. Diseases are infinitely variable: we require theory in order to determine what counts as relevant similarity between one condition and another, and what does not—but that is precisely what the Empiricists eschew (*On Medical Experience* 3–4, 88–90 Walzer):

> What is more manifold than disease? How does one discover that a disease is the same as another in all its characteristics? Is it by the number of the symptoms, or by their strength and power?
>
> (*On Medical Experience* 4, 89 Walzer)

And mere hearsay of the sort afforded by Empiricist *historia* cannot confirm that it is precisely the same condition that is being experienced (ibid.).

Moreover, even if this is allowed, how can the Empiricists pretheoretically narrow down sufficiently the indefinitely many distinct events and factors that surround each individual case in order to make them empirically tractable? Why, in default of theory, should one be concerned about what patients ate, whether they overworked, were overheated, drank too much or had too much sex, rather than where they lived, what they had been reading and what types of clothes they wore (ibid. 6, 91–2)? The Empiricists thus require theory to sort out the relevant from the irrelevant, otherwise their syndromes will be too large to be contained even in a library (ibid. 7, 94).

Finally, even if all these difficulties can be resolved, what is it that makes the Empiricists' 'experience' 'technical', i.e. constitutive of the art of medicine? For a single instance of observed connection is not enough:

> They themselves also say that what has been observed but once does not amount to anything technical; so what is observed very many times is composed of many things each of which is non-technical. The argument could also be presented as follows…: what has been observed once is non-technical; hence the same is true of what has been observed very many times.
>
> (ibid. 7, 94 Walzer)

Finally Asclepiades asks: 'how many times is many?' Does the Empiricist have an account of how frequently some conjunction needs to be observed before it becomes theorematic, some account 'grounded in the nature of things' (ibid. 95–6)? If so, then he is a theorist of natures *malgré lui*. But if not, the Empirical 'art' is irremediably vague and without foundation. Moreover, it is vulnerable to a soritical objection: how can the addition of

one single instance (which the Empiricists allow is, on its own, evidentially inadequate) make the difference between having and lacking theorematic status (ibid. 96–7)?

The Empiricists' reply, in essence, is that the Dogmatists' demands here are misplaced. They, from their own avowedly theoretical standpoint, may think it necessary to provide an account of how many instances validate a particular theorem; but the Empiricist is under no such obligation. He allows that different cases provide for different degrees of (subjective) confirmation, but that is a fact about his own psychology, having nothing necessarily to do with the way things really are. All the Empiricist does is describe a practice, in strictly psychological, associationist terms. Like Hume, he may be able to point to the mechanisms which operate in particular cases to generate certain degrees of confidence or expectation: but equally like him he will not produce any metaphysical justification of those attitudes. Thus as regards the sorites (ibid. 16–18, 114–20), the Empiricist will not say how many times makes many. The answer to the question will vary from individual to individual and case to case, since it is, at bottom, a matter of individual psychology rather than logic. Building up an experience is not a matter of inference—rather, after observing a certain number of particular cases, the Empiricist simply sees that they exhibit a general pattern. Now, that pattern may ultimately prove to be misleading and chimerical (then it will be abandoned or modified in the light of further experience): but past experience gives us (once more subjective) grounds for hoping that it will not do so. Experience, then, does not license belief—it merely causes it. That position is, I think, coherent. It may not, for a variety of reasons, be satisfying, especially to an Asclepiadean Dogmatist—but mere dissatisfaction with it cannot show it to be untenable.

ATHENAEUS OF ATTALEIA AND THE PRECEDING CAUSE

We noted above the crucial distinction insisted upon by Galen and others between antecedent and containing causes. That distinction is a venerable one (traces of it are to be found in the Hippocratics); but the terminology of antecedent and containing is usually ascribed to the Stoics. In a famous image, Chrysippus compared the relation of external stimulus and internal disposition in the case of human action to the rolling of a cylinder: it requires a shove to get it going, but thereafter contains to roll '*suapte vi et natura*' (Cicero, *On Fate* 49). The antecedent shove is necessary (although not sufficient) for the initial movement—however, the movement continues after the shove has stopped, under its own steam, as it were: for that, the nature of the cylinder is a sufficient, containing cause. Chrysippus's interests were in showing how human beings could be part of a fully deterministic causal nexus, in which their actions are conditioned by an

ineluctable fate (defined as the interrelations of antecedent causes), and yet still be fit objects for moral appraisal: we can be praised and blamed for what we do because, after the initial stimulus, it is our dispositional structures (and our assent to the various presented impressions) that account for our actions.

It is often assumed that a third type of cause, the preceding *(proêgoumenon)* cause is also to be attributed to the Stoics, although this is far from clear (no text unequivocally so ascribes it). The distinction between antecedent and preceding causes is to be found in Galen, although he does not invariably avail himself of it. Roughly speaking, however, the preceding cause is an internal dispositional state which is roused into actuality by the impact of the antecedent cause, thus setting in train what is now the containing cause of the condition in question. An antecedent *(prokatarktikon)* cause is evident, open to inspection, while a preceding *(proêgoumenon)* cause is not: it is an internal state of affairs. Frede ([10.26] 242) remarks that such a distinction would have been at home in Chrysippean psychology; but the rolling drum passage does not apparently advert to it,[22] and it is not found elsewhere in surviving Stoic discussions of psychology and action. In fact, the distinction may well be medical in origin, and due to Athenaeus of Attaleia.[23]

Athenaeus (fl. ?*c.* 100 BC) founded the Pneumatist school of medicine, which accounted for proper and improper physiological functioning in terms of the states of the various internal types *of pneuma*, or dynamic gaseous fluid, in the body. What matters for us, however, is not the structure of his general physiology, but rather the causal taxonomy Galen attributes to him in *On Containing Causes* 2 (=*CMG* Supp. Or. II, 134.3–19). Galen explicitly says that Athenaeus was responsible for the tripartite division into antecedent, preceding and containing causes, where preceding causes are the internally conditioned effects of external antecedent causes, but are not yet themselves containing causes of the illness. This account is supported by Pseudo-Galen, *Medical Definitions* XIX 392; and one may readily see how such a distinction might commend itself to medical theorists. If this is right, then, an important refinement in Hellenistic causal theory is owed not to the philosophers but to the doctors—and this is by no means the only such instance of philosophically important innovations being made in the medical schools.

THE METHODISTS

The origins of the Methodist school of medicine, which arose early in the first century AD, are obscure, but it seems to have been developed out of Asclepiadean corpuscularian physiology, first by Themison of Laodicea at the end of the first century BC (who is generally thought not himself to have been a Methodist), and completed by his pupil Thessalus, a contemporary of Nero.

They held that there were two fundamental ways in which the parts of the body could become out of balance: they could either be too loose (and hence promote too free a flow of the bodily fluids) or too costive (with the opposite effect). In line with this magnificently simple pathology, they rejected the patient's causal history as being therapeutically irrelevant,

> claiming that the indication *[endeixis]* as to what is beneficial, derived directly from the affections themselves, is enough for them, and not even these taken as specific particulars, but taking them to be common and universal. Thus they also call these affections which pervade all particulars 'communalities'…which they call restriction and relaxation, and they say that each disease is either constricted, relaxed, or a mixture of the two.
>
> (Galen, *SI* 6, 12–13 Helmreich)

The physician's only task is to recognize the existence of these pathological states, which, on the Methodists' own account, he should be able to manage without difficulty after a little practice (medicine could be learned in six months, so they claimed), since these 'communalities' are not inferred, theoretical entities, but are in fact perfectly evident. Thus the Methodists reject antecedent causes, even in the sense in which the Empiricists accept them. In an instructive passage (ibid. 8, 18–19) Galen compares the attitudes of Empiricists and Methodists to the case of a man bitten by a rabid dog. For the former, the dog's condition will be relevant (mad dogs' bites having been observed to be far more serious than others); for the Methodists, however, all that matters is the wound itself—and that of course has nothing to do with the condition of the dog (Dogmatists will of course go further than the Empiricists, trying to specify how the dog's condition can have had the devastating effect on someone's internal constitution).

Indeed Sextus commends the Methodists for being closer to the Pyrrhonians than the Empiricists are, since

> the Methodist speaks of 'communality' and 'pervade' and the like in a non-committal way. Thus also he uses the term 'indication' undogmatically to denote the guidance derived from the apparent affections or symptoms, both natural and unnatural, for the discovery of the apparently appropriate remedies.
>
> (Sextus, *PH* 1 240)

And the Methodist, like the Sceptic, is driven by the 'compulsion of the affections' to apply countervailing remedies.

Moreover, it seems from Sextus's account that Methodism, unlike Empiricism, does not even rely on the memory. One does not, apparently, need to develop an understanding of the communalities on the basis of long

experience; rather one simply sees them. And while the Methodists admit indication of sorts (cf. Galen, *SI* 6, 14 Helmreich), it involves no inferences of hidden conditions. In fact, the fifth-century AD medical writer Caelius Aurelianus[24] preserves a Methodist argument against sign-inference:

> Thessalus and his sect…argue thus: if there were sure and inevitable signs of future events, such as the onset of phrenitis, all who manifested them would necessarily develop phrenitis. But some of those who show these symptoms do not develop phrenitis.
>
> (Caelius Aurelianus, *On Acute Diseases* 1 22)

Moreover, Caelius continues:

> every sign is understood in relation to what is signified, since signs belong in the category of relations. But can anything be called a sign if the thing signified is not only not present now, but in some cases never will be?
>
> (ibid. 1 29)

This parallels Erasistratus's claims about causes; and it is vulnerable to the same objections. But even so, there is surely something to the anti-Dogmatic doctors' claims that the endemic dispute among the Dogmatists about the relative significance of pathological signs at the very least compromises their claims to expertise.

GALEN

Thus, by the beginning of the Imperial period, there were three major competing groups of doctors in the Greco-Roman world, of which one class, the Dogmatists, includes a wide variety of different theoretical standpoints united only by a common belief in the importance of inference to the hidden, internal conditions of the body, and of producing theoretical aetiologies for diseases. Moroever, as we have seen, Empiricism was not a monolithic orthodoxy—it came in different strengths, and evolved over time. Equally even Methodism, whose hard-line early position was sketched above, came to soften some of its rough edges over time. Soranus of Ephesus (fl. early second century AD), whose *Gynaecology* survives, allowed himself a good deal of doctrinal leeway. He was prepared to talk, against the original Thessalian orthodoxy, of causes and aetiology, and would sometimes speculate on patients' internal conditions.

This is the world upon which Galen was to make such a deep and lasting impression. Born into a well-to-do family in Pergamon in AD 129, Galen was first broadly educated in philosophy (at the feet of some of the major figures of the day), and then equally well schooled in Dogmatist medicine and anatomy. For all that, Galen never underestimated the value of

empiricism: indeed his main contribution to medical theory and methodology was his largely successful attempt to supersede and render redundant the dispute between the schools by showing just what each of them had to offer to a synthetic medical method.

But, for all his eclecticism, Galen was no mere indiscriminate plunderer of the various previous traditions. Rather his aim is, in line with the general tendency of the emerging Middle Platonist orthodoxy of the time, syncretic: he seeks to show how the best elements of the various schools can not only be combined to form a coherent whole—they are, in a deep sense, equivalent. And we can trace this drive both in medicine and philosophy. Galen sought both to show how successful Empiricist and Dogmatist practice could converge into a theoretically unified whole, and to demonstrate the fundamental agreement between at least the reputable philosophical schools on all important issues of metaphysics and epistemology. But it should be stressed that this is no anodyne compendiousness—Galen is implacably hostile to Methodism (at least in its original Thessalian form), and he frequently lambasts representatives of various Dogmatic schools, including Herophilus, Erasistratus, and Asclepiades for their perceived theoretical shortcomings (we have already briefly noted some of these broadsides). Equally, he regularly attacks Chrysippus and other Stoics for what he sees as their lack of logical acumen, and insufficiency of rigour in argument. Sceptics in particular receive short shrift from him (although, significantly, he reveals that as a young man he was seduced by Scepticism's siren song, rejecting it only after discovering the a priori certainties of geometrical demonstration: *On His Own Books* XIX 49).

And Galen is consistent in his expressed view that the pinnacle of all wisdom is to be sought in Plato in philosophy and Hippocrates in medicine. Indeed, his monumental *On the Doctrines of Hippocrates and Plato* (*PHP*: V 181–805) is devoted to demonstrating the substantial agreement on all major points between his two great authorities (this is the clearest measure of Galen's syncretism). Thus both of them (he contends) support a divided soul, whose rational faculty is located, contra Aristotle and the Stoics, in the brain, while emotion and desire find their seats in heart and liver respectively. Even so, Galen will not follow Plato slavishly—he refuses to commit himself one way or the other on questions such as the eternity of the world or the soul's immortality, holding that such 'philosophical' questions are beyond the reach of human knowledge; and in general he will not treat any of his predecessors' work, no matter how exalted, as holy writ.

In fact, he considers his principal debt to the great ancients to be one of method rather than substance: they pointed the way both to the discovery and justification of true science, and it is the duty of all who follow in their footsteps to carry that programme to completion. Of course their task has been rendered immeasurably harder by the proliferation of sophists and

charlatans whose only concern is with a quick and easy reputation at the ultimate expense of their duped clientele, a fact which Galen harps upon throughout his works. A passage of *On the Natural Faculties* is worth quoting at length:

> Although the statements of the ancients on these matters were accurate, they did not support their case with logical demonstration; of course they did not suspect that there could be sophists so shameless as to contradict plain facts. Of the moderns, some have been taken in by their sophisms, while others who have tried to argue against them lack, for the most part, the ability of the ancients. For these reasons I have tried to construct my arguments on the lines the ancients would have adopted if they were around to take issue with those who seek to overturn the finest achievements of the science. That I will achieve but little success, however, I realise. For I find that very many things which were conclusively demonstrated by the ancients are unintelligible to most people because of their ignorance, or perhaps because of their unwillingness to come to understanding, which is due to idleness. And even if they have arrived at any knowledge, they have not properly examined the issue. It is essential that anyone who wants to understand anything better than the ordinary run of humanity must far outshine them, both in natural endowment, and in the quality of their early training. As a lad he must develop an almost erotic passion for the truth, so that day and night, like someone possessed, he will not let up in his desire to learn what was propounded by the most illustrious of the ancients. And when he has learnt these things, he must spend a great deal of time testing and justifying them, seeing what accords with the observable facts and what does not; and on the basis of this he will accept some doctrines and reject others.
>
> (Galen, *On the Natural Faculties* II 178–80)

That passage encapsulates many of Galen's obsessions: with the necessity for rigorous and lengthy training allied to innate ability (a combination he clearly felt himself to have been blessed with); the importance of logic in general and demonstration in particular to the construction of medical science; the need empirically to test and confirm the results of any theory before accepting it (time and again Galen castigates his theoretical opponents for failing either to see or to admit that their theories clash with the evidence); and the moral degeneracy and inadequacy of the vast majority of his contemporary opponents. These themes are ubiquitous in Galen—and they are of course highly rhetorically coloured. But that fact alone should not cause us to dismiss his claims out of hand. Let us finally, then, see what they amounted to in a variety of different areas.

First of all training and logic. These things go together, Galen thinks—it is because of people's lamentable logical shortcomings that they are unable to see through the fallacies of the medical charlatans (Galen's principal, although by no means exclusive, targets here are Methodists and Erasistrateans) that surround them. Only by understanding logical consequence, and being able to expose equivocation and other similar sources of fallacy (*PHP* V 795–7), will the young hopeful be able to expose the sophistries of the medical degenerates (among which Galen classes, for example, Erasistratus's arguments against antecedent causation).

Indeed the tiro doctor should acquaint himself with both Aristotelian categorical and Stoic hypothetical syllogistic (in his syncretic manner, Galen thinks them to be but two sides of the same basic coin) in order to be able to recognize and to construct valid arguments, and to expose the invalid. Indeed, Galen wrote voluminously on logic (his fifteen-book *On Demonstration* is lost), of which only a short handbook, the *Introduction to Logic*,[25] survives. The *Introduction* briefly outlines the Aristotelian and Stoic systems, before pointing out that neither is equipped to handle the sort of relational inference to be found in mathematics and elsewhere, for which he proposes the development of a third type of argument, the relational syllogism, arguments which have their validity 'in virtue of an axiom' (*Introduction* 16–18). Galen's actual treatment of the logic of relations is limited and naive: but he deserves the credit for having seen clearly (and uniquely among the ancients) the syntactic inadequacies of the traditional logics.

But logic was not merely useful as a destructive weapon for rooting out bad argument. The proper model for science, Galen thinks, is Aristotelian, along the lines laid out in *Posterior Analytics* (upon which Galen wrote commentaries, now lost). Galen insists that all science, medicine included, is axiomatic in structure, proceeding from basic, indubitable axioms via secure principles of inference to the theorematic derived truths. The axioms will include logical laws (such as that of the excluded middle); but also comprehended are principles of mathematics ('equals subtracted from equals leave equals'), and various metaphysical principles such as 'nothing occurs causelessly', 'nothing comes to be from nothing', and 'nothing is completely annihilated'. These axioms are described as being 'evident to the understanding', and anyone who rejects them is simply not worthy of further consideration.

But in addition to the class of things evident to the understanding, there is a set of items which are equally evident to perception. Galen has no truck with scepticism, accusing sceptics of bad faith and of subverting human life (*On Distinguishing Pulses* VIII 782–6; *On the Best Method of Teaching* I 40–52). In fact, Galen thinks, it turns out upon analysis that even the Academics agreed with the undeniability of things perceptually evident, an agreement they obscured by their insistence upon talking about the 'persuasive' (*pithanon*) as opposed to the true (*PHP* V 777–8). Galen no

doubt minimizes the genuine differences that existed between the Stoic and Academic epistemologies (he considers the Stoic criterion of the cataleptic impression to amount to no more than the common-sense view that what is evident to perception is true); but equally it is worth pointing out that, by the end of the two-centuries-long debate between the schools, some others (notably Antiochus and Aenesidemus, from their different perspectives) could see little difference either. Galen is surely right to stress the fact of pragmatic convergence between them.

And just as he stresses the convergence of practice between the good Empiricist and the competent Dogmatist (above, p. 336) in the realm of prescription and therapy, so here in epistemology his bent towards syncretism manifests itself. At the end of the day, when all the dust has settled, everyone who is not hopelessly ensnared in sophistry and illusion will agree that the senses, in good condition and uncorrupted by disease, are criteria of truth: for we have nothing else to go on; and in any case, nature could not have provided us with such 'natural criteria' if they were not, for the most part at least, reliable (*PHP* V 725–6). That, admittedly brief, attempt to justify his epistemological optimism serves as a convenient bridge into what is in many ways the most important feature of Galen's natural philosophy: his teleology.

Galen attributes his teleology, as so much else, to the example of Plato (of the *Timaeus*) and Hippocrates:

> even if you are one of those who through ignorance of Nature's works accuse her of lack of skill, I think you will repent with shame and change your view for the better, agreeing with Hippocrates who is continually singing the praises of Nature's righteousness and the foresight she displays in the creation of animals.
>
> (*On the Usefulness of the Parts (UP)* III 235)

A page or so later, he invites the reader to choose between two choruses: that surrounding Plato and Hippocrates, which exalts the purposiveness and foresight of Nature in arranging things in animals' bodies for the best; and the other, which denies Nature's skill and claims that many things are created by her to no purpose.

The invocation of Hippocrates is a trifle strained; and while Plato in the *Timaeus* clearly outlines a natural teleology, and one which does indeed in important respects anticipate Galen's own, it is clear that, insofar as the detailed working-out of his teleological conception of nature is concerned, it is the Aristotle of *Parts of Animals* to whom he is most indebted. But if the detail is Aristotelian (although Galen claims to expand upon and advance Aristotle's position), the form of the teleology is indeed Platonic: for Galen, unlike Aristotle, attributes the teleological structure of nature to a divine artificer, whose praises he sings contantly throughout *UP,* and whom he calls, in conscious recollection of the *Timaeus*, the Demiurge.

Thus there is no doubt on which side of the great ancient debate between teleology and mechanism Galen will find himself: he is particularly harsh on those who (such as Epicurus and Asclepiades) wilfully refuse, as he sees it, to recognize the providential form of Nature. His reason for ascribing nature's purposive structure to a Demiurge is a simple and familiar one (it is to be found also in the Stoics, and appealed to the young Aristotle: Cicero, *Nature of the Gods* 2 95): if one compares the construction of the natural world with the work of any human artisan, one will immediately recognize a basic similarity in design, although the former by far outshines the latter in beauty, functionality, economy, and goodness (*UP* III 238–9; IV 346–66). Thus if it is absurd to suppose that any human artefact might have come about by chance and undesigned, how much more so in the case of the natural world. That version of the Argument from Design is currently out of favour; but it is so only because we possess far more sophisticated conceptual resources (in the form of cybernetics, and Darwinian notions of natural selection) with which to explain how unplanned, mechanically produced structures can none the less mimic design. The ancient mechanists, lacking such resources, were woefully inadequately equipped to offer any such account.[26]

It is from this perspective that he takes Asclepiades to task in an instructive passage from *UP* (III 464–71), in which he endorses the Aristotelian system of Four Causes (although he assimilates the Formal Cause to the Platonic paradigm, and elsewhere in his works makes no reference to it), with the Middle Platonist addition of the Instrumental Cause, that with which something is brought about (cf. *CP* vi 54–67). Asclepiades held that the 'venous arteries' (i.e. the pulmonary veins) became thin (unlike other arteries) because of their hard work; Galen holds, conversely, that they were made that way in order to be able to work hard. Thus Asclepiades gets the primary direction of explanation the wrong way round, because he fails to allow for purposiveness in nature; and he fails to see 'that the arteries of the lung are venous and the veins arterial because it is better so' (*UP* III 469). They are made thin by the Artificer in order that they may perform the function they are supposed to; their thinness is a mere instrumental cause, 'the most insignificant of all, and which I believe anyone versed in the philosophical method would not call a proper cause at all, but one that is contingent or consequential, like a counterfeit drachma' (ibid. 466; moreover the whole debate is vitiated by the fact that the ancients, lacking a circulatory account of the vascular system, mistook the pulmonary artery for a vein and vice versa).

Elsewhere (*CP* vi 67), Galen says that the final and efficient causes are the most important, followed by the instrumental and material; but Galen does not underestimate the importance of the latter—it is precisely by appealing to material factors that he can circumvent Erasistratus's 'sophism' against antecedent causes. Thus he appropriates three at least of Aristotle's canonical tetrad; the efficient and material causes are readily further

assimilable to the Stoics' active and passive principles (cf. Sextus, *PH* 3 1–2), and the Stoics too invoked purpose and design, the final cause. Moreover, Galen takes advantage of the conceptual distinctions made by the Stoics in philosophy and people such as Athenaeus in the medical tradition (see above, p. 340) in order to refine the notion of an efficient cause. The resulting structure gives him an explanatory model of great power and flexibility.

It remains to consider Galen's attitude towards the relations between theory and practice, reason and experience. We have already seen Galen's own report of how the dispute between the Dogmatists and the Empiricists played itself out in terms of an increasing convergence between the practices of at least the more reputable representatives of each tendency. Galen himself, in his own voice, underlines the need to appeal both to reason and to experience in order to arrive at a coherent and empirically adequate medical theory. On the one hand, he denies that the pure Empiricism of Cassius could ever have arrived either at complex remedies or at the discovery of such useful tools as the cupping-glass. On the other hand, theory without experience is blind: only by repeated testing of expected theoretical outcomes at the tribunal of experience *(peira)* can a theory be validated.

This is, of course, of a piece with his view that some things are evident to sense-perception; but unlike the Empiricists, Galen does not think that *peira* can be relied upon to deliver the candidates for theorematic status that are to be the subject of empirical testing—that is the role of theory, or *logos*. That is, *peira* is necessary for testing the results of logical deductions, but is on its own insufficient to discover the whole truth of science—in modern parlance, it functions in the context of justification, not that of discovery (cf. Galen, *On Hippocrates' 'Nature of Man'* XV 152–3). At MM X 29, he puts it slightly differently: *logos* serves to demonstrate the soundness of causal explanations, *while peira* assesses the results; moreover, *logos and peira* should be kept strictly separated and not confused, although any not thoroughly versed in the demonstrative method should restrict themselves *to peira* (ibid. 30–2). But even though the Empiricist may discover some therapies by his own method, his practice is fatally restricted—he lacks the means to progress logically from one item to another (ibid. 486; cf. 608, 628, 901).[27]

Furthermore, Galen is implacably opposed to the Empiricist line that anatomy is pointless: on the contrary, it is a vital tool in the discovery of the facts of connection and disconnection among the parts of the body that enable the competent theorist to deduce the functional relations that hold within it from facts of its structure.[28] In his treatise, *On Anatomical Procedures (AA)* he writes:

> anatomical study has one application for the scientist who loves knowledge for its own sake, another for him who values it only to

> demonstrate that Nature does nothing in vain, a third for one who provides himself from anatomy with data for investigating a physical or mental function, and a fourth for the practitioner who has to remove splinters and missiles efficiently, to excise parts properly, or to treat wounds, fistulae and abscesses.
>
> (*AA* II 286)

Thus anatomy has a variety of uses, theoretical and practical—but Galen is adamant that the sort of knowledge gained by the 'adventitious anatomy' that the Empiricists allow is insufficient for the purpose (*AA* II 288–9; cf. 224) 'Adventitious anatomy' is the chance observation of corpses on a battlefield, or of skeletons exposed by flooding in a graveyard, as by Galen himself (ibid. 221); and this underscores the fact that, by Galen's time, practising anatomists were in a much worse case than their Alexandrian predecessors. It had, in fact, become socially impossible even to investigate corpses on purpose; and the bulk of Galen's research was carried out on monkeys, pigs, goats and other animals (ibid. 222–4). In order for this to be productive, he had to rely on a theory of animal homology which occasionally led him astray—but for the most part, the fruits of this research were impressive and original.

One of his most remarkable results was the demonstration of the function of the recurrent laryngeal nerve in voice-production (*AA* II 675–81) upon experimental animals, in the course of a precise and brilliant sequence of experiments on neural sections in the spinal column, in which Galen showed how a ligature at a variety of different points variously affected the animal's abilities to move and to produce sounds. These experiments are important not least for the fact that they *are* experiments. It is often alleged that the ancients were innocent of anything that might be called 'the experimental method' in science and there is something to that claim. Although ancient science abounds with reports of observations from the Hippocratics onwards, there is at least in the classical period scant evidence of anything we might recognize as experimental design: the deliberate manipulation of selected variables in artificial conditions in order to determine their various relations.

But Erasistratus at least performed a recognizable experiment, by placing a bird in a sealed container, and weighing it before and after feeding, along with its droppings, in order to show that some of its body-weight had been lost by invisible emanations; and Galen in several places reports experiments he claims to have carried out. They are not, it must be admitted, uniformly well designed and performed. In *On the Use of Breathing* IV 504–5, he says that a boy was able to survive an entire day with an ox-bladder over his nose and mouth to prevent him from breathing; while in two places (IV 73 and II 645–8) he describes an experiment involving severing an artery and inserting a thin tube linking the severed parts. Galen claims, *contra* Erasistratus (whom he accuses of

not having observed the phenomena), that the portion of the artery distal to the incision will exhibit no pulse, thereby proving that the faculty of pulsation is carried in the arterial walls, and does not result from the pumping of the blood itself. But as Harvey, who repeated the experiment, observed, it is extremely difficult to effect such a severance and junction neatly, and in any case, the relative absence of pulsation distal to the cut can be explained on other grounds consistent with the pulse's being caused by the blood-flow.[29] But whatever the particular shortcomings of conception and execution, it is clear that by Galen's time appeal to artificially created experimental circumstances in order to support or disconfirm a theory was an established part of scientific procedure. There is a theoretical motivation for this: this is part of the *peira* which tests and confirms the discoveries of *logos*.

This methodology can be seen at work in *On the Doctrines of Hippocrates and Plato* in Galen's rebuttal of the Stoic (and Aristotelian) doctrine that reason was located in the heart rather than in the brain. He begins by distinguishing, in Aristotelian fashion, between properly scientific premisses, which are 'found in the very essence of the matter under consideration…we should first state the essence and definition of the thing under consideration, and then use it as a standard' (*PHP* V 219), and those which are 'superfluous and irrelevant; and this is how a premiss that is scientific differs from one that is either rhetorical or sophistical' (V 220).

We begin, then, with conceptual analysis:

> The governing part of the soul, as even [the Stoics] allow, is the source of sensation and drive. Therefore the demonstration that the heart is the location of the governing part must not start from any other premisses than that it initiates every voluntary motion in the other parts of the animal's body, and every sensation is referred to it.
>
> (*PHP* V 219–20)

But to determine that the heart really is the centre of voluntary control demands empirical data:

> What can this be shown from…apart from anatomy? For if it supplies the power of sensation and movement to all parts of the body, then it is necessary that there be some vessel growing out of it to perform this service.
>
> (*PHP* V 220)

This vessel can be isolated on the basis of anatomical experiment: hence the importance of the neural sections, which determine both what mediates the psychic power (here as elsewhere Galen speaks in studiedly neutral terms), and its direction of flow. By tracing the neural canals backwards to their source we can establish that they originate from the brain, and hence that

it is the brain and not the heart from which voluntary motion arises and to which sensation is referred. The argument is not innocent of certain controvertible causal assumptions, but it is typical of Galen's willingness to marry abstract argument to empirical investigation.[30]

Finally, a word about the notion of a power or faculty *(dunamis)*. We have already noted Herophilus's deployment of the concept (see above, p. 325). Galen frequently speaks of powers: and where he does so it is precisely in order to avoid too rash a set of claims regarding the actual physical status of things. Thus he disavows knowledge of the substance of the soul (cf. *On the Formation of Foetuses* IV 700–2); but he thinks its powers can perfectly well be investigated.

In *On the Natural Faculties* he is concerned with enumerating and specifying the function of various faculties that he discerns at work in the human body: thus, for instance, the kidneys possess (so he supposes) the faculty of attracting urine (II 57–64, 74, etc.). Quite how they do so is another matter; but that they do so is, Galen thinks, clear simply from the inadequacy of purely mechanical theories such as those of Erasistratus and Asclepiades to explain how the various bodily fluids get separated out and conveyed to their various proper places.

And whatever the empirical and theoretical shortcomings of this concept, at least in these cases there is something attractive both about the caution with which Galen essays his theorizing here, and, congruently, with the weight he seeks to place upon the empirical facts. Theories, for him, must be empirically driven and answerable to the tribunal of experience. Galen thus represents the culmination of the development we have discerned throughout the period of this study.

ABBREVIATIONS

AA	Galen, *Anatomical Procedures*
CP	Galen, *On Antecedent Causes*
DL	Diogenes Laertius, *Lives of the Philosophers*
G	Garofalo [10.6], *Erasistratus*
MM	Galen, *De methodo medendi*
PH	Sextus Empiricus, *Outlines of Pyrrhonism*
PHP	Galen, *On the Doctrines of Hippocrates and Plato*
SI	Galen, *On Sects*
UP	Galen, *On the Usefulness of the Parts*

NOTES

1 Even where later and better texts of Galen's work are available (as they are in this case: Corpus Medicorum Graecorum V. 4.2), I generally refer to the edition of Kühn [10.10], since the later texts are (for the most part) keyed to it. Exceptions are noted where they occur.

2 The sense of this lapidary fragment is disputed: see von Staden [10.15] and Hankinson, review of this in *Phronesis* 35 (1990). VS (125) translates 'let the appearances be described first even if they are not primary': but that reading requires us to take the two occurrences of the word *'prôta'* in completely distinct senses, even thought there is no indication to that effect.

3 This structure, the confluence of the four major cranial sinuses, is more common and more visible in animals than in humans, a fact which, along with his erroneous but influential ascription of a *rete mirabile* to humans (T 121 VS), has encouraged some to doubt whether Herophilus ever did in fact dissect humans; but on the whole the evidence suggests that he did: see p. 325.

4 See Hankinson [10.49] for an edition, translation and commentary of this text; it survives in a mediaeval Latin translation made by the Italian scholar Niccolò da Reggio.

5 Galen clearly refers here to Erasistratus, who was mentioned by name in the previous sentence (and who is the principal target of *CP*), and not to Herophilus, as von Staden suggests: [10.15] 136. See Hankinson [10.49] ad loc.

6 Niccolò's Latin reads: 'quid igitur ait? "causa vero, utrum sit vel non, natura quidem non est invenibile, existimatione autem puto infrigidari, estuari, cibo et potibus repleri".'

Von Staden renders *'existimatione'* as though it stands for *'ex hupotheseôs';* but Niccolò's *'ex suppositione'* of T 58 VS clearly translates *'ex hupotheseôs':* and he was careful to render technical terms unambiguously. Thus *'doxêi'* or the like seems more probable (so Bardong in his 'Rückübersetzung': CMG Supp. II, p. 53), yielding my translation. Von Staden's sense is undeniably attractive, and perhaps the text should be emended; but as the text stands it recalls the Pyrrhonist Timon of Phlius' remark that 'I do not claim honey is sweet; but I agree it seems so' (Diogenes Laertius *Lives of the Philosophers* 9 105 (hereafter DL)); which perhaps argues against emendation.

7 Von Staden misleadingly compares the Aristotelian doctrine of hypothetical necessity (*Physics* 2:9; *Parts of Animals* 1:1) with Herophilus' causal hypotheticalism—but there are no significant similarities between them; see Hankinson in *Phronesis* 1990, 209, n. 30.

8 This is a matter of dispute: see Fraser [10.25] and Lloyd [10.58] for opposing views.

9 On the Erasistratean principle of *horror vacui,* see Garofalo [10.6] 33–5; and Vallance [10.70] especially ch. 2.

10 This may not be accidental: Erasistratus is said to have studied with Theophrastus in the Lyceum (DL 5.57; cf. Fragment 7 G).

11 In particular his celebrated diagnosis of love-sickness by a method Galen himself repeated: he took the woman's pulse, and reeled off an apparently random list of names. When the woman's pulse suddenly quickened, Galen inferred that she was enamoured of the man he had just mentioned: *On Prognosis* XIV 630–5; cf. Nutton [10.66] 195–6.
12 For the history of the development of the concept, see Frede [10.26]; Hankinson [10.37], [10.38] and [10.49]
13 See *CP* ii 9–10; vi 46; viii 96–114; Hankinson [10.49].
14 Garofalo ([10.6] 30) thinks that Erasistratus called them 'origins *(archai)*' of disease: Fragment 162 G; 223 G; but it seems rather that Erasistratus reserved the term *archê* for the condition of *plêthôra* consequent upon them: see further below. On these issues in general, see [10.6] 29–31.
15 I here depart from my usual practice, and refer to *SI* by way of Helmreich, 1893, since Frede's English [10.4] is keyed only to that text.
16 This is the famous *paremptôsis* of Erasistratean pathology (although Sextus uses the term '*metaptôsis*'): for Erasistratus, all fever was consequent upon inflammation caused by blood being forced through the *anastomôseis* between the veins (in which in normal circumstances the blood resides) to the arteries, where it has no business being.
17 'Indication' here is equivalent to indicative sign-inference.
18 *Historia* did not, for the Empiricists, involve an uncritical acceptance of all received testimony: on the contrary, they elaborated a complex and sophisticated system of assessment of the relative value of different testimony (according to how far it cohered with other parts of the art already discovered, and on the basis of the past reliability of the source in question).
19 On the Empiricist attitude to anatomy, see Hankinson [10.50].
20 For more on this, see Hankinson [10.38]; and on the nature of antecedent causes in general, Hankinson [10.37].
21 See Vallance [10.70] ch. 2, for a careful analysis of the (principally Galenic) evidence, and a reconstruction of the theory.
22 However, this turns on tricky issues in the interpretation of Cicero's Latin rendering of technical Greek terminology: see Sedley [10.68] and Hankinson, forthcoming [10.52].
23 See Hankinson [10.37].
24 Caelius's two treatises, *On Acute Diseases* and *On Chronic Diseases,* are Latin adaptations of lost original works of the second-century Methodist Soranus of Ephesus.
25 Not discovered until 1841, and hence not edited by Kühn; see Kalbfleisch [10.9].
26 I discuss this in Hankinson [10.41], and [10.43].
27 On all these issues, see further Barnes [10.19].
28 On the relation of structure and function in Galen, see Furley and Wilkie [10.5] and Hankinson [10.42].
29 See Furley and Wilkie [10.5] 51–3.
30 See also Galen's criticism of the Stoic argument against the view that the mind is located in the brain from the fact that voice passes through the windpipe (*PHP* V 241).

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TEXTS AND TRANSLATIONS

[CMG=Corpus medicorum graecorum]

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CHAPTER 11
Neo-Platonism

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GENERAL INTRODUCTION

Neo-Platonism is usually defined as the philosophy of Plotinus, who lived in the third century AD, and his followers in the pagan Graeco-Roman world in late antiquity. The most significant philosophers among these followers are Porphyry, Iamblichus and Proclus. In a more liberal sense the term 'Neo-Platonic' may be applied to all philosophers on whom these primary Neo-Platonists exerted considerable influence. It may thus be used so as to include Christian thinkers such as St Augustine, Boethius, Pseudo-Dionysius and John the Scot Erigena and of later people, Marsilio Ficino, Cusanus, Bruno and Cudworth, to name just a few.

Neo-Platonism was the dominant philosophy in the Graeco-Roman world from the third century till the sixth, when the emperor Justinian closed the pagan schools. It survived even after this in Alexandria down to the Islamic conquest in 642. Plotinus taught in Rome, but eventually Neo-Platonism spread out in the Empire, especially in the East, with major centers for a while in Rome, Syria and Pergamum, and with long lasting traditions in Athens and Alexandria. Neo-Platonism was thus an active philosophy for about 400 years. As the last phase of pagan philosophy prevalent in the early centuries of Christianity, Neo-Platonism was the school of ancient philosophy which at first opposed and soon profoundly influenced Christian thought and theology.[1] Its later stages are characterized by the Aristotelian Neo-Platonist Greek commentators, who fall outside the span of this volume. But even the period from Plotinus in the third century AD to Proclus in the fifth provides a fairly long list of Neo-Platonic philosophers. Rather than commenting on every name—our knowledge of the doctrines of most of the thinkers involved is extremely limited in any case—I shall treat Plotinus, the greatest mind of all the Neo-Platonists, most extensively. In so doing I shall point out traits that are characteristic of Neo-Platonism generally. This will be followed by shorter accounts of Porphyry, Iamblichus and Proclus.

The definition of Neo-Platonism given at the outset tells us of course nothing about philosophical content. Before attempting to give such an

account, it may be helpful to have an outline of the background of Neo-Platonism in antiquity and an explanation of the term 'Neo-Platonism'.

Throughout antiquity there were thinkers, often quite different from each other, who claimed to be followers of Plato. Arguably, they were all right in maintaining such affiliation, for Plato's thought is so rich that one can develop it in many directions. Platonic tradition in antiquity can be divided into four main types that correspond, at least roughly, to different periods. First comes the Old Academy, a metaphysically inclined school of thought which dominated in Plato's Academy for the next few generations after Plato's death. In the early third century BC scepticism became the prevailing view. This tendency lasted into the first century BC, when the Academy became dogmatic again with Antiochus of Ascalon, who blended his Platonism with a good deal of Stoicism.

The period that follows till Plotinus (205–69/70) is usually called Middle Platonism.[2] Our knowledge about Platonic thinkers during this time is extremely fragmentary. Nevertheless, we know enough to affirm that there was considerable activity, by no means exclusively or even primarily in the Academy but at various places in the Hellenized world. In fact Middle Platonism is no unified school of thought, but a label put on various Platonically inspired thinkers at different places during this period. It is possible, nevertheless, to point out some general trends: Platonists have now become metaphysically oriented again, happily engaging in speculations about the ultimate principles and structure of the world. So in a way we see here a return to the kind of philosophy characteristic of the Old Academy but with important new features: the Middle Platonists generally show significant influence of other philosophical schools in terminology and even in doctrine. The Peripatetics are the most relevant here, but Stoic influence is by no means negligible. The authors Plutarch of Chaeronea and Apuleius (the author of the *Golden Ass*), who are better known for their non-philosophical writings, both wrote philosophical works and count as Middle Platonists. Among the philosophically most important of the Middle Platonists should be mentioned Albinus, author of *Introduction to Plato's Dialogues,* and Alcinous. The latter, whom some scholars wish to identify with Albinus, wrote a work called the *Didaskalikos,* which in many respects is representative of Middle Platonism. Concurrently with Middle Platonism and not easily distinguishable from it there arose a movement of Neo-Pythagoreanism represented by such figures as Moderatus and Numenius. Their doctrines paved the way for Plotinus, who was in fact accused of plagiarizing from Numenius.

Plotinus' thought, and thereby the kind of philosophy that has come to be known as Neo-Platonism, grows out of this soil. It is even questionable whether Plotinus, who on all accounts is considered the founder of Neo-Platonism, really marks a breaking point in the history of Platonism. (As we shall see, this is not meant to downgrade his importance and originality.) For most of the supposedly characteristic elements of Neo-

Platonism can be traced back to the Middle Platonists. Plotinus constitutes a historical milestone primarily because he synthesizes and in some respects carries further ideas already current. Nor should we forget that he is the first significant Platonist of his era who has left a large extant corpus. Even our meager sources suggest that a more complete picture of his Middle Platonist predecessors would reveal Plotinus as a great mind belonging to an already established mode of thought. Thus, Neo-Platonism, defined as a philosophical movement beginning with Plotinus, is a somewhat artificial notion.

As with the names of so many other movements in the history of culture, 'Neo-Platonism' is an intellectual historian's term of art, invented in modern times to describe the past. The philosophers involved surely did not think of themselves as *Neo*-Platonists. They would simply see themselves as Platonists, interpreters and followers of Plato's philosophy. But so have many others thought of themselves both before and after Plotinus and his followers in antiquity. The main reason why historians have found it expedient to put a special label, 'Neo-Platonists', on these particular Platonists is that for a long time after the study of Plato's dialogues was resumed in Europe during the Renaissance, the distinction between his thought and that of the late ancient Platonists, especially Plotinus and Proclus, tended to be blurred: Plato was generally seen from a Neo-Platonic viewpoint. Moreover, this attitude was often mixed with an effort to harmonize and even mix Platonism with Christianity. Gradually, however, it became evident that this view involved serious historical distortions. Not only did it turn out to be worth while to study Plato stripped of the outfit of the ancient Platonic tradition, not to mention Christianity, increasing historical awareness also suggested that many features foreign to Plato had infiltrated the minds of Plotinus and his successors. It was originally in a revolt against the historical errors of the total fusion of Plato and the late ancient Platonists that scholars began to distinguish sharply between the philosophy of Plato and that of Plotinus and his successors, calling the latter 'Neo-Platonists'.

Understandable as these motives are, the reaction was in some respects excessive: new historical errors and misunderstandings have separated Plato and the Neo-Platonists even further apart than is reasonable. The presence of Plato in the Neo-Platonists' writings, which today is obvious to all serious students of both, faded into the background, whereas all sorts of other elements came to the fore: the Neo-Platonists' alleged orientalism, superstition and philosophical eclecticism. Truly Platonic elements even went unnoticed in cases where they are, by hindsight, obvious. The most notorious example of this is scholarly views of the Neo-Platonic One (I shall have more to say about this shortly) about whose non-Platonic and even non-Greek origin there had been imaginative speculations, until in 1928 E.R. Dodds proved beyond any reasonable doubt that the One's key features come right out of Plato's *Parmenides*.[3] The fact is that as

philosophers the Neo-Platonists are above all genuine Platonists and this must be the first guiding principle in the interpretation of their thought.

But what sort of Platonists? It is sometimes said that Neo-Platonism is Plato without Socrates, meaning that the ethico-political side of Plato as well as Socratic ignorance with all its implications are largely absent in the Neo-Platonists. Their interests lie primarily in metaphysics and in the philosophy of nature and of Man as seen from the viewpoint of their metaphysics. In fact there are relatively few Platonic passages on which the Neo-Platonists build. The *Timaeus* enjoys a prominent position, presenting for the Neo-Platonists a picture of the world as a whole and its structure. Other much cited dialogues are the *Parmenides* (the second part), which was thought to present Plato's theology (i.e. metaphysics or ontology)—the Neo-Pythagoreans mentioned above were the first to read the *Parmenides* in this way; the *Republic,* especially books V–VII and the myth of Er. To this may be added passages from the *Symposium* (Diotima's speech), *Phaedrus, Phaedo, Theaetetus, Philebus,* the *Sophist,* the *Laws* and the first *Alcibiades.*

The Neo-Platonists were convinced that Plato presents a coherent and true account of the reality. The problem is to understand him correctly, for often he expresses himself cryptically—according to the Neo-Platonists Plato's myths contain important philosophical truths. In addition the tradition of Plato's unwritten doctrines, i.e. Aristotle's presentation of Plato's principles and accounts of the celebrated lecture on the Good, play a role in the Neo-Platonists' picture of Plato. Not that the tradition of the unwritten doctrines supersedes that of the dialogues; rather the dialogues are interpreted in the light of the 'unwritten doctrines'. An example of this is the identification of the One and the Good as Plato's highest principle.

The Neo-Platonists could not fail to be influenced by the philosophical developments that took place in the Graeco-Roman world during the 600 years between Plato and Plotinus as well as by the intellectual climate of their day. In the third century AD it was impossible to talk about philosophy without some Stoic and Aristotelian accent, which had become a part of the language of philosophy itself. And however convinced a Platonist a late ancient philosopher may have been, he would of course use any tools available to him and compatible with his basic Platonic views to argue for and state his position. Thus, the Neo-Platonists' position can be compared to that of, say, any sensible Marxist of today who uses whatever he finds useful in twentieth-century non-Marxist philosophy, sociology or economics, not attempting to transform himself into a nineteenth-century mind but, on the contrary, addressing the issues of the day. In any case, for the Neo-Platonists Aristotle was not a complete outsider. The late ancient Platonist attitudes towards him vary from hostility to a friendliness that would only befit a faithful fellow Platonist. Plotinus' attitude may perhaps be expressed by saying that Aristotle was an aberrant Platonist who

nevertheless is most useful. After Porphyry the dominant view came to be that in fact Plato and Aristotle were in essential agreement.

Plato belonged to Athens, a small homogeneous city-state, where active participation in politics was expected of every free man; the Neo-Platonists, by contrast, belonged to the immense and multifarious Roman Empire. The general mood of the times, not only among the Neo-Platonists themselves who in due course did much to create the intellectual climate at least among the educated, was oriented inwards and upwards rather than out to the physical world and society. The rise of Christianity and the popularity of gnosticism and other kindred trends bear witness to this. All this helps to explain the Neo-Platonists' lack of enthusiasm for Plato's worldly ethics and political philosophy and preoccupation with the speculative aspects of his thought.

How good an interpretation of Plato came out of all this? This is by no means an easy question to answer, if only because also today even fundamental aspects of Plato's philosophy are debated. The Neo-Platonists did not have a sense of a development in Plato's thought and they would give much greater weight to Plato's myths and allegorical interpretations than most scholars today are willing to do. However, given that one's task is to set forth systematic metaphysics out of the Platonic material the Neo-Platonists rely on, their results are not at all implausible, as can be seen from the fact that modern scholars who attempt to reconstruct systematic metaphysics out of Plato tend to come up with structures that have a good deal in common with Neo-Platonism, albeit admittedly not the whole thing.

Plato is in any event a central figure in ancient philosophy: he brings together many ideas from previous Greek philosophy and puts a strong mark on subsequent ancient mainstream metaphysics, i.e. on the Aristotelian and the Stoic traditions in addition to the Platonic tradition itself. So Neo-Platonism as a philosophical movement concerned with Plato's thought while being aware of and employing ideas from the other schools can be fruitfully seen as a culmination not only of Platonic but Greek metaphysical thought in general. In many cases Neo-Platonism takes to their extreme, to their logical conclusion one might even say, ideas already present in the tradition. The philosophical value of the movement lies not least in this play with the entire Greek tradition which results in a distinctive and, when at its best, quite sophisticated metaphysical thinking.

Within the history of philosophy Neo-Platonism has a rather peculiar and in some respects an uncomfortable position. It lies on the border between antiquity and the Middle Ages, which constitute two separate fields of expertise whose focal points lie far from Neo-Platonism. The Neo-Platonists' writings also tend to make difficult reading, even for philosophical works. This is not only because their works may present views that are in themselves difficult to grasp, but also and no less because the Neo-Platonists incorporate and presuppose so much of the previous Greek tradition in their writings that no Neo-Platonic text is intelligible

without prior familiarity with this tradition. The result of all this is that the Neo-Platonists are usually not given much attention in the standard philosophy curriculum. Furthermore, the prevailing trends in twentieth-century philosophy, especially in the English-speaking world, have on the whole been unsympathetic towards Neo-Platonism, which is seen to exhibit many signs of corrupt philosophy: uncontrolled rationalistic metaphysical speculation combined with faith in an authority (who is moreover misunderstood); to this are added the sins of mysticism, occultism and superstition. Even if genuine progress has been made in Neo-Platonic studies in recent years, the image of the Neo-Platonist as a thinker engaged in 'wild fancy' seems to linger on. While there are certainly passages that make some of these charges understandable, the Neo-Platonists' reputation as philosophers has in general been lower than they deserve. And whatever one thinks of their philosophy, the Neo-Platonists have had an immense influence not only on the history of philosophy but also in the history of art, literature and science. Richard Wallis hardly exaggerates when he writes that 'a survey of Neo-Platonism's influence threatens to become little less than a cultural history of Europe and the Near East down to the Renaissance, and on some points far beyond'.[4] At the end of this chapter I shall briefly take up the issue of the influence of Neo-Platonism.

PLOTINUS, THE MASTER THINKER OF NEO-PLATONISM

LIFE AND WRITINGS

We are lucky to have a fairly reliable account of Plotinus' life and writings. His student, friend and editor, Porphyry, composed a biography, *On the Life of Plotinus and the Order of His Books* (hereafter *Life*) which prefaced his posthumous edition of Plotinus' writings. Plotinus was born in 204/5, probably in Lycopolis in Egypt, though this piece of information does not come from Porphyry. About his ethnic origin nothing is known, but he wrote in Greek. At the age of 28 Plotinus began his philosophical studies in Alexandria under a certain Ammonius (often called Ammonius Saccas), with whom he studied for about eleven years. In an attempt to acquaint himself with the philosophy of Persia and India, he joined the emperor Gordian on a campaign against the Persians. Gordian was murdered on the way and Plotinus escaped with difficulty. He settled in Rome at the age of 40, where he established a school. He stayed in Rome for the rest of his life except during his final illness, when he retired to Campania.

Few ancient philosophers have left a larger extant corpus than Plotinus and we probably possess everything he wrote. His works are treatises that vary greatly in length and scope. Some are only a few pages dealing with a specific question, while others are extensive writings. Porphyry arranged

the treatises according to subject matter into six sets of nine treatises, i.e. six 'enneads'. In order to arrive at this division he had to split some treatises, for example IV.3–5, *The Problems of Soul,* which originally was a single treatise. The order is supposed to be pedagogical, starting with the easier and proceeding to the more difficult. Thus, Porphyry included in the first *Ennead* treatises that deal with ethical matters. In the second and third he put treatises dealing with the physical universe. The fourth is about soul and the fifth about intellect and the doctrine of the three principal hypostases. Porphyry does not say explicitly which subject the sixth *Ennead* is supposed to cover, but apparently it is meant to be being and the One. In any case, Porphyry's arrangement according to subject matter is an approximate one, partly because he is forcing the material to meet his principles of division, partly because many of Plotinus' treatises do not readily fall under one, or even two, headings.[5]

Plotinus' treatises grew out of discussions in his school. These discussions would often be concerned with exegesis of some text or other. Plotinus used to have commentaries on Plato and Aristotle read in the school (*Life*, 14). The object of reading these would be to arrive at a correct understanding of the relevant primary text. Thus, more often than not, Plotinus' writings are interpretations of some Platonic text or doctrine, sometimes involving refutations of rival interpretations. However, he did not follow the standard procedures of the writing of commentaries. Porphyry says that he did not speak straight out of the books that were read in his seminars 'but took a distinctive personal line in his consideration, and brought the mind of Ammonius to bear on the investigations in hand' (*Life*, 14, 14–16). Of Plotinus' manner of writing Porphyry informs us that when Plotinus wrote he did so continuously as if he was copying from a book and that owing to bad eyesight he could not bear to read over what he had written (*Life*, 8). All this suggests that the style of Plotinus' lectures and writings was quite unconventional. So far as his writings are concerned we can confirm that so they are indeed. Already in antiquity people complained that he was difficult to follow (*Life*, 17–18). He was sometimes accused of being 'a big driveller', sometimes a plagiarist (*Life*, 17). Porphyry's account of Plotinus' style and manner of philosophizing aims to show that such accusations are unjustified.

Plotinus is sometimes described as a systematic philosopher who never reveals his whole system in an organized way and that the system must be inferred from bits and pieces here and there in his writings. Another common dictum is that every one of his treatises presupposes all the rest and the whole system. Even if there is something to these claims and a more organized comprehensive view lies behind Plotinus' writings than meets the eye, Plotinus' mind is not that of the rigid system-builder. In this he is different from Proclus and even Porphyry. Plotinus has perhaps been seen as more of a system-builder than he really is because many features of later Neo-Platonists' systems can be detected by the benefit of hindsight in

Plotinus' works. Plotinus' philosophical genius consists rather in the combination of sensitivity and shrewdness with which he addresses the problems inherent in his tradition. The result is that after him this tradition was transformed.

PLOTINIAN METAPHYSICS

A characteristic of Plotinus' philosophy and Neo-Platonism generally is a division of reality into hierarchically ordered stages or levels, so-called 'hypostases'. The following list presents the main levels of the Plotinian hierarchy, which was essentially taken over by the later Neo-Platonists though certain details may have varied.

The One (the Good)
Being—Intellect—Platonic Ideas
Soul
The World-Soul—Individual Souls
Organisms
Bodies
Matter

Why should reality be structured in this way? In order to answer this question let us first point out some affinities with earlier Greek thought. From the outset Greek philosophers were engaged in explaining the world of everyday experience in terms of some underlying nature: Thales proposed water, Anaximander some indeterminate nature, Plato the Ideas and so forth. In general the Greek philosophers took a strong realist position with regard to their explanatory postulates—principles *(archai)* as they came to be called. Not only were the principles supposed to exist, but frequently they were supposed to be more real, to exist in some fuller sense, than that which they were meant to explain.

The Neo-Platonic One, Intellect, Soul are principles in this traditional sense. With certain qualifications, to be explained below, so is matter. Inorganic bodies, organisms and their functions, and human consciousness and experiences are phenomena to be accounted for in terms of the principles. We can even readily identify the sources of the Neo-Platonic principles in previous Greek thought:[6] the One (the Good) is founded on Platonic passages such as the first hypothesis of the *Parmenides* and the Idea of the Good in the *Republic*. In formulating his theory about it Plotinus also draws on Parmenides of Elea himself, the Pythagoreans, Speusippus and Xenocrates, all of whom posited a One as an ultimate principle. Intellect, as the sphere of being and the Ideas, has its source in Plato of course but also in Aristotle, especially *Metaphysics* 12, where God is described as a pure intellectual activity. Soul as a cosmological principle comes primarily from Plato's *Timaeus*. Plotinus' notion of matter is a

combination of the receptacle of forms in the *Timaeus* and Aristotle's notion of matter. The three first principles, the One, Intellect and Soul, comprise together the intelligible world (though, as we shall see, the One is not strictly speaking intelligible). Like Plato, Plotinus works with a fundamental dichotomy between the intelligible and the sensible. The intelligible world is distinguished from the sensible world primarily by being non-spatial; it is also the sphere of the real (in the sense of being what it is in virtue of itself), whereas in Plotinus' view nothing in the sensible world counts as real in this sense.

So the Neo-Platonic hierarchy is a hierarchy of principles. But a host of questions remains: Why do the principles assume a hierarchical form? What are the distinguishing features of each level? Why exactly these principles? How are the levels related to one another? The answer to the first question is that once we have distinguished between what is to be accounted for and a principle that explains it, questions may arise about the principle itself: the principle itself may turn out to have features that stand in need of an explanation and a further principle must then be postulated to account for the one we encountered first. This process may go on until we come up with a principle which needs no further explanation, a principle about which no further questions can be asked. For the Neo-Platonists this ultimate principle is the One.

The Neo-Platonists generally assume that the explanatory principles themselves must have the features they explain. For instance Soul, which is the principle of life in the sensible realm, is itself alive. Moreover, the principles ideally have these features in such a way that it is pointless to ask why they have them. The principle possesses of itself what other things possess as an imposed feature and hence one that requires explanation. Plotinus frequently expresses this by saying of a principle that it is such and such in itself *(en heautôi),* whereas other things have the same feature as in another *(en allôi).* This corresponds roughly to what in modern philosophy is expressed in terms of necessary and contingent properties. The notion that the principles have of themselves the features they explain in others is of course implicit or explicit in much of previous Greek thought: for example the Platonic Ideas are themselves primary instances of what other things are in virtue of them—the Idea of beauty is beautiful *par excellence.* Let us call this assumption the Principle of the Self-Sufficiency of the Cause.

The Neo-Platonic hierarchy is above all a hierarchy of degrees of unity: each level has a characteristic kind of unity with the One on top as the absolutely simple stage which, by the Principle of the Self-Sufficiency of the Cause, is the cause of all other unity there is and thereby, in fact, the cause of everything else whatsoever. Why should unity be such an important concept? Once again Plotinus is drawing on the previous Greek tradition and interpreting the facts in light of it. Unity had been a key concept in the tradition from the Pythagoreans and the Eleatics to Aristotle

and the Old Academy: unity is what distinguishes between an entity and a non-entity. Plotinus accepts Aristotle's view that being and unity are coextensive: to be is to be one thing, to be unified, and the more 'one' something is the more of a being it is. The most striking feature of the world of everyday experience is in fact the unity of it as a whole and of individual objects, especially living things, in it. The organization, regularity and beauty that is evident in the world of everyday experience—all these may be said to express its unity—cannot be explained in terms of its constituent parts. The latter are what is unified and their unity is an imposed feature which must come from elsewhere. The unity revealed in the sensible world is far from perfect but it gives the sensible world the reality it has. The same may be said of our experiences of ourselves: introspection shows that the human soul has a more perfect kind of unity than anything pertaining to the body, although even the soul does not have unity of itself (IV.2 (4) 2; IV.7. (2) 6–7). Thus, our everyday experiences, both of the external world and our mental life, point beyond themselves to a higher level of reality which is its principle.

This process of going upwards from everyday phenomena to their principles reminds us of and in fact draws on Plato's dialectic as described for instance in the *Symposium* and the *Republic*. There are many instances of such spiritual ascent in the *Enneads*. The most famous one is Plotinus' first treatise, *On Beauty,* 1.6, where he builds on Diotima's speech in the *Symposium*. This treatise has been extremely influential in art, especially during the Renaissance. The ascent from the beauty of corporeal things to the Beautiful itself is as one would expect interpreted in terms of the Plotinian hierarchy and general doctrine of spiritual ascent. Interestingly, he deviates from Plato's views of the arts as expressed in the *Republic* in that for Plotinus art does not imitate nature but operates in parallel with nature (I.6.3; V.8 (31) 1). Thus, the artist uses the intelligible world directly and expresses it in sensible form. The artist's status is thereby elevated to that of a micro-demiurge instead of being a maker of shadows of shadows. Other treatises where spiritual ascent is prominent are 1.3 (20), *On Dialectic,* V.1, *On the Three Primary Hippostases* (10) and *On the Knowing Hypostaseis* V.3 (4). In IV.7 (4), *On the Soul's Immortality,* Plotinus argues against rival views on the nature of the soul and attempts to prove its independence of the body and kinship with a higher realm. This is one of Plotinus' most accessible treatises and shows how he thinks everyday natural phenomena point to transcendent causes.

Leaving the intermediate stages aside for the moment, the Principle of the Self-Sufficiency of the Cause together with the claim that everything presupposes unity, leads to the highest principle, the One. The doctrine of the One, even if foreshadowed by the tradition before Plotinus, is presumably his most significant contribution. His Aristotelizing predecessors such as Alcinous and Numenius believed in a simple first principle, but, like Aristotle, they thought that this simple principle was an

intellect of some sort. As we have seen, in Plotinus the level below the One is an intellect which is characterized by a high degree of unity. Nevertheless, Plotinus maintains, any intellect involves plurality: there is plurality in thought because there is at least a conceptual distinction between the thought and its object, and what is thought is in any case varied (cf. for example V.3.10.). So the One is not an intellect.

The One is both absolutely simple and unique—i.e. there can at most be one absolutely simple principle (V.4 (7) 1)—and it involves no variation or limitation. From this it follows that the One cannot be positively described. It cannot be grasped by thought or known in its true nature, since any thought of it distorts in so far as the thought is bound to be composite. It is not even appropriate to say of the One that it *is,* or that it *is one,* since such expressions indicate something unified rather than the absolutely simple nature which gives unity to whatever is unified (VI.9.5). Nevertheless, it is possible to approach the One and even become one with it in a kind of non-cognitive union, a 'vision' which escapes all description (VI.9 (9) 8–11). On account of this doctrine of a union with the ultimate principle, a union which transcends conceptualization, Plotinus has been called a mystic. It must however be said that this 'mystical union' does not play a major role in his writings.

Even if there are precedents for a supreme formal principle in Plotinus' tradition, most of his predecessors would postulate in addition other ultimate principles. Thus, Aristotle posits both form and matter and it seems that Plato too, in the *Philebus* and according to Aristotle's account, posits in addition to a formal, unifying principle an independent principle of plurality. In Plotinus and the other Neo-Platonists this is different. Even if the lower levels in his hierarchy function in fact as principles of multiplicity —we shall see in greater detail below precisely how—all these lower levels derive from the One. In this sense Plotinus is an unwavering monist.

Intellect, the level below the One, is the realm of the Platonic Ideas and of real being—by which is meant that which is what it is in virtue of itself, not through something else. Historically the Plotinian Intellect is the unification of Aristotle's God from *Metaphysics* 12 (identified with the demiurge of Plato's *Timaeus*), the active intellect of *On the Soul* 3, 4–6 and the realm of the Platonic Ideas. The identification of the realm of the Ideas with real being is straightforward, provided that one believes in Platonic Ideas, for by definition each Idea is perfectly and of itself that which it causes in others. More problematic is the identification of the Ideas with a divine intellect. Plotinus finds historical support for such a view in Plato's *Sophist* where the Ideas are said to have intelligence and life, and in Aristotle's views of God: God is an Intellect and at the same time the supreme being or substance, i.e. it is in virtue of being pure thought of himself that God is pure actuality, and being pure actuality God has a fuller being than anything else, is more real. But what philosophical motivation lies behind placing the Ideas within a divine Intellect?

An important question Platonists face is how to describe the relation between the demiurge and his intelligible model in the *Timaeus* in precise philosophical terms. In treatise V.5(32), *That the Ideas are not Outside the Intellect and on the One*, Plotinus discusses this question and gives several arguments for the view that the Ideas are indeed internal to the divine intellect. Of these arguments the philosophically most interesting one is an argument to the effect that if the Ideas are outside the Intellect, the latter's knowledge of them must be acquired, i.e. the Intellect will receive only an impression of the Idea, not the Idea itself; but the Ideas are the standards of judgment and if the Intellect does not possess these standards previously, it will lack the necessary means of recognizing the impression of each Idea for what it is. So, if the Intellect does not essentially contain the Ideas as its thoughts, its knowledge and wisdom become problematic: an unacceptable conclusion since it is agreed that the divine intellect has supreme knowledge.

These ideas are further developed in V.3(49) where there emerges a picture of the Intellect as really identical with, though conceptually distinct from, the objects of its thought, the Ideas. The Intellect's thought is described as self-thought and its knowledge as a kind of self-knowledge. At the same time this self-thought is the Ideas and real being. In his account of this Plotinus makes use of the Aristotelian view that God is an Intellect and also what is supremely real, a substance *par excellence:* only a self-contained thought is fully actual, pure actuality. But Plotinus goes far beyond Aristotle not only in identifying the thoughts of the Intellect with the Ideas but also in his use of this doctrine. For him, the identification of real being with a divine intellect means that there is a level of reality where knowledge and being, epistemology and ontology, coincide. This he takes to be a necessary condition of the possibility of knowledge.

We mentioned above that Intellect is characterized by a greater unity than the sensible world.[7] Intellect is non-spatial and non-temporal and hence free from the dispersion that has to do with space and time. (It follows from this that talk of 'above' and 'below', 'first' and 'after' in connection with the hypostases is of course merely metaphorical.) Secondly, the part-whole relations in Intellect are such that not only does the whole contain its parts, the whole is also implicit in each of the parts (cf. for example VI.2.20). Thirdly, as we have noted there is not a real distinction between subject and attribute on the level of Intellect. It is replaced by the notion of intellectual substance and its activity *(energeia),* which is identical with the substance. Much of this doctrine about the relationships between the items on the level of Intellect is founded on interpretations and suggestions in Plato's late dialogues. Plotinus takes the five greatest kinds of the *Sophist,* being, sameness, difference, motion and rest, as the highest genera of his ontology. Each of these is at once distinct and presupposes and is interwoven with all the others. Together they constitute the Intellect or the Intelligible substance and particular Ideas are generated from them

as species from higher genera. The integrity of Intellect implies that Intellect's thought, Intellect's self-thought as we have seen, is in some ways different from ordinary thought: it employs neither inferences nor words; its objects which are at the same time its vehicles are the very things themselves, the prototypes and causes of which everything else, whether natural phenomena or lower modes of human thought, are inferior manifestations.

Soul is the level below Intellect.[8] On account of the multiplicity of its functions Soul is in some ways the most complex of the Plotinian hypostases and conceptually the least unified one. The historical sources of Plotinus' notion of soul are primarily Plato, above all the *Timaeus,* but Plotinus' psychology also reveals strong Aristotelian and Stoic influences. We shall have more to say about human psychology later in connection with Plotinus' views on Man and the remarks here are intended primarily to give an outline of the place of soul within the system.

The hypostasis Soul is the intelligible level that is directly responsible for the sensible world. Thus, everything below the level of soul is its product: matter itself, inorganic bodies, ordinary living things, including the sensible cosmos itself, which according to the Neo-Platonists as well as Plato and the Stoics is a supreme organism. Certain difficulties arise precisely on account of Soul's close relationship with the sensible. In the first place, how can soul cause the extended sensible world, administer it and, in fact, ensoul it without thereby coming to share in its extended nature? How could soul operate here and also there without being divisible into spatially distinct parts? If it is divided, its intelligible status will be lost or at least seriously threatened. This difficulty is increased by the fact that according to common and deeply ingrained opinion soul is present in the bodies it ensouls. Plato in the *Timaeus* even speaks of the soul of the world as extending throughout it. Plotinus was deeply disturbed by these and other puzzles having to do with the soul's relationship with the sensible realm as is shown by the fact that he returns to them repeatedly.

Plotinus finds it necessary to make certain distinctions within the level of soul. There is the hypostasis Soul, which remains in the intelligible realm, and there is the World-Soul and the souls of individuals, the latter two being on the same level (IV.3.1–8). Plotinus further distinguishes within the two latter types of soul between a higher and a lower soul, corresponding to a distinction between soul directly operating through a body and soul not so operating (this distinction coincides with the distinction between rational and non-rational soul). These distinctions are useful for other purposes, but surely do not solve the real philosophical difficulties about the soul's relation to the sensible realm. For if the sensible realm is caused and administered by something belonging to the intelligible realm something of the intelligible order must stain itself in the mud, as it were.

Nor does Plotinus think, at least not when he is at his best, that creating new levels will help solve this problem. One solution he frequently suggests

and argues for, mainly from facts about the unity of consciousness in sensation, is that the soul is present as a whole at every point of the body it ensouls. Thereby it can be at different places without being divided. Its being so present as a whole in different parts of space shows its different ontological status from that of bodies which have numerically distinct spatial parts (see for example IV.2.2). Another account, however, presents soul as not present in body at all, but rather the reverse, body as present to soul: body is in soul somewhat as bodies may be said to be in light or in heat; they thereby become illuminated or warm without (in Plotinus' view) dividing or affecting the source of light or heat in any way. Similarly, bodies become ensouled, alive, in virtue of presence to soul (IV.3.22; IV.4. 18). The treatises VI.4 and VI.5(21–2), *On the Ubiquitous Presence of Being* (which constitute a single treatise), contain what is perhaps Plotinus' subtlest account of the relation between the sensible and the intelligible along these lines.

In connection with Plotinus' views on Soul mention should be made of the strange doctrine that all souls are one, that all souls are identical with the hypostasis Soul (and by implication with one another). The Neo-Platonists after Porphyry rejected this doctrine but Plotinus maintains it consistently and attaches considerable importance to it (IV.9 (8), VI.4.4; IV. 3.1–8 (27)). Plotinus is clearly aware that the doctrine sounds strange and he himself seems not altogether at ease in maintaining it. So one may wonder why he considers it necessary to do so. Such a doctrine however seems to be implied by the combination of two Plotinian doctrines that we have just mentioned: the soul's membership in the intelligible realm (or the realm of real being) and the integrity of that realm. The upshot of the treatises VI.4–5 is that if being is indivisible, and what participates in being therefore participates in it as a whole, and if the so-called presence of soul in extension is just another way of looking at such participation, then the whole of soul must presumably be present to whatever any soul is present to. In other words, the doctrine of the unity of soul can be seen as just a special case of the indivisibility of being.

Above we mentioned that Intellect is outside space and time. In III.7 (45), *On Eternity and Time,* Plotinus states his views on time. Developing his own view from the account in Plato's *Timaeus,* Plotinus offers interesting and powerful criticisms of the views of Aristotle, the Stoics and the Epicureans. He defines eternity as 'the life which belongs to that which is and is in that which is, all together and full, completely without extension or interval' (III.7.3, 36–8) and time he defines as 'the life of soul in the movement of passage from one mode of life to another' (III.7.11, 43–5). Thus, time comes in at the level of soul as the 'image of eternity'. This means that the soul, in producing the sensible world, unfolds in successive stages what is present all together and without interval at the level above. Plotinus' doctrine of time had deep impact in the West, for it influenced both St Augustine and Boethius.

The lowest level in the Plotinian hierarchy is matter.[9] Plotinian matter is like the One in that it permits no positive characterization, but for exactly the opposite reasons: the One is, one might say, so full, so perfect that it eludes any positive description; matter, on the contrary, is such on account of its utter privation, lack of being. It is the receptacle or substrate of immanent bodily forms, such as colors, shapes and sizes. Physical objects, bodies, are composites of matter and such immanent forms. Matter itself is not subject to change but underlies change: as forms come and go matter remains unaffected (III.6 (26)). It is as such imperceptible but reason convinces us of its existence as a purely negatively characterized substrate of forms. Since matter is what underlies all forms of bodies, it might be tempting to identify it with space or with mass. Plotinus considers this and rejects it. The three-dimensionality of space presupposes local determination and all mass contains form, but matter is totally indeterminate and without form (II.4 (12) 8–12). Nevertheless, matter is the principle of spatial extension in that the dispersion characteristic of space is due to matter (II.4.11–12) 1–12). So matter is a principle in the sense that it is necessary to explain plurality, though it is not a principle of being in Plotinus' sense.

In this brief account of the Plotinian hierarchy every now and then mention has been made of the relationships between the stages: we have noted for instance that a given level is somehow 'produced' by one above it. It remains, however, to address this topic generally. Plotinus and the other Neo-Platonists use Plato's language of participation: a lower level participates in a higher one and thereby comes to have the character of the latter. They also use Plato's language of model, imitation and image to the same affect. What is new in Neo-Platonism in this regard is the so-called emanation—a term that has found its way into just about every survey of Neo-Platonism, however brief. Plotinus frequently uses the analogies of the sun and the light it radiates, fire and heat and the like to illustrate how a higher hypostasis generates a lower. Sometimes he uses metaphors from the language of water ('to flow out' etc.). The later Neo-Platonists speak of 'procession' from the higher to the lower. Thus, the Neo-Platonists frequently describe the production of the lower in terms of some kind of process originating in the higher. The term 'emanation' may however mislead in so far as it suggests that the cause spreads itself out. The Neo-Platonists on the contrary consistently maintain that the cause always remains unaffected and loses nothing by giving away.

In Plotinus there is sometimes an explicit and often an implicit distinction drawn between an 'internal activity' and an 'external activity' (cf. e.g V.3.12; V.4.2). This distinction runs through every Plotinian cause down to soul and is crucial for an understanding of causation in the Plotinian system. Keeping in mind what was said above about the identity of a substance with its activity *(energeia)*, the internal activity will be the same as the thing itself. In terms of the light analogy the inner act is

whatever the source of light, considered in itself and as a source of light, is doing. The external act is this same entity as operating in something else, causing the brightness on the wall for instance. It is illuminating to compare this with Aristotle's account of actualization.[10] When a teacher, who actually knows something, teaches a pupil what he knows, the teacher is producing an effect in another without being cut off from that other (cf. *Physics* 3, 202b7–8). The events of teaching and learning are in fact one and the same event, though different in definition. Plotinus applies and transforms these ideas: the external act, the effect in another, becomes an inferior image or expression of the original, an image which nevertheless is not cut off from its cause, because the image still depends on the activity of the cause.

It makes the matter still more complicated that the Neo-Platonists speak not only of a process from the cause but also of a reversion *(epistrophê)* of the produced towards its source. It is clear that the analogies from everyday physical phenomena mentioned above are no longer of any help here: the light on the wall surely does not have to return to the sun. In any event the Neo-Platonists thought that some kind of reversion is needed whereby the product is informed by the source in order for the product to be complete (see for example V.1, 5–7 and Proclus, *Elements of Theology* (hereafter *ET*), props. 31–9). The outward process and the reversion are not temporal processes and hence neither is temporally prior to the other. Nor does reversion mean 'reunion'—in that case nothing new would come about. Rather it seems that the Neo-Platonists thought that the outward process distinguishes the product from the original whereas the reversion establishes their identity, which however is not complete since what assumes the character of the source in the reversion is something which by proceeding is already other than the source (6, 130–5). As the Neo-Platonists do not posit any kind of pre-existent matter as the recipient of form, what gets informed must come from the informing cause. Thus, the outgoing aspect functions as a material principle, the returning aspect as the informing of the material principle.

This structure of process from a source which remains in itself unaffected and then a reversion, an inclination back towards the source, pervades the system. Only at the very lowest level, that of matter and immanent sensible forms, is there no generation, which of course is another way of saying that we have reached the bottom. So what is the external activity of the One becomes the internal activity of Intellect, which in turn has Soul as its external activity. The internal activity of a generated hypostasis consists of thought of its source, a reversion. We may visualize the system as a hierarchy where each stage below the One is an expression or a mirror image of its cause, revealing a more 'unfolded' and thereby, in the Neo-Platonists' view, causally weaker version of it—'unfolding' is one of Plotinus' favorite metaphorical expressions. So in a way the same items exist on every level: the One is everything there is, but in such a unified

form that no distinctions are to be found. Likewise, Intellect and Soul, and finally the physical world contain everything there is.

PLOTINUS' VIEWS ON MAN

Plotinus' attitude towards the sensible world and to human life within it is somewhat ambivalent. While constantly emphasizing its low worth as compared with the higher realms, he does not consider it totally evil or worthless. In all essentials his view is the same as Plato's in the middle dialogues. First I shall present an outline of the picture and then take up certain aspects in greater detail.

Man is identified with his higher soul, reason (I.1(53) 7, etc.). The soul is distinct from the body and survives it: it is essentially a member of the intelligible realm and has a source in Intellect on which it constantly depends. This undescended source is sometimes described as the real man and our true self. However, as a result of the communion with the body and through it with the sensible world, human beings may also identify themselves with the body and the sensible. Thus, Man stands on the border between two worlds, the sensible and the intelligible. Our existential choice is about which of the two we identify ourselves with. Philosophy is the means of purification and intellectual vision. As noted above it is possible, however, to ascend beyond the level of philosophy and arrive at a mystical reunion with the source of all, the One. In contrast with the post-Porphyrian Neo-Platonists, who maintained theurgy as an alternative, Plotinus stands firmly with classical Greek rationalism in holding that philosophical training and contemplation are the means by which we can ascend to the intelligible realm.

The most noteworthy feature of Plotinus' psychology is perhaps his use of Aristotelian machinery to defend what is unmistakably Platonic dualism (17; 21). We find him for instance using the Aristotelian distinctions between reason, sense-perception and vegetative soul much more than the tripartition of Plato's *Republic*. He employs the notions of power and act, and sense-perception is described in Aristotelian terms as the reception of the form of the object perceived. However he never slavishly follows Aristotle and one should expect some modifications even where Plotinus sounds quite Aristotelian.

Sense-perception in Plotinus is an interesting case of how he can be original while relying on tradition.[11] He sees sense-perception as the soul's internalization of something external and extended. This involves grave difficulties: on the one hand, the external physical object must evidently somehow affect the percipient, if there is to be perception of that object; on the other hand, action of a lower level on a higher is generally ruled out and a genuine affection of the soul is in any case objectionable because the soul is not subject to change. So Plotinus sees sense-perception as involving the crossing of an ontological gap between the sensible and the

intelligible. In formulating this problem his dualism becomes sharper and in some respects closer to modern Cartesian dualism than anything we find in Plato or previous ancient thinkers.[12]

His solution to the problem is clever even if it is questionable whether it succeeds in all respects: what is affected from the outside is an ensouled sense-organ, not the soul itself. This affection of the sense-organ is however not the perception itself but rather something like a mere preconceptual sensation; the perception proper belongs to the soul and consists in a judgment *(krisis)* of the external object. This judgment does not constitute a genuine change in the soul for it is an actualization of a power already present. Plotinus contrasts sense-perception as a form of cognition with Intellect's thought which is the paradigm and source of all other forms of cognition. Sense-perception is in fact a mode of thought but obscure (VI.7 (38) 7). This is so apparently because the senses do not grasp the 'things themselves', the thoughts on the level of Intellect, but mere images. Since they are images they also fail to reveal the grounds of their being and necessary connections. This is Plotinus' version of the view that considered in themselves facts about the sensible world appear contingent.

In the treatise 1.8 (51), *On What Are and Whence Come Evils*, Plotinus discusses at length questions concerning evil, a topic also brought up in many other treatises. The intelligible world is perfect and totally self-sufficient. The sensible world, which is imperfect and contains evil, is a reflection of the former and contains nothing which does not have its origins there. It is therefore puzzling how evil can have arisen: can it be caused by what is perfect? Plotinus argues that evil as such does exist and he identifies it with matter, understood as total formlessness. Being total formlessness matter is in a sense nothing, and hence evil; even if it exists, it is not an entity. In Plotinus' view the existence of absolute evil is required by the fact that the Good exists. Matter is to be understood as the contrary of the Good in the sense that it is that which is furthest removed from it and which thus is characterized by all the opposite features. Matter, as the negation of unity and being, is absolute evil. Other things such as bodies are evil in a relative way according to the extent of their participation in matter.

The goal of human life is the soul's liberation from the body and concerns with the sensible realm and reunion with the unchanging intelligible world. In outline this seems to be approximately the doctrine of Plato's *Phaedo*. But there are interesting elaborations. Plato affirms the soul's kinship with the Ideas on the ground that without such kinship it would be unable to know them. Plotinus agrees and presents an account of the nature of this kinship which goes beyond what can be found in Plato. As we have seen the whole realm of Ideas is for Plotinus the thought of Intellect and the human soul has a counterpart in Intellect, a partial mind which in fact is the true self on which the soul depends. This has two interesting consequences for the doctrine of spiritual ascent: first, the

ascent may be correctly described as the search after oneself and, if successful, as true self-knowledge, as fully becoming what one essentially is.[13] Second, on account of Plotinus' doctrine about the interconnectedness of Intellect as a whole, this gain of self-knowledge and self-identity would also involve knowledge of the realm of Ideas as a whole.

Plotinus' views on classical Greek ethical topics such as virtue and happiness are determined by his general position that intellectual life is the true life and Man's proper goal. The treatise 1.2(19) is devoted to the virtues. Plotinus' main objective here is to reconcile apparent discrepancies in Plato's teaching. In this case it is the doctrine of the four cardinal virtues in the *Republic*, the doctrine of the *Phaedo* according to which virtue is the soul's purification, and the view suggested in *Theaetetus* that the virtues assimilate us to the divine. Plotinus distinguishes between political virtues, purgative virtues and the archetypes of the virtues at the level of Intellect. These form a hierarchy of virtues. This classification is taken up and elaborated by Porphyry in the *Sententiae* (see p. 376 below). The function of the political virtues (the lowest grade) is to give order to the desires. The question arises whether the political virtues can be said to assimilate us to God (which for Plotinus is Intellect), for the divine does not have any desires that must be ordered and hence, it would seem, cannot possess the political virtues. Plotinus' answer is that although God does not possess the political virtues, there is something in God answering to them and from which they are derived. Further, the similarity that holds between a reflection and the original is not reciprocal. Thus, the political virtues may be images of something belonging to the divine without the divine possessing the political virtues as such.

The first *Ennead* contains two treatises dealing with happiness or wellbeing *(eudaimonia)*: 1.4(46), *On Happiness* and 1.5(36), *On Whether Happiness Increases with Time*. In the former treatise Plotinus argues against the Epicurean view that happiness consists in pleasure, a sensation of a particular sort. One can be happy without being aware of it. He also rejects the Stoic account of happiness as rational life. His own position is that happiness applies to life as such, not to a certain sort of life. There is a supremely perfect and self-sufficient life, that of the hypostasis Intellect, upon which every other sort of life depends. Happiness pertains primarily to this perfect life, which does not depend on any external good. But as all other kinds of life are reflections of this one, all living beings are capable of at least a reflection of happiness according to the kind of life they have. On account of the human soul's ability to ascend, human beings are capable of attaining the perfect kind of life of Intellect. Plotinus holds with the Stoics that none of the so-called 'external evils' can deprive a happy man of his happiness and that none of the so-called 'goods' pertaining to the sensible world are necessary for human happiness. In the second treatise on happiness, Plotinus discusses various questions concerning the relation between happiness and time, in particular whether the length of a person's

life is relevant to his happiness. His answer is that it is not, because happiness, consisting in a good life, must be the life of real being, i.e. that of Intellect. This life is not dispersed in time but is in eternity, which here means outside time, not lasting forever.

Plotinus makes several remarks on human freedom or autonomy, in particular in *On Destiny* (III.1), *On Providence* I and II (III.2–3) and in *On the Voluntary and on the Will of the One* (VI.8). He defines a voluntary act as one which is not forced and is carried out with full knowledge of everything relevant (VI.8.1). It appears that he had doubts that human beings, as agents in the sensible world, can be fully free in this sense, and hence they enjoy at best a limited autonomy. Nevertheless, in so far as the human soul is the agent of human actions, the person is responsible for them. Full autonomy belongs only to the soul that is entirely free from the body and lives on the level of Intellect. Thus, autonomy is possible, but it is questionable whether we are free to seek it and attain it.

PORPHYRY: THE DISSEMINATOR OF NEO-PLATONISM

Porphyry was an exceptionally learned man and a prolific writer, whose importance as a disseminator of Neo-Platonism can scarcely be exaggerated. Not only did he write extensively on philosophy strictly speaking but he applied his philosophical approach to other areas as well. After Porphyry Neo-Platonism became a way of thought and life having applications everywhere. During Porphyry's lifetime the Roman empire began to split into two and separate traditions began to evolve in the East and the West. Porphyry's works were known and had impact on both sides. For the West Porphyry is particularly important because some of his writings were translated into Latin and he influenced such important thinkers as St Augustine and Boethius.

Porphyry was born in Tyre in Phoenicia around AD 234. He studied first in Athens with Longinus, a learned Platonic scholar, and subsequently joined Plotinus in Rome where he stayed for six years and became a convert to Plotinus' version of Platonism. We do not have good records of his life after this, but we know that he lived in Sicily and then in Rome again, and presumably visited his native Syria. He died in *c.* 305. Porphyry wrote on a vast number of different subjects: commentaries on Plato, Aristotle, Theophrastus, Ptolemy and Plotinus; philosophical and religious essays; the history of philosophy; on Homer and a work against the Christians. All in all there are some seventy-seven titles attributed to him. Only a small portion of this bulk is extant and what there is is often fragmentary. Of these writings the following are the most philosophically significant: *Aids to the Study of the Intelligibles* (best known under its Latin title *Sententiae ad intelligibilia ducentes*); *Isagoge* (introduction to Aristotle's *Categories*); *Letter to Marcella* and *On abstinence;* excerpts of

the works *On the Return of the Soul* and *Miscellaneous questions (Symmikta zêtêmata)* are preserved by St Augustine and Nemesius, respectively. Then there is an incomplete commentary on Plato's *Parmenides* which is likely to be by Porphyry or someone close to him.

We have Porphyry's own words for his admiration of Plotinus as a philosopher in his *Life of Plotinus*. The writings we do possess and the reports of later ancient thinkers also suggest that philosophically he was essentially a follower of Plotinus, the differences consisting mainly in interests, emphasis and wording. Porphyry stresses purity of life as essential for the the soul's ascent. He is also much interested in religion and paved the way for the intermingling of philosophy and late ancient paganism in the later Neo-Platonists. Given that most of the works in which Porphyry's strictly metaphysical views are likely to have been explicitly stated are lost, it is difficult to present an accurate overall picture of his views and hence to assess to what extent he may have gone beyond Plotinus. Scholarly opinions here are also divided. The *Sententiae,* which though incomplete is the most extensive purely philosophical text we have, is essentially Plotinian. The French scholar of Neo-Platonism, Pierre Hadot, has made a strong case on Porphyry's behalf for an elaborate system of triads at the apex of the Neo-Platonic hierarchy, consisting of Existence, Life and Intelligence.[14] This however involves liberal use of the *Parmenides* commentary and other sources whose Porphyrian authenticity is not certain (cf. 36, 737–41).

Porphyry's student, Iamblichus, accuses Plotinus and Porphyry of failing to distinguish between intellect and soul (in Stobaeus, p.365 Wachsmuth [5. 81]). In the *Sententiae* Porphyry often ignores the distinction, even if he is also perfectly able to uphold it. At issue here seems to be the question of the soul's ontological status. We saw in connection with Plotinus above that he insists on the soul's status as a genuine intelligible and not merely something intermediate between the sensible and the intelligible as the most obvious reading of the celebrated passage on the constitution of the soul in the *Timaeus* would suggest. On this, together with the *Parmenides* commentary mentioned above, Anthony Lloyd founds a thesis about Porphyrian metaphysics claiming that Porphyry tends to telescope the hypostases into one another with the result that only the One is real, everything else being appearances of it.[15] The idea is this: the whole Neo-Platonic hierarchy is an ordered series (or perhaps a set of ordered series with a common first member, the One). Each member (aside from the very first) is not only a mere image of a previous one, the first cause is the only real item in the series: the real man is the intelligible man, the real soul is not the soul in union with body, but the pure soul as it is in itself without consideration of its external activities and relations. In general terms we might say that each thing should be defined in terms of the internal act constituting it. The internal act of anything below the One, however, is constituted by the external act of the level above it and thus points beyond

itself. So in search of the real we are forced to climb the ladder in the hierarchy so that ultimately only the One turns out to be fully real. The evidence does not permit us to claim with confidence that Porphyry systematically taught extreme metaphysical monism of this sort. Such a trend is however present in Plotinus and Porphyry may have carried it further, though neither consistently maintains this as dogma.[16]

In this context we may raise the question of idealism: is reality mental according to the Neo-Platonism of Plotinus and Porphyry? This is a tricky question that does not permit an unqualified answer. Taking extreme metaphysical monism as just described as our standpoint, we might answer 'no' because the One, which alone exists, is beyond thinking. However, at least in Plotinus and Porphyry mental life is ascribed to the One in a special way: the One has an analog of mental life, some kind of superintellection (VI.8.16; V.1.7). Thus, it would be misleading to stress that the ultimate principle is void of mental life. Secondly, disregarding extreme monism, the realm of Intellect is also the realm of being, the realm containing the real archetypes of which things in the physical world are images. These archetypes are thoughts and hence mental. So Plotinus and Porphyry are idealists at least in the sense that ordinary non-mental things have a mental principle. We should note, however, that this idealism is not of the type which holds the physical world to be the product of our minds. Even if it is an appearance, even an illusion, it is to be seen as an appearance or illusion on analogy with a mirror image, not with a hallucination: what is seen in the mirror is of course not the real thing and if we take it for one we are under an illusion; nevertheless, the mirror image is not just *our* fancy.

One unmistakable and lasting contribution Porphyry made to philosophy is his promotion of Aristotle's logical works in the Platonic curriculum. As mentioned above, even before Plotinus there were Aristotelizing Platonists. There were even Platonists before Porphyry who dealt with Aristotle's logical treatises. Porphyry is however the one who put Aristotelian logic to positive use within Platonic teaching. Through him Aristotle's *Organon* came to serve as an introduction to philosophy—a function transmitted on to the Middle Ages and well beyond. Porphyry wrote an introduction to Aristotle's *Categories,* the so-called *Isagoge,* which was translated into Latin by Boethius and became a standard introductory text in the Middle Ages. In fact the *Isagoge* not only influenced the Latin West but also the Greek East and was later translated into Syriac and Arabic. Porphyry also wrote extensive commentaries on Aristotle's logical treatises of which all is lost except an elementary commentary on the *Categories*.

Anybody familiar with Aristotle's *Categories* will note that it contains certain anti-Platonic doctrines, for example the doctrine of the primacy of individuals over genus and species. How could ardent Platonists like Porphyry integrate such works into their philosophy? Porphyry and the

later Neo-Platonists following him believed in the essential agreement between Plato and Aristotle and were predisposed to explain apparent differences away—Porphyry is said to have written a work on their agreement and another about their differences. In the case of the logic the adoption of Aristotle was much eased by Porphyry's views on the status of the logical treatises. Plotinus, who also wrote a critical but not altogether hostile treatise on Aristotle's *Categories* (VI.1–3), took the work to be about the genera of being and thus a work in ontology, containing doctrines about the structure of the world. Plotinus comes to the conclusion that a revised version of the doctrine of Aristotle's *Categories* holds true for sensibles. Porphyry agrees that the categories apply to the sensible world, but denies that the treatise is a treatise in ontology, even the ontology of the sensible world: he adopts the view that the *Categories* (and presumably Aristotle's logic in general) is quite independent of metaphysics and is really about significative expressions for sensible phenomena (*On Aristotle's Categories,* 58). These may be primary in the order of experience, though not in the order of reality where Platonic metaphysics prevails.

PROCLUS: THE SYSTEM BUILDER

Proclus (*c.* 410–85) is the third Neo-Platonic thinker who was to have great impact on posterity. He came as a young man to Athens where he studied Platonic philosophy and eventually became the Head of the Academy. He was the most systematic expositor of Neo-Platonism and a prolific writer. He left systematic philosophical works such as the celebrated *Elements of Theology,* which proceeds by a strictly deductive Euclidean method such as Descartes and Spinoza were to use much later. In the *Elements* Proclus sets out from the apex of the hierarchy and proceeds downward. The work covers the three first hypostases, in which the sphere of theology coincides with metaphysics as the study of first causes. Another major work is the *Platonic Theology,* which covers the same ground as the *Elements of Theology* but is larger and more intractable. There is also a systematic work on natural philosophy, the *Elements of Physics.* He wrote extensive commentaries on Plato, a large bulk of which have survived even if much is lost. They are less interesting as a source of Proclus's philosophical views than one might expect but a mine of information about the history of Platonism, in addition to representing late Neo-Platonic reading of Plato. Proclus also wrote on mathematics and literature and composed pagan hymns.

Proclus was a pious pagan in a world were pagans were an oppressed minority, having lost all chance of victory. Proclus nevertheless had an ironic revenge against the Christians: his system is the philosophical foundation of the 'Christian theology' of Pseudo-Dionysius, a man who pretended to be the Dionysius mentioned in the Acts as a Christian convert of Paul. The

whole medieval world was deceived by the fraud, which was not fully eradicated until the nineteenth century. The writings of Pseudo-Dionysius acquired an immense authority in the medieval Christian tradition.

Systematic and influential though Proclus undeniably was, there is some doubt about the originality of his views. However that may be, the very conception of such a work as the *Elements of Theology* is in itself a great achievement and, for all we know, an original one. In order to assess his contributions we must briefly consider the period between Porphyry and Proclus.

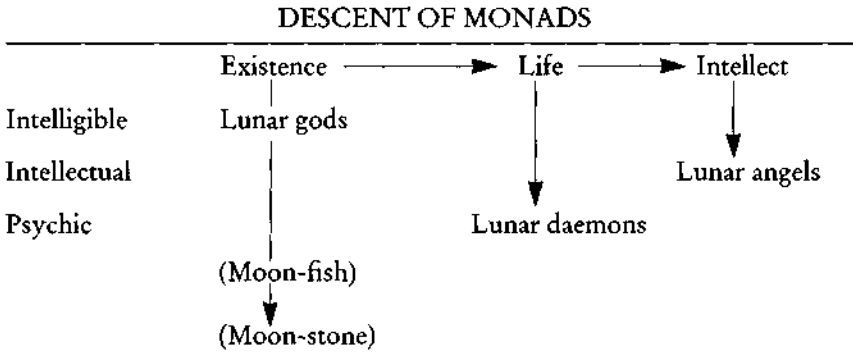
Two new Neo-Platonic movements in the East appeared after Porphyry. One is the so-called 'school' at Pergamum, whose chief representatives are Sallust and the emperor Julian (called the 'Apostate' by Christians). This brand of Neo-Platonism seems to have been more religious than philosophical. It was Neo-Platonism and its interpretation of pagan religion and culture turned against the Christians. The other is the Athenian school whose founder was Plutarch of Athens (died 432), succeeded by Proclus's teacher Syrianus. Proclus represents the culmination of the Athenian school. Both these schools or trends owe much of their distinctive traits to Porphyry's most renowned student, Iamblichus, whom many scholars regard as a second father of Neo-Platonism. We possess even less of his writings than of Porphyry's and he is credited with this honor—in some respects a questionable honor considering the content of his teaching—on the basis of others' evidence, not least remarks in Proclus himself. At any rate, Iamblichus's achievements can be summarized as follows. First, he claims theurgy as the means to union with divine intellects and as in some ways superior to philosophy. This is of course a deviation from the teaching of Plotinus but was to become the received opinion. Nevertheless Iamblichus insisted on keeping theurgy and philosophy apart. Secondly, he established a standard school curriculum and proposed the principles of interpretation of Platonic dialogues that came to prevail. According to these each dialogue has one theme *(skopos)* which determines the interpretation of all aspects of it. Thirdly, he gave the Athenian school what is distinctive in its metaphysics: pervasive use of mathematical concepts such as triads and monads. In all this Proclus is highly indebted to Iamblichus.

In outline Proclus's system resembles that of Plotinus: we find the same principal hypostases, the One, Intellect and Soul, and their relationships are described in similar terms: process or irradiation from above and the inverse relation, participation, from below. We also find the same general assumptions about the principles, often made quite explicit in Proclus: the cause is more perfect than effect, has a fuller degree of unity, contains in some manner its effect and so forth. Proclus, however, shows a tendency towards a more extreme logical realism: he likes distinctions and every distinction is liable to turn into a difference between entities with a proliferation of entities as a result: what in Plotinus has the status of aspect

or relation is apt to be reified in Proclus. As an example of this we may mention time and eternity which for Plotinus are aspects of Intellect and Soul respectively but have become substances in Proclus (cf. pp. 369–70 above and *ET,* props. 52–5). Thus, even if the simple ineffable One is the root of it all, it does not take Proclus long to derive an astounding multiplicity from it. Proclus's entities frequently come in triads whose general structure is extremes connected by a middle term having affinity with both the extremes. Such triads proliferate both as reified aspects of a hypostasis and in the relations between hypostases. As concerns us, this complexity means that we must make do with mentioning a few general features and for a fuller of view of his system the reader is referred to Proclus himself and items in the bibliography.

We can get a glimpse of Proclus's system by considering the top of the hierarchy. First there is the One (the Good) itself which is entirely transcendent and unparticipated. Then, in between the transcendent One and Intellect but also belonging to the first hypostasis, is a series of unities (henads)—this doctrine of unities has no parallel in Plotinus (*ET,* props. 7 and 113–65). These unities are participated terms from which anything else receives its unity (*ET,* prop. 116; *In Platonis Parmenidem* 6, 148). What we have just seen exemplifies a structure that pervades the Proclean system: a distinction between an unparticipated term, a participated term and a participant. This triad reappears in a more familiar setting as a transcendent (unparticipated) Platonic Idea, an immanent participated form, and a sensible participant (*In Platonis Parmenidem* 3, 797). Thus there is, for example, the ideal Man, instances of Man and organic bodies that take on the human form. The doctrine of the triad of participation is of course meant to answer the question 'Is the Platonic Idea transcendent or immanent?' and the answer is that it is both, i.e. the Idea itself is transcendent but it has an immanent counterpart, the participated term.

No less fundamental is a triad consisting of rest *(monê),* process *(proodos)* and reversion *(epistrophê)* (*ET,* props. 25–39; *cf PP.* 370–2 above), which is parallel or identical to another triad: limit, infinity and mixture (*ET,* props. 87–96). These latter are ingredients of the first unities and of everything else below them. Rest, process and return are operative throughout the hierarchy. At every level there is a first term (monad) which generates by procession and return subordinate entities of the same kind belonging to the same level. Each such monad, however, also simultaneously proceeds to generate incomplete products, i.e. products that are mere images and not the same sort of things as the monad: not every product of soul is itself a soul and not every product of intellect is an intellect, for soul is a product of intellect (cf. *ET,* prop. 65). In this double procession, both horizontal and vertical, as one might say, we have the analog of internal and external activity in Plotinus—the generation of the entities within each hypostasis corresponding to the internal activity.



The level of Intellect is characterized by the triad Existence, Life and Thought, a special case, it seems, of rest-procession-return. There are many other triads there but this one is especially important. Existence, Life and Intelligence are in turn each implicit in one another so that each contains a triad of Existence, Life and Intelligence, the difference being a matter of predominance (*ET,* props. 101–3). However this is to be understood in precise terms, we can note some interesting consequences: the traditional Platonic Ideas are monads containing this triad and each Idea exists in all three modes or, alternatively, a single Idea may be participated in either existentially, vitally or intellectually (*Platonic Theology,* 903–4). The concrete result of this is that for instance the Idea 'Moon' may be represented as moon-fish or moon-stone (existential), as a lunar daemon (vital) or again as a lunar angel (intellectual).

An important Proclean principle is the doctrine of the greater power of the higher causes (*ET,* props. 57, 71–2). This does not only mean that a higher level in the hierarchy causes a greater number of and more perfect effects than a lower one, but also that the higher causes extend further down. So the entities at the bottom of the hierarchy participate only in the highest levels: inanimate bodies, having only unity and minimal being, participate directly in Existence, and matter, having no properties of its own and hence no being, participates only in a corresponding unity in the first hypostasis. These principles, therefore, extend all the way down to the level of bodies, without the involvement of the intermediate stages. Souls by contrast participate in life (rational souls in thought as well) and through life in existence. This is illustrated in the diagram below taken from A.C.Lloyd ([11.6], 112). The arrows point from causes to effects.

Even if this diagram depicts only a fraction of Proclus's world it gives us a sense of what it looks like. It is indeed as one his theorems in the *Elements of Theology* states: 'All things are in all things, but in each according to its proper nature' (prop. 103). The same intelligible item may be instantiated by different phenomena according to its mode (existential, vital or intellectual) and all the phenomena on the same level are

interconnected both via the monad of that level and via the interconnectedness of everything at the top. So Proclus's world is a tightly knitted web.

This is strange philosophy by our lights. Nevertheless, it is in many ways quite successful, intellectually speaking, in harmonizing the world-view of the late Neo-Platonists and no doubt many of their contemporaries. In the words of Dodds, Proclus's ideal is 'the one comprehensive philosophy that should embrace all the garnered wisdom of the ancient world'.[17] All the pagan Gods, the old, new and even foreign, had a place in Proclus's hierarchy. The first participated unities mentioned above are in fact identical with the higher gods. Lesser divinities and intermediate beings all find their place in the intermediate stages between these and the world of the senses. Thus, we may choose different types of discourse to talk about the same phenomena according to our concerns on each occasion. Rest-process-return, substance-power-actuality and Cronos-Rhea-Zeus all express the same or parallel phenomena. We may approach these either through abstract philosophical reasoning or through religious practices. Occult phenomena, theurgy and mantic, which so preoccupied Proclus and his group, have their place and explanation as well. They are explained by the bonds that connect entities both horizontally and vertically in the system: a physical object such as a particular stone has invested in it higher powers which can be influenced through their manifestation in the stone. So everything worth speaking of had a place within the Athenian system and was to be made intelligible through it. Confusing though the Athenian system may be and incorporating the most bizarre elements, it nevertheless still is rational philosophy aiming at explanations on the basis of solid premisses.

THE LEGACY OF NEO-PLATONISM

After Proclus the Athenian school had one significant master, Damascius. He wrote a work *On Principles,* where he posits an ineffable principle above the One—a view also held by Iamblichus. During his term as Head of the Academy the emperor Justinian closed the school in 529. Platonism had been active in Alexandria for a long time—that is where Plotinus studied as we have seen (p.361 above)—and presumably had a very long continuous history there even if there are gaps in our knowledge of it. The school flourished in the fifth century and was still active into the seventh. There was considerable communication between the Athenians and the Alexandrians, but still a very notable difference of emphasis: the Alexandrians were less bent on metaphysical speculations than the Athenians and are best known for their commentaries on Aristotle. The Alexandrians were also less ardently pagan and included Christian members, for instance the well known commentator and notable critic of Aristotle, John Philoponus.[18]

The Christian Latin West produced a thinker of great importance who stands with one leg in the tradition of late ancient Platonism, namely Anicius Manlius Severinus Boethius (480–524). Boethius was a Catholic and a highly educated Roman statesman who served under Theodoric the Ostrogoth, an Arian king of Italy. Boethius wrote extensively on a host of subjects including the mathematical disciplines, theology and philosophy. He had great ambitions about translating all works of Aristotle and Plato into Latin and elucidating them. He succeeded in translating Aristotle's *Organon* and prefaced it with a translation of Porphyry's *Isagoge*. He also wrote several commentaries and logical treatises. These works became the foundation of logical studies in medieval Europe. Boethius did not live to complete his project. Accused of treason, he was imprisoned and finally tortured and executed. While in prison he wrote his masterpiece, *On the Consolation of Philosophy,* in which philosophy personified comes to the aid of the unjustly suffering man—it is noteworthy of course that Boethius should call upon philosophy rather than his Christian faith at this difficult time of his life. Boethius's philosophy is fundamentally Neo-Platonic. His emphasis on logic and other traits suggest influence of the Alexandrian school.

Boethius's *Consolation* and his theological treatises abound in Platonic, Aristotelian and Neo-Platonic doctrines and contributed, along with the works of St Augustine and others, to rendering such ideas commonplace in medieval philosophical theology. Thus, on Boethius's account, in addition to being one and simple God is supreme being and supreme goodness and power; God is these things themselves whereas other things only have them by participation in or imitation of God. Furthermore, goodness and being are one and same, and hence evil and lack of being (*How Substances are Good in Virtue of Their Existence without Being Substantial Goods; Consolation* 3, 12). God is of course eternal and in a notorious passage in the *Consolation* Boethius gives an account of eternity and then distinguishes between eternity and everlastingness. Eternity is defined as 'perfect possession of endless life, all present at once' (5, 6), a definition that reflects Plotinus (see pp. 369–70 above). This is contrasted with the created universe, which even if without beginning and end unfolds in temporal succession what exists timelessly in God's mind.

The final victories of Christianity and Islam in what once was one pagan Roman empire stretching over much of Europe, the Middle East and North Africa put an end to Neo-Platonism in the strict sense of the term. But many ideas of the Neo-Platonists' and in some cases their works lived on and were absorbed by the new cultures. In the Christian world Plotinus and Porphyry influenced the Church fathers both Greek and Latin and we have mentioned Proclus's great impact through Pseudo-Dionysius. If only for these reasons the whole of Christian medieval theology was thoroughly colored by Neo-Platonism. In fact there are innumerable threads that connect Neo-Platonism with the subsequent history of Europe. To mention

just one interesting example: the great medieval Islamic and Jewish philosophers, who in turn were to influence European philosophy, studied and absorbed Neo-Platonic thought. In the fifteenth century pagan Neo-Platonism had a comeback in Europe that lasted into the seventeenth. It has continued to exert influence on important thinkers such as Berkeley and Hegel, who was an admirer of Proclus, and Bergson, who admired Plotinus.

NOTES

1 See O'Meara [11.8].
2 See Dillon [11.3].
3 See Dodds [11.20].
4 See Wallis [11.12], 160.
5 Conventionally, references to the *Enneads* are often given only in numerals: 'V. 3 (49) 2, 14–16', for instance, means '5th Ennead, 3rd treatise (which is number 49 on Porphyry's chronological list of Plotinus's writings), chapter 2, lines 14 to 16'.
6 For details see Armstrong [11.1], 15.
7 See Gurtler [11.22].
8 See Blumenthal [11.17].
9 See O'Brien [11.23].
10 That Plotinus's distinction between the internal and the external act has its roots in Aristotle's account of actualization is suggested by Lloyd [11.6], 98–103. Hadot [11.33], 228, n. 4. and others suppose that the two acts doctrine originates in a Stoic distinction between substantial qualities and their external effects. Plotinus may well be drawing on both kinds of sources.
11 See Emilsson [11.21].
12 See Dodds[11.20], 145–8.
13 See O'Daly [11.24].
14 See Hadot [11.33].
15 See Armstrong [11.1], 287–93.
16 See Smith [11.35], 5 ff.
17 See Dodds [11.41], xxv.
18 See Sorabji [11.52].

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CHAPTER 12
Augustine
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1
LIFE AND PHILOSOPHICAL READINGS

Augustine was born in Thagaste (modern Souk Ahras in Algeria) in Roman North Africa in AD 354. He died as bishop of Hippo (now Annaba, Algeria) in 430. His education followed the standard Roman practice of the later Empire (Marrou [12.59]), in schools at Thagaste, Madauros, and Carthage, and it involved some study of philosophical texts, if only for their literary and rhetorical qualities. At the age of 18 he read Cicero's *Hortensius* as part of the syllabus at Carthage, and it affected him profoundly, introducing him to philosophy, and in particular to ethical eudemonism (*conf.* 3.7). He cites the *Hortensius* regularly in his writings.[1] But, although already a Christian catechumen (his mother Monnica was a pious believer), and inclined to think of Christ when 'wisdom' *(sapientia)* was spoken of, he found himself more attracted to the Manichees than to what he perceived as the crudities of style in the Latin translations of the Christian scriptures available to him. What attracted him to Manichaeism was its appeal to reason rather than authority (a polarity that was to dominate his mature thought: see section 3): to the modern reader confronted with the bizarre cosmic mythology of the Manichees, this seems an odd claim. But the Manichees proffered a universal system, encompassing cosmology, psychology, and a synthesis of several religions, including Christianity; and they prescribed a way of life consistent with their revealed 'knowledge'. Augustine was to be deeply influenced by their account of evil, based on the belief in an evil principle in the universe and in humans, a 'substance' at war with the good principle in the individual and the universe *(duab. an.)*. It was many years before he shed this belief. Furthermore, Manichaean criticism of the Old Testament enabled him to reject what he took to be its primitive concept of God and its moral ambiguities.

As a young man at Carthage Augustine read Aristotle's *Categories* and claims not to have found them difficult (*conf.* 4.28). His other early philosophical readings are not easy to determine. Cicero, especially the

Tusculan Disputations, the *De re publica,* the *De natura, deorum,* and the *Academica* (and to a lesser extent the *De fato* and the *De officiis*), is his principal source of information about every period of Greek philosophy (he probably read Plato's *Timaeus* in Cicero's translation).[2] In his first published work, *De pulchro et apto* (not extant), on aesthetics, written in 380–1, Augustine reveals knowledge of the distinction between beauty *(kalon)* and 'appropriateness' *(prepon),* the Stoic theory of beauty as proportion of the parts of a thing, and the monad/dyad principles (*conf.* 4. 20–1),

Augustine adopted the career of a *rhetor,* teaching at Carthage, Rome (from 383), and Milan (from 384), where he held the post of public orator (Milan was then the seat of the Western imperial court). At Milan (possibly in a Platonist circle including figures like the retired high public official Manlius Theodorus) he encountered Neoplatonism, reading—in the Latin translation by Marius Victorinus—works, probably by both Plotinus and Porphyry, in 386 (*conf.* 7.13–27; *beata v.* 4; *c. Acad.* 3.41).[3] His knowledge of Greek was mediocre. He expresses distaste for the way in which it was taught at school (*conf.* 1.23), and he was always to be dependent upon translations for his access to Greek philosophy, Scripture, and theological literature.[4] At Milan he also heard the sermons of Ambrose, whose Platonizing Christianity undermined the materialistic concept of God that Augustine found in both Manichaeism and Stoicism, and who initiated him into the subtleties of exegetical method, based upon the distinction, taken from Philo of Alexandria and Greek Christian theologians such as Origen, between literal and figurative readings of Scripture. He underwent a conversion experience in autumn 386, resigning his post at Milan and spending the winter of 386–7 in retreat at a country villa in nearby Cassiciacum.

From this period came his first extant works, a series of philosophical dialogues whose form is much influenced by Cicero, which includes the *Contra Academicos,* a critique of Academic scepticism (Cicero's *Academica* is Augustine's principal source), and, in the *De ordine* and the *De beata vita,* discussions of the nature of happiness and its relation to knowledge, God's nature, order in the universe, and the problem of evil. In another 'inner' dialogue between Augustine and reason, the *Soliloquia,* he explores the nature of mind, the identification of truth with being, and the problem of error. Neoplatonist influences permeate these dialogues. Augustine's characteristic theories of the will and semantics were not developed until after his baptism in 387 and his return to Thagaste in 388 *(De libero arbitrio, De Magistro).* Anti-Manichaean polemic dominated his writings at this time. The first mature synthesis of his thought, *De vera religione,* was written in 390.

From 371 to 386 Augustine had lived with a concubine: the couple had a son, Adeodatus, who stayed with Augustine after his mother was sent back to Africa in 386, at a time when Augustine was planning to marry an

heiress of high social standing (Adeodatus died young, probably in 389). Augustine's conversion led to the abandonment of his marriage plans and the adoption of a life of celibacy. At Thagaste he established a religious community. In 391 he was ordained priest at Hippo, becoming bishop in 396. Several of his works at this time reveal the influence of Pauline theology upon his thought. When he wrote his autobiography, the *Confessions,* from 397 on, he was able to apply his analysis of the will and Pauline principles to his conversion experience of 386: both elements were missing from the Cassiciacum dialogues.[5]

By 397 Augustine's philosophical views were largely formed, and there is no new encounter with other thinkers or fresh ideas in his later career. But he elaborated his thought in several major works, all written over several years: the *De trinitate* (whose psychological schemes reveal much of his philosophy of mind), the *De Genesi ad litteram* (on creation, the soul, sense-perception, and imagination), the *De doctrina christiana* (on hermeneutics), and the *De civitate dei* (on ethics and social theory). In the last two decades of his life he wrote much on free will, grace, and the causes of evil, in a series of polemical works directed against Pelagius and his followers, in particular Julian of Eclanum.

Augustine's philosophical readings were eclectic and haphazard. Only Cicero was studied systematically, as part of an educational syllabus. Plato was read either in translation or in extracts (or both), the Neoplatonists likewise. The Middle Platonists were known indirectly, through the doxographical tradition (Solignac [12.61]): Apuleius was an exception, but was chiefly exploited for his demonology. Christian writers were more often targets of criticism than sources of new ideas: Tertullian's corporealist views on the soul, and Origen's theories of the soul's pre-existence, periodic reincarnation, and embodiment as punishment for previously committed sin, all invited Augustinian objections. But Augustine made a lot of his limited philosophical background, exploiting it with acuity and imagination.

2
AUGUSTINE'S CHRISTIAN PHILOSOPHY

Augustine philosophizes throughout his writings. But, despite the fact that some of his earlier works concentrate on specific philosophical themes, the great majority of his writings are responses to a variety of personal, theological, and church political circumstances (Bonner [12.32]). Speculation for its own sake, although it may determine the amount of space that he devotes to analysing particular problems, is never what motivates Augustine to write in the first place. The polemical aspect cannot be neglected. The *De libero arbitrio* is directed against the Manichees, for example (*retr.* 1.9). In longer works, such as *De Genesi ad litteram,* which were not composed under pressure of time and whose subject-matter

offered scope for open exploration of certain (for example cosmological) questions, Augustine speculates most freely (*Gn. litt.* 1.18.37–21.41; 2.9. 20–1; 2.18.38). Augustine does not construct a philosophical system. But certain themes preoccupy him, and his treatment of them evinces a continuity of development or a coherence of treatment that allows us to describe his position with some confidence. At times he understands by 'philosophy' the Graeco-Roman tradition of rational inquiry, as opposed to Christianity; and he distinguishes between rational method in philosophy and Christian belief in religious principles that are often historical events (above all, Christ's Incarnation) (*beata v.* 4; *c. Acad.* 3.37–42; *vera. rel.* 2–8, 30–3; *conf.* 7.13–27; *civ.* 8.1–12). He deprecates pagan philosophy, when he wishes to throw Christian doctrine into sharp relief. At other times, however, he does not distinguish between the philosophical and theological aspects of his thought. Christianity is the 'one true philosophy' (*c. Iul.* 4.72), and the 'true religion' of *De vera religione* is inconceivable without its Platonist components. Thus he can speak of a 'Christian philosophy' (*c. Iul.* 4.72; *c. Iul. imp.* 2.166), arguing that the love of wisdom, the search for, and discovery of, truth, and the quest for happiness all find fulfilment in the Christian religion. Augustine appropriates traditional philosophical questions, but the answers which he provides are religious ones. Thus the universal desire for happiness, which he grants to be the proper activity of the highest human faculty, the mind, is, he argues, only fully satisfied in the afterlife, and not in a disembodied mental state, but in the resurrected heavenly body of the saints.[6] At the same time, the questions which he asks are those of the Greek and Roman philosophical tradition. When he investigates problems of the soul, he inquires into its origin or source, its substance, the nature of the body-soul relationship, its immortality, its condition after death, and so on.[7] He does not pretend to answer all questions: for example, when human souls are created (see section 7).

The scope of Augustine's Christian philosophy may be appreciated when we realize that he fuses the 'wisdom' of the *Hortensius* with the 'intellect' of the Neoplatonist writings and the 'word' of the beginning of John's gospel (*conf.* 3.7–8; 7.13–27; *civ.* 10.29). He establishes several parallels between the themes of the Johannine prologue and Neoplatonist writings. Platonism enjoys a special status in his thought. 'If Plato were alive' (*vera rel.* 3), he would recognize in Christianity the realization of his striving: a monotheistic religion with a belief in immaterial principles, God, and the soul. But, despite its theoretical monism, Platonism is, Augustine believes, vitiated by polytheistic demonologies (*civ.* 8–10).

Augustine's familiarity with the doxographical tradition means that he follows the school division of philosophy into three areas of physics, ethics, and logic (*vera rel.* 30–3; *civ.* 8.4; *ep.* 118.16–21). But he employs no such division in any stringent sense in his discussion of philosophical issues. It serves chiefly to articulate his reporting of philosophical

doctrines, as well as to assess the achievement of Platonism in fusing Pythagorean physics with Socratic ethics, and completing the fusion by the development of dialectic *(c Acad.* 3.37; *civ.* 8.4).

Augustine embraces the traditional definition of philosophy as the science of things divine and human, and he sometimes distinguishes between *sapientia* as knowledge of things divine (including truth in the strict sense), and *scientia* as the knowledge of temporal things (*trin.* 14.2–3). He understands it to be the achievement of Christianity to establish the true relationship between eternal immutable truth and the beliefs that we may have about temporal things. The proportion of *Timaeus* 290 (being: becoming : : truth: belief) expresses an ontological and epistemological classification that Augustine approves (*trin.* 4.24). But he believes that the links between the temporal and the eternal are only realized in the incarnate Christ, who is both *sapientia* and *scientia,* and in the doctrines which emerge in Christianity (*Gn. litt.* 1.21.41).

Augustine knows the term *theologia* from Varro's scheme of the three kinds of 'theology'—mythical, natural, and civil—but he uses the word to refer to Christian doctrine only once (*civ.* 6.8) and in passing. Nor does he proffer a natural theology in the sense in which this is understood in medieval and modern contexts, namely, a theology that refuses to admit doctrinal propositions that are not also accessible to reason as premises. But he is arguably the founder in the Western tradition of 'philosophical theology', which does accept such doctrinal premises as assumptions, testing their coherence by analysis and argumentation, explaining them and analysing their implications and connections. Augustine's programme aims at illuminating faith, which is based on authority, by the understanding which reason provides, inasmuch as this is possible. Nor is this attempt at rational inquiry merely something in which Christians may indulge, but it is a duty incumbent upon them, for it involves use of their God-given reason, the same reason which enables them to believe in the first place (*ep.* 120.3). Augustine interprets the Latin translation of the Septuagint version of Isaiah 7:9 ('Unless you believe, you shall not understand') as an assertion of temporal conditionality (faith precedes understanding), as well as of confidence that 'God will aid us and make us understand what we believe' (*lib. arb.* 1.4; 2.6). But if 'authority is temporally prior, reason is prior in reality' (*ord.* 2.26). Augustine argues that even if Christian beliefs are initially credible only because the believer subjectively accepts divine authority, these beliefs are in principle accessible to, and explicable by, rational inquiry. And he attempts to broaden the basis of authority, stressing, for example, the role of historical evidence and wide acceptability in the tradition of Christ's life and teaching. His stand is in sharp contrast to Tertullian's anti-intellectualism, which uses the argument that the mysteries of faith are inaccessible to reason, and that their very inaccessibility constitutes their status as mysteries (*De carne Christi* 5.4; *De praescriptione haereticorum* 7.2–3). Augustine appears to claim that all

mysteries may be understood, if not in this life, then in the afterlife. And some, such as the Trinity, may only be partly understood (*ep.* 120.2). Augustine's claim, he assumes, is strengthened by his observation that the same reason is operative in belief and in understanding.[8]

3
BELIEF AND KNOWLEDGE

Although he sometimes distinguishes sharply between the certainty of knowledge and the insubstantial nature of belief (*c. Acad.* 3.37, 43; *div, qu.* 9, 48; *ep.* 147.7, 10), Augustine, not least because of his Christianity, more often grants belief, if properly founded, the status of a kind of knowledge. If believing is nothing other than 'thinking with assent' (*praed. sanct.* 5), belief is rational. The validity of our beliefs depends upon the authority by which they are held, the evidence or testimony which commands assent (c. *Acad.* 3.42–3; *ord.* 2.26–7; lib. *arb.* 2.5; *util. cred.*). Different kinds of authority are in play in, for example, historical evidence and the truths of religion, but it is the same kind of mental activity which engages in belief in each case. Yet the objects of belief may differ radically. Historical evidence can only be believed: it can never be scientific knowledge (*mag,* 37; *div. qu.* 48). But religious truths may one day be understood, and so known, by believers. In fact, the progression from belief to understanding is a fundamental tenet of Augustine's views about our knowledge of truths about God, though the transformation of this kind of belief into knowledge will, he argues, occur only in the afterlife (*trin.* 9.1; *ser.* 43; *en. Ps.* 118, *ser.* 18.3). This theological postulate betrays a fundamental attitude of Augustine's, that belief is inferior to understanding. True belief may be rational, justified, and trustworthy, but it lacks the first-hand justification of knowledge, and the comprehensive synoptic overview of a complex field achieved by understanding (*mag.* 31, 39–40, 46; *ep.* 147. 21; Burnyeat [12.67]). It also lacks the first-hand justification of sense-perception: properly authenticated sense-perception is a form of knowledge (*ep.* 147.38; *trin.* 12.3; *retr.* 1.14.3) in the sense that historical testimony never can be. It is only when Augustine is arguing against sceptics that he is moved to talk of our 'knowing' historical facts (*trin.* 4.21; 15.21).

Augustine's knowledge of Academic scepticism is chiefly informed by Cicero's *Academica,* and it was his disenchantment with Manichaeism that made him a temporary sceptic (*conf.* 5.19, 25). His arguments against sceptics in *Contra Academicos* are concerned with exposing inconsistencies and inadequacies in the Academic position (such as the concept of the 'persuasive' or 'probable', and the claim that there can be an Academic sage (*c. Acad.* 2.12, 19; 3.30–2)), and preparing the ground for an acceptance of the possibility of epistemic certainty in general.[9]

Augustine's premise that the sage alone is happy is tested by the sceptical argument that wisdom may be the quest for truth rather than its

attainment. In his answer he argues that nobody can be happy if she cannot attain something which she desires greatly, such as the truth (*c. Acad.* 1.9). But this argument presupposes that happiness entails accomplishment of desired goals rather than the conviction that the pursuit of a worthwhile desire, even if unfulfilled, is satisfying (Kirwan [12.42] 17–20). In fact, Augustine never repudiates the premise that the unremitting search for truth may in itself be a worthy human activity, and that wisdom may consist in the path that leads towards truth and not merely the goal of truth discovered (*c. Acad.* 1.13–14).

The Academic claims that things may be credible or probable without those or other things being known. Augustine exploits the fact that Cicero translates the Greek term *pithanon* ('persuasive' or 'credible') by *verisimile,* 'like truth' (*c. Acad.* 2.16, 19, 27–8). Augustine argues that it is absurd to claim that something is like a truth when one purports not to know what the truth is, applying a version of Plato's thesis (*Phaedo* 74d–e) that comparing x with y entails previous knowledge of y. But I can say that x is like y if I know how y would seem if it existed. The Academic claim stands if the Academic knows 'how a truth would seem if there were any'.[10] Augustine's argument fails.

Augustine's critique of sceptical *epochê* or suspension of judgement—itself an intended safeguard against the risk of error—concentrates on the inevitability of risking error if one habitually assents to what one does not know (*c. Acad.* 2.11). This is a neat rejoinder. Since action and the forming of judgements are not to be avoided, as the Academic concedes, the Academic cannot claim that suspension of judgement is either possible or brings with it avoidance of error (*c. Acad.* 3. 33–6).[11]

Augustine's attack on scepticism takes the form of a defence of the Stoic criterion of truth (*c. Acad.* 2.11; 3.18, 21; cf. Cicero, *Academica priora* 18, 113). He believes that the evidence of sense-perception does not, strictly speaking, satisfy the conditions of the criterion. His search for propositions which satisfy the conditions, as he understands them, leads him to look for propositions of such a kind that they cannot be taken for false. He argues that propositions of logic (such as 'not p and q', 'if p, then not q') satisfy the conditions, as do mathematical propositions (*c. Acad.* 3.21, 23, 25, 29; cf. *doctr. chr.* 2.49–53). So do such propositions as 'I exist', 'I am alive', or even 'If I am deceived, I exist' (*beata, v.* 7; *sol.* 2.1; *lib. arb.* 2.7; *vera rel.* 73; *trin.* 10.14; *civ.* 11–26). It is arguable that propositions of this last kind are intended to demonstrate the impossibility of thinking of any kind without existing, and that Augustine is inferring the certainty of our existence from the fact of consciousness. But it may be that Augustine is arguing that he cannot mistakenly believe that he exists, or is alive, etc.[12] Does Augustine anticipate Descartes's *cogito?* When Descartes's first readers suggested to him that this was so, Descartes replied that there was a difference between Augustine's use of the argument and his own.[13] But in

fact Augustine puts his *cogito* argument to various uses, to argue for the immateriality of the mind, or as part of a demonstration of God's existence.

In his account of what we can indubitably know Augustine follows the Platonist tradition in asserting that knowledge is not derived from sense-perception or experience, but that truths are somehow impressed upon our minds a priori. What are these truths? They certainly include the mathematical and logical propositions alluded to above. But they also include ideas or concepts like that of 'unity' (*lib. arb.* 2.21–3, 26, 28–9, 40; *trin.* 8.4). For knowledge is not just of propositions; it is also direct acquaintance with entities that correspond to the Forms of Plato and the Platonist tradition, in which particular things in our world participate (*div. qu.* 46). Augustine contrasts the immutability of the eternal Forms with the mutability even of the human reason which apprehends them (*imm. an.* 7; *ser.* 241.2). He adopts the Middle Platonist view that the Forms are the thoughts of God, who looks into his mind in order to create the universe (*div. qu.* 46; *civ.* 12.27). In Christian terms, Augustine links the concept of the Forms to the belief that the son of God is both wisdom and 'word', in the sense of a causal creative power (*vera rel.* 66, 113; *ep.* 14.4; *civ.* 9.22; *Gn. litt* 1.18.36).

Augustine considers but rejects the Platonic doctrine of *anamnêsis* as an explanation of the presence in the human mind of knowledge that is not derived from sense-experience. Knowledge is recollection, an exercise of the memory, but in the sense that when I know I actualize what is latent in my mind, eliciting truths by a process of concentration. This sounds Plotinian, but it is combined with a reluctance to believe in the pre-existence of the soul (*c. Acad.* 1.22; *sol.* 2.35; *imm. an.* 6; *ep.* 7; *conf.* 10.16–19).[14] Nor is the human mind able to realize knowledge unaided. Augustine believes that divine illumination is required to achieve this. God is the light of the mind, and knowing is a kind of mental seeing. The divine light illumines not merely what is apprehended, but also the apprehending mind. Moreover, the light of truth is also the light in which we make judgements, whether about intelligible phenomena or sense-perceptions. But illumination's role is not just normative or formal: illumination attempts to account for the mind's access to concepts and ideas, not merely its power to judge (*sol.* 1. 12, 15; *ep.* 120.10; *conf.* 9.10; *div. qu.* 46; *trin.* 4.4; 14.21; *Gn. litt.* 12.31. 59).[15] Although it is obvious that the illumination theory is an aspect of the doctrine of divine grace, it is not an attempt to deny the mind its proper cognitive activity. Rather, it is a realization of the mind's natural capacity.

Knowledge of this kind is a result of introspection. Augustine powerfully reiterates the Neoplatonist themes of conversion or return to oneself, of self-knowledge as the means to all knowledge, the fulfilment of a deep desire to possess wisdom, as deep as the desire to be happy (*vera rel.* 72; *sol.* 2.1; *trin.* 9.14; 10.1–16).[16] Self-knowledge is a realization of self-love, but self-love moves beyond itself to the knowledge of truth (*beata v.* 33, 35; *ord.* 2.35; *trin.* 9.18). In a sense, God is the truth which I know. But God is

not the Forms. Transcending them, he is both known and unknowable, 'touched' rather than apprehended, a vision like our seeing the Forms, but unlike our seeing them a vision that cannot be complete in our temporal condition (*conf.* 9.24; 10.35–8; *trin.* 15.2; *ser.* 117.5).

4
SEMANTICS AND HERMENEUTICS

The most discussed aspect of Augustine's philosophy of language in this century is the account of language-acquisition criticized by Wittgenstein for concentrating on words as names of objects and on ostensive definition as the means by which words are understood (*Philosophical Investigations* 1–3, 32, citing *conf.* 1.13). Wittgenstein's critique is, at least in part, misplaced. Whereas Augustine tends to insist that single words are names, he does not regard ostensive definition as the sole or even principal way in which understanding of language is achieved. For Augustine, language is a system of signs conveyed in speech: every word signifies something. What words signify is not immediately obvious. They convey thoughts from speaker to hearer, but it is not clear whether Augustine maintains that they signify those thoughts, or the objects of those thoughts, or both thoughts and objects. Augustine adapts to an explicitly linguistic context Stoic discussions (themselves indebted to Aristotle) of signs as a means of inference in the acquisition of scientific knowledge.[17] Verbal signs refer to something 'beyond themselves'. But verbal signs are not the kind of sign upon which Stoic theory concentrates: these Augustine calls 'natural', whereas verbal signs are 'given' by a speaker to express something, to provide evidence of, at the very least, mental contents (*mag.* 1–31; *doctr. chr.* 1.2; 2.1–4; *dial.* 5; *conf.* 1.7, 12–13, 23).

If verbal signs are evidential, they will signify not merely specific things, but also facts, actual or purported. Thus sentences as well as individual words signify, and some individual words (conjunctions or prepositions, for example) are more readily understood as signifiers when they are considered as parts of a sentence or proposition. But Augustine also attempts to show that all individual words are names, and that every word can be used to refer to itself: every word is a sign inasmuch as it can be used to bring itself to mind (this is how Augustine deals with words like 'if' and 'because') (*mag.* 3, 13–19).

In the *De dialectica*[18] Augustine distinguishes between words and what is 'sayable' *(dicibile),* the conception of a word in the mind, what is understood by a word, the mental perception of a word (*dial.* 5). This account has something in common with the Stoic *lekta* doctrine. But there are substantial differences between the two concepts. If *lekta* are the incorporeal meanings of words, they are only 'complete' as the meanings of completed sentences. Their principal function is to be true or false, and their linguistic form is propositional. Parts of *lekta* are not meanings.

Augustine's *dicibile* concept is underdeveloped. In part, it resembles his concept of the inner word, the notion that thought is a kind of inner speech in no particular language, but capable of being verbalized, even if, as in the case of God's word, it is not vocal (see section 9).[19] Language expresses the speaker's will, verbal signs signify states of mind ('if' indicates doubt, 'nothing' a perception that there is no object or real thing there (*mag.* 3, 19)). We explain words by means of other words, using signs to signify other signs (*mag.* 7–18). Likewise, gestures, whether mimic or not, function as signs that make things known (*mag.* 4–6). But we can also make things known by performance, for example of an action like walking, where no signs are used (*mag.* 29). Signs point beyond themselves to that which they signify, and cognition of what is signified is superior to perception of its sign. Augustine suggests that this is so because the sign is functionally dependent upon the thing signified, or is a means to an end, but he does not resolve satisfactorily the question of value (*mag.* 24–8). Why are words inferior to things?

The reason why Augustine raises the value-question may be that, despite his initial thesis that language teaches something, Augustine eventually adopts the position that nothing is learnt by means of signs (*mag.* 32–5).[20] Rather, it is perceptions of things that teach us the meaning of signs like words. Words do not convey their meaning unless we know that to which they refer. More precisely, words have the function of calling to mind the things of which they are signs (*mag.* 33). But 'calling to mind' or 'making known' or 'showing' is not the same as 'teaching', and having something 'made clear' is not the same as 'learning' it (*mag.* 33–5). Knowledge is direct acquaintance with what is known, signs have an instrumental function, they serve to remind us of what we know. Augustine expresses this theory in Christian terms by asserting that the one teacher is Christ, the divine 'inner teacher', the wisdom whereby we know what we know (*mag.* 2, 38–40, 46). But we only achieve knowledge because we teach ourselves, through introspection: we are no passive recipients of that which we learn. This Platonist position leads to the devaluation of signs in the learning process. Their function is auxiliary. They may prompt the direct acquaintance that is knowledge. And they also serve as vehicles for communication of thoughts and ideas. When communication occurs, something is indeed transferred from one mind to another, but once again it is not a case of communication from an active sign-giver to a passive sign-recipient. Rather, what one mind has apprehended is apprehended through the sign by another mind: it is simply another instance of cognition (*mag.* 39–46).

The focus of Augustine's semantics is epistemological rather than linguistic, although he has interesting observations to make about language and meaning. The uses of his sign-theory in theological contexts, such as its application to his views on non-literal, figurative meanings of Scripture or to the Church's sacraments, proved to be highly influential.[21]

Together with his North African contemporary Tyconius, Augustine, especially in the *De doctrina christiana,* develops a hermeneutics of reading Scripture that is profoundly original, with repercussions beyond Biblical interpretation.

5
ETHICS, POLITICAL THEORY, AESTHETICS

Augustine appropriates the eudemonist ethics of ancient philosophy.[22] Happiness *(beatitudo)* is a universal human desire (*c. Acad.* 1.5–9; *beata v.* 10, 14; *civ.* 10.1), the goal *(finis)* of human endeavour (*civ.* 19.1): it is the highest good for humans (in one version of this thesis Augustine posits peace, rather than happiness, as the universal goal (*civ.* 19.10–13). In common with the eudemonistic tradition since Aristotle, Augustine investigates what constitutes the well-being of the human being as a rational being (*beata v.* 30–7; *lib. arb.* 2.7, 26; *Gn. c. Man.* 1.31). He does not equate happiness with pleasure or enjoyment, any more than Aristotle or the Stoics do, although he argues that the happiness appropriate to humans, if realized, is accompanied by delight and enjoyment (*doctr. chr.* 1. 3–5; trin. 1 11.10). The happiest form of life is living in accordance with reason, whether this consists in the search for truth or its discovery and possession, the state of wisdom *(sapientia)* that reflects divine wisdom (see section 3). The proper end or goal for humans is to 'enjoy God' *qua* truth as an end in itself, and this teleological goal should also determine all our moral choices (*lib. arb.* 2.35–6; *civ.* 8.8; 15.7; *c. Faust.* 22.78).

In one sense, Augustine's account of happiness equates it with a form of knowledge, namely knowledge of what is best and highest: happiness consists in contemplation of stable eternal being, something that endures and, unlike other kinds of possessions, cannot be lost (*beata v.* 11; *lib. arb.* 1.32–4; *vera rel.* 86; *mor.* 1.5). But Augustine qualifies this equation of perfect virtue with knowledge by an insistence that enjoying or 'possessing' God entails doing what God wills, living well, performing virtuous actions. On the one hand, therefore, wisdom is contrasted (Stoically) with folly (*beata v.* 28–9). But Augustine also argues that being virtuous and its contrary are not merely instances of knowledge or ignorance. In this context his concepts of use and enjoyment, and his notion of the will, are crucial.

The Augustinian contrast between use and enjoyment is influenced by rhetorical and philosophical antitheses in Cicero, in particular the 'useful-good' *(utile-honestum)* contrast (*div. qu.* 30). At first sight, however, it is not so much a distinction between kinds of evaluation of temporal things as a contrast between the eternal and the temporal (*lib. arb.* 1.32–4). In order to enjoy God, who is eternal being, we may use temporal things, as means to an end, in an instrumental way. Augustine includes other human beings among the objects of use, but only by arguing that my use of them is

appropriate if it involves love of them 'on God's account' *(propter deum)* (*doctr. chr.* 1.3–4, 20–1).[23] In Augustine's maturer thought the category of use is not seen in exclusively instrumental terms, but as a pointer towards the activity of willing, so that even enjoyment becomes a sub-category of use. God's love for us is not 'enjoyment', for that would imply that God needs us for his blessedness. Divine love is rather 'use' in a providential sense (*doctr. chr.* 1.34–5). If there is order and hierarchy among beings, it is an 'order of love' *(ordo amoris)* (*civ.* 15.22). A difficulty with human beings is that, whereas their relations with one another are temporal, they are not just temporal beings. Augustine's vision of the afterlife for those saved is of a heavenly community of God and the saints: thus loving (or enjoying) one another in God becomes a frequent expression in his attempts to escape from problematic consequences of the application of the use-enjoyment category to human relations (*doctr. chr.* 1.36–7; *trin.* 9.13).

Augustine appropriates the Greek philosophical principle that what is especially valuable about truth and knowledge is that they cannot be lost involuntarily (*mor.* 1.5). He understands the principle in terms of love, rather than merely of choice (*trin.* 13.7–11). This is in part because, in thinking about truth, he is thinking about a person, God, and our relation to that person. But the principal reason why he talks of love in this context is to be found in his psychology. It is commonplace in Augustine that what I do depends upon what I love, not merely in the sense of what I value, but above all in the sense that I act in accordance with a settled inclination (*conf.* 13.10; *civ.* 14.7). Acting in accordance with a settled inclination is, for him, acting voluntarily in the strict sense. He finds no place for the Aristotelian view that *enkrateia* (self-mastery) may involve acting voluntarily and morally despite inclining to the wrong things. For Augustine it is not possible to love and value the wrong things and at the same time to choose what is right (*conf.* 8.19–24). Loving the right things is a question of character, not just of rational insight.[24]

Loving something is a necessary condition of willing it: sometimes Augustine suggests that it is tantamount to willing it. Loving the right things for the right reasons is a pre-condition of acting well. Loving the wrong things, or the right things for the wrong reasons, leads to evil actions. Reacting against the Manichaean belief that evil is a substance or a nature in the universe and in ourselves, and also to some extent reacting against the Plotinian view that metaphysical evil (matter or bodies formed in matter) somehow helps to determine moral evil,[25] Augustine argues that whatever exists is, *qua* created by God, good in some degree (*civ.* 19.13). If things ceased to be good in any sense, they would cease to exist. On this principle things are relatively evil to the degree that they lack goodness. Evil is privation of good, but not in an absolute sense. This is not necessarily a moral distinction: a stone has less goodness than a mind, but I cannot speak of the stone's moral status. Evil in the moral sense is, Augustine suggests, the fact or consequence of willed evil action, chosen by

a mind (angelic or human) that remains essentially good, whose nature is good (*civ.* 12.1–9). Persons are, strictly speaking, not evil: actions may be.

If love determines action and is a symptom of character, self-love is the source of sin: more specifically, the source is pride, understood as a refusal to accept subordination to God, to acquiesce in one's place in the hierarchy of beings. In Platonist terms, this is a 'turning away' from God to self-absorption *(sibi placere),* a failure to understand the relationship between God and humans. Adam's fall results from the delusion that he is an autonomous being. His sin is a 'perverse imitation of God' (*conf.* 2.12–14; *civ.* 12.6–8; 14.12–14).

Virtue is defined in terms of order (*doctr. chr.* 1.28; *civ.* 15.22). In the early *De beata vita,* Augustine understands the virtues to possess a kind of measure that is without either excess or defect (*beata v.* 30–3). In that work he suggests that the attainment of wisdom by the sage entails possession of the virtues. In his later writings he is less sanguine about the perfectibility of human nature in this life. Life is a continuing struggle with vices; virtue is not a stable, attainable state (*civ.* 19.4). The virtues control but do not extirpate emotions. Augustine recognizes the traditional four cardinal virtues (*mor.* 1.25; *div. qu.* 31). Virtue is a form of love (*mor.* 1.25, 46), primarily of God, but also of other humans. Justice is 'giving God his due' (*civ.* 19.21) as well as loving one's neighbour. The practice of the virtues expresses the inherently social nature of humans: we are naturally members of societies (*civ.* 12.22; 19.12; *ep.* 130.13). Augustine subscribes to the natural law theory (*div. qu.* 53; *spir. et litt.* 48). Our awareness of the natural law derives from self-love, or the instinct for self-preservation, and it extends (as does the Stoic concept from which it derives) to a realization of the need for justly regulated relations with others (*civ.* 19.4; *doctr. chr.* 1.27). Primarily, this realization is a form of the Golden Rule[26] in its negative version 'Do not do to others what you would not have others do to you' (*ep.* 157.15; *en. Ps.* 57.1; *Io. ev. tr.* 49.12). Augustine gives the natural, or, as he often calls it, eternal law the status of a Platonic Form inasmuch as he says of it, as he says of the Forms, that it is 'stamped on our minds' (*lib. arb.* 1.50–1; *trin.* 14.21; *ser.* 81.2). Strictly speaking, the laws of human societies should be framed in accordance with divine eternal law (*vera rel.* 58), but it is political authority, rather than strict conformity to natural law, that gives validity to positive law (*ep.* 153.16; *civ.* 19.14). Only those human laws that are explicit contraventions of divine commands may be disobeyed, and Augustine's understanding of what constitutes divine commands is specific: they are commands directly revealed in Scripture, such as the prohibition of idolatry (*doctr. chr.* 2.40, 58; *civ.* 19.17; *ser* 62.13). Augustine is otherwise reluctant to assert as a principle that individuals may decide for themselves whether an individual temporal law is just or unjust, even if promulgated by an unjust ruler or without reference to the natural law. One obvious exception is a law that might sanction something contrary to nature (Augustine's example is

sodomy (*conf.* 3.15–16)). Other laws (for example, about monogamy or polygamy) merely reflect the customs of different societies (*conf.* 3.12–13; *c. Faust.* 22.47). Hence there is scope for great differences in the laws of different societies.[27]

The peace which is the highest good is also the proper aim of human societies. They should aspire to practise justice, to be stable, to be equitable in their dealings.[28] In practice, this is often only realized by coercion, punitive measures, and harsh exercise of authority: Augustine finds this appropriate to our fallen human nature, vitiated as it is by original sin. Controlling humans driven by greed, pride, ambition, and lust calls for a rule of law that, at best, contains vestiges or traces of authentic justice (*Simpl.* 1.2.16; *trin.* 14.22). Certain features of his society—private property and slavery, for instance—Augustine regards as consequences of the Fall, not, strictly speaking, natural, at least not natural to our pristine created selves (*civ.* 19.15–16; *Io. ev. tr.* 6.25–6). In general, Augustine insists that it is the proper use of wealth and possessions that counts. He proffers no moral critique of the economic or social institutions of his society. Misuse of wealth is wrongful possession of it, not in the legal sense (unless the misuse is also criminal), but in the moral sense that, in strict justice, the individual has forfeited his right to a material good (*ep.* 153.26; *ser.* 113.4; *en. Ps.* 131.25). Renunciation of property and wealth is part of the ascetic ideal, but it is the desire for unnecessary wealth, rather than the possession of wealth, that is immoral. Curbing desires is a central function of political authority, and it often has to take the form of merely restricting the harm that those who misuse the world's goods would do: Augustine takes a sanguine view of government, which will not be required in the ideal state of heaven, where the tranquillity of order that is only realized by the rule of law in earthly societies (and only infrequently) will be realized spontaneously by the community of saints (*civ.* 19.11, 13–14; 22.30).[29]

One social institution which Augustine defends is matrimony. His defence argues that it is not merely for the procreation of children but also to provide fellowship for the partners (*b. coniug.* 3). But a state of sexual abstinence is preferable. Augustine's one argument for this view revolves around his understanding of sexual arousal. He has many grounds for championing abstinence as the supreme form of ascetic renunciation,[30] but they usually reflect his attitude to sensuality in general and control of emotions in particular. The argument concerning sexual arousal is that it is involuntary, not subject to the will or consent (*civ.* 14.16, 24; *ep.* 184A.3). It seems to be an exception to the rule that other bodily organs can be activated by the will, with or without emotional stimulus, indeed require some kind of willing in order to operate. But sexual arousal happens without the will's consent, and neither can it be aroused at will. Even when desire has fired the mind after arousal (and so some kind of willing has occurred), the sex organs may fail to be responsive. Augustine considers this to be a consequence of original sin, and can envisage a pre-lapsarian

form of sexual activity that is controlled by the will. His Pelagian adversary Julian of Eclanum argues that sexual desire is not merely necessary for copulation but also natural and in itself morally neutral (*c. Iul. imp.* 1.70–1; 3.209). But why are anarchic genitals so bad? What distinguishes sexual arousal from, say, sneezing or coughing?

Augustine seems to argue that what distinguishes it is its power over both body and mind: it overwhelms a person emotionally, physically, and mentally. This he finds sinister. There is, by implication, no emotion which cannot be brought under the control of reason, but sexual arousal is impervious to reason and to will (*civ.* 14.16). Augustine's other arguments —such as the sense of shame attending sexual desire and acts—cannot explain why sex is tainted. But he finds that sexual arousal occurs even in the dreams of those who, like him, have devoted themselves to a life of continence, and that in dreams he seems to consent to sexual acts that his waking self repudiates. He argues that this cannot involve any moral responsibility, but feels that such dreams are a symptom of his imperfect moral status, as well as being yet another indication that the sex instinct is beyond our conscious control (*conf.* 10. 41–2; *Gn. litt.* 12.15.31).[31]

In several areas of ethics where Augustine's ideas are not necessarily original he exerted, because of his authority and the wide dissemination of his views, a considerable influence. This is the case with what he says about the ethics of warfare, which does not advance much beyond Cicero (*civ.* 1.21; 4.15; 19.7; *ep.* 189.6; 229.2; *c. Faust.* 22.75),[32] or his views about suicide, which contain the arguments that we do not dispose of our lives (a Platonic argument) and that killing oneself is a kind of cowardice and of despair, the triumph of emotion over reason (*civ.* 1.17–27; *ser.* 353. 8).[33]

Augustine's Platonism makes him equate the beautiful with the good. The God whom we love is the supreme beauty which we desire (*conf.* 7.7; 10.8, 38; *sol.* 1.22; *trin.* 1.31; *civ.* 8.6, 11.10; *ser.* 241.2; *en. Ps.* 44.3). Beauty consists of a numerically founded form or relation whose sensible manifestation is a reflection of a higher, immutable divine 'reason'. Beauty's structure is rational and accessible to the judging mind (*ord.* 1.18, 2.33–4; *mus.* 6.30, 38; *Gn. litt.* 3.16.25). But the formal beauty of the arts is to be transcended no less than natural beauty, and all perceptible beauty is an 'admonition' to mind to ascend to a spiritual plane where intelligible beauty is one with truth and wisdom (*conf.* 7.23; 10.9; *vera rel.* 101). In his creation account, Augustine uses the craftsman-analogy: God is the true artist and the universe is an artefact whose perfection is both numerical and hierarchical (*civ.* 11.18, 21–2; 12.24–5; *Gn. c. Man.* 1.25). If we could perceive the whole, we would realize that evil in the universe does not detract from its overall goodness, and that the presence of antitheses and contraries in it may enhance its beauty (*ord.* 1.18; *conf.* 7.18; *civ.* 11.18, 22; 12.4). Augustine recognizes the temptations inherent in aesthetic pleasure, as in any pleasure. He perceives, for example, that piety and

fervour can be nourished by church music, but that the senses may sometimes usurp the place of reason when we delight in song (*conf.* 10.49–50). Once more, it is a question of proper use of a lesser good. To delight in the beauty of the universe for its own sake, even if the delight is intellectual rather than sensual, is to confuse reflected goodness and beauty with the truly and perfectly good and beautiful. This would be a failure to know the Good and to love God. It would also, Augustine believes, leave us dissatisfied, our potential for the perfecting of our natures unrealized.[34]

6
THE WILL

Augustine's concept of the will[35] and defence of free will rest on the paradox that God determines our wills when we will the good, but that such willing is nonetheless free choice, for which we are responsible. This applies as much to Adam before the Fall as to humanity's postlapsarian state. Divine help for Adam in paradise was a necessary, but not sufficient condition of his free choice of the good, and neither was freedom of choice sufficient. Only divine grace and human free choice together are sufficient for attaining the good (*civ.* 14.26; *corrept.* 28–34). Augustine argues, puzzlingly, that Adam, and all created beings, have a tendency to choose evil rather than good because they are created out of nothing and are possessed of an ontological weakness that does not entail their sinning but makes it possible that they will choose evil (*civ.* 12.6; 14.13; *c. Iul. imp.* 5.3).

In an early work, the *De libero arbitrio,* Augustine describes the faculty of free will as a middle good whose activity is necessary to virtue: the neutral will can be used either rightly or wrongly, it is morally indifferent (*lib. arb.* 2.50–3). But as his thought develops, Augustine argues for the concept of a will that is morally determined, that is good or evil depending upon the value of what is willed. This is in part a reaction against Pelagian views. Pelagius describes human choice as a 'power to take either side', neither good nor evil *per se:* 'in the middle'. Augustine denies that the same will can choose good and evil. Will is either good or evil, or, more accurately, the power of free choice *(liberum arbitrium)* of the will *(voluntas)* may be exercised in a good or an evil way (*lib. arb.* 2.1). The Pelagians had a strong case when they argued that Augustine's views in *De libero arbitrio* were akin to theirs (*retr.* 1.9; *conf.* 8.19–21; *pecc. mer.* 2.18–30; *spir. et litt.* 58; *gr. et pecc. or.* 1.19–21).

Will for Augustine is a mental power or capacity, like memory, but because it is morally qualified it reflects a person's moral standing in a way that memory cannot. As well as referring to a good or bad will in the singular, Augustine talks of two or more wills in us, where there is moral conflict: in this latter case, our wills are the range of possible courses of action open to us (*lib. arb.* 2.51; *conf.* 8.19–21; *gr. et lib. arb.* 4).

If God determines my good will, how can I be free? Augustine believes that the fact that God has foreknowledge of my will does not determine that will, for God's knowledge (strictly speaking, not foreknowledge) is timelessly eternal (*Simpl.* 2.2.2; *civ.* 5.9; 11.21; *praed. sanct.* 19). Divine omniscience is compatible with free choice of the will. Yet predestination to salvation is actively caused by God. Augustine argues that this does not make us passive recipients of divine grace. The notion of 'compulsion of the will' is to him an absurd one (*c. Iul. imp.* 1.101; *c. ep. Pel.* 2.9–12). Willing entails the power to do X through, and only through, the means of willing X. Augustine's psychology is based upon the belief (which he derives from analysis of our behaviour) in the centrality of concentration or attention *(intentio)* in all mental processes. The mind is activated by the will, not in the sense of one faculty or 'part of the soul' affecting another, but inasmuch as we cannot perceive, or imagine, or remember without concentrating or paying attention or willing to do so. Thus grace may only become operative in humans when the will is attracted to the good. For the will is always goal-directed, and will entails assent. Willing is a form of action, not a reaction to external stimuli (*gr. et lib. arb.* 32; *c. ep. Pel.* 1.5, 27). If divine grace is irresistible, this does not entail that grace compels us. People are 'acted upon that they may act' (*corrept.* 4). It is seems impossible to argue that this is not determinism. What Augustine is stressing is that consent is necessary to the *modus operandi* of the will's reception of grace.

Augustine's arguments against Pelagius' description of human choice as 'a power to take either side' is based upon the observation that it posits the same cause (the indifferent will) of opposite effects (*gr. et pecc. or.* 1.19–21). Augustine appears here to reject the so-called 'freedom of indifference' of the will. His position seems to be closer to freedom of spontaneity, where absence of force or compulsion, rather than absence of external causation, is characteristic. Will is not self-determining, yet humans are not accurately to be described as being instruments of God's will. Thus the Stoic example of the dog tied to, and dragged by, the cart (*SVF* II 975 [7.2]) cannot apply to Augustine's understanding of spontaneity. Freedom is not merely acquiescence in God's activity, but rather the exercise of a human faculty that involves both consent and power to act, or to initiate action. Both in his account of Adam's freedom in paradise and in his early version of his freewill theory in *De libero arbitrio* Augustine subscribes to the liberty of indifference account; but it is not applicable to fallen humanity. However, the fallen human being possesses both the ability and, it may be, the opportunity, to act otherwise, even though that ability is not, in fact, exercised when the will is determined by the good. Exercising the ability to commit sin is not, of course, an exercise of freedom of the will for the mature Augustine. Rather, it is an instance of the enslavement of the will to evil, from which only divine grace can liberate it. If freedom to sin is a form of slavery, then willing and obedient slavery to the will of God is true

freedom (*ench.* 30). On the other hand, sin is the price of having free will, and having free will is a necessary condition of acting rightly. Sin is the price of freedom, because freedom entails absence of compulsion. This is Augustine's version of the free will defence (*ench.* 27; *lib. arb.* 2.1–3).[36] It reveals why defence of free choice of the will seems to be so important to Augustine. Heavenly rewards (and hellish punishments) make no sense if they are not a consequence of acting rightly (or wrongly), even if God is the author of our virtuous actions. The argument does not explain satisfactorily why God tolerates sin. Augustine's characteristic strategy here is to concede that nothing happens 'apart from God's will', even those things, like sin, that happen 'against God's will' (*ench.* 100). God lets us sin, but does not cause us to do so. But it is difficult, on these premises, to avoid the consequence that God is responsible for sin, in the sense that he is responsible for states of affairs brought about voluntarily, if not intentionally, by him. The distinction between causing and permitting seems impossible to maintain.[37]

God's grace precedes (in Augustine's terminology) acts of the free will. God makes good decisions possible, but also causes them, for grace is irresistible. Prevenient grace is more than merely enabling, nor is it a form of co-operation between God and humans. Rather it is operative. Again, the question arises: can a decision caused by God be free? Augustine's answer is the one discussed above. God causes the reception of his gifts by the mechanism of human consent. But since God's will is never thwarted, it is as true to say that what happens as a consequence of divine will happens by necessity, as it is to maintain that human realization of good behaviour is an instance of human freedom. 'God cannot will in vain anything that he has willed' (*ench.* 103), and the human being whom God wills to save cannot be damned. But neither will such a human being be saved against her will.

7
SOUL

Augustine's concept of soul as an immaterial, naturally good, active, inextended, and indivisible substance owes much to his Neoplatonist readings. It is also likely that Porphyry is a major source of his knowledge of the contents of Plato's *Phaedo, Phaedrus,* and *Timaeus.* Scripture and the Christian tradition provide Augustine less with a concept of soul's nature than with texts requiring exegetical elucidation by means of Platonist psychology, and attempts at philosophical exegesis which he rejects, such as Tertullian's corporealist theories and Origen's arguments for pre-existence, embodiment as punishment for sin, and reincarnation.[38]

Soul is the life-principle, and to various kinds of life—vegetative, sentient, intelligent—correspond degrees of soul (*civ.* 7.23, 29; *en. Ps.* 137. 4). The awareness that we are alive is awareness that we are, or have,

souls: Augustine argues that we are empirically conscious of the fact that we have a soul, even if we do not perceive soul with any of the senses (*beata. v.* 7; *trin.* 8.9). The single soul in humans has rational and irrational faculties: the latter include the powers of impulse, sense-perception, and certain kinds of memory, and they can be disturbed by the passions. It is the function of the rational soul (and mind is a part of soul) to control the irrational element (*civ.* 5.11; 9.5; *en. Ps.* 145.5). There is an inescapable moral dimension in Augustine's accounts of the levels of soul, and it is linked to the Neoplatonist concept of soul's conversion to the Good, seen in terms of an ascent from the corporeal and percipient levels, through those of discursive reason and moral purification, to the intellection of the highest principle by a mind that is morally and mentally prepared for understanding. This conversion or return makes good the 'turning-away' from divine wisdom and interiority that characterizes sin: rejecting the distracting multiplicity of what is external, it discovers the divine within us (*imm. an.* 12, 19; *ord.* 1.3; 2.31; *conf.* 2.1; 7.23; 13.3; trin. 8.4; 10.7; 14. 21).

Soul, the principle of movement in bodies, is itself a self-moving principle: my consciousness of my self-movement is my consciousness of my power to will (*div. qu.* 8). Soul's movement is not local, nor does it entail substantial change, but impulse and will often result in bodily movement (*ep.* 166.4; *quant. an.* 23). Rejecting all corporealist theories of the soul's substance, Augustine engages in polemic against them, be they Epicurean, Stoic, Manichaean, or Christian. Examination of the nature of soul's activities rules out even the most subtle of corporeal soul-substances. Memory and imagination are not subject to the physical law that corporeal likenesses correspond in size to the bodies in which they are reflected, like the image in the pupil of the eye. Perception, concentration, and volition are indicators of immateriality, as is the mind's power of abstraction and intellection of non-corporeal objects, such as geometrical figures (*quant. an.* 8–22; *Gn. litt.* 7.14.20; 7.19.25–20.26). Although physical and mental powers appear to develop concomitantly in growing humans, there is no strict correlation between their development, still less any evidence that soul physically grows or diminishes (*quant. an.* 26–40). Augustine is nonetheless aware that it is paradoxical to maintain that soul is present as an entirety throughout the body and is yet inextended and indivisible. It is omnipresent not in a spatial sense, but as a 'vital tension' *(vitalis intentio),* which, for example, enables it to perceive in more than one bodily part simultaneously (*imm. an.* 25; *quant. an.* 26, 41–68; *ep.* 166.4).

Soul is mutable: that makes it substantially different from God's unchangeable nature (*conf.* 7.1–4). As a Manichee, Augustine had believed that the good human soul is part of the divine, and he sees Stoic pantheism as leading to the same conclusions (*duab. an.* 16; *vera rel.* 16; *civ.* 7.13, 23). The soul is subject to various kinds of mutability. Learning, the affections, moral deterioration and progress, all effect changes in the soul

(*imm. an.* 7). Soul exists in a temporal medium in which it can and must change. It is maintained in its continued existence by God's will (*div. qu.* 19; *ep.* 166.3; *trin,* 4.5, 16, 24). To characterize soul's changeability Augustine uses the Aristotelian distinction between a subject and qualitative changes in that subject which do not entail substantial change in it (Aristotle, *Categories* 2). For the soul's identity persists through change. In fact, the necessarily unchangeable nature of certain kinds of knowledge entails the substantial identity of the mind in which, as in a subject, such knowledge is present. Augustine regards this as proof of the soul's immortality (*imm. an.* 5, 7–9; *sol.* 2.22, 24). He also argues for its immortality from its equation with life. If being alive is the defining characteristic of soul, soul cannot admit the contrary of life and so cannot cease to live (*imm. an.* 4–5, 9, 12, 16; *trin.* 10.9): this is the final argument for the soul's immortality in Plato's *Phaedo* (102a-107b). Augustine believes that the irrational human soul is also immortal, and that we have both memory and feelings in the afterlife (*civ.* 21.3; *Gn. litt.* 12.32.60–34. 67). The soul, like God inasmuch as it has a similar creative and rational domination over subordinate creation, cannot, in its nature, be evil. It is a corruptible good, occupying a medial position between God and bodies. Its position on the scale of being and its moral standing should coincide. Pride, a desire for self-mastery in an order where the soul is not the master, degrades it morally to animal level (*conf.* 7.18; *civ.* 19.13; *en. Ps.* 145.5; *ep.* 140.3–4; *trin.* 12.16). But this degradation can only be understood in a metaphorical sense. Augustine repudiates Manichaean and Platonist doctrines of transmigration of human souls into, or from, animal bodies, agreeing with what he takes to be Porphyry's rejection of the view that a rational soul, whose reason is not accidental but belongs to its substance, could become the essentially different irrational soul of an animal, or vice versa (*civ.* 10.29–30; 12.14, 21, 27; 13.19; *Gn. litt,* 7.10.15–11.17).

The incorporeal soul cannot be a condition of the body, such as its harmony or the proportion of its parts (*imm. an.* 2, 17; *Gn. litt.* 3.16.25; 7. 19.25). Yet soul is entirely present in every part of the body, and its various activities and conditions point to a symbiosis in which body and soul influence one another (*ep.* 9.3–4). Soul is mixed with body in a way that allows each element to maintain its identity, as in the mixture of light and air (*ep.* 137.11; *Gn. litt.* 3.16.25). The 'vital tension' (*ep.* 166.4) by which soul is present to body has also a volitional dimension (*mus.* 6.9; *Gn. litt.* 8.21.42). Augustine is aware of the Platonist view that, even when not embodied, souls may inhabit a vehicle, but doubts the truth of the theory, considering pure spiritual existence to be possible, even if he also believes in the future resurrection of the body: it is natural for souls to govern bodies (*ep.* 13.2–4; *Gn. litt.* 8.25.47; 12.32.60; 12.35.68).

On two traditional problems Augustine remains agnostic: the origin of souls, and the existence of a world-soul. On origins he vacillates between the view that souls are propagated by parents, like bodies, and the theory

that they are created directly by God as each individual is conceived. The former is difficult to explain, the latter seems to compromise the completeness of God's creation. Augustine considers various forms of pre-existence theory, including the view that all souls are created individually in the moment of creation, and embodied at different times. But his discussions remain inconclusive, just as he remains uncertain about the moment when the foetus is animated (*lib. arb.* 3.56–9; *Gn. litt.* 6; 7; 10).[39] Hevacillates on the question of the world-soul because he finds it plausible to believe that the ordered and cohesive universe owes its continued existence to the presence of a cosmic soul. He objects to particular consequences of world-soul theories (dual good and evil cosmic principles, as in Manichaeism; Stoic views on the world as the body of a divine mind) rather than the theories as such, and is benevolent towards what he takes to be Plotinus' position, that cosmic soul is created and illuminated by a transcendent divine principle. But his tentative conclusion is that the universe is an inanimate body full of stratified soul-kinds (*imm. an.* 24; *ord.* 2.30; *civ.* 4.12, 31; 7.5–6, 23; 10.2, 29; 13.16–17).[40]

When Augustine analyses human behaviour, he recognizes that impulse or assent *(appetitus)* is the cause of action, whether it is the impulse of self-preservation, or motions of appetency or avoidance or simply the motor of a proposed course of behaviour (*div. qu.* 40; *ep.* 104.12; *civ.* 19.4; *trin.* 12. 3, 17). Augustine's views on impulse and assent are crucial to his account of the will. The links between impulse, assent, will, and desire are fundamental in his psychology: to eradicate desire is impossible, and desire can be for good things—knowledge, happiness, God (*lib. arb.* 3.70; *div. qu.* 35.2; *civ.* 10.3; *conf.* 13.47). Assent is good if it results in moral behaviour, if desire is directed towards appropriate goals, and for the right reasons. It is the same with the emotions. They are expressions of the irrational faculty, and forms of intention. They should be controlled by reason and used properly. They are an inescapable feature of our condition: Augustine does not believe in the existence of a dispassionate soul (*civ.* 9.4; 14.6–10).

Augustine's insistence upon the value of introspection, both as a means of discovering the truth and as a condition of moral purification (*vera rel.* 72; trin. 9.4; 10.2–15), leads him to talk of senses of the soul, of inner senses, inner speaking, and—using a Pauline analogy (Romans 7:22–3, etc.)—of the 'inner man' (*ser.* 126.3; *Io. ev. tr.* 99.4; *civ.* 13.24). Augustine supposes that such locutions are about our souls or our minds, and that the phenomena which they describe entail mind-body dualism. But they do not. They may describe the contrast (or consistency) between model cases of human behaviour and how we actually behave, or they may refer to dissembling or insincere behaviour.[41]

In Christological and Trinitarian contexts Augustine speaks of the concept of a person, whether he is talking about the unity of *Christ's persona,* despite his human and divine natures, or about the relation

between the three persons of the single substance that is the Trinity (*trin.* 7. 7–11; *ep.* 137.11; *Io. ev. tr.* 19.15). Sometimes he equates the person with the self, as distinct from the emotional or mental powers or activities (*trin.* 15.42), or as the subject of personal attributes. But his conclusions do not lead to any concept of personality as distinct from traditional views of what it is to be human. The distinction between person and substance in his Trinitarian theology, and the relational aspect of his definition of person there, are not exploited in his account of human psychology.[42]

8
SENSE-PERCEPTION AND IMAGINATION

Augustine's theory of sense-perception has a physiological bias. Like Plotinus, he exploits the discovery of the nervous system by Alexandrian medicine (Plotinus 4.3.23; see Solmsen [12.106]). The sensory nerves transmit stimuli to the brain from the various sense-organs. The nerves contain soul *pneuma* as a means of communication between brain and senses (*Gn. litt.* 7.13.20; 7.19.25). Augustine co-ordinates this belief with other traditional philosophical accounts of perceptive processes, such as the ray theory of vision (*trin.* 9.3; *ser.* 277.10). The senses are not reflexive, and awareness of their activity is a perception of the internal sense (which corresponds to Aristotle's *koinê aisthêsis*), which controls and judges sensations (*lib. arb.* 2.8–12). Sensation is a form of motion or change. Augustine believes that it is a motion running counter to the motion set up in the body by sensory stimuli (*mus.* 6.10–11, 15). Sentience is the product of the interaction of two movements of qualitative change. Most likely it is the *soul pneuma* that is set in motion in this process. Because of the presence *of pneuma* in the sensory nerves, they are themselves sentient. The perceiving subject, soul, is entirely present in them, and is not merely located in a central receptive organ with which they communicate in a non-sentient way (*imm. an.* 25; *c. ep. fund.* 16.20).

But if sensation has a physiological mechanism, perception is nonetheless a psychological process. The body-soul interaction in perception is a kind of tempering by mixture *(contemperatio);* its mental aspect is called concentration *(intentio)*. In vision, for example, the visual ray is the necessary physical counterpart of mental concentration. *Intentio* is an activity, the active concentration of soul power: perception is exercised upon the sensory stimulus rather than being a passive reception of the latter (*quant. an.* 41–9; *mus.* 6.7–11; *trin.* 11.2; *Gn. litt.* 7.20.26; 12.12. 25; 12.20.42). Body does not act upon soul: 'perception is something directly undergone by the body of which the soul is aware' (*quant. an.* 48). Augustine extends the notions of concentration and counter-motion to his accounts of feelings like pleasure and pain (*mus.* 6.5, 9, 23, 26, 34–58).

The awareness implicit in any perceptive process is underpinned by the instantaneous operation of memory. A series of memory-impressions is

stored in the mind in the course of even the shortest perception, and this process is essential to the functioning of perception (*mus.* 6.21; *Gn. litt.* 12. 11.22). Some texts of Augustine dispute that perception gives us any knowledge of the external world, suggesting that there are no characteristics of our sense-perceptions that enable us infallibly to distinguish between true and false (*c. Acad.* 3.39; *div. qu.* 9). But many other texts make claims for our ability to know the external world, the kind of knowledge that Augustine calls *scientia,* contrasting it with *sapientia,* the knowledge of eternal and immutable truths (*trin.* 12.16–17, 21; 15.21). Even optical illusions have a kind of consistency (*c. Acad.* 3. 36). Augustine maintains that if our perception of an object is comprehensive and our faculties are functioning normally, reliable information may be acquired about the external world (*ep.* 147.21; *civ.* 19. 18).

Sense-perception is perception of images of objects, not of the objects themselves, and these images are not corporeal. Like Aristotle (*De anima* 2. 12), Augustine argues that perception is the ability to receive forms without matter (*quant. an.* 8–9). Moreover, perception is the perception of like by like. There is an affinity between the percipient's reason and the image or form of the object perceived, and it is this affinity which makes perception possible as well as reliable (*ord.* 2.32–3; *trin.* 11.2, 4, 26). Now the objects of perception are themselves formed by the Forms or Reasons or Ideas in the mind of God, to which they owe their existence (*div. qu.* 23, 46). In sense-perception these Forms function as standards *(regulae)* accessible to our minds whereby we may distinguish between the truth and falsity of the images conveyed by perception (*vera rel.* 58; *trin.* 9.9–11). When the mind errs in its evaluation of perceptions it does so because it applies itself to the phenomena in question in some deficient way: access to the Forms is no guarantee of infallibility in perception (*Gn. litt.* 12.25.52). Assembling of evidence and common sense will prevent mistakes being made: Augustine believes that we are capable of establishing working distinctions between reliable and illusory perceptions. Strictly speaking, perception does not convey certainty, but empirical processes operate on the basis of a distinction between true and false, and there is a 'truth appropriate to this class of things' (ibid.). That this is so is due to our access to the transcendent criterion, the Form, because of divine illumination of our minds (*sol.* 1.27; *trin.* 9.10–11).

The reproductive exercise of the imagination (often called *phantasia* by Augustine) depends on remembered images that are reactivated, but so does the creative activity of imagination (often called *phantasma* by him) (*mus.* 6.32; *trin.* 8.9; 9.10). Imagination may be willed and subject to our control, but not necessarily so. Creative imagination is a process of contracting and expanding the images of what we have perceived, or of combining or separating their data (*ep.* 7.6; *trin.* 11.8). In such cases concentration or will is operative (*trin.* 11.6–7). But there are imaginative

processes that seem to be involuntary, such as dreams and hallucinations. Augustine adds to this category prophetic inspiration, arguing that some dreams are also prophetic. Dreaming is imagining, often on the basis of images derived from the day's preoccupations, and it is beyond rational control (*Gn. litt.* 12.18.39; 12.23.49; 12.30.58). Thus consent to sinful actions in dreams is not morally reprehensible although it is the case that our dreams reflect our moral character (see section 5). In dreams the creative imagination is more usually in operation. But not all dreams or visions are entirely dependent upon our mental powers. Augustine recognizes external agencies, divine, angelic, or demonic, and is curious to explain a wide variety of paranormal phenomena in terms of the imagination (O'Daly [12.46] 118–27). In such cases a reciprocal influence of body and soul upon one another is often discernible (*ep.* 9.3–4; *Gn. litt.* 12.13.27; 12.17.37–8).

Anticipation of intended actions is an activity of imagination, as is the prediction of future events, and both of these processes depend upon experience and the creative manipulation of images (*conf.* 10.14; 11.23–4, 26, 30, 36–8; *trin.* 15.13; *Gn. litt.* 12.23.40).

Augustine is also interested in the pathology of the imagination, where some physical disruption of the link between brain and sensory nervous system occurs. In such cases concentration takes place, but because it cannot function normally, it generates images in a wholly introspective way. Or the disturbance may be in the brain itself or in the sense-organ. The hallucinatory states which ensue have something in common with dreams (*Gn. litt.* 12.12.25; 12.20.42–4).

There is no single influence upon Augustine's accounts of sense-perception and imagination. The Stoic concept of *sunaisthêsis* lies behind his definition of perception, as it does behind Plotinus' account. There are Neoplatonist traces in his concept of internal sense. But he is not reproducing other men's doctrines.[43]

9
MEMORY

Augustine argues that memory is indispensable to our perceptions of spatiotemporal continua and to the exercise of the imagination. But how are memory-images formed? The series of images stored in the mind in the course of every perception is not merely essential to the process of perception itself, but also to the recollection of perceptions (*conf.* 10.12–15; *quant. an.* 8–9; *Gn. litt.* 12.16.33). Incorporeal sense-impression leads to incorporeal memory-image, and memory depends upon and corresponds to perception in quality, quantity, and kind (*trin.* 11.13, 16; *c. ep. fund.* 16. 20). But memory-images are not formed spontaneously. They are willed, a consequence of concentration. And if memory, like expectation, is a prerequisite of deliberate action, concentration is the necessary link

between memory and expectation, if the moments of such action are to cohere (*imm. an.* 3–4; *trin.* 11.15).

In his account of the process of remembering Augustine applies the analogy with sense-perception. The will directs the mind towards the memory's contents, and the mind's vision is formed by memory-images. Recollecting is perceiving memory-images: it actualizes memory-traces (*mag.* 39; *trin.* 11.6). However, this model of the memory process is only fully satisfactory as an account of how we remember sense-perceptions, and, in addition, it only serves as an analogy between types of mental activity (perceiving and remembering), not between the objects of these activities. The images perceived in sense-perception are those of objects actually there and perceptible by other percipients. The truth-value of the images is verifiable. But Augustine has a difficulty with memory-images of perceptions, for they are images of things absent, no longer there in the state in which they were perceived. Augustine suggests that they must have evidential character as 'proofs *[documenta]* of previously perceived things' (*mag.* 39), but, strictly speaking, only for the percipient: their verifiability remains problematic.[44] Augustine does not offer a direct solution to this dilemma. But elements of his solution may be constructed from his account of the functional relations between words and images. That he must envisage a solution is evident, for memory is essential to every type of knowledge claim, including claims about the objects of sense-perceptions.

What we perceive is an articulated image, a rational structure which has an affinity with our minds, and is stored in our memory as a form of knowledge. When we wish to reactivate this knowledge by directing our concentration upon it, we generate an 'inner word', co-extensive with the memory-image. The image appears to be stored in the memory pre-verbally, as a word-potential (*trin.* 8.9; 15.16, 19–22). The linguistic metaphor here employed, and the reason for its employment, are clarified by Augustine's remarks about the understanding and retention of the meaning of words (*dial.* 5). The meaning *(dicibile)* grasped by the mind is also a word-potential, capable of being expressed in language. But meaning is always present to the mind in a verbal manner. Also, it may have a general semantic function: the meaning of 'city', if understood, enables me, not merely to recall or recognize known cities, but also to identify new cities and classify them, and so on. Identifying, understanding, naming, and recalling are inextricably linked. Not every perception must be accompanied by overt naming of the object perceived, but naming is usually at least implicit or expected. The metaphor of the 'inner word' recognizes this. But Augustine also feels that he can best elucidate the mechanism of perceiving, storing, and recalling by the linguistic illustration: grasping a word's meaning, storing it as a *dicibile,* and expressing it. Recalling my memory-image of an object is like actualizing the semantic content of a known word, it is like bringing its meaning to mind. What this

analogy emphasizes is the coherence and objectivity of our recollected perceptions: memory claims are meaningful.[45]

Augustine does not apply this solution to the problem of the verifiability of memory-images. But the implication of his argument is that, if sense-perception leads to knowledge of the external world, memory is the storing of such knowledge. Verifying memory-claims may involve deciding whether another person's claims are worthy of credence on grounds of inherent plausibility: it involves deciding what I should believe, and for Augustine belief is a form of knowledge (see section 3).

Augustine extends the mental-image theory to one other type of memory, that of past emotions, but he does so tentatively (*conf.* 10.21–3). For recalling a past feeling need not entail re-experiencing that feeling, whereas the memory-image of a past perception conveys some distinctive quality of what is remembered. Augustine adduces his famous metaphor of memory as the mind's 'stomach' (*conf.* 10.21), taking in but transforming different emotions. But he is clearly not at ease with the application of the mental-image theory to this kind of memory, chiefly because the ideas of past feelings have not been perceived by any of the senses, but are derived from the mind's introspection of its own experiences. However, if he were to claim that they can be recalled without an image, he would be making a claim about them that is made for recalled ideal numbers, scientific principles, and Forms. Affections may be mental phenomena, but we can recall them only because we have experienced them, unlike numbers, principles, and Forms. Against the trend of his argument Augustine concludes that memories of past f feelings are more like memories of past perceptions than the privileged category of remembering that does not require images.

Augustine puts forward a criterion for establishing that something is in the memory. If I can name P and recognize what the name P refers to, I remember P (*conf.* 10.23). He applies this criterion to the fact of forgetting (*conf.* 10.24–5, 27–8). But how can I actualize forgetting in my mind without, in fact, forgetting? Augustine first suggests that the image theory may solve the problem: recalling forgetting may be like recalling a past feeling, and I must not actually experience forgetting every time I recall it. But he is not satisfied with this suggestion, and embarks upon an alternative argument. When I forget the name of a person I know, both my rejection of wrong names and my recognition of the right name, when I recall or am told it, are possible only because I have not entirely forgotten it. Remembering forgetting is related to an object: it is remembering that I have forgotten something. But to remember that I have forgotten something entails that I have not entirely forgotten it. And the experience of forgetting does not entail having a mental image of forgetting. Without such an image I can recognize what 'forgetting' means and so remember forgetting something. Augustine also suggests that I can recall the circumstances or context of something which I have forgotten, and that

this can help me recollect it. There may be certain indicators *(signa)* which are contextual and remind me by association of what I have forgotten (*trin.* 11.12; 14.17).

Memory is the focal point of consciousness, in which past, present, and future are related: it appears to underwrite the continuity of mental processes and provide the subject's sense of his identity (*conf.* 1.12; 10.14, 21, 26). Mind, memory, and the self are inextricably linked, and Augustine may seem to argue that my identity is dependent upon continuity of consciousness, as does Locke (*Essay Concerning Human Understanding* 2. 27.9). But Augustine is not making any such claim. He points out that areas of my past, such as infancy, are not accessible to my memory, yet nonetheless constitute my identity: my knowledge of myself, past and present, is imperfect (*conf.* 1.7–12; 2.1; 10.15). Nor is memory the mind without qualification, but rather the mind engaged in certain activities, just as understanding and will are the mind engaged in equally distinctive activities (*trin.* 10.18–19). Augustine is familiar with the Platonic theory of recollection *(anamnêsis)* as an explanation of the presence in the mind of knowledge that is not derived from sense-experience. He mentions the complementary doctrine of the soul's pre-existence as a possibility for the created human soul (*lib. arb.* 1.24; 3.56–9), but never adopts the doctrine, preferring to use Platonic language about recollection to convey active and latent states of the mind's possession of knowledge (see section 7).[46] Recollection is eliciting what is latent in the memory by a process of mental concentration and ordering (*quant. an.* 50–6). Because of the mind's intelligible nature it is 'joined…to intelligible object in a natural arrangement *[naturali ordine]*' (*trin.* 12.24). Such objects are known by direct acquaintance, and no mental image is required in recollecting them (*conf.* 10.16–19).

It might seem appropriate for Augustine to say that God too is in my memory, like ideas. But he is careful to stress that God cannot be in my memory before I learn of him. The reason is, that God is both knowable (as the truth and the Good) and unknowable to the human mind (*sol.* 1.15; *ord.* 2.44, 47; *ep.* 130.28; *Gn. litt.* 5.16.34), whereas Forms and scientific principles are fully known by us. Knowing God is a different matter, attainable only in a paradoxical sense, and by submission of the will. I may love God before I know him, but I can only remember God after I have, in some respect, learnt about him (*conf.* 10.8–11, 35–8).

Augustine's use of *memoria* and of terms f or remembering covers a wide range of activities, not all of them self-evidently kinds of memory: self-consciousness, self-knowledge, understanding a scientific principle. In this he is influenced by Platonist *anamnêsis* theory and discussions about the rediscovery of one's true self by self-reflection. His account of memory is recognizably part of ancient philosophical discussions of the problem. But it is not possible to identify a specific influence to which he is indebted. He neither agrees with Aristotle that all memory processes depend upon

the mental image, nor with Plotinus that such an image theory is unnecessary. He implicitly concurs with Stoic theory in his account of memories of sense-perceptions, and his account owes much to Stoic views on presentation and assent (*SVF* 2.83, 115 [7.2]). But he cannot accept the Stoic theory as a global account of memory. His view that in some kinds of memory the mental image is a prerequisite, whereas in others it is not, is closest to Plato's position, even if it cannot be based on extensive reading of Plato's dialogues. Several elements of Augustine's account are anticipated in Cicero (*Tusculan Disputations* 1.57–71): memory as an impressive power of the immaterial mind, and as a means of understanding the mind's self-knowledge and obtaining knowledge of God through his works and by analogy with the human mind. But if the themes are traditional, Augustine's analysis is of sustained originality.[47]

Some uses of memory-language in Augustine appear questionable or untenable. One such case is his claim that memory is essential to the performance of serial operations such as perception or speaking a sentence. These are not cases of actual reminiscence or memory performance. Not-forgetting or bearing in mind are not instances of recalling or remembering, and the concomitant concentration is neither remembering nor does it entail self-consciousness in the sense implied by Augustine.[48]

10
TIME

Although Augustine occasionally refers to time as a trace or copy of eternity (*mus.* 6.29; *en. Ps.* 9.17; *Gn. litt. imp.* 13.38), he departs from the Platonic tradition in not attempting to analyse time with reference to eternity (*conf.* 11.17–39). The contrast between God's eternity and human temporality leads Augustine to consider time empirically, as a fact of everyday experience, a practical problem. The ensuing speculative freedom of his discussion has attracted much modern attention: for Wittgenstein (*Philosophical Investigations* 89–90) it is an example of a typical but flawed kind of discourse about time.[49]

Augustine's puzzles about the difficulty of defining something as familiar as time are traditional in ancient philosophy since Aristotle (*Physics* 4.10–14). They lead him not to a definition of time, but to an attempt to answer two questions: how do we measure time? how can stretches of time have any length? Augustine admits, if only by implication, that time may not be explicitly definable. His celebrated description of time as a *distentio animi* (*conf.* 11.33) is not so much a definition as a metaphor evoking the psychological state (more 'tension' or 'distraction' than 'extension') that accompanies the mental act of time-measurement.[50]

Augustine believes that time is an infinitely divisible continuum. There are no time-atoms. There are extended time-stretches, but at any given instant time has no actual measurable extent (*conf.* 11.20, 34).

Nevertheless, Augustine erroneously asserts that the present 'is' (exists now), despite being extensionless and without duration (*conf.* 11.22–6). This is partly due to the fact that, like most ancient philosophers, he views time as a flow of events of which each instant successively constitutes a present or 'now' (Plutarch, *De communibus notitiis* 1082A).[51] But heal so assumes that 'now' is a point or part of time, failing to see that the division of an extended time-stretch will always result in extended time-stretches. For Augustine, the past and the future do not exist (in the sense of existing now), but are present in memory and expectation. Past events are present in the images derived from sense-perception; the presence of the signs or causes of future events enables us to anticipate or predict them. Like the Stoics (*SVF* 2.509, 518–19 [7.2]), Augustine criticizes conventional language concerning three grammatical tenses: we should, strictly speaking, talk only of three present tenses, and of a 'present of things past' and a 'present of things future' (*conf.* 11.22–4, 26).

Time is measured in the mind, and is a measurement of duration, which may be a duration of change or motion, but need not be so. Augustine is at pains to demonstrate that our ability to make temporal measurements is prior to, and independent of, any observed physical movement. Time units like day and year are indeed derived from observation of the motion of heavenly bodies, which form an astronomical clock, but our time sense does not presuppose a clock, depending rather upon memories of time-stretches. When the sun stood still in Joshua's war against the Amorites (Joshua 10: 12–13), time *qua,* duration still passed (*conf.* 11.27, 29–30).

Time is the measurement of a relation, by comparison with known (remembered) time-stretches, but we do not make direct temporal comparisons with the standard unit of measurement: measuring time is not like measuring length, for example. Nor do we measure time as it passes, for time at any given instant is extensionless. What we measure is not the time-process itself, but the impress *(affectio)* which memory retains after perceptions. In the case of future processes, we measure them by anticipation when we possess the necessary knowledge to enable us to make advance calculations (*conf.* 11.31, 33–8).

Augustine's insight that our ability to measure times depends upon the fact that durations can be remembered is vitiated by his inference that the time-impress *(affectio)* is the time-stretch itself. He is led to the inference because he believes that when a time is not present it does not exist, and that the past and the future must somehow currently exist, if they are to be the objects of currently existing memory or expectation. But the proper objects of present memories and expectations are past and future events (not times), and it is they which do not have present existence. Yet that fact does not entail that my dealing with them can take place only through present images and signs of them.[52] Elements of Augustine's analysis of time-measurement reflect Stoic views: the assumption that time is infinitely divisible; the distinction between loose and strict language about temporal

phenomena, especially the criticism of grammatical tenses; the distinction between infinite duration and least perceptible times. It is likely that his analysis develops from a Stoic or Stoic-influenced discussion. But his conclusions form a personal contribution of great ingenuity to traditional questions.[53]

Augustine believes that there cannot be time before the creation, for time requires change and there was no change in God's eternity. Time, therefore, had a beginning (*conf.* 11.12–16; *civ.* 11.6; *Gn. litt.* 5.5.12). The principle that time requires change is common to Plato, Aristotle, and the Stoics, but Augustine appears to repudiate it when he argues for the primacy of time sense over measured time units. Perhaps he should have concentrated upon the argument that, since creation is a first event, there cannot be time before that event.[54]

11
GOD AND CREATION

Augustine's concept of divine immutability developed gradually. Initially he seems to have accepted the Manichaean belief that there is a changeable divine principle partly immanent in nature. Later he thought of God as immanent and material, but infinite, incorruptible and immutable. His encounter with the Platonists changed his concept of God definitively: God is transcendent, immaterial, and his timelessness entails unchangeability (*duab. an.* 16; *vera rel.* 16; *conf.* 7.1–2, 26; *en. Ps.* 101). God is subject neither to decay nor death, he is perfect living being, in whom substance and qualities are identical (*trin.* 6.6, 8; 7.1–3).

The 'present' of God's existence is extensionless, like the 'present' of an infinitely divisible time continuum, but God's present is indivisible, a condition of permanent stability (*vera rel.* 97; *conf.* 11.12; *ser.* 6.4). Divine substance is mental: the eternal Forms *(rationes, ideae)* are, in Middle Platonist fashion, understood to be in the divine mind, and the second person of the Trinity is often said to be divine wisdom or truth, and hence God is truth (*div. qu.* 46.2; *mag.* 38; *trin.* 4.3). Divine perfection is perfect life, thought, and will (*conf.* 3.10; *div. qu.* 28).

God is omniscient. His knowledge necessarily embraces events in time, but he does not and cannot know these as past and future occurrences. God apprehends temporal events timelessly as present events. It is more correct to say that he has knowledge, rather than foreknowledge, of events that have not yet happened, and this knowledge is immutable (*civ.* 5.9; 11. 21; *Simpl.* 2.2.2).[55] Although Augustine does not apply this notion of God's not knowing the future as future to the question whether divine foreknowledge entails determinism, he in fact argues that divine foreknowledge is compatible with free choice of the will (*lib. arb.* 3.4–9).

God the creator timelessly causes the universe to begin. The 'Why not sooner?' argument against its beginning is countered by Augustine's

insistence that there was no time before the creation, since time depends on change and God is unchanging. Nor does creation entail that God's will changes: he changelessly wills to create the universe. The notions that the universe persists for ever or that worlds endlessly recur derive from the misconception that there is otherwise a time prior to creation in which God is idle (*conf.* 11.8, 12–17; 12.18, 38; *civ.* 11.4–6, 21; 12.15, 18).[56]

The Greek philosophical principle that nothing comes from nothing led some authors in the Judaeo-Christian tradition to assert that God made the world out of a pre-existing, beginningless matter. But others violated the principle by asserting that God created the world out of nothing.[57] Augustine adopts the latter viewpoint, which had become dominant by his day (*Gn. litt. imp.* 1.2; *sol.* 1.2; *mus.* 6.57; *conf.* 11.7; 12.7; 13.48; *vera rel.* 35; *c. Fel.* 2.19). But he also argues that God creates unformed matter from nothing, to be the subject of change. Matter is the necessary condition of change, but its creation does not precede that of created beings. Even created immaterial beings have a 'spiritual' matter (*conf.* 12.4–8, 38; *Gn. litt.* 1.4.9–5.11; 5.5.12–16; 7.6.9–9.12; *Gn. litt. imp.* 4.11–15; Armstrong [12.117]).

Creation is instantaneous and complete, but living organisms are produced at different times throughout the history of the world. In order to account both for the completeness of creation at the moment of creation and the gradual realization of created organisms Augustine adopts and adapts the theory of seminal *logoi (rationes causales, seminales)*. These are immaterial causes and conditions of living organisms, potentials that are realized in the material seeds from which plants and animals develop, with all their specific differences. The *rationes* are created in the primal creation, along with the heavenly bodies, the firmament, and the elements of earth and water (*Gn. litt.* 5–7; *trin.* 3.13, 16).[58]

ABBREVIATIONS

b. coniug.	*De bono coniugali*
beata v.	*De beata vita*
c. Acad.	*Contra Academicos*
c. ep. fund.	*Contra epistulam fundamenti*
c. ep. Pel.	*Contra duas epistulas Pelagianorum*
c. Faust.	*Contra Faustum Manichaeum*
c. Fel.	*Contra Felicem*
c. Iul.	*Contra Iulianum Pelagianum*
c. Iul. imp.	*Contra Iulianum opus imperfectum*
civ.	*De civitate Dei*
conf.	*Confessiones*

correpт.	*De correptione et gratia*
dial.	*De dialectica*
div. qu.	*De diversis quaestionibus LXXXIII*
doctr. chr.	*De doctrina christiana*
duab. an.	*De duabus animabus*
ench.	*Enchiridion ad Laurentium*
en. Ps.	*Enarrationes in Psalmos*
ep.	*Epistulae*
Gn. c. Man.	*De Genesi contra Manichaeos*
Gn. litt.	*De Genesi ad litteram*
Gn. litt. imp.	*De Genesi ad litteram imperfectus liber*
gr. et. lib. arb.	*De gratia et libero arbitrio*
gr. et pecc. or.	*De gratia Christi et de peccato originali*
imm. an.	*De immortalitate animae*
Io. ev. tr.	*Tractatus in Evangelium Iohannis*
lib. arb.	*De libero arbitrio*
mag.	*De magistro*
mor.	*De moribus ecclesiae catholicae et de moribus Manichaeorum*
mus.	*De musica*
ord.	*De ordine*
pecc. mer.	*De peccatorum meritis et remissione*
praed. sanct.	*De praedestinatione sanctorum*
quant. an.	*De quantitate animae*
retr.	*Retractationes*
ser.	*Sermones*
Simpl.	*De diversis quaestionibus ad Simplicianum*
sol.	*Soliloquia*
spir. et litt.	*De spiritu et littera*
trin.	*De trinitate*
util. cred.	*De utilitate credendi*
vera rel.	*De vera religione*

NOTES

1 Hagendahl [12.57] 79–94, 486–97.
2 Hagendahl [12.57] 52–156, 498–553.
3 Courcelle [12.56] 159–76; O'Meara [12.38] 131–55.

4 Marrou [12.59] 27–46; Courcelle [12.56] 183–94.
5 Fredriksen [12.51]; Markus [12.52].
6 Miles [12.88] 99–125.
7 O'Daly [12.46] 7–79.
8 Kretzmann [12.64].
9 Rist [12.48] 41–8, 53–6.
10 Kirwan [12.42] 22.
11 Kirwan [12.42] 22–3.
12 Matthews [12.69]; Kirwan [12.42] 30–4; Sorabji [12.120] 289; Rist [12.48] 63–7.
13 *Letter to Colvius,* Adam-Tannery 3.247; *Philosophical Letters,* tr. A.Kenny, Oxford 1970, 83–4; Matthews [12.70] 11–38.
14 O'Daly [12.104]; cf. O'Connell [12.102].
15 Nash [12.71] 94–124; O'Daly [12.46] 203–7.
16 O'Donovan [12.47] 60–92.
17 Rist [12.48] 23–40.
18 Stock [12.77] 138–45.
19 Kirwan [12.42] 55–9.
20 Stock [12.77] 145–62.
21 Markus [12.73]; Mayer [12.75].
22 Rist [12.48] 48–53.
23 O'Donovan [12.89].
24 Kirwan [12.42] 187–92.
25 Rist [12.98].
26 Dihle [12.81].
27 Deane [12.80] 78–94.
28 Rist [12.48] 203–55.
29 Deane [12.80] 94–153; Markus [12.85] 72–104.
30 Brown [12.79] 387–427.
31 Matthews [12.70] 90–106; Kirwan [12.42] 192–6.
32 Markus [12.86]; Swift [12.92].
33 Kirwan [12.42] 204–8.
34 Harrison [12.83]; Svoboda [12.91].
35 Rist [12.48] 148–202.
36 Kirwan [12.42] 78–81.
37 O'Daly [12.96] 93–7; Kirwan [12.42] 82–150.
38 O'Daly [12.46] 8–11.
39 O'Daly [12.105].
40 O'Daly [12.46] 62–70.
41 Matthews [12.101].
42 Lloyd [12.100], criticizing Henry [12.99],
43 Schwyzer [12.60]; O'Daly [12.46] 103–4.
44 Matthews [12.110]; Bubacz [12.109].
45 O'Daly [12.46] 141–5.
46 O'Daly [12.104]; O'Connell [12.103].
47 O'Daly [12.112] 44–6.
48 G.Ryle, *The Concept of Mind,* London, Hutchinson's University Library, 1949, 6.4.

49 Mundle [12.115]; McEvoy [12.114].
50 O'Daly [12.116].
51 Sorabji [12.120] 35–51.
52 Kirwan [12.42] 182–3.
53 O'Daly [12.46] 153–9; Rist [12.48] 73–85.
54 Sorabji [12.120] 232–8; Kirwan [12.42] 163–6.
55 Sorabji [12.120] 255–6, 263–4; Kirwan [12.42] 171–4.
56 Sorabji [12.120] 232–8; Kirwan [12.42] 159–63.
57 Sorabji [12.120] 193–202; May [12.118] 122–82.
58 TeSelle [12.49] 216–18; Meyer [12.119].

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Glossary

Academy: the area in the outskirts of Athens where Plato had his 'school'.
actuality: translates Greek *energeia* or *entelecheia*, the Aristotelian term for the state of really being (something), as opposed to having the potentiality to become (something).
aethêr: the Aristotelian term for the element of which the heavens are made: the fifth element.
anamnêsis: 'recollection', the Platonic doctrine *(Meno, Phaedo)* that human knowledge is the recollection of conceptions (Forms) instilled in the soul before birth.
ataraxia: the state of being undisturbed in mind (Epicurean technical term).
archê: a principle.
category: an ultimate class. Aristotle was the first to write a treatise on categories: see ch. 2.
cause: translates Greek *aition* or *aitia*. It is applied more widely by Greek philosophers, especially Aristotle, than in modern philosophy and science. Following Aristotle, to state the cause of something is to answer any of these four questions: what is it made of? (material cause); what brought it into being? (efficient cause); what is it? (formal cause); what is it for? (final cause).
cosmos: 'a system composed of heaven and earth and the natures contained within them' (pseudo-Aristotle, *On the cosmos*). Identified with the universe (i.e. all that there is) by Aristotle, but distinguished as a limited part of the universe by post-Aristotelians. The word also denotes the state of *order* that prevails in our or any other cosmos.
Cyrenaics: a school of philosophy associated primarily with Aristippus of Cyrene (late fourth century BC), known for an unsophisticated doctrine of hedonism. No original writings survive.
demonstration: translates Greek *apodeixis,* a valid deductive argument, with necessarily true premisses. See ch. 2, pp.48–53.
Demiurge: the divine Craftsman, creator of the cosmos according to Plato's *Timaeus*.
deontological: favouring the view that duty takes precedence over other ethical claims.
dialectic: argument between opponents.
Dogmatists: a term applied by ancient Sceptics to their philosophical opponents who claimed to have knowledge.
doxa: 'belief', 'opinion', 'judgement', often contrasted with knowledge.
eidôlon: an image (English 'idol'). An Epicurean technical term for the image (composed of atoms) received by the sense-organs in perception.
Eleatics: Parmenides of Elea (in southern Italy) and his successors, Melissus and Zeno.

elements: usually applied to the four 'primary bodies', namely earth, water, air and fire, first listed by Empedocles in the fifth century, and adopted by Plato, Aristotle, and most others.
elenchus: refutation; a type of critical examination practised by Socrates.
emanation: see 'exhalation'.
empeiria: experience.
endoxa: an Aristotelian term meaning 'views held by most people or by those best qualified to judge'.
energeia: see 'actuality'.
entelecheia: see 'actuality'.
epideictic: rhetoric concerned to display the merits of the orator, the person praised, or both; it was contrasted with forensic rhetoric (prosecution and defence in lawcourts) and deliberative rhetoric (arguing for or against a course of action in a political context).
epistêmê: 'knowledge'. In Aristotle, specifically scientific knowledge, or 'a science'.
essence: usually translates Greek *to ti ên einai* ('what it was to be [something]'), an Aristotelian term.
eudaimonia: usually translated 'happiness'. However, it does not necessarily denote a feeling, but rather a flourishing condition of body and soul, of long duration, perhaps extending to the whole of a life. Hence, the primary goal of human life.
exhalation: in classical meteorology, a hot or cold vapour that ascends from the earth into the sky.
fifth element: see *'aethêr'*
form: Greek *eidos* or *idea*. Originally *eidos* means 'perceptible shape'. In philosophy (Plato and after), 'form' denotes the defining character of an entity, transcendent in Plato, immanent in Aristotle.
happiness: see *'eudaimonia'*.
hêgemonikon: literally, 'that which leads', applied to the rational part or faculty of the soul.
homoiomerous: having parts similar to the whole (e.g. skin, parts of which are skin; as opposed to hand, parts of which are fingers, palm, etc.).
horror vacui: the cause that propels a body into a neighbouring empty space.
hylemorphic (or **hylomorphic**)**:** analysed into matter and form.
hypostasis: a Neo-Platonic term for a level of reality in a hierarchical scale.
katastematic: not in motion (opposite of **kinetic**).
katharsis: literally 'cleansing' or 'religious purification'. Used by Aristotle of the effect of tragedy upon the mind. For the controversy about its meaning in that context, see ch. 3, pp. 86–90.
kinetic: of, in, or to do with motion.
lekta: 'things said', distinguished from things with physical existence or no existence. A Stoic term.
Lyceum: the public park in Athens, dedicated to Apollo Lycaeus, where Aristotle taught.
Manichees: adherents to the doctrines of Mani (third century AD), combining elements of Persian religion with Christianity.

matter: translates Greek *hylê* (literally 'wood'). A technical term in Aristotle and after, denoting the substrate (q.v.) underlying quality, quantity, shape, colour, etc.

metaphysics: literally 'what comes after physics', originally the name given by an editor, perhaps Andronicus of Rhodes in the first century BC, to the books of Aristotle now called by this name. It is debated whether the name simply means 'after' the *Physics* in some edition or list of Aristotle's work, or implies that these books express something more fundamental than physics.

meteorology: in classical antiquity the term applies to whatever goes on in the region between the heavens and the earth.

Middle Platonists: Philosophers of the Academy, beginning with Antiochus' rejection of Scepticism in the early first century BC and ending with the Neo-Platonic school of Plotinus in the third century AD. Plutarch is the only one whose writings survive.

mimesis: imitation or representation, especially in literature or in visual art. See ch. 3, pp.78 ff.

nous: usually translated 'mind' or 'intelligence'. Sometimes denotes specifically right understanding, distinguished from cogitation or imagination.

oikeiôsis: this Stoic term, sometimes translated 'appropriation', refers to a disposition of affectionate ownership towards oneself, said to be innate in all animals, including humans. It provides a basis for the Stoic ethical goal of 'living in accordance with nature'.

ontology: the study of being or beings.

organon: literally, a tool. Used of Aristotle's logic, to distinguish it from philosophy proper.

participation (methexis): a Platonic technical term for the relation that individual objects bear to Forms.

pathos: emotion (plural *pathê*).

Pelagian: related to Pelagius, a fourth-century Christian 'heretic'.

Peripatetic: belonging to the school of Aristotle, who taught in *the peripatos* or 'walkway' in the park in Athens named 'the Lyceum'.

phainomena: whatever can be perceived or observed to be the case.

phantasia: usually translated as 'imagination', but its meaning includes 'presentations' of sense-perception, and 'appearances' in any mode of experience.

potentiality: translates Greek *dynamis,* an Aristotelian technical term, meaning 'capability of becoming (something)'. Contrasted with actuality (Greek *energeia* or *entelecheia*).

Presocratics: a modern term for the succession of philosophers beginning with Thales and ending (usually) with Democritus, who was in fact contemporary with Socrates.

prime matter: whatever, if anything, is left of a thing when all of its properties are removed in thought.

privation (sterêsis): an Aristotelian term for the absence of a form.

prolêpsis: literally 'anticipation'. An Epicurean technical term for a concept stored in the mind.

Protagorean: pertaining to Protagoras, the fifth-century sophist, notorious for his relativism.

psuchê or **psychê:** Latin *anima,* the principle of life; usually but awkwardly translated as 'soul' in English.

Pyrrhonism: the (unwritten) doctrine of Pyrrhon of Elis (fourth/third century BC), the founder of Greek Scepticism, revived in the first century BC by Aenesidemus.

Pythagoreans: followers of Pythagoras, the almost mythical sixth-century philosopher who migrated from Samos to South Italy.

sempiternal: lasting through the whole of time (as opposed to eternal=timeless).

sôritês: from *sôros,* a heap. A paradox generated from the idea that, if one grain of sand does not make a heap, neither do two grains, nor three, nor four, nor any number generated by adding one at a time.

sublunary: 'below the moon', includes everything in the Aristotelian cosmos except the heavenly spheres and their contents.

substance: usually translates Greek *ousia,* and denotes an independent being.

substrate: Greek *hypokeimenon,* a term in logic and metaphysics for whatever 'underlies' predicates of quality, quantity, etc.

syllogism: Aristotle's ideal form of scientific argument. See ch. 2, pp. 48–53.

teleology: the doctrine that processes of nature, like intentional human actions, are goal-directed.

Topics: Aristotle's writings on the 'commonplaces' of argument.

transmigration: Greek *metempsychôsis,* the transference of the psyche from one human or animal body to another (a Pythagorean idea).

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General editors' preface

The history of philosophy, as its name implies, represents a union of two very different disciplines, each of which imposes severe constraints upon the other. As an exercise in the history of ideas, it demands that one acquire a 'period eye': a thorough understanding of how the thinkers whom it studies viewed the problems which they sought to resolve, the conceptual frameworks in which they addressed these issues, their assumptions and objectives, their blind spots and miscues. But as an exercise in philosophy, we are engaged in much more than simply a descriptive task. There is a crucial critical aspect to our efforts: we are looking for the cogency as much as the development of an argument, for its bearing on questions which continue to preoccupy us as much as the impact which it may have had on the evolution of philosophical thought.

The history of philosophy thus requires a delicate balancing act from its practitioners. We read these writings with the full benefit of historical hindsight. We can see why the minor contributions remained minor and where the grand systems broke down: sometimes as a result of internal pressures, sometimes because of a failure to overcome an insuperable obstacle, sometimes because of a dramatic technological or sociological change and, quite often, because of nothing more than a shift in intellectual fashion or interests. Yet, because of our continuing philosophical concern with many of the same problems, we cannot afford to look dispassionately at these works. We want to know what lessons are to be learnt from the inconsequential or the glorious failures; many times we want to plead for a contemporary relevance in the overlooked theory or to reconsider whether the 'glorious failure' was indeed such or simply ahead of its time: perhaps even ahead of its author.

We find ourselves, therefore, much like the mythical 'radical translator' who has so fascinated modern philosophers, trying to understand an author's ideas in his and his culture's eyes, and at the

same time, in our own. It can be a formidable task. Many times we fail in the historical undertaking because our philosophical interests are so strong, or lose sight of the latter because we are so enthralled by the former. But the nature of philosophy is such that we are compelled to master both techniques. For learning about the history of philosophy is not just a challenging and engaging pastime: it is an essential element in learning about the nature of philosophy—in grasping how philosophy is intimately connected with and yet distinct from both history and science.

The *Routledge History of Philosophy* provides a chronological survey of the history of Western philosophy, from its beginnings up to the present time. Its aim is to discuss all major philosophical developments in depth, and with this in mind, most space has been allocated to those individuals who, by common consent, are regarded as great philosophers. But lesser figures have not been neglected, and it is hoped that the reader will be able to find, in the ten volumes of the *History,* at least basic information about any significant philosopher of the past or present.

Philosophical thinking does not occur in isolation from other human activities, and this *History* tries to situate philosophers within the cultural, and in particular the scientific, context or their time. Some philosophers, indeed, would regard philosophy as merely ancillary to the natural sciences; but even if this view is rejected, it can hardly be denied that the sciences have had a great influence on what is now regarded as philosophy, and it is important that this influence should be set forth clearly. Not that these volumes are intended to provide a mere record of the factors that influenced philosophical thinking; philosophy is a discipline with its own standards of argument, and the presentation of the ways in which these arguments have developed is the main concern of this *History*.

In speaking of 'what is now regarded as philosophy', we may have given the impression that there now exists a single view of what philosophy is. This is certainly not the case; on the contrary, there exist serious differences of opinion, among those who call themselves philosophers, about the nature of their subject. These differences are reflected in the existence at the present time of two main schools of thought, usually described as 'analytic' and 'continental' philosophy. It is not our intention, as general editors of this *History,* to take sides in this dispute. Our attitude is one of tolerance, and our hope is that these volumes will contribute to an understanding of how philosophers have reached the positions which they now occupy.

One final comment. Philosophy has long been a highly technical subject, with its own specialized vocabulary. This *History* is intended not

only for the specialist but also for the general reader. To this end, we have tried to ensure that each chapter is written in an accessible style; and since technicalities are unavoidable, a glossary of technical terms is provided in each volume. In this way these volumes will, we hope, contribute to a wider understanding of a subject which is of the highest importance to all thinking people.

G.H.R.Parkinson
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Abbreviations

AL	*Aristoteles Latinus* (various publishers), 1939–
BGPTMA	Beiträge zur Geschichte der Philosophie und Theologie des Mittelalters
CC c.m.	Corpus Christianorum continuatio medievalis
CHLMP	*The Cambridge History of Later Medieval Philosophy,* ed. A.Kenny, N.Kretzmann and J.Pinborg, Cambridge, 1982
CHRP	*The Cambridge History of Renaissance Philosophy,* ed. C. B.Schmitt *et al.*, Cambridge, 1988
CIMAGL	*Cahiers de l'Institut du Moyen Âge grec et latin* (a journal printing a large number of relevant texts)
MPL	J.-P.Migne, *Patrologia Latina*
PIMSST	Pontifical Institute of Mediaeval Studies, Studies and Texts
SIEPM	Société Internationale pour l'étude de la philosophie médiévale

Chronology

This chronology runs from the birth of Boethius, the first author treated in the volume, to shortly after the death of Suárez, in the early seventeenth century. No attempt, however, has been made to treat the fifteenth, sixteenth or early seventeenth centuries in any detail (a more detailed chronology for this period will be found in Volume IV), but merely to indicate the chronological position of the latest writers in the medieval tradition and their relation to some of the most important writers in other, contemporaneous traditions. A (?) indicates that a date is approximate.

Politics and society		Religion	
		496	Baptism of Clovis
		519	Acacian schism resolved
526	Theoderic d.		
		570	Muhammad b.
		590–604	Gregory the Great Pope
		596	Gregory sends Augustine to England
		610	Muhammad's first visions
711–12	Muslim conquest of Spain		
		735	Venerable Bede d.
750	Overthrow of Ummayad caliphate; first 'Abassīd caliph		
762	Baghdad capital of 'Abassīd caliphate		
778	Charlemagne defeated at Roncevaux		
		786	Iconoclasm condemned at Council of Nicaea
		793	Vikings raid Lindisfarne
800	Charlemagne crowned Emperor in Rome		
814	Charlemagne d.		
		817	Systematization of Benedictine rule by St Benedict of Aniane officially approved
840	Charles the Bald becomes king		

Education and the arts		Philosophy and theology	
		480	Boethius b.
		500 (?)	fl. pseudo-Dionysius
		523 (?)	Boethius, *Consolation of Philosophy*
		525 (?)	Boethius d.
529	Justinian closes Platonic School at Athens	529	John Philoponus, *On the Eternity of the World*
532 (?)	Athenian Neoplatonists set up school at Harrān;		
532–7	Hagia Sophia built, Constantinople		
		538 (?)	Simplicius writing commentaries at Harrān
546–8	San Vitale built, Ravenna		
		562	Cassiodorus, *Institutiones*
		575 (?)	John Philoponus d.
		633	Isidore of Seville d.
		662	Maximus the Confessor d.
		709/10	Aldhelm d.
		754 (?)	John Damascene d.
781	Alcuin meets Charlemagne		
		791 (?)	*Libri Carolini*
800 (?)	The Book of Kells		
		804 (?)	Alcuin d.
		808	Ḥunayn ibn Isḥāq b.
830–3	Einhard, *Life of Charlemagne*		

Politics and society		Religion	
		863	Cyril and Methodius begin their mission to the Slavs
		867	Photian schism
875	Charles the Bald d.		
908–10	Fātimid dynasty founded		
		909	Monastery of Cluny founded
		962	Great Lavra (monastic community) on Mt Athos founded
987	Louis V, last Carolingian King of France, d. Accession of Hugh Capet		
		988	Vladimir, ruler of Russia, establishes Christianity as the official religion
		999	Gerbert of Aurillac becomes Pope Sylvester II

Education and the arts		Philosophy and theology	
		849	Gottschalk's views on predestination condemned at Synod of Quiercy
		850–1	Eriugena, *On predestination*
		855	Council of Valence condemns Eriugena's *On predestination*
		859	Council of Langres condemns Eriugena's *On predestination*
		860 (?)	Ratramnus of Corbie, *De anima ad Odonem*
		861–6	Eriugena, *Periphyseon*
		865	al-Rāzī b.
		866(?)	Gottschalk d.
		868	Ratramnus of Corbie d.
		870 (?)	al-Kindī d.
871–99	Alfred the Great, King of Wessex, promotes ecclesiastical reform and the revival of learning	871 (?)	Eriugena d.
		873	Ḥunayn ibn Isḥāq d.
		882	Saadiah b.
884 (?)	Notker, *Liber hymnorum*		
		893–908 (?)	Remigius of Auxerre expounds Martianus Capella and Boethius
908 (?)	Remigius of Auxerre d.		
		925	al-Rāzī d.
		942	Saadiah d.
		950	al-Fārābī d.
		972–83	Gerbert at the School of Rheims; expounds the *logica vetus*
		980 (?)	Avicenna (Ibn Sīnā) b.
1001–3 (?)	Hrotsvitha d.		
		1003	Gerbert d.
		1018	Michael Psellos b.

Politics and society		Religion	
		1054	Patriarch of Constantinople anathematizes Roman Church
1066	Battle of Hastings; William of Normandy becomes King of England		
1071	Turks defeat Byzantines at battle of Manzikert		
		1076	Pope Gregory VII deposes and excommunicates Emperor Henry IV
		1077	Henry IV submits to Pope at Canossa
		1084	Carthusian order founded
		1085	Pope Gregory VII, driven from Rome by Henry IV, dies at Salerno
1086	England: Domesday survey		
1087	William the Conqueror d.		
		1088	Work begins on great church at Cluny
		1093	Anselm, Archbishop of Canterbury; Durham Cathedral begun
		1095	Pope Urban II proclaims First Crusade
		1098	Foundation of Abbey of Cîteaux
		1099	Crusaders capture Jerusalem

Education and the arts		Philosophy and theology	
1025–33 (?)	Guido d'Arezzo reforms musical notation		
		1033	Anselm b.
		1037	Avicenna d.
		1050	Synod of Vercelli condemns Ratramnus' views on the Eucharist
		1054–8	Solomon ibn Gabirol d.
1071	William IX of Aquitaine, Provençal poet, b.		
		1072	Peter Damian d.
		1076	Anselm, *Monologion*
		1077–8	Anselm, *Proslogion*
		1079	Peter Abelard b.
		1080 (?)	Gilbert of Poitiers b.
		(?)	William of Conches b.
		1088	Berengar of Tours d.
		1090	Bernard of Clairvaux b.
		1092	Roscelin accused of tritheism
		1093 (?)	al-Ghazālī, *Incoherence of the Philosophers*
		1094–8	Anselm, *Cur Deus Homo*
		1109	Anselm d.
		1116 (?)	Abelard of Bath, *De eodem et diverso*;
		(?)	Abelard, *Dialectica*
		1120	Abelard, *Theologia summi boni*, discusses Trinity
		1121	Council of Soissons condemns Abelard's views on the Trinity

Politics and society		Religion	
		1122	Suger elected Abbot of Saint-Denis
		1140 (?)	Gratian, *Decretum* (collection of Canon law)
		1143	Translation of Qur'ān into Latin
		1144	Suger's choir, St Denis, consecrated
		1146	Bernard of Clairvaux preaches; Second Crusade
		1147–8	Second Crusade
1152	Frederick Barbarossa becomes Emperor		
		1163	Cathedral of Notre Dame, Paris, begun
		1170	Murder of Archbishop Becket, Canterbury St Dominic b.
		1181	St Francis of Assisi b.
1187	Saladin captures Jerusalem		
		1189–92	Third Crusade

Education and the arts		Philosophy and theology	
		1122	William of Champeaux d.
		1125 (?)	Roscelin d.
		1126	Averroes (Ibn Rushd) b.;
		(?)	Abelard, *Theologia Christiana*;
		(?)	William of Conches comments on *Timaeus*
1127	William IX d.		
		1133 (?)	Abelard, *Theologia scholarium*
		1138	Maimonides (Moses ben Maimon) b.; Abelard, *Ethics*
		1140	Council of Sens condemns Abelard's views on the Trinity
		1142	Hugh of St Victor d.
		(?)	Abelard d.
		1144 (?)	William of Conches, *Dragmaticon*
1145–55	Winchester Psalter		
		1148	Council of Rheims examines Gilbert of Poitiers' views on the Trinity in his commentary on Boethius' *Theological Treatises*
		1153	Bernard of Clairvaux d.
		1154	Gilbert of Poitiers d.
		(?)	William of Conches d.
		1155–7	Peter Lombard, *Sentences*
		1159 (?)	John of Salisbury, *Policraticus*
		1160	Peter Lombard d.
		(?)	John of Salisbury, *Metalogicon*
1170 (?)	musical school of Notre Dame		
		1173	Richard of St Victor d.
1177–81	Chrétien de Troyes, *Lancelot*		
1178–82	Walter of Châtillon, *Alexandreis*	1180	John of Salisbury d.; Maimonides, *Mishneh Torah*
1182–3	Alan of Lille, *Anticlaudianus*		

Politics and society		Religion	
		1190	Barbarossa d. when on Crusade
		1194	Cathedral of Chartres destroyed by fire; new cathedral begun
		1198	Innocent III becomes Pope
		1202	Fourth Crusade diverted from Egypt, its original objective, to Constantinople
		1204	Crusaders sack Constantinople and establish Latin Empire
		1209	Establishment of Franciscan Friars;
		1209–18	Southern France: Crusade against the Albigenses
1215	England: Magna Carta granted by King John	1215	Innocent III convokes Fourth Lateran Council
		1216	Innocent III dies; Establishment of Dominican Friars
		1217–21	Fifth Crusade at Damietta (Egypt)
1220	First Mongol attacks on Europe	1221	St Dominic d.
		1226	St Francis d.
		1228–9	Crusade of Frederick II; Jerusalem recovered by negotiation
		1232	Papal Inquisition established by Gregory IX
		1233	Gregory IX instructs the Inquisition to complete the eradication of the Albigensian heresy
		1235	Robert Grosseteste becomes bishop of Lincoln
1236	Ferdinand III of Castile captures Cordoba from Muslims		

Education and the arts		Philosophy and theology	
		1190	Maimonides, *Guide of the Perplexed*
		1198	Averroes d.
1200	First charter concerning University of Paris		
?1200–10	Wolfram von Eschenbach, *Parzival*		
		1204	Maimonides d.
1207	*Cantar de mío Cid*		
1210	Aristotle's *Metaphysics* and natural science proscribed in Paris arts faculty;		
(?)	Gottfried von Strassburg, *Tristan*		
1214	Earliest known Charter of Oxford University	1214	David of Dinant d.
1215	First statutes of University of Paris	1215	Fourth Lateran Council proclaims orthodoxy of Lombard's *Sentences*
1222	Foundation of University of Padua		
		1225 (?)	Thomas Aquinas b.
1231	First Charter of Cambridge University		

Politics and society		Religion	
1238	James I of Aragon captures Valencia		
1241	Mongols reach Hungary and the Adriatic		
1244	Muslims capture Jerusalem		
1248	Ferdinand III of Castile captures Seville	1248	Louis IX of France leads a crusade
1250	Egypt: 'Abassīd dynasty replaced by Mamluk	1250	Louis IX captured in Egypt; Grosseteste at Rome; speech 'De corruptelis ecclesiae'
1258	Mongols capture Baghdad		
1260	Mongols defeated by Mamluks at Ain Jalut		
1261	Byzantine forces regain Constantinople; end of Latin, and restoration of Greek empire		
		1270	Louis IX dies on Crusade
		1274	Second Council of Lyons achieves a union of the Churches, which lasts until 1289

Education and the arts		Philosophy and theology	
1237	Guillaume de Lorris, (beginning of) *Roman de la rose*		
1240 (?)	Cimabue b.		
1243	Foundation of University of Salamanca		
		1244	Aquinas becomes a Dominican
1245	Foundation of University of Rome	1245	Alexander of Hales d.; Albert the Great, master of theology at Paris
1248	Albert the Great founds *studium generale* at Cologne		
		1249	William of Auvergne d.
		1253	Grosseteste d.
		1254/5	Bonaventure, master of theology at Paris
		1256–9	Aquinas's first period as master at Paris
		?1260–70	William of Moerbeke, translations of Aristotle
		1264	Aquinas, *Summa contra Gentiles* completed
1265	Dante b.	1265 (?)	Siger of Brabant lectures on *On the Soul*
		1266	Aquinas, *Summa theologiae* begun
1267 (?)	Giotto b.	1267	Bacon, *Opus maius*
		1268	Bacon, *Opus minus* and *Opus tertium*
1270–80	Jean de Meun, (continuation of) *Roman de la rose*	1270	Tempier's condemnation of errors, including unity of intellect;
		(?)	Boethius of Dacia, arts master at Paris
		1274	Aquinas d. Bonaventure d.
		1276–92	Henry of Ghent teaches at Paris

Politics and society		Religion	
1291	Fall of Acre, last Crusader outpost		
		1302	Bull of Boniface VIII, *Unam sanctam*, affirms universal jurisdiction of Pope
		1309–77	Papacy at Avignon
1315–17	Famine in Europe		
		1324	Marsilius of Padua, *Defensor pacis*, criticizes Papacy
		1326	Eckhart accused of heresy; appeals to Pope
		1327	Marsilius excommunicated
1328	Charles IV, last Capetian King of France, d. Succeeded by Philip VI, first Valois king		
		1329	After the death of Eckhart, Pope John XXII condemns 28 of his theses

Education and the arts		Philosophy and theology	
		1277	Stephen Tempier, Bishop of Paris, condemns 219 articles in theology and natural philosophy; Peter of Spain d.
		1280	Albert the Great d.
		1284	Siger of Brabant d.
		1292	Roger Bacon d.
		1293	Henry of Ghent d.
		1296–7	Dietrich of Freiberg, master of theology at Paris
		1300 (?)	Duns Scotus working on *Ordinatio of Sentences* commentary
1302 (?)	Cimabue d.	1302	Duns Scotus leaves Oxford for Paris
		1302–3	Eckhart's first period as master in Paris
1304	Petrarch b.		
		1306–9	Dante, *Convivio*
		1308	Duns Scotus d.
1310 (?)	Dante begins *Divina Commedia*		
1313	Boccaccio b.		
		1317–19	William of Ockham lectures on *Sentences* at Oxford
		1317–29	Gersonides, *Wars of the Lord*
		1320–2	Walter Burley master of theology at Paris
1321	Dante d.		
		1322	Peter Aureoli d.
		1322–3	Walter Chatton comments on *Sentences* at Oxford
		1324	Ockham summoned to Avignon to answer charges of heresy
		1326–34	Robert Holcot at Oxford
		1328	Ockham excommunicated; Eckhart d.; John Buridan, rector of Paris University
		1331	Ockham expelled from his order

Politics and society		Religion	
1337	Beginning of Hundred Years War between England and France		
		1342	Marsilius of Padua d.
1345	English defeat the French at Crécy		
1347–50	First wave of the Black Death (bubonic plague) in Europe		
1354	Turks occupy Gallipoli, obtaining a footing in Europe		
1358	Jacquerie (peasant uprising in France)		
1361	Beginning of second wave of the Black Death		
		1377	Pope Gregory XI condemns Wyclif's view (*De civili dominio*) that the civil power may deprive clergy of their endowments; Pope Gregory XI returns to Rome from Avignon
		1378–1417	Great Schism: Western Christendom divided by the creation of anti-Popes

Education and the arts		Philosophy and theology	
		1334	Durand of St-Pourçain d.
1337	Giotto d.		
1339	Ban on Ockhamism in Paris		
		1340	Gregory of Rimini, commentary on *Sentences*;
		1340–55	Richard Swineshead active
1341	Petrarch crowned with laurels at Rome		
		1344	Chatton d.; Gersonides d.;
		(?)	Burley d.;
		(?)	Thomas Bradwardine, *De causa dei*
		1345–60	Nicholas Oresme active
1347	University of Prague founded	1347	Ockham d.
		1349	Bradwardine d. Holcot d.
		1350 (?)	Richard of Campsall d.
		1351 (?)	Nicholas of Autrecourt d.
		1355 (?)	John of Ripa active in Paris
		1358	Adam Wodeham d.; Gregory of Rimini d.;
		(?)	Buridan d.; Nicholas Aston master of theology at Oxford
		1360	Berthold of Moosburg, commentary on *Proclus*
		1361	Richard Kilvington d.
1364	University of Cracow founded		
1365	University of Vienna founded		
		1372 (?)	Heytesbury d.; John Wyclif, master of theology
1374	Petrarch d.		
1375	Boccaccio d.	1375–1406	Coluccio Salutati, Chancellor of Florence
1377	Guillaume de Machaut d.		

Politics and society		Religion	
1381	Peasants' Revolt, England		
		1415	Jan Hus burned at Council of Constance
1453	Fall of Constantinople to Turks		
1492	Final defeat of Moors at Granada		
		1517	Luther's 95 theses
		1540	Loyola founds Jesuits
		1545–63	Council of Trent

Education and the arts		Philosophy and theology	
		1381	Wyclif's theory of the Eucharist condemned by the University of Oxford
		1382	Nicole Oresme d. Wyclif's doctrines condemned at the Council of Blackfriars, London
		1384	Wyclif d.
1385 (?)	Chaucer, *Troilus and Criseyde*	1390	Albert of Saxony d.
1400	Chaucer d.	1410	Hasdai Crescas d.
		1420	Peter of Ailly d.
		1429	John Gerson d.; Paul of Venice d.
1434	Jan van Eyck, Arnolfini Wedding picture	1440	Nicholas of Cusa, *De docta ignorantia*
		1469–74	Ficino, *Theologia Platonica*
1481	Nominalist ban at Paris lifted		
		1548	Francisco Suárez b.
		1549	Gabriel Vázquez b.
		1596	Descartes b.
		1597	Suárez, *Disputationes metaphysicae*
		1599	Pedro Fonseca d.
		1600	Luis de Molina d.
		1604	Vázquez d.
		1605	Francis Bacon, *The advancement of learning*
		1612	Suárez, *De legibus*
		1617	Suárez d.
		1637	Descartes, *Discours de la méthode*

Introduction

John Marenbon

Medieval philosophy, the subject of this volume, is a distinct tradition within the history of Western philosophy. Its four sub-traditions are 'Arab' philosophy—which took place in Islamic lands and was written usually in Arabic, though sometimes in Persian; 'Jewish' philosophy—the work of Jews in Islamic and Christian countries, written in Arabic or Hebrew; 'Latin' philosophy—produced in the countries of Christian Europe where Latin was the main language of higher learning and usually, though not always, written in Latin; and (of rather less importance) 'Byzantine' philosophy—written in Greek in the Christian empire of Byzantium. Medieval Arab philosophy begins with the first philosophical writings in Arabic in the ninth century; it ends, as a tradition of importance, with the death of Ibn Rushd (Averroes) in 1198, after which growing religious intolerance scarcely permitted the practice of philosophy as it had been known. Medieval Jewish philosophy begins in Islam not long after the Arab tradition, with which it is closely connected. It went on to flourish also in the Jewish colonies of Christian Europe and declined in the fifteenth century. Philosophy in the medieval Latin West begins in the late eighth century, at the court of Charlemagne. The tradition has no clear chronological end point and its final centuries coincide in time with the different, though related, tradition usually described as 'Renaissance philosophy'. Fifteenth- and sixteenth-century universities continued to produce philosophical work firmly in the medieval tradition (often, indeed, consciously restating the ideas of one or another great master of the thirteenth or fourteenth century), and in late sixteenth- and early seventeenth-century Spain there was a flowering of philosophy which, though with differences of emphasis, is distinctively medieval in its sources, techniques and concerns. In Byzantium, it is hard to place any

but an arbitrary boundary between late ancient Neoplatonism and medieval Greek philosophy. The tradition was brought to a clear end, however, when Constantinople fell to the Turks in 1453.

Why, though, speak of a single, distinct tradition of 'medieval philosophy' when four different traditions, developed in different languages and cultures, appear to be involved? And why include works written in Persia and the Middle East, in non-European languages, in the history of *Western* philosophy? These seem difficult questions, but the answer is simple (although it is wrong to use the description 'Western philosophy' in a cavalier way: the importance of works in Arabic for medieval philosophy should make historians ask how Western 'Western philosophy' is[1]). The four traditions are interlinked so closely that, whilst their differences are important, they are best understood as a whole. First, all use a common heritage of ancient Greek philosophy, especially that practised in the Neoplatonic schools of late antiquity, although with a greater emphasis on the complete works, rather than just the logic, of Aristotle. Second, in their development, the traditions are interconnected. Medieval Jewish philosophers were deeply influenced by the Arab thinkers they read, and translations of Arabic writing transformed the study of philosophy in the Latin West from the late twelfth century onwards. The Byzantine tradition was less open, although there were some translations from Latin into Greek late in the Middle Ages. Third, all four traditions belong to cultures dominated by a monotheistic, revealed religion: Islam, Judaism or Christianity. Although the relations between religious doctrine and philosophical speculation varied both from one tradition to another, and at different periods within each tradition, the questions posed and constraints exercised by revelation were similar in all three religions and exercised a profound influence on the philosophical work produced within their ambit.

It is this third feature—its close connection with revealed religion—which, more than anything else, explains a final, extrinsic characteristic which applies to the medieval tradition of philosophy as a whole: its comparative neglect. The *Routledge History of Philosophy* itself provides an illustration. This volume, devoted to the Middle Ages, must consider roughly twice the length of time covered by the following seven volumes, dealing with Renaissance and modern philosophy. But the allocation of space to medieval philosophy by the general editors is, none the less, unusually generous by the standards usually accepted today. The more common estimation of the Middle Ages among professional philosophers is indicated by a recent, and in most other respects excellent, textbook designed to introduce students both to philosophy as it is practised today, and to the history of philosophy. The editor explains to his readers that:

> For a very long period—roughly from the fourth to the seventeenth centuries AD—thought in the West was dominated by Christianity. This does not mean that there was no philosophy; far from it; but much of it served theology or at least (except in such cases as logic) it was constrained by theological considerations.[2]

Medieval (and Renaissance) philosophy is, apparently in consequence, eliminated from the book entirely, except for a fleeting reference to Aquinas. The historical section jumps from the Greeks to Descartes without further comment.

The historiography of medieval philosophy (especially medieval Latin philosophy, which has dominated historians' attention) can be seen as a series of reactions and counter-reactions to the dismissive approach to the area illustrated here in a modern and extreme form, but widespread in many variations, at least since the eighteenth century.[3] The earliest serious historians of medieval philosophy, in the nineteenth century (such as Victor Cousin and Barthélemy Hauréau) were willing to concede the principle on which the dismissive approach, adopted by those who would ignore medieval philosophy altogether, was founded. The dominance of Christianity and its influence on the thought of philosophers was, they granted, a grave defect in medieval philosophy; but not so grave that the period was without interest. Cousin, for instance, argued that in the Middle Ages ecclesiastical authority was absolute and medieval philosophy—'scholasticism' as he called it—was used 'in the service of faith, under the aegis of religious authority: it moved within a circle that was not of its own devising, but had been imposed on it by an authority other than its own' ([Intr. 1] 28). Yet philosophy still retained something of its own nature, and Cousin believed that even medieval scholasticism took the four forms he found in each epoch of philosophy: idealism, sensualism, scepticism and mysticism. The approach produced richer results than its apologetic tone would seem to promise, aided perhaps by Cousin's belief in a clear, though non-linear, development of philosophy from antiquity to his own day.

From the late nineteenth century until nearly the present, however, most work on medieval philosophy has been carried out from a very different point of view.[4] Historians strongly committed to orthodox Catholicism, many of them in holy orders, were quick to build on a long tradition of medieval scholarship within the Church (especially among religious) and take up the new interest in medieval philosophy. Understandably, however, they were opposed to the approach followed by Cousin and other 'rationalist' historians (as they described them). Yet they did not, as might have been expected, counter it by arguing

that the influence of revealed religion on medieval philosophy was not cramping, but beneficial. Rather, they insisted that the great medieval thinkers (pre-eminently, Thomas Aquinas) recognized a distinction between philosophy and theology. They were, indeed, great theologians; but they were also great philosophers, who elaborated rational systems of philosophy independent of revelation. It is, they argued, the job of the historian of medieval philosophy to isolate and explain these philosophical systems. Part of the stimulus behind this approach may well have been provided by the problem which many Catholic thinkers and churchmen in the late nineteenth and earlier twentieth century believed modern philosophical movements posed for them. They saw most contemporary philosophy as hostile to the claims of religion and hoped to find in medieval thinkers a system which could be set against the current schools of thought. For this purpose, it was essential that, although scholastic philosophy should be fully compatible with Christian doctrine and lead naturally towards it, it should also be recognized as a fully independent philosophy, separable from revealed doctrine and able to compete on equal terms with other schools of thought. The advantage of this approach is that it brought an interest to medieval thinkers which was neither condescending nor merely antiquarian. Its disadvantage is that the distinction between philosophy and theology in the Middle Ages (even just in the Latin tradition) was neither clear-cut nor undisputed nor unchanging, and that the modern scholastic philosophy elaborated on the basis of medieval models is intellectually feeble.[5]

In recent decades, three trends have been particularly important in shaping approaches to medieval philosophy. All areas of medieval study have become more and more professional, and there has been an increasing emphasis on the need for research on the raw material of medieval scholarship: the large, still in many parts unexplored collections of manuscripts in libraries throughout Europe. So much remained, and remains, to be done in the way of editing works of medieval philosophy, studying their diffusion, establishing chronologies and tracing influences that many scholars have devoted their careers to this type of work. What they achieve, so long as they are technically competent, is of enormous value; indeed, a good edition is likely to go on being used and appreciated long after the best of interpretative studies have been left to gather dust. There is, however, a tendency among some scholars to see these sort of tasks as constituting the main business of historians of medieval philosophy. Once the manuscripts have been studied and edited most of the historian's work, they feel, has been done: it remains only to present the medieval philosopher's thoughts in terms as close as possible to his own; any attempt at deeper analysis or, God forbid, criticism is disparaged as 'unhistorical'. In this way, the

pursuit of scholarly goals, so valuable in itself, is made to obstruct the *understanding* of medieval philosophy.

This emphasis on technical historical and editorial scholarship occurs mostly among scholars who regard themselves primarily as medievalists (and often belong to history or to literary faculties in universities). A very different trend is to be found among the scholars of medieval philosophy in the philosophy faculties of universities in Britain, North America and Australasia. Whereas medieval philosophy has usually had a place in philosophy courses in continental Europe, up until the 1950s it was almost entirely ignored by English-speaking analytical philosophers, working in the tradition of Frege and Russell. Then a number of pioneers—medievalists who had taught themselves logic, such as Ernest Moody; logicians with medieval interests, such as Peter Geach and Arthur Prior—began to point out the remarkable parallels between modern and medieval logic.[6] Many of the medieval logicians' ideas could be clarified by using modern symbolic logic to describe them, and it became apparent that in some fields they had anticipated the discoveries of the twentieth century. More broadly, the highly technical, unrhetorical, logically-based manner of addressing philosophical issues in the medieval universities—which had often been another cause of neglect—was seen to be uncannily close to the methods of the twentieth-century analytical school. Since the 1960s or 1970s a group of philosophers, mainly in North America, led by Norman Kretzmann, have brought the interests, technical training and clarity of the analytical method to bear on a range of mostly thirteenth- and fourteenth-century philosophy and, especially, logic. *The Cambridge History of Later Medieval Philosophy,* edited by Kretzmann, Jan Pinborg and Anthony Kenny (whose career has combined original work in modern philosophy with studies of ancient and medieval philosophers), is both a manifesto of this approach, and a monument to its achievements in the years up until 1982.[7] It remains the single most important modern book on medieval philosophy.

The 'analytic' approach to medieval philosophy championed by these scholars searches for passages of philosophical interest in medieval works, extracting them where necessary from their wider theological or other context. The aim is to set out as clearly as possible the arguments used by medieval philosophers, especially where they relate to concerns shared by modern philosophers, and to examine them critically, in much the same way as a philosopher now would examine the arguments of one of his contemporaries. The great success of this method is that it enables the medieval philosophers to be understood. Understanding a philosophical argument or position involves being able to explain the claims it makes and the distinctions it involves, and being able to see what would count as an argument against it. Most

non-analytical discussions of medieval philosophy fail to do this, both from lack of close attention to the stages of each argument and from the decision not to attempt translation of medieval terms into modern ones, which we now can meaningfully manipulate in our reasoning. In this sense, the analytical method sets a standard which any conscientious student of medieval philosophy should emulate: to retreat from its demands is to seek refuge in antiquarian obscurantism.

None the less, there is reason to doubt that the analytical method, without further development and change, provides the path which will lead medieval philosophy, as the editors of the *Cambridge History* hoped ([Intr. 8] 3), from the 'philosophical ghetto' and make its study 'intellectually continuous' with the activity of contemporary philosophy. Despite the impression to the contrary that the last two paragraphs might have engendered, the study of medieval philosophy is *not* flourishing in English-speaking philosophy departments. Its exponents there are few and thinly spread. For most students of philosophy, and professional philosophers, medieval philosophy is a non-subject, while medieval historians continue to approach philosophical texts in ignorance of the analytical method or hostility to it. The failure of the analytical approach to medieval philosophy to win many converts may be blamed partly on academic narrow-mindedness, but partly it must be traced to the nature of its results. Although the analytical approach has made a number of medieval arguments and positions comprehensible, it has done little to show why it is worth studying and understanding them. At best, the medieval authors are demonstrated to have anticipated modern discoveries. More often, their arguments, although ingenious, are exposed as flawed. The analysts are, indeed, eager to emphasize, despite these results, the greatness of the best medieval philosophers as philosophers, but philosophy students, even if convinced by these protestations, might be excused for preferring to study other great philosophers of the past, whose overall positions link up more obviously with modern concerns, whilst historians will be left puzzled about what exactly all this detailed scrutinizing of argument and counter-argument is supposed to have revealed. At the root of the problem is the way in which the analytical approach strips away the context of medieval discussions and pays scant regard to the overall aims and presuppositions of the writers, in order to isolate a core of philosophical argument. Yet, it might be thought, its exponents have no alternative. Whereas the wider contexts of early modern and, strangely, ancient philosophical arguments have strong connections with modern concerns, the contexts of the medieval arguments—very often theological—seem irremediably strange and foreign to present-day concerns. This judgement, however, is too swift. The wider contexts of medieval philosophical arguments need to be grasped thoroughly and

in their relation to general problems and tensions in medieval culture, rather than seen superficially and in isolation. Then their interest, and their connections with modern concerns, will emerge.

A third trend, evident in the work of some of the leading scholars of medieval philosophy in Europe (such as Kurt Flasch, Alain de Libera, Ruedi Imbach and Burkhard Mojsisch),[8] shows just such a willingness to explore and explain the wider contexts of medieval philosophy. Each of these scholars has concentrated especially on areas which have traditionally been thought marginal to medieval philosophy: the Platonic tradition which flourished in late thirteenth- and fourteenth-century Germany, philosophical works written for or by laymen, philosophical writing in the vernacular by figures such as Dante and Eckhart. Their claim is not merely that this material deserves attention, but also that it helps to provide a new picture of the underlying concerns and aims, and of the range, of medieval philosophy.

This volume does not seek to represent any one method of treating medieval philosophy. Its contributors were chosen because of their specialist knowledge of the individual areas they discuss, and also with the aim of producing a book which would *not* follow a single approach to the area, but show something of the diversity of approaches now current. The various approaches have, however, been carefully matched to the subject-matter, so as to provide different points of entry to the subject for readers from different academic backgrounds. To take just the most striking examples. Later medieval logic and the work of Ockham are the two areas of medieval philosophy with the most obvious links with modern analytical philosophy. The chapters devoted to them (17 and 14) have been written by scholars able to bring out and explain these links; readers from an analytical background might wish to begin here. In his chapter on Eriugena and Anselm (6), Stephen Gersh has drawn on a different strand of modern philosophy, the semiotic theories originating in France. These theories are not to everyone's taste (Gersh himself makes clear how distant his own approach is from the editor's!), but Eriugena's work, especially, raises questions about reading, interpretation and polysemy, which are now of wide interest and have rarely been recognized in medieval philosophy. Latin philosophy of the early Middle Ages is often anonymous and needs to be studied not just by looking at individual texts and authors, but also by a careful examination of the manuscript evidence of teaching and learning. Rosamund McKitterick brings a manuscript specialist's attention to this area. Readers with a historical background may find her chapter (5) a good starting place or, if they are interested in broader questions about the relation between religion and the transmission of culture, they might look to the chapter on Boethius (1), or that by Jean

Jolivet on earlier Arab philosophy (2) or by Zénon Kaluza on late medieval philosophy (18). The general reader, unsure perhaps whether or not medieval philosophy has anything at all to offer, could not do better than begin with the chapter (11) on the most celebrated medieval thinker of all, Aquinas, where Brian Davies brings out, in simple, non-technical terms, some of the themes in his work which are still important today.

The chapters of this volume may, then, be taken individually, as essays in different styles on various, related (and chronologically ordered) subjects. But there is also a way in which this volume should be seen and used as a whole. Both those coming new to medieval philosophy, and those already familiar with the area, need a chronological and geographical/linguistic map of the subject. This volume offers a map of the subject as it is seen now by specialists—and it is a map strikingly different in two ways from that offered by existing general histories of medieval philosophy in English.[9] First, most histories treat Arab and Jewish philosophy almost exclusively with regard to their influence on Latin philosophy, almost as if Avicenna, Averroes and Maimonides had written so that one day they could be studied by Aquinas and Duns Scotus. By contrast, the chapters on Arab and Jewish philosophy here are the work of experts in Arab and Jewish thought and culture and emphasize both the cultural context of these philosophers and their achievement in absolute terms.[10] Second, in most histories of medieval philosophy, the thirteenth century is seen as the period of greatest achievement in Latin philosophy, epitomized by the work of Thomas Aquinas, with the centuries before leading up to it by way of preparation and the centuries after representing a decline, slow at first, then steep. In this *History,* by contrast, the early medieval period and twelfth century is seen as an important area of philosophy in its own right, and the later medieval centuries are not overshadowed by the thirteenth. Although Aquinas is recognized as an outstandingly great thinker, his work is seen as belonging to the first generation of Latin philosophers who had thoroughly absorbed the new translations of Aristotle and the Arab and Jewish writers: the tradition of medieval philosophy became more sophisticated in the century following his death and it remained lively (despite the vicissitudes of the fifteenth and sixteenth centuries) until the early 1600s.

NOTES

1 This point is brought out very clearly in de Libera [Intr. 9].

2 A.C.Grayling (ed.) *Philosophy: a Guide through the Subject,* Oxford, 1995, p. 3.

3 Hostility to medieval philosophy (and especially to medieval logic) goes, of course, far further back: to the fourteenth century, when early humanists began to attack what they perceived as the obscurity and barbarous Latin of the university logicians. But these critics did not complain about the connections between philosophical concerns and revealed doctrine. On the historiography of medieval philosophy, see also Marenbon [Intr. 10, 83–90] and Van Steenberghen [Intr. 13] and, especially, Imbach and Maierù [Intr. 6].

4 The most distinguished recent exponent of the approach described in this paragraph is Fernand Van Steenberghen (see, for example, [Intr. 12]). His approach has influenced English-language readers both through translations of his work (for instance [Intr. 13]) and through David Knowles's widely read textbook [Intr. 8] which is heavily indebted to Van Steenberghen.

5 There is not space here properly to consider Etienne Gilson, whose work still provides many with their first and only glimpse of medieval philosophy. Gilson was both a remarkable scholar and a brilliant, independent (and often idiosyncratic) thinker, influenced by modern philosophers, especially Heidegger. In the course of his life, he moved further and further away from the model of medieval philosophy as a discipline separable from Christian doctrine, as he developed his notion of 'Christian philosophy', impossible without revelation, yet distinct from theology. See A.de Libera, 'Les Etudes de philosophie médiévale en France d'Etienne Gilson à nos jours', in Imbach and Maierù [Intr. 6] at 22–33.

6 Especially important pioneering books are Geach [Intr. 3] and Moody [Intr. 11].

7 There have, of course, been many important studies of medieval philosophy using the analytical method in the fifteen years since then. Two of the most impressive are Marilyn McCord Adams's two-volume study of Ockham [14.12] (discussed in Chapter 14) and Simo Knuuttila's work on modality [1.21]. (For complicated historical reasons, philosophy in Finland has tended to belong to the English-language analytical school, though without the indifference towards the history of philosophy, found in many English and American philosophy departments.)

8 See Flasch [Intr. 2] and Imbach [Intr. 5]. For the work of de Libera and Mojsisch, see especially Chapter 10. This chapter is intended merely as a digest of some of the important ideas proposed by these scholars, and to provide basic information on Bonaventure and the translations which would not otherwise have been included in the volume. Its author is not a specialist in the area!

9 It is close, however, to that provided by Alain de Libera in [Intr. 9], which is strongly recommended to all who can read French.

10 The space allocated to Arab and Jewish philosophy here is, however, less than it deserves. And Byzantine philosophy, although less important, ought not, practical considerations aside, to have been excluded (for a good survey, see de Libera [Intr. 9] 9–51). My excuse as editor is that, given severe pressures on the space available, it seemed sensible to angle the volume towards the material which would be most readily accessible, in translation and in the original, to readers.

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CHAPTER 1

Boethius: from antiquity to the Middle Ages

John Marenbon

Boethius is a difficult figure to place in the history of philosophy. Considered just in himself, he clearly belongs to the world of late antiquity. Born in 480, at a time when Italy was ruled by the Ostrogoths under their king, Theoderic, Boethius was adopted into one of the most distinguished patrician families of Rome and benefited from an education which made him at home not only in classical Latin culture but also in Greek literature and philosophy. Although most historians doubt that Boethius actually went to Alexandria or Athens to study, he certainly knew the work of Greek Neoplatonists of the immediate past: Proclus, Porphyry and probably Ammonius. Although a Christian, writing in Latin, he therefore falls into a tradition stretching back directly to Plotinus and, ultimately, to Aristotle and Plato. Yet considered as a late antique philosopher, his importance is limited. Most of Boethius' ideas and arguments derive from his Greek sources; his own contribution lay more in choosing, arranging and presenting views than in original thinking. By contrast, from the perspective of medieval philosophy, Boethius looms large. Only Aristotle himself, and perhaps Augustine, were more important and wide-ranging in their influence. Besides providing scholars in the Middle Ages with two of their most widely-read textbooks on arithmetic and music,[1] through his translations, commentaries and monographs Boethius provided the basis for medieval logic. His short theological treatises helped to shape the way in which logical and philosophical techniques were used in discussing Christian doctrine. His *Consolation of Philosophy,* read and studied from the eighth century through to the Renaissance, and translated into almost every medieval

vernacular, was a major source for ancient philosophy in the early Middle Ages and its treatment of goodness, free will and eternity continued to influence thirteenth- and fourteenth-century thinkers. In short, it would be hard to understand the development of philosophy in the medieval Latin West without looking carefully at Boethius' work—and it is for this reason that, although he falls outside its chronological limits, a chapter on his work (with glances forward at its medieval influence) begins the present volume.

THE LOGICAL WORKS

In one of his logical commentaries ([1.4] II:78–9), Boethius announces that he is planning to translate into Latin all the works of Aristotle's he can find, and all of Plato's dialogues, and to provide commentaries for each of his translations. Only for Aristotle's logic was the project, at least in large part, realized. Boethius translated the whole of Aristotle's logical *organon,* along with the *Isagoge* ('Introduction') by Porphyry. The translations, executed in meticulous word for word fashion, remained the standard versions of the *organon* until the end of the Middle Ages, except in the case of the *Posterior Analytics,* where his version was lost. In addition, Boethius wrote two commentaries each on the *Isagoge* and on *On Interpretation,* a commentary on the *Categories* and scholia on the *Prior Analytics;* there are grounds for thinking he also wrote a commentary on the *Topics,* although it does not survive.[2]

In formulating his project, Boethius was strongly influenced by the common attitude among late Neoplatonists to Plato and Aristotle. Although they looked to Plato as the originator of the philosophy which gave understanding of the intelligible world and which they pursued in their most ambitious works, Neoplatonists from Porphyry onwards recognized a distinct place for the study of Aristotelian logic; and in the Alexandrian school, Neoplatonists such as Ammonius devoted most of their public teaching to Aristotle's logic. This logic was seen to be concerned with language as used to describe the world we perceive with our senses. So long as students of logic were aware that they were not dealing with a complete description of reality as the Neoplatonists envisaged it, they could pursue the subject with profit. Plato and Aristotle could be reconciled, once their different spheres of interest were recognized (it is no surprise that Boethius himself planned to write a monograph showing the agreement of Plato and Aristotle). In the logical commentaries he kept scrupulously to the Aristotelian approach, even where he produced two commentaries to the same text.[3] Although he speaks of writing a second, 'Pythagorean' commentary on the *Categories,* he seems never to have done so.[4]

Some scholars have argued that Boethius' logical commentaries are merely direct translations of marginalia he found in his manuscripts of the Greek texts, but this view is implausible. Boethius gives every indication of having worked from a small number of sources, among which Porphyry was his favourite, selecting, arranging, paraphrasing and from time to time adding his own reflections.[5] It remains true that these commentaries are thoroughly unoriginal works, but they were all the more valuable for that reason to medieval thinkers. Rather than giving them the views of just one logician, the commentaries opened to them a whole tradition of late antique thinking over a wide range of subjects, since the commentaries go far beyond the discussion of strictly logical questions, to consider matters of metaphysics, meaning and the philosophy of mind. Unlike the Neoplatonic students or Boethius himself, however, the medieval readers did not suppose that the approach to philosophical problems taken in the commentaries was a deliberately limited one, to be complemented and superseded by an investigation of intelligible reality. As a result, medieval Western philosophy was given a strong bias towards Aristotelian ways and aims, even before Aristotle's metaphysical, scientific and ethical works became available.

There are many illustrations of this phenomenon. An obvious example is the influence of Boethius' discussion of universals in his second commentary on the *Isagoge* ([1.3] 159:10–167:20). Porphyry himself had skirted over the problem of universals as one too difficult for the beginners to whom the *Isagoge* was addressed. He left just a set of unanswered questions, which suggest that, understandably for a Neoplatonist, were he teaching more advanced students he would have wished to raise and defend the existence of Platonic universals, existing independently of particulars and incorporeally. Boethius, however, presents the view of Alexander of Aphrodisias, which he considers to be the solution in accord with Aristotle. His argument, identifying the universal with the form which makes any particular of a given species the sort of thing it is, and which can be grasped mentally by abstracting from accidental differences, has been criticized by modern commentators as muddled—and was perceived as such by many medieval readers. But it presented a realism quite distinct from Platonic realism, and in the medieval debate, dominated by refinements of Boethius' position and nominalist attacks on it, Platonic realism played almost no part.[6] Or, to take another example, Boethius' discussion of perception, the mind and language at the beginning of his second commentary on *On Interpretation* introduced many of the themes which Aristotle explored in his *On the Soul*.

Boethius' work as a logician went beyond his plan of translating and commenting on Plato and Aristotle. He wrote a series of logical

monographs, on categorical syllogisms, hypothetical syllogisms, division and topical reasoning, as well as a commentary on Cicero's *Topics*. The short treatise *On Division* deals with some of the material of the *Isagoge* and *Categories*. In writing about categorical syllogisms (syllogisms the premisses of which are non-complex statements)—in his earlier *On Categorical Syllogisms* and his later, unfinished *Introduction to Categorical Syllogisms*—Boethius follows Aristotle closely, though adding some post-Aristotelian developments concerning negative terms. The other two treatises introduce new, non-Aristotelian areas of logic. A hypothetical syllogism is a syllogism where one or both of the premisses are molecular statements: statements consisting of more than one simple statement joined together by a connective. These are not just conditionals (as the word 'hypothetical' may suggest) but also conjunctions and disjunctions. Whereas the variables in categorical syllogisms are terms, the variables in hypothetical syllogisms are statements. *On Hypothetical Syllogisms* goes beyond Aristotle, who had restricted himself to the logic of terms, by exploring the logic of statements (prepositional logic), although it seems not to draw on the most sophisticated ancient exponents of this branch of logic, the Stoics. To a modern reader, some of the inference schemata Boethius proposes will seem strange, since—unlike most modern logicians—he assumes that it cannot be the case that, if *p* then *q* is true, it is also true that if *p* then not-*q*.[7] For medieval logicians, however, *On Hypothetical Syllogisms* was one of the two important bases from which they went on to elaborate a logic of statements.

The other basis was Boethius' *On Topical 'differentiae'*. The theory of topics was seen originally as a way of discovering arguments: in the case of Aristotle's *Topics,* arguments for use in dialectical argument-contests, in the case of many later writers (including Cicero in his *Topics*) for use in legal oratory. By Boethius' time, topics were considered to be both what were called 'maximal propositions'—obviously true, universal generalizations—and the *differentiae* by which the whole genus of maximal propositions is divided into subordinate genera and species. For instance, one of Boethius' maximal propositions is that 'things whose definitions are different are themselves also different' and its *differentia* is 'from definition'. Themistius and Cicero had each divided up the maximal propositions differently, producing two alternative sets of *differentiae*. *On Topical 'differentiae'* explains the theory of topics, sets out the two schemes of *differentiae* and compares them. The use of the treatise as an aid to constructing (and, by extension, to confirming) informal arguments is obvious. The link with formal logic arose because, in addition to maximal propositions expressing what might, at best, be thought of as common-sense generalizations ('what seems true to everyone or to many or to the wise should not be

denied'), there are others which put forward some of the fundamental principles which are needed for logical deduction, such as *modus ponens* (if *p* then *q,* and *p,* then *q*) and *modus tollens* (if *p* then *q,* and not-*q,* then not-*p*). Some medieval logicians would see the theory of topics, as set out by Boethius, as providing the laws both for syllogistic inference and for the logic of statements.

THE THEOLOGICAL TREATISES

Boethius' reputation as a theologian depends on five short treatises, called in the Middle Ages the *Opuscula sacra*. Only three of them are of importance: no. 2 is a briefer, probably preliminary version of part of no. 1, whilst no. 4 ('On faith')—sometimes, but probably wrongly, supposed inauthentic—is a straightforward confession of faith, containing nothing of Boethius' own thoughts. No. 5, a refutation of the opposing extreme Christological views of Nestorius and Eutyches, was probably the first to be written (after 512). Christology was a controversial issue in Boethius' day. The statement of the Council of Chalcedon (451), which affirmed that Christ was made known in two natures, but without division or separation, was accepted in the West, but challenged in the East by the followers of Nestorius, who emphasized the distinctness of Christ's two natures, and by monophysites, who held that in the person of Christ there is only a single, divine nature. Acacius, the patriarch of Constantinople (471–89) issued a document, the *Henotikon,* which condemned Nestorius and also condemned the extreme monophysite, Eutyches, but failed to reaffirm the Council of Chalcedon's statement about the number of natures in Christ. This failure provoked a schism (the 'Acacian schism') with the Latin Church. Boethius' treatise was stimulated by the attempt in 512 of a group of Greek bishops to draw up a compromise position which would be acceptable to the papacy (see [1.31]). Boethius—who was more willing than the Pope to go along with the Greek bishops' position—clearly wished to contribute to the debate, though less perhaps by the view he stated, than by the manner in which he put it forward. He adopted the precise, scholastic style of theological writing which had become popular in the Greek East, but went against usual practice in the Latin West. He carefully defined his terms—'essence', 'subsistence', 'substance', 'person' and 'nature'—and proceeded to argue that his heterodox opponents were guilty of logical, as well as doctrinal, error (see [1.14]). Boethius' treatises on the Trinity (1 and 2) also seem to owe their origin to events connected with the Acacian schism. In 519, a group of Scythian monks, loyal to Chalcedon, came to Rome to try to gain acceptance of the formula 'one of the Trinity suffered in the

flesh', which had been rejected by the authorities in Constantinople. Boethius approaches the question of divine triunity more generally, trying to show that a careful application of logical tools, especially Aristotle's theory of the ten categories, shows how God can be both three persons and yet one God.

Boethius' theological treatises were studied intensely, glossed and commented on, from the ninth century onwards. Their importance for medieval scholars was unrelated to the doctrinal controversies from which they arose: although there were many theological controversies in the medieval Western Church, they were rarely on the questions of Christology and trinitarian doctrine which were so important in late antiquity. Medieval thinkers, rather, found in the *opuscula* a valuable source of information about ancient philosophical doctrines. To take two examples. Boethius' definition of 'nature' in treatise no. 5 introduced them to ideas from Aristotle's *Physics*. A discussion early on in treatise no. 1 ([1.7] 10:21–12:58) discusses in detail the relations between God, form, matter and being. God, says Boethius, is not just form without matter, he is also (the only) non-composite pure form. Physical objects are concrete wholes of form and matter but, Boethius insists, the embodied forms are merely images of other, disembodied forms. Much twelfth-century metaphysics is an effort to clarify and develop this three-layered hierarchy of pure, non-composite form, disembodied forms and the images of these forms in material things. Medieval thinkers were also greatly influenced by the method of these treatises. They suggested that logical tools and precisely defined philosophical terms could both clarify difficult points of Christian doctrine and provide the means to demonstrate that, given certain fundamental points of doctrine (accepted by all parties), heterodox positions involved logical error. These two patterns of logically-competent, philosophically-informed theological speculation were two of the main models for Christian thinking from the ninth century to the fifteenth.

The third of the theological treatises is different in character from the others. In the Middle Ages it was known as *De hebdomadibus* ('On the groups of seven') from the reference in its first sentence to a work, since lost, by Boethius called the 'Hebdomads'. The treatise is intended to clarify a problem considered there: how is it that all things are 'good in that they are', although they are not 'substantial goods'? There is nothing explicitly Christian in its content. Boethius begins with a list of philosophical axioms which modern scholars have been able to interpret in the light of late antique Neoplatonism, but which perhaps proved all the more stimulating to medieval commentators by their obscurity.[8] The discussion which follows is, in effect, an unravelling of the ambiguity of the phrase 'good in that it exists'. One way in which something can be good in that it exists is to be 'a substantial

good'. God is a substantial good because he cannot be conceived except as good. Everything else is good in that it exists, but in a different way. All things derive their existence from God (and could not exist unless they did so), and because God is good, they are good by virtue of the existence they derive from him. It is true, therefore, that they cannot exist without being good. They, however, unlike God, could be conceived as not being good. They are not, therefore, substantial goods. Some of the considerations Boethius raises here would be explored in a wider context as part of medieval discussion of the transcendentals—those attributes, including goodness, which everything was considered to have by virtue of existing.[9]

'ON THE CONSOLATION OF PHILOSOPHY': THE HIGHEST GOOD

Although they lived under the rule of a barbarian king committed to a heretical Arian Christianity, Boethius and his aristocratic Roman contemporaries were allowed to retain many of the trappings of importance and authority and, if they chose, to exercise real power as officials of Theoderic. Boethius combined—as a man of his rank would have been expected to do—public service with his private devotion to scholarship. Until near the end of his life, however, writing and translating was his primary concern, and his political activities were confined to Rome and the Senate, away from the court of Theoderic at Ravenna.[10] In 522 Boethius was given the almost unprecedented honour of both his sons being appointed as consuls together. In the same year, Boethius himself was appointed to be 'Master of the Offices', an important and influential position at the Ravenna court. He had not held the post for long when he was arrested, imprisoned and eventually (probably in 525, but possibly in 524 or 526) executed, on charges of treason against the Gothic regime and sorcery. Boethius himself dismisses all these accusations and attributes his downfall to the intrigues of enemies created by his uprightness and his defence of the weak as a court official. The underlying reasons for Boethius' execution—followed soon by that of his respected father-in-law, Symmachus—seem, however, to lie in Theoderic's growing doubts over the loyalty to him of the Roman aristocracy, after the strongly pro-Catholic Emperor Justin acceded to the Byzantine throne in 518 and the Acacian schism had finally been resolved in 519.

While in prison, Boethius wrote the work by which he is most remembered, *On the Consolation of Philosophy (De consolatione Philosophiae)*. Here he deserts his usual simple presentation and dry style for the elaborate literary form of a *prosimetrum* (a work in prose

interspersed with verse passages), which allows his personal circumstances to give urgency to the philosophical questions he tackles. The *Consolation* is an imaginary dialogue between Boethius and Philosophy, a female personification of the tradition of philosophical wisdom which, despite the attempts of different schools to sunder it (her clothes are torn, because each philosophical sect has tried to take some of them for itself), is a unified one, stretching back to Socrates and Plato. Boethius represents himself at the beginning of the dialogue as overcome by grief and self-pity: he bewails the injustice of the accusations against him and the turn of fortune which has brought him from a position of importance to prison; he longs for death to put an end to his suffering. Philosophy treats him as someone suffering from an illness. The shock of his fall from power has made him forget the wisdom which, from his youth, he had learned from her. He still retains the knowledge (I, prose 6) that there is a God who rules the universe, but he no longer knows to what end all things move. He believes that, whereas the workings of nature follow a rational order, in human affairs the evil are left free to triumph and oppress the good. Philosophy begins with what she calls 'lighter remedies', a series of arguments to show him that his personal downfall is not the disaster he takes it to be. In particular, she insists that he cannot blame fortune for instability, since it is the very nature of fortune to be unstable, and of the goods of fortune, such as riches, power, honour and fame, to be transitory.

Boethius is now prepared for Philosophy's 'weightier remedy', her argument about the highest good (bk III). When people seek to obtain the various goods of fortune, she argues, they are motivated by a genuine desire for the good—we desire only what we consider to be good—but are misled by ignorance about the nature of the good. Each of the goods of fortune, taken on its own, is worth little and does not last. People's mistake is to seek these goods individually, rather than trying to gain the single good from which all these other goods derive. This highest good is happiness *(beatitudo);* but, since God (III, pr. 10) is that than which nothing better can be thought, he is perfectly good. Therefore the highest good, which everyone seeks but most, ignorant of its undivided nature, fail to gain, is God himself. Philosophy goes on (bk IV) to explain why, despite appearances, it is not the case that the wicked enjoy power while the good are left impotent. She distinguishes the will to obtain something and the power to be able to do so. Everyone, she says, wants happiness. The good have the power, by being good, to gain happiness, whereas the evil are unable to gain it. By contrast with Boethius-the-character's earlier view of a universe in which God has abandoned humankind to its own devices, Philosophy explains that divine providence arranges all things; fate is simply the

working out as actual events of this providential plan which is conceived 'in the purity of God's intellect' (IV, pr. 6).

The thumbnail sketch in the last paragraph of Philosophy's arguments does little justice to the reasoned manner in which she is made to develop her points. Yet the impression of looseness and question-begging which may emerge is not misleading. At almost every stage, Philosophy makes assumptions which an interlocutor less docile than Boethius-the-character would have questioned, and the views she reaches, although sweeping, are far from clear. To take just two examples. Central to Philosophy's argument is the idea that there is a perfect good, from which the imperfect goods of fortune are derived. She argues that the existence of a perfect good follows from the existence of imperfect goods, because (III, pr. 10) 'if in any genus there seems to be something which is imperfect, it is necessary that there is also something perfect in it'. She supports this view by asking from where the imperfect thing would derive its existence, did a perfect one not exist. This principle may, indeed, have been one which Neoplatonists of Boethius' time would accept, but is not the obvious truth which Philosophy claims it to be. Another central idea is that the good man is happy because he is able to gain the highest good, God. But in what does this grasp of the highest good consist? What seems to be called for is some idea of a beatific vision, either in this life or beyond it. Philosophy, however, provides no such explanation. Yet it may not be right to criticize Boethius-the-author for merely indicating the shape of a philosophical position, rather than describing and justifying it in detail. The full arguments for Philosophy's views, he might argue, are to be found in the tradition of writing she personifies. The *Consolation* merely sets out the main conclusions of the way of thought which the character Boethius had supposedly forgotten in his grief; five short books cannot be expected to provide a substitute for his years of Neoplatonic study.

'ON THE CONSOLATION OF PHILOSOPHY:' DIVINE PRESCIENCE AND HUMAN FREE WILL

In Book V, the manner of the *Consolation* changes. The ornate language of the earlier books all but disappears in favour of a more technical style, close to that of the logical commentaries; and it is the Aristotelian logical tradition which now gives Boethius his starting point. After a short discussion of chance, the dialogue takes up the question of God's omniscience and human freedom. Here the issue is strictly God's fore*knowledge:* his providential pre*destination,* executed

in time through fate, as discussed in Book IV, does not enter into consideration.

Intuitively, divine omniscience seems to pose a threat to human free will. If God knows everything, then he knows what I will do tomorrow. Whether I drink red wine or white wine with my dinner tomorrow might appear to be something I can choose by my free will. But if God knows *now* which I shall drink, is not my free will over the choice illusory? If God knows now that I shall drink white wine—and it is knowledge, not just a good guess—then it seems that the possibility that I shall drink red has already been closed. I have no choice but to drink white. One way of trying to formalize this train of thought is what might be called the 'knowledge-brings-determinism' argument. Part of the definition of 'knowledge' is that it is true belief. So, if I know *p,* then *p* is true. Since this follows from a definition, it is a matter of necessity. Just as it is a matter of necessity that, if I am a bachelor, I am unmarried, so it is a matter of necessity that if I know *p, p* is true. God knows everything, and so for *p* we can substitute any true statement about the past, present or future, including statements about future events such as my drinking the white wine. If God knows that I will drink white wine tomorrow, then necessarily I will drink white wine tomorrow, and similarly for any statement about the future—there are therefore no future contingents; all that will happen will happen by necessity.

The knowledge-brings-determinism argument, however, is invalid. It commits what would now be called a scope fallacy, by failing to distinguish whether the whole complex statement, or rather just an element of it, should be qualified by 'necessarily'. Consider the analogy of the bachelor. It is not the case that, if someone is a bachelor, then necessarily he is unmarried. He might well have married before now, although he has not. Rather, we ought to say: necessarily, if he is a bachelor, he is unmarried. Similarly, the definition of 'knowledge' shows merely that necessarily, if God foresees *p,* then *p*. Allowing that the whole conditional (if God foresees *p,* then *p*) is necessarily true in no way implies that *p* itself is necessarily true, and so it presents no threat to contingency or to human free will.

Boethius is often credited with showing the fallaciousness of the knowledge-brings-determinism argument and contrasted with earlier thinkers, such as Augustine who, though upholding free will, thought the logic of this argument irrefragable.[11] The basis of the claim is a distinction Boethius makes near the end of his discussion of divine prescience (V, pr. 6) between 'simple necessity' and 'conditional necessity'. As an example of strict necessity Boethius gives the necessity that all men are mortal; as an example of conditional necessity, that 'if you know someone is walking, it is necessary that he is walking'. He

goes on to explain that, in such a case of conditional necessity, it is not the nature of the matter, but the 'adding of the condition' which brings about the necessity; and conditional necessity, he says, does not imply simple necessity. At first sight, especially in light of his terminology, Boethius *does* seem to be distinguishing between simple (non-composite) necessary statements, and the necessity of a whole conditional; and it is this distinction which is needed to expose the fallacy of the necessity-brings-determinism argument, by contrasting the whole conditional 'If God knows *p,* then *p*', which is necessary, with the simple statement *p,* the consequent of this conditional, which is not necessary. But closer scrutiny of the text does not support this reading.[12] Boethius is not talking about different types of statement but about different types of necessity. He is saying that the fact that men are mortal is necessary according to simple necessity, whereas, if you know someone is walking, the fact that he is walking is necessary, but only according to conditional necessity. Simple necessity, he believes, constrains—men cannot but die some time; but not conditional necessity—the man might have chosen to remain still.

Boethius' idea of conditional necessity is bound up with his view, inherited from the Aristotelian tradition, of the necessity of the present. Immediately after he has used the example of knowing (you know he is walking) to illustrate conditional necessity, he moves on to another example, which he apparently considers parallel: 'No necessity compels a walking man that he should will to walk although at that time when he is walking, it is necessary that he walks.' Here, too, Boethius believes, is an example of conditional necessity: the fact that he is walking at time *t* becomes necessary, conditionally though not simply, by the addition of the condition that it is now time *t*. Modern philosophers would say that, although it is not possible that he walk and not walk at *t,* it is possible that, although he is walking at *t,* he might not have been walking at that time: there is another possible world in which he stayed still at that moment. Boethius had no such conception of synchronous alternative possibilities.[13]

The link Boethius makes between conditional necessity and the necessity of the present renders the way in which he goes about tackling the question of divine prescience and human free will explicable. At the beginning of the discussion (V, pr. 3) the character-Boethius puts to Philosophy a version of the knowledge-brings-determinism argument, as applied to divine prescience. He considers the counter-argument made by some, that there is no causal relation between divine prescience and future events, but he replies to it by saying that, though there is no causal relation, none the less, divine prescience renders future events necessary. In her reply (which presumably gives Boethius-the-author's considered view), Philosophy

begins by arguing that Boethius was wrong to dismiss the counter-argument. If divine prescience does not cause future events to take place, it does *not* determine them. She recognizes, however, that there is something troubling about the idea that God knows now what I shall do tomorrow. Since, if the action in question is one I shall freely decide on it is not certain now what it will be, it seems as if there can be no foreknowledge about it, merely opinion. Philosophy's way of dealing with this problem (V, pr. 4–5) is to explain that beings of different levels cognize in different ways. God's 'intelligence' is unlike our reason, just as our reason differs from the senses. To see how God's intelligence works, we must realize (V, pr. 6) that for God to be eternal means that he enjoys 'the entire and perfect possession at once of unending life' *(interminabilis vitae tota simul et perfecta possessio)*. God therefore knows all things, past, present and future, as if they were present. Only after having established this point at length, does Philosophy introduce briefly the distinction between simple and conditional necessity. The idea of God's timelessness—which would have been entirely superfluous were this distinction Boethius' way of noticing the scope fallacy which underlies the knowledge-brings-determinism argument—is, then, central to his treatment of prescience and free will for two reasons. First, it enables him to answer the epistemological problem about how an uncertain future could be *known:* for God, the object of knowledge is not future (or past), but present. Second, it allows him to resolve the logical problem which troubled the Boethius-the-character-in-the-dialogue, by assimilating God's present-tense knowledge of *p* to the more general case of *p* being true at the present time. Both cases are seen to involve an added condition ('GOD KNOWS *p*'/'*p* WHEN *P*'). Boethius accepted the necessity of the present, but also knew that no one thought it a constraining necessity, and so it was now easy for him to characterize both it and the necessity implied by God's omniscience as a special sort of non-constraining 'conditional necessity', to be distinguished from constraining simple necessity.

From the thirteenth century onwards, detection of the scope fallacy involved in the knowledge-brings-determinism argument was routine. Statements of the form 'if *p,* then necessarily *q*' were said to exhibit 'necessity of the consequent' *(necessitas consequentis),* as opposed to statements of the form 'necessarily, if *p* then *q*', which exhibited 'necessity of the consequence' *(necessitas consequentiae)* ('*consequentia*' was the word for an 'if…then…' statement). This awareness was, however, often put in terms of Boethius' simple and conditional necessity, as if Boethius had shared it. Moreover, Boethius' treatment of God's timeless eternity was widely discussed. Some, such as Aquinas, adopted it (in the *Summa Theologiae* Aquinas states verbatim Boethius'

definition of eternity as 'the entire and perfect possession at once of unending life' and defends it); other, later thinkers argued vigorously against it. Aquinas also found an important use for this view of timeless eternity in tackling an argument from divine prescience to determinism which Boethius had not anticipated. If God foreknows everything, then it is not just that God knows that tomorrow I shall drink white wine, not red: it is also true that it *has* come to God's knowledge that I shall drink white wine, not red, tomorrow. 'It has come to God's knowledge that *p*' implies *p* and, since it is a statement about the past and the past cannot be changed, if it is true, it seems it must be necessarily true; what a necessary truth implies is itself necessarily true; and so, the argument goes, my drinking the white wine is necessary.[14] There are various ways of attacking this argument, but Boethius provides Aquinas with a very straightforward one: if God knows in a timeless eternity, then it is not the case that God *has come to know* anything. As with many aspects of Boethius' work, medieval thinkers found more in his argument about divine prescience and human free will than he had explicitly put there. This may be a tribute to a certain undeveloped philosophical insight in Boethius—an inexplicit feel for important problems and the moves needed to deal with them—as well as to the cleverness of his medieval readers.

'ON THE CONSOLATION OF PHILOSOPHY': NEOPLATONISM AND CHRISTIANITY

The most remarkable feature of the *Consolation* is something it omits: any explicit reference to Christianity. Boethius' discussion of the highest good, which is God, and his treatment of providence, fate and prescience, would have been as acceptable to a pagan Neoplatonist as to a Christian, and of uniquely Christian doctrines such as the Trinity and incarnation there is not a mention. But few scholars nowadays believe that Boethius omitted Christian dogma from the *Consolation* because, when he wrote it, he had abandoned Christianity. Such a conversion to paganism is implausible, and there are several biblical echoes in the *Consolation,* at least one of which appears deliberate, since Philosophy echoes closely the phrasing of the Book of Wisdom and Boethius-the-character comments that, not merely what she has said, but the 'very words' she has used, delight him (III, pr. 12). Why, then, is the *Consolation* not more openly Christian? Perhaps because Boethius envisaged his task as presenting a *philosophical* justification of the providential ordering of the universe by a supremely good deity: a justification in which none of the premisses is based on revelation. His training and writing had been as a logician and philosopher, and

even his theological works had been exercises in philosophical analysis. It is not surprising that he should seek to come to terms with his downfall by writing as a philosopher, though he remained in his faith a Christian.

None the less, there are moments in the *Consolation* when Boethius' Neoplatonism does sit uncomfortably with Christian doctrine. At a central point in the work, before she concludes her argument identifying God with the highest good, Philosophy makes a solemn prayer. The poem (III, metrum 9) is an epitome of the *Timaeus,* the favourite Platonic dialogue of the Neoplatonists. It speaks without reservation of Platonic doctrines, such as reincarnation and the World Soul, which are clearly incompatible with Christianity. Possibly Boethius thought that, in the context of a poem, they need not be taken literally. Later, however, in his discussion of divine prescience (V, pr. 6), he champions the view that the world has endured for ever: it is what many would call 'eternal', although Boethius prefers to describe it as 'perpetual', reserving 'eternal' to describe the timeless eternity of God. Boethius' view was that of the pagan Neoplatonists of his time. Christians insisted that the world had a beginning and, writing shortly after Boethius' death, the Greek Christian philosopher John Philoponus would devise a set of intricate arguments, drawing on Aristotle's ideas about infinity, to support this position. Yet Boethius cannot have seen his own view as unacceptable for Christians, since he had already referred to it in his painstakingly orthodox *On the Trinity* (section IV).[15]

Although medieval writers drew on almost every aspect of the *Consolation,* none was more important than the work's uncertain status as a text by a Christian writer without explicitly Christian doctrines, and with some ideas which seemed distinctly pagan. The most popular strategy for commentators was to discover an explicitly Christian meaning implicit within the text, especially in sections like III, m. 9 which, at first sight, were hardest for Christian readers to accept. But there were dissenters, such as Bovo of Corvey in the tenth century, who insisted on a literal reading.[16] For some writers, such as the Middle English poet, Chaucer, the *Consolation* seems to have provided a model for writing about serious issues in a way which presupposes no commitment to Christianity, a philosophical precedent for the use of a pagan setting in literary fiction.

EPILOGUE

In the Latin West, Boethius' death marks the end of the ancient tradition of philosophy. There were writers—for instance, Cassiodorus

(*c.* 485–580), Boethius' more politically-compromising successor as Master of the Offices, and Isidore (before 534–636), Bishop of Seville—who helped to pass elements of ancient teaching to medieval readers. But they were educators and encyclopaedists, rather than thinkers. The seventh- and eighth-century scholars in England and Ireland included some enthusiastic grammarians, but no logicians; the philosophical elements in patristic texts aroused little interest from them. The medieval Latin philosophical tradition would begin at the court of Charlemagne, in the 790s.

In the Greek tradition of philosophy, however, Boethius' death by no means marks a boundary. The Christian, John Philoponus, would produce important and influential philosophical work a little later in the sixth century.[17] Nor had pagan Neoplatonism come to an end. When in 529, shortly after Boethius' death, the Emperor Justinian closed the Platonic school at Athens, its philosophers sought refuge at the court of the Persian king, Chosroes. When, a little later, Chosroes concluded a peace treaty with Byzantium, it included a provision that the pagan philosophers be allowed to return to Byzantine lands and practice their form of philosophy unhindered. They took up residence at Harran, near to the Persian border, in about 532 and there Simplicius wrote most of his work.[18] The pagan Neoplatonic school at Harran survived at least until the tenth century, although very little is known of its later work. By then, the Middle East had been transformed by the preaching of Muhammad in the seventh century and the rapid rise of Islam. It is the tradition of philosophy which grew up in Islam from the ninth century onwards that this *History* will first consider.

NOTES

1 For these works (and possible works on geometry and astronomy), which fall outside the scope of this discussion, see Chadwick [1.12] 69–107 and the articles in Gibson [1.16] by Caldwell, Pingree and White.

2 See J.Barnes, 'Boethius and the study of logic', in Gibson [1.16] 73–89. Barnes points out (p. 87) that Boethius himself ([1.1] 1191A, 1209C, 1216D) claims to have written such a commentary. Barnes also points to a thirteenth-century commentary which mentions a commentary by Boethius on the *Posterior Analytics;* but this medieval remark, not otherwise supported, carries little weight.

3 The first commentary on the *Isagoge* is an early work, which uses Marius Victorinus' translation rather than Boethius' own; the second commentary gives his maturer thoughts on the text. Boethius composed the two commentaries on *On Interpretation* together, putting simpler material in the first and more complex (but no less Aristotelian) discussion in the second.

4 See [1.1] 160AB and S.Ebbesen, 'Boethius as an Aristotelian commentator' in Sorabji [1.32], esp. 387–91.
5 See J.Shiel, 'Boethius' commentaries on Aristotle' in Sorabji [1.32] 349–72 for the view that Boethius translated marginalia, and Ebbesen's article, cited in the previous note, pp. 375–7, for strong arguments against it.
6 See the wide-ranging discussion in de Libera [1.22] (pp. 128–32 for Boethius).
7 See Barnes, 'Boethius and the study of logic' in Gibson [1.16] 83–4, Dürr [1.15] and Martin [1.23] 379–86.
8 On the medieval influence of *De hebdomadibus,* see Schrimpf [1.30].
9 There is a collection of articles on the transcendentals in medieval philosophy in *Topoi* 11 (1992) (guest editor, J.Gracia).
10 See J.Matthews, 'Anicius Manlius Severinus Boethius' in Gibson [1.16] 26–9.
11 See, for instance, C.Kirwan, *Augustine,* London, 1989, p. 98.
12 Knuuttila ([1.21] 60–1) briefly mentions exactly this point; I shall try to develop and justify it in the following paragraphs. Pike [1.28] 72–6) attributes to Boethius a different and more powerful argument either than the traditional interpretation criticized above, or than the one proposed here. But it is hard to believe, from the way Boethius develops his ideas in the text, that the argument really is his.
13 The lack of a conception of synchronous alternative possibilities in Boethius and other ancient writers, and the gradual introduction of this notion from the twelfth century onwards, is one of the main themes of Knuuttila [1.21].
14 This argument is stated in, for instance, Aquinas' *De veritate* q.12, a.12. For discussion of it, see Kenny [1.19] and Prior [1.29].
15 See Courcelle [1.13] 221–31 for a comparison between Boethius' views on the eternity of the world and those of his Christian and pagan near contemporaries.
16 See Chapter 5, pp. 110–11.
17 A good introduction to Philoponus' work is given in R.Sorabji (ed.) *Philoponus and the Rejection of Aristotelian Science,* London, 1987.
18 See I.Hadot, 'La vie et oeuvre de Simplicius', in I.Hadot (ed.) *Simplicius: Sa vie, son oeuvre, sa survie* (Peripatoi 15), Berlin and New York, 1987, pp. 3–39; but not all scholars accept this reconstruction of events.

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CHAPTER 2

From the beginnings to Avicenna

Jean Jolivet

INTRODUCTION

Arabic philosophy began at the turn of the second and third centuries of the Hegira, roughly the ninth and tenth centuries AD. The place and the time are important. It was in 133/750 that the ʻAbbāssid dynasty came to power. The ʻAbbāssids, like the Ummayads whom they had driven out, were Arabs; but they had been aided by eastern powers: Persians and Shiʻite Muslims. The symbolic capital of the empire changed from Damascus to Baghdad, founded in 145/762 by the second ʻAbbāssid caliph, al-Manṣūr. Now Islamic power stretched from the Atlantic to central Asia. Damascus and Baghdad were areas which had been Hellenized for a millennium and where Byzantium and Persia had faced each other. Now the Arabs had been victorious over them both, overturning the Sassanids, who had already been forced back towards the East by Byzantium, and taking from Byzantium not only Egypt but also its Asian provinces, where the monophysite Christians were in schism with the Orthodox Church and persecuted by the imperial authorities. These conquests took place between 634 and 650 (the second and third decades of the Hegira). These historical circumstances foreshadow several essential features of Arabic philosophy to which we shall return. First, there was a gap in time between the revelation of the Holy Book, which was 'handed down' in an un-Hellenized area of Arabia, and the beginning of Arabic philosophy (contrast the development of Christian thought, where Hellenistic elements are to be found even in the earliest documents). Second, the emergence of Arabic philosophy coincided with a change

of dynasty brought about with the help of non-Arabs: the political, religious and, in particular, literary aspects of this change would develop in the third/ninth century into the movement which was called the *shu'ūbiyya* (after the *Koran,* 49, 13: 'Men…we have set you up as peoples, *shu'ūban*). Third, Arabic philosophy developed in a milieu linked, in language, culture and belief, by age-old ties both to Greece and to Asia—and, as we shall see, it was thanks to Christian scholars that it found its particular direction.

THE TRANSLATIONS

For two centuries, Christians had been employed to translate Greek works into Syriac, a type of Aramaic that had been developed into a literary language. In this way there began, even before the birth of Islam, the great enterprise of translation which would provide the opportunity for the first works of Arabic philosophy and the results of which would provide its subject-matter and foundation. The history of this movement, especially its earliest stage, has not yet been written in full. We can say, however, that between the fifth and seventh centuries AD translations were made from Greek into Syriac, particularly translations of medical works and, even more, of logical works. The first books of Aristotle's *Organon* were, then, not merely translated but received a number of commentaries. The majority of the translators were Nestorians, but they also included Jacobites. At the end of the first/seventh century, the Muslims took over the Fertile Crescent and the Umayyad caliph 'Abd al-Malik decided that Arabic would be the official language of the empire. The work of the translators was enlarged. Translation from Greek to Syriac continued to be their main task, but there were also translations made from Greek into Arabic and from Syriac into Arabic. This third route was used only in the fourth/tenth century when even the educated no longer knew Greek, and when in any case the translation movement came to a halt.

Not only was there a change in the languages from which, and to which, translations were made; there was variation over time in the method and type of translation. Translators into Syriac changed from giving paraphrases to making literal versions. The greatest of them were the two Christian Nestorians Ḥunayn ibn Isḥāq and his son Isḥāq ibn Ḥunayn, whose work in Syriac and Arabic dates from the third/ninth century. Acute in establishing their texts and rigorously accurate in translating from one language to another, Ḥunayn and his son ended by creating 'a technical Arabic capable of closely reflecting the structure of the Greek' ([2.27]). There were many other translators

too in their century and the one before, some of them very fine. Rather than list them, it is more useful to step back in time and mention the names of ʻAbd Allāh ibn al-Muqaffaʻ (d. 140/757) and of the Syrian Ibn Bahrīz, who lived at the time of the caliph al-Maʻmūn (d. 218/833). Both wrote epitomes of logical works (al-Muqaffaʻ on Porphyry's *Isagoge* and the first books of the *Organon;* Ibn Bahrīz on the whole *Organon*). We can see in these works the first attempts to develop an Arabic philosophical vocabulary ([2.27], [2.43]).

In this way an enormous library of philosophical and scientific works was built up and revealed to the curiosity and interests of new readers. The last Umayyad caliphs and the first of the ʻAbbāsids were especially strong in their support for this work of translation. In the case of the Abbāssids, this enthusiasm was motivated in part by a political motive, since Greek philosophy and science provided a cultural counterbalance to the theology of the Islamic Arabs and to the ancient heritage of the Persians. The intellectual (and, particularly, philosophical) market-place was thus stocked with a complex mixture of goods: an Arabic Plato (the details of which still remain unclear), an Arabic Plotinus attributed to other authors, collections of philosophical comments and aphorisms in which authentic pronouncements mingle with apocrypha, and above all the complete works of Aristotle, without the *Politics* but with various, especially Neoplatonic, pseudepigrapha. This Aristotle is omnipresent in Arabic philosophy, yet its presence was the result in the main of a choice made several centuries earlier by the Syriac translators: ʻit was not the Arabs who chose Aristotle, but the Syriacs who imposed [him on them]' ([2.43]; cf. [2.20], [2.38], [2.41], [2.44]).

AL-KINDĪ

Arabic philosophers drew extensively, then, on Aristotle's work and thought. Yet they were not Aristotelians in the strict sense of the word. This is already clear in the work of the first of them, Abū Yūsuf Yaʻqūb ibn Isḥāq al-Kindī (born end of second century/beginning of eight century; died after 256/870) ([2.19], [2.11]). Al-Kindī was a philosopher, no doubt; but he was primarily a wide-ranging scholar and scientist (and it was just as such that, half a thousand years later, Ibn Khaldūn would remember him). The biographer and bibliographer Ibn al-Nadīm (fourth/tenth century) provides a *catalogue raisonné* of his works: almost 250 of them in all, of which only about a tenth survive. Ibn al-Nadīm divides them into seventeen categories. Classifying them, rather, by subject areas, we find that al-Kindī devoted about 50 treatises to philosophy and logic, but nearly a hundred to the various branches of mathematics (including astrology), and 35 to medicine and the natural

sciences. The others do not concern us here. His scholarly and scientific work was thus extensive and varied; we might mention, for instance, in passing his contributions to optics and pharmacology. As a philosopher, he quotes by name hardly any authors besides Plato and Aristotle. We do not know precisely how great his knowledge was of Plato, but he wrote a treatise listing the works of Aristotle ([2.23]). Of the major works only the *Politics* is, as we should expect, absent. The list includes two apocrypha *(On Plants, On Minerals),* but not the *Theology of Aristotle,* a work by an unknown author, probably Porphyry, consisting of considerably adapted extracts from Plotinus' later *Enneads*. Its absence is all the more striking because al-Kindī had corrected an Arabic translation of it made by Ibn Nā'ima for the son of the caliph al-Mu'taṣim (218/833 to 228/842). And indeed al-Kindī's philosophy is a branch of Neoplatonism, but not one which is disguised by being based on Aristotelian apocrypha of Neoplatonic origin.

Among the handful of philosophical works of al-Kindī's which have survived, the most important is the *Book of First Philosophy* (*Kitāb al-falsafah al-ūlā* ([2.2]); note how the Greek *philosophia* is transcribed as *falsafah;* similarly *philosophas* becomes *faylasūf,* plural *falāsifah*). Of this book with its Aristotelian title we have only the first part (divided into four chapters). It is a Neoplatonic work in the sense that the main concepts of Aristotelianism (the categories, the predicables, causes) are made part of a theory of the one, into which al-Kindī's ontology is absorbed. In this rich discussion, new ideas and new methods are found in every chapter. We shall consider merely a few significant themes of various sorts. Chapter 1 forms a veritable manifesto, decked out with quotations from Aristotle (who is not named: the passages are mostly from the *Metaphysics* A 1). Al-Kindī provides an apologia for philosophy which, he says, has been formed over the course of centuries. We must gather what remains and bring it to fruition. It matters little, he says, that it comes from elsewhere. We must adapt it into our own language and to our own traditions, since it does not differ in content from the messages of the prophets: it is knowledge of God's unity and sovereignty, of virtue and of what in general we should seek and avoid. The ending of chapter 2 provides a characteristic example of al-Kindī's method and his liberty with regard to Aristotle. Using the method of geometry, he shows that the body of the world, movement and time can exist only if they are simultaneous with each other. They are, therefore, finite, because the world is finite. Aristotle's view that the world is eternal is thus rejected. Chapter 3 ends with a dialectical treatment of the one and the many based in detail, yet also very freely, on Proclus (*Platonic Theology* II, 1), who none the less is not named ([2.29]). Finally, chapter 4 demonstrates that the True One is transcendent: above every genus, category and ontological structure. It is he who gives to everything which

is 'accidentally one' the unity which makes it exist, and this being-made-one, 'the flowing of unity from the True One' is a being-made-to-exist *(tahawwī)*. (The noun *tahawwī* is derived from the pronoun *huwa,* 'him', which by its very meaning implies reference to an existing being and from which is also derived the word *huwiyya,* 'substance' or 'existence' depending on the context. Al-Kindī's vocabulary includes a number of neologisms, some of which were not used by his successors; it bears witness to the state of Arabic philosophical vocabulary which was still being constructed, especially by the translators.) At this point the known part of the *First Philosophy* concludes. It is an important work, which shows how al-Kindī fits together the major systems of Greek philosophy, especially Neoplatonism. The concepts of the one and of transcendence are, in particular, common to this philosophical school and to Muslim theology. The Mu'tazilites especially would make it one of their main themes, and there is independent evidence that al-Kindī was close to them.

The doctrinal themes of the *First Philosophy* can be compared to those contained in other works by al-Kindī: explicitly or implicitly, the main aspects of his thought are to be found in this central work. First, the idea of the underlying harmony between revelation and prophecy is also found in the main discussion of the *Letter on the Number of Aristotle's Bodies* ([2.23]): the 'divine knowledge' which God gives, from his free choice, to the prophets opens to them the knowledge of visible and invisible substances, whereas men usually have to labour long and hard, using logic and mathematics, to gain it. Thus the final verses of sourate 36 *(Yā 'Sīn)* provide illuminating teaching on creation, the sequence of life and death and on contraries in general. Al-Kindī expounds at length the philosophical content of what divine revelation condenses into a few words. Second, as has already been explained, knowledge is gained through science and mathematics. This is an important theme of the *Letter,* which is proposed and argued at the beginning and taken up again near to the end. In both places, mathematics is put first, and it is this method which is used in chapter 2 of the *First Philosophy*. The discussions there are taken up in three other letters about the finitude of the world. Elsewhere too al-Kindī's arguments often have a rigorous, detailed structure based on the mathematical method. Third, the cosmological theme is developed by the same method in the *Letter on the Prostration of the Farthest Body,* which takes a text from the Koran (55: *al-Raḥmān,* 6)—'The star and the tree prostrate themselves'—as its point of departure. Al-Kindī begins with a semantic analysis of the words 'prostration' and 'obedience', which he says mean the same in this context. Then he explains in detail how God's will works in the world, which he envisages according to Greek cosmology and Aristotle's physics (except that he does not

consider it eternal); once they have been created, the heavens are put into motion, and from this there comes about time and then coming-to-be. The heavens live, think and are the agent cause of all coming-to-be. The *Letter on the True, First and Perfect Agent Cause, and the Imperfect Agent Cause [which is called agent] by Extension* explains that true agency is reserved for God alone, who creates the first sphere of the heavens and puts it into motion and, through it, puts all the other spheres into motion: but what comes to be from it is not action, but being-acted-upon *(infi'al)* ([2.31]).

We should also mention two topics which are implied in the *First Philosophy* but not discussed there. One of these is the soul, the subject of a metaphysical, exhortatory treatise, which gathers together ideas from various sources, in particular ones taken from Platonism, Neoplatonism and Hermeticism ([2.22]). Another is intellectual knowledge, treated in the *Letter on the Intellect,* one of the few works by al-Kindī translated into Latin (twelfth century). Here al-Kindī differentiates four types or levels of the intellect, according to the reinterpretation of Aristotle's theory of intellectual knowledge by the early Neoplatonic school (Porphyry) and John Philoponus ([2.28]). Finally, the *Letter on How to Dispel Sadness* ([2.40]) is a lengthy moral exhortation which includes spiritual advice, written in the common philosophical style of the first centuries AD. In this work al-Kindī shows much less of his characteristic turn of mind than elsewhere, where he subjects what he has gathered from the Greek philosophers to his own treatment.

AL-RĀZĪ AND AL-FĀRĀBĪ

The most idiosyncratic figure in the history of Arabic philosophy is, without question, that of Abū Bakr Muḥammad ibn Zakariyyā al-Rāzī (251/865–313/925), who was also an outstanding writer on medicine. The most important of his many medical works, *al-Hāwī* (known in Latin as *Continens*) has a significant place in the history of medicine, in Christian Europe as well as in Islam, and it was translated into Latin twice (end of thirteenth century and in the sixteenth century). He took his inspiration as a philosopher more closely and constantly from the Greeks than from other sources. He looked to Socrates as the master of all philosophers in his way of life; he knew and quoted Plato, Aristotle, Porphyry, John Philoponus and others. He did not think that philosophy always remains one and the same. It progresses through the very differences between those who follow it, and to be a philosopher does not, he believed, mean to have the truth but to try to reach it—a view of intellectual history entirely other than al-Kindī's. The basis of al-Rāzī's

ethics is reason and its aim is the ordering of conduct and the subjugation of the passions. His theology is explicitly philosophical. The world is an emanation from God; and not only God, but also the world soul, prime matter, space and time are eternal. Al-Rāzī believed in the transmigration of souls, which could rise to higher moral and metaphysical levels in successive reincarnations. And he denied that there was such a thing as prophecy. God inspires all men equally, but they are not all equal in taking advantage of it. Clearly, these views were not acceptable to the Islamic faithful. Only a few rather short treatises of al-Rāzī survive, and the work where he denies the existence of prophecy is known only through the quotes made in order to attack it by his contemporary and compatriot, the Ismā'īlite missionary, Abū Ḥātim al-Rāzī. Despite the controversial nature of his philosophical ideas, al-Rāzī was allowed to be the doctor in charge of the hospital at Baghdad.

Abū Bakr al-Rāzī's place in the history of *falsafah* is therefore a strange one, the very opposite of that held by al-Kindī, another Neoplatonist. Different again is that held by Abū Naṣr Muḥammad ibn Muḥammad al-Fārābī, who was born at about the same time as al-Kindī died and who lived until 339/950 ([2.11]). He maintained the same high level of philosophical thinking as his great predecessor, but he moved it definitely into a new direction, opening up a fresh path for its development. One feature of his work was his great interest and ability in logic. Here he was the beneficiary of the work done by the translators and commentators (most of them Christians), such as Abū Bishr Mattā and Yuḥannā ibn Ḥaylān, his masters at the Aristotelian school at Baghdad, whom he considered to belong to the tradition of the Greek commentators. But he went further, especially in the attention he gave to the structure of reasoning and the types of argument. Among his works of logic are books based on, or commenting on (often very freely), all the books of the *Organon,* as well as Porphyry's *Isagoge* and in accord with the practice of the School of Alexandria, the *Rhetoric* (though not, like them, the *Poetics,* which remained on the edges of the Arab philosophical tradition). He also wrote introductory logical works and, more interestingly, a *Little Book of Reasoning according to the methods of the mutakallimūn and the fuqahā,* which examines critically, according to logical criteria alone, the methods of argument used by the theologians and the lawyers. Al-Fārābī begins with a systematic exposition of Aristotle's logic. In his prologue, al-Fārābī explains that he will use 'terms known to those who speak Arabic and examples familiar to our contemporaries'. This method might be taken as one especially designed for teaching, but it might also be seen in terms of a more far-reaching principle of logico-grammatical analysis. Before giving a complete survey of logic and placing it within the whole

domain of knowledge, the *Book of Terms Used in Logic* lists the words which are joined to nouns, to verbs and to noun-verb combinations: that is to say, tool-words. In this list are found purely logical terms (such as quantifiers) but especially invariable words, some of which correspond to terms in Greek, others of which have a place only in Arabic. There is, then, here a tension between the universality implied by the return to Greek philosophy, and the particularity of the language of *faylasūf*. In this light, al-Fārābī's work can be seen as an attempt to introduce certain particular features of the Arabic language into the historical development of logic ([2.9], [2.25]).

Here we see the deep structure of al-Fārābī's thought: more emphatically than al-Kindī's, it is based on the attempt to combine ideas of different sorts—Greek and Arabic, philosophical and religious—into a whole which is both systematic and historical. Another witness to this way of thinking and writing is the strange *Book of Letters (Kitāb al-ḥurūf)*. 'Letters' has two different (but compatible) meanings here. It provides the work's title first because the book is a set of loose variations, in al-Fārābī's usual manner, on Aristotle's *Metaphysics,* which was sometimes called in Arabic *Kitāb al-ḥurūf* (from the fact that its books are each designated by a Greek letter). But, second, the title refers to the fact that, just like the *Book of Terms Used in Logic,* this treatise contains a study of various tool-words; and these are what grammarians call *ḥurūf,* 'letters'. Here, however, the list is occupied mainly by terms which are used in philosophy, whether words like 'when' and 'how' or the names of the categories, predicables and so on. In this context, al-Fārābī examines the copula in attributive propositions which, in Arabic, poses problems unknown to Greek logicians. (It is wrong, however, to draw—as has been done—the conclusion that this difference in the way being is expressed caused a radical separation between 'Arab thought' and 'Greek thought'. The Greek attributive proposition can easily do without the copula, and Arabic philosophers were perfectly comfortable in ontology.) This treatise also dwells on, among other things, the relation between philosophy, religion, language and the whole course of civilization, considered in the most general way. Altogether, it examines in depth concepts and themes from the whole field of philosophy: the status of concepts, the categories, the vocabulary of being, epistemology and scientific method. In one way or another it includes the subject-matter of various Aristotelian works along with subjects such as the history of culture and the theory of religion which Aristotle did not consider systematically. Here perhaps is a third reason for its title. To al-Fārābī, this book occupied a place among his works similar to that of the *Metaphysics* (devoted to being *qua* being, and to theology) among Aristotle's writings.

In logic, then, al-Fārābī's project was to found the Greek on the Arab and the Arab on the Greek. In political philosophy, his second main interest, his procedure is the same, although it involves more material that is rooted in cultural particularities. Political philosophy includes consideration of the relations between philosophy and religion, which for al-Fārābī meant the defence of philosophy. A number of his works fit into this class. *The Enumeration of the Sciences* surveys the encyclopaedia of scientific knowledge which the Arabs have built up through their philology, their translations from the Greek and their own creative work: grammar and linguistics, logic, mathematics (in the broad sense of the quadrivium along with mechanics), physics, metaphysics, politics and two exclusively Islamic branches of knowledge: *fiqh* or jurisprudence and *kalām,* defensive or polemical theology (about which al-Fārābī manifests considerable reserve, whereas he recognizes the usefulness of *fiqh*). Although the chapters on these two Islamic subjects seem not to fit in with the rest of the work, al-Fārābī had promised, in his prologue, to deal with the branches of knowledge 'which are being followed at the present time', a qualification which now is seen to have its rationale. *The Agreement of the Two Sages* is intended to show that, despite appearances to the contrary, Plato and Aristotle do not contradict each other. This subtle, at times even enigmatic work, is at least clear in its aim. Starting from a definition and analysis of the content of philosophy, it attempts to reveal a deep unity among the main doctrines which make it up and so to assert its value against those who attack it, and guarantee its place in the field of knowledge and thought. Side by side with this treatise is the collection consisting of *The Attainment of Happiness, The Philosophy of Plato* and *The Philosophy of Aristotle* ([2.3], [2.4]).

During the course of his life, al-Fārābī was able to observe the crumbling of the Abbāssid caliphate's power. In every part of the empire minor, practically independent princely dynasties sprang up. During al-Muqtadir's caliphate (298/908 to 320/930) there were thirteen vizirs, amd two rival caliphates were formed: the Fatimid in Egypt and the Umayyad in Spain. Between al-Muqtadir's death and al-Fārābī's own, four caliphs were overthrown or assassinated. Not unexpectedly, then, al-Fārābī was aware of the importance of politics and the philosophical problems posed by it. They formed the subject of many of his works, and were emphasized even in books of his which also dealt with other areas. His most extensive political work is called *Principles of the Opinions of the Citizens of the Best City*. Here al-Fārābī considers the city and its government by placing it within a wider scheme of macrocosm and microcosm, in which the structure of the greater and lesser worlds is seen to be similar at every level. This structure is hierarchical: its elements (the celestial spheres,

the faculties of the soul, the bodily organs, the inhabitants of cities) are each seen to depend on something superior, which is the basis for their initial and continuing existence. Al-Fārābī gives a clear description of the emanation of the celestial intelligences and their spheres, one which Avicenna will copy and fill out in detail. The city should be organized and run by a legislator who combines being 'wise, prudent and a philosopher'. From the agent Intellect there come into the legislator's potential intellect the intelligible forms which make up his knowledge, whilst also putting his imagination to work so that he becomes an 'annunciatory prophet', who can inculcate the best laws in the people through persuasion and thus achieve the aim of political science: to establish the happiness of the city. The legislator will, then, be both philosopher and prophet: he will combine philosophy and religion. Especially in the *Book of Letters* and the *Book of Religion,* al-Fārābī asserts the priority of philosophy to religion, which 'follows' it: 'good religious laws are subordinate to the universal principles of practical philosophy'. Religion is subordinate to philosophy in the way that imagination is to the intellect, and persuasive discourse to demonstration. These ideas are linked to various ancient philosophical themes: Platonic (the role of the legislator) and Aristotelian (the position of rhetoric). Al-Fārābī is certainly nearer than al-Rāzī to the Islamic view of religion and the state, in that he accepts the existence of prophets and gives a rational explanation for it. But, by sharp contrast with al-Kindī, his doctrine is laicized: it keeps the form of Islam but subverts its content. The philosophical religion about which he theorizes ends by placing the philosophical theology of the Greek philosophers above the teaching of God's messengers ([2.8]).

This is not the place for a history of Islamic theology (the *kalām*), nor even a sketch of it. This kind of speculative theology began even before the end of the first century, the product of the need to express and defend in formal language the truths first formulated in the Qu'rān. Its main themes included the structure of created being, the relation of human actions to God's absolute power and how God should be conceived. Only the Mu'tazilite school, which began in the second century, need be mentioned here, since it was the first to deal with the central points of theology and arrange them into a doctrinal whole; and since, moreover, its exponents were accused of being close to the *falāsifah*. The Mu'tazilites—who differed between themselves on many matters—were agreed that the good can be known by reason, apart from revelation; that man creates his own acts. They emphasized the absolute unity of God: his names are many, but not his attributes. And some of them engaged in profound speculations about the status of non-existing things (for instance, things before God created them, or those things which God knows will never exist). These are genuinely

philosophical themes, and it is legitimate to speak of a metaphysics or physics of the *kalām*—but one which has a characteristic vocabulary, set of concepts and structure different from those of *falsafah*. Their paths are different but, quite often, they intersect. Without some knowledge of the *kalām,* there are important features of Arabic philosophy which will not be properly understood ([2.21], [2.39]).

At the same period there were other writers connected in one way or another with the central tradition of *falasfah*. First, the collective work of the Ikhwān al-Ṣafā' (Brothers of Purity) should be mentioned. It was produced throughout the tenth century AD. It consists of fifty-two letters, written in a style which is more accessible and persuasive than that of the philosophers and theologians. Taken together, the letters make up an encyclopaedia which is Neoplatonic in its arrangement and concepts, spiritual in content and religious in its basis. The Ikhwān should be placed within Shi'ism or, rather, on its edges, since they were Isma'īlites. Theirs was an hierarchical organization of initiates. Although they therefore have a rather special place within Islam as a whole, their method of speculation illustrates how the Shi'ites accepted far more readily than the Sunnis the connection between philosophy and religion. Like the Mu'tazilites, the Ikhwān held that truth was originally given in a divine revelation witnessed by the philosophical sages as well as the prophets. Whilst it is just to compare this idea to late Neoplatonism, it also has a precise place in the intellectual and spiritual history of Islam in this particular period. On the one hand, it provided a way to recognize the value of ancient traditions, especially those in what was now the eastern part of the empire, which seemed to pre-date Islam. On the other hand, it was a means of legitimating the philosophy derived from the Greeks, following the path opened by al-Kindī but with greater historical precision. As a result the sages of antiquity (Empedocles and Pythagoras were thought the most venerable) were considered to have lived at the same period as David and Solomon and to have profited from their wisdom; this wisdom, which emanated from 'the tabernacle of prophecy' was successively passed to Socrates, then to Plato and even went as far as Aristotle. The heyday of this historico-ideological doctrine was the second half of the tenth century AD, a time when several emirs of the Shi'ite Buyid dynasty, with its capital at Shīrāz, acted as patrons of learning and science. There is a certain uniformity to the philosophy of this period. Ancient philosophy was well and accurately known, but it did not stimulate any really creative thought. Rather, it was linked to a taste for learning and for expounding the stock of ancient wisdom. Writers of this sort include Abū Sulaymān al-Sijistānī (died *c.* 990), Abū Ḥayyān al-Tawḥīdī (died in 399/1099) and Ibn Fātik al-Mubashshir, all of them men of great learning. Among the works typical of this tendency is the *Eternal Wisdom* of Abū 'Alī Aḥmad

ibn Miskawayh (died in 421/1030), chancellor of the Buyid emir, ʻAḍud al-Dawla. This work claims to be a translation of an old Persian book and collects pronouncements attributed to ancient Persian, Indian, Arab and Greek sages. For the exponents of this current of thought, the truth has been available ever since its original revelation. Such a conception comes down to applying to philosophers the principle by which the prophets all transmit the same revelation; but, for this reason, philosophy, having been made sacred, becomes merely a matter of retrospection. Al-Kindī's explicit view was very different, but his idea of a deep agreement between philosophers and prophets left the way open for the notion of eternal wisdom and so may have perhaps contradicted his own theory of progress ([2.18], [2.33], [2.34]).

AVICENNA

The traditional (perhaps not completely exact) date for the birth, near Bukhara (in present day Uzbekistan) of Abū ʻAlī al-Ḥusayn ibn ʻAbdallah ibn Sīnā is 370/980. Ibn Sīnā, known as 'Avicenna' in the West through the twelfth-century Latin translations, is a giant in the history of thought. A polymath, he was in particular an outstanding physician, and it was in this capacity or as a vizier that he served various princes in the eastern parts of Islam. His life was thus far from calm and, at times, it was dramatic. He died at Hamadān in 429/1037 as a result of taking a wrongly made-up medicine. Some of his works have been lost, but what remains is still substantial. It includes treatises on various subjects, especially medicine; writings in which he wraps philosophical views in fiction, in a way reminiscent of Plato's myths; and a set of encyclopaedias, some of which are more or less schematic, whilst others are fairly or extremely detailed. The detailed, lengthier encyclopaedias are *The Direction (al-Hidāya), The Cure (al-Shifāʾ)*—by far the longest of them, *The Salvation (al-Najāt)* and *Instructions and Remarks (al-Ishārāt wa-l-tanbīhāt)*. These are all in Arabic, whilst a fifth large encyclopaedia, the *Book of Knowledge (Dānesh-nāme)* is in Persian. Two rules of method guide the composition of these works. First, they follow in general the scheme of the branches of knowledge traditionally recognized in Aristotelianism: logic, physics, mathematics, and theology or metaphysics. This does not mean that all Ibn Sīnā's encyclopaedias follow exactly this order. For instance, the *Book of Knowledge,* as well as another work in Persian, the *Philosophy for ʻAlāʾ al-Dawla,* places metaphysics before physics, in accord with the idea of metaphysics as the study of the general properties of being. Avicenna's other encyclopaedias place metaphysics after physics, which prepares the ground for understanding it. The second rule is what

follows from the progress of knowledge and Ibn Sīnā's own decisions on theoretical questions. The result of these two principles is that Ibn Sīnā expounds his own views, following Aristotle but not repeating him; thus in the *Shifā* the material of the *Meteorologica* is differently arranged among different books, and the *Metaphysics* follows Aristotle's plan only distantly. The only works on which he actually wrote commentaries are Aristotle's *Metaphysics* Λ and *On the Soul,* and also the apocryphal *Theology of Aristotle*. These commentaries belonged to the *Book of Right Judgement (Kitāb al-Inṣāf),* which survives only in fragments (the complete text was lost when the prince whom Ibn Sīnā served as physician and vizier was defeated in battle). In this way there disappeared almost the whole of what has been taken as Ibn Sīnā's last philosophy, what he called an 'Eastern philosophy', distinct from that of 'Westerners'. There has been much speculation about the nature of this 'Eastern philosophy'. Some have seen it as a definite turning towards what would later be called 'philosophy of illumination'. Others point out that a treatise which Ibn Sīnā actually calls *Logic of the Easterners* is not particularly different from his other writings. They consider that the term 'Easterners' refers to an Aristotelian school at Khurāsān. Moreover, in the *Instructions,* which are later than the lost *Book of Right Judgement,* there is no mention of 'Eastern philosophy' ([2.10], [2.24], [2.25]).

As a young man, Ibn Sīnā read and learnt everything there was to read and learn. But for the formation of his thought the most important of all the books he read were the *Letters* of the Ikhwan al-afa', and the works of al-Fārābī, which were particularly important in allowing him to grasp the point of Aristotle's *Metaphysics* by showing him the deep connection between the theology and the ontology of forms which this text brings together. His interest in the Ikhwān is understandable in the light of his spiritual sympathy (perhaps even adherence) to Isma'īlism; his father was himself an Isma'īli. With regard to al-Fārābī, there is no difficulty in drawing up a list of parallels with Ibn Sīnā's views. The two thinkers shared a universal vision of a hierarchy of being with God at the head of it, and (following the accumulated teaching of the Aristotelian commentators and of al-Kindī) an analysis of the intellect which, using the notions of act and potency, divides it into several ontologically distinct levels. To this, they both linked a doctrine of prophecy; and they also shared an interest in logic. But Ibn Sīnā treated these traditions as he did Aristotle: he handled their various features in his own personal way. A fuller study would need to take these differences into account, listing and analysing them. For instance, in logic Ibn Sīnā combined the rules for attributive propositions and those for hypothetical ones into a more complete synthesis than had been previously achieved ([2.35], [2.37], [2.42]). Similarly, Ibn Sīnā's

thinking about the origin of things goes further than al-Fārābī's. According to Ibn Sīnā 'the Being which is necessary by its essence' is an Intelligence which thinks itself and so is at once thinking and thought. The thought which it has of itself is productive of being. The first being produced in this way therefore exists necessarily and yet, in its own essence, it is contingent. It too is an Intelligence (the First Intelligence) which (1) thinks the Necessary in itself and also thinks itself in its two aspects: (2) in its own necessary existence and (3) in its contingent essence. From Thought (1) there emanates a second Intelligence placed directly below this first Intelligence; whilst from Thought (2) there emanates a form, and from Thought (3) matter, which are respectively the soul and body of the first Intelligence's sphere. The second Intelligence produces the soul and body of its own sphere, and the third Intelligence; and this process continues down to the last Intelligence, that of the sphere of the moon. From it there emanate into the sublunary world the forms which human intellects receive in different ways and the matter which is 'prepared' to receive these forms. The ideas implied by this scheme of cosmic emanation are at the very heart of Avicenna's metaphysics—none more so than the correlated notions of necessity and contingency.

Aristotle had established the existence of a pure Act, the First Mover 'on which depend the heavens and all nature'; al-Kindī that of a True One, the 'cause of unity' and so of the existence of 'all beings which are unitary'. Ibn Sīnā bases his own argument on a division of being according to logical modality. All beings of whose existence we are aware are contingent by their very essence, since it includes no necessity: they can without contradiction be conceived as not-existing. Moreover, their existence is ultimately linked by causal relations to the celestial spheres which are themselves also contingent in essence. But it is impossible that a chain of causes should go on for ever from one contingent thing to another, since what is contingent is, by definition, something which can equally be or not be: contingent existence tends in itself towards non-existence in so far as it is not founded on something which exists necessarily. There is, therefore, a first term in the causal chain which is necessary in its very essence—that is to say, whose essence includes that mark of necessity which is lacking in all other things and which can also be expressed as the identity in it of essence and existence. In this way, the cosmogony sketched above is given a philosophical basis. Just as the whole system of the world comes about from the thought which the Necessary Being has of itself, so this being, in thinking itself at the same time thinks everything in the universe: it thinks 'the higher (that is, heavenly) beings, each in its individuality, and the being of the sublunary world in the universals under which they are classified' ([2.6]).

The distinction between essence and existence is another feature of Ibn Sīnā's thought which is his own; he did not take it from al-Fārābī, as was long thought because of the misattribution of a short treatise (*Fuṣūṣ al-ḥikam,* which might be translated as *Precious Aphorisms*) which continues Ibn Sīnā's own formulation of the distinction. In all contingent things, Ibn Sīnā differentiates, on the one hand, the fact of having a certain quiddity (*māhiyyah: mā* is translated into Latin as *quid,* thus producing the word *quidditas*) or, as he is also willing to say, a *ḥaqīqah,* meaning 'truth'—what this thing which exists really is; and, on the other hand, the very fact that it exists, its *wujūd* or *huwiyya*. (The word *huwiyya* is made up from the pronoun *huwa* which means 'him' but also acts as the copula in attributive propositions; al-Kindī, who also uses *wujūd,* had already used *huwa* as the basis for another word, *tahwid,* as noted above.) The standard contrast essence and existence in Western philosophy is, then, a good rendering of Ibn Sīnās distinction between *māhiyya* and *wujūd*. In existing things essence does not imply existence, otherwise they would exist necessarily. The one exception, as we have seen, is God, and this structural distinction has its place at the level of the ultimate origin of things. But it also gives rise to an idea relevant to the ontology of forms. What sort of being does essence have? It has no effect on existence as such, but essence determines its status in each existing thing. In itself, essence is neither universal nor particular, neither singular nor plural, neither present in existence nor just a concept in the mind: but it can be any of these. To use Ibn Sīnā's own example: the universal 'horse' signifies something which is distinct from its universality: 'horseliness' (*equinitas* in the Latin translations) or 'just horseliness' *(equinitas tantum)*. This horseliness can be attached to the 'conditions' of existence in actual horses, or not: in itself, it is removed from any condition and only a 'divine being' can be attributed to it, as Ibn Sīnā says in an enigmatic comment which should certainly be linked to what he says about the origin of the world in God's thought. Methodologically, this doctrine of being supports one of Ibn Sīnā's favourite procedures. He engages in an imaginary experimentation with combinations of forms, an inspection of the 'thingness' (his word too) of a given object, from which one can see what is or is not compatible with its nature and so what should be thought about it. In this theory of essence, Ibn Sīnā can be seen to be following on from the theological speculations about non-existing things mentioned above in connection with the Mu'tazilites ([2.32]).

There remains one area where Ibn Sīnā is close to al-Fārābī: the theory of prophecy, its nature and function. Prophetic revelation is an outstanding example of the joining of the human soul with the separated Intelligences. Intellectual understanding is the most common instance

of this joining, but whereas ordinary men proceed through discursive thought, the prophet is, he said, 'informed of what is invisible; an angel speaks to him'. The function of prophecy is to ensure the social ties which are necessary for men by giving them laws and laying down religious obligations. But it can only inculcate the truth which it contains through symbols which are accessible to simple minds. It is not a matter of the prophets' hiding the truth but of expressing it in another language. Thus the descriptions of the happiness of heaven are allegories of the spiritual pleasures of the separated soul. Besides its use in interpreting prophecies, Ibn Sīnā uses his idea of symbolic expression in two ways. Sometimes he employs it to give philosophical readings of verses from the Qur'ān: for instance, in *Instructions and Remarks* he interprets the famous verse about light (Sourate 24, *Light,* v, 35) as an imagistic description of the intellectual faculties of the soul and their hierarchy, from the material intelligence up to the intelligence in act which is in contact with the Agent Intellect. In the same work, Ibn Sīnā refers to the *Story of Salāmān and Absāl* (about which he also wrote a letter): they are two figures, he says, who represent the soul of man ('yourself') and its level of mystical knowledge, a subject treated in detail in the *Instructions*. Or again—this is the second way in which he treats symbols—he himself composes stories which put into the form of images the adventures of the soul desiring 'light' *(Ḥayy ibn Yaqẓān)* and in search of truth *(The Story of the Bird)* ([2.1], [2.7], [2.36]).

CONCLUSION

Without doubt Ibn Sīnā is the most widely known of the great Eastern *falāsifah,* because of the extent of his work and the variety of fields, including medicine and literary composition, in which he excelled. Knowledge of al-Kindī and al-Fārābī is more restricted to specialist historians of philosophy, but it would be unjust not to recognize al-Kindī's pioneer role and his genius as a scholar and philosopher, or al-Fārābī's penetration and power of synthesis. Not, of course, that there is any question of drawing up an order of merit. The task of these concluding remarks is, rather, to give a general picture of this period of *falsafah*. It was a lively, creative period, and many lesser but highly able authors, unmentioned in this account, were active. Its central problems resulted from the interplay between two different oppositions. On the one hand, there was the opposition between the Prophet of Islam's revelation and a body of teaching originating in another language and a different spiritual atmosphere. On the other hand, there was the opposition between tradition and progress, which in some ways repeats the first opposition, but in others suppresses it by looking

to a wisdom which has always been the same. Leaving aside this illusory solution, there are two different ways in which the main opposition—between religion and philosophy—was resolved. One way was to reconcile their differences in some way or other. This was al-Kindī's procedure (although his historical view of philosophy did not fully resolve the tension between the terms of the second opposition, tradition and progress). Ibn Sīnā, too, proceeded in this way. He combined a theology which was philosophical in a highly technical way with exegetical and mystical meditations. The other way involved subordinating religion and making the philosophical tradition the solid basis for progress. Al-Rāzī went the furthest in this direction; al-Fārābī tried to have the best of both worlds, but his philosophy of religion has philosophy of mind and political science, rather than the Koran, as its main constituents.

These, then, were the main themes and tensions in the first period of *falsafah:* the first period because, after Ibn Sīnā, Arab and Islamic philosophical and religious thought took on a new configuration. During the fifth/eleventh century, the Seljuk Turks conquered Iran bit by bit, moving from East to West, and they entered Baghdad in 447/1055. They did not suppress the caliphate which had long been in decline, but they put it beneath their authority and presented themselves as its defenders against the various Shi'ite regimes of the Near East and Egypt. As a necessary accompaniment to this military/religious programme, there was ideological reform. Its outstanding exponent was Abū Ḥāmid al-Ghazzālī (458/1058 to 505/1111). His work took many forms (theoretical, mystical, political), but here we need note merely his hostility to *falsafah*. His main work in this area is the *Incoherence of the Philosophers (Tahāfut al-falāsifah),* in which he refutes twenty theses held by al-Fārābī and Ibn Sīnā. These theses, he says, express in one way or another three points of view which are directly opposed to the faith: that the world has existed for eternity; that God knows only universals; and that bodies will not be resurrected. Physics and metaphysics are thus to be rejected; the only valuable parts of philosophy left are mathematics and logic. Al-Ghazālī's attack, which took place in a political climate hostile to whatever fell outside strict theological and juridical tradition, put an end to three centuries of vigour in the *falsafah* of the Near East. *Falsafah* would go on as such for a while in the extreme West of Islam, the Maghreb and Spain, where there was already a well-established scientific and philosophical tradition. And, in the East, the legacy of Ibn Sīnā would continue, but in a way where (starting especially with Shihāb al-Dīn Yaḥyā al-Suhrawardī, of Alep, put to death in 587/1191) its mystical tendencies were emphasized. There followed a brilliant line of philosophers whose doctrines brought together a profound metaphysics, religious

speculations characteristic of Shi'ism and traditions attributed to the great figures of ancient Persia (such as Zoroaster) or to a mythical past (Hermes). It is difficult not to recall here Neoplatonism at the end of antiquity, in which poems attributed to Orpheus and the *Chaldaean Oracles* were made the subject of commentary and were the goal for pupils who would already have studied Plato and Aristotle. This new Islamic philosophy thus marks the return, though with a different content, of a stimulating structure of thought able to unify different religious traditions. The ideas about 'eternal wisdom' of the fourth and fifth (tenth and eleventh) centuries were a more restricted development of the same way of thought.

(translated by John Marenbon)

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CHAPTER 3

Averroes

Alfred Ivry

Abū'l Walīd Muḥammad ibn Aḥmad ibn Rushd (1126–98) needs to be known only as Averroes to be familiar to students of philosophy in the West. Greatly respected as a commentator on Aristotle's writings, Averroes was also strongly attacked for what were perceived to be his theologico-political and metaphysical views. He was accused of holding a double-truth theory, in which religion had its own truths which could contradict, though not invalidate, the truths of reason; and accused as well of believing that our minds belong essentially, and return at death, to a single eternal intelligence, a doctrine known as monopsychism.

'Averroism' came to be synonymous with these views, though the 'double truth' accusation is a distortion of his position. Averroes, however, cannot be faulted for the particular view of him that the Latin West had, which it chose to have, on the basis of the translations of his work that it privileged. For Christian Europe may be seen to have been so taken with Averroes as the disciple and interpreter of Aristotle, that it disregarded his indigenous Islamic identity. The Muslim Ibn Rushd, however, is very concerned to show that the teachings of philosophy are not antithetical to those of Islam, that religion not only has nothing to fear from philosophy, but that philosophy endorses its teachings as a popular expression of its own. At the same time, Averroes' argument with his co-religionists may be seen as a plea for toleration of dissent within Islamic society.

Averroes was able to take this stand because he was deeply rooted in the religious establishment of his day. Born into a Cordoban family of learned jurists, Averroes studied and wrote on Islamic law and eventually became chief judge of Cordoba, following in the family tradition. As a young intellectual he also studied theology, and his familiarity with the writings of al-Ghazzālī (d. 1111) in particular were critical to his later defence of philosophy against the latter's criticisms.

In addition to mastering the traditional 'religious sciences' of Islam, Averroes avidly studied the full range of the 'secular sciences' of his day. Besides Arabic poetry, these subjects were basically the heritage of Greek learning (in Arabic translation), and featured mathematics, astronomy, medicine and philosophy. He achieved prominence as a physician, and wrote a medical treatise, known in the Latin West as *Colliget* (from *al-Kulliyāt,* the Arabic for 'generalities' or principles).

Averroes' major scholarly effort, however, went into the study of philosophy, which for him meant the writings of Aristotle. For him, as for others from Andalusian Spain (Maimonides, for example), Aristotle was 'the master.of those who know', and Averroes dedicated himself to expounding peripatetic views. In so doing, he set himself against both the competing influence of Neoplatonic ideas, which had made considerable inroads in the Muslim East, and the domestic opposition of anti-philosophical theologians, the *mutakallimūn*.

Averroes' philosophical position attracted the Almohad caliph, Abū Ya'qūb Yūsuf (reigned 1163–84).[1] The caliph, while apparently interested in understanding and cultivating science and philosophy, was no doubt also interested in having philosophers at court for reasons of state, perhaps as a check on the influence of the more traditionally-oriented theologians and lawyers. Averroes' repeated criticism of these people, and of al-Ghazzālī in particular, bespeak the author's confidence in royal support, which he in fact enjoyed for many years.

It was the Prince of the Believers, Abū Ya'qūb himself, who (in 1168–9) comissioned Averroes to summarize Aristotle's corpus, and who then appointed him to various high offices, first as a qadi and then, from 1182, as court physician. Averroes remained at court during the reign of Abū Yūsuf, the son of Abū Ya'qūb, and was able to complete, under apparently favourable conditions, what had become a monumental task of philosophical exegesis.

In 1195, however, the caliph turned against Averroes and other philosophers, apparently deferring to the conservative majority in his regime. For a brief time the study of philosophy was prohibited, Averroes was banished from court and placed under house arrest, his books banned and ordered burnt. Having made his point, the caliph then relented, and Averroes was a free and respected person when death took him in 1198.

Islamic philosophy of the sort Averroes advocated died with him, however, in a Muslim climate which had become increasingly conservative. Averroes had no significant Muslim disciples, and his books were largely ignored by Arab readers, some writings disappearing in their original language. Fortunately, interest in Averroes and in Aristotelian thought remained high among Jews and Christians; the

Jews reading him in Judaeo-Arabic (Arabic in Hebrew characters) and then Hebrew translation, the Christians in Latin. Averroes' commentaries on Aristotle were read alongside the original works from the thirteenth century on, and themselves engendered supercommentaries; while a Latin (and, to a lesser extent, Hebrew) Averroism emerged which claimed him as its progenitor.

Today, Muslim scholars, particularly in North Africa, are reclaiming Averroes for their culture, appreciating his contribution to Western philosophy while viewing him within the social and political context of Almohad Andalusia and the Maghreb. An international consortium of learned societies is engaged in publishing critical editions, with concordances, of his Aristotelian commentaries in Arabic, Hebrew and Latin, the languages in which they circulated in the Middle Ages; they bring to fruition the project first proposed by Harry Wolfson in 1931.

Averroes wrote thirty-eight commentaries in all, mostly two and sometimes three per Aristotelian work.[2] The commentaries differ in length, and are called 'short', 'middle' and 'long' accordingly. The short or 'epitomes' are free-standing summaries, apparently Averroes' initial effort to digest the arguments of Aristotle and his successors, both Greek and Muslim, on a given text. There are only five long commentaries, for the *Posterior Analytics, Physics, On the Heavens, On the Soul* and *Metaphysics,* and they are exhaustively detailed and uncompromising studies, quoting Aristotle in full and commenting on his every sentence. Comparison of Averroes' middle and long commentaries on *On the Soul* and *Metaphysics* has raised the possibility that the middle are abridgements and somewhat revised versions of the long. It seems likely that Averroes wrote the long commentaries for himself and the few who would have the training and patience to follow him, while composing the middle commentaries in a relatively shorter and somewhat more accessible and hence popular form, presumably for the edification of the caliph and his educated retinue.

Besides these commentaries, Averroes composed a number of smaller independent treatises, particularly on issues relating to epistemology and physics, both terrestrial and celestial. He also wrote two defences of philosophy, against the critical onslaught of al-Ghazzālī and the theologians of Islam.

In these *apologia,* Averroes insists upon respecting the dogmas of Islam, while presenting himself as a dedicated philosopher, and offering a spirited defence of the religious obligation to pursue philosophy. Refraining on principle from deliberating upon the truth value of articles of faith in general, Averroes yet asserts the political and ethical necessity of affirming traditional religious beliefs.

Though this non-judgemental attitude to religious claims may be

seen as disingenuous, it could as well be argued that Averroes was simply applying the same criterion to religion that he applied to other fields of enquiry, namely, that it had its own premisses, which, as premisses, were non-demonstrable. Moreover, he knew that the particular nature of the claims made in Islam, as in all revealed religions, based as they were on a belief in miracles, did not comply with the natural and empirical foundations which he saw as necessary for logical, rational discourse.

Accordingly, the theology which Averroes allowed himself is of the philosophical kind, in which the particular affirmations of Islam are relevant only at the most universal and impersonal level, concerned with the existence and nature of God, creation and providence. Averroes' God is thus the philosophers' God, with no historical or ethnic identification. As a medieval philosopher, however, Averroes works within a modified Aristotelian view of the deity, such that God relates to the world more directly and affectedly than Aristotle thought.

Averroes' logical commentaries attest to the advanced state of the art in the Islamic world by the twelfth century, with full understanding of the technical aspects of syllogistic proof as well as of the political purposes to which logical argument could be put. Viewing, with his predecessors, the *Poetics* and *Rhetoric* as part of the *Organon,* Averroes has less sympathy with poetry as a vehicle for expressing the truth than he has for rhetoric, recognizing the common and even necessary use of rhetoric in traditional religious discourse ([3.4] 73, 84). Dialectical reasoning is both criticized, when used by the *mutakallimūn* as a self-sufficient methodology; and praised, when treated by the *falāsifah* as an effective stepping-stone to demonstrative proof. It is the demonstrative proof, with its necessary premisses, which remains the ideal form of argument for Averroes, though he may well have suspected it was an ideal not often realized. As al-Ghazzālī insisted, foreshadowing Hume, many of the philosophers' physical and metaphysical premisses, and hence proofs, were not necessarily true.

Nevertheless, Averroes' physics and metaphysics follow Aristotle mainly in integrating the principles of being in the sublunar and supralunar spheres. As much as is possible, Averroes presents a uniform picture of the universe. The same principles obtain in the celestial and terrestrial realms, despite the matter of the heavens being considered as eternal. Even where Averroes acknowledges the special properties of the heavens, and even more so of God, and qualifies his descriptions as 'equivocal', and 'analogous' language, it appears he believes in the universal applicability and intelligibility of his ontological principles.

Developing Aristotle's hylomorphic perspective, Averroes posits a prime matter which, through its connection with an initial amorphous 'corporeal form', is conceived of as an existing substantive potentiality

([3.12] 51–4). This, because the corporeal form for Averroes is an indeterminate tridimensional extension, an actual substance of sorts. Prime matter thereby represents being in a perpetual state of becoming.

At the other end of the spectrum of being—and part of that spectrum for Averroes—the first mover or God is conceived as an immaterial substance, both fully actual and the very principle of actuality, the actual state of every being deriving ultimately from him. In this way, while representing the very principle of being, God functions to facilitate continuous change and becoming in the world.

Every substance in the universe in this view is regarded as the product of these eternal formal and material principles of being, and each substance exists in actual and potential states. At the extremes there is no absolutely separate existence either, prime matter not being found without a corresponding 'corporeal form', and God's very existence 'proven' only in relation to the motion of the heavens, for which he is a first and necessary cause.

Averroes gets this view of God partly from Aristotle, together with Aristotle's conceptualization of the first mover as an immaterial and intelligent being: a mind the essential being and sole activity of which is thought, treated in the post-Aristotelian tradition as equivalent to knowledge. For Averroes, as for his Muslim predecessors, this divine knowledge is not purely self-referential; in thinking himself, God was believed to think and hence to know the essential forms (i.e. the species) of all beings ([3.9] 155). While not subscribing to a Neoplatonic emanationist view, and instead believing that all forms are intrinsic to the substance in which they appear, Averroes yet believes that the actualization of each form depends ultimately on the first cause.

For Averroes, the physical dependency of the world upon God is couched not only in terms of intelligence and knowledge, but also desire and even love ([3.9] 154). The heavenly bodies were each thought to have intellects which functioned as their immaterial, formal principles. For Averroes this meant that each intellect 'knew' the place and role of its sphere in the cosmos, both in relation to the other spheres, and to the unmoving first cause itself. This knowledge could also be expressed as a desire in the intellect to realize itself as perfectly as it could, which for the spheres took the form of perfectly circular and hence eternal motion.

Averroes does not seriously posit the existence of a soul in addition to an intellect for each sphere, believing he had no need for a second immaterial principle to explain the motion of the planets ([3.9] 149). For him, the intellect alone could both think or know its object, and desire or love it, desire being the external manifestation of its knowledge, intellect in action. Moreover, the intellects of the spheres could be said

to 'know' events on earth, inasmuch as their movements, and particularly the heat of the sun, affected the generation of substances here. This knowledge Averroes judged 'accidental' or incidental to the 'essential' knowledge or function of the spheres, which was to maintain their own, more immediate perfection, expressed by perfect circular motion ([3.9] 38).

Averroes clung to the Aristotelian model of circular planetary motion, though aware that astronomical theory had long since modified it. He thereby shows his fundamental if anachronistic loyalty to Aristotle as the arbiter of scientific truth. At the same time, Averroes modified his Aristotelian stance, or appears to have done so, as circumstances required. A striking example of this occurs in his treatment of the process of intellection, at the juncture where mortal and immortal intellects, transient and eternal thoughts, supposedly meet.

This is a subject about which Aristotle was notoriously vague in *On the Soul* 3.5, and for which the post-Aristotelian tradition had proposed a number of theories. The fundamental question was whether the potential human intellect, being formed and informed by the imaginative and sensory faculties of the soul, could transcend these physical origins and become an independent and hence immortal substance. Averroes formulated different responses to this question throughout his life ([3.31] 220–356), and it appears his final position is that the individual intellect is only 'accidentally' related to the other corporeal faculties of the soul, belonging 'essentially' to a universal immaterial 'Agent Intellect'. Put another way, the Agent Intellect is 'essentially' a single immaterial actual substance, 'accidentally' related, as a potential or material intellect, to many corporeal beings.

The Agent Intellect for the peripatetic post-Aristotelian tradition is that intellect which is the last of the heavenly intelligences, its sphere of operation our earth. For Averroes, it acts in much the same way that God does in the universe as a whole, as the actualizing principle for all innate forms, including and especially the form of human beings, their intellects. The Agent Intellect thus actualizes the potential and natural intelligibility of all objects here, and the potential knowledge of all persons who exercise their minds. The philosopher's knowledge, his 'acquired intellect', may be considerable indeed, when directed towards and conjoined with the Agent Intellect, his ultimate goal; yet this conjunction does not, for Averroes, render the individual intellect itself immortal. Its truths are not personal, though its knowledge is its own, as long as the person lives. The immortality that the individual may anticipate is as part of the sum of universal truths, identified with the Agent Intellect. For Averroes this knowledge, however inadequate it may seem to the person seeking a personal immortality or mystical

union with the deity, yet provides the philosopher with a sense of great felicity and fulfilment.

The uncompromising teachings of Averroes' commentaries are modulated in the works he composed in his own name in defence of philosophy. The *Faṣl al-Maqāl,* paraphrased in English as 'Averroes on the harmony of religion and philosophy',[3] was probably written about ten years after Averroes received his mandate from the caliph to explain and summarize Aristotle's works, i.e. in a period when Averroes enjoyed the caliph's support and felt confident in presenting philosophy's claim to religious legitimacy before its detractors.

The *Harmony* has a logical and legal focus, Averroes arguing before his fellow jurists that while rooted in the Qur'ān, Islamic law is as much of an innovation or post-Qur'ānic development within Islam as is philosophy, and that therefore both are equally permissible expressions of the faith. For Averroes, the Qur'ān demands that one reflect upon, hence study the world, which he takes as an obligation to pursue philosophy, for those capable of it. This means, in effect, those who appreciate the difference between demonstrative and non-demonstrative arguments, people (i.e. philosophers) who can argue apodictically ([3.11] 45).

Persons such as these are relatively few in any society, Averroes recognizes, and he readily accepts the use of the less conclusive and more popular forms of religious discourse, expressed dialectically and rhetorically. Averroes believes the Qur'ān appeals to people on all three levels, though its demonstrative arguments may only be alluded to, and that only by understanding the text allegorically. Averroes has no hesitation in doing so, his philosophical—here metaphysical—convictions dictating his interpretation of God's word ([3.11] 58).

The *Harmony* is in this respect a dogmatic assertion of the superiority of scientific, i.e. demonstrable, philosophical discourse, to all other forms of reasoning. Averroes could scarcely expect to persuade his critics of the virtues of philosophy in this manner, and his writing simply attests to his complete conviction and self-confidence.

Averroes' claims for philosophy are buttressed in this book by a brave *de facto* attack upon one of the institutions of Islamic faith, the concept of *ijmā*' or consensus, which when invoked has the status of law. To his critics, there is a consensus in Islam that philosophy is an irreligious and hence unacceptable pursuit. Averroes, in response, claims that a unanimous consensus does not exist on this issue, simply because there may always be private reservations to positions publicly declared, undermining theoretically the seeming unanimity; while this is true in many areas, it is particularly so for philosophy, which has always had an esoteric tradition of its own ([3.11] 52).

Averroes in fact insists upon the private nature of philosophical

instruction, claiming it wrong to teach the masses philosophy or the allegorical meaning of Scripture, since they would misunderstand the philosophers and be led to unbelief. It is better to have them believe in ideas which approximate and imitate the truth, thereby preserving society and their own (and the philosophers') well-being ([3.11] 66).

While it would be too much to claim that Averroes is fully preaching toleration, within the limits of his society he may be seen as advocating a fair measure of freedom of speech. He is not beyond branding as heretics disbelievers in creation, prophecy and the afterworld, but insists, without going into much detail, that the traditional understanding of these concepts should not be the only permissible ones.

Averroes addresses these particular issues more fully in the *Tahāfut al-Tahāfut (The Incoherence of the Incoherence),* his major defence of philosophy against the theological attack of al-Ghazzālī. Here the polemical side of Averroes takes a back seat to his gift for philosophical argument, his sights set on Avicenna (d. 1037) as much as on al-Ghazzālī. For it is Avicenna's philosophy which al-Ghazzālī had first summarized, in his *Maqāsid al-Falāsifah (The Intentions of the Philosophers),* and then attacked, in his *Tahāfut al-Falāsifah (The Incoherence of the Philosophers).*

The incisiveness of al-Ghazzālī's attack may well have contributed to the declining fortunes of philosophy in the Muslim East, and eventually in the Muslim world as a whole. In Andalusia, however, the rational philosophical tradition lived on through the twelfth century, and Averroes' *Incoherence* may be seen as a last hurrah for a rigorous Aristotelianism within Islamic culture. Averroes may have hoped that in discrediting Avicenna's Neoplatonically inclined approach to philosophy he could defuse al-Ghazzālī's critique of philosophy in general, not appreciating the fact that if Avicenna's more religiously compatible philosophy was refuted, his own more uncompromising approach would be even more at risk in Islamic society.

As does his *Harmony,* Averroes' *Incoherence* daringly insists on the legitimacy, if not necessity, of his interpretation of creation, providence and the afterworld, though realizing the philosopher's political and moral obligation to uphold conventional beliefs in these issues. Accordingly, he gives sufficient lip-service to traditional religious locutions to permit wildly divergent assessments of his views on these matters in contemporary scholarship.

Averroes' *Incoherence of the Incoherence* is a detailed response to al-Ghazzālī's *Incoherence of the Philosophers,* containing a verbatim transcript of the former work. As such, it offers, among other things, Averroes' proofs for the eternity of the world, so presented as to be compatible with the notion of God as creator; Averroes' utilization of positive predication of divine attributes in the one God; and Averroes'

rejection of the Avicennian distinction between essence and existence, as well as of the Neoplatonically inspired emanationist ontogony which Avicenna adopted. In place of Avicenna's scheme, Averroes advocates a more immanentist role for God in the cosmos, modifying thereby Aristotle's self-centred deity.

Averroes' physics, both celestial and terrestrial, is basically Aristotelian, as is his closing defence of the logical necessity for believing in causation, directed against al-Ghazzālī's Occasionalism. Averroes' final remarks defending his views on immortality of the soul and resurrection are very abbreviated, and perhaps indicative that he knew how difficult it was to make them acceptable to his critics, though ostensibly he claims these are not topics amenable to philosophical investigation.

For al-Ghazzālī, the notion of the eternity of the world poses two main difficulties: it challenges God's role as sole creator of the universe, and pre-empts the exercise of his free will. Al-Ghazzālī thus attempts both to discredit the notion of eternal motion and the philosophers' use of the concept of divine will. He claims, using arguments which may be traced to John Philoponus, that the different rates of motion of the supposedly eternal heavenly bodies would create disparate and hence impossible infinite numbers; while a divine will in an eternal universe would have to act for that which already is and always has been existent, chaining its will to necessity and thereby rendering it otiose.

Averroes' response to the problem of different infinities distinguishes between actual and potential states of being; as all actual movements are finite, infinity is predicable only of non-actual or potential movements, which as such are non-quantifiable ([3.18] 10). As for the divine will, Averroes acknowledges that its action is indeed eternal and necessary, but that it is nevertheless a real will, not the same as ours, though equivocally predicable ([3.18] 90).

'Creation' for Averroes is the term for an eternal process in which God is the agent directly responsible, as the first and final cause, for the motion of the heavenly bodies; and indirectly responsible, through those motions, for the formal and efficient causality which determines the nature of all objects. Even matter may be said to come within God's purview, through the forms with which all matter is connected ([3.18] 108).

This eternally created world is viewed as the willed effect of God's knowledge, which 'knowledge' is tantamount to the creative act itself. God thus 'knows' the world, in so far as he is its creator. This knowledge is of the world as it is, the actual world, with its corresponding real potentialities, integral to the nature of every actual being. God's knowledge accordingly is of that which is necessary, being actual,

though full knowledge of that entails, for Averroes, knowledge as well of non-necessary or possible alternative states of being.

Averroes' assurance in the divine awareness of logically possible alternative orders in the universe encourages him to speak of the divine will as 'choosing' to act in the manner which he does, though the choice is eternally foreknown and necessary. The divine will is thus, for Averroes, the external realization of a theoretically more comprehensive divine knowledge. These and other attributes may be predicated of God, since as immaterial properties they pose for Averroes no quantifiable challenge to the divine oneness ([3.18] 188, 212).

Nor do such distinct notions as knowledge and will, or power and life, for example, introduce differentiation into the divine essence for Averroes, since in that essence they are undifferentiated ([3.18] 257). It is we who, assessing the multiple effects of God's presence in the world, attribute diverse faculties to him. God's nature remains unique, though it is not necessary therefore to strip it of all meaningful predication, and to distance God from the world physically and logically. God's involvement in the world is thus a necessary part of his very being, even as the full nature of every object includes the effect it has upon others.

Averroes is, accordingly, more willing than other medieval philosophers to detail God's manifold presence in the world, a presence which allows him to speak even of God's knowledge of individuals, though such statements must not be taken without qualification ([3.18] 207). A frequent form of qualification for Averroes, used in many contexts as we have seen, is the distinction he employs between 'essential' and 'accidental' states of being, though both are necessary for the full description of the object discussed. Thus, it may be said that God's knowledge is essentially one (or single) though accidentally many (or diverse).

Averroes' political philosophy is known to us from a variety of sources, not least his commentary on Plato's *Republic*.[4] This work is particularly intriguing, being included, presumably intentionally, within the corpus of his Aristotelian commentaries. Admittedly, Averroes' choice of the *Republic* was determined in part by his unfamiliarity with Aristotle's *Politics*, a text which was unavailable to him in Spain, and largely unknown throughout the Islamic world. However, that fact may itself indicate the status which the *Republic* enjoyed among the Muslim *falāsifah*, particularly Averroes' predecessor, al-Fārābī (d. 950). As the pre-eminent textual representative of Greek political philosophy, the *Republic* thus had to be included in the canon of philosophical texts which Averroes was charged to present, with his commentaries, to the caliph.

The paraphrase of the *Republic* which Averroes offers his readers is,

however, imbued with Aristotelian perspectives, and shows the influence of the Stagirite's *Organon* as well as his *Nicomachean Ethics* ([3.30] 17–45). The metaphysical and dialectical underpinnings of the *Republic* all but disappear, and the examination of personal and civic virtue which Plato describes is pursued by Averroes for essentially instrumental purposes. Political philosophy is treated primarily as a practical science, though surely Averroes knew the kind of state Plato advocated was impractical and totally unrealistic for a Muslim society.

Though it is not necessary to believe Averroes endorsed everything he reports Plato as recommending in the *Republic,* it is quite clear that he is sympathetic to many of Plato's teachings there. Averroes' own affinities can be discerned from the style of his composition, both in his omissions and elaborations, as well as in his comparisons of Plato's teachings with references to the situation obtaining in the cities or states of his own time.

Averroes omits the opening and closing Books of the *Republic,* with their dialectical, poetic and mythic emphases, and omits also the discussion of the Ideas and of the divided line in Book 6 of Plato's work; substituting for it an attack upon the world view and methods of the *mutakallimūn,* a critique which may be seen as an indirect way of affirming Aristotelian nominalism and logic. There as elsewhere in this commentary, Averroes emphasizes Aristotelian distinctions between demonstrative and non-demonstrative forms of reasoning. While preferring demonstrative arguments, Averroes acknowledges the necessity of presenting philosophical truths to the masses in less rigorous ways. Suspicious of the dialectical arguments of the *mutakallimūn* and of the themes and excesses of much of poetic discourse, and recognizing the limited scope of demonstrably necessary argument in this field, Averroes would apparently consider the *métier* of political discourse, if not of political philosophy in general, to be rhetoric.

This non-literal interpretation of Averroes' approach to the *Republic* may help the reader understand his stunning indifference to the conventions of Muslim society. Daringly, Averroes follows Plato in considering religion from a political perspective only. It is seen as a structural component of all societies, part of the legal and moral composition of each city, with Islam and its Prophet accorded no special priority ([3.13] 48). Prophecy as an institution is not placed above the leadership and laws bestowed by the philosopher-king or *imām* (the one Muslim term which Averroes uses, though treating it as a mere synonym for Plato's ideal leader) ([3.13] 72). Nor is Averroes particularly sensitive to the strictures of Islamic law, in apparently advocating equal rights and responsibilities for both sexes, and in seeming agreement with Plato's views on the engendering and upbringing of the guardian class.

Again, Averroes does not hesitate to convey and apparently concur with Plato's remarks about the necessity for political leaders to lie to their subjects on occasion, presenting abstract or impersonal truths in fictive dress. While Averroes is sympathetic to the particular teachings of popular Islam, with its personal and providential God, and afterworld beliefs, he considers them only from a neutral political perspective, risking thereby the wrath of his community ([3.13] 24). Here it would appear that his philosophical zeal has overwhelmed his political prudence.

On the other hand, a conventional Islamic influence on Averroes may be discerned in his treatment of Plato's views on warfare ([3.13] 12). Unlike the Greek philosopher's defensive (if pre-emptive) military strategy, which Averroes sees as a racially biased attempt to keep the barbarians at bay, the war which the Cordoban *faylasūf* advocates is a *jihād* or 'holy war'; this is intended, however coercively, to bring the virtues of good government and civilization to all those capable of being educated, particularly the young.[5] Averroes, we could thus assume, did not ponder the destabilizing effects upon society of a permanent state of warfare, and this despite the ample evidence from the cities of his own time.

We know, however, from his legal compendium *Bidāyat al-Mujtahid wa-Nihāyat al-Iqtiṣād* (which may be loosely translated as *The Proper Rational Initiative of a Legist*), written for the most part well before his *Republic* commentary, that Averroes had considered *jihād* in all its ramifications, including the advisability, under duress, of declaring a truce, in effect making peace. His remarks in the *Republic* commentary should therefore not be taken as a realistic assessment of or prescription for Islamic society, but as a commentary on an ideally imagined state, as loosely Muslim as Plato's was Greek.

This commentary, like many other commentaries of his, leaves the reader wondering which of Averroes' remarks are meant to be taken as truly his, and to what degree we must see him adopting a rhetorical stance, and for what ultimate purpose. Fundamentally, Averroes has an appreciation for the philosopher-king model of leadership, with all its stratification and manipulation for the common good; and he has an elitist but apparently egalitarian view of society. It would be surprising if he did not know that this Platonic political philosophy was anything but a practical or implementable document, and that therefore this commentary, as all his philosophical writings, were primarily intended for theoretical reflection, the path to happiness for him best reached through intellectual pursuits.

NOTES

1 Cf. the description of Averroes' momentous encounter with the caliph, as given by Hourani [3.11] 12.
2 Cf. the inventory of these commentaries assembled by Harry Wolfson [3.29].
3 The full title more literally would be 'The Book of the Distinction of Discourse and Determination of the Connection between Religious Law and Philosophy', cf. Hourani [3.11] 1.
4 Averroes' commentary on the *Nicomachean Ethics* is only partially extant; for his paraphrase of Plato's work see Ralph Lerner [3.13].
5 Cf. Rudolph Peters [3.14] 21 (the chapter on *Jihād* from Averroes' legal handbook *Bidāyat al-Mujtahid*).

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CHAPTER 4

Jewish philosophy

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INTRODUCTION

The history of medieval Jewish philosophy can be divided into two consecutive periods. The first, beginning in the ninth century and ending roughly with the death of Maimonides in 1204, occurred in Islamic lands. The second, which lasted from the twelfth century until the end of the Middle Ages, took place in Christian Europe.

Whether they lived among Muslims or Christians, Jews centred their lives on the Torah, a word which was used beyond its strict meaning to designate, not just the Pentateuch, but the whole scriptural tradition: the twenty-four books of the Hebrew Bible, their commentaries and also (except for the Karaites) the oral law: the *Mishnah* and *Guemarah* which make up the Talmud.

In Jewish schools the Torah was studied in Hebrew and, for the believer, the world was built around the revealed text. From the creation, God has guided the course of universal history. The sun and the planets are subject to his will. The God of the Bible is a moral agent who wills and decrees. To man, whom he has created 'in our image and likeness', he gives commandments and issues prohibitions. Humans can grumble to God, plead with him, make him change his mind. Moses speaks to God man to man: there is a dialogue between them. God is free to reply or not, but he is visibly and audibly in the presence of the prophets, appearing as a majestic king or sending his angels.

God has made a pact with the Jewish race. They are the chosen people, especially close to God. Other peoples are God's instruments, whom he uses to punish the people of Israel and bring them back to the right course. God has given his people, through Moses, his Law, the Torah. Even for the later prophets, who considered that God was king over all humanity, it was the Bible which enshrined divine will.

This text, revealed just once in human history contained all God's commands and all his prohibitions. For Jews the Torah, regarded as eternal and complete truth, given once and for all, was the criterion for all other truths. To turn against it would be to turn against God himself.

Philosophy came from outside. It was enshrined in Greek texts, translated into Arabic and, from the twelfth century onwards, into Hebrew. It appears that, at the very start, the Jews made use of doxographies; but the texts of Plato and Aristotle, along with Arabic commentaries, very soon became available to them. Arabic was the language which the Jews in Islamic lands spoke and wrote (sometimes, using Hebrew characters). For the whole of the first period of Jewish philosophy, philosophical texts were written in Arabic. Philosophy also included science and was a requisite for many physicians, astronomers and astrologers. It was not taught in the Jewish schools but by private tutors, and so it was available only to the better off

Yet the majority of philosophers who had a significant influence on Jewish thought in general were also rabbis, talmudic scholars and leaders of their communities. Although they were sometimes attacked for their opinions, the philosophers remained none the less within the Jewish community. This was possible, perhaps, because there are no articles of faith in Judaism. Orthodoxy is based, rather, on the Bible, which is far from monolithic and contains various passages that can be interpreted in more than one way. It is well known that, with regard to the Law, from early times oral teaching gave room for variety, nuance and innovation on the basis of the written text. The teaching was then recorded in writing and itself expounded and glossed until it formed an enormous (and even today still-expanding) body of material. Its importance shows how new problems were resolved without going against the old texts. And this use of allegory and symbolism as tools for interpretation allowed different systems of thought—philosophical, kabbalistic or ascetic—to remain within Judaism.

JEWISH PHILOSOPHY IN ISLAMIC LANDS

Jews in Islamic lands divided into the same philosophical schools as the Muslims: the *kalām,* Neoplatonism and Aristotelianism. Similarly, the questions which Jewish philosophers set themselves were, to a large extent, the same as those discussed by their Muslim counterparts.

The kalām

The *kalām* or, to be precise, the Mu'tazilite school, provided the context for rabbinic thought for a number of generations, and it lasted even longer among the Karaite Jews. Dāwūd ibn Marwān al-Muqammiṣ (ninth century) is the first rationalist Jewish thinker whose work survives. His *'Ishrūn Maqāla (Twenty Chapters)* expounds ideas inspired by the *kalām* but strongly influenced by Christianity, to which—for part of his life—he was a convert. His treatise is modelled on treatises of the *kalām,* except for his vigorous defence of Judaism and his arguments against other religions.

By contrast, other Jewish thinkers adopted only some ideas from the *kalām,* in particular, the definition of reason as a universal moral law transcending race and religion, which man finds within himself, and which applies to God, assuring us that there exists a good God in whom we can trust. Among the Karaites, Abū Yūsuf Ya'qūb al-Kirkisānī (Jacob al-Kirkisani) gave the fullest theoretical discussion of this doctrine, whilst Japheth ben Ali made a translation of the Bible into Arabic, accompanied by a commentary where these ideas emerge in the reading of the text. Both thinkers lived in the tenth century. Their great contemporary among rabbinic Jews was Saadiah ben Joseph Gaon (882–942), who was born in Egypt and moved to Babylon; there, in 928, he became *Gaon,* the head of the Talmudic academies. He was extremely prolific in every field: as a grammarian and lexicographer, a translator of the Bible into Arabic and commentator on it, as a liturgical poet and compiler of a prayer book, as a Talmudist and a jurist, as a writer on the calendar and chronology. Saadiah philosophized and engaged in polemic to prove the absolute truth of rabbinical Judaism against the claims of the Karaites and dangers posed by other religions, and by the various schools of philosophy and by scepticism in its different forms.

Arguments based on reason are found in most of Saadiah's works, but it is in two of them that they receive a systematic exposition. They are the *Commentary on the Book of Creation (Tafsīr Kitāb al-Mabādī, Peroush Sefer Yetzira),* which was translated into Hebrew several times and used especially in the eleventh and twelfth centuries; and the *Book of Doctrines and Beliefs (Al-Amānāt Wa-l'I'tiqādāt, Sefer Emunot Wede'ot),* which still remains today one of the fundamental works of Jewish theology.

Saadiah makes especial use of arguments taken from the *kalām,* as the plan of the *Amānāt* shows. Its first two chapters discuss the unity of God, the topic with which exponents of *kalām* usually begin their treatises, whilst the seven following chapters consider God's justice, the second main theme of the *kalām*. None the less, Saadiah does not

adopt one of the central ideas of the *kalām*, that of atomism and the renewal of creation by God at every instant (the corollary of which is the denial that there are laws of nature). He chooses instead a somewhat vague Aristotelian understanding of the physical world.

In the introduction to his *Amānāt*, Saadiah proposes a theory of knowledge. Conviction *(i'tiqād)* arises from three sources: external reality, reason (that is to say, knowledge of good and evil) and what reason deduces necessarily from the reality of things and from the knowledge of good and evil. To these three Saadiah adds 'the truthful tradition', that of the Torah (including the oral Torah, the Talmud). The truthfulness of this tradition has been proved, Saadiah says, by signs, prodigies and, in particular, by the miraculous feeding of the Children of Israel with manna during their flight from Egypt. Whereas miracles and prodigies might be illusory or simulated, the miracle of the manna could not have been simulated, since it lasted for forty years and was so public an event that any idea of a carefully contrived lie is implausible. Nor could it have been a natural phenomenon which Moses was able to produce, since the philosophers would also have known about it and made use of the technique themselves. The 'truthful tradition', the fourth source of knowledge, is therefore based on the historical experience of the Jewish people. And Saadiah's argument gains added strength since none of the other religions questions the historical reality of the exodus from Egypt and the Jews' wanderings in the desert.

The Torah itself asks us to seek to understand the teachings it transmits. It does so for two reasons: first, so that the knowledge transmitted by tradition becomes firmly fixed in the intellect; and, second, so that we can reply to those who call the Law into question. Now, the knowledge which rational, scientific investigation uncovers turns out in fact to conform to traditional knowledge. Saadiah was thus able to represent the Torah and scientific knowledge as two twigs from the same branch. They can in no way contradict one another. Any apparent contradictions are the result either of mistakes in our reasoning, or of our failure to interpret Scripture correctly.

The structure of the *Amānāt* reflects this identity between tradition and reason. Each chapter begins with an introduction to the problem. Then follows an examination of biblical texts which confirm the thesis and, finally, there is a rational analysis of the problem and a refutation of opposing theses.

In his chapter on the creation, Saadiah begins by setting out the way in which this enquiry should be pursued. Here the senses cannot be of any help. Only rational arguments can be used. Whatever the hypothesis—the eternity of the world, the eternity of matter, and so on—an attempt must be made to establish it by reason.

Saadiah's deep intuition is that the world is limited and changing. Only the infinite action of God can sustain and explain this constant change, the perceptual generation of a world both spatially and temporally finite. The world and man, limited and imperfect, bear witness to a perfect and infinite being and lead us to a rational knowledge of the one God, creator of the world. In the introduction to the chapter on the unity of God, Saadiah lists all the objections which were made in his time to this rational way of thought and refutes them all ([4.3] 78, 80):

> Our Lord (be He exalted and glorified) has informed us through the words of His prophets that He is One, Living, Powerful and Wise, and that nothing can be compared unto Him or unto His works. They established this by signs and miracles, and we accepted it immediately. Later, speculation led us to the same result. In regard to His Unity, it is said, 'Hear O Israel, the Lord our God, the Lord is One'.
>
> (Deut. 6:4)

God, the creator of the world, is therefore one; but who is he? And, when we say of him that he is one, about what unity are we speaking? What is the knowledge he possesses, on account of which we say he is knowing, and what are the actions which are attributed to him, on account of which we say that he acts? The rabbinical Jews replied to these questions with verses from the Bible which often use in connection with God not only such adjectives as 'powerful', 'good and merciful', 'jealous', but also attribute to him bodily movements—'God rises', 'God comes down' and even parts of the body—'God's arm', 'God's hand'. But Saadiah strongly opposes any notion of divine corporeality. One of the central aims in his thought is to purify the idea of God and demonstrate that God is incorporeal and transcendent. Everything in our world can be defined according to the Aristotelian categories. Even the soul and 'divine Glory' are definable substances and so more or less corporeal, because for Saadiah body and substance are one and the same thing. God, however, cannot be defined by any of the Aristotelian categories. He transcends them all; and there is nothing in common between finite, composite bodies, which are subject to change, and God, who is immaterial and always remains exactly what he is. Whilst his attributes, power and knowledge, signify that God is not lacking in power or knowledge, power and knowledge such as they are found in man cannot be applied to God because, in God, attributes are identical to essence. Men gain knowledge by learning over a period of time: it comes to be where it was not previously, and in old age it decreases,

at death it disappears. But God has knowledge for all eternity. When we talk about God using positive attributes, in reality we are talking about 'something other', about which we can only form a vague notion and of which we know only that it does not resemble what exists here below. God's attributes are identical to his essence (or quiddity), and none is outside his essence. God is absolute unity.

Since we can arrive by reasoning at a refined and exact knowledge of God, why was it necessary to send the prophets? According to Saadiah, God, in his supreme knowledge, has acted 'for the good'. He does nothing in vain. The 'justice of God' *('adl),* as conceived in the second of the Mu'tazilites' theses, shows why the very nature of God makes prophecy legitimate. Saadiah then goes on to explain why revelation was necessary for mankind. First, it sets out the actions which allow the very general moral laws, dictated by reason, best to be put into practice. Second, it includes other commandments, which are of value and which reason does not teach. Third, it allows people to act immediately, whereas reason, although based on the same principles, takes time to arrive at its conclusions. Moreover, some men never reach the level of rational knowledge, because of their imperfection or their disinclination to study, or because of the doubts which trouble them.

The Bible, however, is often written in anthropomorphic terms, which contradict what reason teaches us: that God is one and incorporeal. Yet tradition is drawn from the same source as rational knowledge and so it cannot be contrary to reason. A rational explanation must therefore be given for the whole of scriptural revelation, and especially for the visions of the prophets. Three principles guide this explanation:

1 All the manifestations of the supernatural are the work of God and God alone. Prophecy is a grace, a gift which God has put into a human receptacle, who is then called a prophet. The prophet is mortal like other men. He cannot do without food or drink. He leads a normal married life. He cannot predict the future. Nor can he perform miracles, except under exceptional conditions—otherwise it would be necessary to suppose that he had superhuman capacities. The prophet is merely an instrument of God's will, the receiver of supernatural visions.
2 God, who is unknowable and incorporeal, makes manifest his created Glory, the first of his creations, an air which is finer and more subtle than the visible air: the 'Second Air'. This Second Air is audible and visible, filled with light and colour, striking in its splendour. It is through the Second Air that the created word was produced which Moses heard, and the Ten Commandments heard in the visible air by the whole people of Israel on Mount Sinai. It is the Second Air

which the prophets saw and called the Throne of Glory and Cherubim, Angels, Seraphim…

3 God makes his glory visible in the manner of a teacher going from the easier to the more difficult. He created man in such a way that he was free to obey or disobey his commandments. His wish was that man should merit the highest reward, the world to come, and it is to this end that he made his orders and prohibitions. Among them are some which reason would have shown us were necessary, and others which revelation alone teaches us (though none of them is contrary to reason). These purely religious laws allow the faithful to prove their obedience and merit the reward which God wishes to give them: immortality and resurrection at the time of the Messiah.

Saadiah Gaon's thought remains very close to tradition, both in his conception of God and his exegesis of texts. His charm and optimism cannot fail to allure the modern reader. His simplicity ensures that he will remain for ever young.

Jewish Neoplatonists

Isaac Israeli (born 850, died by 932, or perhaps *c.* 955) was a slightly older contemporary of Saadiah's. He was a famous doctor, and he has the credit of having introduced into medieval Jewish thought texts and ideas taken directly from the Greeks. Like al-Kindī, he also used Greek texts which have not survived to modern times. His type of Neoplatonism is based on emanation. Between the perfection of God and the imperfection of the world below there are interposed more or less perfect essences which link the incorporeal deity to the world of matter. According to Isaac Israeli first matter and first form come from God. Intellect is engendered from these. From Intellect emanates the world of souls (that is, of the rational soul, the animal soul and the vegetative soul). There follows the world of the spheres, then the sublunary world with its four elements and what is made from them. Our earth is a mixture of the four elements: earth, water, air and fire. It is at the centre of the universe and without motion. The spheres, which are made of a more perfect matter, the quintessence, revolve around the earth and create by their movements the composite beings which are bodies.

Other Neoplatonists held that first form and matter emanated from God in a manner which was involuntary and outside time. But Isaac Israeli lays great stress on the creation. God creates first matter and first form. He makes them come to be from nothing, something which God alone can do. Isaac is, however, in agreement with other

Neoplatonists in believing that first matter is intelligible, that is to say, absolutely incorporeal. First form contains all other forms which come into existence, but in a perfect way. Intellect, which is light and splendour, comes from the conjunction of first form and first matter. From Intellect emanates the rational soul, which is the human soul. The Intellect holds a high rank in the scale of being, since its source is a pure light, more elevated and brilliant than any body, even one as perfect as the sphere of the heavens. The so-called 'metaphysics of light' play an important role in this description of the higher world, and it is because the soul is part of this world that it is able to climb back up again towards its former habitation. The start of this return is knowledge of the higher world and certainty of the truth.

God, by his will and his power, has created and made manifest first matter and first form from nothingness. But it is by emanation—a necessary action—that Intellect, which is the source of souls and the universe, comes from these two created beings. Intellect and souls act in a different way from that found in the celestial sphere and the sublunary world. It can be said to create, in that nothing is lost of the essential light and lower beings are created from the shadow of this light. But in the world of the spheres and below, natural action is by generation and corruption, since the source of action is changed and diminished by the action itself which it carries out on bodies with qualities opposed to it. Below the celestial sphere all beings come into being from the four simple elements: fire, air, water and earth. Whereas in other bodies one or another of these elements predominates, in man they are in harmonious equilibrium. Every creature made of the elements is given a soul according to its capacity and each finds pleasure in bringing itself closer to the principal element in it.

The three degrees of the soul—intellectual, animal and vegetative—are not absolutely separate. For instance, certain animals have almost as much intelligence and prudence as man. All this is due to the inclination of one soul towards another. Sometimes, the rational soul tends towards the animal soul and its actions tend towards those of the animal soul which desires eating, drinking and pleasure. In the same way, the animal soul has a tendency to assimilate its actions to those of the rational soul when it is instructed and influenced by it. The rational soul tends to draw itself near to the Intellect and reach perfection, in which case it will be clear and pure, and it will seek good and true things such as knowledge and understanding, purity and saintliness, service of God and nearness to him. This all comes about from the influence of the higher substance.

Since man of his own accord raises himself towards the Intellect, and so towards God, what part does revelation play? Isaac Israeli divides mankind into types according to which of each of the three souls is

dominant: the rational soul, the animal soul or the vegetative soul. Only a small proportion of the human race is, therefore, truly close to the light of the Intellect. These are the privileged individuals whom God will use as intermediaries in order to bring the divine word to humankind.

One of Isaac Israeli's pupils, Dunash ben Tamin, brings out his train of thought when he discusses Moses. Moses differs from the other prophets because he heard the word of God in the way described in Exodus 32:11: 'the eternal one spoke to Moses face to face.' Moses' soul was superior to that of other men: it was subtle, light and, even before it was separated from Moses' body, it was united with the world of the rational soul. For when souls are separated from their bodies, they remain alive and are united with the world above: the soul becomes intellect and, in an incorporeal, spiritual union, the intellect is united with light.

Prophetic visions are no longer conceived as real, external phenomena which are seen and heard, but as internal visions which reflect spiritual rather than sensory reality. So far from being inferior to sensory reality, spiritual reality is as much superior to it, as the soul is superior to the body:

> One whose rational soul has withdrawn itself [i.e. from the lower souls] and upon whom intellect causes its light and splendour to emanate becomes spiritual, god-like, and longing exceedingly for the ways of the angels, as far as lies within human power. The Creator, exalted and blessed be He, therefore chose from among His creatures one qualified in this manner to be His messenger, caused him to prophesy, and showed through him His truthful signs and miracles. He made him the messenger and intermediary between Himself and His creatures, and caused His true Book to descend through him.
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> ([4.20] 139)

The Bible is not, however, a work of philosophy. It includes narratives which have a sense which is far from intellectual (and some which can hardly be understood at all!). The reason for this, Israeli explains, is that God speaks the language of men so that all will understand him. He bases his language on the capacities of his audience. Those among them able to discern the pure sense will find it; because they are distant from material things and their minds are detached and luminous, they will see God's words and his light. Those who are still incapable of seeing the light will ask the sages to expound the Bible to them and, little by little, thanks to their expositions, they will understand and will

come nearer to the source of purity until they are so close to the Intellect that it will print its form in their soul. God himself provides the example which the Intellect follows. God puts himself within reach of human understanding: the Intellect imitates this divine way of teaching when it wishes men to know future events, and the philosophers in their turn take the same course when they explain *viva voce* what their pupils cannot understand in their written work. The superior beings are like a ray of light which penetrates through the entire breadth of a solid body. The Intellect, the prophets and the philosophers all follow God's own footsteps as they incline themselves towards lower beings and help each of them, so far as he is able, to climb the ladder of light.

It was not only philosophers who developed such themes: the quest for purity, freedom from bodily desires, and the desire for union with the Intellect. They were also taken up by scholars, rabbis, poets and courtiers during the tenth to twelfth centuries: for instance, Haï Gaon (938–1038, Babylon), president of the Talmudic academy; Baḥyā ibn Paqudah (*c.* 1050–80, Andalusia), a judge on the rabbinical tribunal and author of the famous devotional work, *Guide to the Duties of the Heart;* the famous poet, Moses ibn Ezra (1055–*c.* 1135, Spain); Abraham ibn Ezra (*c.* 1092–1167, Spain then Italy and France), also a famous poet and biblical commentator; Joseph ben Jacob ibn Ẓaddik (died 1149 at Cordoba), a judge on the rabbinical tribunal and a philosopher; Abraham bar Ḥiyyah (died after 1136 at Barcelona), an astronomer and mathematician who held an important post at the court of Alphonsus I of Aragon and of the counts of Barcelona; and Solomon ibn Gabirol and Judah Halevi.

Solomon ben Judah ibn Gabirol (*c.* 1022 to 1054/8, Spain) is well-known for his Hebrew poetry, both sacred and secular. His philosophy is expounded in a treatise which has not survived in its Arabic original but in the Latin translation, *Fons Vitae (Source of Life)* made by John of Spain and Dominicus Gundissalinus in the mid-twelfth century. The *Fons Vitae* was widely read by thirteenth-century Christian theologians, who knew its author as 'Avicebron' or 'Avencebrol' and took him to be an Arab—or even a Christian—thinker. In addition, there survive some extracts from the work, translated into Hebrew, made in the thirteenth century by Shem Tov ibn Falaqera. These do not preserve the dialogue form found in the *Fons Vitae*. Gabirol's treatise was known to Neoplatonic Jewish philsophers and was fiercely criticized by the first Jewish Aristotelian, Abraham ibn Daud. Then it was almost entirely forgotten until 1846, when Solomon Munk showed that the extracts made by Falaqera were from the work translated into Latin as the *Fons Vitae,* and so that 'Avicebron' was none other than the famous Hebrew poet, Solomon ibn Gabirol.

Gabirol's system is Neoplatonic. Through knowing his own soul, man can know nature, free himself from it and return to the spiritual world, his place of origin. Knowledge is knowledge of being. There are only three sorts of being: (1) primary substance, (2) primary matter and form, (3) God and the Will, which is an intermediary between God and matter-with-form. Man is able to grasp these types of being because he finds within himself equivalents of them: his understanding corresponds to primary substance, his soul to the Will and his matter and form to primary matter and form. Man can know God's actions but not his essence apart from his acts, since it is infinite and above all things. In the order of emanation, primary matter and form are the nearest to the divine Will. From them together is engendered Intellect, then Soul, and from Soul Nature, which is the last of the simple substances. It is from Nature that bodily substance derives.

The path which will take the soul back to Intellect goes by the knowledge of composite beings: spiritual beings which are called 'simple' although they are in fact composite. Indeed, 'simple' and 'composite' are relative terms: a being is simple with regard to that which is lower than it, and composite with regard to that which is above it. The entirety of things can thus be regarded as if it were arranged in a line, beginning with universal matter and form. The further it is from its source, the more composite a being is with regard to that which goes before it, although it remains simple in relation to that which follows it.

Matter, form and the Will are the true subject-matter of the *Fons Vitae*. Gabirol describes at length the various types of matter and form, universal and particular, which make up the universe. Beings are individuated in the first place by forms, material or spiritual, whereas matter is one and universal. But to the unity of form there corresponds a unity of matter and, in another passage, Gabirol makes it clear that the diversity of beings is not brought about because of form, since form is one and entirely spiritual, but by matter which can be perfect and subtle or thick and heavy.

The Will is the ultimate goal of man's quest. This Will is identical to the Wisdom of God and his *logos*. Conceived apart from its acts, the Will is indeed identical to the divine essence, but it is distinguished from it when its acts are considered. In the former case, it is infinite, but finite in the second. It is an intermediary between the divine essence and form and matter. It penetrates all things and is their efficient cause; itself without motion, it is the cause of spiritual and bodily movement.

In Gabirol's philosophy, as in other Jewish Neoplatonic (and later Aristotelian) philosophies, God can be approached only through rational knowledge. Prophets and philosophers imitate God by their

intellect, in thought, and prophetic visions are no longer considered to be dialogues with God or his angels but rather internal illuminations. Bodily acts have no value in themselves: they prepare the soul to separate from the body, since only then will it be able to fulfil its destiny.

It is this very approach to philosophy which Judah Halevi (born before 1075, died 1140) wishes to supersede in his *Kuzari*. Written in Arabic, the *Book of Refutation and Proof, in Defence of the Despised Faith* is a dialogue between the king of the Khazars and the defenders of philosophy, of Islam, Christianity and Judaism. From the beginning, Judah Halevi insists that good intentions are not sufficient to please God, who also cares about which rites and observances are used.

Above the natural manner of action, there is the supernatural way of acting of the *Amr Ilahi* (God's word and action): God has revealed himself in history, in his choice of a people, a land and a language. This choice is the only real proof of God's existence, and it is part of the order of the world. On to the mineral, vegetable, animal and rational kingdoms, there is added, in the hierarchical order, the prophetic order, that of Adam and his sons, of Noah and then of the whole people of Israel.

Man is able, by his own strength, to rise as far as the level of the Intellect. To do so, he must follow the discursive path, that of philosophy. But, in order to be marked out by the *Amr Ilahi,* he needs to follow the supernatural path, that of the Torah. God has reserved this path for his elect. In every generation since Adam there was one pure man, worthy of the *Amr Ilahi;* but then the whole people of Israel and it alone was chosen by God.

Along with the choice of the people of Israel goes the choice of the land of Israel and of its holy language, Hebrew. The land of Israel has a special place in Judah Halevi's work, and his Hebrew poems about Jerusalem are among the most beautiful of all Jewish literature. They are still recited today, and Judah Halevi's thought, with its particularist view of Judaism, remains as popular among modern Jewry as the thought of Maimonides.

The most original writing of the twelfth century, however, steps aside from debates between religion and philosophy. It is that of Abu'l-Barakāt al-Baghdādī, who lived in Iraq and died, at a very old age, after 1164. Towards the end of his life he converted to Islam. His *Kitāb al-Mu'tabar,* a sort of reply to Avicenna's philosophy, is based on his own personal reflections. He upholds the unity of the soul, denying that there is a distinction between it and the intellect. In his view, there is just one time, which measures *esse* and is similar for all beings, including God. Space is three-dimensional and infinite. Abu'l-Barakāt had a deep influence on Arab philosophy but none on Jewish thought, and his works were not translated into Hebrew.

Maimonides

Moses ben Maimon was born in 1138 at Cordoba, where his father was a rabbinical judge. In 1148 Maimon and his family fled from the religious persecution which took place after the town fell to the Almohades. After wandering from town to town in Spain, and perhaps also in Provence, in 1160 they arrived at Fez in Morocco, In about 1165 the whole family fled from Fez and set off to Acre. For five months, Maimon and his children lived in the land of Israel, then they went to Cairo and settled at Fostat. Maimon's son Moses rose rapidly in Egyptian Jewish society, helped perhaps by family ties with some of the important people there. For about five years from 1171 he was 'Leader of the Jews'. He was subsequently deprived of this post, but twenty years later he regained it and kept it until his death.

Maimonides earned his living by practising and teaching medicine, which he had studied in north Africa. His fame reached its peak in 1185 when he was chosen as one of the official doctors of Al Fadil, Saladin's vizier. At the same time as he followed his profession and composed his medical treatises, Maimonides completed two great works, the *Mishneh Torah* in 1180 and the *Guide of the Perplexed* in 1190, as well as conducting a lengthy correspondence with the many Jewish communities of Egypt and in other countries. His death in 1204 was the occasion for public mourning among Jews everywhere.

With the exception of the *Mishneh Torah,* all Maimonides' works were written in Arabic. They were almost immediately translated into Hebrew. The *Guide of the Perplexed* was translated by Samuel ibn Tibbon in 1204, and a second, less precise, more literary translation was made a few years later by Judah al-Harizi. It formed the basis for the Latin translation used by Christian scholastics such as Thomas Aquinas.

Maimonides' reputation rests, in the first place, on his contribution to law. It was as a legal authority that he was first known to the Jews of the diaspora and still today many eastern Jewish communities follow his juridical and religious rulings.

The comparison between Maimonides and Averroes is inescapable, and one difference between the two thinkers is striking. By contrast with Averroes, who held that philosophy should be carefully hidden from the ignorant, Maimonides is a philosopher in all his works, legal as well as philosophical, in the texts intended for the general public as much as in those written for students of philosophy. After Aristotle, al-Fārābī was Maimonides' real master. His influence is visible in a youthful work, the *Milot-ha-Higayon,* 'A Logical Vocabulary', written at the age of 16, and it remains in Maimonides' last work, the *Guide*. In a letter written to Samuel ibn Tibbon a year or two before he died, Maimonides told him:

> Aristotle's intellect [represents] the extreme of human intellect, if we except those who have received divine inspiration. The works of Aristotle are the roots and foundations of all works on the sciences. But they cannot be understood except with the help of commentaries, those of Alexander of Aphrodisias, those of Themistius, and those of Averroes, I tell you: as for works on logic, one should only study the writings of Abū Naṣr al-Fārābī. All his writings are faultlessly excellent. One ought to study and understand them. For he is a great man.

On Avicenna, his view is more qualified:

> Though the work of Avicenna may give rise to objections and are not as [good] as those of Abu Nasr [al-Fārābī], Abu Bakr al-Sāigh [Ibn Bajjah] was also a great philosopher, and all his writings are of a high standard.
>
> ([4.13] lix-lx)

And to read the other Jewish and Arab philosophers was, he thought, a waste of time.

The philosophical school to which Maimonides says he belongs, and which he recommends to Samuel ibn Tibbon, is that of the Andalusian philosophers, who strictly separated scientific knowledge from religion. Maimonides, however, did introduce philosophical principles into all his works, including those intended for the simple believer, such as Book I, part one of his *Mishneh Torah,* the *Book of Precepts* and the commentary on the *Mishnah*. These principles, thirteen in all, which are discussed afresh in the *Guide,* are presented by Maimonides as truths which everyone should accept by authority because they are the beliefs of the Jewish people, the necessary condition for belonging to it:

> When a man has accepted these principles and truly believes in them, he forms part of the community of Israel; and it is incumbent upon us to love him, to care for him and behave towards him as God has ordered us to do: to love and comfort him; if he sins because of his corporeal desires or his bad instincts, he will receive the punishment proportioned to his crime, and he may [afterwards] have the part [that belongs to him in the world to come], he is a sinner within the community of Israel. But if someone casts doubt on one of these principles, he has foresworn his faith, he is a renegade, a heretic, an unbeliever, he has rebelled against God and it is a duty to hate him and to cause him to perish.
>
> ([4.7] 148–9)

The 'Thirteen Principles' are divided into three groups. The first five are concerned with God, who is one and incorporeal; the following four with prophecy and the Law; the last four with reward and punishment, the coming of the Messiah and the resurrection of the dead.

The principles include certain articles of faith which were far from being unanimously accepted by the Jewish community, especially in these two respects:

(1) Divine incorporeality implies the rejection or allegorization of many biblical passages and of a certain number of texts which are an integral part of the oral Law. Maimonides was not the first to declare that God is not corporeal, but he was the first to exclude from the people of Israel those Jews who took the anthropomorphic comments in the Bible in their literal sense.

(2) By 'the world to come' Maimonides understands the immortality of the soul, and he does not make clear whether this is a matter of individual immortality. Traditional texts use two other expressions to talk about man after death: 'the days of the Messiah' and 'the resurrection of the dead'. For Maimonides, 'the days of the Messiah' means political independence of the Jews and their return to the land of Israel. The Messiah will easily be recognized, since his coming will coincide with a new period of history, totally different from the time of the diaspora. As for the corporeal resurrection of the dead, Maimonides holds that it is neither necessary from a scientific point of view, nor theoretically impossible. If one believes in divine omnipotence, it is a possibility. Clearly, this bodily resurrection is not of great importance to Maimonides, especially since it would be followed by a bodily death. Samuel ben Eli, Gaon of Baghdad, attacked Maimonides sharply for failing to insist on the resurrection of the dead and the survival of the individual human soul. In his final work, *The Letter on the Resurrection of the Dead*, Maimonides repeats his earlier view, unchanged, often with fierce irony.

A fourteenth-century versification of the Thirteen Principles became part of the daily prayers of almost every Jewish community, except for the Ashkenazim, thus impressing themselves on the great majority of Jews and definitively shaping the Jewish notion of God.

The Guide of the Perplexed is the Jewish philosophical work most known outside Judaism. By contrast with Maimonides' other works, which are models of clarity and order, the *Guide* is avowedly difficult to understand. Like the Torah, the prophetic books and the *Aggadot* of the Talmud, it is constructed in such a way as simultaneously to hide and reveal its inner sense. The difficulties of its plan and the

ambiguities in its expressions can be traced back to the obscurities of the texts it discusses.

Maimonides suggests, moreover, that his book should not be studied chapter by chapter, but rather problem by problem. He asks that it should not be read in the light of preconceptions, but that the reader should first have studied all that ought to be studied, and that he should not explain it to others.

The book is intended neither for the ignorant, nor for philosophers—neither of these are in difficulties—but for those who, like Maimonides' follower, Joseph ben Judah, have studied science, mathematics, astronomy and then logic, and who pose themselves questions about the Bible and its interpretation. Take the example of God's incorporeality. From the conceptual point of view, belief in the existence of God is inseparable from his absolute unity and his absolute unity is inseparable from his incorporeality. But it is quite otherwise when seen from the pedagogical or historical angle. The Law of Moses, a political law like every other religious law, was given to the Jewish people at a certain point in its history. For it to be accepted, it had to take into consideration the beliefs to which the people were accustomed. If it had not done this, the political and intellectual good it brought would have been lost. Before insisting on the existence of an incorporeal God it was necessary to bring about acceptance of the existence of God himself. When they fled from Egypt, the only type of existence which the Jews could conceive was that of a corporeal being: 'The minds of the multitude were accordingly guided to the belief that He exists by imagining that he is corporeal and to the belief that he is living by imagining that He is capable of motion' (I, 46; [4.13] 98). 'God, may He be exalted above every deficiency, has had bodily organs figuratively ascribed to Him in order that His acts should be indicated by this means' ([4.13] 99). What was a gain in understanding at the time of Moses had become an inexcusable fault by the time of Maimonides: those who believe that God is corporeal were, as we have seen, to be excluded from the Jewish community. The Sages themselves had never committed this fault: 'the doctrine of the corporeality of God did not occur even for a single day to the Sages, may their memory be blessed and…this was not according to them a matter lending itself to imagination or confusion' ([4.13] 102).

The problem which the *Guide* is intended to resolve is, therefore, that of the Law's double character. Sometimes its external sense, which results from the historical situation at the time when it was granted, serves to introduce and helps to discover the internal sense, which alone is true. Sometimes the external sense prevents the reader from reaching 'the knowledge of the Law in its reality' and is contrary to reason. The object of the *Guide* is to bring to light the two senses of the Bible:

through this duality alone can knowledge from science and revelation be reconciled.

In the *Guide* there can be found the elements of the method which allows the cloak of divine, scriptural allegory to be removed:

> Know that the key to the understanding of all that the prophets, peace be on them, have said, and to the knowledge of its truth, is an understanding of the parables, of their import, and of the meaning of the words occurring in them. You know what God, may He be exalted, has said: *And by the ministry of the prophets have I used similitudes* (Hos. 12:11). And you know that He has said: *Put forth a riddle and speak a parable* (Ezek. 18:2).
>
> ([4.13] 10–11)

The first half of Book I treats in general the expressions in the Bible and the Talmud which cannot be taken in their literal sense. In the second half, God's attributes are described and the *Mu'takalimun,* among them Saadiah, are attacked. Book II discusses philosophical doctrines, then prophecy. Book III begins with an allegorical explanation of the 'Account of the Chariot' and then considers providence and the fact that the world will end and not continue eternally. Maimonides gives a psychological explanation of the book of Job, a history of religions and types of worship, and he goes on to talk about religious commands.

Clearly, it is beyond the scope of this survey to examine the great variety of interpretations of the *Guide*. Our discussion must be limited to mentioning a few of the especially important points in its doctrine.

(1) *God and his attributes* According to Maimonides, only negative attributes can be applied to God. Any relation between two terms implies something they have in common. But there can be nothing in common between a being which is totally separate and another being which depends on every other being. Even existence is not common to them both, because 'existence' does not describe the same thing when one speaks of God and when one speaks of a created being, because God is a necessary existence and a created being a possible existence.

For Moses, the prince among the prophets, as for man in general, to know God means, not to know anything of his essence but to know his actions. Through the speculative method which God showed to Moses, it is possible to make progress in knowing the unknowability of God's essence. As we deny attributes of God, we understand better his supereminence and the lack of relation between his perfection and ours. To deny that God has emotions is

already to be closer to the truth about him than just to deny that he has a body. To deny not only that he has emotions but that there is any relation between him and other beings is to take another step on the path of negative theology, a step which brings us closer to the idea that God is above all our categories of thought. We should, therefore, say nothing about God, and true prayer—the only prayer which is befitting to God—is silence, since every positive praise in fact consists of attributing to him what, to us, is perfection and, for him, a defect. Maimonides quotes with great praise a Talmudic story (*Babylonian Talmud Berakhot* 33b) where a worshipper adds eulogistic adjective to eulogistic adjective in his prayers. Rabbi Haninah tells him that these praises are as unfitting as if one were to praise a king for all the silver coins he possessed, when his treasury was full of gold. Indeed, Maimonides says, were we left to follow reason alone, we would use none of these adjectives. We do so because men have need for images in order to understand and also just because the Torah used them. Since they were written in the Torah, we are allowed to read them as part of the biblical text. But we use them in our prayers only on the authority of the men of the Grand Synod, since they have taken the responsibility for this decision. Verbal prayer is, in fact, a concession to human weakness.

'Knowing God's actions' is the second aspect of knowledge of God. By knowing his creation, we learn what we should deny of God. Every branch of knowledge can teach us something about this. Arithmetic and geometry teach us that God's unity is not like the unity to which we add, or which can be multiplied. Physics and astronomy teach us how God puts the world into motion through the intermediary of separated intellects, in a perfect and absolute manner. It is only because we have a tendency to describe God in anthropomorphic terms that certain of God's, or nature's, actions seem beneficent and certain others seem destructive. In reality, God's action is intended to maintain the immutable order of nature, which includes the preservation of the human race as of other species of living things.

(2) *God's understanding* In Part I, Chapter 68 of the *Guide,* Maimonides proposes a theory of understanding which seems to contradict his negative theology.

> Now when it is demonstrated that God, may He be held precious and magnified, is an intellect *in actu*… It is accordingly also clear that the numerical unity of the intellect, the intellectually cognizing subject, and the intellectually cognized object, does not hold good with

> reference to the Creator only, but also with reference to every intellect. Thus in us too, the intellectually cognizing subject, the intellect and the intellectually cognized object, are one and the same thing wherever we have an intellect *in actu*.
>
> (I, 68, [4.13] 165–6)

Contrary, then, to the views of Aristotle and al-Fārābī, Maimonides holds that God does not merely know his own essence but also every intelligible thing and the laws of nature: 'for through knowing the true reality of His own immutable essence, He also knows the totality of what necessarily derives from all His acts' (*Guide,* III, 21, [4.13], 485) The commentators have not found a convincing explanation for this contradiction.

(3) *The origin of the world* In the *Mishneh Torah,* the proof of God's incorporeal existence is based on the perpetual movement of the sphere and so on the eternity of the world. In the *Guide,* Maimonides shows the extent to which the philosophical point of view contradicts the religious one:

> [T]he belief in eternity the way Aristotle sees it—that is, the belief according to which the world exists in virtue of necessity, that no nature changes at all, and that the customary course of events cannot be modified with regard to anything—destroys the Law in its principle, necessarily gives the lie to every miracle, and reduces to inanity all the hopes and threats that the Law has held out…
>
> If, however, one believed in eternity according to the second opinion we have explained—which is the opinion of Plato—…this opinion would not destroy the foundations of the Law and would be followed not by the lie being given to miracles, but by their becoming admissible. It would also be possible to interpret figuratively the texts in accordance with this opinion. And many obscure passages can be found in the texts of the *Torah* and others with which this opinion could be connected or rather by means of which it could be proved. However, no necessity could impel us to do this unless this opinion were demonstrated. In view of the fact that it has not been demonstrated, we shall not favor this opinion, nor shall we at all heed that other opinion.
>
> (II, 25, [4.13] 328–9)

Commentators have interpreted these passages in opposing fashions. Some take them to be a clear statement in favour of creation, whereas for others they seem rather to disguise Maimonides' view, which he proposes clearly elsewhere, in favour of the eternity of the world. Shlomo Pines, in the most recent discussion of the problem, suggests that problems of method came to occupy Maimonides increasingly as his thought matured, which can be summarized as follows:

1 Aristotle's physics are true so far as the sublunary world is concerned, but dubious with regard to the heavens and the order of intelligences.
2 Man cannot reach the level of intellectual understanding except through the imagination, through the *phantasmata* of bodily things which, according to a quotation he makes from al-Fārābī's Commentary on the *Nicomachean Ethics,* implies the denial of the immortality of the soul. (The only happiness would be a political one.)

Maimonides' extreme intellectualism was not an easy doctrine to live with: his son, Abraham, who followed as head of the Jewish community in Egypt adopted a *sufi*-like mysticism and gathered around him a group of spiritually intense pietists. The descendants of Maimonides continued to practise this mystical approach to religion for two hundred years.

Ibn Kammūnah (thirteenth century) may be considered the last Jewish philosopher living in Islamic lands. In the fifteenth century, however, there was a sort of renaissance of Jewish philosophy, accompanied by mysticism, in the Yemen.

JEWISH PHILOSOPHY IN CHRISTIAN LANDS

From the twelfth century onwards, Christians and Jews discovered a whole body of Greek texts and their Arabic commentaries. They were translated into Hebrew for the use of Jews, just as they were put into Latin for Christian readers.

Jewish philosophy in Christian lands was based on Greek and Arabic sources, but also on the works of Jews who had written in Arabic. Maimonides had seen no need to use texts written by other Jews, since Greek and Islamic works provided what was essential in disciplined knowledge. But his successors, who lived among Christians, wanted to know this Jewish philosophy, and there were translators—often dynasties of translators—who worked to make these texts available to them. The first of them was Judah ben Saul ibn Tibbon. He translated

works by Baḥyā ibn Paqudah, Judah Halevi and Saadiah. In 1204 Samuel ibn Tibbon put Maimonides' *Guide* into Hebrew. The work came as a revelation to educated Jews. All of a sudden, the passages of the Bible which offended reason became clear and rational. Maimonides, as the spiritual leader of Judaism, was already celebrated for his religious learning. Now, with the *Guide,* he showed that he was also a consummate philosopher, who accepted the true path of scientific knowledge—that of Aristotle—and showed that true Judaism was the religion which fostered this knowledge. The *Guide* became a manual of philosophy.

Aristotle could not be studied without a commentary, and Maimonides himself had recommended those of Averroes. From the beginning of the thirteenth century, Averroes' commentaries were translated into Hebrew but also, in the middle of the century, popularized through encyclopaedias: the *Midrash ha-Hokhma* of Judah ben Solomon ha-Cohen, the *Sha'ar ha Shamayim* of Gerson ben Solomon of Arles and the *De'ot ha-philosophim* of Shem Tov ibn Falaqera. Besides Averroes, there are frequent references to Aristotle, Plato, Alexander of Aphrodisias, Themistius, al-Fārābī, Avicenna, Ibn Bājjah, and Greek and Arabic mathematical, astronomical and medical texts. The Jewish philosophers were deeply affected by their reading of Averroes and this coloured their interpretation of Maimonides. Very often, Averroist ideas were preferred to those of Maimonides, thereby sharpening the opposition between philosophy and religion. Except in Italy, no Christian author is named and the influence of Christian scholasticism is not explicitly acknowledged. Indeed, the universities were Christian institutions to which the Jews had no access. Jews spoke the vernacular (French, Provençal, Italian or Catalan), but these spoken languages did not give them knowledge of Latin. Whereas Jewish philosophers in Islamic countries benefited from all the sources of inspiration open to their Muslim colleagues, those in Christian lands were limited to Hebrew texts. This gave a certain homogeneity to Jewish philosophy, but also limited it. In contrast with what had happened in Islamic lands, Jewish philosophy developed in parallel, but separately, from Christian thought, and the connections between the two are not easy to discern. Often they share common problems; their answers are usually different.

During the thirteenth century, many philosophical works were written. Along with pursuing the sciences, authors engaged in the philosophical explanation of traditional texts, as Maimonides had shown, and of their anthropomorphic expressions. Philosophy was no longer the preserve of a learned or rich minority, but became available to a large section of society. An enlightened middle class had grown up in the south of France and Provence, in Catalonia, Spain and Italy. The existence of towns, material prosperity and the extensive links between

the various Jewish communities encouraged the growth of a milieu where science and philosophy were keenly studied, and where scholars were numerous and influential within the community. Philosophy became the subject of public sermons. True, Jacob Anatolio was forced, by the opposition of some of his community, to abandon the set of philosophical sermons he had been giving on Saturdays in the synagogue. But the very fact that he had begun to give them, with the agreement of a certain number of the community, shows well how public philosophical teaching had become.

Both the upholders of traditional Judaism and the exponents of the kabbalah, which was developing in this period in Catalonia and Provence, were violently opposed to this surge of interest in philosophy. There was fierce anti-philosophical polemic in the Jewish communities during the whole of the thirteenth century, which reached its climax at several points: in 1202, about the resurrection of the dead (even before the *Guide of the Perplexed* had been translated), in 1240–2 and then at the very end of the century. This controversy about studying philosophy itself came to an end when the Jews were expelled from France in 1305, but the underlying differences of view continued until the end of the Middle Ages.

In the fourteenth century, Maimonides remained the fixed point of reference and provided the framework for Jewish thought. The central problems, however, and the way of tackling them began to be affected by the scholastic philosophy of the Christian universities: for instance, the question of individual forms in Yedaya ha-Penini, at the very beginning of the century; that of future contingents in the 1320s and 1330s; that of non-Aristotelian (Parisian) physics at the end of the century. In the second half of the fourteenth century, translations from Latin into Hebrew were more often of medical than philosophical texts, but they began to include works of logic. There was also a resurgence of interest in astrology, with a Neoplatonic emphasis.

Gersonides and Crescas

The dominant Jewish philosopher of the fourteenth century was Gersonides. Gersonides (Levi ben Gerson, Leo of Bagnols) (1288–1344) seems never to have left the south of France, where he lived at Bagnolsur-Cèze, in Languedoc, in Avignon and in Orange. He is often considered the greatest Jewish philosopher after Maimonides. Like Maimonides, he was a philosopher and a Talmudist, as well as being learned in the sciences.

Besides works on astronomy (where he attacks some of the fundamental principles used by Ptolemy and proposes his own

solutions) and biblical commentaries, Gersonides wrote (still mostly unpublished) commentaries on the epitomes and *Middle Commentaries* of Averroes. They were composed between 1319 and 1324 and cover the greater part of Aristotle's oeuvre. These are purely philosophical works and do not deal with questions linked to religion. In the excursus, where Gersonides expresses his own ideas, he refers readers to his *Wars of the Lord*. This work, divided into six books, took ten years to write and was finished in January 1329. Its introduction shows how much it differs from Maimonides' writings both in method and in its thoughts:

> I would like to examine in this book several important yet difficult questions on which many crucial doctrines relevant to man's intellectual happiness are based. First, is the rational soul immortal when it has achieved [only] some perfection? Second, when a man is informed by dreams or divination or prophecy of future events, is he informed of them essentially or accidentally?… Third, does God know existent things?… Fourth, is there divine providence over existent things?… Fifth, how do the movers of the heavenly bodies move these bodies, and how many movers are there, as far as we can know?… Sixth, is the universe eternal or created?…
>
> Now it is without doubt essential that the reader of this book be familiar with the mathematical science, the natural sciences, and metaphysics. Of the questions mentioned so far, some belong to the sciences, others to metaphysics, and others require a knowledge of mathematics [including astronomy].
>
> ([4.14] 91–4)

Gersonides has therefore written a work about science, and he deals with mathematical, physical and metaphysical—that is to say, philosophical—questions. His intended audience are those who are plunged into perplexity by scientific questions to which previous philosophers have found no solution. It is not the letter of the biblical text which causes problems:

> The reader should not think it is the Torah that has stimulated us to verify what shall be verified in this book, [whereas in reality] the truth itself is something different. It is evident, as Maimonides (may his name be blessed) has said, that we must believe what reasoning has proved to be true. If the literal sense of the Torah differs from it, it is necessary to interpret those passages and accord them with reasoning. Accordingly, Maimonides (may his name be blessed) explains

> the words of the Torah that suggest that God (may He be blessed) is corporeal in such a way that reason is not violated. He, therefore, maintains that if the eternity of the universe is demonstrated, it would be necessary to believe in it and to interpret the passages of the Torah that seem to be incompatible with it in such a way that they agree with reason. It is, therefore, evident that if the course of speculation causes us to affirm doctrines that are different from what appears to be the literal sense of Scripture, we are not prohibited by the Torah to pronounce the truth on these matters, for this is not incompatible with the true understanding of the Torah. The Torah is not a political law that forces us to believe false ideas; rather it leads us to the truth to the extent that is possible…
>
> ([4.14] 98)

In Gersonides' view, most of the prophets did not have revelations about things to do with the intelligible world. So Abraham did not know how many stars there are, because this number was not known in his day. Ezekiel thought that he had heard the voice of the celestial spheres, because this is how people thought of it in his times. Nor did the prophets have a political role (and here Gersonides rejected the whole Arab and Jewish political tradition); the purpose of dreams, divination and prophecy is to reveal the future, especially future contingents which will happen to individual human beings. These future events seem accidental. In fact, they can be known in advance, by dream, divination or prophecy, because they have been determined and arranged. The fact that accidental events are part of an order is proved by the existence of men who are said to have been born under a good star. They are granted every success whilst for other men misfortune is heaped on misfortune. But, if good or bad fortune were accidental, they would be distributed in fairly equal measure. Another argument is that, as the most eminent of creatures, man is taken care of by the celestial substances to such an extent that his actions and thoughts come from them. So astrologers know what people think and their predictions are often correct. When they predict wrongly, this is because of the distance of the stars from us and the limitations of the astrologers' knowledge. Since that which, for man, is an accident, is ordered and determined for the stars, these human events are in fact ordered and determined.

There are, however, acts which cannot be foreseen in the ordering of the stars: those which are freely chosen by men. But such acts are few. Indeed, almost all the thoughts of men and their movements are determined by the stars. Men are the most noble creatures and the order of the stars is intended for the good, and so men benefit more

than other animals from the beneficent influence of the stars. It is rare that men set themselves against this order and, in fact, the great majority of events which we call accidental are determined and knowable. They are therefore the objects of scientific knowledge: of God's knowledge, eminently perfect; of the more partial knowledge of the Agent Intellect; and of the very limited and incomplete knowledge of man—a degree of knowledge which, none the less, gives him immortality.

God's thought is directed not merely toward himself but also to the law, order and organization of beings, which he considers in a single, unified concept. All the attributes which he has disseminated to the pure forms are perfect within him. To him then can be attributed those attributes which are the reflection of the perfection of the divine being in us: essence, existence, unity, substantiality, understanding, the joy which accompanies doing good and so on.

Gersonides discusses the creation of the world from an astronomer's point of view. God created the world by beginning with a first body lacking in form and therefore not being. This first body, entirely in potency, neutral and lifeless, has an existence which is known to the senses. It is the fluid body between the spheres and sometimes it is opposed to form. It can be seen in the spheres, where God has given it a geometrical form along with the ability to keep this form; whilst, in the sublunary world, it has the form of the elements and the ability to receive every form.

God created the world in time. Gersonides rejects the definition of the present instant as that which separates the past from the future. An instant can be the beginning or the end of an interval of time. In order to support the idea that the world was created in time, Gersonides also brings in the argument that history is still going on and is far from having reached its conclusion; consider the history of the branches of knowledge, or of the dissemination of God's law, or the history of languages.

Although he was deeply convinced of the truth of astrology, Gersonides upholds the existence of human free will, as all the other Jewish philosophers had done. The problems of determinism and future contingents which, in Christian scholastic philosophy, had taken a clear form in the work of Peter Aureoli, were raised in Jewish circles by Abner of Burgos. Abner's unqualified determinism was the justification for his conversion to Catholicism in the 1320s.

It is all the more astonishing to find an equally complete determinism in the thought of Hasdaï Crescas. Hasdaï Crescas was the leader of the Jewish community in Barcelona, already well known in 1367. His only son was killed in the anti-Jewish uprisings of 1391, though he himself survived. The wave of conversions to Catholicism which would go on through the whole of the fifteenth century had

already begun, and Crescas dedicated himself to combating it and to reconstructing the Jewish communities which had been destroyed. His two polemical works were written in Catalan and his philosophical book in Hebrew.

Aristotelian philosophy was accused of having disturbed people's minds and of having driven the heads of communities—rich men who were often interested in philosophy—to convert and take with them other Jews. *The Light of God (Or Adonaï)* was planned by Crescas as just the first part of a more extensive project, intended to replace the whole of Maimonides' work, both in philosophy and rabbinical jurisprudence. But the second part of it was never written. According to Crescas, the very root of Maimonides' philosophy, like that of any thinker basing himself on Aristotle, was false. The route to God is not intellectual understanding, but fear and love.

The final purpose of human existence is the fulfilment of the divine commands given by God himself to the children of Israel, in order that they should love and fear him. Scientific knowledge, a preliminary to the knowledge and understanding of the commandments, must be based on a physics different from Aristotle's, because his physics is false. Book I of the *Light of God* is devoted to a critique of Aristotelian physics as it is expounded by Maimonides in the twenty-five propositions which precede Book II of his *Guide*.

Crescas argues that Aristotle gives to the infinite the characteristics of finite bodies, and conceives the infinite only in relation to the finite. If it exists, the infinite is not contained within bounds. It has neither weight nor lightness, neither form nor shape. If it has a circular movement, it is not around a centre and, although it moves itself voluntarily, it has no need of any external object to bring about its movement. It can just as well be a simple being as a composite one. Similarly, place in the Aristotelian definition is the place of the elements, not the place of the world as a whole. Crescas holds that it is necessary to dissociate body and space. Space can be empty of bodies. In this case, the definition of the place of the world as being its external boundary no longer applies, and we can conceive an infinite space. Space is no longer the relation between bodies, but, as pure extension, it exists before bodies. The finite corporeal world is situated within an infinite void. Crescas does not deny the possibility of an infinite number of worlds and this hypothesis, although not explicitly adopted, is perhaps implied by his citation of a passage from the Talmud. In the same way, Crescas refuses to define time as the measure of movement: time is also a measure of rest.

If we can conceive an infinity of time and an infinite numerical series, we can no longer accept the proof of God's existence based on showing that he is the Prime Mover because this proof is based on the assertion

that a series of causes cannot be infinite and so must end in a first cause.

Crescas' central intuition, then, is that, because God is infinite, space and time are infinite, and a numerical series can be extended infinitely. The human mind cannot reach the essence of an infinite God either through philosophy or through revelation. God is unknowable in his essence. But, like Gersonides, Crescas asserts the existence of positive divine attributes. Yet, for him, there is no possible relation or comparison between God and his creatures. We gain our idea of God's attributes in the way in which we gain our idea of the infinite from the finite. Equally, the number of divine attributes is itself infinite. Just as the final aim of human existence is not understanding, so our joy in God cannot be the contemplation or understanding of his essence: it is the joy of a gift, of the Good which gives of itself. God is the true agent of all creatures. He makes them act through will and intention, and maintains them always in being through the emanation of his goodness. God likes to spread goodness and perfection and his joy is that of always giving the being which he spreads over the whole of creation, in the most perfect way that can be.

The joy which God experiences in an infinite and essential way is a giving; it is also love and desire. God has loved and desired the patriarchs, and he loves and desires the love of Israel. God's power is infinite. If it has given rise to a finite world, that is a result of will and choice. It is not merely infinite in potentiality but also in act. God's omnipotence, which reason shows to be infinitely strong in act, is revealed in the biblical miracles, when substances are created or destroyed, as when Moses' rod was changed into a snake.

As a result of God's omnipotence, there is no place for free will. Only the feeling of freedom differentiates freedom from compulsion. All human acts are made necessary by their causes. The will of the agent who causes an act is itself determined by causes which might be external or internal or both. Divine commands and the rewards or punishments which follow obedience to them or their disregard are themselves links in the causal chain which leads to a human act. A man is said to act 'voluntarily' when a cause is internal and not perceived by him, and 'involuntarily' only when an external cause is perceived as forcing him, despite his internal dissent, to such and such an action. Joy accompanies the fulfilment of God's commandments as an effect accompanies a cause, but only when the soul has acted voluntarily, without any external obligation which it regards as contrary to it.

Beliefs, especially true beliefs, are obligations on the soul, not results of its will, since their reality constrains the soul to accept them. Beliefs, then, give rise neither to reward nor punishment, and they are unrelated to the knowledge of intelligible things. Nor are the

intelligibles what one calls 'the survival of the soul'. Reward—joy—is brought by the effort towards knowledge, the desire to know, the wish to understand.

The goal of the Torah is to enable men to acquire perfection in behaviour and belief, material happiness and happiness of the soul. Most important is the happiness of the soul. This is the ultimate aim of God's law. The soul's eternal happiness is the love and fear of God. Love and fear of God are the final stage, not only of the Torah, but also of true philosophy.

EPILOGUE

In Crescas' thought, we can see the influence not only of Christian scholasticism, but also of the kabbalah, which became more and more important in Jewish thought, the worse became the political situation of Jews in Spain and the more eagerly they returned to the sources of their religion. It became necessary to define precisely what were the principles of Judaism. It is not correct to speak of 'dogma' in Judaism. Jewish tradition, the Bible and the Talmud, was considered as a whole, over a long period. It had to be accepted in its entirety, since belief was involved in each of the commandments. It was in confrontation with other religions that Judaism found itself obliged to clarify and systematize the principles of the faith. This problem was marginal up until the end of the fourteenth century, but it became a burning issue in the fifteenth century, culminating with Albo (*c.* 1366–1444?). Albo places his assertion of the superiority of the Torah within the context of a consideration of the different types of law: natural, conventional and divine. The Torah alone, he believes, is divine law, because it guides men towards the true good: the immortality of the soul.

Traditionally, the fifteenth century is taken to mark the end of medieval Jewish philosophy. Yet as many philosophical works were written as they had been during the previous two hundred years. Here—as in the history of medieval Jewish philosophy in general—history has been distorted in favour of the 'great philosophers', whose works were printed in the sixteenth century and so widely diffused. Here in this chapter an anachronistically disproportionate weight has been given to the better known philosophers, in order to avoid too thin a treatment of too many figures. More obscure philosophers, whose works are still unprinted, deserve to have a more important place. We would then see that the fifteenth century, far from being a barren period, witnessed a real renewal of all the types of philosophy which had previously flourished: the Aristotelian current with Joseph ben Shem Tov ibn Shemtob and his son Shem Tov, Abraham ben

Yomtob Bibago, Isaac Abraham and, in the area of Padua, Elias del Medigo and his circle. In Italy, the Neoplatonic current was represented especially by Judah Abraham. In Provence, Africa and Turkey, as well as the Yemen, medieval philosophical texts were still read and taught to a wide audience. True, kabbalistic ideas came little by little to figure in the work of most philosophers. No longer did intellectual understanding play the only important part in the philosophers' systems—too many political and religious events had shaken the philosophers' ivory tower. But philosophical ideas (the most important of which is that of God's incorporeality) had taken root in the Jewish community, and to this day they remain an integral part of Judaism.

(translated by John Marenbon)

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CHAPTER 5

Philosophy and its background in the early medieval West

Rosamond McKitterick and John Marenbon

'Libraries, schools and the dissemination of texts' is by Rosamond McKitterick; the 'Introduction' and 'Philosophical themes' are by John Marenbon.

INTRODUCTION

The period from 800 to 1100 is even more neglected by historians of medieval Western philosophy than the rest of the Middle Ages. The neglect has not, however, been total. Two figures—John Scottus Eriugena, who wrote between *c.* 850 and *c.* 870, and Anselm of Canterbury, whose writings date from 1060 to 1100—have long been picked out for special treatment. But Eriugena has most usually been regarded as a solitary genius closer to Greek late antiquity or even to nineteenth-century currents of thought than to his own time, whilst Anselm has been conveniently seen as the precursor of a twelfth-century intellectual awakening. In consequence, the attention received by these two thinkers has done little to stimulate interest in their contemporaries. Eriugena and Anselm *are,* indeed, the two outstanding philosophers of the time, and their thought is discussed in detail in the following chapter. But many of the problems they tackled and methods they used were common to their contemporaries. This chapter is designed to fill in some of this often forgotten background.

The names of some of those besides Eriugena and Anselm who considered philosophical questions in the early Middle Ages are known: for instance, Alcuin (the Englishman who became one of Charlemagne's main advisers in the 790s, and Alcuin's pupils Candidus Wizo and Fredegisus of Tours); Ratramnus of Corbie and Gottschalk of Orbais (mid-ninth century); Remigius of Auxerre and Bovo of Corvey (late ninth and early tenth century); Abbo of Fleury, Notker of St Gall and Gerbert of Aurillac (end of tenth century); Berengar, Lanfranc and Peter Damian (eleventh century). Yet much of the material from which a history of philosophy during this time must be constructed is anonymous, and an important part of it consists, not of independent works or even free-standing commentaries, but of glosses written in the margins and between the lines of the manuscripts of ancient or late antique textbooks. Indeed, since a good deal of the philosophical activity of these centuries consisted, not in original speculation, but in absorbing the ideas of ancient texts, the best evidence for it is often not a particular piece of writing, but information as to which centres of learning possessed manuscripts of what philosophical and theological works at which times. For these reasons, the study of manuscripts and their transmission is fundamental to the history of early medieval philosophy. The next section, therefore, presents an expert's summary of the state of knowledge in this area; it is followed by a brief survey of some of the outstanding philosophical themes of the period.

LIBRARIES, SCHOOLS AND THE DISSEMINATION OF TEXTS

Sometime before 814, Archbishop Leidrad of Lyons presented a comprehensive collection of philosophical treatises to his cathedral library. The manuscript, now in Rome, Casa dei padri maristi A. II. 1, is datable on palaeographical grounds to the late eighth or early ninth century. It contains Porphyry's *Isagoge,* the *Ten Categories* (a paraphrase-cum-commentary of Aristotle's *Categories* wrongly attributed to Augustine), pseudo-Apuleius *Perihermenias* and Boethius' first commentary on Aristotle's *On Interpretation* ([5.17] 83, [5.20] 417, [5.75] 52–3). It was written for Leidrad and is the oldest surviving collection of works on dialectic. Not only does it contain the ancient texts; it also includes Alcuin's verses dedicating the *Ten Categories* to Charlemagne. In consequence, Bischoff linked this collection to the court library ([5.31] 157). Similarly, the Frankish royal court in the late eighth century and the cathedral library of Lyons are implicated in the transmission of Plato's *Timaeus* (in the translation by Calcidius). Paris, Bibliothèque Nationale lat. 2164, for example, written in

north-east France *c.* 800, can be connected with the group of classical manuscripts in the court library of Charlemagne ([5.32] 158 and [5.55] 89). Its textual twin Lyons 324 also contains the commentary on the *Timaeus* by Calcidius and may have reached Lyons by the same route as Bishop Leidrad's philosophical and dialectical collection.

That Lyons, famous for its participation in the antique book trade, a notable centre of learning in the seventh century and possessor of many fifth-, sixth- and seventh-century codices in its libraries, should play a role in the transmission of ancient philosophical texts is certainly credible.[1] Charlemagne's remarkable collection of rare classical texts, moreover, is usually identified as listed on spare leaves in a late eighth-century grammatical collection, Berlin, Deutsche Staatsbibliothek Diez B.Sant. 66, emanating from the court circle. Such texts are now generally regarded as the fruit of an appeal for copies of remarkable or rare books sent out in about 780 ([5.32] 162–6, 154–6). In the case of the books associated with Leidrad, and with other classical texts linked with the court, the extant manuscripts are copies made from books sent to the Carolingian court, or, at a further remove, copies of the court transcriptions.

Although not all surviving manuscripts of philosophical and dialectical works have court connections, it is certainly the case that it is from the Carolingian period that our earliest copies of most of the principal works survive. We have in fact very little with which to fill the gap between late antiquity and the Carolingian period as far as any classical texts are concerned. Certainly, knowledge of ancient philosophy was also transmitted through the medium of patristic and Christian writers such as Augustine, Maximus the Confessor and Marius Victorinus, of whose work copies survive from the fifth to eighth centuries in relative abundance. It is from Carolingian copies, however, that most witnesses to classical literature and learning descend ([5.22], [5.31]). Nevertheless, it would be unwise to assume that no study was made of, or interest shown in, such texts in Italy or Gaul between the sixth and the late eighth centuries. In the eighth and ninth centuries we see classical texts, including those concerned with logic and philosophy, that have gained a sufficient readership and attracted enough interest for a copy or copies to be made of them. A wider intellectual context must therefore be envisaged. We may surmise indeed that Carolingian manuscripts containing philosophical texts reflect not random survival but deliberate preservation. They are the outcome of choices made in the eighth and ninth centuries in relation to distinct intellectual preferences, even if the initial survival of an ancient text beyond the fifth century had an element of chance in it. Thus, as Marenbon has established, the difference in popularity between the *Ten Categories* and Aristotle's *Categories* can be

accounted for in that the former accords better with the intellectual preoccupations of thinkers in the ninth and tenth centuries ([5.75] and see also below, pp. 108–9).

Even so, intellectual preferences and an apparent encouragement of this type of intellectual activity and branch of learning cannot be assumed to be the natural outcome of the Germanic groups establishing successor states within the old Roman empire. Why should philosophy and logic have become a focus of scholarly interest within early medieval Western Europe, especially in light of the prevailing scholarly preoccupations with Christian theology and exposition of the Bible? Before attempting to answer this question, let us survey the evidence, in terms of extant manuscript distribution, firstly, that philosophy texts were more widely available throughout the eighth, ninth and tenth centuries, and secondly, that philosophy was studied in the early medieval schools.

In establishing the intellectual context for the study of philosophy in the early Middle Ages principal considerations are what texts were known and available, whether we can document the introduction of particular texts to a wider audience or region, and how ideas could be disseminated. Were particular centres noted for the study of philosophy and how did they come to be in such a position? The principal texts in question are: Plato's *Timaeus;* Boethius' *On the Consolation of Philosophy,* logical writings and the Latin translation of Aristotle's *Categories;* the composite translation of the *Categories* with Boethius' *lemmata;* the early medieval paraphrase of the *Categories* known as the *Ten Categories;* pseudo-Apuleius's *Perihermenias;* Macrobius' commentary on Cicero's *Dream of Scipio;* the *Topics* of Cicero.

If the Lyons philosophical collection and the Lyons *Timaeus* highlight the recognizable role played by the Carolingian royal court in the dissemination of philosophical texts, other centres also played a role, apparently independently of the court. Analysis of the textual tradition of Latin versions of the *Timaeus,* for example, indicates a special role for Ferrières and Corbie for the translation by Cicero, and for Rheims and St Amand for Calcidius's version (see [5.56]). Such specialization of book production in terms of types of text copied is an observable phenomenon of the Carolingian period, with classical literary texts concentrated in the Loire, Picardy and Lake Constance regions, mass books particularly associated with St Amand, Bibles and Gospel books of a distinctive format with Tours and a remarkable preoccupation with Augustinian theology at Carolingian Lyons (see [5.54]).

The earliest manuscripts of Boethius' translation of the *Categories* of Aristotle, whether complete or in fragmentary form, date from the late tenth and eleventh centuries.[2] They were produced at such centres as Corbie, Fleury, St Gall, Echternach and St Vaast, and were

presumably based on earlier exemplars, or, conceivably, one common ancestor. The date of these, whether sixth or ninth century, is a matter for speculation. Three ninth-century manuscripts of the composite translation are extant, apparently from regions as diverse as the Lake Constance area, Picardy and northern Italy. Such distribution suggests either originally widely-dispersed texts or else the consequence of specific contacts between individuals in these areas in the ninth century. The *Ten Categories* survives in no fewer than nineteen ninth- and tenth-century manuscripts, many of them with extensive glosses ([5.75] 116–38, 173–206). Auxerre is an important centre of production, as is Fleury, but there are examples also from St Gall and Corbie, from as far east as Freising and as far west as Wales, with some French and Italian representatives in the eleventh and twelfth centuries. Examination of the manuscript transmission of other key texts reveals a similar pattern.

Porphyry's *Isagoge* in the translation by Marius Victorinus, for example, survives in fragments, now Munich, Bayerische Staatsbibliothek Clm 6403, written at Freising. In Boethius' translation, on the other hand, it is to be found in many copies of ninth and tenth century date (including Clm 6403), often coinciding with the *Ten Categories*. It is found, moreover, in such dialectical collections as the Lyons corpus belonging to Leidrad ([5.75] 173). Marenbon, furthermore, has ascertained that Ratramnus of Corbie, John Scottus Eriugena, Heiric of Auxerre and Remigius of Auxerre knew the *Ten Categories*. Thus Auxerre again figures very prominently, as indeed it does in all branches of intellectual life in the Carolingian world, but representatives of the *Isagoge* and *Ten Categories* are to be found in other cultural centres within the Frankish kingdoms, north and east, some of which had connections with Auxerre (see [5.24]). Again a similar pattern emerges when the manuscript tradition of the *Isagoge* and logical collections and Boethius' two commentaries on the *Isagoge* are considered. One ninth-century copy of the first commentary (in dialogue form) is extant in BN lat. 12958 of the late ninth or early tenth centuries used at Corbie, though not written there, in order to compile BN lat. 13955. The commentary survives in five tenth-century manuscripts whose origins indicate a wide dissemination of the text thereafter, though not necessarily emanating from Corbie itself (*Aristoteles Latinus* 1, 6–7, p. xxi). Pseudo-Apuleius' *Perihermenias,* too, has a largely Frankish circulation in the early Middle Ages ([5.66]) while Auxerre plays a particularly important role in the transmission of Macrobius' commentary on Cicero's *Dream of Scipio* ([5.22] 22–32). BN lat. 6370, moreover, although from Tours, has corrections written in the hands of Heiric of Auxerre and Lupus of Ferrières. Other ninth-century manuscripts of Macrobius survive also from Tours, Fleury and Corbie with dissemination thereafter into southern Germany and

southern Italy. Similarly, work on the 'Leiden corpus' of Cicero's philosophical works has established that Corbie, Ferrières and possibly Rheims in the ninth century as well as Monte Cassino in the eleventh are implicated in the transmission of Cicero's *Topics* (see [5.25], [5.27] and [5.22] 124–30).

The textual links among the Carolingian copies of the various philosophical works studied in the early Middle Ages and between these and descendants of later date from elsewhere are sometimes strong, suggesting that individual contacts played a crucial role at some stage in the late tenth and early eleventh centuries, if not earlier. Equally, it is remarkable, within the traditions of the texts, how many independent lines of transmission there are. Although the evidence indicates a group of centres in the early Middle Ages which concentrated much attention on those philosophical texts, there is enough surviving from elsewhere to suggest that study of philosophy was not confined to centres such as Auxerre, Fleury or Corbie but that there were pockets of interest scattered elsewhere, notably in southern Germany. Further, although some of the later centres evincing interest in these texts in the tenth and eleventh centuries are clearly connected with the older Carolingian centres, others are not, and may therefore be the earliest extant witnesses to a far more widespread interest in and study of philosophical texts in Western Europe in the early Middle Ages than the available evidence now permits us to reconstruct.

We may have to envisage, moreover, a considerable survival of late antique exemplars. Traces of their existence can sometimes be deduced, as in the copy of Macrobius owned by Symmachus, whose subscription in his book is transmitted in no less than ten of the later copies. Other examples are the sixth-century geographical miscellany which travelled from Ravenna to Gaul and provided the exemplar for the copy (Vatican lat. 4929, fos 79v–159r) made in the circle of Lupus of Ferrières and Heiric of Auxerre; the ancient papyrus codex of Boethius' commentary on the *Topics* of Cicero borrowed by Lupus of Ferrières from Tours, the late antique texts of Terence and the Aratea copied at Rheims and in Lotharingia in the ninth century such as BN lat. 7899 and Leiden Voss. lat. Q79, and the famous Virgil texts thought to have been possessed by St Denis and Lorsch in the Carolingian period.[3] Certainly if one augments the core texts denned in this chapter with texts of related interest and content, as well as the evidence provided by library catalogues of the ninth, tenth and eleventh centuries, the number of centres possessing them is very considerably enhanced. The royal court of the Carolingians, moreover, figures with some prominence (see [5.15] 1005, [5.18], [5.53]).

The *scriptoria* of the monasteries and cathedrals were, therefore, obviously active in the provision of texts. From glosses and

commentaries on philosophical texts dating from the ninth century onwards, moreover, it is clear that such provision was clearly related to, and supplied the needs of, libraries and schools (see [5.30], [5.38], [5.78]). Such specialized book production facilitated study and the intellectual activity of individuals, as is evident from the occasional indications we get of personal libraries, such as that of Gerward of Lorsch or the books added to the library of Murbach by Abbot Iskar (see [5.16], [5.21], [5.29]). Similarly the requirements of individuals or even institutions stimulated copying activity, in that the network of communications between the various centres established the canon of texts necessary for a particular library to possess as well as furnishing information about where exemplars of desired texts might be obtained (see [5.53]). The personal interests of Hadoardus of Corbie, Lupus of Ferrières and Murethach, Haymo, Heiric and Remigius of Auxerre determined to a very considerable degree the direction of study at the schools and within the groups of scholars with which they were associated.[4]

Other Carolingian masters elsewhere were as active. At Laon, Martin of Laon, as is evident from the number of school texts he annotated, taught script, Greek, law, history, grammar and *computus*. One of his most famous teaching compilations, Laon Bibliothèque Municipale 468, also used by his successors as masters of the school at Laon, Bernard and Adelelm, includes texts on the life of Virgil and commentaries on Virgil, on the liberal arts and 'On philosophers, poets, the sibylls and magicians'. The overriding emphasis of two of Martin's other teaching manuals, Laon Bibliothèque Municipale 444 and 464, is on grammar (see [5.36], [5.38] and more generally [5.44]). At Reichenau, among the many teachers there, one, Walafrid Strabo, reveals his interests to us in his personal compilation of texts (St Gall Stiftsbibliothek 878) (see [5.28]). It contains a rich miscellany of grammatical texts, short treatises on metrics and computus, Bede's *On the Nature of Things* and works on time extracts from ecclesiastical histories and an excerpt from a letter by Seneca. If we compare this selection with the school texts listed at the end of the Reichenau library catalogue for 821, there is a similar emphasis on grammar and computus (see [5.18]). In very few Carolingian centres, notably Auxerre in the ninth and tenth centuries and Rheims in the tenth century, was philosophy in any sense formally part of the curriculum. Gerbert of Rheims, for example, is said to have taught Porphyry's *Isagoge* in the translations of Marius Victorinus and Boethius, Aristotle's *Categories* and *On Interpretation* and Cicero's *Topics* as well as to have provided instruction in the arts of metrics, rhetoric, arithmetic, geometry and astronomy.[5]

In the tenth century at St Gall it was Notker III Labeo (950–1022)

who was the first to translate philosophical texts from the Latin into German vernacular for the sake of his German-speaking pupils at the school of St Gall. According to a letter written to Hugh, bishop of Sitten, Notker translated Boethius, *On the Consolation of Philosophy,* the *Categories* and *On Interpretation* of Aristotle (translated from Boethius' Latin version) and the first two books of Martianus Capella's *On the Marriage of Mercury and Philology* as well as the *Quicumque vult,* the Psalter and the Book of Job. Notker III composed one treatise, *On Music,* in German and wrote a number of others in Latin, such as *On the Art of Rhetoric, On the Parts of Logic, On Disputation* and *Computus,* which were subsequently translated into German. Not all these have survived but among those that are extant are, in the literal translation they provide, invaluable indications of pedagogical methods in an early medieval school, with every assistance being offered to aid understanding of the text, guides to rhetorical figures and dialectical techniques and a wealth of miscellaneous general information about etymology, history, zoology and astronomy.[6] There are, moreover, some fascinating witnesses to the dissemination of texts from Auxerre mentioned above: to these translations, notably of the *On the Consolation of Philosophy* of Boethius and Martianus Capella, were appended commentaries, some of which were based on, if not actually translations of, the expositions of Remigius of Auxerre.

The combination of Notker's texts, as with the range of topics addressed by Walafrid Strabo, Martin of Laon, Gerbert of Rheims and other Carolingian masters, is in fact typical of the different emphases within the school curriculum in the early Middle Ages. It is not feasible to think in terms of philosophy playing a separate role within the school curriciulum in the Carolingian period. Rather, elements of philosophy and the discipline of logic would develop out of the emphasis on the structure of language and grammar and be incorporated into the general teaching of the *artes* as the foundation for a deeper understanding of scripture and the teaching of the fathers (see [5.41], [5.46]). Thus Notker translated texts relating to all aspects of the *trivium* (grammar, dialectic and rhetoric), the *quadrivium* (arithmetic, geometry, astronomy and music) and to the Bible and liturgy.

At other schools in France, Germany and Italy a similarly rich mixture within the school curriculum is to be observed. In the episcopal schools of Germany, such as those of Trier, Augsburg, Eichstätt and Utrecht, Würzburg, Regensburg, Cologne and Liège, and many more, the Carolingian school curriculum was taught, with only occasionally the instruction in philosophy being noted (see [5.39], [5.60]). Ohtrich of Magdeburg, for example, was noted as one of the famous philosophers of his day.[7] Bruno of Cologne, instructed at Utrecht under Bishop Balderich, kept abreast with the newest developments in 'history,

rhetoric, poetry and philosophy'.[8] Even at Auxerre, where philosophy is such a major part of the intellectual activity of its leading scholars, it is important to remember that this was also the centre which produced the *Deeds of the Bishops of Auxerre, Miracula,* homiliaries, biblical exegesis of lasting importance, and lives of saints.

Nevertheless it would appear, in fact, that philosophy became a more dominant part of the school curriculum in the course of the tenth century, and became still more important in the schools of the eleventh and twelfth centuries, at least in France. In the later ninth and tenth centuries, moreover, there is a discernible increase in the importance of cathedral schools in both the West and the East Frankish kingdoms, notably, by way of example, at Rheims and Liège and the German episcopal schools mentioned above. The lines of institutional continuity between the cathedral and monastic schools of the East and West Frankish kingdoms in the ninth and tenth centuries to the schools of Paris in the twelfth century are clear [5.60]. It is no surprise that we find in the teaching of the schools of Laon, Chartres and Paris in the eleventh and twelfth century the same mixed curriculum, designed according to a similar structure, and methods of teaching which have their roots in the early Carolingian period. At Chartres, for example, it was possible to study medicine, geometry, computus, music and logic; a manuscript from Fulbert of Chartres' time, Chartres Bibliothèque Municipale 100, was a compilation of familiar texts, namely, the *Isagoge,* the *Categories,* the *Topics* of Cicero and other related texts, including a poem by Fulbert on the difference between rhetoric and dialectic [5.60]. In the glossing methods employed by Anselm of Laon, of Peter Lombard, or Hugh of St Victor, the development of distinctive layout of text and gloss to accommodate these new developments, and in the philosophical discussion of such authors as Thierry of Chartres, we witness a similar blend of older curriculum and scholarly methods with a response to the new influences in learning and currents of thought, wonderfully elucidated long since by Southern ([5.63], [5.64]). No doubt this was due in part to the availability of a greater variety of classical texts, especially by Plato and Aristotle but to these should be added the work of the contemporary authors, discussed in the various chapters in this volume. The extant library catalogues of the twelfth century and the reconstruction of twelfth-century libraries such as those of Zwiefalten, demonstrate more clearly than any other sources the extent both of the Carolingian foundations of the school curriculum and their intellectual emphases and the innovations of the eleventh and twelfth centuries (see [5.17], [5.23]). Corbie's library, for example, although including a large corpus of philosophical works, with many of Boethius' works, a commentary on Martianus Capella by John Scottus Eriugena, the *Timaeus,* and the philosophical works of William

of Conches, and the library of Cluny with its copies of the *Isagoge,* Martianus Capella, the *Categories* of Aristotle, Boethius' commentary on Cicero's *Topics,* Calcidius and many more, still contain an overwhelming preponderance of patristic texts and biblical exegesis. The primary focus of intellectual endeavour remained the Bible, but philosophy had a secure place in the intellectual activities of many of the leading scholars of Europe.

That learning, including the study of philosophy, enjoyed such a prominent position within the life of the monasteries and cathedrals of Western Europe in the early Middle Ages is a phenomenon to which we have become accustomed, even though the preoccupation with scholarship within a monastic context might appear anomalous (see [5.44], [5.52] 19). The acceptance of intellectual endeavour as an essential part of a society's activity and the primary focus of its culture is nevertheless a remarkable characteristic of early medieval culture and merits some discussion.

Let us consider, therefore, the role of the royal court signalled at the beginning of this chapter in order to explore, first, the political dimensions of the promotion of education and learning and, second, the implications of patronage—royal, aristocratic, episcopal and monastic—not only in promoting education and the study of philosophy but also in helping to shape particular cultural imperatives that became an accepted part of a society.

Within the Germanic kingdoms Lupus of Ferrières offers a clue, in that he laments, in a letter to Einhard, the passing of Charlemagne:

> within your memory there has been a revival of learning, thanks to the efforts of the illustrious emperor Charles to whom letters owe an everlasting debt of gratitude. Learning has indeed lifted up its head to some extent… In these days [*c.* 836] those who pursue an education are considered a burden to society…men have consequently shrunk from this endeavour, some because they do not receive a suitable reward for their knowledge, others because they fear an unworthy reputation.[9]

Lupus lauded the activities of Charlemagne's grandson Charles the Bald and his support of scholarship in many of his other letters. Further, such authors as Notker Balbulus of St Gall testify to the extent to which the Carolingian rulers actively promoted scholarship.[10] We may add to this the emphasis on correct texts of the Christian liturgy, canon law and the Bible, education and learning in Carolingian legislation and directives from the king to his abbots and bishops, such as the *Admonitio Generalis* of 789 and the *De litteris colendis* of *c.* 800.[11]

Although the main aim of such learning was a fuller understanding of the Christian faith, and the provision of an educated administrative class of clerics and lay magnates, sufficient latitude is provided to those responsible for carrying out the wishes of the ruler with respect to teaching and the provision of correct texts for all Christian learning to benefit. Certainly, the subsequent production and dissemination of all kinds of text, apparently in response to the ruler's initiative, is well documented (see [5.54]).

What should also be reckoned with is the personal interest of the rulers themselves in matters of higher learning and the degree to which they actively promoted scholarship, the liberal arts and philosophy by means of patronage. From the books associated with the Carolingian rulers it is apparent how they gathered together scribes and artists, not only to produce books which reflect the personal piety and private interests of the king but also as a strategy of royal piety and largesse (see [5.31], [5.32], [5.43], [5.53], [5.55]). As Lupus implies in the extract from his letter to Einhard quoted above, the king's patronage held the promise of material reward. It is clear from the surviving evidence of scholarly activity associated with the court, and the dedications of many works to the king, that many sought such patronage. The essential material support for learning, in other words, was provided by secular rulers as well as by the Church to satisfy particular as well as general goals.

The role of the king in creating the social imperatives that made an exercise of secular patronage in this particular sphere of activity so acceptable is all important. We are not observing merely the consequences of personal intellectual and aesthetic predilections. Certainly the presence of early Carolingian manuscripts with court connections, such as the Lyons dialectical collection or Plato's *Timaeus,* seems to testify to the gathering of rare classical works, and suggests that there are deeper motives in royal patronage to be discerned. What is apparent above all is the sheer organization and determination behind the dissemination of particular texts to do with the Christian faith and learning, and the explicit association of this activity with the exercise of Christian kingship made by the rulers. Thus it is not simply that King Charles the Bald enjoyed his lessons with Walafrid Strabo and derived intellectual pleasure and stimulus from the presence of such scholars as Manno of St Ouen, Lupus of Ferrières or John Scottus Eriugena in his kingdom, or even at his court. Nor is it that scholars who enjoyed royal patronage were thereby able to pursue their intellectual activities; and many had considerable influence on succeeding generations of pupils and scholars. Among them were Alcuin of Tours, Hrabanus Maurus of Fulda and Mainz, John Scottus Eriugena, or Lupus, who was part of the dynamic intellectual milieu focused on

Auxerre and Fleury in the mid-ninth century. What is essential is that intellectual activity was recognized to be a fundamental part of the spiritual and cultural goals of all Christians; the king as Christian ruler therefore had a duty to foster this as much as he enlarged the kingdom, promoted the administration of justice and the use of agreed weights and measures or guaranteed the stability and value of the coinage.

The example of the high priority given to intellectual activity and culture set by rulers to future generations, moreover, is not to be underestimated. Of course, the Carolingians were not the first to exercise patronage in this way. Nevertheless, they were arguably the first to take such an effective interest in the correctness of the Christian texts in use in the churches, chapels and monasteries of their kingdoms, and the first whose patronage was more than an occasional interest in benefactions. The Carolingian rulers actually sustained groups of artists, scribes and craftsmen over a long period of time in order to create artefacts or carry out their particular cultural objectives (see [5.55]). It was an example, if not actually followed, then certainly emulated by other rulers, and by lay and ecclesiastical magnates. In Anglo-Saxon England, for example, Asser's *Life of King Alfred* recounts the great interest the king took in learning and how he himself translated, as well as commissioning translations from others, many crucial texts, not least Boethius' *On the Consolation of Philosophy* (see [5.34], [5.48]). Cnut is also attested as a patron of some stature (see [5.43], [5.51]). If in the tenth and eleventh centuries on the Continent the Carolingian, Capetian and Saxon kings of the West and East Franks were rather less active in the promotion of scholarship and patronage of learning, the baton fell above all to the bishops. The bishops of Liège, Trier and Hildesheim are cases in ponit. Liège was celebrated for its learning under Bishops Ebrachar and Notker but they were following a tradition established in the time of Bishop Hartgar, who acted as patron and offered a refuge to the Irish scholar Sedulius Scotus (see [5.42], [5.50]). Many manuscripts, ivories and some remarkable pieces of metalwork have been associated with Egbert, bishop of Trier from 977 to 993, and Bernward of Hildesheim, which were produced in ateliers both in their own dioceses and elsewhere (see [5.43]). Mayr-Harting has highlighted these bishops' acknowledgement of their reflection of kingly rule, and the way in which they visibly manipulated, or commanded, spiritual power by commissioning book covers and reliquaries wrought in gold and studded with bright jewels, and manuscripts resplendent with fine painting, decorated initials and beautiful script (see [5.59] 57–97).

The display of wealth that was one obvious outcome of the patronage of culture and learning was also a demonstration of power and might. It is of crucial importance for our understanding of the intellectual

culture of the early Middle Ages to see that patronage operated so effectively and constructively in the cultural as well as in the political and military spheres. Indeed, these various activities were seen to interlock and to be many facets of one society. Thus social and political imperatives from the pinnacle of authority, displays of wealth and power, the enhancing of authority, and the incorporation of a further, cultural, dimension within the ideals of political and social leadership had repercussions for the particular cultural preoccupations and intellectual aspirations of early medieval society. Patronage played a crucial role in establishing such preoccupations within the intellectual horizons and educational traditions of Western Europe. We thus observe an essential interplay between political authority, economic resources and intellectual endeavour.

PHILOSOPHICAL THEMES

There were three main fields of philosophical activity in the early medieval period: the study of logic, the reading and reaction to ancient and late antique philosophical texts and the analytical discussion of problems about Christian doctrine. The manuscript background to the first two has been explored in the previous section; the following paragraphs offer a quick sketch of some of the main themes in each area.

Logic

The earliest evidence for medieval interest in and use of logical techniques is found in the *Libri Carolini,* the statement of the Western position on the worship of icons prepared at Charlemagne's court *c.* 790, probably by Theodulf of Orleans. The longest logical passages here borrow material from Boethius and Apuleius on semantics and on the relations between the truth-values of differently quantified sentences (see [5.10] IV 28, pp. 216–21). It was Alcuin, who apparently established himself as Charlemagne's leading intellectual in the 790s, who gave early medieval logic its twist towards metaphysical and theological concerns. In his *De dialectica* ('On logic'), the first medieval logical textbook, Alcuin gives pride of place to the doctrine of the ten categories, as expounded in the *Ten Categories,* attributed at this time to Augustine. Aristotle's discussion of the categories is less a piece of logic than an exercise in fundamental metaphysics, an analysis of the different types of entity (universal and particular substances, universal and particular accidents). Augustine had already put the doctrine to theological use in his *On the Trinity,* and Alcuin borrowed and

emphasized this theme in his *On the Faith of the Holy Trinity*.[12] The *Ten Categories* became the most eagerly studied logical textbook in the ninth and tenth centuries, and the question of whether God could be fitted into them, already raised by Alcuin, was taken up by his pupils and explored in depth by Eriugena (see [5.6]; cf. [5.75] 50–3, 72–86). The glosses to the *Ten Categories,* which vary from manuscript to manuscript, show a definite pattern of development. The late ninth-century glossators tended to use the text as a springboard for Eriugena-inspired metaphysical and theological comments, only loosely related to the logical subject-matter. Tenth- and eleventh-century glossators became less and less interested in such speculation and more concerned to reach an understanding of basic Aristotelian ideas such as the distinctions between substance and accident, and between univocal and equivocal words, or the nature of space and time.[13] Gradually, a translation of Aristotle's own text came to replace the pseudo-Augustinian paraphrase, giving scholars the chance to use Boethius' commentary and, through it, to master the argument of the text and consider the difficult problems about the status of Aristotle's discussion (is it about words, or things, or what?) which would concern twelfth-century logicians.[14]

The *Isagoge* ('Introduction') by Porphyry, a short guide to the notions of genus, species, differentiating property *(differentia),* distinguishing characteristic *(proprium)* and accident, long regarded as an introduction to Aristotle's *Categories,* was also known from the time of Alcuin. Glosses to the *Isagoge*—at least those so far investigated—draw heavily on Boethius' commentaries.[15] Porphyry's famous allusion to the disputed status of universals, which became the focus for medieval debates from the twelfth century onwards, seemed to excite no controversy. One of the few early medieval writers to discuss universals, Ratramnus of Corbie, exponent of a somewhat inchoate conceptualism, turned, not to the *Isagoge,* but the first of Boethius' commentaries on it and also to Boethius' *Theological Treatises*.[16] Aristotle's *On Interpretation,* although known, was found forbiddingly difficult by most logicians until the eleventh century: glosses are rare and derivative (see [5.78] 101). But, by about 1000, Abbo of Fleury, Notker of St Gall and Gerbert of Aurillac included it within their teaching, and Abbo compiled his own introduction to syllogistic reasoning, drawing on Boethius' textbooks.[17]

Aside from Anselm's *De grammatico,* there is disappointingly little *direct* evidence for logical studies for most of the eleventh century itself.[18] Material dating from 1100 or just before shows a sophistication in dealing with the *Isagoge, Categories* and *On Interpretation,* and a facility in handling syllogisms and topical inferences which cannot have been suddenly acquired; this is a surmise strongly supported by the

confident use in doctrinal controversy and discussion of notions from both the *Categories* (as in the dispute between Lanfranc and Berengar) and *On Interpretation* (as in Anselm's *Cur Deus Homo* and Peter Damian's *Letter on God's Omnipotence*).[19]

Reading Ancient Philosophy

Although some early medieval writers criticized logic as a distraction from religious devotion, no one could claim that the ancient logical textbooks were themselves a challenge to the faith; and, indeed, in his *Theological Treatises* (much read and glossed in these centuries) Boethius had shown how logical techniques could be used against heresy in support of orthodox doctrine. By contrast, Latin texts of ancient philosophy posed what might seem as a direct challenge to Christian belief, by proposing a view at least in some respects incompatible with them. Yet it was not, in fact, any of the three main pagan philosophical books available from the ninth to the eleventh centuries that became the focus of controversy. Plato's *Timaeus* (in Calcidius' partial translation) was found too difficult for sustained discussion; the two introductory books of Martianus Capella, preceding the handbooks to the individual disciplines, were too obviously an allegory to cause problems; and Macrobius' commentary on Cicero's *Dream of Scipio* tended to be looked on as a source of information about natural science, especially astronomy, to which further information of like nature should be appended by glossators. And so, strangely, it was in connection with the work of a Christian author that scholars from the ninth to the eleventh centuries considered most carefully how to react to ancient philosophy. After writing his logical translations, commentaries and translations, and his *Theological Treatises,* Boethius, in prison and awaiting execution, wrote his final work, *On the Consolation of Philosophy*. The *Consolation* not only avoids any explicit reference to Christian revelation. It also contains passages which present ancient Platonic ideas which, taken literally, are incompatible with Christianity. In particular, the ninth metrum (or verse passage) of Book III, a prayer incanted at the very climax of the argument, is an epitome of the *Timaeus,* and it refers both to the idea of reincarnation and to that of the World Soul.

What should the Christian reader make of such passages?[20] The most forthright reaction was that of Bovo (d. 916), a monk of Corvey, who recognized clearly that, although Boethius had written elsewhere on Christian doctrine, he was setting out here to present Platonic and not Christian teaching ([5.5]). Using Macrobius—he seems not to have known the *Timaeus* itself—he gives a clear explanation of the ideas

behind the compressed phrases of Boethius' poem. Although this approach had its followers, it was not the most common one. At much the same time as Bovo, Remigius of Auxerre had composed his commentary ([5.14]), not just to this metrum, but to the whole *Consolation,* drawing on earlier glosses (just as he would do in his extensive commentary on Martianus Capella) but developing them in his own way. His effort was to find an explicitly Christian meaning hidden in the apparently Platonic phrases of Boethius.[21] About a hundred years later, Adalbold of Utrecht pursued a similar Christianizing line in his commentary on Book III, metrum 9 ([5.1]), although he allegorized less thoroughly than Remigius and ended with an unintendedly strange amalgam of orthodox Christianity and Platonic teaching.[22] Twelfth-century scholars, especially William of Conches, would follow and sophisticate the approach pioneered by Remigius and Adalbold, applying it to genuinely pagan texts as well as to the *Consolation*.[23]

Problems Raised by Christian Doctrine

From the twelfth century onwards, much of the best philosophical thinking took place in the context of theology, the systematic investigation of Christian doctrine which would be typified in the universities by the commentaries on the *Sentences* of Peter the Lombard. In the ninth to eleventh centuries, it is difficult to talk of 'theology' in this sense. But philosophical discussion still arose in connection with various types of writing concerned primarily with Christian doctrine: sermons and biblical exegesis were inclined to be unargumentative (though Eriugena's are an exception), but other works about doctrine, stimulated by controversy or responding to particular questions, often contain interesting material for the historian of philosophy.

One of the fiercest controversies in the ninth century was instigated by Gottschalk, a monk first of Fulda, then Reichenau, then Orbais.[24] In a series of writings from the 830s onwards, Gottschalk championed the idea, which he claimed (with some justice) to be Augustine's, that God's predestination is dual: of the good to bliss and of the wicked to damnation. He found many well-educated supporters, but others in the Church feared that his teaching would discourage people from trying to act well by making them think that, regardless of anything they did, they were from eternity predestined to hell or to heaven. Two important churchmen—Hrabanus Maurus, archbishop of Mainz and prolific scriptural exegete and encyclopaedist, and Hincmar, archbishop of Rheims—wrote against Gottschalk; and they also commissioned an attack from a scholar attached to the court of the emperor, Charles the

Bald; this would be John Scottus Eriugena's first treatise, his *On Predestination*.[25] Although Hrabanus' and Hincmar's pieces (not, however, John's) amass patristic quotations, all three involve argument and analysis, and together they provide the earliest medieval attempt to explore notions such as free will, evil and punishment.

All three writers challenged Gottschalk's formula of dual predestination by saying that God *predestines* in one way alone—the good to salvation—but he *foresees* both the salvation of the good and the damnation of the wicked. Only those predestined to salvation can be saved, because for salvation God's grace is needed. Yet God cannot be said to 'predestine' the wicked; rather, he fails to predestine them. Eriugena also adds the argument ([6.4] 62:27–65:123), based on the Platonic view that evil is not a thing but a deficiency, that God *could* not possibly predestine anyone to a wicked life or to eternal punishment because, as evils and therefore deficiencies, they have no cause. (This last is a particularly silly argument: the emptiness of my glass is just as clearly caused by my having drunk the wine as its fullness was caused by my having poured wine into it from the bottle!) So far all three writers have hardly distanced themselves more than verbally from Gottschalk, since on their view people will still be damned, whatever they do, if God fails to predestine them. Hrabanus and Hincmar are aware of this problem but try to dodge it, stressing God's inscrutability or, in the case of Hincmar, suggesting that God withholds grace from those whose future misuse of their wills he has foreseen. Eriugena does not resolve the central issue: how can an individual human being be held responsible for the evil actions which, without the help of grace, he cannot but perform? Rather, he concentrates on relieving God of any responsibility for unjustly punishing those who are not responsible for their wickedness by an astonishingly bold move. He claims that God does not punish anybody [[6.4] 63:42–66:155). Sinners are punished (through ignorance, or through the knowledge that they lack beatitude, or through the frustration of their desire to become nothing at all), but not by God, who is merely the framer of just laws.

There were various doctrinal controversies in the two following centuries which stimulated philosophical discussion, most notably the dispute in the mid-eleventh century between Lanfranc and Berengar over the eucharist.[26] But even more interesting for the history of philosophy is a work written at much the same time *(c.* 1067), as part not of a public controversy but of a private debate. Peter Damian was unwilling to accept Jerome's statement, put to him by a friend, that 'whilst God can do all things, he cannot restore a virgin after she has lost her virginity' and he wrote his *Letter on Divine Omnipotence* ([5.11]) to explain why not. Damian is known as an ascetic, contemptuous of pagan philosophy, and historians have often

interpreted his rejection of Jerome's position in this light: as an extreme manifestation of his anti-philosophical stance, according to which he claims that God can undo the past, making what has happened not have happened and thus violating the fundamental logical law of non-contradiction. On a careful reading, however, the argument of the letter is seen to be quite different.[27] Damian contends that, by nature, it is impossible to restore her virginity to a virgin who has lost it. By this he means that there is no way of repairing the ruptured membrane. The only way, then, that by nature a non-virgin could become a virgin would be if the past were changed, so that her virginity never had been lost. But, Damian goes on, this—changing the past—is *impossible* absolutely, even for God and certainly by nature. Making a non-virgin into a virgin by repairing her virginity (not by changing the past) *is* possible, however, for God, though it is impossible by nature. Here, then, Damian seems to be distinguishing between the physically impossible, which is possible for God, and the logically impossible, which even for God is impossible. But, at one point ([5.11] 619A–620C), he asks whether God could make it that Rome had never existed and answers that God could. He goes on to explain that, since God lives in an eternity which is timeless, to say that God could now make it that Rome never existed is equivalent to saying that God could have from the beginning shaped a providence which did not include the existence of Rome. Damian's position is defensible, though when clarified it becomes less bold than it at first seems. He makes two arguable claims: (1) that God might have chosen a providence other than the one he has in fact chosen—a providence in which, for instance, Rome never existed; (2) that God's choice of providences does not take place at any moment in time, but in timeless eternity. (1) would be accepted by most Christian thinkers; the meaningfulness of (2) can be queried, but the position has had many adherents, from Boethius' time until now. Taken together, (1) and (2) lead to the conclusion that God could make it (tenseless) that Rome never existed. Since God exists timelessly, any verb which is applied to him is timeless: the apparently paradoxical 'God is able to make it that Rome never existed' is no different in meaning from the straightforward 'God was able to make it that Rome never existed'.

NOTES

1 See Cavallo [5.35], Kleberg [5.49] 44, Lowe [5.19] and cf. Eddius Stephanus, *Life of Bishop Wilfrid,* Cambridge, 1985, ch. 6.

2 See Minio-Paluello's introduction to his edition of the *Categories* in *Aristoteles Latinus* (I, 1–5), Bruges and Paris, 1961, pp. xiv, xxiii, xxxii, xxxv.

3 See Reynolds [5.22] 225 and Bischoff [5.33]; for Lupus's borrowing, see the edition of his letters by L.Levillain, Paris, 1964, pp. 214–15.
4 See Bischoff [5.27] (Hadoardus), Beeson [5.25] and Gariépy [5.40] (Lupus), and on Heiric see [5.24] as well as the editions of his *Collectanea* by R.Quadri, Fribourg, 1966, and of his excerpts from Valerius Maximus by D.Schullian, *Memoirs of the American Academy in Rome* 12 (1935): 155–84.
5 See Marenbon [5.75] and Richer's *History of France,* ed. R.Latouche, Paris, 1967, II, p. 46.
6 See P.Piper, *Die Schriften Notkers und seiner Schule,* Freiburg and Tübingen, 1882–3, I, pp. 859–61 for Notker's letter, and cf. J.Knight Bostock, *A Handbook on Old High German,* 2nd rev. edn, Oxford, 1976; see also below, Chapter 6, p. 132, for Notker.
7 *Life of St Bernward,* ch. 1 in H.Kallfelz (ed.) *Lebensbeschreibungen einiger Bischöfe des 10.–12. Jahrhunderts,* Darmstadt, 1973.
8 Ruotger, *Life of Bruno,* ch. 5, in H.Kallfelz (ed.) *Lebensbeschreibungen einiger Bischöfe des 10.–12. Jahrhunderts,* Darmstadt, 1973.
9 Translated in G.W.Regenos, *The Letters of Lupus of Ferrières,* The Hague, 1966.
10 Notker, *Gesta Karoli,* ed. H.Haefele, Berlin, 1959, 1.1.
11 Monumenta Germaniae Historica, Capitularia, ed. A.Boretius, Hanover, 1830, I, nos 22, 29, 30, 53, 79–81.
12 *De dialectica* is printed in [5.2] 101, cols 951–76 and *On the Faith of the Holy Trinity* at cols 13–54; see esp. col. 22; cf. Marenbon [5.75] 31 and the additions and corrections to this view in J.Marenbon, 'Alcuin, the Council of Frankfort and the beginnings of medieval philosophy', in *Dos Frankfurter Konzil van 794,* ed. R.Berndt, Mainz, 1997, II, 603–15.
13 [5.75] 116–38; for some additions and corrections, see Marenbon [5.78] 100.
14 See L.Minio-Paluello, 'Note sull'Aristotele latino medioevale: xv—Dalle *Categoriae Decem* pseudo-Agostiniane (Temistiane) al testo vulgato aristotelico Boeziano', *Rivista di Filosofia Neoscolastica* 54 (1962) 137–47, reprinted in Minio-Paluello [5.83] 448–58; and, for glosses and commentaries to *Categories* see Marenbon [5.78] 82–3, 100–1, 109–10 and 26–7. A paraphrase/commentary of the *Isagoge* and *Categories* from the early eleventh century has been edited by G.d'Onofrio: *Excerpta Isagogarum et Categoriarum,* Turnhout, 1995 (CC c.m. 120). See also Marenbon [7.67].
15 The *Isagoge* glosses from one manuscript have been edited by C.Baeumker and B.von Walterhausen: *Frühmittelalterlichn Glossen des angeblichen Jepa zur Isagoge des Porphyrius* (BGPMA 24,1), Münster, 1924; for a list of glossed manuscripts and their relations, see Marenbon [5.78] 99.
16 See Ratramnus [5.12] for the text and cf. Marenbon [5.75] 67–70.
17 For bibliography and further discussion of Abbo, Notker and Gerbert, see below, Chapter 6.
18 For Anselm's *De grammatico,* see below, Chapter 6.
19 Peter Damian's *Letter* is discussed below, pp. 112–13; for the use of Aristotle here and by Anselm, see also Marenbon [5.79].
20 For a survey of the influence of the *Consolation,* see Courcelle [5.68]; see also Troncarelli [5.82], [5.83].
21 Useful extracts are printed in Remigius [5.14]; cf. Courcelle [5.68] 278–90, and Marenbon [5.76] 78–9.

22 See T.Gregory, *Platonismo medievale: studi e ricerche* (Istituto storico Italiano per 51 medioevo, studi storici 26–7), Rome, 1958, pp. 1–15.
23 See below, Chapter 7, pp. 172–3.
24 On Gottschalk, see esp. Jolivet [5.74]; on the predestination controversy, see Ganz [5.70] and Schrimpf [5.81]. For Gottschalk's theological works, see [5.8].
25 See also below, Chapter 6, p. 120 on the background and reaction to *On Predestination.* Hrabanus puts his views in letters to Bishop Noting of Verona (*MPL* 112, cols 1530–53) and to Count Eberhard of Friuli (Monumenta Germaniae Historica, Epistolae Karolini Aevi III, pp. 481–7). Hincmar's contribution before Eriugena entered the controversy was a letter to his parishioners, ed. W.Gundlach, 'Zwei Schriften des Erzbischofs Hinkmar von Reims', *Zeitschrift für Kirchengeschichte* 10 (1889):258–309. For a full account of Hincmar's part in the controversy and his various writings connected with it, see J.Devisse, *Hincmar, Archevêque de Reims, 845–882,* Geneva, 1975–6, pp. 115–79.
26 This is well discussed in Holopainen [5.73] 44–118; cf. also Gibson [5.72].
27 This is the reading proposed by Holopainen [5.73] 6–43. See also the discussion of the modal notions involved in this discussion in Knuuttila [1.21] 63–7.

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CHAPTER 6

John Scottus Eriugena and Anselm of Canterbury

Stephen Gersh

INTRODUCTION

by John Marenbon

John Scottus Eriugena came from Ireland, as his name indicates ('Scottus' meant 'Irishman' in the Latin of this period, and 'Eriugena', a neologism invented by John himself, is a flowery way of saying the same thing). He worked on the Continent, however, under the patronage of Charles the Bald. The first mention of him, in a letter of 851 or 852 about the predestination controversy, is as 'an Irishman at the royal court'. After the disastrous reception of his own contribution to this dispute, *On Predestination* (discussed in Chapter 5), it seems to have been Charles's protection which saved Eriugena from punishment and ensured he could continue his work. Glosses survive by Eriugena on Martianus Capella's *On the Marriage of Mercury and Philology,* a late antique handbook of the seven liberal arts widely studied in the ninth century, and it is likely that these represent some of his teaching at the palace school in the late 840s.[1] Already his comments show some of the characteristic themes of his thought. For instance, a reference by Martianus to the myth of Orpheus, who tries to rescue his wife, Eurydice, from the underworld, is glossed in terms of the relation between the beauty of sound (represented by Orpheus) and the art of music 'in its profoundest reasons' (represented by Eurydice), which the musician must seek by descending into the depths of his discipline.

Eriugena's intellectual horizon was greatly enlarged in the 850s when Charles commissioned him to translate from Greek the writings which had been issued as (and were taken to be) by Dionysius, the learned

pagan converted by St Paul, though they were in fact the work of a fifth-century Christian deeply influenced by the Neoplatonism of Proclus. The manuscript of pseudo-Dionysius had been sent as a present by the Byzantine emperor to Charles's father, Louis the Pious. An obscure translation had been made at the time by Hilduin, Abbot of St Denis. Eriugena had taught himself Greek much better and succeeded, not merely in producing a comprehensible translation which would be used for the next three centuries, but also in absorbing the ideas he found in the text. He went on to translate various other Greek Christian texts, by Gregory of Nyssa and the seventh-century Maximus the Confessor. All these influences, along with his wide reading of the Latin fathers (especially Ambrose and Augustine) and his enthusiasm for logic (especially as found in the pseudo-Augustinian *Ten Categories*), are combined in his masterpiece *Periphyseon* (About Nature'; it is also sometimes known as *De divisione naturae,* 'On the division of nature'), written in the 860s. The *Periphyseon* has been seen by some as continuing a tradition of Greek Neoplatonic thought, and by some as anticipating nineteenth-century German Idealist philosophy; whilst other scholars have concentrated on placing the work within the context of Carolingian thought.[2] Yet other approaches, too, are possible (as Stephen Gersh's discussion below will illustrate)—a diversity of interpretation encouraged by a text of remarkable breadth and audacity, where bold strokes of the imagination sometimes stand in for rigour of argument and suggestiveness of imagery for clarity of thought.

The *Periphyseon* begins by setting out a fourfold division of universal nature—discussed below in greater depth by Stephen Gersh—into: (1) that which is not created and creates, (2) that which is created and creates, (3) that which is created and does not create, and (4) that which is not created and does not create. God, as creator, constitutes (1); the primordial causes—which are both like Platonic Ideas and the Stoic seminal reasons Eriugena learnt about in Augustine's *Literal Commentary on Genesis*—make up (2); (3) is the created world of men, animals and things and (4), like (1), is identified with God, but God as the Final Cause to which all things return. The underlying course of universal history, seen as the progress from (1) to (4), is described in the five books of the work, which takes the form of a dialogue between master and pupil. Book I is mainly devoted to showing that God does not belong to any of Aristotle's ten categories. Drawing on pseudo-Dionysius' negative theology, Eriugena argues that God does not even belong to the first category, that of *ousia* (substance or essence) as Augustine had held. The remaining four books are structured round an exegesis of the story of creation and fall in Genesis, in which Eriugena discovers not only an account of divisions (2) and (3) but also that of the return of all things at the end of time to the uncreated and uncreating

God of (4). Unusual positions abound: that (following Maximus) sexual differentiation arose only as a consequence of the fall; that the nothing from which God created all things is God himself who, being beyond all description, is nothing rather than something; that (continuing the line of thought from *On Predestination,* but hedging it around with qualifications and even contradictions) there will be no Hell, at least in the ordinary sense.

Eriugena also composed a commentary on pseudo-Dionysius' *Celestial Hierarchy,* a homily on the prologue to John's Gospel and the beginning of a commentary on that Gospel. The homily provides a short and beautifully written summary of some of the main themes of his later work.

Anselm was born at Aosta in Italy in 1033. He became a monk of Bec in Normandy in 1059, where he was taught by Lanfranc, whom he went on to succeed as Abbot (in 1078) and as Archbishop of Canterbury (in 1093). He died in 1109, after a stormy tenure of the archbishopric in which he tried to assert the power and independence of the Church. Anselm did not begin to write his theological and philosophical works until he was over 40. From then up almost until his death he produced a series of writings distinguished by an extraordinary elegance of thought and clarity of purpose. Unlike almost every other medieval thinker, Anselm makes no parade of philosophical or theological authorities, although he clearly knew as well as anyone of his time the logical texts of Aristotle, Porphyry and Boethius then available, and he had studied deeply Augustine's more philosophical writings.[3]

Anselm's two earliest monographs, the *Monologion* (1076) and the *Proslogion* (1077–8), are both concerned to provide rational arguments for the existence and attributes of God, although he assumes that his readers will be Christians who already accept by faith the truth of the assertions which he is setting out to prove. The *Monologion* uses a variety of arguments designed to show that there exists a triune God. The *Proslogion* uses a single line of argument and does not attempt to argue for triunity, but restricts itself to the not specifically Christian divine attributes such as omniscience, omnipotence, perfect goodness and eternity. The piece is built around the notion of that-than-which-nothing-greater-can-be-thought: what, for simplicity's sake, may be called the notion of a 'maximal being'. Most of the work is devoted to showing that, in the case of each presumed divine attribute, it must belong to a maximal being because, without it, the being would not be maximal. But this would merely show that, *if* it existed, a maximal being would be omnipotent, omniscient and so on. By far the greatest attention, in Anselm's time and ever since, has been given to the argument placed at the beginning (often called Anselm's 'ontological

proof') to demonstrate that a maximal being does actually exist. Anselm advances two premisses: (1) that a maximal being does at least exist in thought, and (2) that to exist in reality and thought is greater than to exist in thought alone. He considers (1) to be proven by the fact that even someone who denies the existence of a maximal being (such as the fool of Psalm 14, who denies that God exists) has the mental concept of such a being; and he takes (2) for granted. He then argues that it must be false to claim that a maximal being *A* exists in thought and *not* in reality, because such a being would be less great than a being *B* exactly like it except that it existed in thought and also in reality, and so *A* would not be a maximal being. Therefore, given that a maximal being exists in thought, it must exist in reality too. The classic objection to this argument, that existence is not a predicate, is not very powerful, since Anselm's argument is based on the contrast between *ways* of existing, in thought and in reality. His premiss (2) may not be convincing, but it is not obviously false or meaningless. Modern reworkings of the ontological proof usually adapt premiss (1) to read: '"God exists" is possibly true', and, in order to make a plausible argument, they need to add another claim (3), that if a maximal being exists, it must exist in such a way that it cannot not exist: it must exist necessarily. (3) is found in the next chapter of the *Proslogion,* but as a further argument rather than as an additional premiss to the proof that a maximal being exists. It remains a matter for dispute among philosophers whether any version of the ontological argument, strengthened in this way, is sound.[4]

Besides writing a detailed reply to the criticisms raised by Gaunilo, a monk of Marmoutier, to his ontological proof, Anselm went on to write, among others, works *On Truth, On Free Will* and on the compatibility of grace and divine prescience with human freedom. His *Cur Deus homo* (*Why God became man,* 1094–8) is especially ambitious: basing himself on Scripture, but only on that part of it accepted by Jews and Muslims as well as Christians, Anselm tries to show that God needed to become incarnate if he was to remain just but also maintain the benevolent purpose of his creation. Two works of Anselm also survive which are more purely philosophical in content: *De grammatico,* an intricate logical discussion, following on from Aristotle's *Categories* and Boethius' commentary, of the semantics of denominative words such as *grammaticus* ('literate'), and the 'Philosophical fragments', which examine modal notions and sketch out a philosophy of action.[5]

QUESTIONS OF METHOD

Like any other object of critical analysis, the literary production of those writers of the ninth to eleventh centuries who are usually styled 'philosophers' is approachable from various perspectives. One such viewpoint, dominant in medieval philosophical scholarship until quite recently, has been that of orthodox Thomism. However, the notion that pre-thirteenth-century intellectual figures should primarily be valued for their tentative movements towards certain doctrines of high scholasticism is nowadays losing its appeal. There is obviously neither the socio-political pressure nor the metaphysical conviction to sustain it.

John Marenbon's survey, published in 1983 ([6.33]), makes the pre-scholastics speak, at least to a degree, in an idiom intelligible to a late twentieth-century audience. That he should emphasize their preoccupation with problems of language is therefore perfectly understandable. This is documented by their elaboration of the doctrine in Aristotle's *On Interpretation* about words, thoughts, and things ([6.33] 21–2, 32–3, 101–2) and by their rediscovery of the distinction between sense and reference of terms ([6.33] 102–3, 106 ff.).[6] One only needs to adopt a more comprehensive notion of the linguistic—including the structural element and the overlap with the semiotic—in order to see such preoccupation in greater relief. However, that he should limit their claim to be called 'philosophers' is perhaps too drastic.

A careful reading of *Early Medieval Philosophy* reveals its author's personal conviction about the nature of philosophy. For him, it is primarily methodological in a sense opposed to ontological realism and system building ([6.33] 6, 10, 15–16, 81). The methodology consists of arguments from premisses to conclusions (pp. 4, 58), the premisses being generally open to doubt but ideally self-evident either to observation or reason rather than textually given, the conclusions being unknown in advance (pp. 4, 12). Philosophy also employs terms which are literal rather than metaphorical and univocal rather than equivocal in its discussions (pp. 5–6, 9–10). Since these criteria define a discipline recognizable to Bertrand Russell but not to early medieval writers, Marenbon is left with relatively few illustrations of genuine philosophy before the twelfth century. Although the traditions of logic and of logic's application to theology represented by certain passages in Augustine and Boethius are to be excepted (pp. 10, 47–8), a substantial portion of the late antique and early medieval literature fails to meet one or more criteria. The Latin translation of Plato's *Timaeus* is too metaphorical (pp. 5–6), the Latin Platonic material of late antiquity too much concerned with system building and metaphorical expression (pp. 9–10, 15–16). Likewise, Eriugena's thought involves too much system building (p. 81), too many premisses derived from texts (p. 58),

and too much equivocal language (pp. 65–9), Anselm of Canterbury's too many conclusions known in advance (pp. 95–7).

Despite the persuasiveness of this discussion, a different approach to the philosophical writing of the ninth to eleventh centuries is possible. This would involve equal attention to the linguistic component but—since history shows this term to imply not universality but family resemblance—fewer prior assumptions about the meaning of 'philosophy'. What follows is an attempt to investigate samples of Carolingian and post-Carolingian philosophical literature from such a viewpoint. I shall suggest that these materials, in their concern for systematic construction, pre-existing textual data, and the polysemy of etymology and metaphor, exhibit not intellectual weaknesses but intellectual strengths.

ERIUGENA

In some respects, Western medieval philosophy can be viewed as beginning with the brilliant and controversial ninth-century thinker John Scottus Eriugena.[7] Marenbon values him for his ability to reason abstractly yet criticizes his tendency to system building. However, it is Eriugena's notion of structure which perhaps makes him closer to modern writers than to other medieval ones.

Few would deny that a particular concept of 'structure' is one of the intellectual paradigms of our era.[8] This involves a priority of relation to related terms, such relations being either of opposite to opposite where one opposite exists through or is understood through the other, or else of whole to part where the whole exists through or is understood through the part, or vice versa.[9] Originating in linguistics, where it determined both the phonological and semantic spheres—for example as the Saussurian concept of 'value',[10] the theory regarding presence (+) or absence (-) of distinctive features elaborated by Trubetzkoy and Jakobson,[11] and the Hjelmslevian notion of 'form'[12]—it has passed into the currency of historical, anthropological, literary, psychoanalytic, and other studies. Although avoiding the term 'structure' itself, Eriugena builds his metaphysical system with identical components. Priority of relation is underlined by his discussion of the Aristotelian categorical doctrine in *Periphyseon* I where the category of 'relation' *(relatio, ad aliquid)* or of 'condition' *(habitus)* is found to be present in all the other categories.[13] Contrast of opposite with opposite is a recurrent theme of Eriugena's writing, as instanced by the negative and affirmative predicates applied to God (I. 458A–462D, II. 599B–600A, III. 684D–685A, etc.) and the five dichotomies constituting nature (II 529C–545B); contrast of whole with parts is only slightly less frequent, an instance

being God's status with regard to created things of which man's is the microcosmic reflection (IV. 759A–B. Cf. II. 523D–524D). Strict relatedness is clearly the writer's underlying assumption in such cases, since each binary term is said to be dependent ontologically and epistemologically on its counterpart (V. 953C–954A, V. 965A–B).

Eriugena exploits the notion of structure in developing his own variant of the classical Platonic Theory of Forms. The expression of this doctrine, acquired through intermediary Greek and Latin patristic sources, combines ontological and semiotic criteria.

From the ontological viewpoint,[14] there exists a set of transcendent i.e. atemporal and non-spatial principles. These are termed 'reasons' *(rationes)* in Latin, and 'Ideas' *(ideai),* 'prototypes' *(prōtotypa),* 'predestinations' *(proorismata),* or 'divine volitions' *(theia thelēmata)* in Greek.[15] They possess a metaphysically intermediate status since they depend upon a prior cause: God (the technical term for such dependence being 'participation' *(participatio)*), while subsequent terms, created objects, depend on them.[16] According to Eriugenian textual exegesis, when the Bible describes God as making heaven and earth 'in the beginning', it means that the first principle establishes the reasons or Ideas of intellectual or sensible creatures within its Word.[17] Examples of the transcendent principles are Goodness, Being, Life, Wisdom, Truth, Intellect, Reason, Power, Justice, Salvation, Magnitude, Omnipotence, Eternity, and Peace (II. 616C–617A).

From the semiotic viewpoint,[18] Eriugena proposes an analysis of the term 'nature' *(natura)* using a combination of traditional logical principles like the square of opposition[19] and the division of genus into species versus the partition of whole into parts.[20] Within nature, four 'differences' *(differentiae)* are posited: creating (A), not created (D), created (B), and not creating (C), these combining to form four 'species' *(species):* creating and not created (1), both created and creating (2), created and not creating (3), and neither creating nor created (4).[21] The relations between 1 and 3 and between 2 and 4 are described as 'opposition' *(oppositio),* those between A2 and Al, between B3 and B2, between C3 and C4, and between D4 and D1 as 'similarity' *(similitudo),* and those between B2 and D1, between C3 and A2, between B3 and D4, and between C4 and Al as 'dissimilarity' *(dissimilitudo)* (I. 441A–442A, II. 523D–528B). This semiotic analysis is applied to metaphysics when species 1 is identified with God as the beginning of the cosmic process, species 2 with the reasons or Ideas, species 3 with the effects of the reasons or Ideas, and species 4 with God as end of the cosmic process.[22]

By endorsing the thesis that there is an analogy between the cosmos and a book, Eriugena can pass easily from assumptions about the structure of reality to assumptions about the structure of texts.[23] That

he has a systematic approach to texts is suggested by the possibility of dissolving *Periphyseon* into a mosaic of citations.[24] Of course, he presents no formalized theory concerning the relations between a literary text, its reader, and antecedent texts comparable with those developed in connection with modern fiction by Bakhtin, Kristeva and others.[25] Nevertheless, the combination of quotations in his writing indicates several interpretative strategies.

Among Eriugena's citations,[26] a considerable number come from the Greek Fathers. Taking them in chronological order of authorship, there are lengthy passages from Origen on the end of the world (V. 929A–930D), from Gregory of Nyssa on man as the image of God (IV. 788A–801C), from pseudo-Dionysius the Areopagite on the divine names and on the celestial hierarchies,[27] and from Maximus the Confessor on the fivefold division of nature (II 529C–542B). Two Latin Fathers contribute textual materials of importance: Augustine on miscellaneous questions[28] and Ambrose on the interpretation of Paradise (IV. 815B–816C). Among Eriugena's further quotations, a large group comes from Latin secular authors. Considering these also in chronological order of authorship, there are substantial extracts from pseudo-Augustine on the ten categories,[29] from Martianus Capella on the measurement of the cosmos,[30] and from Boethius on the nature of number.[31] The incorporation of all these antecedent texts into *Periphyseon* reflects one paramount exegetical purpose. This is to make them agree in meaning so that, when two texts are perceived to disagree on the denotative level, agreement must be sought in some connotative meaning;[32] and when they are seen to disagree on the connotative level, the denotative meaning of one text should be accepted, its selection being founded on a hierarchy of socio-political value.[33] The application of this exegetical principle can be documented by many examples. Latin Christian and Greek Christian writings are held to agree when Augustine and pseudo-Dionysius discuss the divine ignorance beyond knowledge (II. 597C–ZZ598A), Latin secular and Greek Christian when 'Plato', Virgil and Gregory of Nyssa describe the four elements,[34] Latin secular and Latin Christian when 'Plato' and Augustine interpret the world soul as principle of life (III. 727C–728D), and Latin secular, Greek Christian and Latin Christian when 'Aristotle', pseudo-Dionysius and Augustine discuss the ten categories.[35] Disagreement on the denotative level overcome by shifting to the connotative level of one or both texts is instanced among Latin Christian and Greek Christian authors when Ambrose, Augustine, pseudo-Dionysius and Maximus describe the indirect perception of God through theophany;[36] disagreement on the connotative level overcome by concentrating on the denotative level of one text only is illustrated among Latin Christian and Greek Christian authors when pseudo-Dionysius and Maximus

but not Augustine discuss the threefold division of the soul into substance, power and activity,[37] and among Latin Christian and Latin secular authors when Pliny and Martianus Capella but not Augustine calculate the measurements of the cosmos (III. 719A, 721C. Cf. III. 724A–C).

Eriugena obviously exploits the notion of multiple meanings in texts. That this is in the late twentieth century part of the definition of literariness would hardly be questioned,[38] and that it is nowadays also a fundamental problem in philosophy is the legacy of Gadamer, Derrida and others.[39] But it is important to find the exact coordinates of Eriugena's position. Of the theoretically possible views of meaning which are relevant here, one would connect the polysemy of individual texts with an ultimate monosemy—metaphysical truth—and establish a limit for hermeneutical activity and a distinction between denotation and connotation.[40] This was the attitude of medieval theologians.[41] Another view would connect the polysemy of individual texts with an ultimate polysemy—a linguistic 'reality'—and establish no limits for hermeneutical activity and no distinction between denotation and connotation. Such is the position of modern deconstruction.[42] A careful study of Eriugena's philosophical methodology reveals him supporting neither the first nor the second viewpoint exclusively but oscillating between the two: a most unusual approach for a Western medieval thinker.

The evidence for Eriugena's concept of polysemy consists primarily of various statements about thought and language.[43] Clearly the notion that polysemy is a property to be exploited rather than a defect to be overcome in the pursuit of philosophy requires a fusion rather than a separation of the cognitive and the verbal. Eriugena explicitly advocates such a fusion in several instances while commenting on Martianus Capella and Maximus the Confessor.

Among Eriugena's comments on the text of Martianus Capella, those dealing with the meaning of its initial allegory are particularly relevant. This narrative depicts the god Mercury's search for a bride, culminating in his choice of the mortal Philology, and then the preparations for the marriage of Mercury and Philology, including a ritual of Philology's deification. Since Eriugena quite plausibly interprets Mercury and Philology as figures of language and reason respectively, the marriage of the two protagonists for him indirectly signifies the fusion of discourse and thinking.[44] Naturally, this represents a primary rather than exclusive meaning of such an inherently polysemous text.[45]

Among Eriugena's developments of Maximus the Confessor's teaching, those concerned with a threefold psychological process are particularly important. Here, Eriugena sometimes contrasts two inner cognitive functions: intelligence and thinking with an outer expressive

function: sensation=sign-manipulation,[46] but sometimes describes three inner cognitive and expressive functions: intelligence=non-interpretation, reason=expression, and interior sensation=quasi sign-manipulation.[47] The shift between the first and second formulations—tantamount to replacing the traditional contrast of thought and language with a more unusual combination of the two—results from the contextual pressure of a Trinitarian analogy in the latter case.[48] Just as God expresses himself to himself and to creation through his Word, so does man reflect the same processes on a lower level of being.

In order to appreciate these developments, one should pause momentarily to recall Aristotle's theory in *On Interpretation* that spoken words are signs—*symbola* or *sēmeia*—of mental affections and that, although mental affections are identical for all mankind, spoken words are different.[49] Thanks to Boethius' translation and commentary on this text, the radical cleavage between thinking and language which it advocated became a medieval commonplace.[50] However, modern linguistic theory in the tradition of Saussure's *Cours de linguistique générale* would insist that the acoustic image—the signifier, and the concept—the signified, are inseparable components of one wholly arbitrary linguistic sign.[51]

Further evidence for his concept of polysemy is provided by the writer's practice in connection with etymology. Here, Eriugena follows the doctrine, established by the Stoics and transmitted to the Latin West by Isidore of Seville, that study of the forms and derivations of words leads to knowledge of the things which they represent.[52] The *Periphyseon* contains numerous examples of simple etymologies exploited in this way. Because *metochē* ('participation') is composed of *meta* ('after') plus *echein* ('to have'), it indicates the derivation of an essence from a superior one (III. 632B) and because *stereōma* ('firmament') is composed of *sterē* ('solid') plus *hama* ('together'), it indicates the common boundary of all corporeal things (III. 694B). Similarly the noun *ousia* ('substance') comes from the verb *eimi* ('I am') and therefore signifies subsistence of each thing in its transcendent causes whereas the noun *phusis* ('nature') comes from the verb *phuomai* ('I am born') and therefore signifies the generation of each thing in some material substratum.[53] When Eriugena alternates etymologies of a single term, the fusion of real and verbal begins to predominate over the separation of the two.[54] For example, the word *theos* ('God') is derived both from the verb *theōrō* ('I see'), so that God is the one who sees all things in himself, and from the verb *theō* ('I run'), so that he is that which itself runs through all things. (I. 452B–C). The word *angelos* ('angel') is connected both with the preposition *engus* ('near'), meaning that angels are the creatures immediately after God, and with the verb

engigno ('I engender'), meaning that they are the creatures who transmit divine illuminations.[55] When Eriugena connects etymologies of different terms, the fusion of real and verbal completes its ascendancy over the separation of the two. Because *bonitas* ('goodness') comes from the verb *boō* ('I call'), while *boō* is synonymous with *kalō,* from which comes the adjective *kalos* ('beautiful'), the God who is both goodness and beauty can be understood as calling all created things from non-existence into existence.[56]

The writer's practice in connection with metaphor provides yet more evidence for his concept of polysemy.[57] For Eriugena, 'metaphor' *(metaphora/translatio)* represents the application to something of a name normally applied to something else (see I. 458C, 461C, 463B, 464D, 512B–D, 522A, etc.). This is a notion derived from such textbooks as the pseudo-Ciceronian *To Herennius,* although Eriugena does not specify the ground of this transference of names in the perceived similarity between the objects concerned.[58] 'Metonymy' *(metōnumia)* is defined as a more specific version of the above, involving the application to the contained of a name normally applied to the container (I. 480B. Cf. *To Herennius* IV. 32. 43). 'Synecdoche' *(sunekdochē)* is a more specific version of the above, involving the application to the part of a name normally applied to the whole, or else the application to the whole of a name normally applied to the part (II. 560A–B, III. 706B, IV. 744C. Cf. *To Herennius* IV. 33. 44). When Eriugena advocates such transferences of terms either between a created thing and God[59] or between one created thing and another, he remains within the traditional theory. When he treats these transferences as simultaneously metaphors, metonymies and synecdoches (I, 480B, III. 706B) he is perhaps metaphysically rationalizing certain imprecisions in that established teaching. But when he understands such transferences of terms not as unilateral between a literal and a figurative sense but as bilateral between two literal-figurative senses,[60] he passes beyond the traditional doctrine. In fact, the writer seems to have developed this notion of 'reciprocal metaphor' *(reciproca metaphora)* (III. 706A) against a twofold background. Within his theory of divine names, a given term e.g. 'goodness' can be applied to the creator but is normally applied to the creature while that same term can be applied to the creature but is ultimately grounded in the creator.[61] In connection with his theory of the Incarnation, a certain term e.g. 'air' can be applied to a higher element but is normally applied to a lower one, while another term e.g. 'light' can be applied to a lower element but is normally applied to a higher one. This example is particularly interesting since air and light are already metaphors of human and divine respectively.[62] Also in connection with his theory of the Incarnation, a certain term relating to salvation e.g. 'flesh' may be applied to the redeemed but is normally

applied to the fallen, while another term e.g. 'spirit' may be applied to the fallen but is normally applied to the redeemed.[63]

The understanding of metaphor emerging from such texts moves away from that implying comparison of two spheres of meaning, and associated with the classical tradition from Aristotle to Quintilian and beyond, towards that based on fusion of two spheres of meaning and advocated by Richards and other modern critics.[64] Such a viewpoint has one important consequence which Eriugena intuitively grasps: that the traditional distinction between the verbal and the real is becoming questionable. This is because the metaphorized and metaphorizing terms are no longer contrasted as verbal and real but as equally verbal-real. The same viewpoint has another consequence which he explicitly states: that the habitual distinction between 'figurative' and 'literal' language is almost unworkable (see III. 705Aff.).

It is because of this deliberate rather than accidental role of polysemy in his thought that we should be less ready than some have been to accuse Eriugena of philosophical confusion. For example, Marenbon finds serious fault in the handling of substance ([6.33] 65–70). He rightly notes that Eriugena's substance is primarily universal but, since he has confused two distinct types of universal: (a) classes of things where whatever distinguishes their members is present wholly in each one, and (b) universal qualities where whatever is characteristic of individuals is present to different degrees in each, concludes that this substance is a notion vitiated by ambivalence. However, it is also reasonable to see deliberate polysemy rather than unconscious confusion here.[65] Eriugena's 'substance' is simply a lexeme whose semantic properties enter into numerous configurations, forming a simple structure where it is opposed to non-substance (I. 461 A–464A)—the affirmative and negative theologies. It forms a more complex structure where the opposition of universal and particular is discovered within it and it is opposed to accident (I. 467D–468B, 470Dff.)—the Aristotelian categories. It forms the most complex structure where it is combined with form, opposed to quality in combination with form, metaphorically fused with 'dry land', and opposed to quality metaphorically fused with 'water' (III. 698Cff.), the exegesis of Genesis 1:9–10. Any structure may actualize semantic properties logically inconsistent with those of other structures. That inconsistencies are an ineradicable feature of natural languages and of all literature and philosophy derived from them is a fact which Eriugena perhaps saw more clearly than did most of his contemporaries and successors.

It had always been assumed by nineteenth-century historians of philosophy that Eriugena exercised little influence over later thinkers. Although various attempts have been made to counter this negative assessment in recent times,[66] the only hitherto undiscovered influences

to be brought to light have been those on the immediately subsequent generation. Thus, Eriugena's studies of the Latin Fathers are known to have influenced one set of Carolingian glosses on Augustine's *De Musica* (edited by Boeuff [6.45]) and his studies of Latin secular authors of various glosses of the same period on the pseudo-Augustinian *Ten Categories*.[67] These latter glosses have been extensively discussed in recent scholarship. From passages now published it is possible to see that various commentators had grasped the semiotic ramifications of Eriugena's work. Indeed, certain glosses recall the structural preoccupations of his thought in elaborating the notion of 'nature',[68] and others its polysemic tendency by applying ideas concerning homonymy, synonymy, and paronymy or etymological arguments to metaphysics.[69]

If Eriugena *had* exercised influence over later thinkers, it would undoubtedly have run counter to the norm of medieval intellectual development. In general, writers of this period went back directly to antique sources for their material, and during the tenth and eleventh centuries this meant primarily Boethius, whom Eriugena had only partially exploited.[70] For example, Notker Labeo makes extensive use of Boethius' translation of Aristode's *Categories* (see [6.63]), Abbo of Fleury of the Boethian monographs on logical division and on various kinds of syllogism (see [6.64]), Gerbert of Aurillac of Boethius' first commentary on Porphyry's *Isagoge*, etc. Gerbert is arguably the most important member of this group.[71] His treatise *De rationali et ratione uti (On 'rational' and 'to use reason')* is a discussion of logical problems surrounding the extension of the two predicates 'rational' and 'using reason' ([6.16] 1. 299) more interesting for the ideas arising *en route* to the solution than for the solution itself. Here, Gerbert reveals the structural preoccupation of a typical Platonist in establishing three 'semiotic' categories:[72] act without potency, act with potency, and potency without act, which are applied to hierarchies of physical and metaphysical principles,[73] yet a desire to reduce polysemy more characteristic of the re-emergent Aristotelianism ([6.16] 9. 304).

ANSELM OF CANTERBURY

The next major figure in the Western intellectual tradition and the dominant thinker of the late eleventh century is Anselm of Canterbury.[74] Marenbon arrives at an ambivalent judgement in his case, on one hand denying him the title of 'philosopher' because his argumentation does not arrive finally at its conclusions but assumes them from the outset, and on the other conceding it in recognition of his contributions to the study of the language—thought relation and of the logic of possibility

and necessity. Yet it is possible to reevaluate Anselm's philosophical contribution under the three headings proposed earlier: structure, text and polysemy (see p. 125).

Anselm exploits the notion of structure in developing a variant of the classical Platonic Theory of Forms during the early chapters of *Monologion* which combines ontological and 'semiotic' criteria. The ontological viewpoint is clearly indicated when he describes a set of transcendent i.e. atemporal and non-spatial principles, each of which is termed an 'exemplar' *(exemplum),* 'form' *(forma),* or 'rule' *(regula)* (*Monologion* 9, 24. 7–20). It is either present in the divine mind or an aspect of the divine essence,[75] and is somehow the cause of lower i.e. spatio-temporal things.[76] The semiotic viewpoint is adopted implicitly when Anselm introduces the set of transcendent principles with a discourse based on semantic permutation.[77]

In the first place, there is an argument in the abstract. This is founded on the following inventory of semantic elements: two terms—the plurality of things having property *x* (a_1,a_2…) and the single property *x* (b); two relations constitutive of terms—effect of another (R→) and effect of itself (R←); two terms constituted by relations—the plurality of things having property *x* through another (aa_1, aa_2…) and the single property *x* through itself (bb); and three relations—greater than (R>), less than (R<), and equal to (R=). The inventory is activated gradually as the argument proceeds through six stages:

1 There are things having property *x* [a_1, a_2…];
2 A thing having property *x* to greater, lesser, or equal degree than another thing having property *x* has this through the property *x* [$(a_1 \ R \gtreqless a_2) \ R\rightarrow b$];
3 The property *x* is itself *x* [b R←];
4 Things having property *x* are things having property *x* through another [a_1, a_2…R=aa_1, aa_2…];
5 The property *x* is the property *x* through itself [b R=bb];
6 The property *x* through itself is greater than things having property *x* through another [bb R> aa_1, aa_2…].

In the second place, the argument is applied to three concrete instances: where property *x* is identified with 'good' sensed or understood, 'great' sensed or understood, and 'existent' sensed or understood respectively.[78]

Important features of Anselm's philosophical method are revealed here. For example, it seems that there is less an alternation of premisses and conclusions—as in formal logic—than a permutation of semantic properties. In fact, the whole discourse can be understood in semantic terms with the exception of the idea (point 3 above) that the property *x* is itself *x*. This is purely ontological in character, since it makes no

sense to say that the semantic property *x* has the semantic property *x*.[79] Furthermore, it appears that the permutation of semantic properties follows a largely symmetrical pattern, the clearest indication of a writer's thinking in structural terms.

It would be inappropriate to seek the relation to textual authorities here which was apparent in Eriugena. The difference between the two philosophers seems extreme, given that Anselm's works—especially *Monologion* and *Proslogion*—are attempts to construct a discourse 'by reason alone' *(sola ratione)* without explicit dependence on sources.[80] Nevertheless, Anselm's relation to textual authorities is different from that of his predecessor rather than non-existent.

Although numerous Latin patristic sources are mentioned in the extant letters, the only authority cited in the treatises themselves is Augustine. But this citation is of overwhelming interpretative significance. In the preface to *Monologion,* the writer diverts potential criticism that he is advocating novel or false teachings by stressing the complete agreement between the doctrines of his book and those of Augustine's *On the Trinity* ([6.11] I:8. 8–14). Some modern scholars would interpret this as the typical statement of a medieval writer endeavouring to conceal the novelty of his thought behind a declaration of traditionalism. However, Anselm's remarks are more than a rhetorical commonplace. This becomes clear on analysing the *Monologion* into an assemblage of Augustinian materials reorganized according to the structural principles described above.

Anselm's relation to textual authorities is even indicated by the *Proslogion,* which cites no source at all. This treatise contains a famous passage where a premiss that God is 'something than which nothing greater can be thought' *(aliquid quo nihil maius cogitari possit)* is postulated as self-evident, the premiss then being used as the starting point for an argument allegedly proceeding by the application of reason alone to the conclusion that God exists ([6.11] I:101. 1–4, 104. 7). But even if one were to concede the premiss to be self-evident—a dubious point in itself—one could not consider it independent of textual background. In fact, the premiss corresponds to a definition of God found in Christian texts like Augustine's *On the Customs of the Catholic Church and those of the Manicheans* ([6.11] I:11. 24) and Boethius' *On the Consolation of Philosophy* ([6.11] I:10, 57–8), and in secular works like Cicero's *On the Nature of the Gods* ([6.11] I:77) and Seneca's *Natural Questions*[81] to name only the most obvious parallels. So Anselm's purpose was perhaps to recommend the faith to non-Christians by deducing it from a premiss stated by Christian and non-Christian authors alike.

Anselm obviously does not exploit the notion of multiple meanings in texts; indeed, the ideal of univocity would seem more consistent with his method. Nevertheless, some of his ideas about signification,

had they been extended in a different direction, would have supported the exploitation of polysemy.

One suggestive idea is the distinction between appellation and signification elaborated in the treatise *De grammatico*. Here, he argues that in statements like 'the horse is white', the adjective is 'appellative' *(appellativum)* of the white thing but 'significative' *(significativum)* of its possession of the property ([6.11] I:159. 12–15, 161. 21). Since he stresses that what is appellated is an existent object but what is signified is not, the distinction seems to approximate that between reference and sense in modern linguistic theory.[82] However, any Platonist would maintain that in the statement 'the horse is *x*', the *x* signifies a transcendentally existent *x*-ness in which Socrates participates. This is the viewpoint which also seems to underlie the argument about divine attributes in *Monologion* 1–4.[83]

Another aspect of Anselm's theory of signification conducive to the systematic exploitation of polysemy is his notion of a 'speaking' *(locutio)* within the divine nature. By explaining that the exemplar in the divine mind according to which all things are created is a speaking (see p. 133), he follows traditional patristic teachings regarding the Word as second person of the Trinity.[84] However, the use of the term 'speaking' also requires a rational justification. Anselm therefore proposes to distinguish three ways of speaking about an object:[85]

1 Speaking of things by employing sensible signs in a sensible manner e.g. signifying a man by using the word 'man'—such signs being unmotivated and non-universal;[86]
2 Thinking by employing sensible and external signs in an insensible and internal manner e.g. silently thinking the word 'man'—these signs also being unmotivated and non-universal;
3 Speaking things themselves by employing sensible signs in neither a sensible nor an insensible manner e.g. perceiving a man either by imagining his sensible shape or by thinking his universal essence 'animal, rational, mortal'—such signs being motivated and universal.[87]

It is the third type of speaking which can be attributed to the divine mind.[88] The exemplar in the latter, according to which all things are created, can therefore be described as a thinking process coextensive with rather than anterior to the manipulation of signs.[89] With this argument, Anselm points towards that elimination of the distinction between cognitive and verbal characteristic of post-Saussurian linguistic theory albeit from a restricted theological perspective (cf. pp. 128–9).

Another suggestive idea is the application of metaphor to philosophical method underlying the entire *Monologion*. Towards the end of that text Anselm raises an important question: given that the divine nature

surpasses human understanding and is accessible only through words whose meaning is transformed, how true are all the inferences constructed from such words in respect of the divinity?[90] He answers that there is a certain truth in things signified 'not properly but through some likeness' *(non proprie…sed per aliquam similitudinem)*. The passage should be noted by those modern scholars who agonize over the cogency of Anselm's arguments about God, since he shows clearly that the 'logic' which they contain is intended to be not the embodiment but only the reflection of truth.[91] Apparently, logical metaphor is to logic in the *Monologion* what arithmetical metaphor was to arithmetic in Eriugena's exposition of the divine names.

NOTES

1 See Leonardi, 'Glosse eriugeniane a Marziano Capella in un codice leidense', in Roques [6.57].
2 For Eriugena and Greek Neoplatonism, see esp. Beierwaltes [6.44] and Gersh [6.49]. Dermot Moran [6.54] explores the connections with German Idealism; cf. also W.Beierwaltes, 'Zur Wirkungsgeschichte Eriugenas im deutschen Idealismus. Ein kurze, unsystematische Nachlese', in [6.44] 313–20. Accounts more directed to the historical context will be found in Jeauneau [6.51], Marenbon [5–75] and Schrimpf [6.59].
3 On Anselm's knowledge of logic, see Henry [6.69] and his editions of *De grammatico* [6.14 and 6.15].
4 See Bibliography [6.75–6.82] for some modern treatments of the ontological proof.
5 On *De grammatico,* see the works by Henry listed in n. 3 above; on Anselm's theory of modality and philosophy of action, see Serene [6.73].
6 In addition, Marenbon stresses the relation between logic and language in general explored by Fredegisus (p. 51), Gottschalk (pp. 55, 105), ninth-century writers at St Gall (p. 105), the anonymous eleventh-century glossator of Priscian (p. 106ff), etc.
7 The most useful books providing a general introduction to Eriugena's life and works are Cappuyns [6.24] and Moran [6.54]. See O'Meara and Bieler [6.55], Allard [6.38], Beierwaltes [6.42] and [6.43], Jeauneau [6.51], for essays on specific aspects of his thought.
8 This is true not only of the original 'structuralists' but also of the semioticians and even the deconstructionists who have followed them.
9 On these criteria see Lévi-Strauss, C., *Structural Anthropology,* English trans., New York, 1964, pp. 279–80 and Greimas, A.J., *Structural Semantics,* English trans., Lincoln, Neb. 1983, pp. 18ff.
10 See Saussure, F. de *Course in General Linguistics,* English trans., New York, 1959, pp. 114–15.
11 This theory is conveniently summarized by Barthes, R., *Elements of Semiology,* English trans., London, 1984, pp. 135ff.

12 See Hjelmslev, L., *Prolegomena to a Theory of Language,* English trans., Madison, Wis., 1961, p. 23.

13 Eriugena, *Periphyseon* I. 466A–467C. References to Eriugena's work give the column numbers of Floss's edition [6.1] which are reproduced in the modern editions and translations and so provide a standard form of reference. Because of his interpretation of pseudo-Augustine: *The Ten Categories,* Eriugena allows the separate Aristotelian categories of relation and condition to coalesce. On Eriugena's theory see Flasch [6.48].

14 In discussing both Eriugena's and Anselm's notions of structure, I shall distinguish 'ontological' and 'semiotic' components. By the former is meant any aspects of the metaphysical system stated in the texts, by the latter those aspects corresponding to elements in the notion of structure described earlier. Of course, neither Eriugena nor Anselm could have made such a distinction.

15 II. 529A–C. Elsewhere, Eriugena calls these 'primordial causes' *(causae primordiales)*. See III. 622Bff.

16 II. 616B. 'And they are said to be the principles of all things since all things whatsoever that are sensed or understood either in the visible or invisible creation subsist by participation in them, while they themselves are participations in the one cause of all things: that is, the most high and holy Trinity'. Cf. III. 630A–C, III. 644A–B, III. 646B–C, III. 682B–C.

17 II. 546A–B. 'But on considering the interpretations of many exegetes, nothing strikes me as more probable or likely than that in the aforesaid words of Holy Scripture—that is, within the meaning of "heaven" and "earth"—we should understand the primordial causes of the entire creature which the Father had created before the foundation of all other things in his only begotten Son who is designated by the term "beginning", and that by the word "heaven" we should hold the primal causes of intelligible things and celestial essences to have been signified, but by the word "earth" those of the sensible things in which the entire corporeal world is completed'.

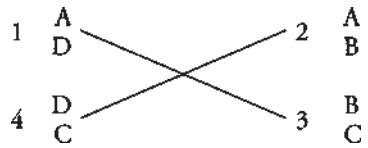
18 See note 14. That Eriugena was aware of the linguistic even if not semiotic starting point of his analysis is suggested by his reference to nature as a 'generic term' *(general nomen)* rather than as a generic entity. See Cristiani, M., 'Nature-essence et nature-langage. Notes sur l'emploi du terme "natura" dans le "Periphyseon" de Jean Erigène', *Miscellanea Mediaevalia* 13/2: *Sprache und Erkenntnis im Mittelalter,* Berlin and New York, 1981, pp. 707–17.

19 The square of opposition was a classificatory schema applied by Greek writers of late antiquity to (a) substance and accident and (b) the numbers 1–10. Thus, in (a) four terms: of a subject (A), not in a subject (D), in a subject (B), not of a subject (C) are grouped into four combined terms: of a subject but not in a subject (1), both in a subject and of a subject (2), in a subject but not of a subject (3), neither of a subject nor in a subject (4) where 1=universal substance, 2=universal accident, 3=particular accident, 4=particular substance. See Porphyry, *On the Categories* 78, 25ff. In (b) four terms: generating (A), not generated (D), generated (B), not generating (C) are grouped into four combined terms: generating but not generated (1), both generated and generating (2), generated but not generating (3), neither generating nor generated (4) where 1 =the numbers one, two, three, and five, 2=the number four, 3=the numbers six, eight, and nine, 4=the number seven. See Theo of Smyrna, *Exposition of Mathematical Matters* 103. 1–16. Such schemata

were repeated in Latin texts and thereby transmitted to Eriugena and others: see Marius Victorinus, *To Candidus* 8. 1–21, Macrobius' commentary on Cicero's *Dream of Scipio* I. 5. 16, Martianus Capella, *On the Marriage of Mercury and Philology* VII. 738, Boethius, *Commentary on Aristotle's Categories* I. 169Bff. The square of opposition in antiquity has been discussed by Hadot [6.31] 148ff., Libera, A. de, 'La sémiotique d'Aristote', in *Structures élémentaires de la signification,* ed. F.Nef, Brussels, 1976, pp. 28–55. The square of opposition in Eriugena has been examined most recently by Onofrio [6.56] and Beierwaltes [6.43] 17–38. An analogous schema applied to propositions was also traditional and certainly known to Eriugena; see Martianus Capella, *On the Marriage of Mercury and Philology* IV. 400–1.

20 See Martianus Capella, *On the Marriage of Mercury and Philology* IV. 352–4.

21 I. 441A–442B. Eriugena himself seems to envisage a diagram in the form:



The notation A, B…1, 2…is not provided by Eriugena.

22 I. 442A–B, II. 525A, II. 526C–527A, II. 527C. The fourfold schema is repeated later in *Periphyseon* but with no additions to the basic doctrine. Cf. III. 688C–689A, IV. 743B–C, V. 1019A–B.

23 See Eriugena, *Homily on the Prologue to John* [6.9] 14, 291B–C. The analogy between the cosmos and a book was derived from Maximus the Confessor, *Ambigua* 1245A–1248A. See Duclow [6.47] 131–40.

24 Eriugena is here elevating a standard Carolingian literary practice—illustrated by Alcuin, Hrabanus Maurus, Ratramnus of Corbie, etc.—to a more philosophical level.

25 For example, see Kristeva, J., *Sēmeiōtikē. Recherches pour une sémanalyse,* Paris, 1969, pp. 143ff., 181–2, etc.

26 A complete inventory can be found in Madec [6.53].

27 I. 509B–510B, II. 617A–620A. Cf. Eriugena, *Commentary on pseudo-Dionysius' Celestial Hierarchy,* passim.

28 For the Augustinian citations see Madec [6.53]. These are peculiar in being (a) extremely frequent, (b) generally brief, and (c) somewhat oblique.

29 I. 463Aff. This text is paraphrased rather than quoted. Eriugena associates the material with 'Aristotle', and tends not to quote secular authors verbatim.

30 III. 716B–719A. Paraphrase only.

31 III. 654A–655C. Paraphrase only. For Eriugena, naturally, Boethius ranks among the Christian authors. However, his *On Arithmetic*—the only text cited in *Periphyseon*—is thoroughly secular in character.

32 On connotation and denotation in Eriugena see below.

33 The hierarchy is as follows: Greek Christian writers are preferred to Latin Christian writers, and Christian writers to pagan writers.

34 I. 476C–477B. 'Plato' may be considered a Latin author, since Eriugena knew only Calcidius' Latin translation of the *Timaeus*.
35 I. 458Aff. 'Aristotle' may be treated as a Latin author, since Eriugena relied entirely on Aristotelian testimonia in pseudo-Augustine and others.
36 I. 446A–451C. A 'theophany' is an appearance of God. Eriugena held that God is *never* cognized directly, but only in theophanies.
37 I. 486B–D, II. 567Aff. Cf. II. 602D–603C, 610B–611A. It is highly significant that the references to the Greek Fathers are made by the 'Teacher' and those to the Latin Fathers by the 'Student' in the *Periphyseon*'s dialogue.
38 For example, see Barthes, R., *SZ,* English trans., New York, 1974, pp. 1–16.
39 For example, see Derrida, J. *Margins of Philosophy,* English trans., Brighton, 1982, pp. 209ff.
40 I shall follow the predominant usage of modern semantic theory where the 'denotation' of a term is a primary meaning, the 'connotation' a secondary one. In realist semantics, where denotation can be associated with a term's 'reference' to an object and connotation with its 'sense'—using Frege's nomenclature—the distinction between denotation and connotation is easy to maintain; but in strict nominalism where denotation cannot be associated with a term's 'reference' to an object, the distinction between denotation and connotation becomes problematic.
41 Given that early medieval theologians assume (a) that a spiritual meaning resides behind the literal meaning of biblical texts and (b) that the spiritual meaning is the ultimate truth underlying the derivative truth of the literal meaning, they share one important assumption with the realist semantic theory discussed above: that there is an ontologically grounded primary meaning. On the relation between medieval exegesis and polysemy see Eco, U., *Semiotics and the Philosophy of Language,* London, 1984, pp. 147–53.
42 See Eco, *Semiotics,* pp. 153ff.
43 Eriugena's contribution to the understanding of this question—and therefore to medieval semantic theory in general—has not been studied to date. However, there are some useful comments in Beierwaltes [6.41],
44 Eriugena, *Commentary on Martianus Capella* [6.2] pr. 3, 16–22. 'Wishing to write about the seven liberal arts, he invented a certain story about the marriage of Philology and Mercury. And this was not without the display of a most subtle intelligence, for Philology represents the love of reason and Mercury the eloquence of speech. If these have come together as though by a certain marriage in the souls of those pursuing the study of wisdom, it is possible to arrive without any difficulty at knowledge and possession of the liberal arts.'
45 The impact of the polysemous tendency initiated by Martianus Capella on medieval writers has gone largely unnoticed. Thus Kristeva, *Sēmeiōtikē,* pp. 168–9, contrasts a 'Menippean' polysemy with the theocentric monosemy of the medievals. Yet *On the Marriage of Mercury and Philology* is one example of ancient Menippean satire which became standard reading in medieval schools.
46 I. 454B 'For our intellect, too, before it enters into thought and memory is not unreasonably said not to be. It is invisible in itself and known to nobody besides God and ourselves. But when it has entered into thoughts and acquires form in certain phantasies, it is not undeservedly said to come into being. For it comes to be in the memory when it acquires certain forms of things, sounds, colours, and

other sensibles, having had no form before it entered into memory. Then it receives a kind of second formation when it is formed in certain signs of forms or sounds—I mean letters which are signs of sounds and figures which are signs of mathematical forms—or in other sensible indicators by which it can be introduced into the senses of those who are sentient.'

47 II. 572C–573B 'There are three universal motions of soul of which the first is according to mind, the second according to reason, and the third according to sense. The first is simple, above the nature of the soul itself, and devoid of interpretation: that is, knowledge of that around which it moves. "Through it, the soul moves around the unknown God but, because of his excellence, in no way has knowledge of him derived from anything which exists" as to what he is—that is, it cannot find him in any essence or substance or in anything which can be said or understood, for he surpasses everything which is or is not and cannot be defined in any manner as to what he is. The second motion is that by which the soul "defines the unknown God as being the cause" of all things. For it defines God to be cause of all things, this motion being within the nature of soul. It is that "through which the soul moved naturally imposes on itself through the activity of knowledge all the natural reasons formative of all things which subsist as having been eternally made in him who is known only causally"—for he is known because he is cause: that is, it expresses them in itself through its knowledge of them, this knowledge itself being born in the second motion from the first. The third motion is "the composite one through which the soul comes into contact with eternal things and reforms the reasons of the visible in itself as though through certain signs." It is described as composite not because it is not simple in itself as the first and second motions are simple but because it begins to know the reasons of sensible things not through themselves.' In this passage, a good example of Eriugena's intertextual method, the words of Maximus appear between quotation marks.

48 The Trinitarian analogy will be more explicit in Anselm of Canterbury's development of the same theme. See p. 135.

49 Aristotle, *On Interpretation* 1, 16a1ff. See Kretzmann, N. 'Aristotle on spoken sound significant by convention', in J.Corcoran (ed.) *Ancient Logic and its Modern Interpretations,* Dordrecht, 1974, pp. 3–21; Lieb, H. 'Das "semiotische Dreieck" bei Ogden und Richards. Eine Neuformulierung des Zeichenmodells von Aristoteles', in H.Geckeler (ed.) *Logos Semantikos,* Berlin, 1981, pp. 137–56; and Weidemann, H. 'Ansätze zu einer semantischen Theorie bei Aristoteles', *Zeitschrift for Semiotik* 4 (1982): 241–57.

50 This influence is documented in standard works on the history of medieval semantics. See especially, Kretzmann, N., 'Semantics, History of, in P.Edwards (ed.) *The Encyclopedia of Philosophy,* vol. 7, New York, 1967, pp. 362–3, 365ff.; Pinborg [6.36] 29ff. and Eco [6.29].

51 See Saussure, *Course in General Linguistics,* pp. 65–70, 111ff. The same fusion occurs in the semiotic theory of Peirce. See Peirce, C.S., *Collected Papers,* vol. 5, ed. C.Hartshorne and P.Weiss, Cambridge, Mass., 1931–58, p. 314, etc.

52 See Klinck [6.32] for the medieval tradition in general.

53 V. 867A–B. These etymologies are all based on the Greek. However, Eriugena also explores Graeco-Latin etymologies at III. 697A *(ouranos/caelum),* V. 954D–955A *(aidēs/infernus)*. An etymology based on the Latin occurs at I. 494D–495A.

54 This situation is naturally conducive to polysemy. Fusion of real and verbal parallels and complements the fusion of cognitive and verbal described on p. 128.

55 III. 668C–D. Cf. *Commentary on 'Celestial Hierarchy'* 4. 314–25.

56 II 580C–581A. The passage is particularly interesting when combined with III. 624A–625A. Since this states that the order of the divine names is—according to Eriugena's philosophical idealism—partially dependent on the human mind's perception, the etymological activity of II. 580Cff. must be not only the discovery but also the positing of 'reality' itself. There is another complex etymology at V. 1003B–D.

57 The precise nature of metaphor is a matter of controversy. However, it clearly represents a specific application of the concept of polysemy where the primary meaning of a metaphorized term is the secondary meaning of the metaphorizing term and vice versa.

58 See *To Herennius* IV. 34. 45, Quintilian, *Institutes of Oratory* VIII. 6. 4ff., Martianus Capella, *On the Marriage* IV. 359–60, Isidore of Seville, *Etymologies* I. 37. 5, etc.

59 See I. 458C, I. 461C, I. 463B, etc. This application of metaphor is discussed by Beierwaltes, W., 'Negati affirmatio. Welt als Metapher. Zur Grundlegung einer mittelalterlichen Ästhetik durch Johannes Scotus Eriugena', *Philosophisches Jahrbuch* 83 (1976):237–65.

60 Traditionally, synecdoche occurs in two forms—transference from whole to part and transference from part to whole—and is therefore already bilateral. See *To Herennius* IV. 33. 44.

61 I. 459C. 'But since the divine significations which are predicated of God by transference from the creature to the creator in Holy Scripture—if indeed it is rightly said that anything can be predicated of him (which we should consider elsewhere)—are innumerable and cannot be discovered or collected together in the smallness of our reasoning, only a few such divine names should be set down by way of illustration'; I. 461C. 'For the statement "It is Truth" does not affirm that the divine nature is Truth in a proper sense but that it can be called by such a name in a metaphor from the creature to the creator. It clothes the divine essence which is naked and devoid of all proper signification with such words'; I. 463B–C. 'But as we have said above, just as almost all things which are properly predicated of the nature of created things can be said metaphorically of the creator of things in order to signify, so also the significations of the categories which are discerned properly in created things can be uttered not absurdly concerning the cause of all—not to signify properly what it is but to suggest in a transferred mode what we should reasonably think about it when investigating it in some fashion'; I. 480B. 'So if all things which are are rightly predicated of God not properly but by a kind of transference since they derive from him, why is it surprising that all things which are in place—since they seem to be enclosed everywhere by greater things—can be called places although none of them is properly a place but is contained within what is place in its proper nature?' Cf. III. 624A–625A.

62 I. 480B–C. 'We see that those things which are contained are named after the things which contain them through metonymy—that is, transferred naming—although they are not so contained by them that they are unable to subsist in their natural limits without them. It is the common practice of mortals to call the wife

or the family a "house" although these things are naturally distinct. For it is not the house which confers substantial existence on the wife or the family but the place of their own nature. Yet because they possess that existence in the house they are accustomed to be named after it. Likewise the things which contain are named after the things which are contained. For example: air contains light, and so air which is illuminated is called "light"; the eye is called "sight" or "vision" although according to its proper nature it is neither sight nor vision'. Cf. I. 450A–B, I. 515B–C, V. 876A–B, V. 1021B.

63 III. 706A–B. 'Not unreasonably, given that it is the most common practice of Holy Scripture to signify the natural subsistences and reasons of invisible things with words signifying visible things, in order to train pious philosophers. And this is not surprising, since the same practice has the very frequent custom of suggesting corporeal and sensible things with the names of spiritual and invisible things. Since there are many and innumerable examples of this reciprocal metaphoricity and they are very well known to all those trained in Holy Scripture, it would appear to be a lengthy and superfluous task to amass them in the present discussion. However, let us use a few illustrations: "That which is born of flesh is flesh"—here the entire man born in original sin is called by the name "flesh"—"And that which is born of the spirit is spirit"—the entire man reborn through regeneration in Christ is expressed by the term "spirit". And if somebody says that it is not the entire man but only the flesh of a man that is born of flesh, I shall reply that it is therefore not the entire man but only the soul that is born of spirit and if so it follows that there is no grace to benefit the baptized bodies. But if the entire man, namely soul and body, is reborn in Christ and becomes spirit, then necessarily the entire man is born of flesh in Adam and is flesh, from which it is concluded that the flesh is called spirit and the spirit flesh. The Word of God is called flesh and flesh the Word, and there are similar cases where both synecdoche and metaphor are understood simultaneously.'

64 See Richards, I.A., *The Philosophy of Rhetoric,* New York, 1936, pp. 89ff. The distinction between 'comparison' and 'fusion' theories of metaphor owes something to Black, M., *Models and Metaphors,* Ithaca, NY, 1962, pp. 25ff., who sets out a complete typology consisting of substitutive, comparative, and inter-active approaches.

65 The problems associated with polysemy were formally discussed in pseudo-Augustine, *Ten Categories* 9. 135, 13ff., a text with which Eriugena was particularly familiar. Cf. Martianus Capella, *On the Marriage* IV. 355–7.

66 The volume of essays, Beierwaltes [6.42], setting out to prove that Eriugena exercised significant influence over later medieval thinkers, has not achieved the desired result. In fact, the following conclusions now seem to have been established: (1) Eriugena's influence was considerable for one or two generations after his time (the evidence: Heiric of Auxerre, Remigius of Auxerre, and other glossators); (2) In the eleventh century there are only a few traces of his influence, e.g. in Hrotsvitha of Gandersheim; (3) Eriugena's influence becomes more noticeable from the beginning of the twelfth century but only in certain respects: (a) His ideas influence many in a negative sense (the evidence: copies of Eriugenian MSS, polemic against him), (b) He is influential as translator of pseudo-Dionysius, (c) His ideas influence a few in a positive sense (the evidence: Honorius Augustodunensis, 'Marius', *On the Elements*). See also Lucentini [6.52].

67 Edited by Marenbon [5.84] 173ff. Eriugena also influenced the gloss tradition on Martianus Capella in a manner now difficult to describe precisely; see Schrimpf [6.58].
68 Gloss I in Marenbon's edition.
69 Gloss IIIb in Marenbon's edition.
70 On the Boethian logical tradition in the Middle Ages see van de Vyver [6.37] and Minio-Paluello [6.34].
71 On Gerbert's work in general see the collection *Gerberto, Scienza, Storia e Mito* [6.61]. This includes papers by Riché [6.62]—stressing the important of Boethius—and Frova [6.60].
72 On the term 'semiotic' see note 14.
73 Gerbert, [6.16] 6, pp. 301ff. Gerbert here systematizes material in Aristotle, *On Interpretation* 13. 23a 21–5.
74 The most useful book providing a general introduction to Anselm's life and works is Hopkins [6.22]. Among other modern studies, Kohlenberger [6.70] and Evans, G.R., *Anselm and Talking about God,* Oxford, 1978 should be mentioned.
75 The first interpretation predominates at 9, 24. 7 to 10, 25. 27, the second at 1, 13. 1 to 4, 18. 3. Both are perfectly standard in the Augustinian tradition which Anselm represents.
76 The type of causality (efficient) is discussed at 6, 18. 18 to 7. 22, 10.
77 The semiotic always implies the semantic even though the reverse is not the case.
78 [6.11] I: 14. 5ff. 'It is therefore easy for someone to say to himself silently: Since the goods are so numerous whose great diversity we both perceive through the bodily senses and discern by the reason of the mind, should we believe that there is one thing through which alone whatever things are good are good or are things which are good good through one another? But it is absolutely certain and clear to all those willing to pay attention that whatever things are called something in such a way as to be called this in greater or lesser or equal degree in respect of one another, are called this through something which is understood not differently in different things but the same in each case, whether it be considered as equally or unequally present in them… Therefore, since it is certain that all good things, if compared to one another, are either equally or unequally good, it is necessary that all good things are good through something which is understood as the same in different things, although sometimes good things seem to be called good through one another… But who would doubt that that through which all good things are good is a great good? So it is good through itself, since every good is good through it. Therefore it follows that all other goods are good through something other than that which they are themselves, and that only this other is good through itself. But no good which is good through another is equal to or greater than that good which is good through itself. So that alone is supremely good which is only good through itself, for that is supreme which so excels others that it has neither an equal nor a superior.'
79 This is one feature reinforcing the picture of Anselm as a Platonic realist. That he was moving away from this position was argued by Schmitt [6.72]. However, the only evidence for such an interpretation is an apparently non-realist handling of abstract terms to be discussed on p. 135. Anselm's position as a Platonic realist is examined by Flasch [6.67] and Adams [6.65].

80 In Anselm's writing, the term *ratio* itself has a multiplicity of connotations given by the earlier textual tradition: ontological, theological, epistemological, psychological and logical. See Gersh [6.68].

81 [6.11] I, pr. 13 On the textual background to Anselm's argument see Audet [6.66] and Nothdurft [6.35].

82 The modern discussion seems to have begun with Frege about 1892. See Frege, G., 'On sense and reference', pp. 118–40 and Russell, B., 'On denoting', pp. 143–58, both in F.Zabeeh (ed.) *Readings in Semantics,* Urbana, Ill., 1974.

83 Cf. note 79. To the question whether Anselm saw any inconsistency between these two positions the answer is uncertain. However, since he probably viewed the signifieds of *De grammatico* but apparently not the transcendent properties of *Monologion* as universals in the logical sense, the philosophical problems raised by the two treatises were more easily separated for him than they are for his modern reader. The issue of universality is first raised at *Monologion* 27, [6.11] I. 45. 1–22.

84 See Augustine, *On the Trinity* X. 1ff., XV. 10–16. On the history of this theory see Colish [6.28] 50–1, 99.

85 The threefold division in this text: sensible signs+sensible manner, sensible signs+insensible manner, sensible signs+neither sensible nor insensible manner, juxtaposes semiotic categories in a manner recalling Eriugena. See n. 19.

86 Anselm does not himself employ the terms 'unmotivated' and 'non-universal' here. However, he clearly views the first type of sign as defined negatively with respect to the third type. The latter will be specified as motivated and universal.

87 Anselm says that the third type of sign is 'natural' *(naturalis)* apparently meaning that it is motivated. In modern linguistic theory, a motivated sign is one whose signifier and signified are related analogically. See Barthes, *SZ* pp. 114ff.

88 *Monologion* 10 [6.11] 1:24. 29ff. 'It is noted in common usage that we can speak of a single thing in three ways. We speak of things either by using sensible signs—that is, signs which can be perceived by bodily senses—in a sensible manner; or by thinking the same signs which are sensible externally in an insensible manner within ourselves; or by neither using these signs in a sensible nor an insensible manner but by speaking of the things themselves inwardly in our mind through imagination of the bodily or through a rational understanding in place of the diversity of things themselves. For I speak of the man in one way when I signify him with the name "man", in another when I think the same name silently, and in another when my mind contemplates that same man either through an image of the bodily or through reason. It is through an image of the bodily when the mind imagines his sensible shape, but it is through reason when it thinks his universal essence which is "animal, rational, mortal". Of these three ways of speaking each consists of its own kind of words. However, the words of that speech which I have posited as third and last—when they are of things which are not unknown—are natural and the same among all races.' In this passage, Anselm develops the theory which he found in Aristotle's *On Interpretation;* see p. 129.

89 Anselm states unambiguously that even the third type of speaking constitutes sign-manipulation of a sort.

90 *Monologiom* 65 [6.11] I:75. 17–65, 77. 3. The reference to transformation of meaning indicates metaphoricity.

91 It is possible to treat the statement at *Proslogion* 15 [6.11] I:112. 12–17 that God is 'something greater than can be thought' *(quiddam maius quam cogitari possit)* as a correction of the famous premiss of *Proslogion* 2 [6.11] I:101. 4–5. If so, Anselm is pointing out that the ontological argument is in the final analysis only an image of the truth.

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CHAPTER 7

The twelfth century

John Marenbon

INTRODUCTION

The twelfth century began and ended with events which mark it off, at least symbolically, as a discrete period in the history of Western philosophy. It was in about 1100 that Abelard—the most wide-ranging and profound philosopher of the period—arrived in Paris to study, and very soon to teach, logic. The competing, quarrelling, disorganized schools of Paris, whose growth Abelard did so much to stimulate, would be the setting for much of what was liveliest and most sophisticated in twelfth-century philosophy. It was in the year 1200 that Philip Augustus issued the privilege to the schools of Paris which, symbolically at least, marks the beginning of Paris University. The schools would henceforth become a more homogeneous and tightly-regulated organization, imposing a rigid framework on thirteenth- and fourteenth-century scholastic thought. Works newly translated from the Greek and Arabic gradually entered the curriculum and the work of almost all the twelfth-century philosophers was rapidly forgotten.

Modern historians of philosophy have set out to repair this neglect. But (at least until very recently) they have characterized the period in two main ways, each of which leaves in question whether twelfth-century philosophy itself contains much worth studying. The first way has been to see the time as one of beginnings. Between 1100 and 1200, it is said, the ground was prepared for the great flourishing of scholasticism in the mid- and late thirteenth century. Such a description might well suggest that the twelfth century, fascinating as it may be for the intellectual historian who wishes to see how, and against what background, ideas develop, produced little of independent philosophical interest.

The second way of characterizing the twelfth century has been in

terms of its 'humanism' (and, closely linked to this, as a time of 'renaissance'). The period is presented as one of revived activity in all branches of learning, closely connected with a respect for the classical past and a wish to rediscover its literature in all its various branches, poetic, scientific, legal and philosophical. The achievements of the thirteenth century are presented as being narrower: its sophistication in logic, philosophy and theology must be balanced against the aridity of the scholastics' style, their rejection of the variety and complexity in form found in twelfth-century writing, their apparent contempt for poetry and fine latinity. Such a contrast can easily be turned against the thinkers of the twelfth century by the modern reader of philosophy. They are suspected of being dilettantes; their writings, full of interest to the literary historian, are thought to lack the precision and single-mindedness necessary for good philosophy.[1]

There is some truth in the rationale behind each approach. Twelfth-century scholars did, indeed, elaborate the logical and theological techniques which served the philosophers of the thirteenth- and fourteenth-century universities. Many were attentive to the literary form of their writings and enthusiasts of ancient literature as well as ancient philosophy. And even the sharpest-minded of them, such as Abelard, can be clumsy or imprecise in their technical vocabulary and sometimes inattentive to the complexity of the issues they are treating; whilst some well-known thinkers of the time, especially those most influenced by Platonism, are more inclined to system building than to detailed argument and analysis. Yet there is a substantial body of twelfth-century thought sufficiently rigorous to require careful philosophical analysis and certainly interesting and unusual enough to deserve attention in its own right, rather than just as the forerunner of something else. Much of it is linked to the most striking feature of intellectual life in the period: the importance of the 'trivium': the three language-based disciplines of grammar, rhetoric and, most prominently, logic. (Indeed, the humanistic interest in ancient literature and in rhetoric was part of a general enthusiasm for the verbal arts, among which logic was dominant.)

This chapter must be selective. More than half of it is devoted to the outstanding philosophers of the time: Peter Abelard and his near-contemporary, Gilbert of Poitiers. The section following this one looks more briefly at four important masters working at the turn of the century. A later section sketches the Platonic current in twelfth-century thought, looking especially at the work of William of Conches and Thierry of Chartres. The concluding sections provide a quick introduction to the logical schools and theological methods of the period from 1150 to 1200, a time still far less well investigated than the previous half century.

FOUR MASTERS AT THE BEGINNING OF THE CENTURY

Four masters, already established by 1100 or shortly afterwards, indicate the most important directions philosophy would take in the century which followed. Three of them, Garlandus of Besançon, Roscelin of Compiègne and William of Champeaux, were logicians, although Roscelin also put forward controversial views on the Trinity and William would write on moral and theological topics, such as natural law, sin and free will. Bernard of Chartres, however, was a grammarian, interested both in grammatical theory and in careful reading of ancient pagan philosophical texts, in particular Plato's *Timaeus*.

The tradition of medieval logic was well established by the late eleventh century. Like other branches of study in the Middle Ages, it was based on ancient texts. Six were in common use by 1100: Aristotle's *Categories* and *On Interpretation,* Porphyry's *Isagoge* (all in Boethius' translations, and approached using Boethius' commentaries) and Boethius' own *On Division,* treatises on categorical and hypothetical syllogisms and *On Topical 'differentiae'*. Taken together, these works provided an introduction to constructing and analysing arguments. The *Isagoge* and the *Categories* could be read as guides to the various sorts of term which can appear as subject or predicate in a statement. *On Interpretation* explained how terms are combined to make statements, and how statements are related to each other as, for instance, contraries ('All men are bald'—'No man is bald') or contradictories ('All men are bald'—'Some man is not bald'). Students could then learn from Boethius' own textbooks how to construct syllogistic arguments, either using atomic statements as premisses so as to form categorical syllogisms or molecular statements as premisses to form hypothetical syllogisms, and they could study arguments based on 'topics', commonly accepted maxims of reasoning.[2] These texts, especially the two by Aristotle, also contain far more than such an introduction. The *Categories* can be read as the concise statement of an ontology, whilst the *On Interpretation* raises problems about the nature of truth and meaning, about perception and knowledge, and about modality and free will. Sporadic evidence—occasional glosses, and passages in Peter Damian and Anselm of Canterbury—suggests that eleventh-century scholars were already aware of some wider implications of the logical texts. But the main emphasis at this stage seems to have been on mastering the basic skills of logic through careful study of the texts. If more digressive discussion was wanted, the earliest commentators were happy to turn to Boethius and copy passages of his commentaries verbatim.[3]

Garlandus of Besançon is known for his *Dialectica,* a comprehensive textbook on logic which was probably written at the turn of the twelfth

century. Some scholars have described Garlandus as an early nominalist: an exponent of the view that nothing exists which is not a particular. But it is more accurate to see him as following a particular interpretative method in his approach to the *Isagoge* and the *Categories*. In common with a number of other scholars of the time (including the young Abelard), Garlandus read these texts *in voce* rather than *in re:* as talking not about things but about words.[4] For instance, when Porphyry writes about genera or about accidents, Garlandus takes his remarks as concerning words such as 'animal' and 'whiteness'. Roscelin's views can be surmised only from allusions (usually hostile) by other writers. The most famous of these is Anselm of Canterbury's comment that, according to Roscelin, universals are merely the puffs of air made when we speak. This might be just a jibe which draws out the consequences of *in voce* exegesis. But some scholars—especially Jean Jolivet—have given a more ambitious reconstruction of Roscelin's thinking, using other evidence too. Roscelin, they say, focused on the reference a word has to an individual, whole object in the world. In the case of the words 'genus' and 'species', he would have argued that there is no individual object in the world to which they refer, so their reference is just to other words (such as 'animal', 'man')—and, considered as things, words are just puffs of air. Whether Roscelin ever propounded this view coherently, and if so when (he was still alive in the early 1120s), is uncertain.[5]

The earliest *definite* signs of a serious interest in the semantic and metaphysical problems about universals comes from those logicians who adopted a realist view. William of Champeaux, who taught at the school of Notre Dame in Paris, was one of their leaders. For modern philosophers, the problem of universals concerns properties and relations. But William and his contemporaries approached the question mainly in the context of a remark in Porphyry's *Isagoge* about species and genera, that is to say, universal substances. They had then to consider primarily the semantics not of sentences such as 'Socrates is white', but of those such as 'Socrates is a man'. A simple view, derived from Boethius, held that there is a universal essence shared by all men, who are then individuated by their accidental attributes (being six foot tall, sitting just here at six o'clock). William was forced to abandon this theory ('material/essential essence realism') by the attacks of his former pupil, Abelard, and then espoused an 'indifference theory', according to which the many particulars of the same species are at the same time one in that they are 'not different' from each other in respect of their nature. William's interests as a logician were not, however, confined to speculations about universals. He was probably the author of a general *Introduction* to logical method, and it is clear from Abelard's *Dialectica* that he discussed the problems raised by the

different meanings of the verb 'to be'—as the copula and as implying present existence.

William was a theologian as well as a logician. He studied under Anselm of Laon, a leading scriptural exegete. Like Anselm's, William's theological teaching survives in the form of 'Sentences' *(sententiae),* ranging in length from a couple of lines to several hundred words, which may originally have been stimulated by dispute over the interpretation of a passage from the Bible, but take the form of free-standing discussions of a problem. William is more speculative and more analytical than Anselm, ranging over topics such as intentions and acts, the ontological status of evil, and implicit faith. He approaches the question of divine prescience ([7.28] 195–6) and human free will in the manner of a logician, trying (though not very successfully) to show that the statement, 'It is possible for things to happen other than as they will happen' does not imply 'It is possible for God [who foresees all things] to be mistaken.'

Bernard, master at the cathedral school of Chartres in the first two decades of the century, represents a different tradition of early medieval teaching. He concentrated, not on logic, but on grammar. Part of his work as a grammarian was connected with the theory of grammar, as expounded by Priscian in his elaborate *Institutiones grammaticae*. Eleventh-century scholars had already composed a running commentary (the *Glosule*) to the *Institutiones,* which dealt with philosophical questions about semantics far more thoroughly than Priscian himself had done. Unfortunately, Bernard's work in this area is known only through a few remarks made, long after his death, by John of Salisbury.[6] John also records how Bernard commented on the Latin classics, drawing out their moral teaching and he commemorates him as the leading Platonist of his time. Bernard's Platonism seems to have owed a good deal to Boethius' *Theological Treatises,* especially in its introduction of secondary forms, enmattered images of the immaterial primary forms. But there was one work by Plato himself that was available to him and other twelfth-century scholars: the *Timaeus* in Calcidius' partial Latin translation. Recently, a strong argument has been made for attributing to Bernard a commentary on the *Timaeus*. Although these *Glosae in Platonem* are for the most part straightforwardly literal and heavily reliant on the commentary Calcidius had written, they contain Bernard's characteristic views about secondary forms and they exercised an influence on later twelfth-century exegesis of the work.[7]

PETER ABELARD

Peter Abelard is probably better known than any medieval philosopher, not as a thinker but as the husband of Heloise and participant in a remarkable exchange of love-letters which have held their appeal from the time of Petrarch to the present. It was in fact the castration plotted by Heloise's relatives and its consequences which gave Abelard's career its distinctive shape, splitting it roughly into two halves. From about 1102 until his castration in 1117, Abelard was a brilliant teacher of logic in Paris and in Melun and Corbeil, small towns both connected with the royal court. He had studied under both Roscelin and William of Champeaux—and quarrelled with both. Although he did teach Christian doctrine, it was a relatively unimportant part of his work. The *Dialectica,* a textbook of logic, independent in form but closely linked to exegesis of the six standard ancient texts, probably dates from the end of this period. The *Logica ('Ingredientibui')*—logical commentaries, of which those on the *Isagoge, Categories, De interpretatione* survive in full—was probably written up a little later, but it too reflects his teaching at this time.[8]

After the castration, Abelard became a monk of St Denis. Although he continued to teach logic, theological questions came more and more to occupy him. The first fruit of this new interest was the *Theologia summi boni,* a treatise on the Trinity, rich in philosophical discussion, which was promptly condemned at the Council of Soissons in 1121. Undeterred, Abelard greatly extended the work, developing his logical analysis of Trinitarian relations and adding a long eulogistic account of the ancient philosophers and their virtues, to form the *Theologia Christiana*. One logical work dates from the same time (the *Glossulae* on Porphyry, often called the *Logica Nostrorum petitioni sociorum*), but Abelard's main energies were given to theology and, increasingly, to ethical questions within theology. His *Collationes (Dialogue between a Christian, a Philosopher and Jew),* probably written *c.* 1130, discuss the virtues, evil and the highest good. By this time, Abelard—who had left St Denis and, for a time, taught students at his own monastic/eremitic foundation, the Paraclete—was abbot of St Gildas, a monastery on a remote peninsula in Brittany. His attempts to reform the Breton monks proved disastrous and, from about 1133 to (probably) 1140, Abelard was teaching again in Paris. Although he gave some lectures on logic, he devoted most of his energy to developing his ethically-based theological system. The final version of his *Theologia,* the *Theologia scholarium,* a commentary on St Paul's letter to the Romans, *Sententie* recording his theology lectures, and (from *c.* 1138 to 1139) *Scito teipsum* (or, as he also called it, his *Ethics*) are the most important works from this highly productive period. At the same time, Abelard

wrote extensively at the request of Heloise, who had taken over the Paraclete as abbess of a group of nuns, providing her with sermons, letters, scriptural exegesis, answers to theological queries and poetry.

Even as a young logician in Paris, Abelard had been a controversial figure, competing with William of Champeaux for students and reputation and patronized by William's enemies in the Church and at court. From the time of the Council of Soissons onwards he became a target for the hostility of the reforming party in the Church and, by the late 1130s if not earlier, for that of its leader, Bernard of Clairvaux. His campaign culminated in the Council of Sens of 1140, where Abelard was accused of nineteen heresies listed by Bernard. Abelard denied all charges of heresy, but the charges were upheld by the Pope. Abelard, now sick, spent the last two years of his life at the great abbey of Cluny and one of its dependencies. There the abbot, Peter the Venerable, ensured that the sentence of excommunication was lifted and engineered a reconciliation with Bernard.

Perhaps because of the controversies which accompanied and ended his career, Abelard has gone down in the history of philosophy as a brilliant, daring but unconstructive thinker: powerful as a logician but, otherwise, to be blamed or praised for merely applying the tools of logic to theology. This judgement is unjust, but it does reflect an important difference between Abelard, the most wide-ranging and inventive Western philosopher of the twelfth century, and the great thinkers of the thirteenth and fourteenth centuries. Unlike Aquinas, Duns Scotus and Ockham, Abelard did not combine his developments in different areas of philosophy into a single, coherent and distinctive pattern. Rather, his work falls into two separate parts, corresponding roughly to the division in his career. In his logical works he not only makes startling discoveries of a technical nature; he also reconsiders the metaphysical questions raised by Porphyry and Aristotle in the light of his nominalism, trying to arrive at an account of the basic structure of things and tackling the various aspects, semantic and metaphysical, of the problem of universals with great sophistication. In his theological writing he concentrates on developing a philosophical ethics which, where necessary, shapes the understanding of Christian doctrine to suit its requirements.

The following pages can give only an impression of some of the most philosophically interesting aspects of a thinker whose originality and breadth of vision would entitle him to much more space in a *History of Philosophy* had it not been his misfortune to live in the Middle Ages. First, his ideas on two areas connected with the more formal side of logic will be sketched: his treatment of conditionals, and his analysis of modal statements. (Many other of his more formal developments are also of great interest: for instance, his treatment of

'impersonal statements', such as 'It is good that you are here', and his discussion of die copula.)[9] Second, after a glance at his basic metaphysics, Abelard's approach to the problem of universals will be examined. Third, his account of a central area in ethics, the ethical act, will be discussed and set in context.

Abelard developed his ideas about conditionals ('if…then…' statements) mainly in considering the theory of 'topical arguments' put forward by Boethius in *On Topical 'differentiae'*.[10] He did not, however, believe that what Boethius said there about inferences could be applied directly to conditionals, partly because many of Boethius' maxims were concerned to provide probable, rhetorically convincing arguments rather than irrefragable ones, partly because—unusually for a medieval thinker—Abelard clearly distinguished between the validity of an argument and the truth of a conditional. For the truth of a conditional, his requirement was more stringent even than the modern notion of strict implication (it is impossible for the antecedent to be true and the consequent false): he also insisted on a strict criterion of relevance. For Abelard, 'if *p* then *q*' is true if and only if *p* 'of itself requires' *q,* by which Abelard means that the sense of *q* must be contained in that of *p* (Abelard [7.19] 284:l–4). One of Abelard's reasons for imposing this criterion was that, from conditionals which fail this criterion (for instance, 'If it's a man, it's not a stone', based on the topic 'from opposites'), Abelard was able to infer a conclusion of the form 'if *p,* then not-*p*', and he looked on this as a *reductio* (although most modern logicians would certainly not).[11] Unfortunately for Abelard, his great rival and critic in the 1130s, Alberic, was able to show that, even observing Abelard's criterion, arguments could be constructed which led to 'if *p,* then not-*p*'. Abelard appears to have had no answer to this problem, which would exercise the next generation of logicians (see below, pp. 175–6).

Abelard also thought deeply about the semantics of conditionals.[12] On what does the truth of 'if *p,* then *q*' depend? He rules out two apparently promising answers: that the truth of a conditional is based on a relation between thoughts, or that it is based on the things to which the conditional refers. Thoughts cannot provide the basis, Abelard considers, since one can think of a true statement without thinking of all the numberless statements it entails. Nor can things provide the basis, because (for instance) the conditional 'If it is a rose, it is a flower' would remain true even if there were no roses or flowers of any kind. Abelard concludes that the truth of conditionals is based on *dicta:* on 'what is said' by statements. 'It is a rose' says of something that it is a rose. 'It is a flower' says of something that it is a flower. 'If it's a rose, it's a flower' is true because *that* something is a rose not only cannot be true unless it is also true *that* it is a flower, but also it

requires *that* it is a flower. What, then, are *dicta*? Often, Abelard treats them rather as some modern philosophers treat propositions. They are non-linguistic bearers of truth and falsity. At other times Abelard seems to regard them more as states of affairs, truth-makers rather than truth-bearers. At all times, however, he insists that *dicta* are not things. This position, too, is far from clear, since it suggests that statements about *dicta* must be analysed into statements using some other terms, but it is hard to see what these terms could be.

Abelard discussed modal logic in the *Dialectica* and, in greater detail, in his *Logica* commentary on the *On Interpretation*.[13] He was the first medieval logician clearly to distinguish between the *de dicto* (or '*de sensu*') and *de re* readings of modal statements such as 'It is possible that the sitting man stands'. *De dicto* this is read as a false statement: 'Possibly the man is sitting and standing.' *De re* it is read as a statement which (provided the man actually *is* sitting) is true: 'The man is sitting and possibly he is standing.' But the exact interpretation of the *de re* reading gave Abelard difficulties.

To a considerable extent, he shared an ancient view of modality which did not allow for synchronous alternative possible states of affairs. According to this view,

1 The man is sitting at t and possibly he is standing at t'

(where t' is any time other than t) is, under the right circumstances, true, but

2 The man is sitting at t and possibly he is standing at t

must be false. The *de re* modal statement 'The man is sitting and possibly he is standing' must therefore be interpreted as (1). Yet Abelard also believes that anything, according to its nature (the sort of thing it is), always has various potencies: a man, for instance, can sit or stand at any time. This view, it might seem, should have led him to acknowledge synchronous possible states of affairs. Instead, Abelard prefers to think about possibility just in terms of what is possible *for* some thing, according to its nature, without thinking about the possibility or impossibility of states of affairs involving the thing. For instance, being able to walk is part of human nature. Therefore, Abelard believes, it is possible for a man who has had his legs amputated to walk; but he does not think that this commits him to holding that the man might actually walk at some time in the future, nor does he explicitly recognize any possible state of affairs in which the man has not lost his legs, synchronous with the actual state of affairs in which the man is without them ([7.20] 229:34–6, 273:39–274:18). Such an approach may be

rather unsatisfactory, but it had its advantages when Abelard came to the theological problem of predestination. Is it possible for God to save a man who is predestined to damnation? Abelard thought not. God would predestine to damnation only those fitting to be damned, and it is not possible for God not to damn someone fit for damnation. Yet, Abelard insisted, it is possible for the man to be saved, since this is a possibility open to any man ([7.18] 521:669–79).

Abelard approached the question of what things there are with the presumption of nominalism already firmly in mind. Everything, he believed, is a particular. He thought he had strong arguments for rejecting any of the positions according to which his contemporaries held that there are some things which are not particulars but universals.[14] As a consequence, Abelard had to make a radical adaptation of what might be called the 'traditional' metaphysics of his time, taken over from Aristotle's *Categories* and Porphyry's *Isagoge*. Here is a sketch of this traditional metaphysics. It is not intended to give an accurate account of Aristotle's or Porphyry's intentions, but rather an impression of how their textbooks tended to be read by early twelfth-century scholars. According to the traditional ontology, things are of four basic sorts (see Figure 1). There are particular substances: the particular members of natural kinds (such as this man, or Socrates, to take the standard twelfth-century example of a particular substance). Natural kinds like water which do not obviously divide into particular members tend to be ignored. There are universal substances, the natural kinds themselves such as Man and Animal. Then there are what were called 'accidents': non-essential properties, and relations, of substances. Like substances, accidents were considered to be universal or particular; so, for instance, Socrates would be white by his own particular whiteness. In practice, however, particular accidents were rarely mentioned. These, then, are the four basic sorts of things: particular substances, universal substances, particular accidents and universal accidents. Man-made objects (houses, ships and so on) were considered to be composites of natural substances.

This picture derives mainly from the *Categories*. The *Isagoge* added to it Porphyry's famous 'tree' (see Figure 2). Universal substances are arranged into a hierarchy of genera and species. 'Genus' and 'species'

	SUBSTANCE	ACCIDENT
UNIVERSAL	Animal, Man	colour, whiteness
PARTICULAR	Socrates, this man	this whiteness

Figure 1

differentia	*genus/species*		*differentia*
	substance		
corporeal	body	incorporeal substance	*incorporeal*
being alive	living thing	non-living body	*not having a soul*
having sense-perception	animal	plant	*not having sense-perception*
rational	rational animal	irrational animal	*irrational*
mortal	man	(pagan) god	*immortal*

Figure 2

are relative terms: Man is a species of Animal, and so Animal is the genus of Man, but Animal is itself a species of Living Thing. Each species is distinguished from its genus by a specifying characteristic or, as it was called, *differentia:* having-sense-perception is, for instance, what differentiates Animal from Living Thing.

As a nominalist, Abelard had to make some drastic changes to this traditional scheme.[15] Holding that every thing is a particular, he simply cancels out the first line in Figure 1. For him, things are of just two sorts: particular substances and particular accidents (and *differentiae*). And Abelard stresses that although particular accidents cannot exist except in dependence on a particular substance, they are each separate things, which might have been attached to different substances from those to which in fact they are attached.[16] Since there are no universal substances, there cannot be a hierarchy of genera and species. But Abelard translates Porphyry's tree into the structure of particular things. He regards *differentiae* as particular, non-substance things, exactly like accidents (he had a convenient word which meant either an accident or a *differentia:* a 'form'), except that each substance of a given kind must have attaching to it certain given sorts of *differentiae,* as indicated by Porphyry's tree: for instance, a man cannot be without rationality, mortality, having-sense-perceptions and so on.

This scheme is not without problems. It might seem to imply that a particular substance of a given kind is not really one thing at all, but rather a bundle of *differentiae*. Some of Abelard's discussions do appear to favour a bundle theory, in which these bundles would be attached to body, which would be regarded as fundamental rather than as just one type of substance. But elsewhere Abelard explicitly recognizes that particular substances exist in a way which, in theory, is independent from the *differentiae* which must attach to them (see esp. [7.19] 420:30–421:8, and cf. [7.68] 128–30). Another difficulty concerns accidents. Aristotle had given nine classes of accidents, which included, for

instance, relations, time and posture. Abelard initially accepted that even accidents in these categories are particular things. In the mid-1120s—after he had done his most important work as a logician—he came to think it implausible that a relation such as fatherhood is a thing of any sort. He therefore revised his treatment of accidents and accepted the existence of particular accidental forms only in some categories; but he was left (at least to judge by surviving texts) without an account of accidents in the remaining categories.[17]

Abelard's basic metaphysics set the problem which his treatment of universals had to answer.[18] As a nominalist, his explicit answer to the question which his contemporaries usually posed—'Are there universal things or just universal words?'—was unequivocal: only words could be universals. How then, he had to explain, could universal words be used meaningfully? His theory of the semantics of universals is designed to answer this question, and does so with remarkable success. But there still remained a metaphysical question for Abelard to tackle: if species and genera are not things, what is the real basis for the system of natural kinds, which Abelard recognized as a feature of reality, not a mind or language-imposed construct? Abelard's answer to this question, less satisfactory than his treatment of the semantic one, ends by taking an unexpected turn.

To begin, however, with the semantic problem. It is not, as a modern philosopher might expect, a problem about deciding the *reference* of predicates. For Abelard (along with most of his contemporaries), in a statement 'S is P', the reference of 'S' and 'P' is the same. Latin grammar makes this position plausible: there are no articles, and an adjective 'ϕ' always includes the meaning of ϕ-man/woman/thing, according to its gender. So in *'Socrates est homo', 'Socrates'* and *'homo'* ('a/the man') are thought to refer to the same thing: Socrates; and similarly in *'Socrates est albus', 'albus'* ('a/the white man') is taken to refer to Socrates. There is no difficulty about any of this for a nominalist, since Socrates is a particular thing, a perfectly acceptable referent for words. The nominalist's problem concerns, rather, the *signification* of universal words. To signify *x* to someone is to cause there to be a thought of *x* in his mind. Twelfth-century logicians were primarily concerned with signification in their semantic analyses. It is through the signification of the predicate, they held, that the speaker conveys his meaning: that Socrates is a man (not a donkey), that he is white (not turquoise or indigo). And, whilst Socrates is a man on account of particular *differentiae* of rationality and mortality, and white by a particular accident of whiteness, in the statement 'Socrates is white' the signification of 'white' is universal: it produces a thought of whiteness in general, not of the particular whiteness by which Socrates happens to be white. But, according to Abelard, there is nothing which is

whiteness in general (or man-ness in general): there are just particular accidents of whiteness, just particular men. So there seems to be no *x* of which universals can produce a thought when they signify.

Abelard's earlier way of tackling this problem, in the *Logica* ([7.20] 20:15–22:24), is to posit an *x* which is not a thing. When universal words are heard, they produce a thought (which is a thing—a particular accident—Abelard holds). They also cause a mental image which, Abelard says, is not a thing at all, but a figment. (Abelard's explanation of why it is not a thing shows that he thinks of the image solely in terms of its content: my mental image of a castle cannot be a thing because it is not really made of stone, and so on.) In the case of universal words, the mental image is a common, undifferentiated one, of man rather than of Socrates. It is these common mental images or conceptions which, he says, are the objects of the thoughts produced by universal words. Abelard can therefore claim both that universal words signify—there is an *x* of which they produce a thought—and that there is no *thing* which they signify. In the *Glossulae* ([7.20] 530:24–531:29) Abelard simplifies this picture. There he argues that a word signifies so long as it produces in its hearers thoughts with content. The content of the thoughts produced by universal words is (or, at least, can be) universal, derived from particulars by a process of abstraction. And so universal words signify, but it does not follow from this that there are any universal things which they signify.

Although any account of signification must involve the mind, in both Abelard's earlier and his later theories universal words have their signification as a result of how things really are. We form a common conception of man—or, in the later theory, abstract a universal thought content for man—because men are really alike. But, although the signification of universal words is based on how things really are, it is not always based on a complete understanding of how they really are. Abelard takes it for granted that we unproblematically group things correctly according to their natural kinds, but he considers that only in some cases do we know the structure of *differentiae* characteristic of a given natural kind. There is another semantic relationship, however, which does link universal words to this very structure in all cases: Abelard calls it 'imposition'. He envisages the first user of a word 'imposing' a certain group of sounds on a particular substance and every substance of the same kind. The impositor may well not know what is the structure of *differentiae* that characterizes the substance in question, but when he imposes the word he does so according to the structure the substance really has, whatever that may be. He thus creates a link—though an open, unspecified one—between the universal word and the real structure of the objects to which it can be used to refer and on which its signification is based.[19]

The metaphysical side of the problem of universals for Abelard is to explain in what the real resemblance between members of a kind consists, given that there are no real universals. He tackles it with his notion of *status* ([7.20] 19:21–20:14). Men, for instance, are alike in sharing the *status* of man; and this, he explains, means just that they are alike in being men or in that they are men. And the *status* of man (being a man), he insists, is not a thing of any sort.

There is nothing wrong with this explanation, but it raises another question in its turn. On what in reality is the *status* of man founded? What is involved in being a man? Abelard has all along made it clear that what characterizes men is a certain structure of particular *differentiae*. No one is a man who does not have (his own particular) *differentiae* of mortality, rationality and so on. Abelard might, at this stage, have proposed a variety of resemblance nominalism, which would hold that particular *differentiae* of a given sort are exactly similar and this similarity is unanalysable. Each *status* would be defined as having a certain structure of such particular *differentiae; x* would share the *status* of *y* if and only if his particular *differentiae* were exactly similar to *y*'s. Surprisingly, in the only discussion ([7.20] 569:32–573:5] where he directly answers the question of what makes different particular *differentiae* of the same sort similar, Abelard opts for a different solution. He suggests that, whilst a man may have been rational by any one of infinitely many actual or hypothetical particular rationalities, there is a *universal differentia* of rationality, which no man can lack. He goes on to say that, in a sense, this universal *differentia* is the same as a particular *differentia,* since it differs from it not as one thing from another, but merely by 'definition'—a type of difference Abelard had introduced in discussing the Trinity and never entirely clarified.[20] Although this discussion therefore remains obscure, it suggests that, pressed to give the metaphysical basis of his theory of universals, Abelard has sacrificed much of the nominalist ground he so strenuously defends at every other stage.

Abelard developed his ethical theory on three different levels. He attempted (especially in the *Collationes*) to answer the most general questions about the nature of good and evil and their relation to God (see [7.65] and [7.68] 233–50). Whereas Abelard's contemporaries and medieval and patristic predecessors tended to argue, in Neoplatonic fashion, that evil is a privation not a thing, Abelard was ready to admit that there are evil things—particular accidents of, for instance, pain or sorrow—although not evil substances. He reconciled this position with God's goodness and omnipotence by explaining that, when we assert the goodness of God's providence, we are predicating 'good' not of things but of *dicta:* 'it is good that there are evil things' ('good' is predicated of the *dictum* that-there-are-evil-things) and does not entail

'evil things are good'. In some of his sermons and poetry, the Rule he wrote for Heloise and her nuns and a long poem of advice to his son (the technocratically-named Astralabius), Abelard developed the practical implications of his ethics and examined the tensions between moral standards and the thoughts and feelings of individuals in difficult, ethically problematic circumstances.[21]

At the centre of Abelard's moral theory, however, is his discussion of the ethical act; and, although his treatment of virtues and merit is also interesting and innovative, it is Abelard's treatment of sin which, rightly, has attracted the interest of historians of philosophy.[22] Yet it has often been misconstrued. Historians have frequently described it as 'intentionalist' and contrasted it with a crude, externalist approach to ethical judgement, where a person's guilt is judged solely according to the sort of acts he performs, as assessed by an outside observer. A moralist can be an 'intentionalist' in one or both of two ways. The intentionalism may concern *what* is judged ethically (object intentionalism). The object non-intentionalist considers that external acts alone are to be judged, whereas the object intentionalist considers that agents' intentions must be judged as well as, or instead of, their acts. Or the intentionalism may concern the basis for ethical judgement (subject intentionalism). The subject intentionalist will hold that an agent's own beliefs about what is right and wrong are an important element to be taken into account in reaching a judgement; the anti-intentionalist will minimize their role or exclude them. Abelard is certainly both an object and a subject intentionalist. But his object intentionalism needs to be set alongside the different object intentionalism of his contemporaries, not contrasted with an imaginary externalism, and his subject intentionalism does not have the extreme consequences which it might at first seem to threaten.

In their treatments of sin, Abelard's contemporaries put great weight on the intentions accompanying a sinful act. The most popular theory envisaged them as mental acts preceding the external sinful act itself. Its exponents analysed the psychological stages of committing a sin, from contemplating the action, being tempted, indulging the temptation to performing the act. Although these theorists held that the performance of the external act added to the gravity of the sin, they considered that, already at an early stage of contemplating the sinful action with pleasure, the agent would be sinning to some degree, even if he went on successfully to resist the temptation. They held, then, that it is worse actually to sleep with a married woman than to be ready and about to do so but prevented by the unexpected arrival of the husband. But they would also consider that a man would have sinned to some degree if he merely thought with pleasure about sleeping with her, even if he would never have considered making any practical move to do so.

By contrast, Abelard held that neither the performance of the external act itself, nor any of the thoughts or feelings preceding it but not directly linked to its real or planned performance need be considered in judging sin. Before we perform an action, he believed, we perform a mental act of willing it or (in the terminology he finally used, in *Scito teipsum*) 'consenting' to it. Consenting to an act means being entirely ready to perform it, and so I can consent to an act which I do not perform because it is thwarted. For Abelard, it is acts of consent—not any other type of mental events, and not external actions—which alone can be sins. The thwarted adulterer sins no less, having consented to adultery, than the successful one; whilst, if he is inflamed with passion for a married woman and incessantly imagines with pleasure the idea of sleeping with her, but he resists the temptation to do so, then not only does he not sin, he wins merit in the sight of God for his successful struggle.[23]

The contrast made above between external acts and mental events preceding them omits what many philosophers now would consider the most important element in any theory of action: the idea that we act under a description, which is linked to various of our mental and external acts, both before and after the act in question. To some extent Abelard seems to have grasped this idea. He is very concerned to distinguish between consent and what he calls 'willing'. When a man consents to adultery, he does not will to commit adultery if he would prefer it were the woman in question unmarried. When a man murders his feudal overlord in self-defence, knowing that his supporters will certainly try to take their revenge on him, he certainly does not will to commit murder, although he consents to it and, for Abelard, he would therefore be guilty of murder, just as, in the first example, he would be guilty of adultery ([7.21] 6:24–8:20, 16:16–32). What does Abelard mean by this notion of reluctant action, in which I do not will to perform what I do in fact perform? Although he does not develop the idea explicitly, he seems to have in mind that most acts fit a number of descriptions. The adulterer does not will to commit adultery since he would not choose to perform the act just under the description of 'sleeping with a married woman' (or 'committing adultery'), nor the murderer his act just under the description of 'killing one's overlord'. In each case the agent consents to the act on account of other relevant descriptions of it such as sleeping with the woman one desires, or saving one's life.

What determines for Abelard which acts of consent are sinful and which not? We sin, Abelard believes, by showing contempt for God (e.g. [7.21] 4:31–2). He explains what it is to show contempt for God in two different ways: either as (a) doing what is not fitting (e.g. [7.21] 4:27–8) or as (b) not doing what we believe we should do for

God (e.g. [7.21] 6:3–6). The juxtaposition of two so different accounts may seem puzzling. In any case, it seems that only (b) fits the equation of sin with contempt of God. If I do what is unfitting but believe that it *is* what I should do for God, I cannot be showing contempt for him (unless my contempt consists in not having found out what really is fitting and unfitting). The puzzle is solved, however, by Abelard's beliefs about natural law.[24] Abelard considered that all mentally competent adults (who alone he held capable of sinning) at all periods of history naturally know the general moral precepts laid down by God, such as the prohibitions of murder, adultery and theft. He also believed that they all have the power of conscience, which he saw as an ability to see how particular actions fall under the general commands and prohibitions of moral law. There is then, for Abelard, no gap between what is fitting for moral agents to do and what they believe they should do for God. Although he is a subject intentionalist, he thus avoids the danger of having to allow that someone might not sin whatever action he performed simply by virtue of not believing that the action is sinful.

There are, of course, difficulties about his view. Although, in his discussions of ethics in practice, Abelard is acutely aware of the possibility of moral conflict—where one and the same action is both enjoined and forbidden by divine law—for theoretical purposes he ignores such dilemmas. Moreover, Abelard has to account not just for natural law, but for the revealed laws of the Old and the New Testament. The Old Law raises a special difficulty for him. He considers, as in consistency he must, that a Jew who accepts the Old Law and breaks one of its special precepts, not contained in natural law, such as the dietary laws, commits a sin because he is showing contempt for God by his action ([7.16] 306:311–25). This, he grants, applies to a twelfth-century Jew as much as to a biblical one. But Abelard also considers that the twelfth-century Jew is mistaken to believe that God now enjoins the dietary laws on him or on anyone. In practice, the point is of little importance. But in principle the gap which Abelard has allowed between moral belief and the truth about divine precepts upsets his whole theory, for it is hard to see what limit he could place on the beliefs which people or groups of people might sincerely hold about what are God's special laws for them.

GILBERT OF POITIERS

Next to Abelard, the most profound and adventurous thinker of the twelfth century was Gilbert of Poitiers (1085/90–1154). Gilbert enjoyed the successful and comparatively undramatic career for which Abelard

might have hoped. A native of Poitiers, he was taught at Chartres by Bernard and at Laon by Anselm. He became a canon and then chancellor of Chartres, and taught both there and in Paris. In 1142 he was made bishop of Poitiers. Like Abelard, Gilbert was the object of Bernard of Clairvaux's suspicion and hostility. Gilbert was forced to defend his views on the Trinity and the Incarnation, first in front of Pope Eugene III (April 1147) and then at a consistory after the Council of Rheims (March 1148). As he had done with Abelard, Bernard used underhand tactics to try to ensure Gilbert would be condemned. But this time he was unsuccessful and Gilbert was allowed to return to his diocese without harm to his reputation.[25]

Gilbert did not write prolifically. He produced biblical commentaries (on the Psalms and the Pauline Letters), where he kept close to the specifically Christian doctrinal themes, eschewing the opportunities for ethical speculation so eagerly followed by Abelard. A set of theological *Sententie* survives (in two versions). But they do not seem to offer a close account of his lectures, and certainly incorporate the views of other masters. Gilbert was an accomplished logician as well as a theologian, and he gave rise to a distinctively Porretan school of logic; but no logical work of his own is known. Gilbert's contribution to philosophy emerges only from his long and intricate commentary on Boethius' *Theological Treatises (Opuscula sacra)*, probably written early in the 1140s. Since Gilbert's technique as a commentator is to gloss every word of the original text, the character of Boethius' treatises has a deep influence on his work, but in ways that are unexpected.

Gilbert does *not* take over many of Boethius' views or arguments directly, even though he is supposedly explaining them. Rather, he strains to fit Boethius' words into his own often very different arguments, at the cost of an unwieldily profuse terminology and frequent obliqueness or obscurity in exposition. In his *Opuscula,* Boethius had been concerned in the main to use logical and metaphysical ideas rather straightforwardly as ways of elucidating and confirming orthodox Christian doctrine about the Trinity and Christology. Gilbert, however, insists that different principles of argument and ways of arguing must be used in different disciplines. He claims that arguments devised in connection with natural things (natural science), or in the course of analysing them into their in reality inseparable constituents (what Gilbert calls 'mathematics'), cannot be used directly in talking about God (theology). But these arguments can be used indirectly, by 'proportionate transumption', a process in which some of what a natural or mathematical argument establishes is accepted as applicable to God, but not all.[26] This framework gives Gilbert the chance to develop his philosophical account of the natural world more fully than Boethius had done. But, in developing his natural and mathematical arguments,

Gilbert is always at least in part concerned with how to 'transume' them proportionately so as to serve his, and Boethius', ultimate theological aims. Gilbert's main philosophical discussions—of topics such as predication, parts and wholes, individuation and the relation between body and soul—are all coloured in this way, and sometimes their rationale becomes clear only in the light of his doctrinal objectives. Yet it would be wrong to see Gilbert merely as a theologian propounding quasi-philosophical arguments to illustrate Christian doctrine. Parts of his thinking take up the type of philosophical questions which had been stimulated by the ancient logical texts and which had fascinated Abelard; and nowhere more clearly than in his complex and original treatment of the metaphysical structure of things.[27]

Gilbert makes a fundamental distinction between what he calls *quo est* ('from which it is') and *quod est* ('what it is') (7.10] 91:51–8, 116:47–9).[28] (Driven by the requirements of exegesis, he also uses a bewildering variety of other terms to describe this distinction.) Examples of what Gilbert considers *quod ests* are Socrates, this man, that dog, this white thing. What he has in mind, it seems, are concrete wholes made of substances along with their accidents. Although a denominative word such as 'white thing' *(album)* is the word for a *quod est,* Gilbert assumes that in any given case when it is used its reference will be the same as that of a substance word and, often, of a proper name. So, for instance, the *quod est* in question might be this white thing, this labrador, Fido. (Gilbert does not envisage instances where a denominative might sort things differently for purposes of reference, for instance, 'this white thing' referring to Fido and the white ball in his mouth taken together; nor does he indicate how he thinks about man-made objects.) *Quo ests* are, for instance, whiteness, bodiliness, rationality, humanity, Socrateity. They are not, however, universal forms. Every *quo est* is singular (or one in number: Gilbert uses the two notions interchangeably), and every *quod est* is what it is from its own singular *quo ests* ([7.10] 144:58–60, 145:95–100). So, for instance, I am rational (supposing I am) and six-foot tall from a singular rationality and a singular being-six-foot-tall which are each *quo ests* numerically distinct from Socrates' rationality and being-six-foot-tall.

As this account suggests, by '*quo ests*' Gilbert means something very close to what Abelard and others had in mind when they spoke of particular forms (accidents or *differentiae*). So, for example, Abelard would talk of the particular being-six-foot-tall and the particular rationality attaching to Socrates by which he is six-foot tall and rational. Yet there are important differences between the two philosophers' schemes. Abelard thinks of particular forms attaching to substances and, although one element of his discussion (the 'bundle

theory') points in a different direction, he accepts that, were a substance *per impossibile* stripped of all forms, it would still retain an identity. For Gilbert, however, the relationship between *quo ests* and *quod ests* is causal and correlative. A *quod est* is made what it is by its *quo ests* and there can be no *quo ests* apart from a *quod est* ([7.10] 278:8–279:12). The notion of bare substance may be problematic, but that of a bare *quod est* would be simply ungrammatical, because a *quod est* must be a 'what' (a white thing, a rational thing, Socrates), made what it is by a *quo est* (whiteness, rationality, Socrateity). Gilbert's scheme thus avoids some of Abelard's problems (but at a price, since the notion of making or causing involved is thoroughly obscure: what the *quo est* makes into the *quod est* cannot be the *quod est* itself—so what is it?).

Another important development in Gilbert's scheme has already been indicated by mentioning the *quo ests* humanity and Socrateity. As well as all his simple *quo ests,* such as rationality, mortality and being-six-foot-tall, which make Socrates something which is mortal, rational and six-foot tall, there are also his complex *quo ests,* composed of two or more of the simple *quo ests;* so, for instance, his humanity—that by which he is a man—would be composed of the *differentiae* of the species man and of the *differentiae* of all the genera of that species (rationality, mortality, having senses, being alive, being bodily). The most complex of all these composite *quo ests* is called by Gilbert the 'collected property' or 'whole form' of Socrates ('Socrateity', for short). It is composed of all the *quo ests* 'which both in actuality and by nature have been, are and will be' those of Socrates ([7.10] 144:73–8, 274:75–95).

Gilbert uses this idea of whole forms to make one of his most characteristic distinctions. As already mentioned, Gilbert holds that every *quo est* is singular; even composite *quo ests,* such as this humanity or Socrateity, are singular ([7.10] 167:7–19, 301:86–95). So too is every *quod est* singular. It is singular, Gilbert says, because the *quo est* which makes it into a *quod est* is itself singular ([7.10] 144:58–62). To be singular is not, however, for Gilbert to be individual. In his view everything which is individual is singular. But only those singulars which are not 'dividuals' are individual. Whatever is exactly similar *(conformis)* to something else, or could possibly be exactly similar to something else, is a dividual. Although the *quo ests* by which Socrates is rational and six-foot-tall are singular and distinct from the singular *quo ests* by which Plato is rational and six-foot-tall, each *quo est* of rationality and each *quo est* of being-six-foot-tall is exactly similar to every other such *quo est*. The same is true of almost every *quo est,* whether simple (mortality, whiteness) or complex (animality, humanity). Even if it should happen that as a matter of

fact there is not, never has been nor ever will be a *quo est* exactly similar to a simple or complex *quo est,* then in almost every case it is possible that there might be one exactly similar ([7.10] 143:52–144:78, 270:73–271:82). No one, suppose, has ever had or will ever have a nose quite the same shape as mine; but 'by nature'—hypothetically—there might be such a person. Or consider the complex *quo est* sun-ness which makes something into a sun. Gilbert thought (wrongly, of course) that there was and would be only one thing like this: sun is a species which contains only one member, the Sun. But by nature, he believed, there is nothing to prevent there being infinitely many suns, all made into what they are by *quo ests* of sun-ness, each singular but exactly similar to each other. The (as a matter of fact unique) *quo est* of sun-ness is therefore dividual just as the very many *quo ests* of humanity are dividual ([7.10] 273:53–71).

There is just one type of *quo est* which, Gilbert claims, is not dividual because it is not actually or possibly exactly similar to any other *quo est:* the whole form of a *quod est* (for instance, Socrateity). Whole forms, then, are individuals, and so are their *quod ests,* that is to say, every *quod est,* since every *quod est* has a whole form. Where, then, for Abelard (who makes no distinction between particularity, singularity and individuality) a form such as this whiteness or that rationality is no less a particular thing than Socrates himself, Gilbert is able to discriminate more finely: this whiteness, that rationality and Socrates are each singular, but only Socrates (and his whole form, Socrateity) is individual.

Gilbert's idea of individuality also provides him with his approach to the problem of universals. Complex dividual *quo ests* fall into groups, the members of each of which, although themselves all singular, are completely similar to every other member of the group. In virtue of this complete similarity all the members can be regarded as one universal, a species: for example, humanity. Again, many complex dividual *quo ests* are completely similar not just to some other *quo ests* in every respect, but also to some in some respects; for instance, every *quo est* of humanity and every *quo est* of horse-ness are completely similar in respect of being bodily, being alive and having senses. They can therefore be further grouped into what is also regarded as one universal, the genus animality ([7.10] 269:34–50, 312:95–113). True to the emphasis of the discussion at the time, Gilbert considers just universals in the category of substance; presumably, though, he would also consider that groups of exactly similar simple *quo ests* (such as whitenesses or rationalities) are universals in other categories. Gilbert, therefore, is a realist over universals, but his real universals are all *quo ests* which cannot exist except in conjunction with *quod ests* which, because they are individual, cannot be universal. To the objection that

his real universals must, like any real universal, be contradictorily both one and many, Gilbert could reply that, whereas it would be a contradiction to assert of many individuals that they are one, it is permissible to say of many singulars that they are one because of their complete similarity to each other.[29]

All this rests on the presumption that whole forms are indeed individual: there is nothing else to which any of them is, or could possibly be, exactly similar. What entitles Gilbert to make this presumption? Gilbert gives no explicit answer, but it is worth looking carefully to see what, if anything, he had in mind. It seems obvious to relate the individuality of whole forms to the principle that no two bodily objects can be in the same place at the same time: they cannot therefore have exactly similar accidents in these respects. Gilbert's comments in a different context ([7.10] 77:5–78:13, 148:88–92) show that he was highly aware of this point. Yet, at first sight, such an explanation seems not to fit Gilbert's view (see above, p. 169) that the whole form of Socrates is composed, not only of all the *quo ests* that have, do and will make him what he is, but also of all those that he has 'by nature'. The spatio-temporal dissimilarity principle does not rule out Plato having by nature the very same space-time accidents as Socrates actually has. Indeed, if Socrates' complex *quo est* is composed of all the *quo ests* he has 'by nature', it seems that it must include every sort of *quo est* that can attach to a man, and that therefore the whole form of each member of a species is exactly similar to that of every other member of that species—and therefore, contrary to what Gilbert maintains, is dividual.

What must be implicit, it seems, in Gilbert's view is a distinction between *quo ests* which apply to alternative, different ways things might be (or, at least, a distinction between those *quo ests* which something has in actuality, and those which it has only by nature). This would accord with Simo Knuuttila's view that Gilbert was one of the earliest thinkers who, influenced by the doctrine of divine omnipotence, was willing to admit synchronous alternative possible state of affairs, each belonging to different providential programmes, any of which God could put into effect although only one is the actual programme he chooses.[30] Gilbert would, then, be able to insist that, in any given providential scheme—and so in whatever scheme is the actual one—Socrates does not share his spatio-temporal *quo ests* with anyone else, and that therefore his whole form is not the same as anyone else's. None the less, Gilbert did not in fact think out his views on modality this far; had he done so, he might not have wished to accept the many difficulties this view brings with it.[31]

THE PLATONIC CURRENT

Most of the main twelfth-century thinkers owed something to Plato. Abelard, for instance, argued that the description of the World Soul in the *Timaeus* was an allegory of the Holy Spirit, and he used this surmise as evidence that the pagan philosophers knew of the Trinity before the coming of Christ. He also took the few comments about the *Republic* at the beginning of the *Timaeus* and used them as the basis for his own political ideal of cities where everything is done for the common good ([7.68] 304–7). Abelard's Platonism, however, is opportunistic. He takes themes from Plato and transforms them for his own purposes, using them within a structure of thought which itself owes remarkably little to Plato. Some scholars have argued that there is an important Platonic element in Abelard's treatment of universals and *dicta* (see [7.61] 149 and [7.56]). The interpretation offered here does not support that view. Similarly, historians have often held, contrary to the reading advanced here, that Gilbert rests his metaphysics on a notion of Platonic Ideas. There is, at any rate, room for dispute about the Platonism of Abelard and Gilbert, but neither continues the tradition of Bernard of Chartres in the direct way that was done, as John of Salisbury recognized, by William of Conches.

William of Conches was already teaching and writing in the early 1120s and appears to have remained active until the 1150s; he taught perhaps at Paris or, so some have argued, at Chartres, and later taught at the court of the Duke of Normandy. Like Bernard, he was a grammar teacher. He wrote a commentary on Priscian's *Institutiones grammaticae (Principles of grammar),* drawing extensively on the anonymous eleventh-century *Glosule* to Priscian; and he made detailed commentaries on a series of classical texts. These include poetry (he is known to have glossed Iuvenal) but he concentrated on Platonic writers: Boethius' *Consolation of Philosophy,* Macrobius' commentary on Cicero's *Dream of Scipio* and, most important, the *Timaeus* itself. In interpreting these texts, William drew on the already well-established medieval tradition of reading pagan texts as allegories of Christian truth. He went beyond his predecessors in the thoroughness with which he applied this method. He would admit, if necessary, that, being pagans, the ancient authors could not be trusted in everything they said. Usually, however, he discovered a satisfactory reading. He shared with Abelard (and may have taken from him—but the chronology is not clear) the identification of Plato's World Soul with the Holy Spirit. But unlike Abelard, for whom it carried important implications about the knowability of God, he was willing to drop the identification. For William, it was merely a convenient reading of an ancient text, which could if necessary be sacrificed.

The ideas in his texts which William took most were scientific, rather than philosophical or theological ones.[32] The *Timaeus* and Macrobius were regarded as important sources for natural science, and William developed this interest independently, in his *Philosophia* (*c.* 1125) and his later dialogue (part extension, part more cautious revision of the *Philosophia*), the *Dragmaticon* (between 1144 and 1149). In these works he also made use of, and sometimes combined or developed in an original way, medical and scientific sources translated from the Arabic and Greek. In the *Philosophia* and the *Dragmaticon,* and in the commentary to the *Timaeus,* William tried to show how all things came into being through the natural interaction of the four elements (fire, air, water and earth). Only the creation of the human soul required a separate intervention by God. William was firmly committed to this search for naturalistic explanations: he accused of pride and ignorance those who wished to explain everything by divine intervention, and claimed that he illustrated God's power by his explanations of how God worked through nature ([7.31] 39–40).

The other leading Platonist of the mid-twelfth century (he was described by a pupil, Hermann of Carinthia, as 'the soul of Plato restored to mankind from heaven') was Thierry 'the Breton', known also as Thierry of Chartres, where he was chancellor in the 1140s; previously he had taught both there and almost certainly at Paris. As well as an interest in rhetoric, logic and the various branches of mathematics, Thierry shared William of Conches's penchant for naturalistic explanation of what many of their contemporaries would have described in terms of direct divine intervention. But Thierry gave his most distinctive philosophical teaching—and that which shows his Platonism most clearly—in the course of commenting on Boethius' *Theological Treatises*.[33] A commentary known as *Librum hunc* (written late 1140s; incipit 'Inchoantibus librum hunc') can be shown to be fairly closely based on this teaching. Together with two other commentaries on the work from the same period (Incipit 'Intentio auctoris' and 'Aggreditur propositum'), which contain close parallels to it and each other but also differ sharply in some of their doctrines, *Librum hunc* shows how Plato's Theory of Ideas was adopted and transformed.

The first stage in the transformation was Boethius' doubling of the forms: 'From those forms which are beyond matter', writes Boethius, 'come those forms which are in matter and make the body'—forms which therefore, more properly, should be called 'images'. All three commentaries go on to argue that only the images which come into contact with matter are many, and that the forms from which they derive are really one form, God, the form of forms. The argument is developed in two main ways. *Librum hunc* asserts that the forms of all things 'emanate' *(emanare)* from the one, simple divine form. These

forms have it in common with the one true form that they are an 'equality of being'. By this he apparently means that a particular substance *s* is what it is (an *s*) from its form *f*, so that *f* can be called 'the equality of being an *s*'. God's form, 'the wholeness and perfection of all things', stands in the same relation to God as *f* to *s*. None the less, the commentator insists that all forms besides that of God are not really forms, but simply the images of form. Plurality, he goes on to explain, arises solely through the coming together of form, which is one, and matter, which is also in itself one.[34] In the two other commentaries, the talk is not of emanation but rather of God's thinking.[35] When an artificer wishes to produce a mental exemplar of what he will make, he must think of the material of which it will be made: the exemplar is not itself enmattered, but it must be conceived in relation to matter. Similarly, God, who is himself the form of forms, conceives the forms of all things in relation to their matter. He then unites them with matter, at which point they cease to be forms and become images.

In the second half of the century, the Platonic current (no longer closely connected with exegesis of the *Timaeus* or with natural science) intermingles often curiously with other influences. For example, there survives a fragment (itself book-length) of a very lengthy commentary on a work by the fifth-century Greek Neoplatonist known as 'pseudo-Dionysius' (because he issued his works under attribution to Dionysius, the Areopagite converted by St Paul). The commentary was written between 1169 and 1177 by William of Lucca. William was probably the author of a logical textbook based on Abelard's teaching (see below, p. 175); he was certainly deeply influenced in his theology by Gilbert of Poitiers; and, like Thierry of Chartres, he formulated his thoughts about Platonic Ideas (which, in what remains of his commentary, are far from clear) with Boethius' *Theological Treatises* in mind.[36] Alan of Lille (see below, pp. 177–8) provides another example of late twelfth-century syncretic Platonism.

THE LOGICAL SCHOOLS OF THE LATER TWELFTH CENTURY

In the second half of the twelfth century, logicians divided themselves into a number of self-consciously distinct schools, all probably based in Paris.[37] Each of these schools derived from one of the leading logical masters of the preceding period. The Porretani (or Gilebertini) were the followers of Gilbert of Poitiers (who was called Gilbert Porretanus). Abelard's followers were called the Nominales.[38] The Parvipontani (or Adamitae) were the followers of another influential

logical, Adam of Balsham (d. 1159), called Parvipontanus because his school was at the Petit-Pont, whose *Ars disserendi* (*c.* 1132) offers a highly innovative approach to logic, both in its terminology and arrangement of material. The Meludinenses or Robertini were almost certainly the followers of Robert of Melun, although at present only Robert's work as a theologian, not as a logician is known. Another important logician of the 1130s and 1140s was Alberic, a determined opponent of Abelard's. Although no surviving text can be definitely assigned to him, his views are frequently and respectfully cited in the logical commentaries of the 1140s, some of which can be closely linked to him.[39] The logicians who called themselves the Albricani were certainly his followers; whether they can be identified with the Montani (from the Mont Ste Geneviève, where Alberic, but also Abelard and others taught) is unclear.

The later twelfth-century masters who ran these schools remain anonymous, but a number of texts survive which show their sophistication and ingenuity. From the Porretans there is a substantial textbook of logic (called by its editors the *Compendium logicae Porretanum*), probably written between 1155 and 1170. William of Lucca's *Summa dialetice artis* (where Abelard is throughout the supreme authority, called the Philosophus) illustrates the thinking of the nominalists; the *Introductions montane maiores* that of the Montani; the *Ars meliduna*—the longest and most sophisticated of all—the work of the Melidunenses.[40]

The division of these logicians into schools is not a mere convenience of the historian: it reflects how the scholars thought of themselves. For each school there was a set of basic theses to which all those who belonged had to subscribe. The Porretan *Compendium* takes the form of a commentary of each of the Porretani's theses, and there survive similar lists of theses with discussion for the Melidunenses and the Nominales.[41] Most of the theses concern controversies which arose in connection with the *Isagoge, Categories* and *On Interpretation* over topics such as universals, predication, parts and wholes and entailment. Often they are stated in a deliberately paradoxical fashion; for instance, according to the Melidunenses, 'Socrates and Plato are not Socrates and Plato'; according to the Nominales, 'Nothing grows'. The divisions between the schools emerge very clearly in the differing solutions each proposed to the objection Alberic had raised to Abelard's theory of conditionals (see above, pp. 157–8). Alberic's argument begins from the principle that, if *p* implies *q,* then *p* and *r* implies *q,* and it chooses as an exemplification of this argument-pattern one in which the conjunction of *p* and *r* is an impossibility. The Porretani rejected this argument-pattern, because it leaves one of the conjuncts without a role in the implication, whilst the Montani refused to accept conditionals

where the antecedent is impossible. The Nominales, Abelard's own followers, seem (not surprisingly) to have been left in some confusion; the Melidunenses argued that nothing follows from a false statement; whilst the Parvipontani alone did not treat Alberic's argument as a *reductio,* but accepted it along with its conclusion and therefore the paradoxes of strict implication: from an impossibility anything follows, and a necessity follows from anything.[42]

It would be very wrong, however, to imagine that the logicians of the later twelfth century did no more than react to and systematize the ideas of their founders. First, even on the most closely discussed questions of the previous decades, the new masters had their own thoughts. So, for example, the *Ars meliduna* proposes a sophisticated Platonic theory. Universals are all 'intelligible things'. What the mind grasps when it considers a universal is not, though, a relation of similarity, but the 'coming together' *(communio)* of things which—in the case of genera and species (Animal, Man), but not that of other universals (white, rational)—brings it about that what participates in it is something.[43]

Second, the later twelfth century was a time when previously unknown Aristotelian logical texts (the *logica nova*) first became known: the *Prior Analytics,* the *Topics* and *On Sophistical Refutations*. All three, for instance, are used in the *Ars meliduna*. This development is less important, however, than it might seem. It was only the third of these texts, Aristotle's treatise on sophisms (arguments which are incorrect but superficially plausible) that was studied enthusiastically. *On Sophistical Refutations* was known before the others, by the 1120s; Alberic and his followers were greatly impressed by it; and it continued to fascinate logicians for the rest of the century. Although its value in detecting logical fallacies in theological arguments may have initially recommended the treatise, it came to fuel a growing interest in the principles of deductive argument.[44]

The third and most important development of the years 1150–1200 may help to explain the generally slight impression made by the *logica nova*. It was in this period that medieval logicians broke away from the framework of study set by the ancient authorities. For instance, whereas Abelard's *Dialectica* had mainly followed the pattern of the textbooks by Aristotle, Porphyry and Boethius, both the Porretan *Compendium* and the *Ars meliduna* reorganize the whole subject-matter of logic into four parts: terms, statements *(propositiones),* what terms signify, what statements signify (see [7.77] II, 1, 539). The new approach went beyond matters of organization. Almost all the branches of what would be called the *logica modernorum*—those parts of logic not covered in the ancient texts—began to be developed at this time: besides the theory of conditionals (which Abelard had already begun to

develop), the theory of the (semantic) properties of terms; the study of sophisms and of words such as 'only', 'except', 'begins', 'ceases'; the treatment of semantic paradoxes and the special sort of logical disputation called 'obligations'.[45]

PHILOSOPHICAL THEMES IN LATER TWELFTH-CENTURY THEOLOGY

The divisions between schools were less clear-cut among the theologians than the logicians. There were, certainly, those who followed Gilbert of Poitiers either very closely or with more freedom. Abelard, too, was highly influential; but his more controversial theological doctrines were usually rejected and his distinctive ethics adopted piecemeal, if at all. Although there are a number of references to Nominales in theological contexts, they seem not to be to any distinctively nominalist *theology,* but rather to nominalist logical positions which were used in a theological discussion.

There was, by contrast, far more variety in the manner of pursuing theology than was the case for logic, even leaving aside the monastic theologians such as William of St Thierry, Ailred of Rievaulx and Bernard of Clairvaux himself, who distanced themselves from the schools. At the Abbey of St Victor in Paris, where William of Champeaux had founded a theological tradition, which was carried on in the 1130s and 1140s especially by Hugh (of St Victor), Richard (of St Victor) wrote, sometime after about 1150, a long and carefully-worked *De trinitate*. Its aim is to show (rather as Anselm had tried in the *Monologion*) that there are strong rational grounds for holding, not merely that God exists, but that he is triune. Richard, however, writes to illuminate the faithful, not to convince non-believers. If he figures less in the history of philosophy than some of his contemporaries, it is not because his arguments lack sophistication but rather because his views are not easily detached from their theological context.

In the theology of the schools—mainly the schools of Paris—there were two main approaches to method. Gilbert of Poitiers' idea that each branch of knowledge, including theology, has its own fundamental rules, combined with the axiomatic method used in the third of Boethius' *Theological Treatises* (and Gilbert's own use of it in his commentary on that treatise), led to the attempt to produce an axiomatic theology. Peter of Vienna (or of Poitiers) places near to the beginning of his *Summa* (*c.* 1150) a set of rules which apply to created things (many of them read like the theses of the logical schools) but according to some of which we may also gain knowledge about God. In his *Regulae caelestis iuris* (*c.* 1170–80) Alan of Lille sets out no fewer

than 134 special theological rules, which he expounds and attempts to justify in the work, sometimes deriving one from another.[46] Axiomatic theology turned out, however, to be a passing fashion. The most influential of all twelfth-century theological works turned out to be the *Sentences* written by Peter the Lombard in about 1155–7. Glosses began to be written on the Lombard's *Sentences* in the later twelfth century and, from the thirteenth to the fifteenth centuries, commentary on what were simply called 'the *Sentences*' was the vehicle for much of the most important theological and philosophical work (see pp. 194–5). The Lombard probably based his *Sentences* on the discussion of doctrinal difficulties which took place in his lectures on the Bible, but he drew together his material in a systematic way, to provide an orderly consideration, problem by problem, of the whole area of theological debate.

The Lombard's *Sentences* were valued, above all, for their orthodoxy—although many passages show a powerful logical mind, fully abreast of the subtleties of an Abelard or a Gilbert of Poitiers. Some of those who followed his methods were far more openly enthusiastic for logical analysis; few more so than his pupil, Peter of Poitiers (not to be confused with the Porretan Peter, also from Poitiers). Peter's discussion of divine omnipotence ([7.23] 48–68) in his *Sentences* (*c.* 1176) provides a good example of this logically intricate approach to doctrinal problems, since Peter borrows some of the best ideas of theologians from the past two decades and also adds his own.[47]

Like Abelard, he argues that 'God is omnipotent' does not mean that he can do all things, since he cannot walk or eat or sin, but rather (following Augustine) that God can do whatever he wills. Peter adds to this the requirement, mentioned by Peter the Lombard, that 'nothing whatsoever can be done to God' (which would seem to entail that he can not do whatever he does not will to do). Peter does not explain why, but this extra requirement would overcome the objection that Augustine's definition is too weak since it makes omnipotent whoever limits his wishes to his capabilities. He goes on to consider the position (Abelard's, but he is not named) that God can do only what he does, which is supposedly entailed by a variety of considerations of the form: God does only and all what is good (what is fitting, what his justice requires). Peter's solution is to distinguish between 'good' predicated of men and of God. Men are good because what they do is good, but what God does is good because it is done by God. He can then—making a similar distinction to that used by Abelard between *de dicto* and *de re* modalities—distinguish two senses of 'God can do only what it is good to be done by him'. They are a composite *(de dicto)* sense: 'God can do only that-which-if-done-by-him-is-good'; and a divided

(de re) sense: 'God can do only that which is good: i.e. he cannot do that which is now bad.' Only the composite sense yields a true statement, and the composite sense does not limit what God can do, but merely affirms that whatever he in fact does is good (because he does it). Peter then works through a number of more purely logical fallacies which seem to limit God's power. Peter finishes the section with a long discussion of God's power to alter natural necessities. God, he argues, can bring about what is impossible according to natural causality, for instance, that a man is an ass. But 'the man is an ass' is true only if it is interpreted as saying that, according to natural causes, he is man, but according to a higher cause, he is an ass.

CONCLUSION: OLD SOURCES, NEW SOURCES AND THE ACHIEVEMENTS OF TWELFTH-CENTURY PHILOSOPHY

The preceding sections will have given the impression that, in most important respects, twelfth-century thinkers used only a narrow range of ancient and late antique texts, most which had been available since the ninth century: the *logica vetus,* Plato's *Timaeus,* Boethius' *On the Consolation of Philosophy* and *Theological Treatises,* complemented by Latin philosophical and scientific texts by Cicero, Macrobius and Martianus Capella; the only exception seems to be Aristotle's *On Sophistical Refutations,* the one work of the *logica nova* which was taken up with enthusiasm in this period. The twelfth century thus appears to present a stark contrast to the thirteenth, when philosophy in the Latin West was transformed by contact with the whole range of Aristotle's writings, and with work by the great medieval Arab and Jewish thinkers, such as Avicenna, Averroes and Maimonides.

In one way, this impression is misleading. A number of the translations which would be influential during the thirteenth century were made in the years from 1150, especially in Toledo (see pp. 226–7). One of the most important of these translators, Dominicus Gundissalinus (d. after 1181), wrote a number of independent works which combine the influence of Avicenna and Latin authors such as Boethius.[48] There were writers such as Adelard of Bath (writing between *c.* 1110 and 1145) and Hermann of Carinthia (fl. 1138–43) who learned Arabic and exploited Arabic sources—though their interests were more scientific than philosophical.[49] The *Liber de causis (Book about Causes),* a translation of an Arabic adaptation of the late Neoplatonist Proclus' *Elements of Theology,* was known to Alan of Lille. Some of Aristotle's non-logical works were being used in Salerno late in the century; around 1200 or shortly afterwards, David of Dinant, who had travelled in

Greece, translated and used passages from Aristotle's scientific writings, and John Blund wrote a *De anima (On the Soul)* using Aristotle and, especially, Avicenna.[50]

Despite these reservations, it would still be right to conclude that the main achievement of twelfth-century philosophy was not related to newly available ancient or Arabic material. Nor, indeed, despite many of these scholars' great reverence for the ancients, should it be seen in terms of a deeper assimilation of the ancient texts previously known, or even of a new approach to them. The great writers of the first half of the century—Abelard, Gilbert of Poitiers (and some would wish to add William of Conches and Thierry of Chartres)—posed and tackled philosophical questions with an originality which makes the model of assimilation inappropriate. The second half of the century did not produce any philosophers of the same stature, but it saw two important developments, largely unrelated to ancient sources: the development of a systematic, argumentative method of theology, and the elaboration of sophisticated logical techniques for semantic analysis and the study of argument. It would be these, along with the effects of the new Aristotelian and Arabic material, that would provide the framework for the impressive philosophical developments in thirteenth- and fourteenth-century Paris and Oxford.

NOTES

1 For a fuller sketch of the historiography of twelfth-century philosophy, see Marenbon [7.66] 101–6.
2 See Chapter 1, pp. 14–15 for fuller discussion.
3 See Marenbon [7.42] 80–4; for a wider study of the themes in early medieval commentaries and glosses on Aristotle and Porphyry, see Marenbon [7.67].
4 For the identification of Garlandus and material on *in voce* exegesis, see Iwakuma [7.52] 47–54; for this interpretation, see Marenbon [7.68] 108–16.
5 See Jolivet [7.57] where the material is collected and this interpretation advanced; cf. de Libera ([7.61] 142–5) and M.Tweedale, 'Logic: to the time of Abelard' in Dronke [7.49] 204–5.
6 John of Salisbury [7.13] III, 2, pp. 124–5; trans. in [7.34] 151–2.
7 The arguments for attributing the *Glosae* to Bernard, along with a full account of Bernard's life and the testimony (mainly from John of Salisbury) to his teaching, are given by Dutton, in his edition of the *Glosae* [7.7] 21–45, 239–49.
8 The dating of the *Dialectica* is controversial: see Mews [7.70] 74–104 and Marenbon [7.68] 41–3.
9 On impersonal statements, see Jacobi [7.53]; on the copula, see de Rijk [7.76] (acute discussion and full bibliography on the question).
10 Christopher Martin (see especially [7.69]) has been the first modern scholar to explain Abelard's theory of entailment. He also brings out the parallels between

Abelard's approach and that in modern 'relevant' logics. The following paragraph depends entirely on his work. On the theory of topics, see above, Chapter 1, pp. 14–15.

11 On the close connection between the principle observed by Boethius (see above, Chapter 1, p. 14) that it is not possible that *p* implies *q* and *p* implies not-*q*, and the principle that it is not possible that *p* implies not-*p* (arguably the two principles are equivalent), see Martin [7.69] 381.

12 See esp. Abelard [7.19] 153:33–160:36 and [7.20] 365:13–370:3 and cf. de Libera, 'Abélard et le dictisme' in [7.44] 59–92; Martin, 'The logic of the *Nominales*', in Courtenay [7.48] 110–26; de Rijk, 'La signification de la proposition (dictum propositionis) chez Abélard', in [7.74] 547–55; Marenbon [7.68] 222–9.

13 See Abelard [7.19] 199–210 and Abelard [7.14] (entirely on modality). On this subject, see Knuuttila [7.59] 82–96 and Marenbon [7.68] 221–5.

14 He presents these at Abelard [7.20] 10:17–16:18, 513:15–522:9; cf. Tweedale [7.81] 89–132.

15 Abelard develops this ontology in the *Dialectica* and the *Logica:* for a full discussion and references, see Marenbon [7.68] 117–37.

16 See Abelard [7.20] 129:33–6 and (on *differentiae:* see below) 84:14–21, 92:22–9; cf. Marenbon [7.68] 119–22.

17 See esp. Abelard [7.17] 342:2434–344:2532; the whole question is discussed and other texts are given in Marenbon [7.68] 138–61.

18 There is a large literature on Abelard's theory of universals. Among the important modern discussions are Tweedale [7.81], de Rijk, 'The semantical impact of Abailard's solution of the problem of universals', in Thomas [7.80] 139–50 and Jolivet [7.57]. The following paragraphs summarize the rather different view proposed in Marenbon [7.68] 174–201.

19 On imposition, see Abelard [7.19] 595:11–31.

20 The fullest treatment of various types of difference is in the *Theologia Christiana,* Abelard [7.17], 247:1677–255:1936; cf. Marenbon [7.68] 150–5.

21 In Marenbon [7.68] 213–331, the three levels of Abelard's ethical theory are examined. The following section draws especially on chapters 11 and 12 (pp. 251–81).

22 Valuable discussions are given by Blomme [7.46] and M.de Gandillac, 'Intention et loi dans l'éthique d'Abélard' in [7.74] 585–608.

23 Abelard [7.21] 10:28–14:25. Abelard puts forward his analysis of the ethical act in a number of works, including the commentary on Romans and the *Sententie*. References here are made, wherever possible, to *Scito teipsum,* both because it contains Abelard's latest formulation of his ideas and it is easily accessible in good translation.

24 See esp. Marenbon [7.64]; Abelard develops his ideas about natural law especially in Book II of the *Theologia Christiana* and in the *Collationes*.

25 On Gilbert's life, see Nielsen [7.73] 25–39.

26 For Gilbert's distinction between the different disciplines, see esp. [7.10] 79:43–88:69; on proportional transumption, see e.g. 143:42–7, 170:87–93. On the whole question of Gilbert's method, see Marenbon, 'Gilbert of Poitiers', in Dronke [7.49] 330–6.

27 In my piece on Gilbert (cited in the previous note—esp. 329–30, 351–2) I lay strong (in retrospect too strong) emphasis on the extent to which Gilbert's doctrinal

aims shaped his arguments, without bringing out how Gilbert was also contributing to the philosophical debate of his times. De Rijk's criticism [7.75] 34–5, though mistaken in attributing to me a hostile intention towards Gilbert, is in this way very just.

28 Valuable analyses of Gilbert's theory of *quo est* and *quod est* are provided in de Rijk [7.75] and Gracia [7.50] 155–77.

29 Many scholars consider (on the basis, especially, of [7.10] 195:100–7) that, for Gilbert, *quo ests* are images of disembodied Platonic Ideas. In 'Gilbert of Poitiers', in Dronke [7.49] 349–51, I argue that this is a misinterpretation: Gilbert introduces disembodied forms merely in his account of the creation of the elements, not as the archetypes of *quo ests*. For a different view again, see de Libera [7.58] 170–5.

30 See Knuuttila [7.59], esp. 211–17; Knuuttila discusses the passage in question at pp. 216–17.

31 On this view, 'Socrates' would have to be a rigid designator, picking out the individual Socrates in every possible world where he exists, however different he is from one world to another. But Gilbert's statement about the whole form comprising every *quo est* that belongs to the thing by nature seems to leave the room for variation disturbingly wide. There seems, for instance, no guarantee that Socrates must have the same parents from one possible world to another, and it becomes unclear how at all we should identify Socrates.

32 See esp. Elford, 'William of Conches', in Dronke [7.49] 308–27; more generally on William, see Gregory [7.51].

33 For reconstructions of Thierry's underlying ideas, see Dronke, 'Thierry of Chartres', in Dronke [7.49] 358–85 and Gersh, 'Platonism-Neoplatonism-Aristotelianism: a twelfth-century metaphysical system and its sources', in Benson and Constable [7.45] 512–34.

34 [7.27] 81:1–7, 82:25–33; this passage is analysed and its sources discussed by Gersh in the article cited in the previous note, pp. 517–24.

35 'Aggreditur propositum…' (printed as Thierry's *Glosa*), [7.27] 275:11–276:39 and 'Intentio auctoris…' (printed as Thierry's *Lectiones*), [7.27] 168:76–170:33, 176:45–50, which in this discussion puts forward, somewhat less clearly, almost exactly the same view as 'Aggreditur propositum…'.

36 See William of Lucca, commentary on ps–Dionysius, ed. F.Gastaldelli, Florence, 1984, xcii–xciii for dating, and xxi–xxvii for the authorship of the *Summa dialetice artis*. For Platonic Ideas, see especially pp. 100–2. For further discussion of this and a related, unpublished text, see Marenbon [7.66] 114–17.

37 The various articles in Courtenay [7.48] provide the best guide to what is known about these schools. See especially Iwakuma and Ebbesen, 'Logico-theological schools from the second half of the twelfth century: a list of sources' (pp. 173–210), which I follow closely here. A very intelligent discussion of the material is given by de Libera [7.61] 132–7. A wealth of material is collected in de Rijk [7.77] II, 2. For a survey, see Jacobi, 'Logic: the later twelfth century', in Dronke [7.49] 227–51.

38 This has been disputed, but two contributions to Courtenay [7.48]: Normore ('Abelard and the school of the Nominales', pp. 80–96) and Iwakuma ('Twelfth-century Nominales: the posthumous school of Peter Abelard', pp. 97–109), put the identification beyond reasonable doubt.

39 See de Rijk [7.78] and Marenbon, 'Vocalism, nominalism and commentaries on the *Categories* from the earlier twelfth century', in Courtenay [7.48] 51–61, at 54–5.
40 Both the *Introductiones montane maiores* and the *Ars meliduna* remain unpublished; de Rijk discusses and prints extracts from them in [7.78] 12–22 and [7.77] II, 1, 264–390. For the *Summa dialetice artis,* see [7.32].
41 For the *Melidunenses,* the so-called *Secta Meliduna* (see de Rijk [7.77] II, 1, 282–6, where the list of these is printed); for the *Nominales,* the so-called *Positio 'nominalium',* ed. Ebbesen [7.4] 430–2.
42 These observations are taken from Martin [7.69] 394–400, where much fuller details are given.
43 The most important parts of the discussion are printed by de Rijk [7.77] II, 1, 306–9; I am grateful to Dr Yukio Iwakuma for supplying me with a transcript of further material from the *Ars*. De Libera ([7.61] 158–67) discusses the treatment of universals in the *Ars* at length. He suggests that the theory had a further refinement, in that universals are *complex* intelligible structures, which are expressed not by common names but by complex expressions.
44 The reception of *On Sophistical Refutations* is examined in detail in de Rijk [7.77] I.
45 See below, Chapter 17, where most of these areas are discussed.
46 For a brief guide to the extensive bibliography on Porretan theologians, see my 'A note on the Porretani', in Dronke [7.49] 353–7. There is no space here to do justice to the varied work of Alan of Lille (*c.* 1120–1203), which includes philosophical allegories, sermons and two more straightforward theological textbooks; the best guide is in the introduction to Alan of Lille [7.3].
47 There is a fine analysis of discussions of this subject (and of Peter of Poitiers) in Boh [7.47] ; I follow Boh in some of my discussion in the next paragraph.
48 See Jolivet, 'The Arabic inheritance', in Dronke [7.49] 134–45 for a detailed discussion and full bibliography.
49 See Burnett, 'Hermann of Carinthia', in Dronke [7.49] 386–404.
50 On David of Dinant, see Maccagnolo, 'David of Dinant and the beginnings of Aristotelianism in Paris', in Dronke [7.49] 429–42; on John Blund, see Jolivet, 'The Arabic inheritance', in Dronke [7.49] 146–7.

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CHAPTER 8

The intellectual context of later medieval philosophy: universities, Aristotle, arts, theology

Stephen Brown

ORIGIN OF THE UNIVERSITIES

A number of medieval towns in the twelfth century owed a large portion of their renown to their schools. Chartres was both respected and criticized for its efforts to reconcile Plato and Aristotle. Reims was a centre for the study of Scripture and the Fathers. Anselm of Laon brought fame to his home as a centre of developing theology. Paris was a magnet attracting famous teachers: Abelard, the dialectician and theologian; Hugh, Richard, and Andrew of St Victor, who brought to their Parisian abbey a justly respected name in the study of Scripture and a reverential awe for its level of mysticism; and Peter Lombard, whose *Sentences* became, from the thirteenth to the sixteenth century, the ordinary textbook of theology. Toledo's cathedral school became a place of contact between the Christian and Muslim intellectual worlds and offered a home for translators and commentators. In that school Dominic Gundissalinus, Gerard of Cremona, the Scotsman Michael Scotus, and the Englishman Alfred of Sareschal provided translations of Aristotle and his Islamic commentators that would later serve as key curriculum texts in the nascent universities.[1] Bologna grew famous for the study of law, owing mainly to the stature of the legal advisers of Frederick Barbarossa and to the masters who explained Gratian's great

canonical collection, the *Decretum*. Salerno drew students for medicine owing to the fame of Constantine the African, translator of the *Articelli* or *Art of Medicine,* a collection of texts that became the heart of the medical curriculum. Under the leadership of Bartholomew of Salerno, Maurus and Urso of Calabria, Salerno stood as the centre for the study of medicine from 1050 to 1200 before yielding its place of primacy to Montpellier and Paris ([8.22] 65–88).

At the end of the twelfth and the beginning of the thirteenth centuries great consolidations occurred. If we limit ourselves to the consideration of theology, Paris led the way on the Continent. With the support of Popes Innocent III and Gregory IX, the University of Paris became the theological stronghold of the Christian world. The cathedral school of Notre Dame, the abbey of St Victor, the houses of the newly arrived Dominicans and Franciscans, formed an intellectual guild or corporation of masters and students, a *universitas magistorum et scholarium*. In the pursuit of their common interests they became a unified and autonomous community. This guild took the title 'University of Paris'. Across the Channel, Oxford outstripped the other English schools, owing mainly to the influence of Robert Grosseteste, student of scriptural wisdom, translator of Aristotle's *Nicomachean Ethics,* commentator on the Greek philosopher's *Posterior Analytics,* bishop of Lincoln, and chancellor of the young university ([8.21] 3–48).

THE AUGUSTINIAN MODEL OF STUDY

The programme of study for the cathedral, monastery and palace schools of the twelfth century, and for the early universities of the late twelfth and early thirteenth centuries, was inspired by St Augustine's *On Christian Doctrine*. Book II of Augustine's work viewed traditional pagan studies, if approached prudently, as helpful to those seeking understanding of the divine wisdom found in the sacred Scriptures. The seven liberal arts (the *trivium* of grammar, rhetoric and dialectic and the *quadrivium* of arithmetic, astronomy, geometry and music), along with geography, botany, geology and the mechanical arts all could assist those who read the Scriptures to attain a fuller grasp of the divine message. The twelfth-century schools of liberal arts became the faculties of arts in the universities of the thirteenth century. The arts faculty was a preparatory faculty, training students for further studies in law, medicine, and especially theology.

Richard Fishacre, in a sermon that he preached on the first day of class at Oxford in 1246, tells us that there is a threefold wisdom. The first kind of wisdom is that which is written in the book of life. This form of wisdom is the wisdom of God himself. To see God's meaning

and plan for everything, to the degree that is possible for man, is the goal that all studies should strive to achieve. The way of attaining this goal is by carefully studying the two other books that manifest the divine wisdom found in the book of life: the book of the Scriptures and the book of nature. The Scriptures provide God's revelation to humankind of the riches of his own wisdom. The Bible is, thus, the principal help in coming to some understanding of divine wisdom. The Scriptures also give us a view of the book of nature that differs from the portraits of nature given by philosophers who are unaided by divine revelation. The Scriptures tell us that the natural world is a world created by and cared for by God. They likewise tell us that the created world provides vestiges and images of its Creator. The Bible uses natural things and the events of history to lead us to deeper understandings of God's wisdom. We must therefore study the Scriptures to learn what they themselves say of God; but we must also, guided by the Bible, study the natural world to see how richly it tells us about the God who creates and cares for it, and whose imprint it bears. Both the Bible and creation thus help us to discover 'the depths of the riches both of the wisdom and knowledge of God' (Rom. 11:33) ([8.11] 23–36 and [8.20]).

This sermon of Richard Fishacre at Oxford, following the Augustinian model of study, shows the way of investigation in the early medieval universities. The final goal of all study is to come to a greater understanding of God's view of reality, by taking as primary source the sacred Scriptures, which reveal the divine wisdom. The secondary instrument for discovering divine wisdom is found in the created world, which provides all the analogies for coming to a fuller understanding of God. They are the analogies used in the Scriptures: 'The kingdom of heaven is like a mustard seed'; 'You are the salt of the earth'; 'Behold the lamb of God, who takes away the sins of the world'; 'My kingdom is not of this world.' All other studies serve as helps in pursuing the divine wisdom that lies hidden in such scriptural declarations and that is manifested in some way in the created images of mustard seeds, salt, lamb, and earthly kingdoms that the Scriptures employ to speak of the hidden things of God. All the human disciplines, principally those of grammar, rhetoric, dialectic, arithmetic, geometry, astronomy, music—and philosophy, in the more technical sense of the term—are handmaids to be put at the service of the mistress, the wisdom of the Scriptures ([8.11] 26–32).

THE STUDY OF ARISTOTLE

At the beginning of the universities, only in the area of dialectic (logic) did Aristotle fit into the traditional curriculum of studies that prepared students for the study of the sacred Scriptures. What became known as

the *logica vetus,* or old logic, included Aristotle's *Categories* and *On Interpretation*. This old logic, available in Latin to the schools since the time of Boethius (480–525), also included the introduction to the *Categories* made by Porphyry and the commentaries on these two works of Aristotle done by Boethius himself. Before the middle of the twelfth century the *logica nova,* or new logic (the *Prior Analytics, Posterior Analytics, Topics* and *On Sophistical Refutations*) was also in use. Some of these works derived from the translation efforts of Boethius, but had been lost or neglected; others, by 1150, had been newly translated by James of Venice.[2] Thus the whole of Aristotle's *Organon* or logic was available and had an ever deepening influence, transforming medieval Christian thinking from a sacramental or symbolic form of knowledge to a more scientific discipline through the study of various causal connections.

As the more properly philosophical works of Aristotle (e.g. *On the Soul, Physics, Metaphysics, Nicomachean Ethics* and *Politics*) were translated and began to be studied, more than the style or character of Christian knowledge was changed. The contents of Aristotle's works, his natural philosophy, slowly but surely also began to have their influence: his view of man, his teaching on the eternity of the world, his portrait of the unmoved Mover or supreme Being, his doctrine of virtues, his focus on the natural fulfilment or end of man. For the first time since the patristic era, Christian thinkers encountered a pagan philosopher directly. Many were struck by the brilliance of his intelligence and the strength of his argumentation; others were troubled by those of his teachings that seemed incompatible with those of the Christian faith.[3]

DIFFICULTIES WITH ARISTOTLE'S NATURAL PHILOSOPHY

Attempts at moderating the disturbing influence that Aristotle's philosophy might have were made a number of times. The first intervention came in 1210 from the Provincial Council of Sens, presided over by Peter of Corbeil; it forbade the reading of Aristotle's 'natural philosophy' at Paris. Five years later, the papal legate Robert de Courçon also prohibited the reading of Aristotle's 'natural philosophy'. In 1231, Pope Gregory IX appointed a commission of William of Auxerre, Simon of Authie and Stephen of Provins to correct the prohibited books. Since William of Auxerre died shortly thereafter, the commission never met. Furthermore, this effort made by Gregory to correct Aristotle gradually became viewed as an admission that Aristotle was not necessarily wrong, but only wrong on certain issues. Little by little the prohibition against his natural philosophy was ignored. By 1255, all the known works of

Aristotle, at least at an introductory level of understanding, were required in the arts faculty of the University of Paris ([8.26] 132–81).

Aristotle's works were read at many different levels. There was the introductory or beginner's level, where a first approach was made to one of his texts. In this beginning *lectio,* or reading, the Aristotelian text was read aloud and the basic direction and outline of the work was indicated. In a more advanced *lectio,* the text was explained in detail. In commentaries on the philosopher's works, the text was sometimes evaluated and on certain points questions were posed and answered. At the more advanced level of study, 'questions' concerning a text usually involved a deeper examination of the philosophical issues raised. In such a questioning approach, both sides of a debate were presented, and then a solution to the conflict was offered by the master. As teachers and students became more and more familiar with Aristotle's texts and philosophical positions, more specific conflicts between what he seemed to teach and what were matters of Christian belief became more evident.

Some points of Aristotelian teaching that caused problems for Christians had been passed down from the patristic era. St Augustine, for instance, had attributed to Aristotle the position that the world was eternal and therefore was not created in time. This was one of the grounds for the prohibitions at Paris against the public reading, before correction, of the natural philosophy of Aristotle in the early thirteenth century. Teachers who saw benefits for Christian theology that might come from the study of Aristotle, argued, however, that Aristotle never dealt with the question of creation. Aristotle, according to their reading of his texts, was simply giving a physical explanation, claiming that time did not exist before the world itself came to exist. Philip the Chancellor and Alexander of Hales, for instance, claimed that metaphysics dealt with the issue of creation and that Aristotle did not pass metaphysical judgements on the nature of the world. According to their interpretation, Aristotle was only speaking as a physicist or natural philosopher: describing the world as it actually exists, not taking a position on whether it was created or not (see [8.16] 57–70).

Other problems concerning Aristotle's teachings none the less gradually came to the fore as Christian thinkers became more familiar with his positions and with the commentaries made on them by earlier authors, especially the often conflicting commentaries of the Arabic philosophers, Avicenna and Averroes. St Bonaventure, in his Lenten sermons at Paris in the late 1260s and early 1270s, pointed out a number of problems in Aristotelian teaching at the university. The disturbing views at times might not clearly be positions of Aristotle himself, but rather positions of those in the arts faculty who show the

strong influence of Averroes' interpretations of the Greek philosopher. The principal difficulties were: (1) the unicity of man's intellect, implying no personal immortality, and thus undermining individual moral responsibility; (2) the eternity of the world, entailing its independence from divine creation and a denial of divine concern or providence; (3) the independent study of philosophy—pretending to be a supreme and definitive wisdom separated from Christian wisdom.[4]

The most detailed catalogue of the difficulties raised by the teaching of certain heterodox or radical Aristotelians in the arts faculty, however, is found in the list of 216 propositions condemned at Paris in 1277. They might be divided into two basic groups: (1) propositions concerned with the nature of philosophy and its relation to divinely revealed truths; (2) propositions of a specific kind that challenge particular truths of the faith. Among the first type of propositions we can find these condemned statements: (a) there is no more excellent state than to dedicate oneself to philosophy; (b) the only wise men of the world are the philosophers; (c) for a man to have any certitude about a conclusion, it is necessary for him to base his argument on self-evident principles; (d) nothing should be admitted as true unless it can be proved by a self-evident principle or by something based on self-evident principles; (e) man should not be content merely with authority if he is to achieve absolute certitude in regard to any question; (f) the Christian faith impedes learning; (g) there are fables and false things in the Christian religion just as in other faiths. Among the specific positions condemned we find the propositions: (a) God does not know anything but himself; (b) the world, including all the species that are contained in it, is eternal; (c) it is impossible to refute the reasons of the philosopher concerning the eternity of the world without admitting that the will of God contains incompatibles; (d) the intellect is numerically one for all men; (e) happiness is had in this life, not in another.

There were, then, in the late 1260s and throughout the 1270s– 1280s signs of a real challenge to the Augustinian model of study, which stressed the unity of Christian wisdom. This challenge, of necessity, also affected studies in the faculty of theology as teachers and students moved there after learning or teaching in the arts faculty.[5]

THEOLOGY AS A DEDUCTIVE SCIENCE

The 1253 university statutes at Oxford, confirming actually existing practice, indicate that a student could attain his degree in theology (which was considered a higher degree, as opposed to the degree taken earlier

in the arts) by one of three routes: (1) he could study the Bible, a practice that usually entailed writing commentaries, using earlier exegetical efforts, on at least one book of the Old Testament and one book of the New Testament; (2) he could present a commentary on Peter Comestor's *Scholastic History* which presented a broader overview of all history, based primarily on the biblical account; (3) he could comment on the *Sentences* of Peter Lombard, a collection of doctrinal questions organized in four books according to logical principles. The same options in practice were available even earlier in Paris, as is clear not only from the statutes of the Dominican Order listing these three options, but also from the practices that were in vogue after Alexander of Hales made the *Sentences* of Lombard a course textbook. Generally, we can say that the third option, the commentary on Peter Lombard's *Sentences,* was the one most frequently followed in the universities by the 1250s, if not earlier. Theology, through this instrument, thus became more and more a logically organized or scientific discipline (see [8.1] 112, [8.2] 49).

The logical organization of doctrinal questions is evident in the many earlier authors, who followed Peter Lombard's *Sentences* by commenting in the margins of his text. His text was their text. It is also evident in the *Summae* of the late twelfth and early thirteenth centuries, which for the most part patterned themselves on his schema of questions. Explicit efforts to justify this procedure only come later. They can be found, for example, in the *Summa quaestionum* written by William of Auxerre in the 1220s, with its close structural correspondence to Lombard's *Sentences*. Lombard (d. 1160) provides no discussion or justification of his method; nor do the people who gloss his *Sentences* or write *summae quaestionum* that slightly alter Lombard's organization. William of Auxerre, living in a university world more strongly touched by Aristotle's logical works, tries to give a methodological justification for writing such a work. For William, theology starts with certain principles or premisses and makes explicit, or deduces, the further knowledge implied in these premisses. The primary premisses in theology are the articles of the Christian faith. They are the starting points for theological reflection. They also set the boundaries for theological studies, in the sense that theology should not deviate from the articles of the faith nor pursue questions unrelated to basic Christian beliefs ([8.6] 17).

Other theologians immediately following William of Auxerre more deliberately attempted to set up parallel structures between Aristotle's model of science and their intellectual efforts in theology. Odo Rigaud, speaking of a 'science of the faith' maps out the correspondences and differences between the method he follows and the method sketched by Aristotle in the *Posterior Analytics* (see [8.23] II, 12–13). Thomas Aquinas set up a parallel between Aristotle's description of a

subalternated science, like optics, which used principles borrowed from a higher or subalternating science such as geometry, and the subalternated science of theology that uses principles borrowed from the higher science possessed by God and the blessed—principles that God has revealed in the Scriptures. Just as geometry, which studies lines, helps the student of optics, which studies lines of vision, come to an understanding of the lines of vision, so God's knowledge of all that he has revealed provides the ultimate first principles which allow the student of theology to come to a knowledge or understanding of God and all things as they are related to him. Theology, then, is a science in the same way that optics is a science ([8.15] 67–92).

CRITIQUES OF THEOLOGY AS A DEDUCTIVE SCIENCE

As we have indicated, the intellectual atmosphere in the late 1260s and throughout the 1270s–1280s had altered. Argument had become more precise and hard-nosed. Godfrey of Fontaines, who was a student at Paris during most of Thomas Aquinas' second teaching period there (1269–72) attacked, in question 10 of his *Quodlibet IV* (1287), Aquinas' claim that theology was like a subaltern science. Godfrey distinguishes two kinds of certitude: the certitude based on evidence and the certitude based on faith. Technically, he calls them certitude of evidence and certitude of adherence. He then argues that if we start with principles or premisses that we hold because of faith, then no matter how sure we are that the conclusions are true, still they will never be science, since science is based on evidence. Of course, a correctly argued conclusion can be a certain conclusion. Yet, since it still is based on faith, it is not an evident conclusion, and thus is not science. We might want to speak of the necessary way in which a faith conclusion flows from faith premisses and argue that there is a science of the consequence. Yet this in no way supplies evidence for the consequent or conclusion.

Godfrey also contested the example given by Aquinas. He argues that where a subaltern science must rely on principles received from an expert in a higher science which, within the subaltern science, are believed but cannot be *known,* then the subaltern science is not truly a science at all. Yet this is the case in theology as Aquinas presents it: the principles of theology, in so far as they are revealed by God, are believed. Just as human authority begets opinion which is a state of mind lacking both kinds of certitude, so divine authority produces faith which is a state of mind that only has the certitude of adherence. Of what advantage is it, asks Godfrey, for a theologian who is relying on such

principles, which he cannot know but must accept as a matter of faith, that they are known evidently and with certitude to the blessed and that, in themselves, they are evident and certain? This does not bring the believing theologian evidence. He remains essentially a believer, without evidence. Theology is not a science, at least in the sense that it brings evidence for theological truths (see [8.3] 260–4; cf. [8.25] 120–31).

Henry of Ghent (d. 1293) was also a critic of Thomas Aquinas. Whereas Godfrey of Fontaines criticized Aquinas from an Aristotelian viewpoint, Henry criticized him from an Augustinian one. One of Henry's main efforts in his approach to philosophy and theology was to show that Aristotle had a limited vision of reality, that he was deprived of the riches of Christian revelation, and that his philosophy was too pretentious in presenting itself as a complete human wisdom.

In his discussion of the nature of theology, Henry gave the strictest literal analysis of Aristotle's theory of subalternation, as found in the *Posterior Analytics*. Then he declared that none of the philosopher's types exactly fit what Thomas tried to make them fit. In effect, the philosopher never knew a case of subalternation of the kind that Thomas was speaking about (see [8.8] 52r–4r; cf. [8.12] 337–45, [8.14] 194–206).

GODFREY'S AND HENRY'S ALTERNATIVES TO DEDUCTIVE THEOLOGY

Godfrey's critique of Aquinas argued that any conclusion deduced from premisses held on faith could only be a conclusion of faith. In proceeding to such a conclusion or consequent we gain no evidence. The only way in which one might speak of any scientific progress is in the logical realm: we can by correct logical procedure guarantee science of the consequence. This critical side of Godfrey moved at least one later author to place Godfrey in the camp of those who held that theology is a science of consequences (see [8.25] 108). For Godfrey, however, theology is, beyond a science of consequences, a science of Sacred Scripture. In a way that a layman does not, a theologian develops a habit whereby he can show in the texts of Sacred Scripture the justifications or warrants for the truths of the Christian faith. He knows, for instance, that the Trinity and the Incarnation are taught or anticipated in such and such texts of the Old and New Testament. He thus knows not only the truths of the faith as presented in the Creed; he knows the scriptural bases on which the Church supports herself in teaching them. And this knowledge is not just a habit based on memorization. A theologian comes to understand the Scriptures and

sees that sense cannot be made of certain passages unless one admits a plurality of persons in God and a plurality of natures in Christ.

Godfrey's full position might even claim more of a role for a theologian than what we have stated so far, but most later portraits of his stance limit him to holding that theology is a science of Sacred Scripture (see [8.4] 69–82; 4. [8.25] 155–67). Theology as a science of Sacred Scripture was far too restrictive for Henry of Ghent, since it seemed to leave aside any knowledge of the realities of which Sacred Scripture speaks. It seemed to him that Godfrey's position abandoned the study of reality to philosophers and awarded simply the study of the sacred texts to the theologians. In question 2 of *Quodlibet XII* (1288), Henry waged his attack on Godfrey:

> It is very striking that teachers in every other faculty do their best to praise their science. It is only certain theologians, in an effort to promote philosophy, who put down theology, saying that it is not properly a science and that it cannot make the realities we believe in truly intelligible in the present life. Such theologians block any way of knowing or understanding the things we believe in. They lead others to the point of having no hope of understanding these realities. Surely, this is pernicious, dangerous to those who hear it, and harmful to the Church.
>
> ([8.7] 485v, trans. SFB)

It is in reaction to Godfrey's main thesis, that theology is a science of Sacred Scripture, that Henry of Ghent was forced to pursue another route, which would admit a science of the realities spoken of in the Scriptures and presented by the Church for Christian belief. He claimed that theologians receive extra assistance from God to understand the realities of which the Scriptures speak.

It is important to realize that, for Henry, any certain knowledge that man might attain requires at least God's general assistance or illumination. A helpful analogy might be found by imagining a person inside a cathedral, looking at the colours and shapes of the stained glass windows. What that person immediately focuses on, of course, are the colours and shapes of the figures in the windows. When we reflect on the situation, however, we realize that this person could not see the colours or determine the shapes unless the sun, hidden from immediate perception, were present and active. Similarly, we would grasp nothing for certain, because of the darkness of the objects or the weakness of our sight, unless God, like the sun, were illuminating the objects and assisting our sight. For Henry, this is the general illumination required for any certain knowledge. In the case, however, when a

theologian is dealing with the objects of faith, objects beyond man's natural perception even when aided with the general assistance of God's illumination, he needs a special assistance or illumination to grasp these supernatural objects of faith.

Henry presents this special light as a middle light between the light of faith, which elevates men with faith to know, by hearing the authority of Scripture, things that are above anything Aristotle ever grasped. It is also a light below that possessed by the blessed who behold the realities that at one time they may have only believed. This middle light is a special illumination given to theologians, as distinct from laymen and the blessed, to grasp the realities they believe in.

> In regard to the divine world, by knowing the natures of the terms of faith, such as 'Father', 'Son', and 'Holy Spirit', he can, by the intellect's search, with the aid of supernatural light [faith] and with special divine illumination [the middle light], come to know that the Holy Spirit proceeds from the Father and the Son, and not from the Father alone. And the same holds for other realities that are proper to the science of theology and that pertain to faith.
>
> ([8.8] 94v–95r, trans. SFB)

The science of theology as developed by Henry thus appeals to a middle light between the light of faith and the light of glory. Theology thereby is very definitely aimed beyond the study of the Scriptures as such to a study of the higher realities of which the Scriptures speak ([8.7] 485r–486v).

THE DECLARATIVE THEOLOGY OF PETER AUREOLI

Criticisms of Henry of Ghent's position were strong. Godfrey thought that Henry was placing theologians beyond academic accountability. They could merely claim a superior light that others lacked ([8.4] 71). John Duns Scotus points to a predecessor who wondered why students and teachers spent so much time in the classroom sweating over theological arguments rather than in chapel praying for this theological light ([8.9] 43). In brief, to many theologians Henry seemed to be claiming more than he could warrant.

Peter Aureoli (d. 1328) thought that the direction of theology had gone awry since the time of William of Auxerre, often acclaimed as the thirteenth-century apostle of deductive theology. Aureoli gives one of the most extensive discussions on the nature of theology that can be

found among medieval authors. He presents in great detail the positions of Thomas, Godfrey, Henry and Duns Scotus, refutes each in terms of his own view of the character of theology, and then tells us what theology is really about.

When we say that he presents and criticizes the opinions of these theologians, he does not simply repeat the critiques others have given of these opinions. It is from his own perspective concerning the nature of theology that he produces his critique. What is that perspective? It is this: theologians develop many cognitive habits when they study theology. Since they make many deductions, they develop strong logical skills. Since they use among their premisses, besides the premisses of faith, materials from physics and metaphysics, they become very able in Averroes' philosophy of nature and Avicenna's metaphysics. Since they trace revealed truths back to their biblical sources, they become very knowledgable in the texts of the Scriptures. Theologians thus develop cognitive abilities in many fields of learning. Yet none of the intellectual habits that we have mentioned are the proper habit of a theologian. Most recent theology, according to Aureoli, has been led astray from what it is really about. It has been led astray by the limping analogy that the articles of the faith are principles or quasi-principles in theology. Theology in the proper sense is surely about the articles of the faith, but not as principles from which we deduce new truths. It is rather about the articles themselves. Properly speaking, theology is declarative: it brings light to these very articles of the faith.

When Aureoli says that theology is declarative, he means first of all that the theologian, using analogies and probable reasons taken from other sciences, is able to gain and offer some understanding of the things he believes in, and is able to overcome doubts raised against them. He can, furthermore, make clear the meanings of terms that are used to express the truths of the Christian faith, and can appeal to and explain the scriptural bases that sustain these truths. In brief, he is 'ready to render an account of those things that are in him by faith' (I Peter 3:15). Now, none of these abilities makes him believe. His faith is the ground for accepting these truths. Theology is declarative: it is a habit that makes the theologian more clearly grasp with his mind the things that the Church believes in. In the words of St Augustine in Book XIV of *On the Trinity,* theology is the kind of 'knowledge by which the most wholesome faith is begotten, nourished, defended, and strengthened'.

According to Peter Aureoli, Augustine, Thomas Aquinas and all doctors of theology in their practice formed questions concerning the very articles of the faith. They asked: Is there only one God? Is there in God a trinity of persons? Is the incarnation possible? They tried to

answer such questions in their *summae* or commentaries on Lombard's *Sentences*. It is not that they doubted their truth. The *question* as a learning instrument was not developed to undermine the faith, nor to produce faith. It was a method designed to bring greater clarity to what they already believed. Instead of speaking of the articles of the faith as principles or premisses, as theologians have done since at least the time of William of Auxerre, Aureoli would have them speak of the articles of faith almost as conclusions. By responding to the *quaestio,* by clarifying the terms employed, by answering objections, by finding suitable analogies, and developing strong arguments, theologians not only make it clearer *that* there is one God, or *that* there are three persons in God, or *that* the incarnation is possible, but they make it clearer how these things are so ([8.10] 132–75; cf. [8.24] 20–78).

GREGORY OF RIMINI'S CASE FOR DEDUCTIVE THEOLOGY

In the opening question of the prologue to his *Commentary on Book I of Lombard's Sentences* in 1342, Gregory of Rimini certainly had Peter Aureoli in mind when he tried to determine what is proper theological discourse. Proper theological discourse must focus, he contends, on the articles of the faith, not on the probable arguments that might be employed to bring some clarity to the articles of the faith. Probable arguments in themselves only beget opinion, and surely theology is not primarily a discipline aimed at producing opinion.

Gregory's own view of properly theological discourse is the type of argument made up of propositions contained in Sacred Scripture or propositions deduced from scriptural propositions. Everyone realizes, he argues, that something is proved theologically when it is proved from the words of Scripture. If a theologian proves that God is eternal and does so on the basis of the eternity of motion, as Aristotle does in Book XII of the *Metaphysics,* he is not involved in theological discourse. If he bases himself on John's Gospel ('In the beginning was the Word…' [John 1:1]), then this is proper theological discourse. This is the kind of discourse that marks Augustine's arguments in *On the Trinity:* he does not prove the Trinity by probable propositions, but rather by the authority of Scripture. Likewise, when the Church determined as a matter of Christian belief that the Holy Spirit proceeds from the Father and the Son, it did not declare this to be an article of faith because of analogies or probable arguments. It was because the Church saw that this truth followed necessarily from the statements of Sacred Scripture. The ultimate resolution of all theological discourse, according to Gregory, is the truth of the sacred canon of the Scriptures. It is from

the truths of Scripture that all other theological truths are ultimately deduced. Theology, then, according to Gregory, properly is deductive, not declarative ([8.5] 13–23; [8.18] 610–44).

THEOLOGY AS DECLARATIVE AND DEDUCTIVE

Some theologians, such as Peter of Candia, who commented on Lombard's *Sentences* at Paris in 1378–80, evaluated the declarative theology of Peter Aureoli and the deductive theology of Gregory of Rimini, and judged that both approaches were necessary. He argued that the articles of the faith can, in fact, be appreciated in themselves and also as premisses for extending the domain of faith by deducing further legitimate conclusions. The method followed when the articles of the faith are considered in themselves is a direct or immediate approach to revealed truth: all the truths are seen as parts of a cohesive whole and are affirmed in an equal manner. When the articles of the faith are viewed as premisses, then the theological conclusions drawn from them are not affirmed directly. The believer adheres to them as derived, and as due to his adherence to the premisses from which they are derived and to which he directly assents. In admitting that both declarative and deductive theology are proper theological habits, Peter of Candia claims that he was following in the footsteps of John Duns Scotus and William of Ockham. He also was imitating the actual practice of almost all medieval university theologians up to the time of Gregory of Rimini (see [8.13] 156–90).

NOTES

1 For the beginnings of the translation movement, see above, Chapter 7, pp. 179–80.

2 On the *logica vetus* and *logica nova,* see also above, Chapter 7, pp. 176–7.

3 See Dod [8.17] 45–79 and Lohr [8.19] 80–98. For a fuller account of the translations (and Arab commentaries), see below, Chapter 10, pp. 226–7.

4 See Van Steenberghen [8.27] 3–114. On Bonaventure, see also below, Chapter 10, pp. 227–30.

5 See Denifle-Chatelain [8.1] 543–60 for the relevant charters.

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CHAPTER 9

Metaphysics and science in the thirteenth century: William of Auvergne, Robert Grosseteste and Roger Bacon

Steven Marrone

By the third decade of the thirteenth century there emerge the first signs of a new metaphysics. Alongside Neoplatonizing idealism we now see attempts to lay greater emphasis on the ontological density of the created world and to structure reality without resorting to the terms of a relation to the divine ideal. The ensuing philosophical reassessment was more systematic, more technically precise and more self-conscious than anything the medieval West had seen before. Given the catalysing role played by logic, it was only natural that much of this programme was carried out within the confines of an attempt to explain knowledge. For the early thirteenth century, metaphysics and epistemology went hand in hand.

The two figures who did the most to promote the new metaphysics, as well as a profoundly Aristotelianizing campaign to establish the criteria for knowledge, were masters whose important work was done between 1220 and 1235 in the schools of theology at the new universities. Robert Grosseteste (d. 1253) was born in England probably before 1170, studied and taught the arts curriculum in provincial schools and perhaps at Paris and Oxford, and began to lecture on theology at Oxford after 1214 but no later than 1225. His activity as a philosopher effectively ended with his appointment as bishop of Lincoln in 1235. William of Auvergne (d. 1249) was born in France

around 1180, went to Paris to study, and began teaching there first in arts and then by the 1220s in theology. He was named bishop of Paris in 1228, although he continued to write about philosophical matters for some years thereafter.

In Grosseteste's earlier works there is, to be sure, no hint of the new attitude. His treatise *On Truth (De veritate)* offers an ontology still firmly grounded in the Neoplatonic world-view. Quoting Anselm, he defines truth as a kind of ontological obligation: the correctness *(rectitudo)* of objective things ([9.3] 135:3–6). Such obligation is met inasmuch as things conform to God's eternal word, or, more specifically, to an idea or reason *(ratio, ratio aeterna)* in God's mind, eternally representing the object as it ought to be ([9.3] 137:1–2, 139:29–30).

This idealized notion of truth is directly manifest in Grosseteste's noetics. Drawing on an image commonplace in Latin Christian discourse since the time of Augustine, he explains that the intellect can attain the truth, its proper object, only in an intelligible light shining from God himself ([9.3] 137:2–4). The image surely serves in part as shorthand for a more complicated epistemic argument. If objective truth is a quality arising out of the conformity between an object and its divine ideal, then the mind can seize the truth only when it perceives, and can compare, both thing *(res)* and idea *(ratio)* ([9.3] 138:4–11). It is clear, however, that Grosseteste also takes quite literally the existence of a higher light in which truth must be known. He goes on to say that just as the eye can see a coloured body only when it is bathed in visible light, so the mind can know a thing in its truth only if the divine light is shining on it ([9.3] 137:19–25).

Yet when Grosseteste came to analysing Aristotle's ideas about true knowledge, a dramatically different vision took shape in his mind. In the *Commentary on the Posterior Analytics,* his most mature account of the relation between intellect and objective reality, dating probably from the late 1220s, he speaks of truth as a simple thing in the world *(illud quod est),* with no mention of a comparison to God's ideal ([9.6] 99:17–18). The source of this view goes back to *On Truth,* where for one uncharacteristic moment Grosseteste had recalled Augustine's definition of truth as 'what a thing is' *(id, quod est),* adding, in violation of traditional Boethian language, that this was the same as its being *(esse)* ([9.3] 141:13–15). But what was merely an interesting aside in the early work now takes centre stage. Grosseteste in the Aristotle commentary is prepared to argue that the truth of a thing is exclusively its substantial presence in external reality. Another word for this is 'essence', taken as a thing's formal core shorn of all the accidents of material circumstance (*puritas essentiae suae non cum admixtione conditionum materialium* ([9.6] 406–7:82–4). So patent a breach of Neoplatonizing principles appealed to William of Auvergne as well,

for in his treatise *On the Universe (De universo)* from the early 1230s he similarly defines the objective truth of a thing as its 'substance, or essence, or being'. It is what is left to an object once all accidentals *(circumvestitio accidentium)* have been stripped away ([9.1] I:836aE; also I: 794bF).

The new notion of truth opened the way for both thinkers to attack Neoplatonizing ontology and the conditions of knowledge it entailed. Referring to Plato and the *Timaeus*, William concedes in *On the Universe* that it is correct to posit an archetypal world of exemplary ideals *(exemplaria)* of which things in the perceived world are imitations *(exempla)*, providing one locates the exemplary world in the mind of God. The problem with Plato is that he took the idea too far ([9.1] I: 823aC, 823bC, 835aA). As should be clear from the definition of an object's truth as its being or substance, the truth of something in the world and the truth of an idea in God's mind are not the same ([9.1] I: 837a(B-C)). Aristotle was right when he criticized Plato's notion of the reference of simple terms. Words such as 'earth', 'fire', 'water' and 'air' refer immediately to simple substances in the world and imply no comparison or reference to the Creator ([9.1] I: 835aB). A Neoplatonizing theory of truth—like that we have seen in Grosseteste's *On Truth*—is both semantically and ontologically misleading.

The Grosseteste of the *Commentary on the Posterior Analytics* agreed. A long, often misinterpreted passage outlines five sorts of object that might serve as immediate referent for terms of universal predication ([9.6] 139–41:99–145). The first are the eternal reasons *(rationes)* in God, 'what Plato called ideas or the archetypal world'; the second are exemplary forms impressed by God on the minds of angels; the third are the causal reasons *(rationes causales)* of earthly things residing in the celestial spheres; the fourth, the inherent forms of real things themselves, taken as signifying the whole substance; and the fifth, accidents read as signs of the substantial reality to which they adhere. Grosseteste comments that it was according to the fourth way that Aristotle explained the predication of kinds and types *(genera et species)*, and it is clear from what he says throughout the work that he accepts this as the norm for human knowledge in the world.[1] Echoing William, he claims that Plato's kinds and types—separate substances in an archetypal world held to be properly predicated of subjects in this, their exemplified imitator—are monsters produced by an erring intellect *(prodigia quae format error intellectus)* ([9.6] 224:142–8).

For all their sympathy to Aristotle's theory of reference, however, William and Grosseteste shared an ontology of essence quite unlike anything Aristotle had in mind. William rejects the authentically Aristotelian position of Boethius whereby specific essences are individuated by the accidents of their particular—or material—instantiation ([9.1] I: 802a (E-F)).

Instead he maintains that individuals are both fully particular and fully specific—that is to say, general—in their essence, which was, for him, their substance as well. Indeed, he insists that the numerical distinction of individuals of the same species can be reduced to what he calls an 'essential difference' *(differentia essentialis):* the fact that the essence of this thing is not precisely the essence of that ([9.1] I:858b–59a(G-A)). Recognizing the awkwardness of his language, he hastens to add that the difference does not amount to a dissimilitude *(dissimilitudo),* which might sever the unity of the specific type, but should technically be referred to as a diversity *(diversitas)* among particulars ([9.1] I:802aG). Grosseteste, too, held to the view that the essential nature of things was in and of itself individual ([9.6] 213:221–4). Despite the philosophical ambiguity of such a position, it continued to be defended throughout the thirteenth century, nowhere more loyally than among Franciscans of the so-called Augustinian school, and provided the impetus for Scotus' famous theory of the formal distinction.

A notion of essence as of itself fully individualized naturally complicated the explanation of universal predication, which by the terms of William's and Grosseteste's semantics entailed direct reference to the very instantiated essences of which individuals were comprised. William never addressed the matter, but Grosseteste tried his hand at a solution that appears inspired by the terminist logic of his day. According to the *Commentary on the Posterior Analytics,* although universal predication cannot be reduced to an ontological configuration exactly the same as that of singularity, it must be founded on one that is not entirely different ([9.6] 245:127–34). The notion of essence as simultaneously singular and general demanded as much. If, therefore, as Aristotle maintained, the universal is 'one thing from and in many' ([9.6] 161:329–35)—a single predicate drawn from the knowledge of many singulars and referring to them all—this is because the universal taken in itself *(universale secundum se)* is neither one nor many *(nec unum nec multa)* but somehow capable of being construed as both. In Grosseteste's words, it 'falls to' *(accidit)* the universal, most probably through the agency of the intellect, to be one thing while representing many ([9.6] 244:110–14). Certainly Grosseteste had in mind here the logician's understanding of the supposition of terms, by which linguistic markers that in themselves could signify either the singular or general aspect of an essence—words like 'horse' or 'man'—took on either universal or particular reference according to the demands of the propositions in which they were employed. Universals, in short, were terms: words denoting essence used for the purposes of universal predication (see [9.20] 185–7). The ambiguity of the term before supposition—of the 'universal in itself'—simply mirrored the fact that it signified an essence that was also in itself both singular and general.

By now we have reached an ontology and a semantics almost anticipating the nominalism of the fourteenth century. There was, however, at least for William still room for Neoplatonizing views. As he explains in *On the Universe*, while most words by which we describe created things refer directly to substances in the world, there are some that point more immediately to God and divine attributes. The reason is that the objective truth for which such words stand lies more precisely in God than in anything in the created world. When these words are used in discourse they consequently signify a divine object most properly—which is to say, univocally—and a created object only by equivocation, via an explicit or implied comparison *(comparatio)* to God ([9.1] I:834a(F-G), 834b(G-H), 837b(A,B,D)). In short, for these cases the Anselmian view of reality and human knowledge of it seen earlier in Grosseteste's *On Truth* applies without qualification.

What is most interesting about these special cases is the kind of knowledge they entail. Although in *On the Universe* William speaks of words implicating the 'magnificence or excellence' of God (like 'being', 'good', 'true', 'power' and 'powerful') it is evident from what he says in his nearly contemporaneous treatise *On the Soul (De anima)* that he also has in mind a class of terms like 'whole', 'part', 'equal' and 'odd' out of which are constructed the fundamental propositions of rational argument. The latter are, William notes, what 'the philosophers' called 'axioms' *(dignitates)* or 'first impressions' *(primae impressiones),* what he refers to as the self-evident principles of science *(principia scientiarum nota per semetipsa)* ([9.1] II suppl.: 209b). They constituted Aristotle's common principles of demonstration, of which the most basic were the rules of non-contradiction and exclusive alternation. Relying on the Neoplatonizing interpretation of Avicenna, William adds that Aristotle posited a separate agent intellect—a higher intelligence hovering above human souls—to impress on the mind the intelligible forms *(signa vel formae intelligibiles)* by which such terms were known. He insists, instead, that it is God himself, the authentic archetypal world, who supplies the mind with these forms through his spiritual illumination ([9.1] II suppl.: 211a-b).

Substantial concession to Neoplatonizing concerns, this theory of principal cognition was, none the less, an anomaly, a flashback to a world-view fast disappearing in William's and Grosseteste's thought. In all other respects, they worked singlemindedly to tie their theories of knowledge ever more tightly to an ontology of absolutes in the perceived world. Indeed they thought they could lay out a taxonomy of cognition true to the principles of evidence and argumentation found in Aristotle, rivalling his ability to account for everything without recourse to a Neoplatonizing ideal in a world above. Nowhere is this more apparent than in their explanation of the greatest degree of

certitude to which knowledge could lay claim. Here both scholastics fully accepted Aristotle's views. Grosseteste's *Commentary on the Posterior Analytics* was in fact a principal conduit by which Aristotelianizing epistemology was made available to the medieval university world.

The key was *scientia* or science, the Latinate equivalent of Aristotle's *epistēmē,* which constituted knowledge that could be regarded as absolutely certain. As Grosseteste makes plain in his *Commentary,* scientific knowledge is demonstrated knowledge: knowledge of the truth of a proposition that has been proved by means of syllogistic argument. What renders the syllogism scientific—that is, properly demonstrative—is that the middle term picks out the immutable, or necessary, cause making the subject—whether it be a simple nature or a complex state of affairs—what it is ([9.6] 99–100:16–27, 406:76–9, 407:92–3). Of course all this has to be approached from the essentialist perspective of Aristotle, by which the reality of things was immutably determined according to fixed natures, but given this essentialism, one could easily believe that a clear understanding of the nature yielded the appropriate middle. From there it was simply a matter of logic to fashion a fully reasonable *(propter quid)*—and absolutely certain—defence of a statement of the truth ([9.6] 189:23–30).

Naturally, any such demonstration of the truth of a statement—the demonstrated conclusion—depended on knowledge of the premisses from which the demonstrative syllogism was drawn, and if there were not to be an infinite regress in arguments for truth, there had to exist some premisses whose truth was evident without any syllogism at all. These were Aristotle's principles of science, whose truth was grasped immediately by *nous,* a non-discursive habit of mind Latinized as *intellectus* and translatable as something like prepositional intuition. Following Aristotle to the letter, Grosseteste explains that it is by means of the two modes of cognition, *intellectus* and *scientia,* that all absolutely certain knowledge is attained, the former differing from the latter in involving no argument (no syllogism or middle term) and constituting the epistemic basis upon which the latter must reside ([9.6] 406–7:76–89 and 98–9, 281:89–91). It is, he says, the undemonstrated knowledge of first principles *(prima principia),* themselves the indemonstrable foundation for all demonstration ([9.6] 103:92–3, 278:3–7, 407:91; and 281:91–2, 407:93–5). William, too, accepts Aristotle's epistemological scheme, referring to the classic exposition of it in the *Posterior Analytics* and directing his readers to its exemplary application in the *Physics* ([9.1] II suppl.: 210a).

In so far as the formal elaboration of this science-oriented epistemology entailed the application of the rules of prepositional and syllogistic logic, it had little bearing on ontology, but there was at least

one aspect of an Aristotelianized theory of science that raised questions about being and reality. Scientific truths were supposed to be immutable. For Grosseteste, that meant that they had somehow to be perpetual and incorruptible ([9.6] 139:89–95).

One way to take this was simply to recognize that demonstrations consisted of propositions employing universal terms. The immutability of science was thereby reduced to the incorruptibility of universals, a quality easily accounted for with Grosseteste's essentially terminist theory of the universal in itself. As he says in the *Commentary,* universals are corrupted not in themselves *(ex non se ipsis)* but only in so far as the singular entities in which they are instantiated *(deferentia)* pass away ([9.6] 141:145–9). The instantiating entities might be the words standing for universal terms in actual utterances or the existing referential base of such terms at any given time, but either way the universal itself as a term available for supposition—a logical entity—escapes the existential restraints of its real base. And just in case this answer is deemed insufficient, Grosseteste proposes another, focusing more on the real referents themselves. The perpetuity of universals can be saved even in a world of constant change because for all valid general terms, there is always somewhere at least one real individual to serve as referent and thus ontological anchor. After all, even though some things die away in winter, there is always summer somewhere on earth where objects of the same type can flourish ([9.6] 141:149–54).[2]

Yet the immutability of science might also be taken to mean that the propositions themselves, and not just their conditions of truth, had to be perpetual. This demand was commonly made in the Neoplatonizing traditions from which both Grosseteste and William drew, and in *On Truth* Grosseteste presented a most Neoplatonizing way of satisfying it. Faithful to the tradition, he there takes perpetuity to mean eternity, as with the eternity of God. It is, he explains, possible to account for immutable truth in a world where no human utterances are incorruptible or unchanging so long as one concedes that it is legitimate to fall back on the eternal utterance propositions are given in God's mind ([9.3] 139–41). But such an account would have sat uneasily in the Aristotelianizing context of the *Commentary on the Posterior Analytics,* and in fact Grosseteste neither mentions it nor raises the question of the immutability of propositions in that work.

We must turn to William's writings for a theory to fill the gap. In *On the Universe* he states quite plainly that people commit a grievous error when they try to explain the eternal verity of statements which are always true by pointing to an eternal ontological base in the First Truth, God himself ([9.1] I: 793aA). Instead, it is possible to account for such truths without having recourse to any supratemporal conditions at all. One need merely take advantage of scholastic

innovations in prepositional logic. Drawing on a familiar definition of prepositional truth (derived from Avicenna) as the accommodation of speech and reality *(adaequatio orationis et rerum),* William insists that the truth implicated in a true statement is nothing more than a relation. As such, it does not imply a reality beyond that of the related extremes: an utterance and its complex referent ([9.1] I: 795a(B-D)).

Here is where the new logic is relevant, for the precise words William uses for utterance and referent *(enunciatio* and *enunciabile)* reflect the increasing agreement among logicians that a true statement refers to a truth-bearing entity, what we would call the proposition, separate from any referential conditions in the real world.[3] Thus, as William makes clear, neither extreme of the relation of truth has more than a tenuous connection to real existence. Utterances are as fleeting as words or thoughts, and propositions *(enunciabilia)* are merely the logical representations of reality as it is or might be. This being so, truth, a relation that places no additional ontological burden on the extremes it relates, need have no greater existential presence than normal utterances or propositions, even if it is held to be immutable. Something can be said always to be true without there having to exist at every moment an utterance expressing the truth or an actual referential base ([9.1] I: 795b-96a(D-E)). Prepositional truth is, William concludes, 'rational or logical' *(veritas rationales sive logica)* and thereby formally independent of the question of actual existence ([9.1] I: 796aE). In short, the perpetuity of immutable truth was not so much an ontological as a logical condition, having little to do with the eternity of God.

There remained one kind of scientific truth particularly perplexing to Grosseteste just because his own attenuated account of the immutability of science seemed inadequate to explain it. He had predicated the perpetuity of universals partially upon his confidence that there was always somewhere at least one real instance of every general term, but this was not the case for some of the truths of what we would call natural science. There are not always lunar eclipses, although we feel justified in making universal statements about them. Or, to shift attention from the term to the proposition, we say it is universally true that heavy objects fall, even though any heavy object can be prevented from doing so. Such truths, Grosseteste notes in the *Commentary,* while not absolutely necessary, are regular enough—in scholastic parlance, their complex referents occur with sufficient frequency *(frequenter evenientia)*—to satisfy the demands of science ([9.6] 264:119–22). Still, how can they be called immutable? Grosseteste offers two explanations, but the most relevant for us speculates that Aristotle intended to account for the perpetuity of such truths by insisting that their demonstrations specify the conditions under which they would be true ([9.6] 144–5:200–19). Framed in conditional rather

than categorical terms, such truths become just as immutable as those of the more necessary sciences, for whenever the conditions are met, they are indeed always true. Grosseteste appears here to be anticipating the notion of *ex suppositione* demonstration first fully elaborated later in the century by Albert the Great and by means of which even Galileo still defended the epistemic force of natural science.[4]

Aristotle, however, had also talked about experience; it was, as he said at the beginning of the *Metaphysics,* along with memory one of the fundamental sources of scientific knowledge. The same term had considerable resonance for Grosseteste and William, and not only in ways Aristotle might have intended. Grosseteste's ideas about experience have especially attracted the attention of historians of science ever since Crombie insisted that it was here we should look to find the medieval origins of the modern experimental method ([9.18] 1 and 10–11). Yet before accepting Crombie's judgement, we must remember that the words employed by thirteenth-century scholastics to talk about what can be loosely translated as 'experience' were varied, including most prominently *experientia* and *experimentum,* and it is not easy to ascertain the precise meaning of any of them. Historians must not assume too readily that their use has anything to do with our understanding of experimental method.

There is, in fact, only one occasion where Grosseteste talks about *experientia* in a way suggestive of what we most often mean by 'experiment'. The passage, in the *Commentary on the Posterior Analytics,* begins by stating the intention of sketching out a method for establishing what Grosseteste calls 'experimental universal principles' *(principia universalia experimentalia)* (see [9.6] 214–15:252–71). In other words, he will propose an empirical way to certify some of the principles—that is, syllogistic premisses—to be used for scientific demonstration. From the context it is clear that the principles in question will all belong to natural science, constituting truths that can be held neither with the absolute certitude of the principles of logic and mathematics nor with the still evident certitude of statements in natural science about the essential natures of things, for instance, the definitions of man or animal. Experimental principles are fundamental propositions for which there is no immediate or, in Aristotle's terms, purely analytical way to determine their truth.

According to Grosseteste, the first inkling of the shape of these truths comes to the mind after repeated sensory exposure to a sequence of events in the external world. For example, one might witness the eating of scammony followed by the passing of red bile often enough to suspect a relation of cause and effect. The intellect then goes on to form the proposition, 'Scammony purges red bile', but it is not yet able to claim with scientific certitude that the proposition is true. For this, it must

turn to experiment *(convertere [se] ad experientiam)*. In the example under consideration, one must feed scammony to a subject after having carefully removed all other agents that might purge red bile and then watch what happens. If one does this many times and the result is that the subject invariably passes red bile, then one is justified in holding the proposition about scammony and bile to be universally true.

It is impossible not to interpret all this as an account of experiment in the modern sense of the word, the controlled verification of a hypothesis or, in Grosseteste's terms, of a candidate for inclusion among the principles of science. Although there is no evidence that anyone in the thirteenth century considered the practical possibilities of a programme of experimentation set upon this theoretical foundation, or saw in any such programme the potential for a reformation of the sciences as was to be attempted in the seventeenth century, it is clear that at least Grosseteste appreciated the philosophical principle that classical experimenters would later employ to dramatic effect.

Yet this use of the idea of experiment constitutes an exception to the rule. For the most part, when thirteenth-century scholastics spoke of *experientia* or *experimentum* they had something quite different in mind. Often the reference was to what Hackett advises us to call personal experience, very like what Aristotle meant by his classic mention of *experimenta* in the *Metaphysics*. This is surely what William is thinking of with his numerous appeals to experience, combined with teaching *(doctrina et experientia)* as a source for scientific knowledge ([9.1] II suppl.: 212a, 214a; [9.2] 95:54–64). He even directs the reader to the passage in the *Metaphysics* for clarification ([9.1] II suppl.: 216b). The cognitive process intended involved a complicated induction from sensation, bringing the intellect by means of Aristotle's logic of division to knowledge of one of the typical principles of natural science, such as those defining essential natures like 'dog' and 'man'. Grosseteste has the same noetic procedure of discovery in mind when in his *Commentary* he talks about the induction of universal principles *(universalia composita)* from sensible data ([9.6] 406:67–72). Inductive experience of this sort was perfectly natural and commonplace, as is indicated by William's contrasting it to infused knowledge of the sort that Solomon received from God ([9.1] II suppl. 214a).

There was, however, yet another, dramatically non-Aristotelianizing notion one might have of the place of 'experience' in science, and this too appears in both Grosseteste's and William's thought. It was William who gave it the greatest attention. In the part of *On the Universe* investigating the powers and operations of demons, he refers with considerable fascination to the 'experimenters' *(experimentatores)*, who in their writings describe the marvellous works they can do to the astonishment of the uninitiated ([9.1] I: 1059a–60a). He calls these

writings 'books of experiments' *(libri experimentorum),* and it is clear that by this term he does not mean the controlled testing of hypotheses but rather the miraculous feats associated with magic *(opera magica)*. Among the numerous examples he cites are fashioning a candle out of wax and serpent skin which, when lit, can make a room strewn with dried grass appear to be filled with writhing snakes, creating the illusion of water or a river where none really exists, and neutralizing the powers of enchanters or magicians by exposing them to certain snakes, or to quicksilver inserted just the right way into a reed tube. Such marvels and occult operations *(occultae operationes et mirabilia)* are, he adds, what physicians and natural philosophers are accustomed to call *empirica,* a term drawn from the lexicon of the medical arts ([9.1] I: 929bA).

According to William the ignorant gaze upon such works and attribute them erroneously to devilish powers, an error in which they are encouraged by the fact that some philosophers refer to the art by which the marvels are arranged as necromancy. The truth is, instead, that the 'experiments' of which he speaks, for all their miraculous appearance, can be traced back to the forces with which God has imbued his creation *(virtutes a Creators inditae)*. In this case the forces are deeply submerged, hidden to all but those trained to see them, but they are still fully natural, and their manipulation should be attributed to 'natural magic' *(magia naturalis)* ([9.1] I: 69bD).

Here William is mining an intellectual tradition of great antiquity and readily available to him and his scholarly contemporaries through translations from Hebrew, Arabic and Greek. In this tradition, the words 'experiment' and 'experience' evoke the illusory and the unexpected. According to William, the surprise and wonder are due to the fact that all the phenomena making up 'experience' in this sense arise from hidden forces *(virtutes occultae)* lying behind natural powers with which we are more familiar ([9.1] I: 1060a (E,H)). Grosseteste, too, was acquainted with the tradition and refers respectfully to the *experimentatores,* although he includes in this class those who simply have seen odd things and faraway places, like the north pole, and written down their experiences for us to share ([9.3] 68). He also counts among the experimenters scholars of optics who 'experiment' with lenses, the power of which to make far-away things seem near is itself wonderful *(admirandum, mirabile)* and thereby part of the marvellous world with which all experiment of this sort is tied ([9.3] 41, 73–4).

What must be kept in mind is that despite the suspicion and fear with which the writings of this tradition were often viewed, both William and Grosseteste believed that, if correctly received, they were not only benign but also a welcome addition to human knowledge.

William insists that natural magic, when not pursued with vain curiosity or used to do evil, is not harmful and does no offence to God ([9.1] I: 663bD). It constitutes, in fact, a legitimate part of natural science ([9.1] I: 69bD, 648aG). Those that know it, and perform the operations or experiments it reveals, are called *magi,* that is, doers of great things *(magna agentes),* and the association of them with evil, as well as the charge that *magus* means 'evil-doer' *(male agens),* is simply uninformed ([9.1] I: 1058bH). Grosseteste, too, understands that many associate the word *magus* with sorcerers *(malefici),* quoting Isidore to that effect, but he recognizes that others maintain that the true *magi* are wise men, like the learned divines of ancient Persia ([9.5] 23:17–34). William even holds great expectations for the application of natural magic, asserting that it is not beyond magic's powers to produce things never before encountered on earth, including completely new animals ([9.1] I: 7aE). All that is wanting to see such things happen even in his own day is the right knowledge and an abundance of the proper tools and supplies ([9.1] I: 1058bH).

This was not to deny that there was evil magic, too, or that some experimenters and their experiments were malign and caught up with devils. William was familiar with what he thought were truly execrable magical books, like the *Sworn Book of Honorius (Liber sacratus),* and he admits that even some potentially useful pieces of occult literature might mislead, just as the *On the God of Gods (De deo deorum)* attributed to Hermes *(Mercurius)*—whom he calls an Egyptian magician—had encouraged him in his youth to believe that with little effort he could raise himself to prophetic splendours ([9.1] I: 70aF, 1056a-b(H-E), 1060bF; cf. 78aF). Then, too, there was astrology, a science related to magic, which William said should be fought with sword and fire, at least in so far as it was taken to imply the necessity of all events ([9.1] 785aC, 785bB, 929bA). Grosseteste was likewise wary of astrology, although perhaps somewhat more ambivalent. In his early *On the Liberal Arts* he praises astronomy, clearly signifying judicial astrology, as most useful for the understanding and application of natural science ([9.3] 5–6). Yet in the *Hexaëmeron,* from the early 1230s, he sets the science of astral motion—astronomy—against the science of judging from the stars—astrology—condemning any attempt to use the latter to bind the will ([9.5] 41:24–33). Later in the same work he warns Christians to have nothing to do with astrologers, or *mathematici,* and calls for their works to be burned ([9.5] 170:4–7, 172:3–5).

Even farther from Aristotle was an aspect of Grosseteste's science more deeply and authentically mathematical than astronomy or astrology. Again Crombie's picture of the thirteenth century must be recalled, for it was he who drew attention to Grosseteste as a medieval

source for the modern orientation of science towards mathematics ([9.18] 60, 132–4). At a level not central to Crombie's view, Grosseteste's interest in mathematics takes us back to Aristotle. Grosseteste draws on the Aristotelian notion of the subordination of some sciences to others that explain more fully the subject of investigation and occasionally even supply demonstrative principles. He shows how it is common for scientific disciplines that investigate only the simple why and wherefore of a subject—in Aristotle's terms, pointing out only the fact *(quia)*—to stand in such subordination to other disciplines that can actually supply demonstrative reasons—again, in Aristotelian language, laying out the reasoned fact *(propter quid)* ([9.6] 194:126–36). It is the various mathematical sciences that typically take this subordinating role, and Grosseteste mentions among other cases the science of radiant lines and figures (what we would call optics) subordinated to geometry, the science of harmony subordinated to arithmetic, and the science of navigation to astronomy.

Of greater interest to Crombie was a more ambitious theory inspired by Neoplatonic currents originating with Plotinus and taken to be the keystone of what is often called Grosseteste's 'metaphysics of light'.[5] Since most of what is attributed to this 'metaphysics' is not metaphysical at all, Lindberg wisely advises us to refer to it as a 'philosophy of light' ([9.19] 95). Of its four parts as Lindberg sketches them out, it is what he calls a 'cosmogony of light' (that concerns us here. In his treatise *On Light (De luce)* Grosseteste argues that light is the first corporeal form—corporeity, itself—by which matter, on its own absolutely simple and dimensionless, takes on extension or, as we would say, dimension. Light manages this through its quite special power of instantaneous self-diffusion in all directions from the point of origin, by which means as first form it literally carries all matter along with it ([9.3] 51:10–52:9). This is the way the universe was generated by God's command at the beginning of time, the reverberations of light from central point out to the limits of a spherical extreme, and then back and forth again and again, rarefying and condensing matter until it took the form of the nine celestial spheres and the elemental regions of the sublunar world ([9.3] 52:17–21, 54:11–56:18). A cosmogony of this sort would seem to give light, and the mathematically-formulated optics by which it is understood, pride of place in our understanding of nature. That is, at least, what Crombie assumed.

Yet though Grosseteste must have been sensitive to the methodological implications of his cosmogony, it is instead a different element in his thought, the part of his 'philosophy of light' Lindberg calls the 'physics of light', upon which he based his principal argument for the relevance of mathematics to natural philosophy. Extrapolating

not only from Neoplatonism but also from the tradition of Arabic optics, Grosseteste fashioned a universal theory of natural causation referred to as the doctrine of the multiplication of species ([9.19] 97–8). The Neoplatonic element is laid out in *On Lines, Angles and Figures (De lineis angulis et figuris)*. According to this treatise, all natural agents work by multiplying or transmitting their power *(virtus)* in the form of species *(species)* or likenesses *(similitudines)* sent out into the surrounding medium, whether sensory or inert ([9.3] 60:16–29). The significant thing about this multiplication is that it occurs in conformity to the rules of luminous radiation laid out in the science of optics. As both *On Lines* and *On the Nature of Place (De natura locorum)* make clear, any agent's species or likenesses are induced in all directions from the point of origin along straight lines which are bent, just like light rays, as they pass through media of contrasting density ([9.3] 60:14–15, 66:1–3). It is, therefore, possible to describe all natural causation by means of the geometrical principles of lines, angles and figures established in optics ([9.3] 65:27–9).

Here Grosseteste turns again to the notion of subordination. The geometric explanation of all natural causation offered by optics—and Grosseteste uses the medieval name, *perspectiva*—is, because of its formal precision, also the most fundamental. It gives the 'reasoned' *(propter quid)* account of what the natural philosopher *(physicus)* otherwise knows only as fact ([9.3] 72:12–13, also 60:15–16). Indeed it is legitimate to say that one cannot truly know natural philosophy without recourse to the laws of optical science ([9.3] 59:27–60:1). Because of the way nature works, the science of natural philosophy is subordinate to optics, and therefore mathematics, to which optics itself is subordinated, must be the primary explanatory tool of the natural scientist.

Taken together, William and Grosseteste bequeathed a rich metaphysical and epistemological heritage to the rest of the thirteenth century. They were the first to weave the lines of Aristotelianism, Neoplatonism and Arabic and Jewish mathematics and magic into a texture alluring enough to engage the imagination of scholars in the new schools. From their fertile beginnings can be traced much of the scientific and philosophical achievement of the thirteenth century. But just as their own sources were varied, so the lines of inspiration trailing out from them into the rest of the century took several different paths. In so far as they sought to bring Neoplatonic traditions, especially in epistemology and noetics, into line with the logical and linguistic expectations of Aristotelianizing analysis, they laid the foundations for what is often called the Neo-Augustinianism of Bonaventure and his successors from the 1250s on. Equally important, however, was the debt owed to them by the more authentically Aristotelian current

that emerged in the late 1240s with Albert the Great and continued with his even greater pupil, Thomas Aquinas.

Yet the figure who most literally reproduced the scientific ideal seen in William and Grosseteste—or perhaps who most dramatically amplified their idiosyncrasies—was Roger Bacon. Born in England around 1210, Bacon studied and taught arts at Oxford up to the late 1230s, moving on then to Paris where he lectured in the arts faculty until about 1247. Around 1257 he joined the Franciscan order, a decision which terminated his scholarly career for a decade until Pope Clement IV gave it new life with his request for Bacon's ideas on the reformation of learning. Perhaps in part because of this sign of papal favour, Bacon fell into an increasingly bitter conflict with his superiors, culminating in the condemnation of his work by the minister general of his order in 1278 and his probable incarceration. Apparently free again but still tormented by his fate, he died in 1292 or shortly thereafter.[6]

Like Grosseteste, whose lectures he may have attended while at Oxford, Bacon placed mathematics at the foundation of natural science—perhaps, indeed, of science altogether. He was even more insistent on this score than his illustrious forebear. In *The Character of the Natural Sciences (Communia naturalium)* he criticizes Aristotle for neglecting mathematics and excoriates renowned scholars of his day, among whom is certainly intended Albert the Great, for their ignorance of the subject ([9.10] 2:5, 11), reserving his praise in the *Opus maius* and the *Opus tertium* for Grosseteste and the nearly idolized Peter Peregrinus of Maricourt, whom Bacon considered the mathematicizing prophets of his century ([9.8] I: 108; [9.7] 34–5). For Bacon—just as, he thought, for Grosseteste and the ancient sages and divines—only by means of mathematics, the 'door and key' to full knowledge, could the other sciences be grasped with absolute certitude ([9.8] I: 97, 98, 107).

His defence of this assertion is partly delivered in Grosseteste's Aristotelianizing language of the subordination of sciences, whereby mathematics supplies the reasoned explanation *(per causam)* of phenomena that the natural sciences can describe only as fact *(per effectum)* ([9.8] I: 169). Of greater weight for him, however, is the description of physical reality that Grosseteste had used to justify the subordination at the epistemic level, the doctrine of causation by the transmission of species or similitudes. Bacon enthusiastically embraces Grosseteste's view, embellishing it with a theoretical exactitude that made Bacon's version the model exposition of the matter for the next century and a half ([9.8] I: 111; [9.7] 37; [9.9] 2). He goes so far as to devote a whole treatise to the process, referring to it with the precise name by which it has since been known: *On the Multiplication of*

Species. Just as Grosseteste had argued in *On Lines* and *On the Nature of Place,* so Bacon reasons that, because the species by which all natural causality is achieved are generated in straight lines in exact replication of the phenomenon of luminous radiation, the science of optics offers the only universal means of accounting for all natural effects ([9.10] II: 24:21–9; [9.8] I: 112, II: 31; [9.9] 90–4). This not only makes optics *(perspectiva)* the most special and very first of the natural sciences *(prima specialis scientia)* but also explains why natural phenomena cannot be truly understood without the power of mathematics ([9.10] II: 5:25–31; [9.8] I: 110).

Yet it is what Bacon made of Grosseteste's and William's comments on experience or experiment for which he is best known, leading many to view him as the forerunner of his seventeenth-century namesake, Francis Bacon. To Roger's way of seeing things there is in fact a discrete experimental science, *scientia experimentalis,* which is the most certain of all and certifier for the others ([9.10] II: 9:1–6). Despite its ostensible unity, this science is composed of three parts, each playing a different role—prerogatives or dignities as Bacon calls them—and for us to understand the whole we have to recognize that three constituents do not tend precisely to the same end ([9.10] II: 9:9–12; [9.8] II: 172; [9.7] 43–4).

According to its first role, experimental science certifies by experience the demonstrated conclusions of the other sciences ([9.8] II: 172–3). Here Bacon has recourse to his conviction, surely evolved from weaker notions found in both William and Grosseteste, that while scientific demonstration in the Aristotelian sense can make known the truth, only experience removes all doubt ([9.8] I: 105–6, II: 167; [9.7] 297).[7] One might know by reasoned argument that fire burns, but only the experience of a scorched finger teaches one to avoid the flame. It is tempting to see in this a version of the theory of verification by experimentation, as many who praise Bacon have done. There is, after all, the precedent of Grosseteste with his example of testing the power of scammony to purge bile. But in fact Bacon, who is aware of the sort of verification Grosseteste described, takes it as having nothing to do with the 'experiment' he has in mind. Natural sciences often do, as Grosseteste realized, establish their principles by experiment or from experience; they then anchor their conclusions to the principles in Aristotelian fashion by demonstrative argument. Such methods, Bacon admits, have a legitimate place at the foundation of demonstrative science. Yet he wants his experimental science to go beyond Aristotle and bring the mind to adhere to conclusions, in contrast to principles, with the assent only experience, not argument, can induce ([9.8] II: 172–3; [9.7] 43). Experience in this case is not the controlled testing of a hypothesized principle but rather the empirical confirmation of an

already proved conclusion. Bacon's first prerogative is thus a use of experience unlike anything Aristotle, or William and Grosseteste, had conceived, pointing to the growing prestige of singular perception in the noetics and epistemology of the late thirteenth and fourteenth centuries.

The second and third roles of experimental science are, if anything, even more un-Aristotelianizing, although not so novel. With them we return to the traditional notions of *experimenta* so well represented in William's thought. By its second prerogative, experimental science reveals truths about the subject-matter of the other sciences, which none of them can prove or dare to claim as true. The emphasis here is on practical accomplishments that are both marvellous and strange, as, for example, the construction of an astrolabe that would revolve daily on its own natural power, or a knowledge of how to use medicines dramatically to prolong human life ([9.8] II: 202–4). Experimental science's third prerogative is more awesome still, making known things not even dreamed of in the rest of scientific discourse. It penetrates all the way to the secrets of nature and surpasses judicial astrology, with which it seems to compete, by making firmer predictions about the future and doing far more miraculous works *(opera admiranda, mirabilia opera)* ([9.8] II: 215; [9.7] 44). It is primarily by this prerogative that experimental science commands all other sciences as their mistress *(domina)*, and it is here that its practical value is realized in the extreme ([9.8] II: 221; [9.7] 46).

By now Bacon is clearly navigating in the waters of magical art, as is surely betrayed by his claim that the third prerogative explores the occult *(opera occulta)* ([9.10] II: 9:11–12). Times have changed, however, and Bacon is far more squeamish than William was about being associated with anything labelled 'magic'. He not only refuses to call any aspect of experimental science 'magical' but also insists that one of his science's functions is to lay open the falsehood of the magical arts *(magicae artes)* ([9.10] II: 9:21–6). Yet more than just fear of censure separates Bacon from William of Auvergne. He is, like William, willing to accept an art like astrology that is traditionally associated with magic, so long as it does not postulate the absolute necessity of all events or resort to the power of demons or fraud to impress its audience. He even gives acceptable astrologers the name of 'true mathematicians' *(veri mathematici)* in contrast to the 'false mathematician' *(falsi mathematici)* who dabble in magic ([9.8] I: 240–2). But Bacon's vision of experimental science, for all its debt to traditional magic, aspires to more than marvel. It presumes to draw the power of knowledge, especially scientific knowledge, into a campaign to transform the world. Indeed, the impetus behind most of Bacon's later work is his desire to lay the cognitive foundations for

the reformation of human life. Such practical ideals are not foreign to the magic of William's mental landscape, but as distilled in Bacon's experimental science they savour for the first time of the ambition and energy of the seventeenth century.

NOTES

1 For an analysis of the passage and an argument for what constituted Grosseteste's own view, see Marrone [9.20] 166–78.
2 How this sort of perpetuity might suffice for a Christian like Grosseteste, who held the world to have a temporal beginning and end, is argued in Marrone [9.20] 234–9.
3 See G.Nuchelmans, *Theories of the Proposition,* Amsterdam, North Holland, 1973, esp. ch. 10.
4 See W.A.Wallace, 'Aristotle and Galileo: The uses of hypothesis *(suppositio)* in scientific reasoning', in D.J.O'Meara (ed.) *Studies in Aristotle,* Washington, DC, Catholic University, 1981, pp. 47–77.
5 See Baur [9.29] and [9.30] 77–92; and the origin of the term *(Lichtmetaphysik)* in C.Baeumker, *Witelo, ein Philosoph und Naturforscher des XIII. Jahrhunderts,* Münster, Aschendorff, 1908, pp. 257–422.
6 For the dates of Bacon's life, see Hackett [9.40], especially pp. 46–7.
7 Marrone ([9.20] 36) points out William's assertion of the mildly obscurative effect of demonstration, echoed (p. 223) by Grosseteste's preference for principal cognition. A bias for particular experience appears in *On the Nature of Place* ([9.3] 66).

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CHAPTER 10

Bonaventure, the German Dominicans and the new translations

John Marenbon

As the previous chapter has illustrated, even in the first half of the thirteenth century the outlook of thinkers was much affected by the newly available translations of Aristotle and of Arabic commentaries and treatises.[1] By the mid-1250s, the arts course in Paris included almost the whole body of Aristotle's works and, within a couple of decades, nearly all the translations from the Greek and Arabic which would be used in the medieval universities were already available. The three leading theologians of this generation are the Dominicans, Thomas Aquinas and his teacher, Albert the Great, and the Franciscan, Bonaventure.[2] As philosophers, it may be argued, they form an unequal triumvirate. Aquinas is, by almost any account, among the greatest philosophers of his, or any, period; the next chapter will be devoted to him. Neither Bonaventure nor Albert came near to his ability at devising and interlinking, on a wide variety of philosophical questions, clear and powerful arguments which modern philosophers still find it worthwhile to scrutinize. Each, however, developed a range of distinctive positions. They include striking views on the nature of philosophy and its relation to their Work as theologians; and, in Albert's case at least, these were adapted (and ultimately transformed) by a school of followers. It is these views on which the present, brief discussion will concentrate. But first some further details about the new translations are necessary, since they provide the background both to the thinking of Bonaventure and Albert, and to the work which all the following chapters will be examining.

THE TRANSLATIONS

Aristotle, the old textbooks used to say, reached the West through the Arabs. Literally, this statement is false. For the most part, Aristotle reached Western scholars in direct translations from the Greek: Boethius' translations of nearly all the logic (which became available gradually from the ninth to the twelfth centuries); James of Venice's versions (*c.* 1130–50) of the *Posterior Analytics, Physics, On the Soul,* some shorter scientific works; other twelfth-century translations of *On Generation and Corruption* and the *Physics*. As for the *Ethics* and the *Metaphysics,* there was a twelfth-century version of *Nicomachean Ethics* II and III (known as the 'Old Ethics'); the whole work was translated early in the thirteenth century, though only Book I (known as the 'New Ethics') circulated; and then (*c.* 1246–7) Robert Grosseteste and his assistants made a new translation of the whole work (they also translated part of *On the Heavens*). James of Venice translated *Metaphysics* I–III and part of IV; an early thirteenth-century revision of this translation, conflated with the unrevised text, formed the 'Old Metaphysics', whilst a twelfth-century translation of the whole work except Book XI was known as the 'Middle Metaphysics' (it seems not to have been used until the mid-thirteenth century). Finally, between 1260 and 1280 William of Moerbeke revised or retranslated almost all Aristotle's works, as well as making the *Politics* and *Poetics* available for the first time. William's translations became standard, except for the logic, for which Boethius' translations (and, for the *Posterior Analytics,* James of Venice's) were generally used.[3]

But there is, none the less, an important element of truth in the idea of 'Aristotle through the Arabs'. Some translations *were* made from the Arabic: for example those of Gerard of Cremona, who worked in Toledo, of the *Posterior Analytics, Physics* and some of the scientific works. A version of the *Metaphysics* (the 'New Metaphysics'; Book I, minus beginning, to X and most of XII) translated from the lemmata of Averroes' commentary was used in the early to mid-thirteenth century.[4] More important, Aristotle's non-logical works reached the West along with (or preceded by) a corpus of commentary by Arabic philosophers. In mid-twelfth-century Toledo, Dominic Gundissalinus, a canon of the cathedral there, helped by Arabic-speaking assistants, translated parts—including those corresponding to *On the Soul* and the *Metaphysics*—of Ibn Sina's (Avicenna's) paraphrase-commentary of Aristotle, the *Shifā' (Book of Healing);* further sections were translated late in the thirteenth century.[5] In the 1220s in Sicily, Michael Scotus translated a number of commentaries by Ibn Rushd (Averroes), including the 'great' commentaries (full-scale, detailed sentence by sentence discussions) on *On the Soul,* the *Physics, Metaphysics* and *On the Heavens*. Averroes' shorter 'middle' commentaries to a variety

of Aristotle's works, including the logic, *On Generation and Corruption* and *Nicomachean Ethics,* were translated either by Scotus, or a little later by others. All these commentaries profoundly affected the ways Western thinkers read Aristotle. In addition, the Toledan translators of the twelfth century made Latin versions of various works by al-Kindī and al-Fārābī, more or less connected with Aristotle, as well as al-Ghazzālī's *Intentions of the Philosophers*.

Plato did not benefit directly from this busy period of translation. Although Henry Aristippus made Latin versions of the *Meno* and *Phaedo* in Sicily shortly before 1150, they hardly circulated, so the *Timaeus* in Calcidius' incomplete translation remained the one text by Plato himself well known in the Middle Ages.[6] A good deal of Neoplatonic material, however, became available, partly in the commentaries and other works related to Aristotle, because the Arab philosophical tradition before Averroes was heavily influenced by Neoplatonism in its approach to Aristotle, and also more directly: an Arabic adaptation of some of Proclus' *Elements of Theology* was translated into Latin by Gerard of Cremona as the *Book about Causes (Liber de causis)* and adopted into the Aristotelian curriculum (see below, pp. 230–1); later, William of Moerbeke translated the whole of the *Elements of Theology* directly from the Greek.

Jewish philosophy was also translated. The Toledan translators put into Latin Isaac Israeli's *Book on Definitions* and Solomon ibn Gabirol's ('Avicebron' or 'Avencebrol') *Fountain of Life*. Maimonides' great *Guide of the Perplexed* was put into Latin in the 1220s, from the Hebrew translation of Judah al-Harisi (see [10.32]).

BONAVENTURE

John of Fidanza, known as Bonaventure, was born *c.* 1217. He studied arts in Paris from 1234 or 1235 until 1243. He then joined the Franciscans and studied theology, also in Paris, where he was taught by Alexander of Hales, the first of the Franciscan masters of theology. Bonaventure himself held the Franciscan chair from 1253 to 1255. In 1257 he was elected Minister General of his Order, but he still maintained close contacts with the university and continued his theological writing up until nearly the time of his death in 1274. Among his most important works are his commentary on the *Sentences* (1250–5), a systematic textbook of theology called the *Breviloquium,* the brief *Journey of the Mind towards God* (1259) which expresses in a concise personal style many of his central ideas, and the sets of university sermons *(Collationes)* he gave in his last years, especially those on the Work of the Six Days (Hexaemeron), from 1273.

Bonaventure knew many of the newly translated texts and commentaries well. Theology, as he and his contemporaries recognized it, was a discipline which used arguments. Aristotelian logic had long been regarded as one of the theologian's essential argumentative tools, and by the 1250s the terminology and concepts of Aristotle's metaphysics and natural science were also indispensable. Bonaventure used this intellectual equipment, but his commitment to argument and conceptual analysis was far weaker than Aquinas', nor did he share much of Aquinas' belief that, on many questions, a full and accurate grasp of Aristotle's views was the best way to the right answer. Not surprisingly, then, he tended to adapt Aristotelian positions and combine them with others in the ways which best suited his overriding theological aims. For example, he accepted a roughly Aristotelian account of sense-cognition as the first stage of his theory of knowledge, but insisted that for knowledge of the truth direct divine illumination was required. Aristotle's theory of matter and form became, for Bonaventure (perhaps influenced by Solomon ibn Gabirol, see p. 75), a doctrine of universal hylomorphism. Everything, with the sole exception of God, is a composite of matter and form. Human body and human intellective soul are not, therefore, related—as in Aristotle, and Aquinas—as matter to form, but as matter—form composite to matter—form composite; a position which may be less satisfying than Aristotle's intellectually but fits well with Christian belief about individual immortality. The difference between Bonaventure and Aquinas is particularly pointed on the question of the eternity of the universe. This view, clearly contrary to Christian belief, was (rightly) recognized by many at the time to have been Aristotle's—though there were also doubts about the attribution. Aquinas insisted that, although 'the universe is not eternal' is a truth known by faith, it cannot be demonstrated; towards the end of his life, indeed, he argued that God could have created an eternal universe had he so chosen. By contrast, Bonaventure thought that he could demonstrate—using arguments based on Aristotle's own views about the infinite—that the universe is not and could not have been eternal.[7]

One of Aristotle's special failings, in Bonaventure's view, was his rejection of Platonic Ideas. In using the Ideas—considered, in the usual way since patristic times, as being in the mind of God—as a way of explaining the relationship between the creator and the universe, Bonaventure was merely doing the same as almost every other thirteenth-century theologian, Aquinas included. He was exceptional, however, in the weight he gave to explaining exemplarism which, along with the discussion of creation and divine illumination, he held constituted the whole of true metaphysics. This emphasis reveals the

underlying direction of his thought. We reach the divine exemplars, and through them, God, by seeking in all things that which they exemplify. For Bonaventure, the main task of a Christian thinker is not so much to argue or analyse (though sometimes this is necessary) as to learn how to read creation, finding in it the hidden patterns and resemblances which lead back to God. We have been provided, he says, with a threefold aid for reaching 'the exemplary reasons' of things: sensibly-perceptible creation, where God has left his traces *(vestigia);* man's soul, which is made in the image of God; and Scripture, with its riches of inner meaning.

In *The Journey of the Mind,* Bonaventure develops this way of thinking in the most explicit way. The universe is 'a ladder for climbing to God': we must ascend through the traces of God, which we find in what is bodily, temporal and outside us, through the image of God, which we find within our immortal, spiritual selves, and finally raise ourselves to the eternal being. To these three stages correspond the threefold existence of things: in matter, in understanding and in God's mind, and Christ's threefold substance, bodily, spiritual and divine (I, 2–3). Each stage, however, is itself divided in two, for in each we can find God either *through* his mirror or *in* his mirror. The six steps yielded by this multiplication correspond to six powers of our soul: sense, imagination, reason, intellect *(intellectus),* intelligence *(intelligentia)* and the 'summit of the mind' or 'spark of synderesis'. Bonaventure also provides various scriptural parallels: the six days of creation, the six steps of Solomon's throne, the six wings of the Seraphim seen by Isaiah, the six days after which God called Moses from the midst of darkness and the six days after which Christ summoned his disciples on the mountain where he was transfigured (I, 5–6). This elaborate set of parallels and analogies is itself merely the framework for the analogies which make up each of the individual steps. So, for example, the fourth stage of ascent—contemplating God in his image—involves considering the Trinity in the image of man reformed by grace, his soul purified, illumined and perfected by the three theological virtues of faith, hope and charity. 'Hierarchized' in this way, the human spirit is compared to the hierarchy of angels (three groups of three), and a parallel is drawn between the three laws (of nature, of the Old Testament and of grace) and the three senses of Scripture, moral, allegorical and anagogical, which purify, illumine and perfect (IV, 1–6).

All the great Franciscan theologians of the thirteenth and fourteenth centuries looked back to Bonaventure with respect, and often his positions influenced their discussions of individual questions. But they did not share his fondness for reading signs and elaborating patterns as opposed to constructing and criticizing arguments; and it is on this point of difference, rather than on any of the intellectual debts they

owed to the founder of their tradition, that depends their importance as philosophers.

ALBERT THE GREAT

Born in Swabia at the turn of the thirteenth century (1193, *c.* 1200, 1206–7 have been suggested), Albert died in extreme old age in 1280, outliving by six years his most famous pupil, Thomas Aquinas. After studying in Italy and Germany, and joining the Dominicans, he was a master of theology in Paris from 1245 to 1248 and then taught theology at Cologne until he became provincial of the German Dominicans (1254–7). Although he had no fixed teaching position after this, Albert continued his work on natural science, philosophy and theology with great energy until after 1270. His writings are among the most voluminous of any medieval thinker. They include, among many others, two comprehensive theological textbooks, a commentary on the *Sentences* completed in 1249, long paraphrase commentaries (in the manner of Avicenna) on many of Aristotle's works, including *On the Soul* (*c.* 1254–7), the *Ethics* (1252–3) and the *Metaphysics* (1263–7), a work *On the Causes and Procession of the Universe* based on the *Book about Causes* and on al-Ghazzālī (after 1263) and commentaries on pseudo-Dionysius (some, at least, written between 1248 and 1250).

As even this bare list indicates, Albert's attitude to the translations of Aristotle and of the related Arab material was, quite unlike Bonaventure's, one of unrestrained enthusiasm. Historians have indeed been agreed in giving him a central role in making Aristotle the supreme human authority for university theologians. Yet a glance at his Aristotelian commentaries shows that Albert's Aristotelianism is mixed with a host of characteristically Neoplatonic themes and views, and this—combined with the variety of his interests and works—has led to the impression that Albert was a muddled writer, overwhelmed by the mass of new material and unable to resolve the incompatible positions of his various sources or reach any coherent theories of his own. Thanks to Alain de Libera, however, it is now clear that, at least in one main aspect of his work, Albert is putting forward a bold and clear view, not so much about any individual problem in philosophy as about the nature and aim of the very practice of philosophizing.[8]

For Albert, Aristotelian metaphysics, the study of being, needed to be complemented and completed by an Aristotelian theology, the study of God. Albert found his Aristotelian theology in the *Book about Causes* which he took, along with his contemporaries, to be a work by Aristotle himself. When, late in Albert's life, Thomas Aquinas, using William of Moerbeke's translation of Proclus' *Elements of Theology,* showed that

the *Book about Causes* was an adaptation of this Neoplatonic work, Albert took no notice. No wonder—for, had he done so, he would have had to give up the claim which runs through his life's work that he is expounding what he calls the 'peripatetic' position. Albert's peripateticism, then, builds on Aristotle, on the *Book about Causes* and on Avicenna's interpretation of Aristotle, which posits a hierarchy of Intelligences, each lower Intelligence emanating from the higher. Albert adapts these models, however, striving to maintain an absolute distinction between God, who is the being of all things only in so far as he is the *cause* of their being, and his creation, and to avoid any implication that the universe emanates eternally from God—a view which could not fit the Christian doctrine, which Albert accepted, of a created universe with a beginning.

Through our intellects, Albert believed, even in the present life we belong to the hierarchy of Intelligences. Here Albert both used and broke with his Arab mentors. Avicenna had identified the lowest of the Intelligences with the active intellect which Aristotle had mentioned briefly in *On the Soul* as being necessary if the potential intellect *(intellectus possibilis),* in itself purely receptive, is to be able to think. Averroes, in the view of Albert and all his Latin interpreters from the 1250s onwards, had gone even further and supposed that there was only one potential intellect for all men. Avicenna's position could easily be adapted to Christianity by taking the active intellect as God himself; Averroes', which precluded individual immortality, could not. Albert, however, holds that each human has its own individual active and potential intellect; like Bonaventure and Aquinas, he attacks the Averroist theory of a single intellect for all men; and yet he also proclaims his closeness to Averroes' theories about the intellect. These positions are not, as they might seem, in conflict with one another. Albert, like Averroes, held that human thought involves contact with an eternal, single intellect. But he considered that this came about through each human's individual agent intellect which was itself an emanation from the single, separate agent intellect. We engage in thought through the joining of our individual agent intellects to our individual potential intellects, which are predisposed to receive intelligible forms in the same way as our senses are predisposed to receive sensory ones. The conjunction is not a simple matter. Although the agent intellect is part of our soul, and in this sense is joined to it, the conjunction Albert has in mind is of its 'light, by which it activates the things understood' to the potential intellect.

By describing how this conjunction takes place, Albert sketches a view of the highest human happiness, which it is for philosophers to achieve ([10.49] III: 221–3). He bases himself on Aristotle's comments in *Nicomachean Ethics* X about theoretical contemplation as the best

life for man. We can engage in intellectual speculation in two ways, he explains: through thinking the self-evident truths which we know simply by thinking of them, and through what we choose to learn by investigating and by listening to those who are learned. In both routes, we grasp intelligibles only because our agent intellect makes them intelligible, and 'in making them actually understood, the agent intellect is joined to us as an efficient cause'. What we are contemplating in this process, Albert believes, are not—as the description so far might suggest—eternal truths, but separate substances. The more our potential intellect is filled with these intelligibles, the more it comes to resemble the agent intellect, and when it has been filled with every intelligible thing, the light of the agent intellect has become the form to its matter, and the composite of agent and potential intellect is called the 'adopted' *(adeptus)* or divine intellect: 'and then the man has been perfected to carry out the work which is his work in so far as he is man—to contemplate perfectly through himself and grasp in thought the separate substances' ([10.49] III: 222:6–9). 'This state of adopted intellect', Albert adds, 'is wonderful and best, for through it a man becomes in a certain way like God, because in this way he can activate divine things and bestow on himself and others divine understandings and in a certain way receive everything that is understood' ([10.49] III: 222:80–4).

ALBERT'S SCHOOL: THE GERMAN DOMINICANS

Albert's influence worked on three different groups in three different directions. Most explicitly associated with him, though most distant in time, are the fifteenth-century thinkers who set up Albert as their authority and described themselves as 'Albertists'; they are discussed below in Chapter 18. Albert was also an important figure for those in the arts faculties who looked to Averroes as the most faithful interpreter of Aristotle and who, while respecting Christian doctrine, considered their own role as arts masters was to reason without resort to revelation. Some of these thinkers from the thirteenth century are discussed below in Chapter 12; the movement they began lasted through to the end of the Middle Ages. John of Jandun (1285/9–1328) was one of the most outspoken advocates of Averroes (and learned from Albert), and Averroism was then taken up in Bologna and Padua, in Erfurt in the late fourteenth century and in Krakow in the mid-fifteenth.[9] But Albert's closest followers—those who carried on his tradition chronologically and developed what was most characteristic in his thought—were a group of thinkers who were all, like him, German Dominicans.[10] They

knew Albert's work well, both directly and through Hugh Ripelin of Strasbourg's *Compendium of Theological Truth* (*c.* 1260–8) which drew up some of the main themes of his work in textbook fashion. The first important member of the group was Ulrich of Strasbourg (born *c.* 1220–5), a student of Albert's at Paris and then Cologne. He returned to Paris in 1272 to complete his studies in theology, but died before he was finished. He had already written a large *summa, On the Highest Good,* which uses, and develops even more explicitly than Albert himself, the idea of the divinization of the intellect.

In the work of Dietrich of Freiberg, Albert's thinking is given a new and highly original twist. Dietrich (*c.* 1250–1318/20) belonged to a younger generation. He was active in Germany (from 1293 to 1296 he was provincial of the Dominican Province of Teutonia) but also in the University of Paris, where he studied between 1272 and 1274 and some time between 1281 and 1293, and where he was master of theology in 1296–7. He is an important figure in the history of natural science (see [10.73]), but his most remarkable philosophical ideas concern the human intellect. As mentioned above, medieval theologians generally accepted the view that God knows (and produces) his creation through ideas in his intellect. Dietrich accepted this common view with regard to the relation between God and all things *except* for intellects. The human intellect, he argues in *On the Intellect and the Intelligible,* is related to God in a different, closer way, which it has in common only with other intellects, such as (if they exist) the Intelligences posited by the philosophers. An intellect proceeds from God 'in so far as it is an image of God'. Like God's thinking, the object of the intellect's thinking is God himself. It is just this knowing God which constitutes the intellect; in the same act of knowing the intellect knows itself as that which knows God, and through knowing its essence it also knows all other things outside itself, since it is their exemplar: 'in one look *(intuitus)* knowing its origin and thus coming into being it knows the entirety of things.'[11] In this way, Dietrich argues that intellects exist in a special sort of way, which he describes as 'conceptional being': an intellect should not be considered as a something, which has a certain power—that of intellectually thinking. Rather, the thinking by which an intellect knows God is what the intellect is. Whereas Albert had explained how the human intellect could become God-like through what it could contemplate (the separate substances), Dietrich emphasizes the God-likeness of the intellect in its very manner of being. In another work *(On the Origin of the Things which belong to the Aristotelian Categories),* Dietrich argues that, in an important sense, the objects which we encounter in experience, and which can be described according to Aristotle's ten categories, are made by our intellects. Since the intellect knows these objects, it must bear a relation

to them. The only three possible relations are that (1) it is identical to them, (2) they cause it, or (3) it causes them. Dietrich dismisses (1) and rejects (2) because a cause must have a 'greater power of forming' *(formalior virtus)* than that which it causes, whereas the intellect is 'incomparably more form-like and simpler than these things'.[12] Although Dietrich goes on to qualify his position, allowing that the intellect is not the only cause of these objects, he has given, to say the least, a surprisingly large role to the human intellect in constituting the world it grasps.[13]

The most celebrated of the German Dominicans is Eckhart (1260–1328). But Eckhart's fame has been linked more to his reputation as a mystic and as the instigator of a popular mystical movement, especially among women, than to his philosophical arguments. Unlike any other of the Western thinkers treated in this volume, Eckhart produced a body of work in the vernacular (Middle High German); and it is in these sermons that he develops some of his most striking ideas. Yet, until shortly before his death, when the process began which would lead to his posthumous condemnation in 1329, Eckhart had followed an outstanding career as a university theologian. He was a master of theology in Paris from 1302 to 1303 and, a rare honour, master again *(magister actu regens)* in 1311–13; from 1322 to 1325 he was in charge of the Dominican *studium* in Cologne. Recent scholars have emphasized the philosophical aspects of Eckhart's work (found both in the Latin *Parisian Questions* and *Three-part Work,* and in the German sermons and treatises) and have seen it as part of the tradition going back to Dietrich of Freiberg and Albert. Here there is room to touch on just three of these aspects of Eckhart's rich and many-faceted work.

In the second of his *Parisian Questions* (1302–3), Eckhart argues the position that in God, being *(esse)* and thinking *(intelligere)* are the same. In itself, there is nothing unusual about this position; Aquinas had held it too, and Eckhart quotes Aquinas' arguments for it. But Eckhart develops the idea in a particular direction, arguing—in a way which parallels what Dietrich of Freiberg says about the human intellect—that God is intellect, and his being follows from this: it is not 'because he is, that God thinks but because he thinks that he is; so that God is intellect and thinking and this thinking is the basis of his being'. The Gospel of John does not begin, Eckhart goes on to remark, with the words 'In the beginning was an existing thing *(ens)* and the existing thing was God', but 'In the beginning was the Word'; but the Word is 'in itself entirely relative to the intellect'. 'Neither being nor being existent *(ens)* is appropriate for God but something higher than what is existing.' Eckhart's line of argument threatens to undermine the whole tradition of theology based on God as supreme *being;*

although it too is rooted in theological tradition, the tradition of negative theology which goes back to pseudo-Dionysius.[14]

Eckhart's idea of the 'basis' *(grunt)* or the 'spark' *(vunke)* of the soul, developed especially in his German sermons, is even more daring, especially according to the interpretation recently advanced by Burkhard Mojsisch who, more than previous writers, has explored the philosophical, rather than the mystical, aspects of these writings.[15] Dietrich of Freiberg had already described the active intellect as the basis of the soul: the cause from which it springs. For Eckhart, however, the *grunt* or *vunke* does not belong to the soul, although it is in it. Eckhart must insist on this because he also claims that this 'something' is 'uncreated and uncreatable' (see [10.69] 133–4). When, in order to leave behind the false I and discover the true one, our possible intellect turns away from forms—wishing nothing, knowing nothing, letting nothing act upon it—it is to this 'something in the soul' which it must turn. Eckhart is willing to identify the uncreated *grunt* with God, but also, it seems, to go even further: the idea of God, he argues, implies a relation to something else, to creation; the *grunt,* or the 'I as I', by contrast, bears no relation to anything but itself. It is its own cause and even the cause of God (see [10.70] 27).

Eckhart thus transforms the theme he inherited from the tradition of Albert, according to which the highest part of man's soul, the intellect, is divinized through its ability to be filled with intelligible contents derived from God's thought itself. For Eckhart, the spark in the soul is itself divine or even more than divine, and only by turning away from anything outside myself and from any content whatsoever, do I discover myself as this 'I as I'. He also makes a parallel transformation of the moral outlook linked to Albert's theme. In place of the philosophical ideal of nobility, found in the contemplation enjoyed by the philosopher, Eckhart substitutes a nobility of renunciation which he expresses by the word 'detachment' *(abegescheidenheit),* and an ideal of poverty and humility: 'Were a man truly humble', he writes, 'God would have either to lose his own divinity and be entirely bereft of it, or else diffuse himself and flow entirely into this man. Yesterday evening I had this thought: God's greatness depends on my humility; the more humble I make myself, the more God will be raised up.'[16]

The tradition of Albert takes a different twist in the writings of Berthold of Moosburg (fl. *c.* 1335–*c.* 1361). His known work comprises just an incomplete, but none the less vast, commentary on Proclus' *Elements of Theology*. This choice of a life's work was no accident. Berthold believed that the 'Platonic philosophers', of whom he considered Proclus an outstanding example, had arrived at the true philosophy, by contrast with Aristotle and his followers. For Berthold, the main distinction to be considered is no longer between the teachings

of the philosophers and those of Christian faith, but between the two main schools of ancient philosophy: the Aristotelians, whose metaphysics, the knowledge of being *qua* being, is seen in opposition to the theology developed by Christians and Neoplatonists alike (see [10.63] 317–442).

NOTES

1 Readers of this chapter are requested to look at what I say in my Introduction (above, p. 9, n. 8) about its aims and, especially, its limitations.
2 Aristotle was also studied intensively in Oxford: see above, Chapter 9, and Marenbon [10.34].
3 It is not certain that William was responsible for the revision of Grosseteste's translation that became standard.
4 For an authoritative summary of present knowledge about the translations of Aristotle, see Dod [10.30]. The preceding paragraph and a half is based especially on this study.
5 On Latin versions of Avicenna, see d'Alverny [10.27].
6 Part of the *Parmenides* was to be found in the lemmata of William of Moerbeke's translation of Proclus' commentary, but neither the commentary nor the text was generally known: see Steel [10.35] 306.
7 See Weber [10.47]. On the history of these arguments based on the idea of infinity, many of which appear to go back to the sixth-century Greek Christian thinker John Philoponus, see R.Sorabji, *Time, Creation and the Continuum,* London, 1983, esp. pp. 210–31.
8 See de Libera [10.64]. My comments on Albert draw especially from de Libera, but they offer only a crude reflection of de Libera's subtle views. See also de Libera [10.63] for a development of his views about Albert within a wider context.
9 See Schmugge [10.71] for John of Jandun and Kuksewicz [10.62] for later Averroism.
10 An excellent guide to this tradition, and argument for its unity, is provided in de Libera [10.63].
11 *De intellectu et intelligibili* II, 36; for the whole discussion, see II, 34–6, and III, 37; cf. Mojsisch [10.68].
12 *De origine rerum praedicamentalium* V2.
13 Flasch was the first scholar to bring out the nature and importance of Dietrich's position here: see [10.59].
14 For a thorough study of the background to the Parisian questions 1 and 2, see Zum Brunn and others [10.74] and Imbach [10.60].
15 See Mojsisch [10.69] and [10.70]. Not all Eckhart scholars accept Mojsisch's views: for a critique, see [10.72], esp. 307–12.
16 Sermon 14 [10.53, Deutsch. Werke, I 237:1–5], quoted by de Libera [10.65] 325; on Eckhart's transformation of the ideal of nobility, see de Libera [10.65] 299–347.

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CHAPTER 11

Thomas Aquinas

Brian Davies OP

Thomas Aquinas, son of Landulf d'Aquino and his wife Theodora, was born sometime between 1224 and 1226 in what was then the Kingdom of Naples.[1] After a childhood education at the Benedictine monastery of Monte Cassino, he studied at the university of Naples. Here, possibly under Irish influence, he encountered the philosophy of Aristotle, which subsequently became a major source of philosophical inspiration to him.[2] The thinking of Aristotle and Aquinas differ in many ways. So it would be wrong to say, as some have, that Aquinas is just an 'Aristotelian', implying that he merely echoed Aristotle.[3] But he certainly used Aristotle to help him say much that he wanted to say for himself. And he did more than any other medieval philosopher to make subsequent generations aware of the importance of Aristotle.

In 1242 or 1243 Aquinas entered the Dominican Order of preaching friars founded by St Dominic (*c.* 1170–1221).[4] He subsequently studied under St Albert the Great (*c.* 1200–80) in Cologne and Paris, and by 1256 he was a professor at the University of Paris. The rest of his life was devoted to teaching, preaching, administration and writing—not only in Paris, but elsewhere as well. He taught, for example, at Orvieto and Rome. He was assigned to establish a house of studies in Rome in 1265. In 1272 he moved to Naples, where he became responsible for studies at the priory of San Domenico. But by 1274 his working life was over. In December 1273 he suffered some kind of breakdown. At around the same time he was asked to attend the second Council of Lyons. He set out for Lyons, but he became seriously ill on the way and he died in the Cistercian Abbey of Fossanova.

After his death Aquinas came near to being condemned at the University of Paris. And teachings thought to derive from him were condemned at Oxford in 1277. But his standing as a thinker grew steadily and, in spite of continued opposition to his teaching, he was canonized as a saint of the Catholic Church in 1323. Later medieval

authors often quote him and discuss him, and, though his influence waned between the later medieval period and the age of the Counter-Reformation, his impact on post-Reformation figures was considerable, chiefly because St Ignatius Loyola arranged for his writings to be used in the training of Jesuits. After another period in which his thinking came to be lightly regarded, the study of Aquinas was encouraged by the papacy in the nineteenth century.

PHILOSOPHER OR THEOLOGIAN?

Does Aquinas deserve a place in a book on the history of philosophy? Anthony Kenny has described him as 'one of the dozen greatest philosophers of the western world' ([11.27] 1). But others have expressed a different view. Take, for example, Bertrand Russell. According to him:

> There is little of the true philosophic spirit in Aquinas. He does not, like the Platonic Socrates, set out to follow wherever the argument may lead. He is not engaged in an inquiry, the result of which it is impossible to know in advance. Before he begins to philosophize, he already knows the truth; it is declared in the Catholic faith.[5]

Russell had little time for Aquinas considered as a philosopher. And even Aquinas's supporters have sometimes characterized him as a theologian rather than a philosopher. According to Etienne Gilson, the philosophy in Aquinas is indistinguishable from the theology.[6] The same opinion is expressed by Armand Maurer. Commenting on Aquinas's *Summa theologiae,* he says that, in this work,

> everything is theological, even the philosophical reasoning that makes up such a large part of it. The water of philosophy and the other secular disciplines it contains has been changed into the wine of theology. That is why we cannot extract from the *Summa* its philosophical parts and treat them as pure philosophy.[7]

Russell's judgement will strike most modern philosophers as a dubious one. And, as Kenny nicely observes, it 'comes oddly from a philosopher who [in *Principia Mathematica*] took three hundred and sixty dense pages to offer a proof that 1+1=2' ([11.27] 2). But there are good reasons for agreeing with Gilson and Maurer. Aquinas was a priest and a Dominican friar. And most of his writings can be properly classed as 'theology'. We have reason to believe that his greatest literary

achievement, the *Summa theologiae,* was chiefly intended as a textbook for working friars.[8] And there is reason to suppose that his second best-known work, the *Summa contra Gentiles,* had an equally pastoral and Christian motive.[9]

Yet any modern philosopher who reads Aquinas will be struck by the fact that he was more than your average theologian. His writings show him to have been expert in matters of philosophical logic. And, like many medieval theology teachers, he presented his theology with an eye, not just on Scripture and the authority of Christian tradition, but also on what follows from what, what it is *per se* reasonable to believe, and what it makes sense to say in general. If Aquinas is first and foremost a theologian, he is also a philosopher's theologian who is worthy of attention from philosophers. He had an enviable knowledge of philosophical writings and he was deeply concerned to theologize on the basis of this knowledge. He was also a writer of considerable ability with theses of his own, which are not just restatements of positions received from the Christian tradition and the history of philosophy. Whether one calls him a 'theological' thinker or a 'philosophical' thinker does not really matter. The fact remains that his writings are full of philosophical interest.

AQUINAS AND GOD

Readers who want to get an overall sense of Aquinas's teaching are best advised to see it as defending what is usually called an *exitusreditus* picture of reality ([11.12] ch. 11). God, says Aquinas, is 'the beginning and end of all things'.[10] Creatures derive from God *(exitus),* who is therefore their first efficient cause (that which accounts for them being there).[11] But God is also the final cause of creatures, that to which they aim, tend, or return *(reditus),* that which contains the perfection or goal of all created things.[12] According to Aquinas, everything comes from God and is geared to him. God accounts for there being anything apart from himself, and he is what is aimed at by anything moving towards its perfection. Aristotle says that everything aims for its good (*Ethics* I, i, 1094a3). Aquinas says that any created good derives from God who contains in himself all the perfections found in creatures. In so far as a creature moves to its perfection, Aquinas goes on to argue, the creature is tending to what is to be found in God himself.[13] As Father, Son, and Spirit, Aquinas adds, God is the special goal of rational individuals. For these can share in what God is by nature.[14]

Aquinas is sometimes reported as teaching that someone who claims rationally to believe in the existence of God must be able to prove that God exists. But this is not what Aquinas teaches. He says that people

can have a rational belief in the existence of God without being able to prove God's existence.[15] And he holds that, apart from the question of God's existence, people may be rational in believing what they cannot prove. Following Aristotle, he maintains that people may rationally believe indemonstrable principles of logic.[16] He also maintains that one may rationally believe what a teacher imparts to one, even though one is in no position to demonstrate the truth of what the teacher has told one.[17] He does, however, contend that belief in God's existence is one for which good philosophical reasons can be given. This is clear from *Summa theologiae* Ia, 2, 2 and *Summa contra Gentiles* I, 9, where he says that 'we can demonstrate…that God exists' and that God can be made known as we 'proceed through demonstrative arguments'. 'Demonstrative arguments' here means what it does for Aristotle, i.e. arguments using premisses which entail a given conclusion on pain of contradiction.

Aquinas denies that proof of God's existence is given by arguing that 'God does not exist' is a contradiction. So he rejects the suggestion, commonly associated with St Anselm, that the existence of God can be demonstrated from the absurdity of denying that God exists.[18] He also rejects the view that human beings are naturally capable of perceiving or experiencing God as they perceive or experience the things with which they are normally acquainted. According to Aquinas, our perception and seeing of things is based on sensory experience.[19] Since God is not a physical object, Aquinas concludes that there can be no natural perception or seeing of God on the part of human beings.[20] He does not deny that people might have a knowledge of God without the medium of physical objects. In talking of life after death, he says that people can have a vision of God which is nothing like knowing a physical object.[21] But he denies that human beings in this world have a direct and unmediated knowledge of God. On his account, our knowledge of God starts from what we know of the world in which we live. According to him, we can know that God exists because the world in which we find ourselves cannot account for itself.

Aquinas considers whether we can prove that God exists in many places in his writings. But his best-known arguments for the existence of God come in Ia, 2, 3 (the 'Five Ways'). His thinking in this text is clearly indebted to earlier authors, especially Aristotle, Maimonides, Avicenna and Averroes.[22] And it would be foolish to suggest that the reasoning of the Five Ways can be quickly summarized in a way that does them justice. But their substance can be indicated in fairly uncomplicated terms.

In general, Aquinas's Five Ways employ a simple pattern of argument. Each begins by drawing attention to some general feature of things known to us on the basis of experience. It is then suggested that none

of these features can be accounted for in ordinary mundane terms, and that we must move to a level of explanation which transcends any with which we are familiar.[23]

Another way of putting it is to say that, according to the Five Ways, questions we can raise with respect to what we encounter in day to day life raise further questions the answer to which can only be thought of as lying beyond what we encounter.

Take, for example, the First Way, in which the influence of Aristotle is particularly prevalent.[24] Here the argument starts from change or motion in the world.[25] It is clear, says Aquinas, that there is such a thing—he cites as an instance the change involved in wood becoming hot when subjected to fire.[26] How, then, may we account for it?

According to Aquinas, anything changed or moved is changed or moved by something else. *Omne quod movetur ab alio movetur.* This, he reasons, is because a thing which has changed has become what it was not to begin with, which can only happen if there is something from which the reality attained by the thing as changed somehow derives.[27] Therefore, he concludes, there must be a first cause of things being changed or moved. For there cannot be an endless series of things changed or moved by other things. If every change in a series of connected changes depends on a prior changer, the whole system of changing things is only derivatively an initiator of change and still requires something to initiate its change. There must be something which causes change or motion in things without itself being changed or moved by anything. There must an unchanged changer or an unmoved mover.

> Anything which is moved is moved by something else… To cause motion is to bring into being what was previously only able to be, and this can only be done by something that already is… Now the same thing cannot at the same time be both actually *x* and potentially *x,* though it can be actually *x* and potentially *y:* the actually hot cannot at the same time be potentially hot, though it can be potentially cold. Consequently, a thing which is moved cannot itself cause that same movement; it cannot move itself. Of necessity therefore anything moved is moved by something else… Now we must stop somewhere, otherwise there will be no first cause of the movement and as a result no subsequent causes… Hence one is bound to arrive at some first cause of things being moved which is not itself moved by anything, and this is what everybody understands by God.
>
> (*Summa theologiae* I q. 2, a. 3)

If we bear in mind that Aquinas believes that time can be said to exist because changes occur, the First Way is arguing that the reality of time is a reason for believing in God.[28] Aquinas is suggesting that the present becomes the past because something non-temporal enables the present to become past.

The pattern of the First Way is repeated in the rest of the Five Ways. According to the Second Way, there are causes in the world which bring it about that other things come to be. There are, as Aquinas puts it, causes which are related as members of a series. In that case, however, there must be a first cause, or something which is not itself caused to be by anything. For causes arranged in series must have a first member.

> In the observable world causes are found to be ordered in series; we never observe, nor ever could, something causing itself, for this would mean it preceded itself, and this is not possible. Such a series of causes must however stop somewhere; for in it an earlier member causes an intermediate and the intermediate a last… Now if you eliminate a cause you also eliminate its effects, so that you cannot have a last cause, nor an intermediate one, unless you have a first.
>
> (ibid.)

According to the Third Way[29] there are things which are perishable (e.g. plants) and things which are imperishable (in Aquinas's language, imperishable things are 'necessary' beings or things which 'must be').[30] But why should this be so? The answer, says Aquinas, has to lie in something imperishable and dependent for its existence on nothing.[31]

> Now a thing that must be, may or may not owe this necessity to something else. But just as we must stop somewhere in a series of causes, so also in the series of things which must be and owe this to other things.
>
> (ibid.)

In the Fourth and Fifth Ways Aquinas turns to different questions. Why are there things with varying degrees of perfection?[32] And how does it come about that in nature there are things which, while not themselves intelligent, operate in a regular or goal-directed way?[33] Aquinas suggests that perfections in things imply a source of perfections. He thinks that where there are degrees of a perfection there must be something which maximally embodies that perfection and which causes it to occur in other things. And he thinks that the goal-directed activity of non-rational things suggests that they are governed by what is rational.

> Some things are found to be more good, more true, more noble, and so on, and other things less. But such comparative terms describe varying degrees of approximation to a superlative; for example, things are hotter and hotter the nearer they approach to what is hottest. Something therefore is the truest and best and most noble of things. Now *when many things possess some property in common, the one most fully possessing it causes it in the others: fire,* to use Aristotle's example, *the hottest of all things, causes all other things to be hot.* There is therefore something which causes in all other things their being, their goodness, and whatever other perfections they have.
>
> Some things which lack awareness, namely bodies, operate in accordance with an end… Nothing however that lacks awareness tends to a goal except under the direction of someone with awareness and with understanding… Everything in nature, therefore is directed to its goal by someone with understanding.
>
> (ibid.)

WHAT IS GOD LIKE?

Aquinas is often described as someone who first tries to prove the existence of God and then tries to show that God has various attributes. But, though this description can be partly defended, it is also misleading. For Aquinas holds that the attributes we ascribe to God are not, in reality, anything distinct from God himself. According to Aquinas, God is good, perfect, knowledgeable, powerful and eternal. But he does not think that, for example, 'the goodness of God' signifies anything other than God himself. In the thinking of Aquinas, God does not *have* attributes or properties. God *is* his attributes or properties.[34] Aquinas also maintains that, though we speak of God and ascribe certain attributes to him, we do not know what God is. Aquinas is often thought of as someone with a precise or definite concept of God, someone who thinks he can explain just what God is. But in a passage immediately following the text of the Five Ways, he writes,

> Having recognized that a certain thing exists, we have still to investigate the way in which it exists, that we may come to understand what it is that exists. Now we cannot know what God is, but only what he is not; we must therefore consider the ways in which God does not exist, rather than the ways in which he does.
>
> (ibid.)

The same move is made in the *Summa Contra Gentiles*. Book I, Chapter 13 of the treatise is called 'Arguments in proof of the existence of God'. Chapter 14 begins with the assertion, 'The divine substance surpasses every form that our intellect reaches. Thus we are unable to apprehend it by knowing what it is.'

In saying that God and his attributes are identical, Aquinas is not saying that, for example, 'God is good' means the same as 'God exists'. And he is certainly not saying that God is a property.[35] He means that certain things that are true of creatures are not true of God. More precisely, he means that God is nothing material. On Aquinas's account, material things possessing a nature cannot be identified with the nature they possess. Thus, for example, Socrates is not identical with human nature. But what is it that allows us to distinguish between Socrates and other human beings? Aquinas says that Socrates is different from other human beings not because of his nature but because of his matter. Socrates is different from me because he was one parcel of matter and I am another. It is materiality which allows Socrates to be a human being rather than human nature. And, since Aquinas denies that God is something material, he therefore concludes that God and his nature are not distinguishable. He also reasons that angels and their natures are not distinguishable. The angel Gabriel is not a material object. And neither is the angel Michael. So, says Aquinas, Gabriel is his nature, and Michael is his nature. Or, as we may put it, God, Gabriel and Michael are not individual members of a species or genus.[36]

With respect to the question of knowing what God is, we need to be warned that Aquinas does not deny that we can know ourselves to speak truly when we make certain statements about God.[37] Aquinas spends a great deal of time arguing that many propositions concerning God can be proved to be true in philosophical terms. But he denies that we can understand the nature of God. On his account, our knowledge of what things are depends on our ability to experience them by means of our senses and to classify them accordingly. Since he holds that God is nothing material, he therefore denies that God is known by the senses and classifiable on the basis of sensory experience.

> The knowledge that is natural to us has its source in the senses and extends just so far as it can be led by sensible things; from these, however, our understanding cannot reach to the divine essence… In the present life our intellect has a natural relation to the natures of material things; thus it understands nothing except by turning to sense images… In this sense it is obvious that we cannot, primarily and essentially, in the mode of knowing that we experience, understand immaterial substances since they are not subject

> to the senses and imagination… What is understood first by us in the present life is the whatness of material things…[hence]… we arrive at a knowledge of God by way of creatures.
>
> (*Summa theologiae,* Ia, 12, 12; 88, 1; 88, 3)

On Aquinas's account, our knowledge of God is derived from what we know of things in the world and from what we can sensibly deny or affirm of God given that he is not something in the world. So, says Aquinas, God is not a physical object which can be individuated as a member of a class of things which can be distinguished from each other with reference to genus and species. Among other things, Aquinas also argues that God is unchangeable and non-temporal (since he is the first cause of change, and since time is real since changes occur).[38]

In distinguishing God from creatures, however, Aquinas lays the greatest stress on the teaching that God is uncreated. One way in which he does so is to say that there is no 'potentiality' in God. To understand his teaching on God it will help if we try to understand what he means by saying this.

We can start by noting what Aquinas means by 'potentiality'. And we can do so by thinking of my cat Fergus. He is a lovely and loving creature, and I am deeply fond of him. But he is no Platonic form. Plato thought of the forms as unchangeable. But Fergus is changing all the time. He gets fat as I feed him. And he is constantly changing his position. So he is a serious threat to the local mice.

Aquinas would say that when Fergus weighs nine pounds he is also potentially eight and ten pounds in weight. Fergus might weigh nine pounds, but he could slim to eight pounds or grow to ten pounds. Aquinas would also say that when Fergus is in the kitchen, he is potentially in the living room. For Fergus has a habit of moving around.

What if Fergus ends up strolling on to a busy road? He stands a strong chance of becoming a defunct cat. Or, as Aquinas would say, Fergus is actually a cat and potentially a corpse. Fergus is vulnerable to the activity of things in the world. And some of them can bring it about that he ceases to be the thing that he is.

We can put this by saying that Fergus is potentially non-existent as a cat. And that is what Aquinas would say. But he would add that there is a sense in which Fergus is potentially non-existent quite apart from the threat of a busy road and the like. For there might be no Fergus at all, not just in the sense that there might never have been cats who acted so that Fergus was born, but in the sense that Fergus might not continue to exist. According to Aquinas, anything created is potential since its existence depends on God (since anything created is potentially non-existent). In his view, we are entitled to ask why

anything we come across is there. And, so he thinks, in asking this question we need not be concerned with temporally prior causes or identifiable causes in the world which sustain things in the state in which they are. We can be asking about the fact that there is anything there to be produced or to be sustained. What accounts for the fact that such things exist at all? What accounts for there being a world in which we can ask what accounts for what within it?

Aquinas holds that, if we take these questions seriously, we must believe in the existence of something which is wholly lacking in potentiality, i.e. God. Fergus can change physically and he has potentiality accordingly. But God is no physical thing, and, since he accounts for there being a world, he cannot be potentially non-existent. He does not 'have' existence. His existence is not received or derived from another. He is his own existence *(ipsum esse subsistens)* and the reason why other things have it.

> Properties that belong to a thing over and above its own nature must derive from somewhere, either from that nature itself…or from an external cause… If therefore the existence of a thing is to be other than its nature, that existence must either derive from the nature or have an external cause. Now it cannot derive merely from the nature, for nothing with derived existence suffices to bring itself into being. It follows then that, if a thing's existence differs from its nature, that existence must be externally caused. But we cannot say this about God, whom we have seen to be the first cause. Neither then can we say that God's existence is other than his nature.
>
> (*Summa theologiae,* Ia, 3, 4)

In Aquinas's view, this would be true even if the created order contained things which are not material. For suppose there were immaterial beings other than God, as Aquinas took angels to be.[39] They would differ from material things since they would have no in-built tendency to perish or move around. In the language of Aquinas, they would be 'necessary' beings rather than 'contingent' ones. They would also be identical with their natures, for, as we have seen, Aquinas held that there are no two angels of the same kind or 'species'. But they would still be potentially non-existent since they would receive their existence from God. And, though they could not decay or perish at the hands of other creatures, it would be possible for God to de-create (annihilate) them. They would not therefore exist simply by being what they are. 'Without doubt', says Aquinas, 'the angels, and all that is other than God, were made by God. For only God is his existence; in all else essence and existence are distinct.'[40] Or, as he also explains,

> Some things are of a nature that cannot exist except as instantiated in individual matter—all bodies are of this kind. This is one way of being. There are other things whose natures are instantiated by themselves and not by being in matter. These have existence simply by being the natures they are: yet existence is still something they *have,* it is not what they are—the incorporeal beings we call angels are of this kind. Finally there is the way of being that belongs to God alone, for his existence is what he is.
>
> (*Summa theologiae,* Ia, 12, 4)

GOD AND HIS CREATION

How does Aquinas think of God as relating to his creation? In writing about the relation between God and creatures, one of the things he says is that God is not really related to creatures, though creatures are really related to God. In his own words:

> Since God is altogether outside the order of creatures, since they are ordered to him but not he to them, it is clear that being related to God is a reality in creatures, but being related to creatures is not a reality in God.[41]

But what does he mean in saying this? And how does what he says connect with his belief that God is the creator and sustainer of everything other than himself?

One might suppose that the words of Aquinas just quoted constitute a flagrant violation of obvious truths. If A is related to B, then B must be related to A. What could be more obvious than that? But Aquinas's teaching on God and his relation to creatures is not a denial of the principle 'If aRb, then bRa'. If one reads him on the question of God's relation to creatures, one will find him endorsing all of the following propositions.

1 We can speak of God as related to his creatures in view of the purely formal point that if one thing can be said to be related to another, then the second thing can be said to be related to the first.
2 Since God can be compared to creatures, since he can be spoken of as being like them, he can be thought of as related to them.
3 Since God knows creatures, he can be said to be related to them.
4 Since God moves creatures, he can be said to be related to them.
5 Since God can be spoken of as 'first', 'highest' and so on, he can be said to be related to creatures since these terms are relational ones.[42]

In saying that 'being related to creatures is not a reality in God', Aquinas's primary concern is to deny that God is changed because he has created. Aquinas denies that God is something which has to create. In his view, God creates freely, and to understand what God is essentially would not be to see that he is Creator of the world. God, indeed, has created the world. But, says Aquinas, he does not produce the world as kidneys produce urine. For him, God is able to create, but he is not essentially a creator (as kidneys are essentially producers of urine).[43] So Aquinas reasons that the essence of God is in no way affected by the existence of created things and that being the Creator of creatures is not something in God. God does not become *different* by becoming the Creator of things. Nor does he change because his creatures change. For Aquinas, the fact that there are creatures makes no difference to God, just as the fact that my coming to know that Fred is bald makes no difference to Fred (my coming to know that Fred is bald does not change him, even though he might be deeply affected by learning that I have come to know of his baldness). In Aquinas's view, God is unchangeably himself. And he remains so even though it is true that there are things created and sustained by him.

This aspect of Aquinas's teaching allows him to take a view of God's activity which is quite at odds with that to be found in the work of many philosophers and theologians both ancient and modern. It has often been said that the action of God is a process undergone by God with effects in the world of created things. When I act, I do something in addition to what I have been previously doing. I go through a series of successive states. And my going through these states sometimes leads to changes in things apart from myself. By the same token, so it has often been argued, God acts by being a subject under-going successive states some of which have effects in things other than him. But this is not Aquinas's position. On his account, the action of God is not a process undergone by him. It is a process undergone in things other than God. For Aquinas, God's action is the history of created things.

One of the things which Aquinas takes this to mean is that God cannot, strictly speaking, be thought of as intervening in the world. According to the usual sense of 'intervene', to say that *X* has intervened is to say that *X* has come to be present in some situation from which *X* was previously absent. Thus, for example, to say that I intervened in a brawl is to say that I moved into a fight of which I was not originally a part. But Aquinas holds that God can never be absent from anything. On his account, God is everywhere as making all places.[44] He also says that God is in all things as making them to be. Hence, for example, he refuses to think of miracles as cases of divine intervention. It is often said that to believe in miracles is to believe in a God who can intervene. The idea seems to be that a God capable of performing miracles must be one who observes a given scenario and then steps in to tinker with

it. But God, for Aquinas, can never intervene in his creation in this sense. He therefore maintains that God is as present in what is not miraculous as he is in the miraculous. Miracles, for him, do not occur because of an extra added wonder ingredient (i.e. God). They occur because something is *not* present (i.e. a cause other than God, or a collection of such causes).[45]

This thought of Aquinas should be connected with another of his prevailing theses: that free human actions are caused by God. He frequently alludes to arguments suggesting that people cannot be free under God's providence. In *On Evil* VI, for instance, we find the three following arguments, from the twenty-four in all, against the thesis that human beings have a free choice of their actions:

> If change is initiated in the human will in a fixed way by God, it follows that human beings do not have free choice of their actions. Moreover, an action is forced when its originating principle is outside the subject, and the victim of force does not contribute anything to it. So if the originating principle of a choice which is made voluntarily is outside the subject—in God—then it seems that the will is changed by force and of necessity. So we do not have free choice of our actions. Moreover, it is impossible that a human will should not be in accordance with God's will: as Augustine says in the *Enchiridion,* either a human being does what God wills or God fulfils his will in that person. But God's will is changeless; so the human will is too. So all human choices spring from a fixed choice.

A similar kind of argument constitutes the third objection to Ia, 83, 1:

> What is *free is cause of itself,* as the Philosopher says (*Metaphysics* 1.2). Therefore what is moved by another is not free. But God moves the will, for it is written (Prov. 21:1): *The heart of the king is in the hand of the Lord; whithersoever He will He shall turn it;* and (Phil. 2:13): *It is God Who worketh in you both to will and to accomplish.* Therefore people do not have free-will.

Yet Aquinas insists that the reality of providence (which means the reality of God working in all things as first cause and sustainer) is not incompatible with human freedom.

To begin with, he says, people certainly have freedom. For one thing, the Bible holds that they do (in Ia, 83, 1 Aquinas cites *Ecclesiasticus* 15:14 to this effect). For another, people, as rational agents, have it in

them to choose between alternative courses of action (unlike inanimate objects or animals acting by instinct).[46] They also have it in them to act or refrain from acting. In fact, says Aquinas, human freedom is a prerequisite of moral thinking.

> If there is nothing free in us, but the change which we desire comes about of necessity, then we lose deliberation, exhortation, command and punishment, and praise and blame, which are what moral philosophy is based on.
>
> (*On Power,* VI; *Summa theologiae,* Ia, 83, 1)

Secondly, so Aquinas continues, human actions falling under providence can be free precisely because of what providence involves. In his view we are not free *in spite of* God, but *because of* God.

> God does indeed change the will, however, in an unchanging manner, because of the manner of acting of God's change-initiating power, which cannot fail. But because of the nature of the will which is changed—which is such that it is related indifferently to different things—this does not lead to necessity, but leaves freedom untouched. In the same way divine providence works unfailingly in everything, but nevertheless effects come from contingent causes in a contingent manner, since God changes everything in a relative way, relative to the manner of existence of each thing… The will does contribute something when change is initiated in it by God: it is the will itself that acts, though the change is initiated by God. So though its change does come from outside as far as the first originating principle is concerned, it is nevertheless not a forced change.
>
> (*On Evil,* VI)

In other words, human freedom is compatible with providence because only by virtue of providence is there any human freedom. God, for Aquinas, really does act in everything. And since 'everything' includes human free actions, Aquinas concludes that God works in them as much as in anything else.

> People are in charge of their acts, including those of willing and of not willing, because of the deliberative activity of reason, which can be turned to one side or the other. But that someone should deliberate or not deliberate, supposing that one were in charge of this too, would have to come about by a preceding deliberation. And since this may not proceed to infinity, one would finally have to reach the point at which a person's free

> decision is moved by some external principle superior to the human mind, namely by God, as Aristotle himself demonstrated. Thus the minds even of healthy people are not so much in charge of their acts as not to need to be moved by God.
>
> (*Summa theologiae*, Ia2ae, 109, 3, ad. 1)

The same idea is expressed in Aquinas's commentary on Aristotle's *On Interpretation:*

> If divine providence is, in its own right, the cause of everything that happens, or at least of everything good, it seems that everything happens of necessity… God's will cannot be thwarted: so it seems that whatever he wants to happen happens of necessity… [But] we have to notice a difference as regards the divine will. The divine will should be thought of as being outside the ordering of existent things. It is the cause which grounds every existent, and all the differences there are between them. One of the differences between existents is between those that are possible and those that are necessary. Hence necessity and contingency in things have their origin in the divine will, as does the distinction between them, which follows from a description of their proximate causes. God lays down necessary causes for the effects that he wants to be necessary, and he lays down causes that act contingently—i.e. that can fail of their effect—for the effects that he wants to be contingent. It is according to this characteristic of their causes that effects are said to be necessary or contingent, even though they all depend on the divine will, which transcends the ordering of necessity and contingency, as their first cause… The will of God cannot fail: but in spite of that, not all its effects are necessary; some are contingent.
>
> (*On 'On Interpretation'*, Bk I, lectio 14)

By 'necessary' here Aquinas means 'determined' or 'brought about by causes necessitating their effects'. By 'contingent' he means 'undetermined' or 'able to be or not to be'. His suggestion, therefore, is that God wills both what is determined and what is undetermined. Since he believes that each must derive from God's will, he locates them within the context of providence. But since he also believes that the determined and undetermined are genuinely different, he concludes that providence can effect what is undetermined as well as what is determined. And, on this basis, he holds that it can effect human free actions.

One may, of course, say that if my actions are ultimately caused by

God then I do not act freely at all. But Aquinas would reply that my actions are free if nothing in the world is acting on me so as to make me perform them, not if God is not acting in me. According to him, what is incompatible with human free will is 'necessity of coercion' or the effect of violence, as when something acts on one and 'applies force to the point where one cannot act otherwise'.[47] As Herbert McCabe explains, Aquinas's position is that 'to be free means not to be under the influence of some other *creature,* it is to be independent of other *bits of the universe;* it is not and could not mean to e independent of God'.[48] For Aquinas, God does not interfere with created free agents to push them into action in a way that infringes their freedom. He does not act *on* them (as Aquinas thinks created things do when they cause others to act as determined by them). He makes them to be what they are, namely freely acting agents. In Aquinas's words,

> Free-will is the cause of its own movement, because by their free-will people move themselves to act. But it does not of necessity belong to liberty that what is free should be the first cause of itself, as neither for one thing to be the cause of another need it be the first cause. God, therefore, is the first cause, who moves causes both natural and voluntary. And just as by moving natural causes he does not prevent their acts being natural, so by moving voluntary causes he does not deprive their actions of being voluntary: but rather is he the cause of this very thing in them; for he operates in each thing according to its own nature.
>
> (*Summa theologiae,* Ia, 83, 1, ad. 3)

HUMAN BEINGS

On this account, people are totally dependent on God for all that they are. But the account is a very theological one. And one might wonder how Aquinas thinks of people without also thinking about God. What, for example, would he write if asked to contribute to a modern philosophical book on the nature of human beings?[49]

The first thing he would say is that human beings are animals. So they are, for example, capable of physical movement. And they have biological characteristics. They have the capacity to grow and reproduce. They have the need and capacity to eat. These characteristics are not, for Aquinas, optional extras which people can take up and discard while remaining people. They are essential elements in the make-up of any human being. And they are very much bound up with what is physical or material.

This line of thinking, of course, immediately sets Aquinas apart from writers who embrace a 'dualistic' understanding of human beings—writers like Descartes, for instance.[50] For Aquinas, my body is not distinct from me because it is a different substance or thing from me. On his account, if a human being is there, then so is a human body.

> For as it belongs to the very conception of 'this human being' that there should be this soul, flesh and bone, so it belongs to the very conception of 'human being' that there be soul, flesh and bone. For the substance of a species has to contain whatever belongs in general to every one of the individuals comprising that species.
>
> (*Summa theologiae,* Ia, 75, 4)

Aquinas often refers to the thesis that people are essentially substances different from bodies on which they act (a view which he ascribes to Plato). But he emphatically rejects this thesis.

> Plato and his followers asserted that the intellectual soul is not united to the body as form to matter, but only as mover to movable, for Plato said that the soul is in the body 'as a sailor in a ship'. Thus the union of soul and body would only be by contact of power… But this doctrine seems not to fit the facts.
>
> (*Summa contra Gentiles,* II, 57)

If our souls moved our bodies as sailors move ships, says Aquinas, my soul and my body would not be a unity. He adds that if we are souls using bodies, then we are essentially immaterial, which is not the case. We are 'sensible and natural realities' and cannot, therefore, be essentially immaterial.[51]

But this is not to say that Aquinas thinks of people as irreducibly material. He is not, in the modern sense, a philosophical 'physicalist'.[52] We have just seen that he is prepared to speak about people as having souls. And, on his account, a proper account of the human soul *(anima)* will deny that it is wholly material. By 'soul', Aquinas means something like 'principle of life'. 'Inquiry into the nature of the soul', he writes, 'presupposes an understanding of the soul as the root principle of life in living things within our experience'.[53] And, in Aquinas's thinking, the root principle of life in human beings (the human soul) is non-material. It is also something 'subsisting'.

In arguing for the non-corporeal nature of the human soul, Aquinas begins by reminding us what *anima* means, i.e. 'that which makes living things live'. And, with that understanding in mind, he contends that soul cannot be something bodily. There must, he says, be some principle of life which distinguishes living things from non-living things, and

this cannot be a body. Why not? Because if it were a body it would follow that any material thing would be living, which is not the case. A body is alive not just because it is a body. It is alive because of a principle of life which is not a body.

> It is obvious that not every principle of vital activity is a soul. Otherwise the eye would be a soul, since it is a principle of sight; and so with the other organs of the soul. What we call the soul is the root principle of life. Now though something corporeal can be some sort of principle of life, as the heart is for animals, nevertheless a body cannot be the root principle of life. For it is obvious that to be the principle of life, or that which is alive, does not belong to any bodily thing from the mere fact of its being a body; otherwise every bodily thing would be alive or a life-source. Consequently any particular body that is alive, or even indeed a source of life, is so from being a body of such-and-such a kind. Now whatever is actually *such,* as distinct from *not-such,* has this from some principle which we call its actuating principle. Therefore a soul, as the primary principle of life, is not a body but that which actuates a body.
>
> (*Summa theologiae,* Ia, 75, 1)

In other words, if bodily things are alive just because they are bodies, all bodily things (e.g. my alarm clock) would be alive, which they are not. So what makes something a living thing cannot be a body.

But why say that the human soul is something subsisting? The main point made by Aquinas in anticipating this question is that the human animal has powers or functions which are not simply bodily, even though they depend on bodily ones. For example, people can know and understand, which is not the case with that which is wholly material. As Aquinas puts it, people enjoy an intellectual life and they are things of the kind they are (rational animals) because of this. Aquinas calls that by virtue of which people are things of the kind they are their 'souls'. So he can say that human beings are bodily, but also that they are or have both body and soul. The two cannot be torn apart in any way that would leave what remained a human being. But they can be distinguished from each other and the soul of a human being can therefore be thought of as something subsisting immaterially.

> The principle of the act of understanding, which is called the human soul, must of necessity be some kind of incorporeal and subsistent principle. For it is obvious that the understanding of people enables them to know the natures of

> all bodily things. But what can in this way take in things must have nothing of their nature in its own, for the form that was in it by nature would obstruct knowledge of anything else. For example, we observe how the tongue of someone sick with fever and bitter infection cannot perceive anything sweet, for everything tastes sour. Accordingly, if the intellectual principle had in it the physical nature of any bodily thing, it would be unable to know all bodies. Each of them has its own determinate nature. Impossible, therefore, that the principle of understanding be something bodily. And in the same way it is impossible for it to understand through and in a bodily organ, for the determinate nature of that bodily organ would prevent knowledge of all bodies. Thus if you had a colour filter over the eye, and had a glass vessel of the same colour, it would not matter what you poured into the glass, it would always appear the same colour. The principle of understanding, therefore, which is called mind or intellect, has its own activity in which body takes no intrinsic part. But nothing can act of itself unless it subsists in its own right. For only what actually exists acts, and its manner of acting follows its manner of being. So it is that we do not say that heat heats, but that something hot heats. Consequently the human soul, which is called an intellect or mind, is something incorporeal and subsisting.
>
> (*Summa theologiae,* Ia, 75, 2)

Aquinas's notion that the human soul 'subsists' does not entail that it is a complete and self-contained entity, as, for example, Descartes thought the soul to be. For Aquinas, my human soul subsists because I have an intellectual life which cannot be reduced to what is simply bodily. It does not subsist as something with its own life apart from me, any more than my left hand does, or my right eye. Both of these can be spoken of as things, but they are really parts of me. We do not say, 'My left hand feels' or 'My right eye sees'; rather we say, 'I feel with my left hand' and 'I see with my right eye'. And Aquinas thinks that something similar should be said about my soul. I have a human soul because I have intellect and will. But it is not my soul which understands and wills. I do.

One might put this by saying that my soul is not I. And Aquinas says exactly this in his Commentary of St Paul's first letter to the Corinthians.[54] In that case, however, what happens to me when I die? Aquinas maintains that people are essentially corporeal. This means that I am essentially corporeal. For I am a human being. So am I to conclude from what Aquinas holds that I cease to exist at death? Can I look forward to nothing in the way of an afterlife?

Aquinas has a number of answers to these questions. Since he thinks of people as essentially corporeal, he agrees that there is a sense in which they cease to exist at death. But, since he believes that God can raise the dead to bodily life, he denies that the fact that I die entails that I cease to exist. On the other hand, he does not believe that most of those who have died have been raised to bodily life. He is certain that Christ has been raised to bodily life. But he would deny that the same can be truly asserted of, for example, Julius Caesar. He would therefore say that the soul of Caesar survives, though Caesar himself does not.

Given what we have now seen of Aquinas's teaching, it should be evident why he would deny that now, when he has not been raised to bodily life, Caesar survives his death. But why should Aquinas think that Caesar's soul would survive his death? Does he subscribe to the view that the human soul is immortal? Does he maintain that, though Caesar might die, his soul must survive the death of his body?

The answer to the last two questions is 'Yes'. Aquinas does believe that human souls are immortal. He also believes that they must survive the death of human beings. That by virtue of which I understand and think, he reasons, is not the sort of thing which can die as bodies can die.[55] He is well aware that people die and that their bodies perish. As we have seen, however, people, for Aquinas, are rational, understanding animals who are what they are by virtue of what is not material. He therefore concludes that there must be something about them capable of surviving the destruction of what is material. He does not think we can prove that the soul of Caesar must survive his death. In Aquinas's view, whether or not Caesar's soul survives the death of Caesar depends on whether God wills to keep it in being. And Aquinas does not think that we are in any position to prove that God must do that. For him, therefore, there is no 'proof of the immortality of the soul'. He holds that Caesar's soul could cease to exist at any time. But he also thinks that it is not the sort of thing of which it makes sense to say that it can perish as bodies can perish.

On the other hand, however, he does not think of it as the sort of thing which can survive as a human animal can survive. So the survival of Caesar's soul is not the survival of the human being we call 'Julius Caesar'. People, for Aquinas, are very much part of the physical world. Take that world away and what you are left with is not a human person. You are not, for example, left with something able to know by means of sense experience.[56] Nor are you left with something able to undergo the feelings or sensations that go with being bodily. On Aquinas's account, therefore, a human soul can only be said to survive its body as something purely intellectual, as the *locus* of thought and will.

> Understanding through imagery is the proper operation of the soul so far as it has the body united to it. Once separated from the body it will have another mode of understanding, like that of other disembodied natures… It is said, people are constituted of two substantial elements, the soul with its reasoning power, the flesh with its senses. Therefore when the flesh dies the sense powers do not remain… Certain powers, namely understanding and will, are related to the soul taken on its own as their subject of inhesion, and powers of this kind have to remain in the soul after the death of the body. But some powers have the body-soul compound for subject; this is the case with all the powers of sensation and nutrition. Now when the subject goes the accident cannot stay. Hence when the compound corrupts such powers do not remain in actual existence. They survive in the soul in a virtual state only, as in their source or root. And so it is wrong to say, as some do, that these powers remain in the soul after the dissolution of the body. And it is much more wrong to say that the acts of these powers continue in the disembodied soul, because such powers have no activity except through a bodily organ.
>
> (*Summa theologiae,* Ia, 75, 6 ad. 3 and Ia, 77, 8)

Peter Geach observes that Aquinas's description of the life that would be possible for disembodied souls is 'meagre and unattractive'.[57] And many will agree. But the description now in question is all that Aquinas feels able to offer as a philosopher. As a Christian theologian he feels able to say that the dead will be raised to a newness of life of a highly attractive kind. His final position is that, following the Incarnation of God in Christ, people can be raised in their bodies to share in God's life.[58] But the truth of this position, on Aquinas's own admission, is in no way demonstrable by means of philosophical argument. It follows from the teachings of Christ. On Aquinas's account, we are warranted in believing what Christ taught. For Christ was divine. Yet, so Aquinas adds, though we can give some rational grounds for believing in the divinity of Christ, we cannot prove that Christ was God.[59] Belief in the divinity of Christ is a matter of faith. It is not a matter of knowledge. Though it is not unreasonable, it is not demonstrably true. If we subscribe to it, that can only be because God has given us the theological virtue of faith.[60]

FAITH AND PHILOSOPHY

Aquinas's writings on faith provide good examples of texts which should lead us to challenge a view of medieval philosophy which has been referred to as 'separationism'.[61] Some students of Aquinas try rigidly to separate his theology from his philosophy. They then go on to write about him on the assumption that some of his texts are 'theological' while others are 'philosophical'. But Aquinas himself made no such sharp distinction between theology and philosophy. And even what he says of faith shows him to be weaving together what later authors separate under the headings 'theology' and 'philosophy'. The object of faith is God, he says.[62] Some will call this a statement of theology. The virtue of faith, he continues, involves holding fast to truths which philosophy cannot demonstrate.[63] That, too, might be called a theological conclusion. But in calling God the object of faith Aquinas draws on views about truth, falsity, belief and propositions which, in his opinion, ought to seem rationally acceptable to anyone. And in arguing that philosophy cannot demonstrate the truths of faith he defends himself with reference to what he thinks about human knowledge in general (apart from revelation) and what he thinks we must conclude given what our reason can tell us of God. So his teaching on faith can also be viewed as philosophical.

These facts bring us back again to the question touched on earlier. Is Aquinas really a philosopher? From what we have now seen of his thinking, it should be clear why the question cannot be answered if an answer must presume on our being able to draw a clear and obvious distinction between the philosophy of Aquinas and the theology of Aquinas. In his writings, philosophical arguments and theses are used to reach conclusions of theological import. And theses of theological import lead to judgements which can readily be called philosophical. And the result can be studied as something containing matters of interest to thinkers with any religious belief or none. In this chapter I have tried to give some indication of what these matters are. A complete account of Aquinas's thinking would have to report more than space here allows me. Those who read Aquinas for themselves, however, will quickly get a sense of what that might involve.

NOTES

1 For discussion of the date of Aquinas's birth see Tugwell [11.8], 291ff.

2 For the Irish influence on Aquinas see Michael Bertram Crowe, 'Peter of Ireland: Aquinas's teacher of the ARTES LIBERALES', in *Arts Liberaux et Philosophie au Moyen Age,* Paris, 1969.

3 As well as being influenced by Aristotle, Aquinas was also indebted to elements in the thought of Plato and to later writers of a 'Platonic' caste of mind. He commented on the *Book about Causes (Liber de causis),* an excerpted and adapted version of the *Elements of Theology* by the late Neoplatonist Proclus (*c.* 410–85). He also commented on Dionysu the Areopagite. And 'Platonic' theories and styles of argument abound in his writings.

4 Readers interested in understanding the origins and spirit of the Dominicans are best advised to consult Simon Tugwell OP (ed.) *Early Dominicans,* New York, Ramsey and Toronto, 1982.

5 Bertrand Russell, *A History of Western Philosophy,* London, 1946, pp. 484ff.

6 For an exposition of Gilson on this matter see John F.Wippel, 'Etienne Gilson and Christian philosophy', in [11.40].

7 *St Thomas Aquinas: Faith, Reason and Theology: Questions I–IV of his Commentary on the De Trinitate of Boethius,* translated with introduction and notes by Armand Maurer, Toronto, 1987, p. xv. Pegis elaborates his position in 'Sub ratione Dei: a reply to Professor Anderson', *The New Scholasticism* 39 (1965). Pegis is here responding to James Anderson's 'Was St Thomas a Philosopher?', *The New Scholasticism* 38 (1964). Anderson asked whether Aquinas was a philosopher and replied that he was.

8 Cf. Leonard E.Boyle, *The Setting of the Summa Theologiae of Saint Thomas* (Etienne Gilson Series 5), Toronto, 1982, pp. 17 and 30.

9 On the basis of a fourteenth-century life of St Raymund of Peñafort (*c.* 1178–1280), tradition holds that the *Summa contra Gentiles* was commissioned as an aid for Dominican missionaries preaching against Muslims, Jews and heretical Christians in Spain and North Africa. This theory has been subject to recent criticism, but it has also been recently defended. Cf. *Summa contra Gentiles,* I, text and French translation, with an Introduction by A.Gauthier, Paris, 1961, and A.Patfoort, *Thomas d'Aquin: les Clés d'une Théologie,* Paris, 1983.

10 Introduction to *Summa theologiae,* Ia, 2.

11 *Summa theologiae,* Ia, 44, 1.

12 *Summa theologiae,* Ia, 44, 4

13 *Summa theologiae,* Ia, 6, 1.

14 Cf. *Summa theologiae,* Ia, 12, 5; Ia2ae, 62, 1; Ia2ae, 110, 1; Ia2ae, 112, 1.

15 Cf. *Summa theologiae,* 2a2ae, 2, 4.

16 For Aristotle, see *Posterior Analytics,* I, 10. For Aquinas, see *Summa theologiae,* Ia, 2, 1; *On Truth,* I, 12; XV, 1. I am using 'believe' here in the loose sense of 'take to be true or accept'. Aquinas himself would not speak of believing first principles of demonstration. These, for him, are known or understood.

17 Cf. *Summa theologiae,* Ia, 1, 1; 2a2ae, 2, 3. See also Aquinas's inaugural lecture *(principium)* as Master in Theology at Paris (1256). This text can be found in the Marietti edition of Aquinas's *Opuscula theologica,* Turin, 1954, and is translated in Tugwell [11.8], 355ff.

18 For Anselm, see *Proslogion,* II and III. For Aquinas, see *Summa theologiae,* Ia, 2, 1; *Summa contra Gentiles,* I, 11. The argument discussed in the passages from Aquinas just cited was not so much Anselm's as a version of Anselm's argument current in the thirteenth century and offered by writers such as Alexander of Hales (*c.* 1186–1245). For a discussion of the matter, see Jean Chatillon, 'De Guillaume d'Auxerre à saint Thomas d'Aquin: l'argument de saint Anselme chez les premiers scholastiques

du XIIIe siècle', in Jean Chatillon, *D'Isidore de Séville à saint Thomas d'Aquin,* London, 1985.

19 Cf. *On Truth,* X, 4–6; *Summa theologiae,* Ia, 84–8. For reasons of space I am not here going into details on Aquinas's teaching on the source of human knowledge. For an introductory account see Marenbon [Intr. 10], 11631 and 134–5.

20 Cf. *Summa contra Gentiles,* I, 14; *Summa theologiae,* Ia, 12, 4 and 11.

21 Cf. *Summa theologiae,* Ia, 12, 1.

22 See William Lane Craig, *The Cosmological Argument from Plato to Leibniz,* London, 1980, ch. 5; Elders [11.16], ch. 3; van Steenberghen [11.36], 165ff.

23 One might reasonably deny that God is an 'explanation' of anything for Aquinas. One might say that an explanation of such and such is something we understand better than the thing with respect to which we invoke it as an explanation. Aquinas would agree with this observation. But if 'explanation' means 'cause', he would insist that God is an 'explanation' of what we find around us.

24 Aristotle presents an argument like that of Aquinas in *Physics* VII. Aquinas acknowledges his debt to Aristotle's argument in *Summa contra Gentiles,* I, 13 where he offers a longer version of what appears in the *Summa theologiae* as the First Way.

25 Aquinas here is concerned with what he calls *motus*. For him this includes change of quality, quantity or place (hence the legitimacy of translating *motus* as 'change' or 'movement').

26 Aquinas calls the First Way 'the most obvious' *(manifestior)* proof. That, I presume, is chiefly because what he calls *motus* is something which impinges on us all the time. Maimonides and Averroes are two other authors who thought that the truth of the reasoning which surfaces in the First Way is particularly evident. Cf. Maimonides (see [4.13], I, 70) and Averroes (see [3.17] IV).

27 Aquinas does not mean that the world does not contain things which can be thought of as changing themselves, e.g. people. He means that nothing in the world is wholly the source of its change. Cf. Christopher Martin [11.22] 61.

28 For Aquinas on time and change see *Summa theologiae,* Ia, 10, 1 and Lectures 15–20 of Aquinas's commentary on Aristotle's *Physics*. That the First Way is an argument from the reality of time is suggested by David Braine, *The Reality of Time and the Existence of God,* Oxford, 1988.

29 Some of the key concepts in the Third Way are found in Aristotle. Maimonides offers an argument very similar to that of the Third Way in *The Guide of the Perplexed* II, 1. One can also compare the Third Way with a proof of God's existence given by Avicenna (cf. Arthur J.Arberry, *Avicenna on Theology,* London, 1951, p. 25 for the text in English). But Aquinas's Third Way is a distinct argument and not just a straightforward repetition of earlier arguments with which it may be compared.

30 Cf. Patterson Brown, 'St Thomas' doctrine of necessary being', in Kenny [11.27].

31 There is a textual problem concerning the Third Way which my brief account of it bypasses. For a discussion of the issues and for a treatment of different interpretations of the Third Way see van Steenberghen [11.36] 188–201, and Craig, *Cosmological Argument,* pp. 182–94.

32 In the Fourth Way the background to the argument seems chiefly Platonic. Aquinas holds that perfection admits of degrees, a notion found in Plato, St Augustine, St

Anselm and many others. The Platonic theory which seems to lie behind the Fourth Way is expounded with reference to the Way in Kenny [11.28] ch. 5.

33 Here Aquinas invokes the notion of final causality or teleological explanation, which can be found in Book II of Aristotle's *Physics*. For Aristotle, a final cause or a teleological explanation was an answer to the question 'To what end or purpose is this happening?' For an exposition and discussion of Aristotle on purpose in nature, see Richard Sorabji, *Necessity, Cause and Blame: Perspectives on Aristotle's Theory,* London, 1980, chs 10 and 11. The argument of the Fifth Way is given in more detail by Aquinas in *On Truth,* V, 2.

34 For a more detailed account of this proposal see Brian Davies, 'Classical theism and the doctrine of divine simplicity', in Brian Davies (ed.) *Language, Meaning and God,* London, 1987.

35 In *Does God have a Nature?,* Milwaukee, 1980, Alvin Plantinga erroneously attributes to Aquinas the suggestion that God is a property.

36 *Summa theologiae,* Ia, 50, 4.

37 P.T.Geach properly draws attention to this point in *Three Philosophers,* Oxford, 1973, p. 117.

38 Cf. note 27 above.

39 Cf. *Summa theologiae,* Ia, 50, 2.

40 *Summa theologiae,* Ia, 61, 2.

41 *Summa theologiae,* Ia, 13, 7. Cf. also *Summa contra Gentiles,* II, 11 and *On Power,* VII, 8–11. For modern philosophical discussion of the suggestion, see Peter Geach, 'God's relation to the world', *Sophia* 8, 2 (1969):1–9 and C.J. F.Williams, 'Is God really related to his creatures?', *Sophia* 8, 3 (1969):1–10.

42 *On Power,* VII, 10.

43 Cf. *Summa theologiae,* Ia, 19, 1, 3, 10.

44 *Summa theologiae,* Ia, 8, 2.

45 Aquinas therefore holds that only God can produce miracles (*Summa theologiae,* Ia, 110, 4). Aquinas treats of miracles at some length in *Summa theologiae,* Ia, 105, *Summa contra Gentiles,* III, 98–102, and *De potentia,* VI.

46 *Summa theologiae,* Ia, 83, 1 and *On Evil,* VI.

47 *Summa theologiae,* Ia, 82, 1.

48 Herbert McCabe OP, *God Matters,* London, 1987, p. 14.

49 The honest answer to the question is, 'We do not know'. What follows is merely an opinion based on what Aquinas actually said.

50 Cf. René Descartes, *Meditations on First Philosophy.* For modern presentations of dualism see H.D.Lewis, *The Elusive Self,* London, 1982 and R.G.Swinburne, *The Evolution of the Soul,* Oxford, 1986.

51 *Summa contra Gentiles,* II, 57, 3–5.

52 I take physicalism to be the belief that people are nothing but bodies operating in certain ways. Cf. J.J.C.Smart, 'Sensations and brain processes', *Philosophical Review,* 68 (1950): 141–56.

53 *Summa theologiae,* Ia, 75, 1.

54 *Lecture on the first letter to the Corinthians,* XV; cf. *Summa theologiae,* Ia, 77, 8.

55 Cf. *Summa theologiae,* Ia, 75, 6.

56 Cf. *On Truth,* XIX.

57 Anscombe and Geach [11.11] 100.

58 *Summa contra Gentiles,* IV, 82–6.

59 Cf. *Summa theologiae,* 2a2ae, 1, 4, ad. 2.
60 For Aquinas on the virtue of faith see *Summa theologiae,* 2a2ae, 1–16.
61 Marenbon [Intr. 10], 83ff.
62 *Summa theologiae,* 2a2ae, 1, 1.
63 *Summa theologiae,* 2a2ae, 1, 4–5.

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CHAPTER 12

The Paris arts faculty: Siger of Brabant, Boethius of Dacia, Radulphus Brito

Sten Ebbesen

Throughout the thirteenth century Paris overshadowed all other universities in the arts as in theology. This chapter will deal almost exclusively with Paris.

In pagan antiquity philosophy had not only been the pursuit of an ever better understanding in all sorts of fields, it had also been expected to provide the intellectuals with a sense of purpose in life, reconcile them with death and console them in difficult times. In a Christian society philosophy must leave the second task to religion. The division into arts and theology faculties at the universities institutionalized the division of tasks, leaving the artists with the obligation not to offer their own way to salvation, but also with a freedom to do penetrating research in a wide spectrum of disciplines, unfettered by demands that their insights be relevant to the achievement of existential satisfaction. On the whole, the division of tasks worked well, but problems arose when a considerable body of non-Christian literature on ethics, cosmology and natural theology became available to the artists and was taught in class. A crisis occurred in Paris in the 1270s.

An episcopal condemnation of thirteen theses in 1270 marks the beginning of the crisis. Then in 1272 the artists (that is, those teaching and studying in the arts faculty) think it necessary to codify their own obligation not to meddle in theological matters, 'overstepping, as it were, the limits set' for them. Finally, in 1277 the bishop, Stephen Tempier, issues a stern letter in which unnamed members of the arts faculty are accused of actually 'overstepping the limits of the faculty's competence', and of thinking that theories found in the writings of

pagan philosophers could be true notwithstanding the fact that they conflict with the truth of Scripture. Tempier appends a list of 219 theses and threatens severe sanctions against anyone who may teach any such errors in the future or who has already done so.

Among the condemned theses some appear to deny creation, some to deny the immortality of individual souls, others are less obviously relevant to Christian dogma. The bishop had culled most of them from writings by arts masters. However, his attack on the artists was only the first move in a campaign designed, it seems, to culminate in a condemnation of a recently deceased theologian, Thomas Aquinas.

The artists had less powerful supporters than the theologians; attacking them first meant beginning with the weakest opponent, but it also meant striking at the root. It was the study of non-Christian writers that inspired the theories that Tempier would not tolerate, and that study had its permanent base in the arts faculty, whence it infiltrated the higher faculty of theology. Aristotelizing theologians could, in turn, influence the artists. In the 1260s and 1270s Thomas Aquinas made a strong impact; masters like Siger of Brabant borrowed freely from Thomas, though also occasionally polemicizing against him.

The contents of the arts had changed considerably since the twelfth century. Traditional Latin rhetoric had all but vanished. Grammar thrived, and conscious attempts were made to develop it into an axiomatized science of the type delineated by Aristotle in his *Posterior Analytics*. Logic underwent a deep transformation; the twelfth century had revelled in detailed propositional analysis; a technical vocabulary had been developed and theorems established that permitted much preciser determination of the possible interpretations of a sentence and of its truth-conditions than Aristotle's logic could provide. This was the 'native tradition' of Western logic, already highly developed before the entry of the 'New Aristotle' after 1130. At first the native tradition had been enriched by the encounter with the new books, in particular with the *On Sophistical Refutations* whose subject-matter, fallacious reasoning, lay within the existing sphere of interest. But in the thirteenth century the New Aristotle started to act as a cuckoo in the nest. His *Topics* killed the study of Boethius. His *Posterior Analytics, Metaphysics, Ethics, Physics,* etc. drew the attention away from the niceties or technical logic. The theorems (*regulae,* 'rules') formulated by the preceding generations were repeated in elementary handbooks but provoked little discussion and were not significantly added to. The foci of the masters' interest were elsewhere.

In logic, one focus of interest was metalogical problems; what sort of things are the objects (arguments, universals, topics, etc.) logicians deal with? Another was how to apply basic notions of metaphysics, such as substance, subject and accident, matter and form, movement

and rest to the analysis of the meaning *(significatio)* of terms. Above all, there was a lively interest in the theory of *scientia:* knowledge, science. At the same time the old logic course expanded into a general course of philosophy, comprising metaphysics, ethics, natural philosophy and all.

It looks as if Oxford kept the native tradition more alive, and that this prepared for the spectacular breakthrough of English logic in the fourteenth century. But be that as it may, the thirteenth century was Paris's.

The present state of scholarship allows no clear picture of theoretical developments prior to *c.* 1265–70. We get fascinating glimpses only. Thus one anonymous logician from about the middle of the century considers the relations 'parenthood' *(paternitas)* and 'being a child' *(filiatio);* they are one species of relation, he says, in conformity with tradition, but then he proposes that a father plus his child will be one individual of that species, just as one unity plus another unity are an individual of the species 'set of two' *(binarius)*. This seems to amount to treating dyadic relations as predicates or properties of (ordered) pairs of things. Is this theory peculiar to the one text in which I found it? Perhaps; but it is quite possible that an examination of unedited texts will show that it was widely known.

Though nobody can claim to be able to survey the extant writings from the early Parisian arts faculty, it is possible to name some of the most important masters. One was John Lepage, who was active in the 1230s. Another was Robert Kilwardby (d. 1279), archbishop of Canterbury from 1272, who, teaching in the years round 1240, was to influence his successors for several decades. When Albert the Great (*c.* 1200–80) compiled the logical part of his vast encyclopaedia, he relied on Kilwardby to an extent that nowadays would be called plagiarizing. Though full of inconsistencies, Albert's encyclopaedia became popular as a work of reference among the artists, much to the regret of Roger Bacon (d. 1292 or slightly later). Bacon seems to have taught at Paris in the 1240s, but the extent of his influence is difficult to gauge. John of Secheville was a promine nt master in the 1240–50s who found a lot of inspiration in Averroes, who was now eclipsing Avicenna as the leading authority on what Aristotelian philosophy was about. Secheville is now best known for his *De principiis naturae (On the Principles of Nature),* a treatise on fundamental physics, probably written in the 1260s after the author's return to his native England. About 1250 there also was Nicholas of Paris, author of several logical works with some later success.

The generation who started their career as masters about 1265 are reasonably well known, though it must be admitted that modern research has been lopsided, the lion's share of attention going to texts and subjects relevant to the 1277 condemnation or Thomas Aquinas.

The fact that a Belgian and a Dane figured prominently among the masters targeted by the condemnation helped launch a Belgian and Danish project to edit each country's medieval philosophers, thus making the work of artists from those parts of Europe much better known than that done by their French or Italian colleagues. The Belgian was Siger of Brabant, the Dane Boethius of Dacia ('Bo from Denmark').

All evidence of Boethius' life before 1277 is contained in the epithet indicating his nationality and the number and nature of his extant or attested writings. He is likely to have commenced teaching about the mid-1260s. His best known works are the short treatises, *On the Highest Good* and *On the Eternity of the World,* but considerable parts of his *œuvre* in the fields of logic, natural philosophy and grammar have also survived. He wrote one of the very first Latin commentaries on Aristotle's *Rhetoric,* but unfortunately it has been lost, and little is known about the early reception of the *Rhetoric*. Extant sources suggest that the book was rarely taught and then with an emphasis on general problems of logic, ethics or psychology without much attention to the specific problems of rhetorical communication. Scholastics never quite got a firm grip of the art of persuasion.

It is the general, but unproven, assumption that Boethius was still teaching in 1277 and that the condemnation stopped his university career. He was almost certainly a secular during his regency in arts, yet his works occur in a medieval catalogue of books composed by blackfriars. It is permissible to speculate that the condemnation made him seek a new life among the friars, but actually his fate is unknown. While some of his works enjoyed wide diffusion, the author's person was soon forgotten. Only in the twentieth century has he re-emerged as an important figure in the history of philosophy.

Siger of Brabant always had more publicity, in life and in death. His very entry into history is spectacular: according to a document from 1265 he was suspected of complicity in the kidnapping of a member of the French nation of the university by scholars from the Picard nation. In 1271 the faculty of arts was split in two; the Normans and one Picard seceded from the rest. The Normans rewarded the Picard by electing him as rector. The Picard was Siger. When the nations were reunited in 1275 through the intervention of a papal legate, the blame was put on the Normans and this may have prompted Siger to leave Paris for Liège where he was a canon. In 1276 he was summoned to appear before an inquisitor to face charges of heresy; he was probably acquitted, but the next year propositions culled from his books were among those condemned in Paris. He himself may have been in Liège and thus out of harm's way. In 1281 or shortly afterwards he met his end in the papal residential town of Orvieto, stabbed by his own secretary who had gone insane, it is said.

Siger was *magister regens* (i.e. actually teaching) for some ten years (*c.* 1265–75) and several works from that period have survived, notably his questions on Aristotle's *Metaphysics,* on the *Liber de causis (Book about Causes),* some psychological works, and one about the eternity of the world.

Siger's name was never forgotten. Some decades after his death Dante portrayed him as a denizen of Paradise and let Thomas Aquinas point him out with the words:

> This is the eternal light of Siger
> who, when lecturing in rue de la Fouarre [site of the schools of arts],
> concluded unwelcome truths.
>
> (*Paradiso* 10.136–8)

In Italy some people continued to read Siger until the early sixteenth century.

The pope's legate who in 1275 reunited the university that Siger had helped split installed Peter of Auvergne (d. 1303) as rector—probably a wise choice. Peter's voluminous (and mostly unedited) writings reveal him as a mainstream thinker, a competent man, but a man of compromises rather than one of sharp or innovative positions. Peter later advanced to master of theology and in 1302 was awarded a bishopric. In the 1270s he and Boethius had some sort of collaboration as teachers, though they disagreed on many points, and discretely polemicized against each other. Peter was, after Thomas Aquinas, the first important Latin commentator on Aristotle's *Politics,* but his political philosophy is only just beginning to be seriously studied.

Simon of Faversham (d. 1306) is another mainstream author of some repute. He is likely to have been somewhat younger than Peter; his Parisian regency in arts probably fell around 1280. Later he taught theology in Oxford. Much of his *œuvre* is preserved but only some logical works have been edited and doctrinal studies have been sporadic.

About the early 1270s Martin of Denmark (Martinus de Dacia, d. 1304) composed a remarkably well-organized grammar, *Modi Significandi,* which became widely used. In the 1440s the humanist Lorenzo Valla paid tribute to its continuing actuality by specifically mentioning Martin and his 'sickening' *Modi Significandi* in a virulent attack on scholastic grammar. Martin became master of theology in the 1280s, served as chancellor to the Danish king about 1287–97, and then seems to have returned to Paris; at least he was buried in Notre Dame, of whose chapter he was a member.

Modus significandi, 'way' or 'mode of signifying', is a term with a long history before 1270, but now it had become a key concept of

linguistics. Virtually all late thirteenth-century Parisian arts masters were 'modists' in the sense that this concept with its complements, *modi intelligendi* (ways or modes of understanding) and *modi essendi* (ways or modes of being) played a major role in their thought.

The basic idea of modism is this: each constituent of reality (each *res)* has a number of ways or modes of being *(modi essendi)* which determine the number of ways in which it can be correctly conceptualized; the ways in which it can be conceptualized *(modi intelligendi)* in turn determine in which ways it can be signified.

Assume that pain is a constituent of reality. Pain is in a way like a substance: a stable thing in its own right that can have changing properties (be intense or weak, precisely located or diffuse, for example); in a way it is like a process occurring in some subject. The concept of pain will then be able to present itself to our mind in two ways and we will consequently be capable of signifying pain in two ways. Any word that signifies it as the stable carrier of properties *(per modum habitus et permanentiae)* is a noun; any word that signifies it as a process in a subject *(per modum fieri)* is a verb. The English words 'a pain' and 'to ache' signify the same thing or 'common nature' under two different modes. A third mode is expressed by the interjection 'ouch'.

'Whatever can be conceived of by the mind may be signified by any part of speech', says Boethius; his only restriction on this rule is that the mode of signifying of the part of speech must not be incompatible with the thing to be signified.

Fully elaborated theories of modes of signifying would, by similar means, account for all the traditional grammatical categories, not only parts of speech, but also cases, tenses, etc. Latin provided the examples used, but the modes were assumed to be completely independent of any particular language. What is around to be talked about is independent of the speaker's cultural background; 'what is there' *(ens)* is things *(res)* and their ways or modes of being; we can form concepts of no more things than there are and conceive of things only in as many ways as things are. Moreover, we can express whatever we can understand, but no more.

All peoples, then, have the same intellectual equipment (concepts plus ways of understanding) with which to grasp a common reality (things plus ways of being); the several ways of being of things determine the ways in which they may be known *(modi sciendi),* and those ways are what logic is about. So logic must be pan-human, says Boethius, and so must language in the sense that whichever thing can be signified in one tongue can be signified in another, and whichever mode of signifying is actualized in one tongue can be so (or even: is so) in any other. All languages have the same grammar and total translatability is guaranteed. True, some peoples may know things others don't and

have a richer vocabulary, but this is accidental; new words can always be added to a language. Grammar is not disturbed by the fact that the same thing is called 'homo', 'anthropos', and 'man' in different languages; how to match sounds with concepts is a matter of convention (though it was generally assumed that some sort of mimetic system underlay the choice of sounds for the basic vocabulary of each language). Similarly, any device can be used to express masculinity (more precisely *modus significandi per modum agentis*)—suffixes, particles, whatever—but you cannot have a language incapable of expressing that fundamental category. Nor can you have a significative word with the lexical component [male human] and the grammatical category [female], as the result would be incomprehensible and hence non-significative. Such clashes between lexical component *(significatum)* and mode of signifying apart, there are no restraints on which combinations of significate and mode of signifying a particular language may choose to lexicalize by assigning them a certain sound value. Thus the same thing, *X*, may have a feminine name in language *A* and a masculine name in language *B*. The difference only means that the 'impositor', i.e. whoever introduced the word in *A*, paid attention to one mode of being of *X* ('as something acting'), whereas the *B*-impositor paid attention to another mode ('as something acted on').

Various strategies were used to block simple-minded inferences from surface grammar to reality; one would not like to be saddled with 'nothing' as a genuine thing in its own right just because 'nothing' is a noun, but at least in the 1270s and 1280s it must have seemed to most men as if such difficulties were surmountable. It was possible to describe a grammar that abstracted totally from phonetic realization, yet was easily correlatable to it, and which promised to yield a list of elementary modes of cognition all with a sure foundation in the reality subject to cognition.

Modistic theories promised easy shifts between the levels of being, understanding and signifying. Some went so far as to hold that the modes of signifying, understanding and being are fundamentally identical, just, said Martin, as the thing that is signified and the thing that is understood are basically identical with the thing out there. In other words, the mode of being is a mode of understanding when cognized by an intellect, and a mode of signifying when related to a linguistic sign.

Others, notably Boethius of Dacia, strongly opposed this identification, which threatened to leave the intellect as a mere mirror of extramental reality with the result that there could not be different sciences based on the same modes of being of things; thus logical relationships *(habitudines locales)* and grammatical modes of signifying would be strictly identical when derived from the same modes of being.

Moreover the way would be open to facile deductions from expressions and thoughts to extramental reality.

One weakness of all variants of modistic theory was that it was difficult to combine it with a theory of reference, for whatever the 'things' *(res)* of modistic theory were, they certainly were not singular extramental entities. On the other hand, no one wanted to be a fullfledged Platonist. There was a tendency to answer all questions about the relation between words and reality by referring to the set of significate and modes of signifying encoded in each lexical item when it was 'imposed'. Modistic semantics possessed few tools to deal with the contribution of linguistic context to the meaning of a term, and none at all to explain how extralinguistic context contributes to the way an expression is understood. Nor was it possible to offer a plausible modistic account of figurative expressions, metaphors, and the like. Desperate attempts were made to explain how 'man' can change its meaning from 'living rational body' into 'lifeless irrational body' on being joined by the adjective 'dead'. 'Man' was declared an 'analogical' term, and as such equipped on imposition not only with signification and modes of signifying but also with a rule to the effect that in isolation it signifies its primary significate (living human being), but its secondary significate (cadaver) when combined with the adjective 'dead'.

Radulphus Brito in the 1290s gave up many of the makeshift solutions proposed by the generation before him, but then he introduced instead a factor that simply does not belong in a modistic theory: the intelligent listener's ability to correct badly transmitted information and understand 'dead body' when the message strictly speaking says 'dead living body'.

Another, and ultimately related, difficulty was that it was not obvious why one should resist the temptation to describe all sorts of distinctions in terms of modes of signifying, thus endangering the position of grammar as a separate science. In works from the late thirteenth century there is an uneasy relationship between the properly grammatical modes of signifying (such as the substantive's *modus per se stantis*) and so-called modes of category (*modi praedicamentorum,* such as the *modus substantiae* of 'whatever').

Finally, the old trick of introducing non-things called modes to make distinctions without splitting one entity into several, always leaves the unpleasant question, 'What is the thing without the modes?' Perhaps the best answer is 'Nothing', for the 'common nature' hiding under the modes has no job in isolation. Its job is to glue together a number of items: thing-cum-mode-A, thing-cum-mode-B, etc.

Traditionally the common nature was identified with the essence of a thing which, according to Avicenna, is nothing except self-identical: horsehood is horsehood, blackness is blackness (well, you may add a

few trivial analytical statements, like 'blackness is a sort of colour', but that's all you can say about it). A common nature neither exists nor does not exist, it is neither universal nor particular. It can be thus modified, but in itself is beyond those oppositions.

There was in Avicenna and in the Latin tradition an ambiguity. On one hand the essence or common nature was thought to be prior to such determinations, on the other hand it was given positive determinations: it does not exist, but it has essential being; it is not concrete, but it is abstract.

The identification of the common nature with what was felt to be the least determinately modified alternative was a major source of theoretical inconsistency. Boethius may have sensed the problem, for he discusses whether it is possible to signify a thing under no mode. Since he believes we can think of it thus, he must—and does—hold that we can signify it thus, i.e. that it would be possible to institute a word for pain, for example, that would belong to no part of speech. However, he does not enter into a closer investigation of how such a word could be significative. The root of the trouble with the common nature seems not to have been localized till Radulphus Brito did so.

Brito may have been born about 1270. He was regent master of arts in the 1290s and possibly also in the first decade of the next century, while preparing for his degree in theology (obtained 1311/12). He may have died in the 1320s. The bulk of his extant *œuvre* is non-theological, consisting of questions on Aristotle, Manlius Boethius and Priscian plus some sophismata.

Brito's work may be seen as a clever attempt to mend and save a theoretical framework in crisis, though in his day the crisis of modism would not be obvious. Sometime around 1300 a new handbook was written by Thomas of Erfurt; called *Novi modi significandi* it was to dominate in German schools, while the old *Modi significandi* by Martin continued to be used in Italy. Philosophy began to drop the modes only about 1315, and in grammar they lived till much later.

Some of the problems besetting modistic theories had been realized as early as the 1270s. Thus it had been shown that explaining a lexical unity in terms of its modes of signifying had the awkward result that an equivocal noun, say *canis*='dog, dog-fish, dog-star', could not actually be one noun but would have to be as many nouns as it had meanings. An attempt was made to save the situation through a distinction: each of the things signified would possess its own passive mode of signifying (i.e. mode of being signified) as a noun, but to the three passive modes of signifying would correspond only one active mode on the vocal level. *Canis* would be one noun. This, on the other hand, threatened the basic modistic idea of isomorphy between the levels of being, understanding, and signifying. Radulphus therefore

proposed that the distinction between active and passive modes is merely notional. It is, after all, a question of a relation of signification between word and thing. If you look at the relation from one end it is an accidental property of the word, if from the other, then of the thing. It is called active or passive according to which end it is viewed from. The lengths to which Brito had to go to save the fundamental ideas of modism are signs of a theory in trouble.

The greatest of the modists, Boethius, did not have to worry about any 'crisis for modism'. But he found other worries when Bishop Tempier in 1277 lashed out against him and Siger because he thought they had said objectionable things about the human soul, creation, and the ultimate aim of human life.

There always was a hot debate about the nature of the human soul, but it was unusually hot in the 1260–70s. It centred on four questions, namely:

(1) On the common presupposition that the intellect (=intellective soul) has two components, an active one *(intellectus agens)* which, *inter alia,* forms universal concepts on the basis of the particular pieces of information provided by the senses, and a passive one (*intellectus possibilis* or *potentialis* or *materialis*) which is the initially blank wax tablet on which the active one leaves its imprints in the form of concepts and knowledge acquired. On this presupposition, is the agent intellect a genuinely different thing from the 'possible' one, or are they fundamentally identical?

There was an old tradition for treating the two as genuinely different and considering the agent intellect to be an extra-human separate substance. Roger Bacon and many others had identified the agent intellect with God, others had held that this 'Giver of Forms' was a created intelligence, closer to God than men are but not identical with the First. On either view the agent intellect would be the same for all men; the common source of our intellectual insights would explain the possibility of communication. The individuality of our passive intellects would explain why we do not share all thoughts with one another.

However, the radical separation of the agent intellect from the possible one had become rather old-fashioned in the 1260s and 1270s; the main combatants of the time agreed that the two intellects are not as many substances.

(2) Is the intellect an extra-human separate substance? This was assumed to be Averroes' opinion (though earlier in the century he had been taken to represent the opposite view). Siger of Brabant seems to have gradually changed his mind on this question, but initially, at least, he thought Averroes was right.

This position allows the vegetative and sensitive souls to die without this affecting the intellect. Like the old assumption of a separate agent intellect it also accounts for men's ability to share knowledge, but it has a weakness that the old theory has not: however much such an 'Averroistic' intellect is supposed to exercise its activity in corporeal men it is hard to see how it can be individualized so that my intellect is different from yours. Siger accepted the consequence that there is just one shared intellect for all men, but tried to save some private thought for the individual by making the operation of the intellect in a particular human depend on representations *(intentiones imaginatae)* with an origin in sensation and formed without the help of the intellect. When explaining how the individual 'plugs into' *(continuatur)* the supra-individual intellect Siger relies heavily on Averroes, but is no less obscure than his master.

Contemporaries were alert to the 'Averroistic' theory's inability to explain how men can share an intellect without sharing all thoughts. However, the gravest objection against such 'monopsychism' (a modern term) was that it could leave no individual rational soul to carry responsibility for a deceased person's acts. Nor was it easy to see how an immaterial intellect could fail to be eternal; but it was Christian doctrine that God creates new souls every day and that they are in principle perishable (God could annihilate a soul, if he so wished).

(3) If each living man has his own intellect, this may be assumed to be the substantial form that makes him a member of the human species rather than of the asinine one. But is the intellect fundamentally identical with the sub-rational 'parts' of the soul? Or is a man constituted by a compound of hierarchically ordered substantial forms (corporeality, vegetative, sensitive and intellectual soul), corresponding to the definition 'man is a rational animal'='man is a rational, sensitive, vegetative body'? Such was the traditional view about 1270. It could be used to explain how human semen develops into an irrational embryo and thence into a genuine human by successive acquisition of higher forms, and it might seem to allow the highest form to survive bodily death.

However, it may be doubted if the notion of a plurality of substantial forms is at all consistent; a substantial form is supposed to make its thing into the kind of thing it is; several such forms would seem to dissolve it into several things, as was often pointed out by medieval critics. Thomas Aquinas was the leading proponent of the thesis that one substance can have one substantial form only: a nobler form enables its owner to do anything a lower form would, and so no independent 'vegetative soul' is needed to explain the fact that intelligent beings metabolize. A main problem with this theory is that the embryo cannot acquire rationality without shedding its previous substantial form and

thus becoming a new thing; nor can the dead Christ's body have been identical with that which existed before he expired on the cross or that which existed after the resurrection.

The form-question was intensively debated both among theologians and among artists. Boethius of Denmark was for the unity of form. John of Denmark—a contemporary about whose life nothing is known—believed in a plurality; in the short run, at least, he was on the winning side, for Stephen Tempier had the same belief and so had Robert Kilwardby, who in 1277 made the University of Oxford condemn the unity thesis.

(4) How can the corporeal man's form survive bodily death? Aristotle had indicated that the intellect should not be treated as an ordinary material form; for a material form to be there, is for some matter to be organized in some particular way. The intellect, he felt, was of a different type; matter is no essential ingredient of thought.

If Aristotle could sit on the fence, so can we, many medievals thought. Thus Aquinas came to argue that the intellect is a self-subsistent form, substance-like in its capability of being on its own, but like a material form in that it is an incomplete entity if deprived of its matter. A disembodied Thoman intellect has the capacity for metabolizing, it just does not have the requisite tools for so doing. Siger of Brabant scoffed at this notion and Boethius did not like it either. He agreed that a man has just one substantial form, namely his soul, which, of course, is rational. It is a material form and can only in a very weak sense be called a substance. It must perish if it ceases to inform its body. If the intellect survives somehow—and Boethius does leave this possibility open—it does not do so as a disembodied Thoman form craving for a body; a separate intellect is neither a soul nor a form at all, it is a substance. One would like to ask Boethius which sort of identity such a substance has with the living man's form, and whether separate intellects can have individuality. It is a fair guess that he would answer 'No' to the second question, but I have no idea how he would tackle the first one.

The discussions about the soul ended in an impasse. The soul was required to do too many jobs. It was required to be a form that vivifies a body, yet to be a substance capable of surviving the body; to be individualized, yet to be totally immaterial *qua* intellect; to bestow identity over time, yet be able to acquire or lose essential properties; to have an intellective ingredient which is immaterial and not naturally generable, yet with a beginning in time and capacity for being annihilated as well as a capacity for lasting forever.

There are clear signs that many artists felt that all these requirements could not be simultaneously satisfied. Stephen Tempier forbade them

to obtain consistency by dropping one or more of the requirements. Although his ruling was legally binding only in Paris, it effectively provided the framework within which philosophers could move for the next two and a half centuries, and it became a standard procedure to describe first the philosophically tenable theories, namely (1) the whole soul is a material form and perishes with bodily life (ascribed to Alexander of Aphrodisias); (2) the intellect is as a whole an eternal and supra-individual substance (ascribed to Averroes). Then, after indicating which alternative he favours, the author will add, 'But according to truth and the catholic faith neither of these theories is acceptable, but…', without seriously trying to provide reasons for the 'true' theory. Incidentally, such tactics had already been used by Siger and others before 1277 and were denounced by Tempier, but to no avail.

The late ancient philosophical way to salvation was an ascent from the miserable world of matter towards ultimate being or even to the transcendent One. This ascent was effected via the theoretical study of ever more exalted objects: from the earthly you pass to the heavenly, etc. This way of thinking with its strict hierarchy of beings gained new impetus in the thirteenth century. Avicenna's theory of emanation from The First played a major role and the anonymous *Book about Causes* (based on Proclus' *Elements of Theology*) helped cement the notion of a hierarchically structured universe in which each species of thing was ultimately conditioned by its relative proximity to The First (Cause), no two species being equidistant from The First. Averroes' and Greek authors' panegyrics of the blessings of the theoretical life lent support to the belief that an intellectual ascent up the ladder of being was possible, and when Aristotle's *Nicomachean Ethics* became commonly known after 1250 everybody could see in Book X that ultimate happiness for man consists in theoretical insight.

Such intellectualism appealed to an age which had reasons for epistemological optimism in view of the rapid growth of knowledge, as all the disciplines treated by Aristotle plus some more were coming to the artists' attention. It was, of course, agreed on that no man can know all particular things, but both Siger of Brabant and others held that a human intellect may in principle achieve exhaustive knowledge of all genuine objects of knowledge. This would be impossible if the proper objects of knowledge were infinitely many, or if there were infinitely many avenues to knowledge, or if knowledge of some object could be more or less clear on a scale going on to infinity. But none of these cases obtain, they held. There is a limited number of proper objects, the natural species; there is a limited number of avenues to knowledge: demonstration and definition; demonstration does not go on *ad infinitum* and definition provides an insight which is not just

optimal in the sense that we cannot manage better, but in the sense that it exhausts what there is to be known about the object.

The climate was there for claiming that immaterial beings ('separate substances'), and even The First, are not outside the reach of the human intellect. Proud assertions to this effect almost became a commonplace in introductions to Aristotelian commentaries; mastering the theoretical sciences is what makes a man a man in the fullest sense, says one artist, echoing Averroes. Simon of Faversham invokes the support of Proclus for the claim that all things strive to assimilate themselves to the things that are one step higher up the ontological ladder, and that it is therefore natural for man to desire knowledge, which is the means through which we may assimilate ourselves to the separate substances. Radulphus Brito also repeatedly says that philosophizing can make us godlike, and gives the thought a special twist by also stressing Seneca's Stoic description of the effects of philosophy: it makes a man free. Such exaltations of the intellectual's life hardly ever contain any reference to the standard doctrine of two types of highest good, one obtainable in this life, another obtainable only afterwards. Few appear to have been shocked.

There is no sign either that any authority was shocked by Boethius' disparaging remark that 'laymen…are only quasi-human *(deminuti homines)* since they do not have the human perfection bestowed by theoretical sciences'. But Stephen Tempier did not like Boethius for saying that 'when a man is occupied with this [the best and most perfect of the operations of the intellective power] he is in the best state possible for a man. And the people [who get into that state] are the philosophers, for they spend their life in the study of wisdom.' The formulation is provocative because it seems to allude to the theological notion of a 'state of perfection' attaching to the taking of religious vows. Moreover, Boethius' views on perfection enter into a fairly coherent set of views about human knowledge, and he also declares that

> there can be no question which is debatable with reasons and which nevertheless the philosopher ought not debate and determine how it is with truth in the matter as far as it [i.e. the truth] can be grasped by human reason. This is so because all reasons by means of which the debate is carried out are derived from reality, or else they would be a figment of the mind. Now, the philosopher teaches the natures of all things, for as philosophy teaches being, so the parts of philosophy teach the parts of being… Therefore it is the philosopher's job to determine every question that is debatable with reasons, for every question which is debatable

> with reasons falls in some part of being, and the philosopher investigates every being, the natural, the mathematical and the divine alike.

Boethius' philosopher is the perfect man, he studies and gains an understanding of all sections of reality and in particular the most noble of all, the First Cause; his is human happiness in this life. On one occasion Boethius says that such earthly perfection also brings its possessor closer to happiness in the next life. Only the repeated phrase 'debatable with reasons' suggests there may be questions about which it is no use to reason.

Up to the early 1270s there had been some intense debates about the compatibility of certain Aristotelian doctrines and Christianity, and whether un-Christian doctrines could be refuted without using arguments from faith. By the early 1270s it must have been clear to nearly everybody in the arts faculty that Aristotle did not think the world as a whole or any of its biological species has once begun to be. It was further clear that his sempiternalism is logically coherent, *and* it was clear that creationism is so too. This had not always been obvious; Siger of Brabant seems to have realized only gradually that the main argument against creationism relies on an unwarranted subsumption of the un-Aristotelian concept of creation under the Aristotelian notion of change *(mutatio);* considered as a species of change, creation is an inconsistent concept, since change presupposes the existence before the change of that which was changed.

But does not Aristotelian science require the sempiternity of the world? If scientific axioms are necessary, and necessity means being always true, a biological axiom like 'every man is an animal' would seem to require sempiternal existence of men to act as verifiers. A standard question in our period was 'Is the proposition "every man is by necessity an animal" true if no man exists?' Some answered 'Yes' and held it was enough if some intelligent being still had a concept of man and animal; some used the Avicennian idea that existence is an accident of essences to hold that even with no men around the essence of man could be, though could not exist, and could act as verifier. Siger thought the question involved a pragmatic inconsistency, for the condition that there exists no man can never be fulfilled, he held. In an Aristotelian universe any species is always represented by existing members, and so there are always individuals to verify the proposition.

Boethius answered 'No'. He accepted the permissibility of the hypothesis that there might at some time be no men, and firmly held that with no existents around there would be no essences, and that analyticity is no guarantee of truth; with no men in existence even 'man is man' would be false. He held a simple correspondence theory

of truth; an affirmative proposition is true if and only if such things as its subject and predicate signify are actually combined in the way the proposition indicates; a negative proposition is true if and only if such things are not combined. This means that all negative propositions about non-existents are true and all affirmative propositions about non-existents are false.

As 'every man is an animal' would be false in the case posited, so 'every man is by necessity an animal' would *a fortiori* be so. But even when men exist the modal proposition is false, for there can be no necessary, i.e. unchangeable, truths about changeable and corruptible beings.

Apparently, then, God and the separate substances (intelligences, angels) are the only objects about which there can be scientific knowledge. But Boethius holds that natural science is possible, for science only requires a weaker form of necessity, namely that the causal relationships stated in its propositions obtain without fail *presupposing that such things as the propositions are about exist*. Whenever there is a man there is in him a cause why 'animal' should inhere in him. Boethius does not go so far as to call categorical scientific propositions covert conditionals ('man is an animal'='if there is a man, he is an animal')—that was left for the next century—but he comes close to so doing.

Natural science takes the existence of the physical world with its population of natural species for granted. And it has to do so, Boethius thought, for every science must presuppose the existence of its subject and the truth of its axioms. Aristotelian natural science is a science about the material world and thus cannot incorporate a theory of how things may come to be otherwise than through matter acquiring a form.

Boethius stresses that each science is an autonomous system of primitive terms, axioms and derived theorems. There is, he admits, more to be said about the structure of reality than natural science can say, and in fact there are causes stronger than those proper to the sublunary sphere and thus capable of eliminating the work of natural causes. Hence in a particular case, the expected effect may fail to follow its natural causes, or an effect may be due to other causes than natural ones. Reality is organized in a hierarchy of entities of increasing causal power the closer one gets to the First Cause. When doing natural science we deal with cause-effect relationships that hold invariably *provided no superior, non-natural cause intervenes*. Similarly within natural science there may be sub-sciences, it seems, the causal laws of one of which may occasionally annihilate the effects of those of another.

The important thing for Boethius' scientist is always to remember which science he is doing at the moment; whatever he may know as a

metaphysician, for example, he is not permitted to use it in any other science unless it is incorporated in the principles of that science. And men have access to information which simply cannot be incorporated into the principles of natural science, because it would turn it into an inconsistent set of propositions. This is the case with some information which only faith provides, such as that the world started its existence a definite time ago and there was a first couple of humans. Such revealed information the Christian has to accept; but when he is doing biology he has to stick to the principle that every human being has two parents, and, Boethius expressly says, he has to deny the allegation that someone was the first man.

Boethius' terminology suggests that to him a scientist at work was like someone participating in one of the formalized 'games' of disputation practised at the university. Doing science, then, is partaking in an activity governed by rules about what you have to concede or deny, these being the 'principles' of the science in case. In a dialectical disputation it is a rule that only generally accepted propositions be taken as premisses, and Boethius explicitly says that a disputant commits a mistake and 'lies' if he uses a premiss which is not generally acceptable, although it may as a matter of fact be true.

In other words, saying that a universal theorem *p* is true in science *A* does not amount to a claim that *p* is true in the fundamental sense of corresponding with particularized reality. It only means that it follows from the rules (axioms) of that science and will apply to particular cases if no causality the description of which belongs in another science intervenes. Scientific truth is truth relative to some assumptions, not truth *simpliciter*.

The superior cause could impede the applicability of *p* by failing to provide entities of the sort *p* describes or by making some of them have other causal relationships than described by *p*. It could not, of course, make all instantiations of *p* false, for then *p* would be a theorem of a pseudo-science whose axioms could not be based or tested on observation.

But wouldn't it be possible to create a super-science that would take all causes into account? Couldn't metaphysics provide an adequate description of all matter-less causes, including the First Cause? No, Boethius holds, metaphysical reasoning can lead to some knowledge of The First, but given the assumption of a Free Divine Will, there is no way to give a full account of causation. It can be rationally inferred that the world is created, but not that it is not co-eternal with its creator. The First Cause endowed its creation with a causal structure that we can partly understand; but part of a correct understanding is the realization that at the head of the causal chain stands an inscrutable cause.

Thomas Aquinas would allow no genuine conflicts between scientific propositions and articles of faith; apparent conflicts arise from flaws in the scientific argumentation; in principle a unified system of knowledge must be possible. Scripture is an answer book which can tell us if a rational theory needs revision. Thomist man may have a hard job to spot the flaw in the theory, but he is not troubled by the spectre of an inconsistent world.

Siger of Brabant rather took the attitude that there are irresolvable inconsistencies between the data of revelation and correctly derived scientific theorems. To Sigerian man the clash between science and revelation is catastrophic, because he has to sacrifice one of the two; if he does not want to become a heretic, he must decide that the results of rational enquiry are wrong though he cannot see how they could be so.

To Boethian man it comes as no surprise that historical facts do not always exemplify the causal mechanisms described in scientific propositions. It is exactly what scientific metaphysics should make us expect: it leads to the assumption of a first cause, but cannot possibly tell exactly how this cause wields its power. Boethian man bows to Scripture without abandoning any scientific theorems.

Boethius toiled to find a philosophically tenable way out of the apparent contradiction between Christian dogma and philosophy. His deference to faith was probably sincere. Siger's is more suspect; his true belief may have been that philosophy was right but that Christianity could be shown to conform with philosophy if properly demythologized. In his *Questions on the Metaphysics* he follows Averroes in holding that man-made religions *(leges)* contain mythological elements, falsehoods designed to scare the plebs and make them behave. As an example the Pythagorean doctrine is mentioned that a good man's soul will migrate to that of a good body after death, while a bad man's will enter a beast's body. It is easy to see a parallel to Christian doctrines about purgatory, heaven and hell, and, in fact, Siger once tried to show that fire could not affect a disembodied soul. Stephen Tempier did not forget to condemn that view, just as he remembered one that Siger did not openly profess, but very nearly did so, namely that there are mythological falsehoods in *all* religions, including the Christian one.

Sometimes the reader feels that Siger is mocking would-be censors or other philosophical opponents. Investigating whether there must be just one first principle and cause, he refutes all serious arguments for the necessity of this and then presents various bad arguments for it as if they were conclusive. When discussing whether any natural desire could be in vain, he introduces the class of those desires which are directed to aims that cannot possibly be achieved, like immortality. Isn't that mocking the idea espoused by, among others, Thomas, that

there must be an eternal life since men have a desire for it and no natural desire can be in vain?

The debate about philosophy versus faith did not stop in 1277, but for a long time it was rather low-key. Philosophers avoided any Boethian attitudes that were provocative, while generally following the trail he had blazed, considering creation and other unpredictable manifestations of divine power as irrelevant to the construction of scientific theories.

Important as the collision between philosophy and religion was, it should be stressed that there is no sign that the driving force behind the philosophers was a wish to do away with traditional Christian doctrine. Their primary occupation was with a rational enquiry into all aspects of reality, including the divine. They just happened to arrive at conclusions that did not harmonize well with standard beliefs.

The 'invention' for which Radulphus Brito was best known to posterity is a good example of theologically neutral everyday work from the arts faculty. Radulphus invented a fourfold division of 'intentions' to account for the genesis and ontological status of universals.

There was a well-entrenched distinction between primary intentions such as 'horse' and secondary ones such as 'species', which presuppose the primary ones. Some would say that 'species' etc. are concepts of concepts, but Brito wished to tie them more securely to extramental reality. He then divided both primary and secondary intentions into abstract and concrete ones.

The abstract primary intention is a formal concept like 'humanity'. It is based on the modes of being or manifestations *(apparentia)* of some essence (or 'nature'); reasoning, for example, is a manifestation of human nature. An abstract primary intention is a mental entity, a thought *(cognitio)* whose object is man, but it does not include its object.

The concrete primary intention is the object of the abstract one, but it is not a purely extramental thing. It is the thing (man, for instance) *qua* thought of by means of the formal concept (humanity).

The concrete primary intention has one foot in the mental and one in the extramental world. Brito also describes it as an aggregate of the thing out there and the thought by which we grasp it. This ontological duplicity was often criticized in later times, but Brito's theory was at least a brave attempt to secure the lifeline between concepts and their objects without moving the objects into the mind. True, he would need a mechanism by which an essence can function as quiddity, i.e. basis of understanding, via its manifest modes of being, but such a mechanism was provided by fairly standard theory of sensation and abstraction.

Apart from the primary intentions Brito operates with a set of two secondary ones; once again the modes of being form the basis of concept-formation, but this time we are not dealing with modes proper to some nature but common ones, as follows.

The abstract secondary intention, universality for instance, is a concept derived from the common feature (mode of being) of being capable of occurring in several individuals or types; this feature is shared by man and donkey, for example, both of which can occur in several individuals, and also by animal which can occur in several species. Our intellect can grasp this, and it can do so without comparison: it can construct a Porphyrian tree on the basis of sensory acquaintance with a single individual, recognizing, for instance, that sensing (which characterizes animals) is a trait apt to be shared by more beings than is reasoning (which is reserved for humans).

The corresponding concrete secondary intention (in our example: 'universal') is the thing (man, for example) *qua* conceived of by means of the formal concept of universality.

Concrete secondary intentions like universals and syllogisms are the sort of things logic is about—that was commonly agreed. Some forty or fifty years before Brito, Robert Kilwardby had said that secondary intentions are thus called because they arise from inspection and comparison of things already grasped by the mind. Brito wants to generate secondary intentions through direct inspection of the entities that gave rise to the first intentions. Why will he not allow the mind to operate on the products of its primary inspection, and why will he allow no comparison? Because this might leave the mind too much power over which secondary intentions there are to be and make them much too mental—thoughts of thoughts.

If secondary intentions were mere mental constructs, the whole of logic would be so. And it could quickly be shown that grammar, physics, in fact any science would be in the same situation, for all theoretical entities—modes of signifying, causes, effects, whatever—must have a genesis similar to that of the secondary intentions of logic.

If one endeavour pervaded the work done by Parisian artists in the second half of the thirteenth century it was the endeavour to secure an extramental anchoring of scientific knowledge by deriving its categories from features of reality. That was what the modistic triad of ways of being, understanding, and signifying was all about, and that was Brito's central preoccupation. He tried relentlessly to mend the cracks that had appeared in the edifice of theories built with and around the modistic triad. There was no easy way to fix the cracks, the complexity of Brito's own theories showed that; the time was ripe for a radically new approach such as the one that John Buridan was to introduce in Paris about the 1330s.

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CHAPTER 13

Henry of Ghent and Duns Scotus

Stephen Dumont

LIFE AND WORKS

Henry of Ghent

Henry of Ghent was arguably the most influential Latin theologian between Thomas Aquinas and Duns Scotus, regent as a leading master of theology at the University of Paris for the better part of the last quarter of the thirteenth century. Henry's true importance for the period has been increasingly recognized, owing first to the edition of the works of Scotus, for whom Henry was by far the leading contemporary source, and more recently to the critical editions of his own works, which establish his relation to such important figures as Giles of Rome, Godfrey of Fontaines, and Aquinas himself.

Reckoned to have been born in Ghent sometime before 1240, Henry undertook early studies at the cathedral school in Tournai, where he maintained lifelong and influential connections. He studied theology at Paris, where he became master in 1275 and actively taught and disputed for nearly twenty years. As a young master, Henry participated in Bishop Stephen Tempier's sweeping actions against Aristotelianism at Paris in March of 1277 involving the arts faculty, Giles of Rome, and certain doctrines of Aquinas. In fact, personal remarks by Henry about these closely connected events provide otherwise unknown details. Henry himself says that he sat on Tempier's episcopal commission *(assessores episcopi)* of sixteen masters that produced the syllabus of 219 propositions condemned by Tempier on 7 March 1277.

The syllabus comprised in large measure the more extreme Aristotelian and Arabic philosophical positions taught in the arts faculty. Henry certainly represented a critical attitude to Aristotelianism on the commission, and indeed several articles on Tempier's syllabus appear traceable to him. Henry was also present at the immediately ensuing meetings of the theology faculty that resulted in the censure of the younger theologian, Giles of Rome, and in the masters' own condemnation *(damnatio per sententiam magistrorum)* of Aquinas's doctrine of unicity of substantial form. Henry's Augustinian orientation, so evident in Tempier's actions, continued throughout his career, encountering new Aristotelian foes within the faculty after 1285, when Giles of Rome was rehabilitated at the order of Honorius IV and Godfrey of Fontaines became master. A secular, Henry was also known as a strident critic of the mendicant privileges granted by Martin IV in 1281. His opposition was such that he was reprimanded and suspended in 1290 by the future Boniface VIII. Henry's death is usually given as 29 June 1293.

Henry's two major works are the direct products of his long teaching career at Paris. The first is his *Summa of Ordinary Questions* and the second his fifteen series of *Quodlibetal Questions*. Cross-references establish that both works were disputed and written concurrently over the length of his career. His regular or 'ordinary' questions derived from his disputations held as master during the normal course of term. Revised for publication as a massive *Summa,* these ordinary questions represent Henry's systematic investigation of the nature of theology (articles 1–20), the divine nature and attributes (articles 21–52), and the Trinity (articles 53–75). Henry intended his *Summa* to include a part on creatures, but he never completed it. As such, Henry's *Summa* corresponds roughly in plan to the first forty-three questions of the first part of Aquinas's own *Summa theologiae,* yet approaches Aquinas's entire work in length. Unlike ordinary questions, which were disputed by the master at regular class hours throughout the academic year, quodlibetal questions were special university disputations only held before Christmas and Easter. Here the questions were not posed by the master himself on controlled topics, but by the audience, on any issue of interest. Hence they were designated *quodlibetales* or 'on anything whatever'. Accordingly, while ordinary questions allowed for systematic investigation, quodlibetal questions forced the master to address the current controversies in the university community that at times involved the master himself. Henry's fifteen quodlibetal disputes represent one for nearly every academic year from 1276 to 1292. Each dispute itself contains up to forty separate questions, which were considerably expanded and revised by Henry for publication, including lengthy insertions, cancellations and digressions. Henry brought the quodlibetal

question to its apex as a literary form of scholastic theology and was the first to make the quodlibet a principal vehicle for his thought.

Duns Scotus

It is perhaps no exaggeration to claim that less is known with certainty about the life, career and works of Duns Scotus than about any scholastic thinker of his rank. Aside from his own writings, only six slight documents provide what scattered facts are known of his life. Of Scottish origin, Scotus is thought to have been born about 1266, on the basis of the established date of his ordination to the priesthood on 17 March 1291. The once widely accepted details of Scotus's place of birth, family, early education and entry into the Franciscan order are now considered unreliable owing their source to the discredited chronicle *Monasticon Scoticanum* of Marian Brockie. From about 1288, Scotus studied theology at Oxford, although it is disputed whether this was interrupted after his ordination in 1291 by several years of study at Paris. In either case, Scotus was certainly studying theology at the Oxford convent by 1300. On 6 July 1300, he was one of twenty-two Franciscans from the Oxford diocese presented to John Dalderby, bishop of Lincoln, for permission to hear confessions. About this same time, he was beginning to revise his lectures on the *Sentences,* given as a bachelor at Oxford. This revised commentary on the *Sentences,* known as the *Ordinatio* (see below), was under way in 1300, because in the prologue Scotus himself says that he is writing in that year. Further evidence of his activities as bachelor at Oxford during this same period is given by his participation in a disputation of the Franciscan master Philip Bridlington, who was also in the same group presented to Dalderby. Scotus, however, never incepted as master at Oxford. He was instead sent in the autumn of 1302 to study theology at Paris, where he began a new set of lectures on the *Sentences*. These were interrupted in June 1303 when, together with some eighty other Franciscans, he was expelled from France for declaring allegiance to Pope Boniface VIII against Philip the Fair in their escalating dispute over taxation of church property. Where Scotus went during his exile from Paris is unknown, but it is commonly assumed that he either returned to Oxford or went to Cambridge, where he is believed to have lectured at some point in his career. Scotus was back in Paris at the latest by the autumn of 1304 to finish lecturing on the *Sentences*. It is inferred that Scotus must have incepted as master at Paris by early 1305, because in a letter dated 18 November 1304, Gonsalvus of Spain, the newly elected Minister General of the Franciscans and the Franciscan regent master when Scotus first arrived

at Paris, recommended Scotus as next in line for promotion to master. In his letter, Gonsalvus testifies to Scotus's reputation, which he says had 'already spread everywhere'. During his regency at Paris, Scotus held one quodlibetal disputation and debated with the Dominican William Peter Godinus on the principle of individuation. For reasons unknown, Scotus was replaced as the Franciscan regent at Paris by Alexander of Alexandria in the autumn of 1307 and abruptly transferred to the Franciscan convent in Cologne, where he is listed as a lector in early 1308. Nothing is known of his activities during his Cologne period. Before his career could reach full maturity and with his major work the *Ordinatio* still in a state of revision, Scotus died in Cologne later that year, where he remains buried today. The date of his death is traditionally given as 8 November 1308.

As with the details of his life and career, uncertainty about Scotus's writings is unparalleled for a medieval thinker of his stature. While much progress has been made in establishing Scotus's genuine corpus, important questions of chronology and canon still remain. Scotus's genuine works can be divided into philosophical and theological writings, and roughly speaking the former are regarded as earlier. Scotus's logical works are generally considered to be his earliest. These include sets of questions on Porphyry and the *Categories,* two works on *De interpretatione,* and questions on the *Sophistical Refutations*. The important *Questions on the Metaphysics* have traditionally been considered an earlier work as well, though somewhat later than the logical treatises, but this has been disputed by commentators since the sixteenth century. Current evidence suggests that the latter books, VII–IX (only the first nine books are authentic), show revision from later in Scotus's career, perhaps even very late. Finally, there are two philosophical works that fall outside this main group owing to uncertainty over their dating and degree of authenticity: questions on *On the Soul* and the *Theoremata*. While *On the Soul* is surely Scotistic, manuscripts attest that it has been edited by a follower of Scotus *(scotellus),* perhaps Antonius Andreas (d. *c.* 1320). Both manuscripts and contemporaries assign the *Theoremata* to Scotus, but their authenticity has been debated owing to a section entitled *Treatise on Articles of Faith (Tractatus de creditis),* which denies the philosophical demonstrability of the existence of God.

The bulk of Scotus's reputation rests, however, on his more mature and longer theological writings. These are essentially four: various versions of his commentaries on the *Sentences,* two sets of disputes known as *Collationes,* a set of twenty *Quodlibetal Questions,* and the *Treatise on God as First Principle (De primo principio)*. The textual situation of Scotus's commentaries on the *Sentences* is one of the most complicated in medieval scholarship. First of all, Scotus lectured on

the text at Oxford, again at Paris and, at an undetermined time, at Cambridge. Second, his secretaries and students conflated these different versions in an effort to fill in places apparently left incomplete at his death. Finally, Scotus revised by means of numerous additions and annotations to the primitive text, so that these had to be distinguished from the intrusions inserted by his students and secretaries. The better part of modern textual criticism on Scotus has been devoted to teasing apart these various versions and layers of his *Sentences*. This research has established that there are two versions of his Oxford *Sentences,* an earlier *Lectura,* which was then considerably expanded to form the *Ordinatio,* previously termed the *Opus oxoniense*. As indicated, Scotus read the *Sentences* again when he went to Paris in the autumn of 1302, which commentary survives as neither a *lectura* nor an *ordinatio* but as what students' reports called *reportationes*. A major point of dispute is the chronological relation of these *Parisian Reports (Reportationes parisienses)* to the Oxford *Ordinatio*. The long-held view was that Scotus constructed the *Ordinatio* from both the early Oxford *Lectura* and the Parisian *Sentences,* rendering the *Ordinatio* later than the Parisian commentary and according it a status as the most definitive of Scotus's works. Recent studies have tended to revise this view, placing at least the first book of the *Ordinatio* before rather than after the corresponding part of the Parisian *Sentences*. This revised chronology seems required not only by Scotus's own statement dating the prologue of the *Ordinatio* to 1300, two years prior to his theological studies in Paris, but also by the Parisian commentary's noticeable independence in organization, topic and treatment relative to both of its Oxford counterparts. Scotus's two series of *Collationes,* one held at Oxford and the other at Paris, are known from the eye-witness testimony of his secretary, William of Alnwick, to represent the proceedings of oral disputation. It has been suggested that these *Collationes* were exercises carried out by Scotus within the Franciscan houses while still a bachelor, but this is not certain. His *Quodlibetal Questions* are assigned to his regency at Paris, perhaps in the academic year 1306/7. As the product of a formal university disputation by a regent master in theology, they must certainly be regarded as Scotus's mature thought. Finally, the *De primo principio* is a systematic treatise on the transcendentals, containing Scotus's proof for the existence and infinity of God. While the authenticity of the *De primo* is uncontested, it none the less betrays the influence of an editor. More than half of the *De primo* has been supplied verbatim from the *Ordinatio,* indicating that it is to some extent a compilation of material. Despite this, it has received more contemporary attention by way of translation and commentary than any other single work in Scotus's corpus.

RELATION OF HENRY OF GHENT TO DUNS SCOTUS

Henry's significance, both historically and philosophically, stems from his position in the thirteenth century of having an important and immediate relationship to both Aquinas and Scotus. On the one side, Henry mounted the most sustained and sophisticated Augustinian response in the later thirteenth century to the Aristotelianism of Aquinas. Adopting a critical attitude towards Aristotle on fundamental points, Henry returned to more Augustinian principles, which he infused with certain elements of Avicenna. In comparison with Aquinas, Henry can fairly be said to exhibit a doctrinal tendency called Avicennizing Augustinianism', a label coined by Etienne Gilson to describe the exploitation by certain scholastic thinkers of similarities between Augustine and Avicenna, such as their mutual denial of knowledge by abstraction. Thus, where Aquinas argues 'according to Aristotle and the truth' *(secundum Aristotelem et veritatem rei),* Henry will instead argue 'according to Augustine, Avicenna, and the truth' *(secundum Avicennam et veritatem rei; secundum Augustinum et Avicennam)*.[1] In particular, Henry reverted to certain positions considered Augustinian by thirteenth-century standards, such as the compatibility of faith and demonstration, a need for a special divine illumination in natural knowledge, a heavy emphasis on the reality of the divine ideas and their role in both knowledge and creation, and above all a strong voluntarism against the intellectualism of Aristotle. Henry specifically criticized Aquinas on numerous points, including the concept of theology as a subalternated science, the exclusivity of faith and demonstrative reasoning, the definition of self-evidence and related criticism of Anselm's ontological argument, the pre-eminence given to Aristotle's argument for the unmoved mover, the denial of any positive knowledge of God's essence *(quid est)* in the present life, the limitation of each Aristotelian separate form or angel to a species in itself, the real distinction of essence and existence (at least as defended by Giles of Rome), the indemonstrability of the temporal beginning of the world, and a variety of theses connected to the relationship of the intellect to the will. In the words of one of Henry's editors, 'No theologian immediately after the death of Aquinas so sharply criticized the philosophical basis of his theology as Henry of Ghent.'[2]

On the other side, Henry's own revised Augustinian outlook was itself subjected to an extensive, critical evaluation by Duns Scotus. What led Scotus to focus on Henry is not known. Perhaps in view of the restrictions placed by the Franciscans in 1282 on reading Aquinas's *Summa,* the Order turned to Henry's *Summa* to supply the systematic training in current theology during Scotus's formation. A high regard for Henry is evident in Oxford Franciscans just prior to Scotus, such as Roger Marston,

who in 1283 described Henry as 'a recent, solemn doctor, renowned and studious in philosophy from infancy'.[3] Whatever the explanation, Henry constitutes not just a source, but the source, for Scotus's thought. This is in fact so true that Scotus appears to be the first major scholastic thinker to base his principal work explicitly on the systematic examination of a contemporary. On many important questions, Scotus develops his own position as a critical reaction to that of Henry, often after extensive reporting, analysis and refutation of Henry's reasoning. This is the case, for example, on such fundamental issues as the relation of faith and reason, natural knowledge of God, the nature of transcendental concepts, the primary object of the intellect, necessity and contingency, the divine ideas, creation, illumination, causality of the will, connection of the virtues and on numerous points of Trinitarian theology. All the same, however, it would be a distortion to see Scotus as simply rejecting Henry's positions. Even when clearly repudiating a view of Henry, Scotus will none the less presuppose much of Henry's underlying philosophical framework and formulate his own position in terms of Henry's basic concepts, distinctions and technical vocabulary. This is not to say that Scotus was unoriginal and derivative but only that his originality cannot be fully understood apart from his relationship to Henry. Nowhere is the relationship between Scotus and Henry better illustrated than in their dispute over the nature of the transcendental concepts.

UNIVOCITY AND ANALOGY

One of the most striking results of the metaphysics of Duns Scotus was that the concepts of being and the other transcendentals applied univocally to God and creatures, substance and accidents. Scotus broke with the unanimous and traditional view that being, conceived in its utmost generality, could only be predicated analogously and not univocally of substance and accident, much less of God and creatures. Scotus made his innovative move to univocity in specific and explicit response to the peculiar version of analogy advanced by Henry of Ghent. Indeed, it would be more accurate to say that Scotus's path to univocity was paved by Henry's prior and equally innovative interpretation of the traditional view of analogy itself. Here, perhaps more than in any other area of disagreement between them, it would be a distortion to portray Scotus as simply rejecting, rather than building upon, an antecedent position of Henry. None the less, in advancing beyond Henry's own version of analogy to univocity, Scotus had to solve fundamental difficulties connected with univocity that had always been compelling motivations for the traditional view of analogy, difficulties which Henry evidently saw but could not resolve.

Scotus advances his theory of univocity as part of a critical and exhaustive revision of Henry's account of our natural knowledge of God. At issue was an abiding concern of the period: how to reconcile the possibility of attaining some knowledge of the divine nature from creatures with God's total transcendence of creatures. The difficulty involved was long recognized, having a formulation as far back as Gaunilo's reply to Anselm that the argument of the *Proslogion* appeared to put God in a genus or species. In order for God to be totally transcendent, the divine nature can have no reality in common with creatures. But if God and creatures agree in nothing real, then a creature can never yield a positive notion of the divine nature that conveys any of its reality. One standard solution was to stress the negative character of natural knowledge of God. For instance, Aquinas attempted to reconcile divine transcendence with our natural knowledge of God by way of the Aristotelian distinction between knowing that something is *(quia est; si est)* versus knowing its essence or nature *(quid est)*. According to Aquinas, our intellect in its present, natural state can only know through sensible creatures that God is or exists *(si est)*. As for the divine essence, we cannot know what it is *(quid est)* but only what it is not.[4] This solution was attacked in the condemnations issued by Stephen Tempier on 7 March 1277. Article 215 on Tempier's syllabus repudiated such attempts to protect the transcendence of God at the expense of restricting natural knowledge of the divine nature to the bare fact of its existence. As censured the article read, 'That it can only be known that God is, or that God exists.' *(Quod de Deo non potest cognosci nisi quia ipse est, sive ipsum esse.)* Both Henry and Scotus agreed that some positive knowledge of the divine nature and attributes was naturally attainable from creatures, thereby fully reinstating the tension between the transcendence and knowledge of God. Henry, for his part, attempted to account for this positive knowledge while maintaining the traditional view that being and the other transcendentals were only analogously common to God and creatures. Henry none the less saw that he had to revise the traditional doctrine of analogy, and in so doing extended that traditional view as far as it could go without actually becoming a doctrine of univocity. Scotus rejected Henry's revised theory as unworkable and argued that only univocity could ensure a naturally attainable concept of the divine essence.

Henry of Ghent on Analogy

Henry of Ghent followed the common opinion in holding that being is predicated of God and creatures neither univocally, nor purely equivocally, but analogously.[5] The traditional understanding of the terms

was based on Aristotle. The definitions of univocity and equivocity derived from the opening chapter of the *Categories,* while the notion of analogy was taken chiefly from the treatment of being as an equivocal by reference (πρὸς ἕν; *ad unum*) in the *Metaphysics*.[6] Thus, a term is univocal if it has a single meaning or concept *(ratio, intentio, intellectus, conceptus)* when applied, such as 'animal' when predicated of a horse and a human being. It is a pure or chance equivocal *(aequivocum in casu)* if it is applied according to completely discrete and unrelated meanings, such as the 'bark' of a dog and a tree. Analogy, however, is intermediate between these two extremes of univocity and equivocity. An analogous term has different but connected meanings, so that one is primary and the other is related to it, usually either as a cause or an effect. Aristotle's own example of 'healthy' served as the standard illustration. The primary meaning of 'healthy' is the state of a well-functioning, living organism, yet clearly things are said to be healthy which do not possess health in this sense. Both medicine and urine, for example, are called 'healthy' not because they possess health in the primary sense, for they are not living at all, but because they bear some relationship to it. Medicine is a cause of health and urine a sign or effect of it. The scholastics adapted Aristotle's conception of analogy as a middle way between the extreme positions of univocity and equivocity, to account for some knowledge of God based on creatures while ensuring divine transcendence. Being was not univocal to God and creatures, but rather analogous, so that it applied to God primarily and to creatures in a secondary but related sense, although appropriate distinctions had to be made to avoid equating the relation of divine and created being with that of substance and accident. In this regard, Henry was in conformity with the common view.

> Being therefore does not belong to God univocally…nor purely equivocally…but in a middle way, namely, by analogy, because it signifies one thing primarily and principally and the other as in some way ordered, related, or proportional to what is primary… And in this way, being in the most common sense primarily signifies God, secondarily creature, just as created being primarily signifies substance and secondarily accidents, although the relation in each case is different.
>
> (*Summa* a.21 q.2 (ed. 1520, I, f.124r))

Aristotle, however, was not the only authority on the transcendentals. Even more important for the scholastics was Avicenna, who had not only made being, in explicit contradistinction to God, the subject of metaphysics, but also one of the primary conceptions of the mind. These claims of Avicenna for the primacy of being had to be addressed,

for together they implied that there was a concept of being antecedent to either God or creatures. Henry's formulation of the Avicennian objection is important, not only because it states sharply the impediment to univocity, but also because in Henry's reply Scotus clearly saw that the denial of univocity involved highly unacceptable consequences.

> What is predicated of several things, but has an essential concept different from the concepts of those things [of which it is predicated], is something really common to them, for every concept is based upon some thing. Being is this sort, because according to Avicenna, 'Being is imprinted on the mind by a first impression,' even before the concept of God or creature are impressed on it. [Therefore, being is something really common to God and creatures.]
>
> (*Summa* a.21 q.2 (ed. 1520, I, f.123v))

The argument is that being must have a concept different from those of God or creature, because it is known prior to either one. Since being is predicated of both God and creature, that concept must also be common. Thus, the noetic primacy of being entails that it have a concept distinct from and common to those proper to God and creatures. Because any such common concept must be based on some common reality, being must be something really common to God and creature.

It is the major premiss which constitutes the underlying impediment to making any concept univocally common to God and creatures: every concept must be based on some reality *(omnis conceptus fundatur in re aliqua)*. Accordingly, a common concept must be of some common reality. But, obviously, no reality can be admitted as common to God and creatures. This will prove to be the most formidable difficulty for Scotus's doctrine of univocity: how to sustain a real concept univocally common to God and creatures without positing any reality common to them. The minor premiss, based on Avicenna's famous text on the primary intelligibles, is meant to establish that being has a concept outside of those of God and creatures owing to its position as a primary notion. The burden of Henry's reply will be to deny that there is any concept of being apart from those of God and creatures. It is in this reply that Scotus will find his argument that, on the contrary, being must be a distinct concept, and hence univocal.

In reply to Avicenna's text, Henry is emphatic that there can be no concept of being absolutely taken apart from the concepts of God and creature, as if there were some single, simple concept of being common to them *(aliquis unicus intellects simplex communes),* for there can be no such concept. Rather, any real concept of being is either of the being proper to God or of the being proper to creatures, but not of

anything common to them. Henry's position is governed by the requirement in the major premiss that a real community must underwrite a real, common concept. Since there can be no such real community between God and creatures, there can be no real common concept. Demanding therefore a strict correspondence in unity between a real concept and its foundation in reality, Henry concludes that at the transcendental level being forms two proper and distinct concepts corresponding to the two separate and diverse realities of divine and created being. These concepts, while proper and diverse, none the less have a community of analogy, the real foundation for which is the causal dependence of the creature on God. This agreement in being by virtue of the connection cause and effect, while real, is not sufficient to support a single, common notion of being but only two proper concepts related as primary and secondary.

Had Henry gone no further than this in his reply to Avicenna, his account would have conformed to what Peter Aureoli later identified as the common opinion. Being conceived at its most general level does not form a single, simple *ratio* common to God and creatures, but two proper *rationes* related in attribution as primary and secondary. Henry, however, did go further in his reply, motivated by a need not only to explain Avicenna's text on the primary intelligibles, upon which he would depend heavily in his proof for the existence of God, but also to account for how the mind could move from a concept proper to creatures to one proper to God.

Henry explains that if there appears to be some common concept of being, this is only because the divine being or created beings have been conceived in an indistinct or indeterminate way. But to conceive of either the being proper to God or proper to creatures in an indistinct way is not to have some third, distinct concept of being as absolutely undetermined and common to both. That is, there is no separate concept of being as absolutely undetermined that can be abstracted from the proper concepts of God and creature, as if each proper concept comprised a common notion of being as undetermined and a determining concept, such as finite and infinite or created and uncreated. Rather, the proper concepts of God and creatures are in each case already concepts of being as undetermined. Any concept of being as absolutely undetermined, which appears to be single, simple, and prior to the proper concepts of God and creature, is merely the result of confusing the two different ways in which the being proper to God and creatures is in each instance undetermined.

Divine being is undetermined in the sense that it cannot be determined by any advening perfection or entity. This is what it means to say that the divine being is infinite, for it cannot be determined or limited. Created being, however, when taken in its utmost generality as common

to all creatures, is undetermined in the sense that it has been abstracted from all determinations with which it is found in reality, such as 'existing in itself' and 'existing in another', which determine or limit created being to substance and accident. Henry's technical terminology for this distinction is that divine being is undetermined negatively, for it is to be denied all determination, and created being privatively, for it can be conceived without the determinations with which it is found. As Henry explains in slightly different terms elsewhere, to conceive of being absolutely, that is, without any determination or qualification, can mean two different things. It can mean either being in its singular, most perfect instance *(in quadam singularitate)* or in its widest generality *(in quadam universalitate)*. Being taken absolutely in the first way is God, in the second way is the notion of being common to the categories. There is no sense in which being can be conceived as undetermined apart from these two.[7]

Having made this distinction, Henry replies to the objection that what appears to be an absolutely undetermined concept of being univocally common to God and creatures is in fact a confusion of the two different ways in which being is undetermined. The divine being is undetermined by negation, because it lacks all determination in both act and potency; created being is undetermined by privation, because it is conceived as lacking determination in act but not in potency. The confusion between the two arises because both are concepts of being without determination, and to this extent they are similar. The mistake is to think that from this similarity one can extract a single notion of being as absolutely undetermined common to both God and creatures. Rather, what appears to be a simple, common notion of undetermined being is in fact a conflation of two proper notions of being, which resemble each other in their removal of determination.

Against the challenge presented by Avicenna's text that there is a concept of being common to God and creatures because, as a primary notion of the mind, the concept of being is prior to both, Henry upholds the traditional position of analogy. Being, conceived in its utmost generality, cannot be reduced to a single notion but only to two distinct concepts, one proper to God and the other to creatures, which are none the less related through attribution or analogy. Yet, in his answer to Avicenna Henry went considerably beyond this traditional view by explaining that being could be conceived with sufficient indeterminacy so as to *appear* univocal. While insisting that there was in truth no univocal notion of being, Henry none the less allowed that the being of either God or creatures could be conceived so indistinctly that the concept proper to the one actually was known in a confused way along with the concept of the other, because both were concepts of being without determination. This was a critical move past the traditional

view of analogy and was clearly but a step away from Scotus's univocity, where a simple common concept would replace a confusion of two proper but similar concepts. After Henry went so far as to admit an apparently univocal concept of being, Scotus would conclude that such a concept must in fact be univocal.

Thus Henry revised the common opinion on analogy, according to which the concepts of being proper to God and creatures were united through attribution, by adding that they were also united by confusion in an indistinct notion that appeared univocal. Henry's underlying motivation for this extension of the traditional view was to provide some cognitive bridge between the two proper notions of being which allowed the human mind to pass from its knowledge of creatures to one of the divine nature. This bridge could not be provided by any concept common to both, so Henry supplied it by allowing the two concepts to be conceived together as though they were one. That is, Henry permitted the being of a creature to be conceived in such an indeterminate fashion that it in fact comprised, in an indistinct and confused fashion, the concept of being proper to God. In this way, Henry was attempting to explain, where the traditional view of analogy had not, how one could arrive at a proper concept of the divine nature from creatures. This is clear from Henry's account of the mind's ascent from creatures to God.

In the context of Tempier's condemnation of the position that we can only know that God exists *(si est),* but not what God's nature is *(quid est),* Henry undertook an extensive examination in nine questions of the categories of *si est* and *quid est* as they applied to our knowledge of God, paying particular attention to the extent to which knowledge of the divine nature had to be negative *(quid est non)*. In express opposition to the assertion of Aquinas, Henry denied that in the present life we cannot know what God is but only what God is not. If our knowledge of the divine nature were limited only to negations about creatures, then we would know no more about the nature of God from creatures than we would about Socrates by saying that he is not a rock. That is, to have purely negative knowledge of the divine essence is to have no knowledge of it at all. The reason is that negation is always negation of something, so that all meaningful knowledge of what something is not presupposes, to some degree, knowledge of what it is. Furthermore, a purely negative knowledge of the divine nature could not account for our love and desire of God in the present life, for, as Augustine says, we can love what is unseen but not what is unknown. Accordingly, against the assertion of Aquinas, Henry concludes that there must be some positive knowledge of the divine *quid est* naturally available in the present life from creatures.

In effect, Henry sees a complete reduction of our knowledge of the divine nature to negations about creatures as inconsistent with analogy, because it is tantamount to making all predication about God purely equivocal. On the other hand, the positive knowledge of the divine nature provided by analogy does not compromise the transcendence of God to the human mind, because it is not of God's essence in its own particularity and individuality. Analogy can only yield a knowledge of God's *quid est* which is general, indistinct and, as it were, incidental to the substance of the divine nature itself. Yet, even this imperfect knowledge of the divine nature provided by analogy requires a sophisticated manoeuvre by Henry, utilizing his special understanding of the doctrine of analogy itself.[8]

Henry's account of the mind's ascent to the divine *quid est* from creatures involves three main stages, designed to conform broadly to the traditional understanding of the pseudo-Dionysian ways of causality, eminence and negation. At each stage the divine essence is known in a progressively less general fashion, so that ascent is made by degrees to an increasingly distinct knowledge of God, which none the less always remains in some way general and universal. In these three stages Henry says that God is known most generally *(generalissime),* less generally *(generalius),* and least generally *(generaliter),* which involve, respectively, abstraction, eminence and negation. The first or *generalissime* stage is both the most elaborate and important, for it is here that the initial move is made from creatures to God. This first stage itself comprises three degrees of knowledge based on two types of 'abstraction' *(abstractio)*.

According to Henry, a formal perfection can be abstracted from its instances in two ways: either as a universal or as something separate. In the first type of abstraction, for example, goodness can be abstracted from this or that particular good as a common and universal form in which they share *(commune quoddam et universale)*. Here, while the form is abstracted from its instances, it is none the less still seen in relation to them as that in which they all participate, for the universal is 'one in many'. In the second type, the form is considered in absolute separation from any material instance, for it is seen not as something common divided among many particulars but as transcendent and subsistent in itself *(in se subsistens)*. Quite clearly, these two types of 'abstraction' are for Henry the noetic procedures that result in the concepts of being, goodness or any other perfection as indeterminate by privation and negation. These two kinds of abstraction produce the three steps of the *generalissime* way of knowing the divine nature.

In the first step of most general knowledge of God, any perfection in a creature already reveals, at least in a very confused and indistinct

fashion, something of the divine nature. For instance, in knowing this or that particular, created good, Henry says that we know two things: the 'this' and 'that', which are proper to creatures, and 'good' which is something common to God and creatures. Thus, even in 'this created good' we know something of the divine good, even if it is not known as distinct from the creature. If, however, by the first type of abstraction we remove the 'this' proper to the creature, we attain a notion of the good that is less determined to the creature than before, and this is the second step of the *generalissime* stage. Here the good is not seen as proper to creatures or God but as something analogously common to both *(commune analogum ad Deum et creaturam)*. Although in fact the good of God and of the creature form two diverse and distinct concepts *(diversos intellectus distinctos faciunt)*, just as is the case with being, nevertheless these notions are so similar that our intellect at this point conceives both together in a confused way as one *(quia tamen proximi sunt, intellectus noster concipit modo confuso utrumque ut unum)*.[9] By performing a second abstraction, we can distinguish within this confused, analogous notion those two proper concepts, so that we differentiate between what is abstract in the sense of universal and in the sense of separate. This is the third and final step of most general knowledge of the divine nature, where some perfection, such as goodness or being, is viewed as subsistent in itself. Such a concept is proper to God alone.

Once Henry has reached this point, he can easily apply the Dionysian techniques of eminence *(prae-eminentia)* and negation *(remotio)* to this proper concept to ascend to respectively the *generalius* and *generaliter* levels of knowing the divine essence. In eminence, the note of excellence is added to that of subsistence to result in the notion of God as a most perfect nature. In negation, all composition and diversity are removed from this most perfect nature, so that its goodness, wisdom and so forth are taken to be identical with its being. In this way, Henry concludes, we can know what God is, not just what God is not, from creatures in the present life, although 'by comparison to the beatific vision of God's nature, this knowledge is almost nothing'.

Henry's claim for a natural knowledge of the divine *quid est* from creatures would appear to face an insuperable obstacle in his denial of any conceptual community between God and creatures. By restricting our knowledge of God and creatures solely to two wholly proper, simple, and diverse notions, Henry seems to have completely undermined any epistemological basis for claiming that we can derive any concept of the one from the other. Henry clearly saw this obstacle and used considerable ingenuity to overcome it. He conceded that God and creature could be brought together in a common concept, yet found a way to deny that such a notion was univocal.

Henry's strategy, naturally enough, is to explain the derivation of knowledge of God from creatures by means of abstraction. Thus, as outlined above, we begin with some perfection of a creature, such as being or goodness, and detach the particularizing and determining elements with which that perfection is found in its material existence to reach a universal and general notion of it. In Henry's above scheme this abstraction marks the transition from the first level of most general knowledge, in which being and goodness are conceived as most proper to creatures, to the second. Henry is clear that in this step he has in mind the familiar and broadly Aristotelian kind of abstraction that yields common and universal concepts. When taken to its end, however, this process of abstraction does not result merely in a universal concept of being or goodness applicable to creatures alone, which is to say one proper to them, but in one that is *common* to both creator and creature *(quod dicitur 'bonum', hoc est commune creatori et creaturae.)*[10] To be sure, this notion is not univocally common, for it is not a distinct concept *included in both* those of God and creature. It is rather 'analogously common', for it *includes both* the concepts of God and creature in a confused way as one. Thus, for Henry, a perfection can be abstracted from a creature and conceived with such indeterminacy that it is not just the universal knowledge of a creature but a confused knowledge of *both* God and creature. This exceedingly abstract notion, which Henry calls 'analogously common', provides the necessary epistemological bridge from creature to God by constituting a concept of both at once.

Henry attempts to span the cognitive gulf between God and creatures, the knowledge of which he has otherwise limited to proper, simple and diverse notions, by means of his 'analogously common' concept. He has constructed it to perform the required epistemological functions of a truly common concept, for it is universal and applicable to both of its instances, but in such a way that it cannot be called univocal. None the less, Henry's solution is remarkable for how close it comes to an admission of univocity. Indeed, his analogous common concept so nearly functions as a univocal one that even Henry himself at times slips into seeing it as such. In describing how we abstract the general notions of being and the other transcendentals from creatures, so that we do not distinguish in such a notion what is proper to God from what is proper to creatures, Henry adds, 'just as also in univocal things we abstract a common nature' *(sicut etiam in univocis abstrahitur natura communis)*. Elsewhere, Henry describes the universal concept of being abstracted from creatures as 'indifferently common to what belongs to God and creature' *(conceptus generalis ut entis…qui indifferenter communis est ad id quod est creatoris et ad id quod est creaturae)*.[11] It is little wonder that Scotus will argue that Henry cannot consistently

deny univocity, if for no other reason than he appears to have all but admitted it.

As will be clear, the distance between Henry's revised analogous concept and Scotus's univocal one is accordingly not as great as the opposition in their positions might suggest. They both agree that being and the other transcendental perfections can be thought of without determination to either God or creature and that this is the result of abstraction from creatures. They diverge sharply, however, on the exact nature of this indeterminate conception. Henry denies that it is in fact a separate and distinct concept but holds rather that it is a confusion of two proper notions of being which are themselves simple, ultimate and irreducible. Scotus argues against Henry that to admit such an indeterminate apprehension of being and then to deny that it forms a bona fide, distinct, simple and univocal concept is a contradiction. However, in seeking to avoid the inconsistencies that he sees lurking within Henry's analogously common concept, Scotus must show that a truly univocal notion does not violate the real transcendence of God, which Henry's revised doctrine of analogy, whatever its faults, tried to preserve.

Duns Scotus on Univocity

In his commentaries on the *Sentences*, Scotus addresses the issue of the univocal concept of being in three separate but related contexts: the natural knowledge of God, the primary object of the human intellect and divine simplicity. All three discussions are closely connected, as Scotus's own numerous cross-references indicate. The first, on natural knowledge of God, is a lengthy, critical examination of Henry's position and contains Scotus's most sustained arguments for univocity.[12] After a detailed and systematic summary of Henry's account of our knowledge of God, Scotus replies that, while agreeing with Henry that such knowledge is possible, he departs from his position on five points. In the second of these five points, Scotus maintains against Henry that God is known not only in a concept analogous with, but also in one univocal to, creatures. It is an important but at times overlooked point that Scotus is not here rejecting the traditional view, upheld by Henry, that we have proper notions of God and creatures united by analogy or attribution. Rather, he is rejecting Henry's view that there can be *only* such proper concepts united only in that way. Scotus's point against Henry is that when perfections such as being and goodness are conceived in their utmost generality, they must be univocal not analogous notions. The precise target of Scotus's attack, then, is not Henry's commitment to a traditional doctrine of analogy, a version of which they both concede, but his conclusion that such excludes any univocal conception of being.

In an annotation to his criticism of Henry, Scotus at one point itemizes as many as ten arguments in favour of univocity, but gives five main proofs in the body of his discussion. Three of these are generally singled out as most important. The first of the five, the so-called arguments from 'certain and doubtful concepts', Scotus's own contemporaries labelled the 'Achilles' of his position. It runs as follows:

Major:	An intellect certain about one concept, but doubtful about others, has a concept about which it is certain that is different from the concepts about which it is doubtful.
Minor:	We can be certain that God is a being, but doubt whether God is infinite or finite being.
∴	The concept of being is different from the concept of infinite or finite being, and hence univocal, since asserted of both.

Scotus takes the major premiss to be evident, for one cannot be both certain and doubtful of the same concept. That is, one and the same concept predicated of the same subject cannot result in a proposition whose truth is both certain and doubtful. The minor premiss is *de facto* true, because past thinkers, such as the pre-Socratics, never doubted that the first principle was a being, but disagreed as to whether it was even material or immaterial, much less finite or infinite. Since the concept of being is different from those of infinite and finite being, but obviously predicated of both, it must be univocal.

Scotus's point, which he establishes more explicitly in the ensuing arguments, is that some univocal notion of being is presupposed in any natural knowledge of God. Ultimately, however much one doubts whether the concepts of infinite being or uncaused cause apply truly to God, such concepts are doubtful with respect to something that is certain. To be doubtful in all respects of some notion of God is simply to concede that one has no meaningful concept at all.

While Scotus has formulated his argument in sufficiently general terms to give it a universal force and appeal, he has none the less engineered it to expose what he sees as a fundamental absurdity lurking in Henry's analogously common concept of being. In effect, Scotus has crafted the minor premiss around Henry's analogous concept, substituting his own terminology of infinite and finite being for Henry's corresponding notions of negatively and privatively undetermined being. According to Henry, this analogously common notion of being is so abstract that we are in doubt as to whether it is a concept of negatively or privatively undetermined being. At the same time, Henry denies that there is any concept of being apart from these two proper concepts about which we are in doubt. Scotus's argument points out the inconsistency of these two claims: Henry must either concede that

we have no certain knowledge of being at all in this analogous concept, for he allows only the two proper concepts of which we are admittedly doubtful, or that we are both certain and doubtful of the same concept. Thus, Henry's abstract, indeterminate notion of being is either vacuous or else it must be distinct from, and hence common to, either of the concepts proper to God and creature.

Recall that Henry's explanation was that there is no concept of being distinct from these two proper ones, but only a confused notion of both which *appears* univocal owing to their similarity. Accordingly, Henry would reply to Scotus that we are not certain of some distinct, common concept, as Scotus concludes, but only of a confused notion that seemed common. Scotus perceives Henry's manoeuvre as introducing scepticism at the most fundamental level of human knowledge. According to Scotus, it would destroy all univocity, for any allegedly univocal concept could always be denied on the grounds it was not one but two very similar notions which merely seemed to be one. Scotus's evident point is that if univocity cannot be ascertained with certainty at the level of our most abstract concepts, which are therefore primary, simple and irreducible, then it can never be determined. Furthermore, according to Henry, these two proper concepts of being must be ultimate and hence wholly simple—otherwise they would be resolvable into more primitive notions—and are therefore known in their totality and distinctly or not at all. Therefore, either they will always be seen as one or never will be, for, being wholly simple, no distinguishing element can be discovered in them which was not evident in the first place. Finally, either they were initially seen as wholly different concepts of being proper to God and creatures, and then it seems impossible in view of their disparity that they could have ever been confused as one, or they were seen in a relation of similarity owing to analogy. In the latter case they could not be initially known as one, for any two things seen as united in some relation must first be known as distinct. Therefore, these two notions would never appear to be one, simple concept, but only as distinct under a relation of similarity.

Scotus's first argument, then, attempts to draw out the apparent inconsistency in Henry's open admission, on the one side, that the intellect can conceive of being without determining it to God or creature, and his emphatic denial, on the other, that there is any concept of being distinct from those proper to God and creature. Scotus argues that Henry cannot claim that this indeterminate conception contains any certain knowledge of being at all unless he admits that it is a concept distinct from the concepts of being proper to God and creature. The reason is that, by Henry's own admission, the intellect is not certain at this point that it has either proper concept, for it has not yet

distinguished between the two. It thus is either certain of no concept of being or is certain and doubtful of the same concept. Henry's device of making this analogous concept an *apparently* common and univocal concept, which is then later discerned to be two proper notions, collapses under scrutiny. Even if the simplicity of these two proper concepts of being did not make it impossible for them to be confused at one time and distinguished at another, they can only be seen as similar, and hence one, after first having been known as distinct and proper. As an epistemological explanation for the natural origin of our proper concept of God, Henry's analogously common notion simply begs the question. It presupposes the very proper concept of God that it is supposed to explain.

In his second argument, Scotus is explicit that denial of a univocal concept renders natural knowledge of God impossible. Specifically, Scotus attacks Henry's position on the grounds that no creature can be the immediate cause of a concept which is both simple and wholly proper to God. Yet this is Henry's only available account for the natural origins of our knowledge of God, given that he admits only two proper and simple concepts of being and excludes any which is common. Scotus maintains that it is patently absurd to hold that a creature can directly cause a simple and wholly proper concept of God, simply because such cannot be the concept of anything contained within the creature. Scotus argues that an object can only cause a concept of that which it contains either as an essential part (e.g. its *differentia* or genus) or virtually (e.g. an essential property). Obviously, the creature contains nothing proper to God as an essential part. Similarly, a creature cannot virtually contain anything proper to God, for one thing virtually contains another as the naturally prior contains the posterior or the cause its effect. For instance, premisses virtually contain their conclusions in the sense that their greater truth and certitude has the 'power' *(virtus)* to produce or cause certitude of the conclusion. The creature, however, is naturally posterior and inferior to divine nature as its effect and therefore cannot virtually contain anything proper to God. Rather, just the reverse is true; God virtually contains the creature. Thus, if a creature can produce any concept of God at all, it must be one that is common to both, which Henry denies.

Scotus pursues a similar line of reasoning in his fourth proof, which examines the commonly admitted basis for natural knowledge of God, the so-called 'pure perfections' *(perfectiones simpliciter),* such as intellect, will or wisdom. Scotus argues that either these perfections have some meaning common to God and creature or not. If not, this is either because they are wholly proper to creatures, which no one admits, or they are wholly proper to God. If they are wholly proper to God, then they are not attributed to God because they are pure perfections,

but are rather pure perfections because they are attributed to God. This, however, would violate the traditional and universally accepted procedure given by Anselm for determining what can be assigned to the divine nature. According to Anselm, we attribute to God those perfections which are pure in the sense that they contain of themselves no imperfection. As defined by Anselm, such a perfection is 'what absolutely taken is better to be than not'.[13] (For instance, colours are not pure perfections, since it is not absolutely better to be coloured than not.) But on Anselm's definition, one can determine what is a pure perfection without any reference to God. That is, on the received and accepted account of natural knowledge of God, something is first determined to constitute a pure perfection and then on that basis attributed to God, not the reverse. Consequently, something is not a pure perfection precisely because it is attributed to God but is such prior to that attribution. Pure perfections must therefore have some meaning that is common apart from the meaning it has as attributed and proper to God alone.

Once again Scotus argues that some common and hence univocal notion is presupposed by our analogous, proper concepts of God. In this case, the traditional doctrine of 'pure perfections' is seen to entail just such a common notion. If there were no common but only proper concepts of these perfections, then they could not be known apart from their attribution to God. Yet, exactly the opposite is prescribed by the traditional concept of pure perfections, for they are known independently of and prior to any relation to God.

Scotus makes the same point in a confirmation of this argument, this time using the equally traditional Dionysian procedures of removal and eminence. According to Scotus, all metaphysical enquiry about God proceeds by taking some formal notion *(ratio formalis)* and removing from it all imperfections with which it is found in a creature. For example, we take the formal notion of the will—a power for opposites—and remove any limitations connected with its existence in a creature, such as variability in its act of willing over time. We then attribute will to God by conceiving of it not just as lacking imperfection, but as possessing the greatest degree of perfection, such that it is infinitely powerful. This process presumes that the formal notion of the will which has been stripped of creaturely limitations is the same notion of will as is assigned the highest degree of perfection. If this is not the case, so that nothing of the notion of will abstracted from creatures remains when we attribute will to God, then perfections found in creatures tell us nothing about the perfection of God. As Scotus puts it, we could then no more say that the divine nature was an intellect, a will or wise than it was a rock. That is, the distinction traditionally made within creatures between pure perfections, which can be applied

to God, and their other formal features, which cannot, would be meaningless on denial of any common notion of such perfections. If to be a 'perfection' has absolutely no common meaning as applied to God and creature, then perfection in creatures becomes tantamount to imperfection. Thus, 'wisdom' would be no more applicable to God than 'rock'.

The point of Scotus's fourth proof and its confirmation is that the traditional concepts and methods that are the accepted basis for natural knowledge of God presuppose a common notion of being and other such perfections. Elsewhere Scotus is more pointed: 'All masters and theologians seem to use a concept common to God and creature, although they deny this verbally when they apply it'.[14] There can be little doubt, however, that Scotus has Henry specifically in view. This is particularly evident in Scotus's corroborative argument based on the Dionysian procedure, from which, as shown, Henry constructed his own three-stage ascent to God. Scotus has pared this procedure to the two minimal steps of removal and eminence, which correspond respectively to what Henry calls knowing God *generalissime* and *generalius*. (In his third point of disagreement with Henry, Scotus discards Henry's final stage of conceiving God as wholly simple through negation and limits our highest simple concept of God to that of a pre-eminent or infinite being.) Scotus's point is that the Dionysian procedure requires that the notion or meaning *(ratio)* yielded by removal be the same notion to which eminence is applied, otherwise the first step would simply have no relevance to the second. Removal and eminence would not, as all theologians assume, form two stages of a continuous process of reasoning leading from a knowledge of creatures to God. As Scotus says, 'There would be no such process, but inquiry of this kind would have to be avoided' *(nullus esset talis processus, sed vitanda esset talis inquisitio)*.[15] But this is exactly the situation in Henry's interpretation of the Dionysian process, for he holds that the *ratio* of a perfection arrived at by the abstraction and removal of created limitations is wholly other than that to which eminence is applied *(illud est alterius et alterius rationis)*. Distinguishing between the epistemological functions of the ways of causality and eminence, Scotus denies that these two diverse *rationes* can be sufficiently connected by means of causal dependence, as Henry maintains. Something is not formally or essentially predicated of God, in the manner of a pure perfection, simply because it is an effect. A rock is an effect of God as exemplary cause in so far as it has an idea in the divine mind, yet the formal notion of 'rock' cannot be predicated of God in the same way as that of goodness, justice, truth or any other such perfection. Rather, perfections found in creatures must have some univocally common concept if they are to be

predicated essentially of God as divine attributes, whereas things predicated of God as their cause need not have such a common notion. Henry cannot therefore use the way of causality to underwrite the way of eminence, for the epistemological requirements for the latter are greater than for the former. Thus, he must admit that his first stage issues in some notion common to God and creature.

The force of all this argumentation is that Henry cannot consistently uphold natural knowledge of the divine nature and then deny that being has some concept common to creatures and God. If being and the other perfections have only two simple and wholly diverse *rationes* or notions, one proper to creatures and the other to God, then creatures simply cannot yield any concepts relevant to the divine nature. The causal dependence of the creature on God is irrelevant here, because being, goodness and such are seen as divine *attributes* revelatory of God's nature, not because they are effects, but because they are perfections of a certain sort. Henry himself seems to have appreciated the limitations of the way of causality and attempted to supply the required conceptual unity by means of an 'analogously common notion', in which the two proper and diverse *rationes* were conceived in a confused way so as to appear univocal. Scotus saw this as an unworkable contrivance vulnerable to the most obvious of absurdities, such as that the intellect could lack certitude about its most fundamental concepts. In the face of Henry's strained and artificial attempts to sustain natural knowledge of God while denying any bona fide common concept, Scotus replaced Henry's 'analogous', confused notion of two proper *rationes* that appeared univocal with a distinct concept of a single, simple *ratio* that in fact was univocal. Accordingly, where for Henry being conceived in its utmost generality and community was a complex and confused concept, and the concepts proper to God and creatures were simple and distinct, for Scotus just the reverse became the case. The most general and indeterminate concept of being was irreducibly simple and common, and thus known in a distinct rather than a confused way, while the concepts of being proper to God and creature were complex, or at least not irreducibly simple. By admitting a simple and univocal concept of being, Scotus provided a true conceptual community between God and creature and placed the project of natural knowledge of the divine nature on a firm epistemological footing.

Scotus's univocal concept of being clearly had great epistemological advantages over Henry's revised version of analogy. It eliminated Henry's unsatisfactory attempt to make an unstable conflation of equivocal notions do the epistemological work of a genuinely univocal concept merely because such a conflation appeared univocal. Univocity not only provided a true conceptual community between God and

creature, but made being suitable as a primary object of the mind by rendering its conception certain, simple and prior. In granting univocity, Scotus replaced Henry's two concepts of being with a single one, his doubtful concepts with a certain one, his relational concepts with an absolute one, and his confused concepts with a distinct one. Yet these epistemological advantages of univocity came at a very high metaphysical cost, which is precisely why Henry went to such extreme lengths to deny that there was in truth any such concept. The cost of Scotus's univocal concept of being, as one objector put it, was nothing less than 'to destroy the whole of philosophy'.[16]

While Scotus portrayed univocity as contained with the tradition of natural theology, so that it could be found in 'arguments frequently made or implied by doctors and the saints', he had to reconcile it with a daunting array of philosophical authorities to the contrary. Scotus himself did not fail to raise and confront the various conflicts that a univocal concept of being appeared to present to the philosophical tradition, particularly that of Aristotle. Thus, for instance, univocity would remove a pillar of Aristotle's metaphysics, namely, that 'being is said in many ways', which meant that being was not univocal but a type of equivocal. It would destroy the categories as ultimate classifications or genera, for they would become species under the higher class of being. Similarly, it would render the five predicables of Porphyry inadequate, for being would form a sixth universal. Worst of all, God would enter a community of being with creatures. The divine nature would not be a wholly simple and pure act, but a composite of being and difference.

All of these impossible conclusions really expressed one and the same difficulty in different ways. Scotus's univocal concept of being appeared to his contemporaries to destroy all of philosophy—Aristotle's conception of metaphysics, the categories, the predicables, and even the distinction between God and creatures—because it appeared to destroy being itself as a transcendental. On the common view, a 'univocal transcendental' was a contradiction in terms, precisely because the categories or supreme genera were regarded as the highest classes of univocal predicates. Since a transcendental was by definition beyond the categories, it could not be univocal. This conviction was clearly stated by Peter Olivi, a theologian writing in the generation before Scotus: 'The nature of being, one, and true is so common to all things that it transcends the nature of a genus and everything univocal.'[17] In other words, on the common view, univocity destroyed being as a transcendental because it reduced being to a genus. Indicative of this common view was the use of Aristotle's claim that being and one could not fall under a genus as a standard authority against univocity.

This conventional identification of univocal and generic concepts resulted from the requirement, explicitly invoked by Henry in this connection, that there must be a strict correspondence between real and conceptual community. Any real, univocal concept, as opposed to a purely logical or mind-dependent notion, had to be based on some type of corresponding real community or agreement. Since the categories by definition constituted the highest classes of reality, they formed the outer boundaries of real agreement. Accordingly, there could be no univocal concept of anything more universal than these categories or genera, for to such a notion would correspond no real community. If this was true of the categories, so much more of God and creatures, whose real diversity was immeasurably greater than that between any two genera. The challenge facing Scotus was thus clear if his doctrine of univocity was not to destroy all of philosophy by reducing being to a genus. He had to explain how there could be a truly univocal notion of being to which there corresponded no real agreement. Scotus himself was completely aware that this was the universally perceived impasse to making being and the other transcendentals univocal. The central difficulty to be overcome was that 'God and creatures are wholly diverse in reality, agreeing in no reality…and nevertheless agree in one concept' *(Deus et creatura realiter sunt primo diversa, in nulla realitate convenientia…et tamen conveniunt in uno conceptu)*.[18]

This is the problem Henry saw but could not solve. He could not see how to unite God and creatures under some common concept of being without also uniting them in some common reality, that is, without bringing them under being as a genus. For Henry the one required the other, as exemplified by Plato, who held being was univocal because it was a genus *(Plato ponens ens esse genus, tanquam sit nominis entis unum aliquid commune conceptum)*.[19] Because Henry could not resolve this difficulty, he tried to construct a type of conceptual community by conflating proper concepts rather than admit a single, common one. Scotus was the first to find a way around this impasse, and his solution involved some of the most innovative aspects of his metaphysics.

Scotus's solution is found in his question on divine simplicity, which he specifically formulated to draw out just his difficulty: 'Is it compatible with divine simplicity that God, or anything formally predicated of God, be in a genus?'[20] As the lead objection to the question makes clear, the issue is whether Scotus's position of univocity, previously established in distinction 3, entails that God is in a genus.

> It seems that [God is in a genus], because God is formally a being. Being, however, signifies a concept predicated of God

> quidditatively *(in quid)*. This concept of being is not proper to God, but common to God and creature, as was said in distinction 3. Therefore, in order for this common concept to become proper [to God] it must be determined by some determining concept. That determining concept is related to the concept of being just as a qualitative concept *(quale)* to a quidditative concept *(quid)*, and consequently as the concept of a *differentia* to a genus.
>
> (*Ord*. 1 d.8 n.39 (Vat. 4.169))

The above line of argument is precisely why Henry so adamantly refused to admit both a common and proper concept of divine being and allowed only a proper one. It is impossible to admit both concepts of God without conceding that the proper one itself is a composite of common and distinguishing notions which must be related in effect as potency and act, or as the objection puts it, as determined and determining. This is simply to admit that the common notion is a genus and the distinguishing one a *differentia*. This conclusion follows especially from Scotus's position, because he admits that the common concept of being applies to God quidditatively, which means that it is the concept of a 'what' *(quid)*. The distinguishing concept will accordingly specify or qualify being as a kind *(quale)*, so that the two will conform exactly to the classical relation of genus to *differentia* as *quid* to *quale*.

In his lengthy reply to the objection, Scotus concedes that there is a common concept of being and that it is 'contracted' or determined by the notions of infinite and finite to result in concepts proper to God and creatures. He even concedes that the common and contracting or determining concepts are related as *quid* and *quale*. He denies, however, that they are respectively concepts of a genus and its *differentiae*. As for the first point, Scotus argues that the univocal concept of being cannot be that of a genus. The reason is that being so conceived is common to both the finite (creatures) and the infinite (God), and this community exceeds that of any genus. No generic concept can be so common, for by definition the concept of a genus is that of a reality potential to some further, perfecting reality added by the *differentia*. What is infinite in being, however, cannot be potential to any further reality. Accordingly, since a genus by definition involves potentiality, the concept of being common to God and creatures cannot be that of a genus, for the infinite being of God can never be conceived, however commonly or indeterminately, as some reality potential to further perfection. The second part of Scotus's response is that the determining concepts of infinite and finite do not correspond to those of specific *differentiae*. Here the reason is that

infinity and finitude do not indicate the addition of some reality outside that given in the common concept of being, but only degrees or grades of perfection intrinsic to the reality of being. The concept of a *differentia,* however, is always of some reality outside of and added to that of the genus.

Scotus's response relies on his technical conception of a formal, extramental distinction of two realities, on the one hand, and his so-called 'modal' distinction between a reality and its intrinsic grades or modes of perfection, on the other. As for the first, Scotus recognizes within one and the same thing *(res)* a distinction of realities, formalities or entities *(realitates, formalitates, entitates),* as he variously calls them, corresponding to our different concepts of that thing. Such realities are said to be 'formally distinct', but really identical or united within one and the same thing.[21] Such a 'formal distinction' is for Scotus not merely conceptual but real in the sense that it obtains prior to any consideration of the intellect. Scotus holds that at minimum this formal distinction between two realities is required to provide a real basis for the concepts of genus and *differentia*. According to Scotus, this degree of distinction is minimally needed to sustain any real relationship of potency to act required for genus and difference. The concept of a genus is taken from the one reality, which is perfected by and potential to, the formally distinct reality from which the difference is taken. Scotus argues that unless genus and *differentia* are at least formally distinct realities, the concept of the genus would coincide with the entire reality of the species, rendering the addition of specific *differentia* in a definition redundant.

In addition to this formal distinction of realities in one and the same thing, Scotus recognizes a lesser distinction between a reality and its degree of perfection, or in Scotus's terminology, its intrinsic mode. This is the distinction, for instance, between an accidental form, such as white, and the degrees of intensity with which it is actually found. For example, white can be differentiated into degrees or shades, yet these degrees do not form different species of colour. Or again, a species of precious stone, such as diamond, can be distinguished according to the various degrees of perfection that make up the gemmologist's scale, from imperfect to flawless, yet these gradations do not each one constitute a different species of gem. Such grades or modes are said to be 'intrinsic' because they do not add, as a specific *differentia* does to a genus, a new reality extrinsic to the form of which they are the grades. They rather indicate different quantitative degrees, as it were, of one and the same reality or form. Scotus's model here is the medieval theory of intension and remission of accidental forms. According to this theory, accidental forms, such as colours, heat, and cognitive and moral habits, are said to have a certain extension or 'latitude' *(latitudo)* within which

they can be increased *(intensio)* or decreased *(remissio)* without a change in the essence or species of the form itself.[22]

In light of these technical refinements, Scotus's answer to the above objection is that the relationship of the common concept of being to its contracting or determining notions of infinity and finitude does not correspond to that of genus and *differentia,* for this requires two formally distinct realities related as potency and act. The common concept of being cannot involve the element of potentiality found in a genus, for this would render it inapplicable in any way to the divine being, and hence not common to God and creatures. Rather, being and its qualifying concepts of infinity and finitude correspond to the relation of a reality and its intrinsic modes of perfection. The categorical analogue for the common concept of transcendental being is not therefore a genus and its specific differences, but rather a specific form and its grades of intension and remission. Clearly, Scotus thinks he has found in this categorical analogue of intension and remission a model for common and differentiating concepts which escapes the real relation of potency and act required in genus and *differentia*. The various degrees of intensity are *real* but not *specific differentiae* of a form. As it actually exists, white is found in different degrees of brilliance or intensity, and these are *real differentiae* of that form. Yet this diversity within the form of whiteness is not one produced by specific *differentiae,* otherwise every shade of white would constitute a different species of colour. Rather, the intensive grades of a form result from *differentiae* less than specific, albeit real, because they are intrinsic to the nature of the form itself. Specific *differentiae* by contrast always add a new reality in kind. By appealing to a recognized distinction within the categories between a form and its degrees, which is less than that of genus and *differentia,* Scotus thinks he can explain how the common concept of being can be 'contracted' by the finite and infinite without reducing being to a genus.

Yet Scotus realizes that this reply does not fully resolve the difficulty of the real basis for this common concept of being, so that univocity still poses a threat to divine simplicity. The problem is that Scotus holds that the concept of being univocally common to God and creatures is both *real* and distinct from the concept of infinite being proper to God. Since this common concept is *real,* it must be taken from some corresponding reality in God that is common. The original objection now reappears, because Scotus still has to admit that there will be two realities in God, one which is common to account for the real, common concept of being and another to account for the proper concept of God. These realities will be related as potency to act and hence as genus and *differentia*. The problem thus seems inescapable. If the common concept of being is real, it

must be of something real in God. But to admit a common reality in God is nothing less than to place God under a genus. Scotus himself sharply focuses the difficulty: 'Here is doubted how a real concept common to God and creature is possible unless it is taken from some reality of the same genus.'[23]

Scotus replies that both the common concept of being univocal to God and creatures and the concept proper to God are taken from one and the same reality of infinite being. The implicit assumption of the objection denied by Scotus is that in order for a common concept to be real, it must always be an adequate or perfect concept of the reality conceived. Rather, the common and proper concepts of God are related as imperfect and perfect conceptions of one and the same reality, not as perfect or adequate concepts of two distinct realities. Scotus's response exploits his distinction between a reality and its intrinsic mode or grade of perfection to account for how one and the same reality can cause both a perfect concept, which is proper, and an imperfect concept, which is common. For example, some particular instance of white existing at the tenth grade of intensity can be conceived perfectly, and then it is known according to the degree of perfection with which it is actually found. That same instance of white can be conceived imperfectly, and then only the nature of 'whiteness' as such, apart from the real condition of its grade of intensity, is known. The former is a proper concept of whiteness in some determinate grade, the latter a concept common to the various instances of white differing in degrees. No concept common as a genus, however, can ever result simply from conceiving a reality in an imperfect way. Rather, as just seen, to the concepts of genus and *differentia* there must correspond two different realities, and, in each case, there can be a perfect and adequate concept of the corresponding reality.

As applied to the renewed form of the initial objection, Scotus's distinction means that our univocally common concept of being does not entail a corresponding common reality in God, because that common concept is not a perfect or adequate concept of any reality. Rather, it is an imperfect concept of the reality of infinite being proper to God or of finite being proper to creatures. To put it another way, that concept of being is common to God and creatures because in it the two wholly diverse realities of infinite and finite being are conceived in an imperfect way. In an annotation to this reply, Scotus expresses in technical language his answer to the difficulty of the real basis for the univocal concept of being:

> Note [in this answer] how there can be a primary intention [i.e. a real as opposed to a secondary or merely logical

> concept] of 'a' and 'b' that is common and nothing of a single nature corresponds in reality, but two wholly diverse formal objects [i.e. God and creature] are understood in one first intention, although *either imperfectly*.
>
> (*Ordinatio* 1 d.8 n.136 (Vat. 4.221))

This constitutes Scotus's ultimate resolution of the metaphysical impasse to a univocal concept of being. It consists of recognizing a distinction that is real but less than that of two different realities. Only given such a lesser distinction is it possible to provide an ontological foundation for common and proper concepts that not are related as genus and *differentia*. Scotus himself is clear that the solution to the objective basis for a univocal concept of being requires such a lesser distinction, namely, that of a reality and its intrinsic mode: 'Therefore, a distinction is required between that from which the common concept [of being] is taken and that from which the proper concept is taken, not a distinction of reality and reality, but of reality and the proper and intrinsic mode of the same reality' (*Ord.* 1 d.8 n.139 [13.29] 4, 222). In Scotus's view, Henry and his contemporaries were led to deny univocity because they demanded that every distinction in real concepts be based upon a corresponding distinction of realities. They failed to see that the boundaries between our concepts can be more refined, so that they do not always answer to a distinction of realities but can be based on one between a reality and its degree of perfection. Such is sufficient for perfect and imperfect conceptions of the same reality, which are related as proper and common concepts of it. A concept of being which is common by virtue of its imperfection is all that is required for it to be univocal to God and creature.

Having solved this problem, however, Scotus faced a final hurdle to univocity in the authority of Aristotle, who repeatedly states that being is a type of equivocal. From this it is concluded that being cannot be univocal. Scotus replies that this reasoning assumes that analogy and univocity are incompatible, which he denies. First, according to Aristotle himself, there is a first in every genus, which is the measure of all in that class (*Metaphysics* 10.1 (1052b18)), such as is the case with human being in the genus of animal. Despite this relationship of attribution, in which human being constitutes the primary instance of animal to which all others are referred, Scotus argues that all still admit a single notion of animal univocal to all in the genus. Similarly, the order and attribution existing between the proper and analogous concepts of being is consistent with some univocal notion common to both. Second, the real or natural philosopher (i.e. the physicist, who deals with material beings) takes as equivocal the diverse genera which the logician sees as

univocal, for in reality only the form of the ultimate species is truly univocal. So, Scotus concludes, all of the citations of Aristotle where being is claimed to be analogous should be read as referring to a real diversity of beings among which there is attribution, which is none the less consistent with some univocally common concept abstracted from them.[24] Scotus's second response will form the basis for ensuing attempts by Scotists to reconcile his doctrine of univocity with Aquinas's position on analogy. In reconciling the two views, Aquinas is portrayed as maintaining real analogy among beings, while Scotus is seen as holding a purely conceptual unity.

CONCLUSION

There can be no question that in maintaining a concept of being univocally common to God and creatures, Scotus moved beyond the common view of the transcendentals in a dramatic and important way. The doctrine of univocity counts as one of the genuinely original results of Latin medieval philosophy, and its impact was felt well into the modern period. At the same time, Scotus's achievement depended in an intimate way on prior developments by Henry of Ghent. As has been repeatedly stressed, this is in fact so true that Scotus's doctrine of univocity should properly be seen not as a complete rejection but as a revision of Henry's own unique understanding of analogy. Specifically, Scotus's simple, univocal concept was a modification of Henry's revised 'analogously common' notion of being. Henry's extended sense of an 'analogous concept' had many features in common with Scotus's univocal one: it was a conception of being as completely undetermined, the result of abstraction from creatures, and the epistemological foundation for natural knowledge of the divine nature. Scotus accepted these aspects of Henry's indeterminate conception of being, and then argued that Henry could not consistently deny that such a conception formed a truly unified, distinct, and common notion unto itself. Scotus accordingly abandoned Henry's analogous notion of being, but did so by making it into the very univocal concept Henry claimed it appeared to be, but in truth was not. In other words, the univocal concept of being for which Scotus argues is, in many important respects, the very one that Henry described but rejected as merely apparent: a single, simple concept common to God and creature and different from concepts of both *(aliquis unicus intellectus simplex communis ad Deum et creaturam, alius praeter intellectum Dei aut creaturae)*.[25] These words of Henry answer quite closely to the concept demonstrated by Scotus, particularly in his first argument for univocity. To be sure, in upholding the univocal notion which Henry had rejected Scotus had to move

beyond Henry's understanding of univocity in an important and creative way, most notably by detaching univocal community from the ontological limitations of a genus. On the other hand, it is not true that Scotus advanced a univocal concept of being which Henry had simply failed to see altogether; Henry saw a good part of it, but could not see how to sustain it.

The close connection between Scotus and Henry examined here in their disagreement over the nature of transcendental concepts is found to various degrees in many other areas of their thought. For example, Scotus rejects more and appropriates less in his attacks on Henry's version of Augustinian illumination and his theory of exemplar causality, according to which creatures have a necessary and eternal 'essential being' *(esse essentiae)* as divine ideas. In other areas, Scotus appropriates more and rejects less, such as in his proofs for the existence of God. In nearly all cases, however, a proper understanding of Scotus will depend on appreciating his relationship to Henry.

NOTES

1 Henry, *Summa* a.22 q.5 ([13.2] I f. 134v).
2 L.Hödl, 'Introduction à l'edition de la *Summa* d'Henry de Gand', in Macken's edition of Henry's *Summa* articles 31–4 [13.3] xiii–xiv.
3 Roger Marston, *Quaestiones disputatae De emanatione divine, De statu naturae lapsae, De anima,* Grottaferrata, 1932, p. 412.
4 Aquinas's own position is more nuanced, but this is the aspect of it stressed by Henry. See J.Wippel [13.27] 215–42.
5 Henry's express treatment of analogy is given in *Summa* a.21 q.2 ([13.2] I f. 123v–125v).
6 See Aristotle, *Categories* 1 (1a1–15) and especially *Metaphysics* 4.1 (1003a32–b5). For Aristotle's notion of equivocity, which the scholastics called analogy, see J. Owens, *The Doctrine of Being in the Aristotelian Metaphysics,* 3rd edn, Toronto, 1978, pp. 107–36.
7 Cf. Henry, *Quodlibeta* 13 q.10 ([13.3] (1985) 65–7).
8 Henry's account of natural knowledge of the divine *quid est* occupies *Summa* a.24, especially qq. 4, 7 and 9. See the second article by Pegis in [13.23].
9 *Summa* a.24 q.6 ([13.2] I f. 142v).
10 *Summa* a.24 q.6 ([13.2] I f. 142v).
11 For these two quotations, see Henry *Summa* a.24 q.7 ([13.2] I f. 144v).
12 This part of Scotus's discussion, which is the basis of what follows, is found translated according to the Vivès edition in Wolter [13.35] 13–33.
13 Scotus cites Anselm, *Monologion c.* 15 (ed. Schmitt [6.11] I: 28–9) in this connection, but the association of this doctrine with Anselm was a commonplace.
14 Duns Scotus 1 *Lectura* d.3 n.29 ([13.29] 16.235).
15 1 *Lectura* d.8 n.79 ([13.29] 17.27).
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17 S.Brown, 'Petrus Joannis Olivi, *Quaestiones logicales:* critical text', *Traditio* 52 (1986): 36–7.
18 1 *Lectura* d.8 n.129 ([13.29] 17.46).
19 *Summa* a.21 q.2 ([13.2] I f. 124v).
20 Scotus, 1 *Ordinatio* d.8 p. 1 q.3 ([13.29] 4.169–230).
21 See the entries under 'Formal Distinction' in the bibliography. Scotus varied both his terminology and definition of the formal distinction between Oxford and Paris, but this does not affect the present point.
22 On this theory, see for example J.Wippel, 'Godfrey of Fontaines on intension and remission of accidental forms', *Franciscan Studies* 39 (1979): 343–55.
23 1 *Ordinatio* d.8 n.137 ([13.29] 4.221).
24 1 *Ordinatio* d.8 n.48, 83 ([13.29] 4.172, 191–2).
25 *Summa* a.21 q.2 ([13.2] I f. 124v).

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CHAPTER 14

Ockham's world and future

Arthur Gibson

PHILOSOPHICAL BIOGRAPHY

Ockham was born in about 1285, certainly before 1290, probably in the village of Ockham, Surrey, near London. If his epitaph is accurate, he died on 10 April 1347. Yet Conrad of Megenberg, when writing to experts in the know, appears to assign to Ockham a piece written after November 1347, so perhaps the epitaph was doctored. It has been affirmed that he died in Munich, possibly of the Black Death, though perhaps the Plague had not yet reached Germany or Bohemia by that date (see [14.55] 27–8). Whatever the correct view, the beginning and end of his biography are subject to some uncertainty.

Ockham's intellectual life is replete with confident redefinition of contemporary philosophical concepts, often drawing on, or sharing in, the work of other theologians doing philosophy. This redefinition was not a source of pleasure to the powers that be. Medieval Christian philosophy was the manifestation of complex axioms, the restatement of which was a constant attraction as well as a risky endeavour. Arriving at Oxford in 1309, the Franciscan Ockham was eventually perceived by the Chancellor of the university and secular theologian, John Lutterel, to have fallen from grace. This was partly because Ockham did not accept this Chancellor's own Thomistic doctrines. Lutterel was fighting a rather lonely rearguard defence of Aquinas, since Ockham's philosophy was preoccupying most of the English scholars in his subject.[1] Ockham had studied under the previous Oxford Chancellor, Henry Harclay (who died in 1317),[2] and he had embraced the latter's criticism of Duns Scotus on universals. In about 1315 we find Peter Aureoli developing similar criticism. Ockham was not, then, the sole dissenting original thinker in a burgeoning trend of new reflection,

which was stimulated in part by the unexpected revival, and modification, of concepts of supposition (denotation) theory. Scotus's work acted as both a major focus for and influence upon scholars at Oxford. He had reformulated aspects of recently past scholarship in ways that attracted Ockham's debt, often through disagreement.

Moving to London, after a less than peaceful time at Oxford, Ockham continued undeterred to compose his philosophy until 1324, even though in the previous year John Lutterel had already attempted to procure from the Pope in Avignon a judgement of heresy on fiftysix of Ockham's theses. The papal legal process was commenced in spring 1327, and, even in June 1328, after a year's work of the inquisition on Ockham, it had not yet managed to furnish a case against him using Lutterel's evidence.[3] Francis of Meyronnes counselled that Franciscan scholars in the interim should eschew public and unqualified *determinationes* of their traditional position (see [14.55] 57–9). Ockham's conscience, leading him to open dispute, aggravated the situation. When at Oxford Ockham was carefully listened to by a number of scholars, including Walter Chatton and Adam Wodeham. Chatton was the most likely source of Lutterel's indirect knowledge of Ockham's views, though he did not purposely act as an inside-dealer against Ockham. Rather, Chatton was attentive to him because of his own interest in Ockham's epistemology, which departed from the perspectivist theories with which he was familiar. The political conflict between Ockham's Franciscan order and Pope John XXII (concerning the criterion of application for poverty) occupied a central place in his attention at Avignon, not least since he was asked to read the disputed papal bulls on this issue (see [14.11] xvii). By the time Ockham left Avignon he was a defendant in a heresy accusation concerning his earlier writings. But the principal reason Ockham departed was that he accused the Pope of heresy regarding his teaching on rights and poverty. Ockham departed from Avignon for the protection of the Holy Roman Emperor, Louis of Bavaria. Excommunicated, he thenceforth composed political philosophy for the rest of his life.

A PRELIMINARY PICTURE OF OCKHAM'S WRITINGS AND PHILOSOPHY

Ockham had finished writing his non-political philosophy by 1324. He had lectured on the *Sentences* at Oxford between 1317 and 1319. The next compositions were his *Expositio aurea* ('Golden Exposition', of Aristotle's logic) and the *Exposition of Aristotle's 'Physics'* (Books I–IV); all these were written during 1321–3. In addition to these, by 1324 he had produced his *Summa logicae (Textbook of logic),* the *Quodlibets,* the remainder of the *Exposition of Aristotle's 'Physics'*

(Books V–VII), and his two treatises on quantity. As well as a *reportatio* of his Oxford *Sentences* commentary, Books II–IV, there is a revised version of his lectures on Book I, an *Ordinatio,* probably dating from 1319–24. With the implicit reference to and condemnation of Ockham as a heretic by Pope John XXII (6 June 1328) in his bull *Quia quorundam,* Ockham's work was disrupted. By 1332–4 Ockham commenced writing his, eventually very extensive, political philosophy, the first volume of which is *Opus nonaginta dierum (Work of Ninety Days)*. Its extraordinary length and impartiality are amazing in view of his personal circumstances. Yet by late 1334 he had also composed and sent his *Epistola ad Fratres Minores (Letter to the Franciscans),* as well as having written *I Dialogus,* a very long neutral treatise on the concept of heresy and its application to papal authority, both now in English thanks to the fine editions of Stephen McGrade and John Kilcullen (see [14.11] and [14.7]).

As with other medieval scholars, we should reckon on our possessing less than Ockham's complete works. Non-extant writings and their detail, deemed to be obscure or of marginal significance, may not have been so regarded by Ockham or some of his contemporaries. It is possible that his lost writings, if rediscovered, would change topics in his philosophy. For example, Rega Wood draws attention to citations attributed to Ockham which do not occur anywhere in his extant writings ([14.102] 30–1; cf. her n. 25). These appear in the sole extant copy of John of Reading's *Sentences*. This Reading, a Franciscan, typifies the lesser, yet ecclesiastically significant, type of figure who contributed to the battleground of dispute with Ockham. By 1323 Reading, interestingly a former student of Lutterel's, was to be found as a consultant to the Pope at Avignon prior to Ockham's arrival. Reading disputed Ockham's view of intuitive cognition. He maintained that intuitive cognition of non-existents is possible ([14.2]). Although he was influenced by Duns Scotus, Reading here disagrees with him (see [14.93] 166–74), and he bases his case on God's absolute power.

God was central to Ockham's philosophy. He was a theologian who did philosophy, with a penchant for logic. Although his researches in logic are detailed and widespread, they are not a formal system in our modern sense. Ockham was more explicitly interested in formal questions of logic than Aquinas, yet his instinct and understanding fall short of Aquinas's.

His fundamental principle for God and logic is simplicity. This is not a project about presentation—it is easy to think him ironic about simplicity when we view the often torturous complexities of his logic, though his writings betray no sense of whimsicality. His simplicity has its ideal in God: the unity, the necessity. 'Ockham's razor' is a label for the philosophical counterpart of God: a principle to reduce, or keep,

entities to a minimum. Just as a theologian views polytheism as a corruption threatening monotheism, so Ockham's philosophy treated the multiplication of species as a corrosive infecting our perception of world-structure that mirrored God. Ockham's programme relies on the reduction of ontological categories to just two, substance and quality—though he has no systematic logic worked out for implementing such a scheme.

Ockham produced an extensive formal philosophy. Yet, rather like Bertrand Russell, he did not integrate his formal interests with his dialectical (for example, ethical) writings. This perspective is only slightly misleading, since Ockham's dialectically presented political philosophy only obliquely embodies some of his other philosophical concerns. But Ockham sometimes makes an explicit, albeit unexpected, connection between the dialectic of *obligationes* and the logic in his *Summa Logica*. For example, Ockham's philosophical logic there deals with the concept of 'consequence' and impossibility in its varying paradoxical forms under this general heading. In twentieth century terms, Ockham might be described as carrying out a thought experiment. Eleonore Stump illuminates the way Ockham connects the topics of 'obligations' and 'insolubles' (see [14.92] ch. 12). 'Insolubles' were forms of conundrums or paradoxes, and this linking of the two topics together was usual in Ockham's lifetime. He attempted to show how impossible propositions might not, in disputations, obviously entail a contradiction. As Spade shows,[4] Ockham permits self-reference in his logic. Ockham's technique modifying Walter Burley's, is to submerge the collisions in premisses concerning relevance to yield a possible world which both satisfies typical conditions of possibility, yet produces a state of affairs that unexpectedly reconfigures subjunctive conditional boundaries. This is not unlike Lewis's [14.59] wider pluralising of worlds, increasing entities, not reducing them. Gensler has recently shown how one might discover such interconnections, more secure than Ockham's ([14.39]). Although Ockham did not develop his work on obligations theory within his political philosophy, it seems clear that he was implicitly injecting the results of research into his political and ethical theory, in the way he combines canon law, logic and case-precedent technique, for example in his *III Dialogus* ([14.7]).

Research on logic readily inclines a philosopher to give attention to the mental bedrock that facilitates the use of logic, and the perceptual spheres which are its media of operation. Although Ockham was committed to Aristotle's maxim that 'man is a rational animal', he believed that this truth is often submerged by other psychological and dispositional tendencies, and certainly his political philosophy (see below) indicates that this is true of humanity. But unfortunately, Ockham's own stress on the roles of the mind and universals provoked

him too readily to internalize the grounds of knowing. A contemporary of Ockham's, Durandus of Saint-Pourçain, stressed the person who observes—the agent, rather than the object known—as the ground for knowledge. Ockham was so impressed with this approach, that with the aid of divine intervention he supposed that one might have an intuitive cognition of a non-existent thing. But in usual circumstances, 'intuitive cognition' for Ockham marks the knowledge of a present singular individual with properties. This situation is partially causal and conjoins with one's simultaneous abstractive cognition of the individual with properties. Abstractive cognition of this state of affairs lays the perceptual and prepositional mental grounds for repeating, and thus extending, the process and cognitions to like individuals. Memory is partly composed from such cognitions, and when there is a temporal lapse after intuitive cognition, there remains an imperfect intuitive cognition permitting the observer to infer the truth of the relevant past tense proposition representing a given experience (see [14.64] 186). These distinctions were the subject of extreme technical debate, bound into the science of the times. Adam Wodeham (see [14.93] ch. 10) was inclined to follow John Duns Scotus and dispute Aureoli's view that intuitive cognition is understanding by means of which the individual is either present *or* appears to be. Wodeham nevertheless learnt from Aureoli that it would be possible for a perception to satisfy the same truth conditions if an absent entity were simulated, and so, on Ockham's hypothesis, delude the observer by causing intuitive cognition. This is quite a different problem, Ockham thought, from having intuitive cognition by means of miracle. It is interesting to consider how the science and technology of a period affect philosophical theorizing: would televised individuals have been a convenient 'presence' for Wodeham with which to challenge Ockham?

OUR DIFFICULTY IN DEFINING OCKHAM

Controversy and misrepresentation attended Ockham's philosophy in his own time and later. Philosophers of today display some qualified parallels with Ockham's relation to his, not always intended, deconstruction of elements in medieval philosophical traditions. His philosophy contributed to the medieval 'new modernism'; this is a designation Stephen Nicholls employed to characterize French medieval cultural contexts (see [14.71]). One might extend the depiction of this 'new modernism' to Ockham, and to others, by describing it as a claim to return to the past whilst reinventing it as a new future for, and to dispute with, the present. Typical of this is Ockham's break with the medieval world in his treatment of logical and metaphysical relations.

As with post-Enlightenment French romantic modernists, however, Ockham wished to look back to past archetypes (such as Aristotle) whom he moulded in his own image for the future.

Central to the assessment of Ockham is the problem of measuring our own sounding-boards. In the late nineteenth, and twentieth century, what can be termed modernist logic[5] and its philosophy of language are often presupposed by philosophers, in differing ways and sometimes indirectly by contrast, as the correct or true frequencies for observing the quite different universe of Ockham. These modernist logic developments stem principally from the work of Gottlob Frege([l4.34]–[l4.36]), though there have been many developments since his last publication in 1923.[6] Conversely sometimes there is a romantic disposition to give the privileged status to Ockham's logic as if it should remain unchallenged by our analytical philosophy's research and logic. This priority has not entirely escaped the epoch-making study by Marilyn McCord Adams,[7] to which the reader is referred as the principal research resource on Ockham. For example, Adams judges 'Peter Geach [to be one] who writes from a Fregean bias' ([14.12] 393 and n. 34). Geach criticized Ockham's two-name theory of predication.[8] Adams does not attempt to prove her curt partisan dismissal of Geach and Frege. The problem here is not a matter of local in-house debate. It is a dispute about the identity of logic; to what extent should a logician's work be judged by timeless, absolute standards? To what extent must it be seen in the context of its times?

Some fresh general considerations expressed here require more research, not least since the generality and boldness of Ockham's theories lay claim to answers outside his, and sometimes our, logical ken. But as we now attempt to look back at him, a straight contrast between, say, twentieth-century philosophical logic and Ockham's medieval world obscures, fails to account for, explore, or sufficiently query, complex interconnections and differences between Ockham's own philosophical prehistory and our contemporary philosophy (cf. [14.80]). Assuming that there is such a thing as logical truth, however, or if we presuppose that humans have made some progress in understanding logic, it would be surprising to conclude that Ockham's position did not need revision or development after over 600 years.

For Ockham, the expression of language which is the soul-home of concepts and utterance is in the mind—the mental language (peculiarly like, but not quite identical to Latin)—as Paul Spade points out (see [14.89]). In Ockham the strongest version of meaning is an internal utterance within the mind. This mental model is accordingly psychologistic, and it is reductionist. Is the concept of a mental language that is not itself the intention with which one speaks credible? Could Ockham's philosophy benefit from modern work which argues that

all natural languages can be treated as manifestations of underlying neurophysiological genetic syntaxes or semantics? Even were there to be an affirmative answer to this question, do we yet possess the, or most of the, formal elements which would constitute understanding of the logical ingredients of such a map? Does the Latin of Ockham display relativity which is in tension against this purported universality? Is it proper to employ our modern formal logic 'languages' to symbolize (and thus to interpret) Ockham's philosophical language and logic? Our contemporary logics are highly formalized and explicit, with their symbolically refined artificial functions and operators. These logic languages are partially alien to Ockham's philosophical language. For example, as Spade remarked,[9] Ockham's *significatio* (signification) cannot be translated by Frege's *Sinn* (sense) without distortion. This is not because of untranslatability, however; it is owing to their competing theses: Frege's is semantic logic, whereas Ockham's is based on mental understanding. The medieval Latin he used, a hybrid of oral and written forms evolved into a sort of formal—often obscure—technical 'dialect', falls far short of the explicit and technical symbolism of our own logics. So an upshot of these questions is another one: when a medievalist paraphrases philosophical Latin employing our logics, can synonymy be preserved between the medieval ambiguity, and our contemporary often complex razor-sharp logic?

Geach has demonstrated how well Buridan initiated the resolution of problems in 'quantification into opaque contexts' which are still partly intractable in our current philosophical research (see [14.38] 161–3, then 129–38, 148). One of these topics is intentional identity, i.e. only seeming to refer to a referent by use of a quasi-name with intentional verbs, as in, 'I believe that I am referring to a square-circle drawn on the ground.' Could this sort of intentional approach unexpectedly be utilized to map Ockham's own thesis that there is a 'mental' language to which he only intentionally refers? Is the mental language a non-existent intentional identity falsely invoked by a quasi-name and quasi-language? Is it a conceptual fiction? Ockham's supposition theory is itself so subject to equivocation that confusion over intentional verbs cannot be clarified. Ockham posits (in his actual Latin analytical language) his alleged mental language as a vehicle by which to override and secure his logic and reference. If his (linguistic) analytical language in Latin is itself an intentional medium of expression, then he cannot actually succeed in referring to his ideal mental language since it would be an intentional fictive object. On this account, Ockham's mental language, and its two class domains, inhere solely as a myth: a complex abstract object of his imagination.

Perhaps we should look synchronically at differences within our own contemporary philosophical traditions and controversies to gain

a clearer sense of the diachronic problem for us of identifying Ockham's philosophy. Difficulties of paraphrasing Ockham into modern philosophy are *not* like problems in (in the required sense and to the relevant degree) unexpectedly new developments of our analytical philosophy. For example Russell's basic logic has been developed in directions of which, one would judge, he did not or would not approve. A case in point is David Lewis (see [14.59]); he is rather like an Ockham in reverse. Where Ockham wanted to reduce ontological plurality, Lewis goes forth and multiplies it. His theory is that we can 'invent' ontologies by making counterpart universes for other space-times. The universes he reproduces are modelled from our own indexicals of location (here/there), person (you/me), time (now/then), etc., that mirror our own world. I believe that Russell would have thought that this sort of subjunctive conditional philosophizing to be like confusing 'fairy tales' with real-life ontology.[10] But we can derive Lewis's logic from Russell's (and thus choose to ignore the latter's lifelong neglect of modal logic), even though some ingenuity is required. Yet we cannot derive Whitehead and Russell ([14.98]) from Ockham's logic. This sort of enterprise, generalized, indicates that Ockham cannot consistently, in this arena, be paraphrased into modern analytical philosophy without inventing a logic and philosophy.[11] In any case, what it is to be a criterion of logical possibility, as a basis for refining or transforming a concept, is obviously not the criterion to assess what Ockham thought. Beyond this issue is another one: if one classifies logic as a subset of scientific knowledge, then one is committed to admitting some type of invariance to allow for the increasing explanatory power of theory. But this presupposes a questionable form of individuation in the philosophy of history, and of originality. Can we properly offer an intellectual biography of Ockham that in some way does not consider non-scientific creative originality in Ockham's philosophy?[12] We may wish to direct such queries to the ethical and political domains of Ockham, but the interplay of logic as a discovery procedure for inference, and creative intuition, requires more attention in research, though it would take us too far to investigate this axis for tracing Ockham's consciousness in his compositions.[13]

Impinging on attempts to access Ockham for us in our worldviews is the issue of the status of extending a concept beyond its framed origin. Using a 'function' to formulate a predicate and quantifier logic (as Russell did, following Frege [14.34]) has revolutionized the identity of inferences involving generalization. We should not underestimate the scope of this revolution, though problems remain (see [14.84]). The logical power of the predicate calculus also enables sentence-forming operators ('and', 'or', 'if, etc.) and quantifiers ('some', 'all',

'the', 'few', 'scarcely') to be defined using logical predicates. This calculus has many other transforming roles, which contrast with Ockham's doctrine of terms.

These issues compound the simple problem of what it is for a modern logical concept to be 'contained in Ockham's general premisses'.[14] Can there be a relation of inference between Ockham's philosophy of logic and the achievements in logic research over 600 years later? When we consider our contemporary philosophical defence and criticism of Ockham, do they embody merely the sort of narrow-mindedness Russell might have displayed toward Lewis, and did show Ockham?[15] Consideration of such questions will contribute to our assessing Ockham's modernity, limitations and potential more clearly, while guarding against charges of anachronism or overestimation.

OCKHAM AND REFERENCE

Names are fundamental for Ockham. Adams mentions that Ockham adopts the traditional distinction (see [14.12] 71), inspired by Aristotle's *On Interpretation,* that there are three kinds of names: spoken, written and mental.[16] Ockham uses the word for 'name' that he employs to classify a subject *and* a predicate. Yet they are functionally different. For Ockham, the proposition 'The Titanic is wrecked' is composed of two names: one for the subject 'The Titanic'; and the same 'name' for the quite differently functioning predicate 'wrecked'. Logic should preserve differences of use in language; Ockham's naming strategy destroys it: the subject and the predicate in the above proposition are actually asymmetric in use. 'The Titanic' refers to an object. The predicate 'is wrecked' is a state of affairs which is true *of* its subject (if or when true). Once wrecked, the Titanic has the contingently necessary property of 'is wrecked'. This predicate is a self-inhering term, though before striking the iceberg it was not even a property of the Titanic. The notion of identity is bound into 'the Titanic' in a way in which it is not in 'is wrecked'. And that is not preserved by using 'name' for both parts of the proposition 'The Titanic is wrecked.'

If, before the Titanic sank, someone called out and named: 'The Titanic!', it could logically yield the question: 'Where?' and the answer: 'There!' But if someone called out: 'is wrecked', at most this peculiar response would attract the question: 'What is?' This latter question advertises the problem: with a predicate one does not know the identity of the thing of which the predicate is true (or false, as the case may be). Contrariwise, with the subject 'Titanic', the identity of the subject referred to *is* the self-contained sense which is the use of the term.[17]

This difference is fundamental in oral, written and the mental language accessible for us to test.

Therefore it is basic to a knowledge of Ockham's use of names to appreciate that his theory about 'name' is contradicted by the foregoing argument. His explanation does not work for linguistic use, and if a language were constructed according to his rules, we could not communicate when using a large portion of it (witness, 'I name this ship "is wrecked"').

Although he regarded Aristotle as his general inspiration, Ockham's application of names to propositions is quite contrary to Aristotle's concept of the asymmetry of subject and predicate in *On Interpretation,* as Geach observes ([14.38] 290–1).[18] In claiming to retrieve Aristotle's teaching, Ockham followed medieval contemporary tradition which reinterpreted some aspects of Aristotle's later doctrine of terms. Ockham uses 'name' to represent two allegedly identical mental universals which constitute a proposition: the subject and the predicate. These are often translated nowadays into the letter-names: 'N' and 'P'. For Ockham, there is here no naming difference between a subject and predicate. But in the above work by Aristotle, the subject and predicate are asymmetrical in functions, even though in the *Prior Analytics* Aristotle later dropped the scheme in favour of a doctrine of terms. (Although Plato's *Sophist* was not available to Ockham, it is worth noting that elements of Aristotle's asymmetry conception parallel distinctions in the *Sophist,* though for Plato the verb is classified in relation to its extension, whereas for Aristotle it is as a function in a statement. It is true that the distinction between name and predicate (or verb) in Aristotle is not as explicitly and exclusively defined as it is in our contemporary logic; but the central ingredients are there.) Now one would therefore think that Ockham was, in principle, in a position to choose to adopt the distinction of the functional asymmetry identities of logical subject and predicate, especially with his devotion to Aristotle. Yet he did not. Did it dawn on him that this asymmetry was in Aristotle, citing as he did from the same work in which this doctrine appears? It might be replied that since the doctrine of terms appears later in Aristotle, it is not surprising that Ockham, in any case, chose this instead of the concept of asymmetry between logical subject and predicate. Even so, for those who wish to 'modernize' Ockham's logic, or paraphrase it into our logics, Ockham's not choosing Aristotle's asymmetry distinction, fundamental to most modern logics, implies a judgement against Ockham's instinct for the deeper foundations of logic as they have been developed long after Aristotle's, and then subsequent to his, lifetime.

For Frege, for Russell, and most analytical philosophers, the predicate has no reference of its own because it is incomplete. It is like a function. On this interpretation, a predicate has to be linked to a logical name,

which refers. By the mediation of the logical subject the predicate is attached to the name that refers, and is thereby true (or false) of the name's referent; it has an ascriptive function to create its link with the refrent. There are issues to be addressed in these areas, such as the need to concentrate on the role of quantified general terms, rather than Russell's own views of 'definite descriptions', and the effect it has had on interpretation of the predicate calculus. But, after all this is assessed, the difference between the enormous capabilities of the predicate calculus, as against the two-name theory with its supposition doctrine, is like contrasting alchemy with nuclear physics with regard to the transformation of metals.

Ockham had absorbed the common doctrine of terms (in which a proposition is made up of names). The enormous grip that this doctrine, together with supposition theory, had on Ockham, and much of the medieval world, is hardly to be explained by this, less than ideal, at points implausible, interpretation of Aristotle and its amalgam of supposition. Why did Ockham adopt this position? One answer, apart from it being a trend at the time, is that a doctrine of terms, or names, enables one to play more freely with imaginative possibility. A reason for this is that the doctrine of terms helps one evade the features of the actual relations required by language to represent the external world, while pretending a logical guarantee of true meaning. In other words, it is a covert theory of equivocation which subverts the relations between semantics, ontology and mental understanding.

Ockham's two-name theory is undermined by two other considerations which reflect thinking by Dummett ([14.30] 223–4, 294). The target of the two concepts is the relation of a predicate to the mental realm, as they go proxy for parts of the external world. Dummett's research has explored some hitherto ill-defined areas of reference. First, if predicates were to have the sort of name-reference Ockham ascribes to them and their mental and ontological counterparts, then to what does this commit Ockham? We would have to admit quantification over the *referents* of these predicates.[19] Ockham opposed Aquinas's view that 'matter, already understood under corporeity and dimensions, can be understood as distinct in different parts'.[20] For Ockham, the referents would need to be the indivisible 'essence' or 'substance' which is prior to quantification. But second, even if quantification over predicate-referents were compatible with Ockham's philosophy, then this would commit him to an impossible position. That is to say, if we presuppose with Ockham that predicates refer—as his subjects do—they cannot refer to a complete entity. For if a predicate refers, its *referent* would have to be *incomplete* (i.e. 'is wrecked' is a semantic mirror of its ontology: there is no subject *in it* by which to refer to pick out this ontological subject). This is exactly

the opposite of what Ockham needs. He requires a nominal universal in the mental realm to be referred to, which would have to be complete. Ockham could hardly allow an incomplete entity referred to by supposition. Ockham's theory of naming is rather like one's pointing to a ship-wreck in thick fog, or down through deep water; the 'name' does not locate its own object, and it locates a wrong position because it has no knowledge of the effect of refraction on perception.

The conflation of subjects with predicates, we have seen above, is triggered by Ockham's use of a 'name' category for subject and for predicate. Ockham absorbed the common doctrine of terms. He and Walter Burley, with some differences, embraced the theory of supposition, which had been strangely restored from near-oblivion. Yet Aquinas, before Ockham, employed applicatives (quantifiers) such as 'some', 'every', 'only' to explain that a predicate does not itself refer but indicates a nature.[21]

Ockham attempted to avoid the problem, created through his failure to recognize the asymmetry of subject and predicate, by looking to his idea of mental language. Ockham viewed mental language as a phenomenon that mediated us directly to the world it represents. Shortcomings when trying to implement his two-name theory in oral and written language provoke him to download the elusive mental language.[22]

How did Ockham suppose that the theory of supposition, linked to naming, connects with the mind? He supplied the connection through a theory of signification. An important study by Spade exposes aspects of the relation. Spade cites Buridan and Augustine to indicate concepts of signification which were influential in Ockham's time ([14.87] 215). According to them, signification establishes the understanding of a thing, and that signs are causal lexemes which produce mental effects beyond the impression the thing makes on the senses. As Spade notes ([14.87] 218), the stress on mentality reflects, minus the sense-impression element, Aristotle's *On Interpretation* (I, 16a3f): 'Spoken words are the symbols of mental experience.' Stated very roughly, the later medieval trend is to treat supposition theory as a semantic hypothesis (proposing connections between a term's referring and its referent). In contrast, signification is an epistemological theory, concerned with understanding. The conjunction of these two approaches targets the conditions for knowing and learning in the medium of language. Ockham claimed to have direct knowledge of individuals. A term deployed in simple supposition in this perspective goes proxy for the concept to which it is subject. As Spade explains [[14.87] 222), by contrast, Burley's view is that terms stand in simple supposition for what they signify. This involves a social view of language as a tool to communicate with others. Ockham proposed, in other contexts,[23] that there is a triangular relation in some

acts of assent between mental language, spoken language and the referent. In these contexts he argued that the consequence of such a relation is that a person may know something which is the product of it (for example, that one entity is not another), yet (to express it in a way Ockham does not) the person may not possess the recognitional capacity for having a concept of that concept (see [14.61]). Ockham's main emphasis is on the grounds of a person's own knowledge, not social interaction, and on the causal efficacy of signification for mental states, together with the denial of natures.

From various twentieth-century philosophical standpoints, Ockham's causal theory of understanding is not well grounded in its own or our terms. Two contemporary views on the philosophy of mind are first, that of the theory-theorists (see [14.58]) (i.e. those who maintain that to speak of the mind at all we have (at least implicitly) to have a theory of it); second, that of the simulationists ([14.48]) (i.e. those disposed to argue that we have no adequate theory of the mental, and in any case we simulate the mental states of others in our mental activity without presupposing a theory). Both could be partially integrated by utilizing the function of 'implicit' in the theory-theory view. This could mark an innate mental capacity tantamount to a theory, along the lines of Fodor (see [14.33]), which is partially activated by a simulationist model. Each of these approaches is concerned with the role of collective social learning in the way Ockham was not, and as such they complement Burley's attitude.[24] As the simulationist Heal points out ([14.48]), justification or epistemic status is a holistic notion, and the notion of relevance is extraordinarily complex and undetermined. These points count against Ockham's signification. His signification is a semantics which naïvely causes mental language effects. Or, more precisely, mental states (thoughts, etc.) cause linguistic (spoken, written) signification. Ockham had no grasp of the instantiation of relevance theory, complexity theory, or simulation of others' states.

In relation to these issues, we now have fairly firm grounds for accepting the instability of linguistic signs, and their frequent indeterminacy relating to mental and oral uses, originally from research by Saussure into written Latin (and its interpretation by Starobinski, see [14.91]) and work by Jakobson (see [14.54]) as well as Anscombe's rather different work on intention and mental causality in the contexts of their expression (see [14.16], [14.17]). We also have the latter author's study on the difficulties of classifying the first pronoun (in agreement with Kant). To this one can add, for example, Chomsky's more recent theories on indeterminacy in mind and orality in relation to the abstract identities of concrete entities. As Chomsky remarks, 'the abstract character of London is crucial to its individuation' ([14.24] 21). These have generally been taken to have fractured and dismantled the almost

mechanistic symmetry that the Ockham scenario presupposes between spoken, written and mental terms. Even if there are criteria of identity appropriate to each, it does not follow that for each there is a fixed content to the criterion of identity (Moses' identity may be fixed in varying ways (see [14.99] §§20–110)). One cannot sustain the view that there is a mapping criterion for which there is an equivalence of the relevant sort between Ockham's supposition in respect of spoken, written and mental terms. Ockham had a naïve realist view about the way terms fix to referents.

Adams speaks of Ockham's view that the division between personal, material and simple supposition applies equally to spoken, written and mental terms.[25] This has been criticized by Spade (see [14.89] XIII). He judged that it follows from Ockham's way of relating concept, thought, personal supposition and signification, that, with mental terms which may have personal or material supposition, we do not always know what we are asserting. Spade's view has been countered by Adams supposing

> that the issue is not really whether or not one of our thoughts could be about something (in the sense of a term's standing for some particular) without our knowing it. Ockham allows that when I think 'Every man is an animal', the term 'man' supposits for lots of things without my knowing that it does, since I have no awareness of those particular men. Rather the question is whether on the above proposal anything would make it the case that the term was suppositing for these rather than those.
>
> (see [14.12] 351 n. 104)

It is wrong to argue here that, 'the term "man" supposits for lots of things without my knowing that it does, since I have no awareness of those particular men '. If a person knows the meaning of the term 'men', that person will know from experience and cognition that it is true or false that there are men. So at the very least, for those terms for which that person holds concepts which supposit in the singular and have (even conjecturally) more than one referent, it is not possible that 'the term "man" supposits for lots of things without [that person] knowing it does'. This advertises the problem that, in Ockham, equivocation and ignorance are functions of his failure, not only to possess a viable theory of reference in his signification, but also of his system's inability to explain the complex presence and scope of relevance. His system does not explain introspection of pertinent contents in one's own consciousness. The presence of equivocation in Ockham's supposition and signification is a mask for his failure to

explain mental choice and the invasive role of complex relevance conditions in holding, knowing as well as using concepts. A suppressed general premiss behind Ockham's positions here is his misconception that if one conjoins the functioning mind to the world, then it will 'read off' the true interpretation of both regarding terms. Consequently, his need for equivocating between supposition and signification is hardly surprising in view of his principle of parsimony.

In practice, however, Ockham's procedure is sometimes the negation of simplicity, since he approaches a simple situation by multiplying entities. He invents mental classes to which the signifiers supposedly refer, though people using language seem strangely unaware that these classes exist. For Ockham, 'Socrates is a man' is an instance of a categorical proposition. But Ockham has no general account of what it is to be a proposition. Following Ockham, Marilyn Adams paraphrases this sort of proposition as: 'N is P if and only if N has P-ness or P-ness inheres in N.'[26] This contravenes Ockham's razor, since it multiplies entities for 'N is P' (and the technique requires increasingly complex *ad hoc* devices). The paraphrase mediates on behalf of 'N is P', intervening allegedly to make explicit the mental-language contract with the simple statement. This is at the centre of the two-class theory. In Ockham's two-name theory 'man' is a mental sign, a nominal or conceptualist-nominalist supposition that inheres not only in Socrates but other male humans. So, in the term 'man' employed of Socrates, it also denotes all humans. Aquinas would have had none of this,[27] since he did not allow that a general term, such as 'nature', had direct reference, for it is true *of* individuals—ascribed, not referring to an identity. The appeal to 'P-ness' invents a class that is not derivable from P, without the addition of a new entity: abstractions of the mind. Since 'Socrates' is symmetric in logical form to 'man' (in 'N is Socrates'), we should be able to redistribute its 'Socrates'-ness over other men. Obviously Ockham wanted to construe 'Socrates' as a uniquely suppositing term, with 'is a man' differently represented as a class name term. Yet he classifies them as names, which Adams formalizes identically. So here their representation in logic is uniform. But their interpretation as to function is distinct; that is inconsistent. We should here insist on that to which Ockham commits himself. Symmetry of syntactic formalization (the predicate has a unitary symbol, 'P', as has the subject) is the identity of its entities. No doubt we will be told Ockham did not intend this by his depicting the predicate-name as a complete entity. Quite so; but that is the problem: intentionality. Intentions do not rule words.

Can the two-name theory of Ockham be salvaged? It appears not. But imagine Ockham reading the foregoing with the foresight of (and disagreements in) our contemporary analytical philosophy. Ockham might respond:

'I see the explanatory power of a logical singular term which presupposes a criterion of identity. It strikes a fundamental distinction with the logical predicate which I did not understand, and I admit that it is more accurate to represent the predicate as a function, asymmetric in role to the logical subject, along the lines of *Fn*. Despite these concessions, it seems that their scopes have been overstated. Your predicate calculus is correct, and my formalism crude, and I consider that supposition might be replaced with the following strategy, which I think achieves the same results. I restore something parallel with my two-name theory as follows, using your philosophical logic.

'I want to disturb your confidence by exposing some weaknesses in twentieth-century analytical philosophy and logic, to make space for my own use of your distinctions. First, Frege used the analogy of a logical name to craft part of his concept of a logical predicate. And I understand that this analogy collapsed in a messy way ([14.29]). I can reconstruct my two names by taking the analogy, though I am unclear whether or not I was incorrect in degree or type to use "name" of the predicate. Second, twentieth-century philosophers when pushed have some difficulty making *definitively* explicit what they mean by "referring". There is the "pointing" origin of the word for "reference" (German *Bedeutung*) in Frege.[28] Many twentieth-century philosophers sympathetic to Frege do not seem able precisely to inform me what "referring" semantically is, except to say that it is what a singular term does: it picks out a single referent, by acting to implement one of the subject's criteria of identity. Well, I wish to come back to this concession of ignorance. Why can this singular ability be achieved *only* by your logical *name?* I agree that my use of "name" was itself foggy, but I was aiming at a label for a particular, not the narrower sense later ascribed to me. I am willing to drop, for my predicates, what you term "referring", and Geach's analyses have convinced me that supposition theory is best eliminated completely, including from logically proper names. But I would like to conclude, with Recanati ([14.77] 401), that the differences between indexicals and proper names is largely pragmatic.

'Now here is my original move. You have developed a logic of indexicals: "here", "there", "me", "you", "past", "present" (David Lewis builds a whole universe from them). But I understand that you have a problem with the first person pronoun "I". Logicians often deem that the first person "'I" can be replaced by the person's proper name. But of course that will not do, it fails some truth-conditions, including the third person proper name contexts when you substitute it with a proper name. And if Kant and Anscombe ([14.16]) are right to affirm that "I" does not refer, we have an indexical particular. It is more like a unique (categorial) predicate. It picks out a person in particular context. Now why may I not generalize this over large sets

of indexicals? I can paraphrase my predicate-name scheme into an indexical programme. If I may borrow an expression from Heal, this procedure can be called 'indexical predication'.[29] I appreciate that this leads to complex semantic analysis, and a proposal to analyse propositions according to a deep structure which I cannot describe within my own terms. But for any abstract form such as "the property of whiteness" there is a paraphrase back to the surface form, e.g. "The donkey is white".[30] So a two-name theory can be replaced with something that is almost parallel, yet it satisfies the notion of asymmetry between the subject and predicate. Although we had no refined quantifier logic in the medieval world that treated quantifiers as predicates in the Frege manner, I see no reason why indexical predication cannot be extended to general terms and variables. As for the mental language, I shall have to exchange it for the Fregean metalanguage according to which object-languages are its manifestation. All this does not augur well for my principle of parsimony, but I may have to resort to the larger questions of cosmology to re-state it.'

OCKHAM'S RAZORS

When Ockham was a young man, his fellow Franciscan Roger Bacon (1220–92) had only recently died. Ockham's razor (as his principle of parsimony was later to be termed) is to some degree a reaction against Bacon's theory of the multiplication of species. Bacon broke with other perspectivists (though their influence was less pervasive than Aristotle's theory of knowledge)[31] to argue that, for example, light multiplies in time, though this thesis was not, in his view, a matter of observation ([14.93] 16–26). Bacon's notion of multiplication of entities has some concurrence in a modern logician such as Arthur Prior, with Prior's counter-maxim: *Entia non sunt subtrahenda praeter necessitate.* ([14.75] 31) (Entities should not be subtracted unless it is necessary). Later in Bacon's career (*On Signs,* 1267, and his final work, the *Compendium of Theology,* 1292), he began to restore and re-state aspects of the confused doctrines of *supposition,* while intending to remove some of its confusions, rejecting the notion of univocal supposition. It was left to the young Ockham to mull over the relation of his aversion to Bacon's multiplication sum, and his attraction to Bacon's late change of heart on supposition.

Ockham was averse to Platonism, and conceived Aristotle as a champion of this dislike. Everything in the world was singular, and there was no principle of individuation. Real universals do not exist. Ockham believed that the grammar of propositions might bewitch us into thinking that their complexity mirrored structures in the world,

but below this semantic surface the universe's ontology has a proclivity for singularity, and so does our mental structure. He was convinced that we must therefore reduce the number of entities appropriate to these circumstances. Semantic expressions can be universal, as can mental concepts. Ockham's synthesis of these hypotheses comprised an original, not to say problematic, equation of semantics and ontology, not least when Ockham conferred his unexpected gaze on a similar tradition or the fragmentarily parallel views of his peers. In practice 'the' parsimonious razor, which is the emblem of the perceived influence of Ockham, is often applied piecemeal, and episodically, by his successors, which in effect falsifies it as a universal principle. There was also contemporary opposition from writers such as Walter Chatton, who asserted a rule contravening Ockham's: 'If three things are not sufficient to verify an affirmative proposition about things, a fourth must be added, and so on.'[32]

'Ockham's razor' simplifies the quite various attempts by Ockham to formulate a principle of parsimony. This state of affairs could be evidence that Ockham did not succeed in specifying the vaunted singular razor. The popularizing aphorism, 'do not multiply entities beyond necessity', does not occur in Ockham. It arises from a number of sources, mediated, for example, by the editor John Ponce of Cork, in a 1639 note added to Duns Scotus.[33] This aphorism is usually taken to echo the spirit of Ockham's ontology, however. In the form just given, one might be excused for giving it short shrift, by remarking that the only entity which exists by necessity is God, so according to this maxim nothing else exists. Therefore is it not false? But the razor is resonant with Aristotle's maxim, according to which a single means, rather than plurality, is favoured by nature and transcendent power.[34] In this form Aristotle has no use for 'necessity', though his 'plurality' is akin to one of Ockham's versions: 'Plurality is not to be assumed without necessity.'[35] Quite what 'necessity' has supposedly to entail according to Ockham is not, by him, definitively or consistently specified, though he does seem aware of some of the variety of different modal necessities.

Perhaps intuitively sensitive to some counter-intuitive modal complexities, Ockham in some contexts excises 'necessity' and, for example, introduces us instead to: 'No plurality is to be assumed except it be proved by reason, experience or infallible authority.'[36] Ockham's razor use of 'proved by experience' conflates practical reason with logical theory (as a logical axiom). In the required sense, logically necessity is not derivable from experience. That, in this type of rule, 'experience' should be taken as a criterion for logical uses of 'plurality' (elsewhere in Ockham guaranteed by 'necessity') is a category-error. Possibly such blemishes kept Ockham on the move to

attempt other formulae to meet his taste for restricting plurality, or they reflect his confusion, despite his central logical motivation, i.e. his wish to follow a law of non-contradiction. Ockham does not prove his principle of parsimony. This inclination is compatible with an anti-realist position, and with the admission of truth-conditions for a minimal set of statements, which serve as the core for a theory of meaning (see [14.28]). But there is a problem with this approach and the various forms of Ockham's principle of parsimony. As Wright argues in the context of late twentieth-century anti-realist versus realist debates (see [14.103] 120–4 etc.), there is no way anyone could possibly arrive at a conception of what it is for a verification-transcendent state of affairs to be true as a result of training in the use of language. Ockham did not leave us with one principle. The plural occurrence of his parsimony itself reduces to a contradiction of the principle. And even if we allow this to pass by, it follows that we have no consistent criterion by which to identify the form or test the purported existence of the razor, and so on.

Marilyn Adams claims that the principles Ockham states as versions of the razor are, 'in the first instance, methodological principles, and it is not obvious how they are related to truth or probability' ([14.12] 157). It is not formally evident what a 'methodological principle' is here, and anyway many cases of Ockham's use of philosophical or logical terms in his formulations of the principle might be drawn upon to illustrate that Ockham is not in the first instance expressing what would normally be considered methodological principles. Let us consider the foregoing employment of 'assumed' *(ponenda)* in the form (also quoted by Adams): 'plurality is not to be assumed without necessity'. This version seems to presuppose the negation of Adams's view, since its terms are those employed in Ockham's discussion of logic to express logic, in the first instance, not those of method or the logic of method. There are problems in mapping razor terminology on to our modern logics. For example, 'assumed' *(ponenda)* is rooted in the term for 'possibility', in its use here. Generally in medieval uses it has something to do with modally positing (what we would term) a prepositional function, whilst it does not fully comply with this latter type of modern usage.[37] If one were to attempt an equation of it with terms in our predicate calculuses, it tends towards a premiss, whilst also partially contributing a function independently of that, of sharing a property of a presupposition, together with a weakened sense of the 'assertion' sign.[38] In other words, there is a breakdown in an attempt to fit it uniformly and broadly, or narrowly, into the concepts attending our standard logical terminology. Nevertheless, this version of Ockham's razor is no mere 'methodological principle', since it displaces space in logic otherwise occupied by different axioms and makes claims

on the domain of logic and its putative ontology. If we draw on the traditions of *ponenda* on which Ockham rests, and attempt a partial alignment with our logics, we meet a complex hybrid of assumption, premiss, assertion and presupposition, bound into the conditional negation of 'necessity', generalization ('plurality'), and axiom, applied with some confusion extensionally to ontology. It is thus apparent that Ockham is talking logic, not methodological principles. He is proposing a logic for ontology, not devising methodological principles, and is asserting reductionist logic rules of quantification, not methodological principles.

One of the difficulties in aligning Ockham's use of 'assumption' and other logical terms, including those in his razor versions, is that in typical cases he accepts generalized logical laws, whilst he deems that they have exceptions in theology (for example, in his view of the Trinity). His belief was that arguments of given general logical forms of syllogism are universally valid when applied to all matters in the world; but the same logical forms are invalid if applied to the Trinity, or need to be so interpreted through a nominalist or conceptualist supposition theory that they cannot 'properly' be so applied. As Geach makes clear,[39] Ockham was confused about the relation of inference to ontology, and muddled about logical relations between first and second intention terms in logic. I leave aside here, as far as is practicable, other issues of 'nominalism' and doctrine, so as to isolate difficulties in his philosophy of logic. These exceptions are also ones often anticipated and rejected by, for example, Aquinas. So it is not self-evident that Ockham theologically needed to contravene the scope of logical laws, while it is clear that he held such collisions of his interpretations between logic and theology as a matter of sincere conviction. Consequently a reader of Ockham has to face a problem in Ockham's examination of the Trinity. Where one might hope for a resolution of tension in the use of assumption and razor, there at the centre of the theological conception most important to him, Ockham admits that he has exceptions to logic.

Unfortunately this is not a deployment of methodological principle. Clearly it is a contradictory exception involving accepting true premisses that imply false conclusions which, therefore, disprove his inferences, the razor rule, or his theological interpretation. This follows from Ockham's own rule of non-contradiction. It was an embarrassment to Ockham that Chatton employed the law of non-contradiction to demonstrate the (alleged) truth of the anti-razor by considering the multiple components that constitute causal relations in an action (for example, wood burning) (see [14.66] 469f). Ockham attempts to head off a possible accusation of heresy by limiting the scope of his logic and introducing a nominal or conceptualist

interpretation of abstract nouns into incarnation theology. So at this juncture he opts for semantic speculation to warrant rigging his logic, which is itself a violation of his 'necessity' and adoption of a law of non-contradiction.

Ockham's attempted justification of his failure to apply the razor in some doctrinal contexts appears in his extended version of the razor: 'No plurality is to be assumed unless it can be proved…by some infallible authority', in which, in addition to his appeal to Scripture, he adds 'certain sayings of the saints and the determinations of the Church'.[40] As Adams acknowledges: 'Ockham always allows the claims of reason and experience to be defeated by contrary pronouncements of the Church, which should lead "every thought captive".'[41] But Ockham does not feel obliged to take the further step of embracing the fully general theory of which such ecclesiastical determinations are instances. Although he prizes generality as a desirable feature in theories, he is more committed to the maxim: a theory-maker should not multiply miracles, i.e. theses contrary to reason and experience, beyond necessity.[42] There are deep fractures in these viewpoints. First, there is no logical or philosophical necessity at all to accept pronouncements of an institution, especially if they are contrary to reason.

Second, there is a suppressed contrariety in his employment of the foregoing quotation, 'every captive thought'. Ockham himself distinguishes between the authority of Scripture, which is infallible, and of the authority of the Church, which can on occasions—according to him—be wrong. But the quotation about 'every captive thought' comes from the New Testament, not from the Church's pronouncements (which are clearly distinct from the New Testament in this context, on his own interpretation). It is wrong, then, on Ockham's own terms, to use this quotation form as infallible authority, to underwrite the authority of an external institution which, he agrees, can be wrong in its judgements. Ockham deployed that guarantee to prevent himself allowing his razor its full generality. It is tragic, in the perspective of the medieval contemporary opposition to Ockham, to observe this internal inconsistency in Ockham's philosophy: a sincere believer painfully doing his best, as he sees it, to pacify antagonistic inconsistent Church authorities by attempting artificially to manufacture agreement with them, when neither logic nor his razor demands it. Clearly we should position all this with problems any thinker has when living in a quasi-totalitarian regime in which the threat against life is not uncommon, as a device for achieving conformity in belief. In contrast, Ockham's campaign, in the last twenty years of his life, to convict the Pope of heresy manifests a certain resilience and independence of mind.

We stand outside the limitations of Ockham's own life situation (but, as he would have done, have difficulty in standing outside our own) and are aware of the influence of our own times on our picture of Ockham. Nevertheless, could we attempt some damage-limitation or reconstruction of the fragments of Ockham's philosophy criticized above? First, he could have dropped his nominalist analysis and reinterpretation of the Trinity. Second, one might argue, irrespective of his *presentation* of the razor's exceptions, that Ockham should accept (what we would now term) deviant logics as having equal status to the bivalent one, and allow him subjunctive conditional certainty in a plural world. This of course would not leave him happy, since it would entail that his options are only possibly true. Third, someone could designate the Trinitarian doctrine itself as incorrect, and so the false conclusions thereby implied by the true antecedents simply identify a route on which Ockham did not continue (or of which he was not aware). This issue might be expressed as follows: in the foregoing discussion we have seen that Ockham used the Bible to develop some of his positions (as he did more extensively in his political philosophy, as the section below shows). Almost none of the defining terms of the Trinity occur in the Bible (nor do synonyms of them). So Ockham could have redefined the incarnation so as to avoid the troublesome terms which he judged require a restriction in the scope of his logic. Unfortunately, incarnation terminology in the Bible is not nominalist-conceptualist, and the propositions there do not fit the two-name theory.

Fourth, one might utilize Alféri's research (see [14.14]), and propose that a post-structuralist estimation of Ockham's razor removes the need for the type of logical consistency which Ockham sought in formal theory. Fifth, one could transform hints in Ockham, and argue that his unconscious is ahead of his formal consciousness. One would thus propose that the solution to his formal logic problems is to dump his formal programme, and accept that, underneath his apparently 'logical inferences', at the crossroads where the collision occurs between inference using the razor and the incarnation, the answer to some of Ockham's problems could be to metaphorize, as a 'game', areas of his whole logic. Although of course Wittgenstein did not suggest this type of enterprise,[43] it might be envisaged as a possible upshot of his analyses of what it is 'to follow a rule' in his *Philosophical Investigations*.[44] Of course, this is revolutionary even by our contemporary standards. Sixth, an Ockhamist could attempt to circumvent the foregoing and other criticisms by adopting the sort of paraconsistent logic that Priest devises,[45] fragments of which occupied some medieval logicians. In a paraconsistent scenario, there are limits to cognition (in Ockham's case the Trinity), and there are semantic closures smaller than the set of all

propositions, yet which facilitate access to transcendence in part using set-theoretic reductionism. A paraconsistent approach has the drawback that it requires a given proposition to be (or that it could be) true and false. This would help support Ockham's treatment of the Trinity, whilst eliminating his law of non-contradiction. A reason for mentioning some of these ideas is to indicate that, taken together, Ockham's philosophy of logic and his philosophy amount to a partial hybrid of competing logics.

But brute forms of Ockham's razor have been accepted and popular since his time, increasingly with the emergence of experimental science, though with exceptions. J.S.Mill is rightly regarded as a mediator of Ockham's logic from the medieval world to modern philosophy ([14.69]). Nevertheless, in respect of parsimony, Mill was appalled by Ockham's razor. In 1865 Mill attacked Sir William Hamilton for his use of a version of the razor ([14.70] 418–19). Hamilton's own positions on logic were sometimes incompatible with Ockham's. He was moving towards a quantification theory which, if it had any relation to Ockham, was one of contrast,[46] in which there is a closer relation to Frege's quantificational logic than the sort of Ockhamist logic that Mill (apart from the razor) had espoused. Later, Russell's practice of eliminating, where possible, existential quantification, and Hans Reichenbach's concern with simplicity evinced in his idea of logical empiricism, as Sober ([14.86]) notices have similarities with some uses of Ockham's razor, though neither philosopher is generally compatible with Ockham. Dummett applies a restrained use of Ockham's razor in mathematical theory, while he notes that denying a thought by the process of negation is intrinsically complex ([14.29] 38, 317).

ANTI-REALISM'S TRUE RAZOR?

The foregoing challenged Adams's claim that the various versions of Ockham's razor are 'in the first instance, methodological principles, and it is not obvious how they are related to truth or probability'. Surely it is, in relevant respects, clear how Ockham relates at least some of them to truth. Adams's view does not account for at least one version of Ockham's razor, which she quotes: 'When a proposition comes out true for things, if two things suffice for its truth, it is superfluous to assume a third.'[47] The expression 'comes out true' *(verificatur)* and the word 'truth' are related to truth explicitly, by being the purported measure for true propositions in a thesis canvassing for a reductionist use of numerical principles as the basis for an austere ontology regulating generalization in logic. For Ockham, number relations are real. Such relational propositions have truth-conditions

and substitution instances. They accord with a rough correspondence theory (not as well developed as those of Paul of Venice, and adopted without Duns Scotus's full realism, while yet they are not mind-dependent). Of truth, Ockham states that, 'truth, i.e. the concept *truth,* in addition to the proposition it signifies, connotes that things are such in reality as they are conveyed to be by means of the proposition'.[48] Although Ockham's theses are distinct from the semantics of Tarski-Davidson (in which to give the truth-conditions is a way of giving the meaning of a sentence),[49] yet the various features of Ockham's 'correspondence' presuppositions partially parallel these modern authors, principally because of the way he is attracted to anti-realism.[50] Ockham's 'correspondence' position was pressed by his anti-realism, a view which had some similarity with Peter Aureoli's and Henry Harclay's disposition to dismantle direct realism.

Marenbon's view appears to offer the most explanatory promise: Ockham's rejection of essential essence realism, together with his acceptance of truth-conditions for the semantics of the external world, eventually imply that his adoption of a conceptual system for understanding the world in terms of species and genera is merely one possible system—whereas for his contemporary opponents it is a system which has to be used if one is to achieve a full understanding of reality. Any of these interpretations involve a use of truth which restores to it the role nor accorded it by Adams's opinion that the above forms of the razor are methodological and that it is not obvious how they are related to truth.[51] Indeed, the razor's purported theory-generating informativeness seems to be its merit. But on occasions the razor is contradicted by the presence of informative complexity in a new more productive theory (as with fundamental physics and superstrings[52]), which is more informative than a previous simpler theory. Although scientists appeal to Ockham's razor, their use of it often explicitly conflicts with Ockham's own express claim that it should only be employed outside the scope of observation statements,[53] which complies well with his desire to press demonstrative science into admission of uncertainty.

Ockham was aiming at a reduction of individuation in ontology, and he denied that some relational states between propositions have to be distinct.[54] Ockham's use of a complex procedure using negation to achieve reduction of entities, is itself also a negation of parsimony, since its strategy is to acknowledge complex propositions while positing them as such, then negating them to achieve their elimination.[55]

Ockham's desire to bring parsimony to ontology internalizes a tension between realism and epistemology. If one conceives that necessity in reason is a criterion of identity for restricting ontological plurality, then ontological contingencies may be unwarrantably

censored (and this can cut against empirical productivity, as much as it can against semantics). Ockham's way of meeting this tension is to internalize a version of anti-realism into his epistemological programme. But this 'anti-realism' is precariously positioned in relation to the traditions which he controverts, in particular if contrasted with twentieth-century opponents of realism. Ockham, after what appears to be an early position in which he agrees with Scotus, attacks Duns Scotus's strong realism,[56] though concurring with Duns Scotus that real relations are mind-independent.[57] His aim is commendable, in his parsimonious wish to place limits on excessively strong claims about empiricism, and at a time when scientific mythology and ignorance falsely generalized local experience.

We can concur with Goddu that this tendency is in keeping with our contemporary physics ([14.44] 208–31). Goddu furnishes us with the Quantum Mechanical Bell theorem's scope, as an example to flesh out Ockham in current physics. This theorem is to the effect that, in universalizing realist claims in science, we must relinquish claims on locality or determinism respecting universal claims for empiricism. Clearly Ockham is a far cry from Bell. Ockham was concerned to argue that positing additional entities is not in principle a strategy for resolving realist problems in favour of a strong realism, just as the proposal that there are hidden variables in quantum mechanics does not resolve the issue of action at a distance without a medium. It seems clear that his view was being opposed by William of Crathorn, who lectured at Oxford in 1331 ([14.93] 255–74, etc.). Crathorn held that viewing was through a medium. He devised an original theory of knowledge that disagreed with Ockham (and Holcot, [14.93] 93). In particular, Crathorn, concerned with the purported uncertainty involved in intuitive cognition, affirms that incomplete objects in a prepositional context are complex, disputing Ockham's reductionism and epistemological certainty. Although Crathorn's theories are often uneven and cavalier in their attention to views of opponents, they illustrate that Ockham was part of a general trend of exploration in Oxford. Crathorn's comprehension of prepositional complexity in the context of incomplete objects is an unexpected partial parallel with our modern concepts of the incompleteness of a logical predicate (to be attached to a subject term), which pulls against Ockham's two-name theory. But while disagreeing with Crathorn and others, Ockham was impelled by the razors to admit incompleteness as a conceptual condition, so as to meet the restrictions of ignorance and yet adequacy according to empirical reductionism.[58]

FUTURE CONTINGENTS

Looking from the present at the universe, Ockham was to some degree aware that we are observing its past. If psychoanalysis has any lesson to teach here ([14.22] 38–46), it is that analysis of the future is intentional, and the future is a sort of metonymy for present concerns, as well as a series of codes for covert absorption and transference of our pasts. No doubt such matters can be overstated. But with Ockham and his contemporaries, the most obvious constituent in their talk of future contingents, only slightly off stage, is their personal interest in that future. The study of God's knowledge of the future is an understanding of how he deals with his people. The conditionality of present life requires guidance by instruction in the principles according to which God knows the future in relation to people in the present.

In practice, however, the scholarly debates about such topics were often highly abstract technical affairs, and even used to feed earthly vendettas, networking through generations. Boethius refined the conception (cf. Chapter 1), which is followed by Peter the Lombard in his *Sentences,* that God is timeless and has present capacity to know from all eternity everything he knows in the present. Thomas Buckingham took up this thesis in his *On the Contingency of the Future, and Free Will*. His thesis was an attack on Thomas Bradwardine's *De causa Dei contra Pelagium (In God's defence, against Pelagius)*. Bradwardine's view was that humanity exercised freedom to choose, or not, to obey God's will without the interference of preordination. As de la Torre has demonstrated (14.94] ch. 5), Buckingham carefully refrains from explaining that Bradwardine accepted that the First Cause regiments people, yet they are able to act freely in secondary cause contexts. For Bradwardine, God, from all eternity, chose freely from the array of future contingents. Such contingency *(contingentia ad utrumlibet)* applies also to humans in the secondary cause contexts.

A generation earlier Ockham had attempted to apply his sense of simplicity to reduce confusion. For him, duration was the foundation feature of time. God has knowledge of the future. Ockham was troubled by Aristotle's *On Interpretation*. In accordance with the standard medieval view, Ockham took Aristotle to have argued that singular propositions about future affairs are not, prior to the time of which they speak, true or false. Since for Ockham this violates the doctrine that all propositions are true or false (to cut a long story short), there must never have been future contingents, or they are illogical.[59]

Ockham, then, interprets Aristotle as maintaining that God is, in a special sense, possibly ignorant of a future contingent. A reason for this is that—expressed that way—it is not an epistemological existent.

That is to say, the future does not exist, thus future contingents do not instantiate, self-inhere, or obtain now, for the future, since it is not there nor here to refer to. But God's absolute power, for Ockham, alters this bald state of affairs. Although in a narrow sense an individual, for Ockham and for Scotus, only intuition can deform this boundary for God ([14.64] 184–5), if and can only exercise intuitive cognition of an existing thing, the conjunction of God's absolute power and if the law of non-contradiction is not violated. We should appreciate in this context that for Ockham logic is possibility for ontology as well as for propositions; this is partly why he was agreeable to 'limiting' God's knowledge of future contingents: in a strict sense, they do not exist, do not supposit. Despite this, God's omnipotence infinitely empowers his intuition, and God is also able, as well as willing, to make and implement promises about the future,[60] which both inform his use of epistemological possibility and construct intuitive cognition.

OCKHAM'S ETHICS AND POLITICAL PHILOSOPHY

Ockham has waited over 600 years for the first publication in any modern language of his political philosophy.[61]

The castigation of Ockham by the 'humble' Christian Lutterel, with his complaint to the Pope at Avignon in 1323, embodied and generated an attitude to Ockham which outlawed him for some of his contemporary, and later, would-be readers. Lutterel was generally disliked and opposed at Oxford university. His appointment seems one of those conundrums that can attend an institution: the contrary of its identity is appointed to lead it. Possibly, since Ockham bore the brunt of Lutterel's vehemence, as part of a tactic for the latter to ingratiate himself with the Pope's power-base, this was a cause of the alienation Ockham increasingly experienced, though we ought to contend with his own sense of embodying the Oxford tradition which Lutterel dared to change.

No doubt, alienation was nevertheless a growing component in Ockham's identity, while yet it is only one thread in a complex fabric. Alienation is a property of 'romantic modernism', for example in French modernism, emerging in the early eighteenth century. Holland has identified schizoid behaviour in Baudelaire, induced by his alienation. In this case, narcissism encouraged by an elitist perspective was projected on to the society, which was challenged to conform to the writer's perspective.[62] Offler judged that Ockham was prisoner of his own elitism and had no interest in following the democratizing move to

popularize scholasticism in the vernacular ([14.72] 341–2) such as Conrad of Megenberg displayed. Indeed, Offler mentions that the latter was fighting against the vogue of Ockhamist 'modernism'.

Fundamental to a modernism is individualism, and this held true for Ockham's ethics and political action. As McGrade explains (see [14.62] 17ff.), there is a puzzling tension between Ockham's individualism in practice (Ockham emphasizes not just individuality, but this property for sets of individuals) in contrast with the explicit abstractness, or impersonal style (even when writing of personal matters) of much of his writing on the topic. One could interpret this as a splitting of psychological identity along modernist lines. We do not know enough about his time at Avignon, nor of Lutterel's, to understand what party politics made up the pressure on Ockham to provoke, or Lutterel act as foil for, his fracture with the Church. It was quite usual for a theologian of Ockham's ilk to write political philosophy and ethics, not least if he were following Aristotle as the ideal. Offler observed that it looks as if Ockham seriously attended to Aristotle's *Politics* and *Ethics* in 1339–40 ([14.72] 340), after he had written a considerable amount of the political philosophy. (See Ockham's reference in III *Dialogus,* I, to Aristotle's *Politics* V, 8.)

It was some time later, in the 1340s, subsequent to more general compositions on political philosophy, that Ockham responded to the Pope's assertion of supreme political authority and its relation to poverty, with his *A Short Discourse on the Tyrannical Goverrnment: Over Things Divine and Human, but Especially the Empire and Those Subject to the Empire Usurped by Some Who Are Called Highest Pontiffs* (see [14.11]). Hardly a basis for ecumenical *rapprochement*. In the convention of the time this title measures Ockham's antagonism, individualism and pragmatism. It is a surprise if one is familiar only with the intellectual range circumscribed by his theoretical philosophy and logic. Consider for example Ockham's intensive use of the Bible, for example in *The Work of Ninety Days* (in [14.7]). In his confrontation of the Pope's extravagant riches, he sounds like a member of a theological underground of, say, Peter Waldo of Lyon in the twelfth century. He reminds the Pope that Jesus and the Apostles had no riches, concluding with the allegation that in such matters the Pope follows Constantine, not Peter ([14.7] 105). This policy-aim to contextualize the Bible does not expand to its internal limits, however, though one should not minimize its radical strategy. For example, it does not occur to Ockham to use the function of implication or dialectic within the New Testament narrative presuppositions to discover their own internal limiting parameters. (He uses the citations, instead, as checks for excesses in papal misuse of its rightful original position.) Ockham might, for example, have questioned, within the foregoing debate, how it is

that the authority of Peter in Matthew 16 extends beyond the lifetime of Peter to others. Nevertheless his philosophical questioning about the relation of divine narratology to political institutions is bold and his new recognition of a repressed connection, in an atmosphere of intolerance, should not be underestimated.[63]

Ockham can be usefully placed by seeing him in relation to John of Paris,[64] a Dominican who had supported Aquinas against Ockham's order, the Franciscans. These two theologians, the former a disciple of the latter, spoke of law, discipline, and education as ruling functions of the state over the individual, though Aquinas stressed the natural law, in accordance with his view of Aristotle in his *Nicomachean Ethics*. Like Aristotle, John is interested in what it is to be human, rather than secular power-bases, whilst the state is the decision-maker and custodian of the common good. John's synthesis, which was influential in the law of states, lays a foundation for fourteenth-century individualism and the state authority which denies it. So Ockham came at a time when there was a growing awareness of individualism and yet a lack of a counterpart discrimination in its corollary: the state should not obtrude on rights and liberty. Ockham argues that these come from God, instantiated in nature.[65] Consequently papal authority should not usurp God's power and provision by countermanding individualism. It is in the identity of a human experiencing this nature that general laws are derived from nature, and from revelation, on personal liberty and its collective form. There is some similarity on facets of individualism and freedom between Ockham and more recent philosophies of freedom.[66] Holopainen has proposed that Ockham advanced a single theory of divine command ethics ([14.51] 133–49, etc.), which allows two moralities. Divine morality, transcendent with respect to cultural variables, supervenes on, and yet is manifest in, nature.[67] But the relation between Ockham's individualism and the logic of his various analyses is complex. The reader may with particular profit read Adams's work on the extent of Ockham's use or manifestation of individualisms (see [14.13]). She writes of the polyvalency of individualism, plausibly arguing that Ockham's variety of individualisms are logically independent of each other, and warning against the seductive lure to integrate this variety into a singularity which can then easily be fitted into a grand historical sweep. These are important points, and ones which can be used to probe the extent and veracity of his parsimony.

There are other considerations to complement such explorations. Logically, independence does not of course imply that separate individualisms cannot be consistent with each other, just as tokens are values of a single type. When we are attempting to assess a complex original figure such as Ockham, who also derives many of his patterns

of thought from his contemporaries, it is problematic to develop connections, as Adams is aware. Given his sometimes original use of contemporary influences, Ockham can be elusive and difficult; he is a nuanced mirror of his era, which dislocates his period's self-perception of continuity.

NOTES

Ockham is a central figure in fourteenth-century philosophy and his thought is discussed in a number of chapters. Readers may find the presentation of some of his main ideas in Chapters 15 and 17 below a useful introduction to the wider-ranging and more speculative discussion in the present chapter. [EDITOR]

1 At least, those of whom manuscripts are extant. See Courtenay [14.26].
2 See Ockham [14.5] *Ordinatio,* I, d. 2, q. 7.
3 See Knysh [14.55] 25–6, who suggests that the *liber suus* of 1327 was a technical stumbling-block for the authorities.
4 Spade [1 4. 89] IV shows how Thomas Bradwardine's research on insolubilia assisted him to craft a theory of signification that has correspondence-theory properties.
5 I propose that 'modernist logic' be used to mark philosophical trends that run contemporarily with the familiar use of the term 'modernism' for a general cultural context. There is a need for research on cross-currents between these contexts and philosophy in nineteenth-century European modernisms.
6 See Frege, 'Compound logical thoughts', in [14.36]; cf. Dummett [14.30].
7 Adams [14.12]. Adams has only one brief reference to Frege (p. 388), and four to Russell (pp. 136–7, 150, 536, 797).
8 Adams [14.12] refers to the 1st edn (Ithaca, NY, 1962) of Geach's book. There have in fact been two edns of the book since 1962. The 2nd in 1964, 3rd in 1980. Adams was published in 1987. In his 3rd edn, Geach ([14.37] 13), explains that he rewrote parts of the book, noting, 'The sections most affected by these changes are sections 32, 34, and 35… The only major change in Chapter Three is in section 36.' These include the main sections to which Adams refers. Adams ([14.12] 388), having only one brief reference to Frege, offers no presentation or proof of what the 'Frege bias' is supposed to be.
9 See Spade [14.87] 216, and the section.below, 'Ockham on reference'.
10 Russell was unable to judge that work. Smiley [14.84] assesses Russell on descriptions.
11 Adams ([14.12] 897–9) briefly refers to David Lewis in a taxonomical remark on Ockham, noting his indexical theory of actuality. She observes that Ockham's 'uniform assumption that temporal indicators cannot be eliminated in favour of an eternal-present show that he was not an Indexicalist'.
12 The relation between metaphoric language in scientific theory and logical space in philosophy is a facet of 'logic as a work of art'. A starting point for this new area of research is the use in Wittgenstein [14.100] of a proposition as a projection in space, together with the role of space and geometry in Mallarmé [14.63]. For

studies on this latter aspect, see Bowie [14.21], Gibson [14.42], Reynolds [14.79], Scott [14.83].

13 Bowie [14.22] 37–42, 103–4, etc., relates logic to creativity.

14 Russell [14.98] regularly confuses premisses with assumptions.

15 Someone might wish to adapt Ockham's theory of a 'mental language' by using the sort of innate syntaxes devised by Chomsky. Chomsky [14.24] proposed a thesis that incorporates indeterminacy into his theories of mind, however. According to Chomsky, our ordinary uses, not some ideal language, are nested innately. This would be the opposite of what Ockham needs. Chomsky's generalization of indeterminacy is also alien to Ockham, and it destabilizes his nominal and causal relations. Russell's misinterpretation of Ockham has been noted by Offler [14.72] 338 and n. 1.

16 Ockham [14.5] *Summa logicae* I, c. 1.

17 Dummett ([14.29] 59–62, etc.) offers valuable analysis of proper names and other subject/predicate differences.

18 See Aristotle *On Interpretation* 1–3, 10, 11.

19 This argument follows Quine's work as presented by Dummett [(14.30] 223–4, 294).

20 Aquinas *Summa theologiae* I, q. 76, a. 6, ad 2. Cf. [14.12] 13–16, 679–997.

21 As Geach [14.37] 201–2.

22 On links between these ideas of Ockham's and Wodeham and Rodington, see Tachau [14.93] 203–5. Walter Chatton attacked this aspect of Ockham's thought.

23 As White [14.97] 173, referring to Ockham [14.5] *Quodlibet* III q. 8.

24 Kripke's [14.56] approach amplifies in a different mould social and causal roles, for which, if adjusted, one could develop aspects of Burley's approach.

25 As Adams ([14.12] 329) states it. On the different types of supposition see below, Chapter 17, pp. 412–14.

26 Adams [14.12] 387–8 mentions that Frege's use of 'is' could be brought into the semantic analysis; but Frege's approach to predication and the role of 'is' in such uses is the contrary of Ockham's.

27 Aquinas, *Summa,* Ia, q. 13, art. 12.

28 Frege uses this one German term with the three senses of 'referring', 'referent' and the relation of 'reference'. Dummett [14.29] maintains that Frege does not confuse these separate uses. So do we here have one term, also containing two polysemes, or a metaphor?

29 Suggested by Jane Heal. I should stress that this whole 'Ockham' reconstruction has nothing to do with Heal's theory and is not suggested by her, though I am indebted to her reaction to my above idea.

30 A suggestion about paraphrasing (e.g. 'she's a right one') indexicality, not in a referential role, not in an Ockham context, and without my generalizing thesis over whole general predicates, comes from Heal's working paper delivered at the Cambridge Moral Sciences Club, 21 January 1997. I acknowledge her permission to mention it.

31 Marenbon [14.65], [14.64] 57 for Bacon's Paris study and teaching of Aristotle.

32 See Walter Chatton [14.4] I, d. 30, q. 1, a. 4.

33 Duns Scotus, *Opera omnia,* ed. L.Wadding, J.Ponce *et al.,* Duran, Lyons, 1639, vol. VII, p. 723.

34 Aristotle *On the Heavens* II, xii, 292a–b25.

35 Ockham [14.5], *Ordinatio* I, d. 30, q. 2.
36 Ockham [14.5], *Treatise on Quantity* II i, q. 1.
37 Aspects of this use of *ponenda* are not unlike a notion that Dummett ([14.29] 309) pointed out in Gentzen's use of 'suppose'. Gentzen formalized inference to allow for a use similar to natural language reasoning, 'Suppose that…'. If contradictory inferences follow from that use, one can withdraw the premisses which led to it. This complies well with Ockham's desire for non-contradiction.
38 See Haack's [14.46] treatment of Frege's 'presupposition'. For scrutiny of 'assertion-sign' see Dummett [14.29] 328–9.
39 Geach [14.38] 288–301. Adams [14.12] 989–90 quotes him ([14.38] 296–7), concerning Ockham's use of *humanitas* and regarding Nestorianism. Although demurring from Geach's view, Adams never attempts to fault Geach's use of logic.
40 Ockham [14.5], *Treatise on Quantity* I, q. 1.
41 Adams [14.12] 1008–10. She is citing Ockham [14.5], *Ordinatio* I, d. 2. q. 1.
42 Adams [14.12] 1008–10 numbers this maxim 7.
43 White [14.97] serves as a framework for this suggestion.
44 This point could be applied with profit to any of Ockham's logic. There is a profound treatment of the research in Boghassian [14.19].
45 Priest [14.74]; cf. Smiley's [14.85] criticisms.
46 Geach ([14.37] 27) points out that the expression 'quantify' and 'quantification' appear to derive from Hamilton.
47 Adams [14.12] 156: 'Quando propositio verificatur pro rebus, si duae res sufficiunt ad eius veritatem, superfluum est ponere tertiam.' Adams refers to its use in Ockham [14.5], *Quodlibet* IV, q. 24.
48 Ockham [14.5], *Quodlibet* VI, q. 29.
49 D.Davidson, 'Truth and meaning', in *Inquiries into Truth and Interpretation,* Oxford, 1984, pp. 24ff.
50 Boler ([14.20] 470; see Spade [14.87]) suggests that Ockham might be committed to adopting a sophisticated coherence theory of truth. Coherence theory (inadvertently) allows internal contradictions: they only have internally to cohere.
51 A response to defend this use of 'methodological principle' might be envisaged: does not Dummett [14.31] 164 employ the expression to describe an approach advocated by Wittgenstein [14.99], and is not criticism of Adams's 'methodological principles' unwarranted? No, because Dummett is contrasting Frege's (and others') truth-conditional theory of meaning with Wittgenstein's methodological principle concerning *use,* whereas Ockham's 'razors' use logical terms to govern logic and its ontology, in which Ockham proposed truth-conditional logic.
52 See Gross [14.45], and resumption of this theme below in the section *Anti-realism's true razor?*
53 Ockham [14.5], *Reportatio* II, q. 150.
54 Ockham [14.5], *Ordinatio* I, d. 30, q. 1.
55 Cf. Horst [14.52] 365–70 (from a perspective outside Ockham studies).
56 See Ockham [14.5], *Ordinatio* I, d. 30, q. 1, and *Quodlibet* VI, qq. 8–19, etc.
57 See Ockham [14.5], *Ordinatio* I, d. 30, q. 1.
58 An interesting extension of the principle of parsimony is provided by the astrophysical cosmology of the early universe, where some scientists seek a single equation functioning as *the* universal for the whole universe: see Rees [14.78], but cf. Hunt [14.53]. On the problems posed by such science (can its formulations

be taken literally?), see Dallaporta [14.27] and Bell [14.18]. Perhaps Ockham, like these cosmologists, arrives at counter-intuitive consequences in his search for simplicity. On this whole question see Popper [14.73], Lewy [14.61] and Gibson [14.40].

59 See Aristotle *On Interpretation,* IX, 1–16, 18–25. Few modern interpreters would accept this view. Cf. Anscombe [14.15] 53. See also Milbank [14.67] on Ockham's confusion in this case.

60 Ockham [14.5], *On Predestination* q. 1.

61 McGrade [14.11] ix. As he points out (n. 1) E.Lewis [14.60] translated 23 chapters, and F.Oakley 4 chapters, in Lerner [14.57].

62 This term is used in the sense of Holland [14.50]. In Gibson [14.42] Pt I, there is a comparative conception of 'modernism' complementary to the present study.

63 On the problems about connecting theoretical with political philosophy, and on criteria for difference and identity, see Milbank [14.68] chs. 7 and 8; Ward [14.96] 24–8, and also, more broadly, Dummett [14.29] 73–80.

64 John of Paris, *On Royal and Papal Power*.

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66 Rawls [14.76], and with regard to Aristotle *Ethics* V; Dworkin [14.32] on inalienability of individual rights.

67 See Coleman ([14.25] 27) and generally for a concise valuable study on Ockham's nature and rights.

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Editor's Bibliographical Note

Since the 'Studies' section of Arthur Gibson's bibliography is mainly occupied by details of the wide range of comparative material cited in his chapter, it may be useful to give a quick guide to the basic secondary bibliography on Ockham and his followers. Where the works are listed by Gibson below, just the author's name and reference number are given.

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Particular areas

Logic E.Moody, *The Logic of William of Ockham,* London, Sheed & Ward, 1935, was groundbreaking but is now rather dated. Adams [14.12] covers this area thoroughly in volume I of her study; see also Chapter 17 below and bibliography there.
Epistemology Tachau [14.93] places Ockham's views in context and assesses their influence.
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CHAPTER 15

Walter Burley, Peter Aureoli and Gregory of Rimini

Stephen Brown

THE END OF THE GREAT ERA

Immediately after the glorious age of Bonaventure and Thomas Aquinas, the University of Paris, as we have seen, had a number of outstanding teachers. Henry of Ghent, following in the path of Bonaventure, was the reigning figure until about 1285 ([15.14] 121–78; 221–3).[1] Godfrey of Fontaines, the pupil of Aquinas and his defender against the 1277 condemnation of propositions associated with the great Dominican thinker, developed his own voice and gradually replaced Henry as the principal master at the university ([15.32] xv–xxi, 382–5; [15.14] 3–41 *and passim;* [15.21] 193–207). Giles of Rome, a student of Aquinas from 1269 to 1272, whose teaching was delayed by a censure against him in 1277, was restored to good standing by Pope Honorius IV in 1285 ([15.14] 223–5). He established an early form of Augustinian teaching that held sway with the Augustinian Hermits until a more English-influenced approach was established in 1342–4 by Gregory of Rimini ([15.29] 182–207). As the fourteenth century began, the most outstanding figure was a visitor from Oxford, John Duns Scotus. His lectures at Paris survive in the form of student reports, bearing the appropriate name, *Reportata Parisiensia*. With the death of the Subtle Doctor in 1308, an era of famous Parisian teachers came to an end.

The influence of these great thinkers, however, remained at Paris in the period (1308–50) that now concerns us. Henry, as we shall see, is the opponent of Peter Aureoli on the unity of the concept of being and on God's knowledge of future contingents. Although many Parisian authors continued to criticize his theory of illumination, Henry still

found a staunch ally in Hugolinus of Orvieto (see [15.16] 151–4). Godfrey was a strong influence on the Carmelite John Baconthorpe, who taught in Paris as well as England and on John of Pouilly, who quoted him favourably in his *Quodlibeta* ([15.32] 386). Giles influenced members of his order at Paris in different ways: Gerard of Siena and Thomas of Strasbourg stayed close to Giles in their teaching, whereas Michael of Massa in his later writings sacrified the metaphysical interests of Giles to the study of natural philosophy in order to refute William of Ockham's teachings on physics ([15.36] 196–214). Scotus had so many followers at Paris in the decade after his death that one might even speak of them (William of Alnwich, Antonius Andreas, Hugh of Newcastle, Francis of Marchia, Francis Meyronnes, and others) as forming the first Scotist school ([15.14] 9–24).

WALTER BURLEY

If, however, we want to move beyond the echoes of Henry, Godfrey, Giles and John Duns to the new philosophical voices of the era after Scotus's death, we might well begin with Walter Burley. Burley, as is known, did his early and his late work in England. However, he arrived in Paris before 1310 to study theology and he stayed there until 1327. In effect, then, the central years of the life and activity of Walter, who was born around the year 1275, were spent in Paris. The *Tractatus primus (First Treatise),* which is Walter's defence of certain theses of his *Commentary on the 'Sentences'* that were attacked by Thomas Wilton, was written in Paris. So was his *Treatise on Forms,* perhaps his first reaction to William of Ockham's physics. If the first version of his *De puritate artis logicae (On the Purity of the Art of Logic),* with its attack on Ockham's theory of supposition, did not have its origin in Paris, it at least existed there in a number of copies—one, an abbreviation—before 1350. His detailed attack on Ockham's physics began with his *Exposition of Aristotle's 'Physics',* whose books I–VI were completed at Paris ([15.31] 180–6). Around 1340 Walter's continued influence at Paris is confirmed by the Danish commentator on the *Prior Analytics,* Nicholas Drukken, who defended Ockham's position on supposition against Burley, whom he explicitly names and cites ([15.27] 51–3). Certainly he must be considered one of the great voices of Parisian realism. Burley served as an envoy of Edward III at the papal court in Avignon from 1327 to 1330. Although he finished his career in England, often under the patronage of Richard of Bury, the Bishop of Durham, he made frequent trips to the Continent ([15.30] 30–8). During his later years in England, he commented on the *Ethics,* wrote his *Super artem veterem (On the 'logica vetus'),* and produced

an *Exposition of Aristotle's 'Politics'*, books VII and VIII of which were heavily indebted, even in phraseology, to the Parisian commentary of Peter of Alvernia ([15.31] 186–8; [15.27] II: 13–22).

The early works of Walter Burley place him at Oxford in 1301 and 1302, though he seems to have lectured there even earlier. We have, for example, at least four different commentaries by him on Aristotle's *On Interpretation* that have survived. It is the *Questions on 'On Interpretation'* that dates from 1301. This work, however, in a *quaestio* format, is somewhat advanced. There is a more basic commentary, a précis of Aristotle's work, found along with parallel abbreviations of Porphyry's *Isagoge* and Aristotle's *Categories* in Cambridge, MS St. John's College 100, ff. 47ra–54vb. Such cursory *lectiones,* which simply list the general content of Aristotle's works for beginners, most likely antedated the more developed *quaestiones* arising from the Aristotle's text and aimed at an advanced group of scholars. Such summary works do not reveal much about Burley. Anyone could have done such summaries. Also among the works associated with the years 1301 and 1302 is a *Treatise on Supposition* ([15.1] 16, [15.3] 200–1).

What is characteristic of these early works, as we should well expect, is the total absence of any reference to William of Ockham or his philosophy. In other words, during his early days at Oxford we find no conflict between Burley's form of realism and the nominalistic realism of Ockham. The *Treatise on Supposition* is very instructive, since it was both a positive and negative source for Ockham's *Summa logicae*. Ockham, in his presentation of the supposition of relative terms, copied extensively from Burley's work, and in treating improper supposition, summarized his statements. Ockham, however, disagrees with Burley over simple and personal supposition. One must, however, tread softly in establishing the interplay of the two authors. The Venerable Inceptor's own words inform us that Burley is not his only opponent: 'From this argument the falsity of the common opinion which declares that simple supposition takes place when a term supposits for its significate is clear' ([14.5] II, 141). Burley himself, when he attacks Ockham's *Summa logicae* in the later *De puritate artis logicae,* implies his own agreement with the traditional way by informing us that William is out of accord with the ancients ([15.11] 7).

BURLEY'S REALISM AND OCKHAM'S NOMINALISM

Walter Burley did not see his form of realism as something new. Yet, despite its claim to roots in the ancients, it does have its own peculiarities. In his 1301 *Questions on 'On Interpretation'* he asks:

Does a spoken word signify a thing *(res)* or a concept *(passio animae)*? Realizing that Aristotle had answered this question by saying that a spoken word does not signify a thing but the *passio animae* or concept, Burley explains: a spoken word does not signify the thing *(res)* with its individuating differences; it signifies the *passio animae*. But what is this *passio animae* or concept, for him? Claiming to follow Ammonius, Burley contends that the *passio animae* is the thing itself in so far as it is proportionate to the intellect. A name is imposed on something only to the degree that it is known by the mind. Now nothing is known by the mind except in so far as it is capable of moving the intellect. So a name cannot be imposed on anything unless it is proportionate to the mind. There is, according to Burley, a parallel between the act of signifying and the act of knowing. In regard to the act of knowing, Burley explains, there are three things to be considered: the thing known, the intellect knowing, and the species by means of which a thing is known. The species is not what is first known; the *res* or thing is the first object known even though it is known by means of the species. Likewise, the act of signifying has three elements: the word which is signifying, the thing signified, and the species by means of which the thing is signified. And just as the species is not that which is first known, so it is not that which is first signified. The thing itself is that which is first signified, though by means of the species ([15.3] 211).

In a later commentary on *On Interpretation,* which bears the title *Middle Commentary* because it fits between the *Questions* and the late Commentary of 1337 both in size and time, he holds the same position as in the *Questions*. He adds, however, a second point: not only are there universal concepts and singular concepts, but because the concept is the thing itself, there are in propositions universal things as well as singular things ([15.2] 84–5). In the last redaction of his *On Interpretation* commentary, he underscores this point even more forcefully: 'Supposing, nonetheless, that universals are things outside the mind—which is the more true position—we have to state that the name of a first intention is the name of a thing as it falls under the first concept of the intellect.' In a direct attack on William of Ockham in the same work he establishes a third point, declaring, 'It can be noted that outside the mind there are some universal things and some singular things… Propositions are composed of things outside the mind which are universal and things that are singular. These are both outside the mind. And still such noteworthy considerations are not pleasing to the moderns who do not posit universals outside the mind and who do not admit that propositions are made up of things outside the mind' ([15.9] ff. 67va, 75vb).

When one sees these three theses of Burley's commentaries on *On Interpretation,* it is hard to resist the conclusion that William of Ockham

had him (and perhaps also Walter Chatton) in mind in the prologue to his *Commentary on 'On Interpretation',* when he attacks an opinion that claims:

> That the concept is the thing outside the mind as conceived or understood *(res extra concepta sive intellecta)* in the way that some grant that besides singular things there are universal things, and that singular things conceived are subjects in singular propositions and universal things conceived are subjects of universal propositions. Now this opinion, in regard to this: that it places some things outside the mind besides the singulars and existing in them, I think altogether absurd and destructive of the whole philosophy of Aristotle and all science and all truth and reason, and that it is the worst error in philosophy and rejected by Aristotle in Book VII of the *Metaphysics,* and that those holding such a view are incapable of science.
>
> ([14.5] Op. Phil. II: 362–3)

For Ockham himself there are no such *res universales* in singular things which correspond to our common names. As he declares near the end of the Book II of his *Commentary on 'On Interpretation',* 'Names of this type, "man", "animal", "lion", and universally all first intention names primarily and principally signify the things themselves outside the mind. The word *man* primarily signifies all men, and the word *animal* primarily signifies all animals. And the same holds for other words of this type' ([14.5] Op. Phil. II, 502). For Ockham, 'man' and 'animal' signify that men and animals are really alike, and they are really alike prior to any activity of the mind that recognizes that they are alike; yet they are similar because they are men or animals, not because of some common similarity that exists in each of them ([14.5] Op. Th. IV: 287–310). These competing theories concerning common nouns and the objects they signify took on the already existing labels 'realism' and 'nominalism', even though in the works of Burley and Ockham these positions might have some particular characteristics of their own.

The debate over the significates of common nouns led realists—and Burley claims his position is the traditional one—to hold that supposition is simple when a common noun stands for its significate ([15.11] 7). The nominalists—and Ockham claims that he is opposing the common position—hold that supposition is personal when a common noun stands for its significate. For the nominalists, supposition is simple when a term stands for the intention or concept in the mind, which properly is not the significate of the term, for such a first intention

term signifies true things and not concepts (see [14.5] Op. Phil. I: 196). In brief, Ockham, whose theory of supposition parallels his theory of universals, rejects any common reality existing among and in individuals and interprets earlier theories of simple supposition, like that of Burley, as holding a common reality corresponding to our common concepts. Ockham redefines simple supposition by declaring that the supposition of a term is simple when the term supposits for what is common: the concept. For Ockham and the nominalists, when the suppositing term in a proposition stands for its significate (a real thing) then you have personal supposition, since the only true things are individuals. It is, in Ockham's judgement, this error—the error of those realists, like Burley, who believed that there is something in things besides the singular thing itself, and that humanity, for example, is some thing distinct from singular men and found in them, and that this distinct thing is their essence—that led them astray both in their theories of signification and supposition ([14.5] Op. Phil. I: 204). Both camps held that common nouns signified things. The realists and nominalists differed because the first focused on common things, while the second denied the existence of common realities. Burley entitled his work *De puritate artis logicae,* to return to the pure logic of the ancients in contrast to the contaminated logic of Ockham's *Summa logicae*. In this work, Burley claims to follow Aristotle, Boethius, Priscian and Averroes when he argues that when someone employs the word 'man' in a meaningful or significative way, he is not directing his attention to Peter or John or any other particular person that is now present. He is rather focusing on that which is common to Peter, John or anyone else. In other words, 'man' does not signify particular men but rather the common reality by which each individual is a man ([15.11] 7–8).

Perhaps the example that Burley believes best illustrates the differences in signification and supposition theory between the realist and nominalist positions is the proposition 'Man is the most noble of all creatures.' What possibly could you mean when you make such a statement? Surely you do not want to say, when you make this declaration, that some particular man is the most noble of all creatures. In this statement, 'man' has simple supposition since it stands for its significate, i.e. for something common, the species 'man', which is the most noble of all creatures ([15.1] 24, [15.11] 7).

Burley also disagreed with Ockham in regard to the nature of the ten categories. In cases where they are dealing with singular substances, both men would treat such substances as things, and there would be no controversy. However, as we have seen, Ockham denies that there are universal substances. Since science is of the universal, then, for Ockham, science cannot, strictly speaking, be about things, since all things are particular. For Walter Burley, scientific propositions stand

for universal things outside the mind. This understanding was, in his judgement, the only way to guard real sciences. Since, in Ockham's theory, universals are only concepts, all sciences are about concepts. According to him, this does not obliterate the distinction between real and rational sciences. Such a division, he argues, depends not on whether the science is about things or concepts, but whether the concepts which are the components of all scientific propositions stand for things or for other concepts. In the former case we have a real science; in the latter we have a rational science ([14.5] Op. Th. II: 136–8; [15.18] 112–15).

When they deal with inhering qualities, such as whiteness, sweetness or heat, both William and Walter consider them to be things. In Ockham's analysis of reality, however, not all qualities are inhering qualities and thus not all qualities express things distinct from their substances. The same holds for all the remaining categories: they signify something real but not a distinct thing existing subjectively in singular substances like individual inhering qualities.

Ockham's favourite example should help us understand what he means. 'Similarity' signifies something real. It does not, however, signify a thing over and above the really inhering quality (e.g. whiteness) in two or more subjects. 'Similarity' does not itself signify a further really existing quality (i.e. similarity) in the white subjects. If this were the case, argues Ockham, the distinction of the categories would be obliterated, since the category of relation would be reduced to the category of quality ([14.5] Op. Phil. I: 167–8). If Socrates is white and Plato is white, then Socrates is, without the addition of any other thing, similar to Plato. The white Socrates does not gain a new reality in Plato's becoming white. He gains a new predicate, a new denomination, and it is a real predicate he gains, but it is not a new predicate signifying a new *res* or thing. By the very fact that both Socrates and Plato are white, they are similar. Given this condition that both are white, even God cannot take away their similarity. Furthermore, they are similar independently of our mind, so they are really similar. Yet neither Socrates nor Plato has similarity as a quality subjectively inhering in them. If Plato ceases to be white, he would lose an inhering quality of whiteness, but he would not lose an inhering quality of likeness to Socrates according to whiteness. He would lose such a predicate or denomination, but not a *res* (see [15.18] 120).

As it is in the case of 'similitude', which expresses one type of relation, so is it with the remaining categories. They do not signify things, but are *nomina* (concepts or words) which signify something real but not things distinct from substances and inhering qualities. Even some terms in the category of quality do not signify inhering qualities. Some terms indicating the figure of something, e.g. that something is curved or straight, do not signify a new *res* added to that thing. As Ockham

states in the *Summa logicae,* 'Such predicables "curved" and "straight" are able to be affirmed successively just because of local motion. When something is straight, if its parts afterwards, simply by local motion and without the arrival of any new thing, are closer together so that they are less distant than before, it is said to be curved' ([14.5] Op. Phil. I: 180).

A discrete quantity also is a concept or word which does not signify a distinct reality over and above the things which are numbered. When we speak about two men, one in Cambridge and one in Paris, we do not signify by the term 'two' a duality that exists subjectively in them. If 'two' signified a thing over and above the men, would it exist subjectively in each? In this case each man would be two, since this thing 'duality' would exist in each. If one part of the accident 'duality' existed in one man and another part in the other, then two parts of an accidental quality distinct in subject and place, even by hundreds of kilometres, would make one accidental quality or *res*—which seems unimaginable. 'Two' thus does not signify a distinct thing over and above the two things, which makes the two things two; it stands for the two things themselves and connotes that the two things do not make a *per se unum* ([15.18] 121).[2] Ockham in the *Summa logicae* goes through each of the categories attempting to show that they do not signify distinct things from substances and inhering qualities and arguing that terms in each of the distinct categories do not necessarily signify distinct things.

Burley, in his late *Commentary on Aristotle's 'Categories',* attacks the nominalistic view of the categories presented by Ockham. The categories cannot simply signify names or concepts; they must signify things. If we look at Ockham's favourite example, that of similarity, we see that there are many reasons that militate against similarity being reduced to a name or concept. A likeness, for instance, admits of degrees: things can be more or less like one another. When we look at two things we can see that they are more alike than two other things. Yet names or concepts do not admit of degrees. Furthermore, it is impossible to know one of the things that are relative without knowing the other. But you can know one noun or concept without knowing another noun. Moreover, according to Aristotle, relative things exist at the same time, so that if one of them is destroyed, then the other is affected. If a father is killed, then his son ceases to be actually a son anymore. But if you destroy a word, such as 'father', the word 'son' is not affected ([15.7] ff. e4vb–e5ra).

Neither is the nominalist account of discrete quantity acceptable to Burley. What a nominalist like Ockham assumes is that every accident that is numerically one has to have a subject that is numerically one. Yet this is not the way that Averroes explains discrete quantities in his

Commentary on Book III of Aristotle's 'Physics'. There he explains that it is characteristic of a discrete quantity that it is present in many subjects by reason of its parts. When we are talking about two things, then, this does not mean that 'duality' taken as a whole is in each subject. What it means is that the parts of a duality each exist in a subject, so that one of its parts is in one subject and another of its parts is in another subject. It is in this way that an accident that is numerically one can be in diverse subjects even separated by great distances. There is no reason why an accident that is *per se* one in the sense of being one discrete quantity has to have a subject that is *per se* one ([15.7] f. e2rb).

In a way parallel to Ockham's treatment in the *Summa logicae* and his *Commentary on Aristotle's 'Categories'*, Burley thus unfolds his realistic interpretation of all the categories in his *On the 'logica vetus'*. Nor is the story different if we compare Ockham and Burley's views concerning natural philosophy. Basically the same principles are at work. For Ockham, many of the terms of natural philosophy, i.e. 'change', 'motion', 'time', 'instant', etc., are interpreted as absolute terms that point to things that exactly correspond to them. According to Ockham, many such terms of physics are not absolute terms; they are connotative terms. What does this distinction mean? If you take a word like *albedo* ('whiteness'), it is an absolute term that signifies a colour. However, if you take a word like *albus*, it signifies more than one thing. To avoid complications, let us say *albus* signifies 'a man who is white' or 'whiteness in a man'. In short, it just doesn't signify one thing; it signifies one thing and co-signifies or connotes another. Ockham explains that a word like 'motion', because it is a noun, can lead us into thinking that there is an absolute thing that corresponds to it. In fact, he argues, 'motion' is not an absolute term, but is a short hand way of saying 'something is moving'. Another way of saying this is that 'motion' is a connotative term that signifies more than one thing. It is a term that we should really translate into connotative language ('something is moving') in order to avoid thinking it is an absolute term that has a distinct or separate reality corresponding to it. In his *Exposition of Aristotle's 'Physics'* he expresses well the problem he sees: 'Wherefore, this proposition "Something is moving" is more explicit and more clear than the proposition "A motion exists". The latter statement is ambiguous, because some understand by it that there is something distinct from a movable object and other permanent things that exists, the way some moderns do. Others, however, do not understand by the statement "A motion exists" anything more than "Something is moving", where you convert the noun form into a verbal form. It is for this reason alone that Aristotle says that "motion" is not something that you can point to; and he says the same about other terms of this kind' ([14.5] Op. Phil. V: 243).

Walter Burley certainly belonged to the first, realist group of interpreters. 'Motion', 'change', 'time', 'instant'—all such words point to exactly corresponding realities. In Book I of his *Exposition on the Books of Aristotle's 'Physics'* he announces boldly, 'Fourthly, I prove that an instant is something in reality, something that is completely indivisible' ([15.10] col. 38A).

Burley is not the only champion of realism at Paris in the first half of the fourteenth century, but his is a strong voice and one that found followers and opponents during this period. Ockham, likewise, is not the only champion of nominalism. In fact, he was not then an actual presence, except through some of his writings and followers, as well as through the voice of some of his opponents like Burley (see [15.23] 53–96). Burley's voice is a real one. It was in Paris that he began his attacks on Ockham's logic and physics.

PETER AUREOLI

If one could debate whether Burley was an English thinker or a Parisian one, there is no doubt about the Parisian association of Peter Aureoli. He was in Paris during the first decade of the century and perhaps was a student of Scotus. Even if he was not an actual student of Scotus, he later became central in the life of Parisian Scotism. After teaching at Bologna (1312) and Toulouse (1314), this French Franciscan returned to Paris where he lectured from 1316 to 1320. His most famous work, the *Scriptum in primum Sententiarum (Writing on the First Book of the 'Sentences')*, was produced before he taught at Paris. His Paris production is a complex issue that will not be settled until the First Book of his *Reportatio* (student reports) there is edited. Two important issues from the First Book show the independent character of his thought.

The Unity of the Concept of Being

The first issue concerns the unity of the concept of being. Aureoli treated the matter both in his earlier *Scriptum* and in his Paris *Reportatio*. The treatments are substantially the same, even though Aureoli has reworked his *Reportatio* presentation in such a way that the two works have no text in common. The account in both is the same, although the *Scriptum* rendition provides names. Aureoli has a number of authors as opponents. Henry of Ghent, for example, sets the framework for Aureoli's discussion. For Henry, our concept of 'being' is a confused concept. This has to be understood in a very precise sense: 'Confused'

has the sense of 'con-fused'. In other words, we do not have one concept of being unless we take one concept in the sense of a psychological unity. When we analyse what we at first think is one concept we find that we have two concepts. One of these concepts is the concept of 'privatively undetermined being'. In short, this concept of being is arrived at by examining creatures and then leaving aside or depriving them of their many differences. The other concept is the concept of 'negatively undetermined being'. This concept of being is proper to God alone, since God cannot be determined or limited at all; he is totally undetermined or unlimited. Since the concept of being predicable of creatures is a concept that is a common concept of created being without the differences included and the concept of being predicable of God is a concept of a being that admits no limits or differences, our mind mistakes them and views the two kinds of indetermination as one. When we analyse the nature of the indetermination and divide it into privatively and negatively undetermined being, we realize that we are dealing with two different concepts of being: one predicable of God, the other predicable of creatures.

Furthermore, for Henry, because of his theory of illumination, the first concept we have is the concept of negatively undetermined being, or of God. We only know other things because of the light of divine being. We are not aware of the divine being when we perceive created beings, but when we examine how we can know created beings, we realize that God provides the light that makes their being and truth shine forth—somewhat in the way that the light behind a stained glass window allows us to see the colours and shapes of the windows. We focus on the colours and shapes, so that is what we think we know first. Yet, when we analyse the situation of seeing the colours and shapes we realize that the light is in a sense the first thing we know, even though it is not the first thing we focus on.

John Duns Scotus rejected Henry's theory of illumination and had to find another explanation for our knowledge of being. For Scotus, our concept of being is not a confused concept in the way that Henry meant 'con-fused'. 'Being' is the most distinct concept we have. 'Being' leaves aside all determinations or differences. Of course, the realities have their differences: created beings are finite and the uncreated being is infinite. But we can, according to Scotus, leave these differences outside our concept of being. Modes of being, such as 'infinite' or 'finite', if left outside our concept of being, provide us with a distinct concept of being in contrast to the con-fused concept that Henry affirms. Whatever could confuse it is left outside. We thus end up, according to Scotus, with a concept of being that is univocal. It is predicable of God and creatures in the same sense, since whatever could compromise this single sense is left outside the concept.[3]

Aureoli's third set of opponents are the Dominican Hervaeus Natalis (Hervé Nedellec or Hervé Nöel) and the Carmelite Gerard of Bologna. Each of these Parisian thinkers treads a middle way between the equivocal concept of being that is affirmed by Henry of Ghent and the univocal concept of being defended by John Duns Scotus. In effect, they lean more toward Henry by declaring, like Aristotle, that 'being is said in many ways'. They follow the model of Aristotle in Book IV of the *Metaphysics:* 'Being' is like 'health'. We say that many different kinds of things are healthy. Not only is a man healthy, but also the diet that preserves his energy, the complexion that indicates that he is robust, the urine sample that a doctor takes to test the state of his condition, all are called 'healthy'. They have this name because they all are connected with the health of a man. So with 'being': whatever is related to a substance, the primary meaning of 'being', is also called 'being'. The colour of a substance, the size of a substance, the location of a substance also are 'being' in some sense, since they are all related to the substance in the same way that diets, complexions, and urine samples are related to the health of a human being or other animal. 'Being', then is said 'in many ways', but because of the relation of all the different types of being to the substances to which they are linked, they are united in some way. There are thus many concepts of being, but because of the connection among the realities they signify, they are in a certain way unified. They are, in short, analogous.

Peter Aureoli's own position will contest each of these three opposing theories concerning the unity of the concept of being, yet it will in a way include elements from each of them. In contrast to Henry, Gerard and Hervaeus, he will side with Scotus and stress the true simple unity of the concept of being. Yet the concept of being is not univocal in the sense that it leaves outside its ambit the differences. It is thus not a distinct concept, since it includes all the differences of being within it. Like Henry, at least in his vocabulary, Aureoli's view of the concept of being is that it is a confused concept. However, he does not understand it as a con-fused concept that needs to be corrected. It is confused in the sense that the simple concept of being includes all differences within it. The realities that can have 'being' predicated of them have, of course, their real differences; but still we can, Aureoli argues, have a most indistinct concept that can be predicated of all of them. The transcendental concept of 'being' is a certain total implicit *ratio* and the categorical concepts of substance and accidents are explicit partial *rationes*. There is not in a stone one *ratio* which makes it a being and a diverse *ratio* which makes it a stone. The *ratio* making it a stone and everything in a stone is formally being. In this way, Aureoli separates himself from the 'health' employed by Aristotle that is so strongly stressed by Gerard of Bologna and Hervaeus Natalis. 'Healthy' points

to the formal presence of health in a man or other animal; diets, complexions, etc. are not formally healthy. With 'being' the case is different. Each kind of being is formally being. The analogy of extrinsic attribution, exemplified by 'healthy', does not tell the whole story, according to Aureoli. All realities and all aspects of reality are formally being. There must be a concept predicable of all of them. It is an implicit concept containing all *rationes* of being. A proper concept of a particular thing is attained not by adding some *ratio* that is not being or some *ratio* that is being in another sense of the term 'being'; it is an explicit concept of 'a particular kind of being' in contrast to the implicit concept of being that is predicable of all that is not nothing (see [15.17] 117–50; [15.19] 118–120).

Aureoli's position on the unity of the concept of being was attacked by a number of the followers of John Duns Scotus. Walter Chatton defended Scotus against Aureoli's challenge both in his London *Reportatio* of 1321–3 and his Oxford *Lectura* of 1328–30 (see [15.4] 127–77). Peter Thomae attacked Aureoli's teaching in his *Questions on Being,* disputed at the Franciscan house of studies in Barcelona around 1325 (see [15.25] 216). Gerard Odon, at Paris, distinguished between Aureoli's logical concept of being and the metaphysical concept of being that was defended by Duns Scotus (Geraldus, MS Paris BN 6441, ff. 7va–9rb).

God's Knowledge of Future Contingent Events

The second issue that garnered immediate attention for Aureoli was his theory concerning God's knowledge of future contingent events. Although his treatment of this issue arises immediately from the discussion of it in John Duns Scotus, the problem, as he treats it, has its more precise origin in William de la Mare's representation of Thomas Aquinas's position on God's knowledge of future contingent events, an interpretation that Henry of Ghent judged to be true and to be the position of Aquinas. According to this view temporal things, not just causally but actually, have a reality in the eternal 'now' of God. Most likely, Henry introduced this understanding to establish the point that changes in this world do not entail any change in God's knowledge of them. To escape the implication that the eternal presence of things to God's knowledge entails their actual eternal existence, Aureoli refuses to speak of the presence of creatures in the eternal 'now'. It is improper to speak of future things as present to eternity, since what is not present in itself is not able to be present to something else. He forges a new word to describe how God knows temporal things. Temporal things are non-distant *(indistantes)* to God's eternity. Aureoli's new term

'non-distant' expresses a negative relation: it means 'present, but not in a temporal way'. Future contingent events, then, are not future to God; but neither are they present in a present-tense manner that points to a present temporal moment (see [15.13] 114–24).

Since God's knowledge of events that for us are future is not future, and thus does not precede the event, Aureoli contends that singular propositions about future contingent events are neither determinately true nor determinately false in themselves. For him, they are completely neutral or indeterminate. If, he argues, they were determinately true or false because God knew them before they happened, then all future events would take place immutably. This position was strongly attacked by John Baconthorpe, Francis Meyronnes, Francis of Marchia, Landulph Caracciolo and a number of other masters who taught at Paris before 1350 (see [15.13] 126–31, 78). Aureoli had to wait for Peter of Candia, who commented on *Book I of the Sentences* at Paris in 1378, before he found an ally for the possibility of his position. Aureoli's effect on this issue, however, was long-lasting: his position was revived by Peter of Rivo at Louvain in the 1460s in a battle with Henry of Zomeren. This debate led to the censure of Peter of Rivo in 1473 for 'opinions ill-sounding, scandalous and offensive to Christian ears'. Some of the censured statements also might be attributed to Peter Aureoli (see [15.26] 12–15).

If Aureoli is significant for the independent power of his thought, he is also important for the thorough knowledge of his contemporaries whom he blended into his own synthesis. Francis Meyronnes praises him highly for his portrait of the positions of others when he simply declares, 'If you want to see the opinions of others presented distinctly, look everywhere in Aureoli' ([15.24] 24). Almost a hundred years later, Capreolus uses Aureoli as a main source book. This is immediately evident in the question on the unity of the concept of being, where it is easy to see that Capreolus does not know Henry of Ghent, Duns Scotus, Gerard of Bologna or Hervaeus Natalis directly. All of them people his text, yet all their citations are taken verbatim from the text of the *Scriptum* of Peter Aureoli. In short, Capreolus' knowledge of these and many other authors is through the reports of Peter Aureoli (see [15.12] xxii).

GREGORY OF RIMINI

Our final focus will be on Gregory of Rimini, an Augustinian Hermit, who brought to Paris a more detailed knowledge of William of Ockham, along with a developed knowledge of Ockham's English critic, Walter Chatton, as well as Ockham's somewhat independent follower, Adam

Wodeham. It was also Gregory who introduced the thought of Richard Fitzralph, and to a lesser degree that of Thomas Bradwardine, Richard Kilvington, William of Heytesbury, Thomas Buckingham, and Robert of Halifax to Paris. In effect, these influences led Gregory in his own works to supplant the Augustinian Hermit tradition of Giles of Rome with his own more English-initiated philosophy and theology (see [15.22] 311–13).[4]

Gregory had been a student in Paris from 1323 to 1329, before teaching at the Augustinian houses of Bologna, Padua, and Perugia. He returned to Paris in 1341 or 1342 to prepare for his lectures on the *Sentences* of Peter Lombard. His *Lectures on Books I and II of the Sentences* (1342–3 or 1343–4) show that during this preparatory year he deepened his acquaintance with Ockham, Chatton and Wodeham. When we spoke above of Ockham's and Burley's views of science, we stressed that science is of the universal and necessary. Since there are universal and necessary realities for Burley, science has as its object the universal and necessary realities that exist in individual things and make them to be the kind of things they are. Since there are no universal realities for Ockham, the objects of science for him are then the propositions or conclusions that alone are universal and necessary. Ockham's position was not only attacked by Burley; it was also attacked by Walter Chatton. Ockham's student Adam Wodeham disagreed with both his teacher and Chatton and forged a new alternative, which was endorsed by Gregory. The alternative was based on the argument against Chatton that there are no necessary beings besides God. Creatures then cannot be the objects of science since they are neither necessary nor universal. Yet Adam Wodeham and Gregory disagreed with Ockham as well. The objects of science are not identified with propositions, but are somehow real. They are not the real contingent things, but rather a real state of affairs. The universal and necessary knowledge of science is located by them in the total overall significate of the conclusion of a syllogism. The total significate of the proposition 'Man is rational' is thus neither the proposition 'Man is rational', nor individual contingent men, but rather the state of affairs that might be expressed as 'man-being-rational'. It is thus the *dictum* or state of affairs that is expressed by the proposition that is the object of scientific knowledge (see [15.5] 66–70; [15.35] 40–3).[5]

If Gregory disagrees with Ockham on the object of knowledge, there are other places where he follows him quite closely. He argues that 'a universal is not some thing outside the mind but is rather a concept created *(fictus)* or formed by the soul that is common to many things' ([15.6] I: 396). This *fictum* theory concerning the nature of the concept seems to have originated with Henry of Harclay. It was frequently defended as one alternative explanation by Ockham. Ockham does

not make it his explanation of choice in his *Quodlibet,* where he has to pick one explanation over any other, but (as Gregory shows) Walter Chatton's critique of the *fictum* theory was not definitive.

In his natural philosophy, Gregory follows the more economical theories of Ockham, denying that motion, time, and sudden change are distinct entities in themselves. 'Sudden change' does not, for Gregory, signify some thing beyond the permanent things involved in the change. There is the subject that is changed, the form gained by the subject that was not there before, and the form lost by the subject that previously had it. There is no need to posit any extra entities.

The Augustinian background of Gregory is very developed. He chides Peter Aureoli for inexact citations of Augustine. He quotes long passages from the *On Free Will* to establish our intellectual knowledge of singulars. His claims of loyalty to Augustine appear most staunch, however, when he criticizes Ockham and Wodeham about man's powers. He accuses them of being modern Pelagians and underscores the weakness of fallen human nature. According to Gregory, we are wounded both in our ability to know what we should choose or avoid and also in our ability to carry out properly our tasks even if we were to have the correct knowledge (see [15.22] 194).

Philosophy at Paris in the first half of the fourteenth century is still in need of a great deal of exploration. As we indicated, one of the principal conflicts that developed gradually was the debate between the realists and the nominalists. But the labels of realism and nominalism swelled from an affirmation or denial of real entities corresponding to our universal concepts to include numerous other points. The investigation of the exploding aspects of these two orientations will complete the introductory treatment and manifestation of some of the riches to be found that we have presented.

NOTES

1 See also above, Chapter 13.
2 See also below, Chapter 17, pp. 418–20, for Ockham's idea of connotation.
3 For a detailed discussion of Henry of Ghent's and Duns Scotus' contrasting views on whether 'being' is an equivocal or univocal term, see above, Chapter 13, pp. 297–321.
4 Further discussion of Gregory of Rimini's relation to Oxford thought will be found in Chapter 16, pp. 391–3.
5 See also below, Chapter 17, pp. 410–11 for discussion of the *complexe significabile*.

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CHAPTER 16

Paris and Oxford between Aureoli and Rimini

Chris Schabel

Oxford ideas in logic and natural philosophy were readily received, analysed, and partially incorporated into corresponding writings of a logical or natural philosophical nature at the University of Paris throughout the 1320s, 1330s, and 1340s. Precise dating, however, is usually not possible. There was a strong Parisian reaction to Ockham's physics before 1327, particularly on the part of Walter Burley, and Ockham's *Summa logicae* was available to the influential Parisian arts master John Buridan.[1] Statutes of the Parisian arts faculty show that Ockham's logic was playing a significant role there by 1339 ([16.10], [16.26]). The logical writings of the Oxford Calculators from the late 1320s and 1330s were important in Parisian works of natural philosophy from the 1340s and afterwards ([16.19]). Buridan and Nicole Oresme used the more abstract Oxford geometrical and mathematical concepts, but made their application to physical theory a fundamental aim, and this contributed to their interesting treatments of such topics as the motion of projectiles and the Earth's rotation.

With philosophical theology the story is different. A common view of theology at the University of Paris in the quarter century between Peter Aureoli and Gregory of Rimini is that Paris ignored Oxford just when Oxford was experiencing its golden age. After Aureoli lectured on the *Sentences* in 1316–18, Parisian scholars busied themselves in stagnant isolation refuting his opinions for a few years until about 1326, when Parisian thought went into what has been labelled as a 'dormition', only to be reawakened in 1343–4 by Rimini, who brought much of the new Oxford thought into Paris. Thus in this period Paris not only lost its customary dominance to Oxford, it actually went into

sharp decline in absolute terms because it failed to maintain intellectual contacts with the main English *studium generale* (see [16.9] 153).

The aim of this chapter is to review and revise this scenario. Although Parisian theology *was* isolated from Oxford, for the most part, between 1318 and 1343, Oxford was equally ignorant of Paris. Moreover, where scholars have looked, Paris was alive, awake, and productive at least until 1330, and remained the intellectual focal point of *continental* education. The Parisian 'products', of course, differed from those of Oxford, as one would expect from such mutual isolation, but when *both* rigorous currents came together at Paris in the 1340s, they created a dynamic synthesis.

THE BEGINNINGS OF ISOLATION

In the thirteenth and early fourteenth centuries, Paris was the top school in philosophy and theology for the secular clergy, and the international and hierarchical educational systems of the mendicant orders helped ensure that the leading students in Barcelona, Bologna, Cologne and Oxford eventually made their way to Paris. When scholars left this international market of ideas, they carried those ideas with them. For reasons that are unclear, however, English scholars began to stay at home in the 1310s, and most of the English had left Paris by 1320. Some remained, but few new English students arrived at Paris in the 1320s and 1330s. This fact alone accounts for Oxford's rise in these decades: the best of Britain's students stayed at home.

In Paris it was business as usual, with two exceptions: first, it lost its English scholars; second, the end of the 1320s and the early 1330s were troubled times for the Church. Scholarly energies were sometimes turned to issues like the quarrel between John XXII and the mendicants, and John XXII's other doctrinal 'interests', such as the beatific vision, matters which produced some important writings in political philosophy, for example, although not always directly connected with Paris. Otherwise, things went on without the English. Between 1315 and 1340 we find at Paris many significant Spanish, Italian and of course French scholars, although a few Germans also left a mark, such as Thomas of Strasbourg. Only in the early 1320s were there any 'leftover' English, such as John Baconthorpe, Thomas Wilton and Walter Burley. Moreover, this composition of Spanish, Italian and French scholars continued even after Rimini's 'recovery', so that in the 1340s we find that our remaining *Sentences* commentaries come from Alphonsus Vargas of Toledo of Spain; Rimini, Hugolinus of Orvieto, Paul of Perugia, and John of Ripa from Italy; and John of Mirecourt and Pierre Ceffons from France. The English never really did return in

force to Paris, whereas the German presence increased there markedly, until the creation of the new German universities in the wake of the Great Schism.

To a degree English thought had always played a role in Paris, but it was primarily English scholars who had also studied theology in Paris, such as Scotus, William of Alnwick, Wilton, Baconthorpe and Burley, who were known to their fellow Parisians. This was consistently the case even in the thirteenth century, and continued until around 1340. One can take Henry of Harclay as an example: he was cited by name in, for example, distinction 39 of Peter Aureoli's *Scriptum* version of his commentary on book I of the *Sentences* ([16.4] 185–6). Through Aureoli, almost all Parisian theologians came to learn of Harclay's position. Furthermore, Aufredo Gonteri Brito OFM literally absorbed the whole of Harclay's Parisian *Sentences* commentary into his own, when lecturing at Paris in the 1320s. English influence at Paris in the 1320s did *not* depend on their physical presence there.

What about the influence of contemporary Oxford scholars in this period, in Paris? Before 1326 we have practically no evidence of the new English theology in Paris, and yet this was a highly productive period. There are several possible reasons for the lack of English influence at Paris after 1326, however: Pope John XXII's movements after 1326 against the suspect opinions and actions of Ockham, Peter Olivi, Meister Eckhart, Michael of Cesena and Thomas of Wales, which may have stifled philosophical flamboyance; the straining of cross-Channel relations at the approach of the Hundred Years War; and the extreme decrease in the numbers of English scholars at Paris after 1325 (see, e.g. [16.7] 45–6). The most plausible explanation for the Parisian attitude toward Oxford in both periods is that Parisian thinkers were too busy dealing with Aureoli.

Peter Aureoli's stature in medieval thought has not been fully appreciated, partly because until recently few have bothered to look at Parisian thought in the decade after him, when we would expect his impact to be felt most intensely. Aureoli comprehensively dismantled the systems of Aquinas and Scotus, and created a new, internally coherent system of thought that could not be ignored. It was so large, however, that it left little room for anyone else. Thus Landulph Caracciolo, for example, sometimes seems content to attack Aureoli as if there were no one else. Looked at from this perspective, it is no wonder Ockham and the English failed to make an impact.

SOURCES FOR STUDYING PARISIAN THEOLOGY, 1315–40

Between 1315 and 1340 many significant scholars studied at the University of Paris. When we look at Parisian thought in this era we are struck with the large number of extant *Sentences* commentaries from the period 1315–30. In this period, these commentaries are the main source for current issues not only in theology *per se,* but also science and philosophy more generally (see [16.17] 274–80). There are about twenty named authors with major extant theological works, several anonymous commentaries (mostly Franciscan) that can be assigned to this period, and we find many of Wilton's ideas via Baconthorpe and Pierre Roger's from Francis Meyronnes (see [16.23]). We have only two commentaries that we can assign with certainty to the 1330s, those of Strasbourg and Peter of Aquila, both conservative thinkers. Although we do have the fascinating letters between Nicholas of Autrecourt and Bernard of Arezzo, their *Sentences* commentaries do not survive. Autrecourt's was in fact burned. Thus we have about thirty theologians participating in a twenty-five-year discussion, but most of the discussion had apparently ended by the early 1330s.

There is some evidence for the lasting influence of the theologians in these decades. Although Early Modern motives in publishing were complex, it is still interesting that at least ten Parisians of this period, for the most part not well known to us, had major theological works printed in the late fifteenth through to the early seventeenth centuries, but this could be said for only five Oxford scholars from the same era.[2] Yet very few historians have tried to trace the course of any debate in the Paris of that time. Even the editors of Rimini had little success in finding the Parisian sources with whom he agreed, though this was partly because he did not cite them himself. In truth, later theologians, especially Franciscans, looked back upon these decades as a golden age in *Parisian* thought, at least Franciscan thought. The fifteenth-century English Scotist John Foxoles placed the ultimate origin of three schools of roughly Scotist thought in the 1320s and 1330s: Meyronnists, Bonetists and pure Scotists (see [16.5] 270–1). In some areas of philosophy there arose a 'Marchist' school as well, arising from Francis of Marchia, and further articulated by Michael of Massa and William of Rubione. By Rimini's time some of their ideas were common enough to be used without reference.

It is too early to tell the story of Paris between Aureoli and Rimini with any degree of accuracy. Indeed, we are unsure of important basic dates for many works, e.g. the versions of Aureoli's *Sentences* commentary; Peter Thomae's and Peter of Navarre's lectures; and Rubione's commentary (see [16.1] 199–207; [16.4] 78–82). Recently

changes have been made to the chronology of several figures in the 1330s: Peter of Aquila, Thomas of Strasbourg, Nicholas of Autrecourt and Bernard of Arezzo (see [16.13]). Book I of Marchia's *Sentences* commentary, from lectures given just after Aureoli's, survives in two main versions in at least fifteen manuscripts and five fragments, but remains unedited. In light of the inchoate nature of the research, a general view of the period is simply impossible. Therefore, let us examine the theory of Oxford superiority and Parisian isolation, stagnation, dormition and reception of Oxford thought by comparing more closely the discussion of Parisian and Oxford scholars in two of the four areas in philosophical theology that Courtenay deems 'worthy of special mention' in *Oxford* theology in the very same period: epistemology and future contingents ([16.11] 22–9).

FUTURE CONTINGENTS

No fewer than ten theologians active from 1315 to 1340 have had all or much of their Oxford treatments of future contingents published in modern critical editions.[3] For Paris, by contrast, this is true for two figures only: Aureoli and Navarre. Lest this philosophical issue be considered an area of particular strength for Oxford and weakness for Paris, it must be added that Gregory of Rimini, the Parisian theologian who is considered most responsible for the integration of the 'New English Theology' into the Parisian milieu in the early 1340s, devoted most of his energy to refuting Aureoli, building on *Parisian* tradition. Moreover, during the celebrated quarrel over future contingents at Louvain in the later fifteenth century, a controversy that grew to include issues of divine power and will, Aureoli, Meyronnes, Marchia and Nicholas Bonet played explicit roles, but none of the Oxford theologians did (see [16.21] 407–8). So we must be prepared from the outset to admit that the supposed superiority of Oxford thought in this era is perhaps more a reflection of modern scholarly interests than of medieval considerations.

Aside from the verbatim copying (reading *secundum alium*) of Durandus by Bernard the Lombard and Dionysus de Burgo Sancti Sepulchri, and of Harclay by Gonteri as mentioned, scholars active between 1318 and 1330 focused on Aureoli's opinions. The main elements of Aureoli's position have been outlined above. Temporal things are indistant or non-distant to God's eternity, and future-tensed propositions are neither true nor false determinately; nor does God's knowledge make them so, since it does not temporally precede the future. In addition, Aureoli's emphasis on absolute divine necessity left little room for any divine action, so Aureoli developed an awkward

division between the intrinsic divine will of 'complacency' which was immutable and absolutely necessary, and the extrinsic will of 'operation', by which God actually acts, as in creation.[4]

The reaction to Aureoli's theory in England was slight. Ockham showed no awareness. Chatton knew some of Aureoli, and quoted the basics of his ideas on propositions and prophecy, so he must have known Aureoli's distinction 38, article three. In refuting this fragment of Aureoli's treatment, Chatton even said, 'this would be a nice explanation, if it were true'. Adam Wodeham demonstrated about the same cognizance of Aureoli as had Chatton, and perhaps knew a bit more about the Parisian debate generally. Otherwise, there was little response. Some of Bradwardine's remarks in his *De causa Dei* which appeared to some scholars to refer to Aureoli personally, really did not, and Bradwardine was a bit confused if he meant that the *position* that he heard defended in Avignon and Oxford was Aureoli's own. Aureoli never played a big role in the Oxford debate, which instead went in other, interesting directions, examining in depth issues surrounding prophecy, the ontological status of divine foreknowledge (and the *complexe significabile*), and finally the different types of necessity with respect to both the past and future.[5]

These last 'Oxford' issues only came to prominence in Paris with Rimini. In the intervening years, almost every Parisian theologian whose pertinent works can be securely dated to between 1318 and 1330 focused much of his discussion on Aureoli. Every one of Aureoli's main points was attacked, since he appeared to have denied foreknowledge and prophecy altogether. In the 1320s, Baconthorpe, Caracciolo, and his follower the anonymous author of Vienna ÖNB 1439 criticized Aureoli's vulnerable concept of the twofold divine will; Caracciolo wondered whether creation came from God at all under Aureoli's scheme, if the act of creation were somehow 'extrinsic' to God. Meyronnes, Caracciolo, Gerard of Siena, Bonet, and in an odd way Gerard Odon rejected Aureoli's notion of indistance, maintaining that such a negative relation made little positive sense. Meyronnes, Marchia, and Michael of Massa opposed the neutrality of future contingent propositions, making use of both logical arguments and Scripture in their defence of bivalence.

Several scholars defended Scotus's account and appealed to the traditional distinctions between the composite and divided senses of such propositions as 'what God foreknows will necessarily come about', and between the necessities of the consequent and of the consequence (and parallel distinctions) in such consequences as 'God foreknows X; X will be'. All of these Aureoli had refuted at length, so this constitutes the major 'conservative' point shared by many of these thinkers. Nevertheless, interesting positive theories came out of the debate. For

Wilton, whose ideas in this context we know via Baconthorpe, what was needed was to show that there are different levels of determination in human activities anyway, and that we need not fear all such 'predetermination'. Thus God can know 'contingent' futures. Francis of Marchia developed a similar solution, although in much greater depth. In short, he distinguished between different types of determinations and indeterminations *de inesse* and *de possibili*. Humans in fact determine themselves beforehand with respect to what they are actually going to do; this is determination *de inesse,* about what is in reality, without which no one would or could actually do anything. This does not mean that they are determined *de possibili,* however, in a way that the *possibility* to do otherwise is removed. Determination *de inesse* was the basis of divine foreknowledge and was required for human action, while indetermination *de possibili* preserved human freedom and left God's foreknowledge intact. Aureoli would have found several problems with this theory, but it was expressed eloquently and systematically. Massa and Rubione accepted Marchia's solution as their own, and by Rimini's time it seems to have been a commonplace. Through Rimini it was passed to later theologians, and used in the late fifteenth century by the well-read Fernand of Cordoba against Peter of Rivo's defence of Aureoli's doctrine.

Rimini does not cite Marchia by name in his *Sentences* commentary in this context, nor do the editors trace Marchia's influence. Like most scholastics, Rimini was not in the habit of citing by name those with whom he agreed. When he devoted an entire question to refuting Aristotle and Aureoli's opinion on future contingent propositions, he did not cite his Parisian predecessors who did the same thing. His Augustinian confrère Massa, in particular, focused much energy on this very point, and may have been Rimini's immediate source for Marchia's *de inessel de possibili* distinction. Nevertheless, he was not cited by name either and historians have doomed him to oblivion even in his own order. Moreover, the Parisian Nicholas Bonet was probably Rimini's reason for treating propositions yet again after so many others had. During the Louvain controversy in the 1470s, Cardinal Bessarion and Francesco della Rovere (Pope Sixtus IV) would remember and applaud their fellow Franciscan Bonet's refutation of Aureoli's indistance notion in the former's *Natural Theology* of around 1330, but they looked less favourably on Bonet's apparent agreement with Aureoli that future contingent propositions could not be true or false without entailing fatalism. Indeed, Bonet seems to have limited the certainty of divine foreknowledge, in a way Aureoli himself would not have approved (see [16.20] 127–279, 714–69).

Rimini's main goal in his impressive and exhaustive treatment is to defeat Aureoli once and for all on the issue of propositions. In doing

so, Rimini defended foreknowledge *per se,* and only then did he go on to other sub-issues, some of which came from Oxford. Rimini shows his familiarity in this context with Wodeham, Chatton, Ockham and the Monachus Niger. This is well known, but it does not seem possible with future contingents to show when exactly these Oxford ideas were in circulation in Paris. Probably it was not before 1330, but certainly by 1343. Unfortunately the paucity and conservative nature of pertinent sources from the 1330s do not allow any more specificity.

EPISTEMOLOGY

Katherine Tachau has looked at the Oxford discussion of epistemology in these decades, and at Aureoli and some of his Parisian successors. With the help of other works, we are able to piece the Parisian picture together fairly comprehensively. In epistemology as in future contingents Aureoli played a pivotal role. Although he was emphasizing vision, Aureoli's successors interpreted his theories as a radical departure from previous epistemologies, primarily Scotus's. Scotus had differentiated between intuitive and abstractive cognition basically by saying that intuitive cognition was of objects immediately present, and abstractive cognition was the knowledge one had when the object was absent. Aureoli put forth a redefinition of intuition and abstraction, taking various erroneous visual 'experiences' (he gives eight examples) as his starting point to define intuition. In doing so, Aureoli maintained that intuition occurred when one *thought* the object was immediately present, and in that case the 'apparent being' *(esse apparens)* was in fact present to the mind, even with veridical intuition. For example, when one is on a moving ship, one experiences the motion of objects on the shore. Since one intuits the apparent being of such motion without its real presence, or even existence, outside the mind, and since even in Veridical' intuition one in fact intuits only apparent being, then one cannot infer the real presence or existence of the objects of 'normal' experiences, Aureoli argued. Moreover, if produced by God, an erroneous intuition would be indistinguishable from a veridical one. For some of Aureoli's successors, this jeopardized all certainty, although Aureoli apparently did not intend this (see [16.24] 85–112).

By his own admission, Ockham had limited access to Aureoli's *Scriptum,* but Ockham learned enough about Aureoli to treat the latter's position in a confused way in his *Ordinatio,* written while at the London convent in 1320–4. The most idiosyncratic aspects of Ockham's treatment are his claims that one can have a true intuition that something does *not* exist, and that God could give us a false intuition of something not present, but we would still discern its falsity. These awkward

opinions were easy targets for those who followed in the English discussion. In debates with his confrère Walter Chatton, Ockham modified some of his views ([16.24] 113–53). Chatton himself, composing his *Sentences* commentary in 1321–3, knew Aureoli's *Scriptum* better, but Chatton's readers were not able to distinguish clearly between Ockham and Aureoli in Chatton's work, and this led to further confusion ([16.24] 180, 185–6, 207–8). Adam Wodeham was Chatton's *rapporteur* at the Franciscan London *studium,* and when he in turn lectured on the *Sentences* at Norwich, London and Oxford, beginning perhaps in 1328 or even earlier, Wodeham came to explore Aureoli's views directly, so that he knew him better than anyone else in England.[6]

From the discussions of future contingents and epistemology we can perhaps infer that the Franciscans' London convent housed the only manuscript of Aureoli's *Scriptum* in England, since Ockham, Chatton and Wodeham, who show the most extensive knowledge of Aureoli, seem to have examined his work there. Unfortunately we know less about epistemology at Oxford after Wodeham, but the London convent and Adam Wodeham may be the key to the passage of English theology to Paris beginning in the 1330s.

As in the case of future contingents, Aureoli's thought played a significant role in Parisian epistemological discussions in the 1320s and 1330s. Of the theologians Tachau inspected from this period, she found that only Strasbourg appeared unfamiliar with Aureoli's epistemology, and even Strasbourg has been added to those who treated Aureoli in that context (see [16.13] 455). The same can be said of some of the theologians Tachau has not studied, such as Baconthorpe (see [16.14] 57). In many cases, these theologians had difficulty understanding Aureoli's position because they approached his text wearing Scotist glasses, reading into Aureoli Scotus's definition of intuition and abstraction. Still, the epistemological debate that followed Aureoli in Paris had a continuing impact even after the full reception of English thought. Caracciolo's treatment, for example, was well known to Pierre Ceffons, lecturing in 1345 (see [16.24] 321).

In epistemology, however, English thought is already present by 1332. Parallel passages in Chatton and William of Rubione reveal a close connection in the context of epistemology, and other evidence reinforces such an early cross-Channel link (see [16.15] 39–40; [16.13] 447–8). Rubione's commentary could have been written any time between 1323 and 1332, however, so Chatton's commentary may have even been available in Paris immediately following his own *Sentences* lectures. There is another difficulty: we cannot be certain about Rubione's testimony until we examine Marchia's works exhaustively. In other contexts, Marchia influenced both Chatton and Rubione, and although

an inspection of the two main versions of Marchia's *Sentences* commentary did not reveal the relevant discussion of abstractive and intuitive cognition, perhaps there was another source. It would be odd for such an original thinker as Marchia to have been perhaps unique in ignoring Aureoli on this issue.

Chatton's impact is certainly present, however, in the most famous epistemological debate of the time, perhaps of the entire Middle Ages, the exchanges of letters between Nicholas of Autrecourt and Bernard of Arezzo in 1336–7. Taking the lead from Aureoli and the Parisian discussion following his lectures, Autrecourt took the next step and denied the possibility of certainty based on sensory perception. No apparent perception of an extramental object could provide certainty of the existence of that object. Moreover, even assuming the existence of those objects, one could never be certain of cause and effect relations, the bases of natural philosophy. If it is possible for us to be mistaken about the external world and efficient causation because of God's action, Autrecourt maintained that it is possible without qualification to be so mistaken. There have been many treatments, even monograph-length accounts, of the radically sceptical aspects of Autrecourt's thought. Until recently this debate was seen as evidence of the influence of that ubiquitous 'Ockhamism', but Tachau shows convincingly that this historiographical interpretation is based on a long series of errors and false suppositions. In fact, there is no evidence for Ockham's influence on Autrecourt in the debate (see [16.24] 335–52; [16.13] 453–9; [16.25] 248–50).

Still, there are strong indications that Autrecourt knew Chatton's work, if not Ockham's. In 1340 the arts faculty restricted a proposition that Autrecourt, while being reviewed in 1346, admitted he had held, presumably in the 1330s: 'God and a creature are nothing.' Although in 1346 Autrecourt used the term *complexe significabile* to describe what he had held, and Tachau therefore links the proposition to Wodeham, it could just as easily be the case that Autrecourt came to hold the proposition via Chatton's influence, and only later learned Wodeham's terminology. Indeed, Tachau says that Autrecourt conflated the views of the two English Franciscans ([16.24] 353–6).

The first strong evidence for Wodeham's presence, and for Ockham's, comes again with Rimini. As in the case of future contingents, Rimini combined a concern with Aureoli and Parisian currents with a close knowledge of the English debate, although he was less negative toward Aureoli in this context. Rimini opposed Ockham's position, as had most Oxford scholars, but Wodeham played a positive part in the development of the Italian Augustinian's opinion. Here as well we see the introduction of the *complexe significabile* to yet another

philosophical problem, and in the decade following Rimini the English and Parisian trends merged ([16.24] 357–83).

THE IMPACT OF ENGLISH THOUGHT IN PARIS AFTER 1340

The impact of English thought in Parisian philosophical theology in the 1330s appears to be mostly limited to Oxford writers active in London before 1323, e.g. Ockham in his non-theological works, Chatton in his *Sentences* commentary, and perhaps Wodeham. By 1343, however, Rimini was using a very wide range of English philosophical and theological works. There is reason to believe that there was an important Italian connection here. William of Alnwick was named lector at the Franciscan *studium* in Bologna in 1323, and Thomas Waleys was lector at the Dominican convent there in 1326–7. Walter Burley, who by 1327 knew so much of the intellectual currents of both Oxford and Paris, was in Bologna in 1341. Ockham himself was in Italy for a while after 1328, although it is doubtful that he had much of an impact there just then. These English scholars brought their minds and their books, and by about 1340 parts of Burley's, Ockham's, Rodington's and Chatton's *Sentences* commentaries and no doubt many other English works were available in Bologna. Finally, before returning to Paris in 1342, Gregory of Rimini lectured in Bologna, Padua and Perugia (see [16.6] 13–32; [16.13] 449–50). This may help explain how Rimini brought so much with him, and why the full introduction of English thought into Paris seems so abrupt.

After 1343 there was definitely an English influence in Paris, but how much of an impact? In theology, Courtenay points to four English trends. First, *Sentences* commentaries shrunk in size. Second, *Sentences* commentaries were restructured, so that they departed from Lombard's organization and focused on sophismata. Third, schools of thought disappeared, and more emphasis was placed on individual thinking than on system building. Finally, new logical, physical and mathematical ideas were applied to theological issues ([16.8] 111–14).

The size of *Sentences* commentaries at Paris does not seem to have shrunk appreciably after 1343, although we must remember that the size of commentaries depended on whether they were revised by the author into longer forms *(ordinationes)*. The structuring of commentaries is a different matter. Here we find that after 1343 theologians such as Mirecourt, Henry Totting of Oyta, Peter d'Ailly and Peter of Candia do depart from Lombard's distinction organization, the last three, writing in the 1370s, asking a mere handful of very large questions. Still, many stuck close to Lombard's system, such as John

of Ripa and John Hiltalingen of Basel. And even Mirecourt and Candia followed Lombard's basic order, usually finishing off their commentaries on the first book with questions on divine knowledge, foreknowledge, power and will. Moreover, some of this was already present in, for example, Francis of Marchia. Although Marchia superficially keeps to Lombard's distinctions, the contents of the questions do not correspond to Lombard's. Thus in one version Marchia devoted all of distinctions 35, 36, 38 and 39 to future contingents.

It is a difficult question as to whether school traditions existed in an important way in Paris before 1343, or whether there was a big change afterwards. Both before and after 1343, mendicants for the most part kept their discussion within their own orders, at least. The traditional view, however, has been that Paris was pretty much a Scotist university in these early decades, or that Parisians were less individualistic than their Oxford counterparts. We have seen that there are a few examples of reading *secundum alium,* hardly an original activity. It is also true that Marchia and Caracciolo, for example, had their own groups of close followers on certain issues, and that many theologians were content to modify a Scotist account in reply to Aureoli. The trend of paraphrasing and even copying others continued, however, long after the Oxford currents had been absorbed into the Paris environment. But how do we assess this situation? Their aim continued to be system building: Aureoli had a new system; Marchia tried to develop a new system, leaving much of Scotus behind; his followers tried to hammer it out; Rimini himself wanted a system. The Parisian scholars may have looked at the big picture more than did those at Oxford, who focused on individual problems. This does not mean that Parisians did not criticize. They had no choice but to be fundamentally negative in their works in response to Peter Aureoli's complete revision of most aspects of philosophical theology. It is simply that after their attacks on Aureoli, they tended to either develop new systems or seek refuge in old ones. It did no good if one's ideas did not hold together, after all. Especially telling in this regard was a tendency, already in Wilton and later in Bonet (at least in future contingents), to throw up one's hands where no systematic solution could be found. This is exactly what Hiltalingen and Candia did later on (see [16.20] 713, 804).

Finally, there is the new logic, mathematics and physics in theology. This was a trend already evident in Paris in the late 1310s and 1320s in the writings of Aureoli, Marchia, Massa and Odon. Scholars of the 1340s make increasing use of Oxford geometrical, mathematical and logical 'measure' language to discuss such topics in philosophical theology as the infinite, already one of Rimini's favourite subjects. Even if the new *language* of Oxford was not developed in Paris, certainly

the problems associated with and presupposed in that language were explored before 1343, however. In this way, Oxford thought reinforced a Parisian trend already in motion, and the writings of Rimini, Mirecourt and Ceffons abound with the fruits of the new merger, both in terms of new tools and in terms of new topics. Ceffons even develops the tools and techniques further (see [16.16], [16.18]).

Ultimately, the safest basis for claiming that English scholarship played a big new role in Paris after 1343 is citations. One need look no further than the master of citations himself, the Augustinian John Hiltalingen of Basel, who lectured on the *Sentences* at Paris in 1365–6. He cited some twenty Oxford scholars from the previous fifty years, and in his discussion of foreknowledge and predestination alone, Hiltalingen cited Bradwardine, Heytesbury, Richard of Kilvington, Wodeham, Fitzralph and Nicholas Aston (see [16.27] 242–50; [16.20] 789–807). English thought had permanently penetrated the 'mainstream' of European philosophy by 1365. One finds impressive numbers of English citations in the 1340s with Rimini and Hugolino of Orvieto. In many places John of Mirecourt's commentary appears to be a simple matter of cutting and pasting from Wodeham, Halifax, Bradwardine, Kilvington, Langeley and Buckingham, which suggests that Parisians may have used Oxford material, without attribution, to show off and gain a reputation as innovators (see [16.12]).

This may even be the case with Rimini himself. It is telling that in the period after Scotus, Rimini's editors found that he cited Aureoli and Ockham about 200 times each. Only three other scholars between 1320 and 1343 have more than ten references in Rimini: Wodeham (66), Fitzralph (34) and Burley (58), although the editors have found a few references to several other theologians from the period on both sides of the Channel. It is hard to believe that Rimini would treat Aureoli so often while ignoring the intervening Parisian debates which undoubtedly provided ammunition. As we have seen, Rimini was less likely to cite Parisians explicitly (although he used their material), but it is also the case that English citations and ideas would have been more interesting to an audience who had heard all of the anti-Aureoli arguments before.

CONCLUSION

There is no doubt that Oxford thought between 1315 and 1340 was truly exciting. The main reason for this was that more English scholars simply stayed at home. There is also little doubt that Rimini to a large extent was responsible for first explicitly introducing many of the

stimulating English developments into the Parisian discussion, and that English thought outside of natural philosophy and logic was largely ignored in Paris in the meantime, at least until around 1330, when Walter Chatton's *Sentences* commentary was probably available in Paris. But Rimini's Aureoli citations and much present research show that there is also considerable evidence that Parisian theology, at least until the 1330s, continued to be illuminated by brilliant minds as it had before 1318 and as it would after 1343. What happened after 1343 was that newer English techniques and even English theological problems further enriched what was already a lively affair at the continental university. After 1343, in future contingents for example, there are more issues to discuss. But from the period 1318 to 1343, Oxford, although to a lesser extent than Paris, was not conversant with trends in the other city, and in many cases awareness of, say, the Parisian debate on future contingents, would have stimulated the English treatment of the same issue.

Whether Oxford thought was 'better' than Parisian thought in this period, or vice versa, is in the final analysis a matter of taste. Modern taste thus far has leaned heavily toward Oxford. Late medieval and Early Modern tastes, perhaps more conservatively, went in the direction of Paris. It really does not matter. Surely, however, the continued flourishing of Paris and the unique developments at Oxford between 1315 and 1350 can only mean a high point in *European* philosophy generally, both universities contributing and deserving further study.

NOTES

1. On Burley's reaction to Ockham, see above, Chapter 15, pp. 369–77; on Buridan and the *Summa logicae,* see John Buridan [16.2] xxx–xxxv.
2. For Paris there are all or part of the *Sentences* commentaries of Durandus, Aureoli, Meyronnes, Baconthorpe, Landulph Caracciolo, Gerard of Siena, William of Rubione, Strasbourg and Aquila, and Nicholas Bonet's *Natural Theology;* for Oxford, those of Ockham, Holcot, Wodeham and Buckingham, and Bradwardine's *De causa Dei*.
3. For some Oxford theologians, see above, Chapter 14, pp. 354–5; for Paris, Aureoli's contribution to the dispute is edited by Schabel [16.4] and Peter of Navarre's in Petrus de Navarra [16.3].
4. See above, Chapter 15, pp. 380–1 and cf. Schabel [16.4] 75–8, 175–80.
5. Some of these issues are discussed in Chapter 17, below: see especially pp. 410–11 (complexly significables).
6. [16.24] 276, 290; and see above, Chapter 14, pp. 330, 333, 346 and 348–9 on Chatton and Wodeham.

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CHAPTER 17

Late medieval logic

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I

Medieval logic encompassed more than what we call logic today. It included semantics, philosophy of language, parts of physics, of philosophy of mind and of epistemology.

Late medieval logic began around 1300 and lasted through at least the fifteenth century. With some noteworthy exceptions, its most original contributions were made by 1350, particularly at Oxford. Hence the focus of this chapter will be on the period 1300–1500, with special emphasis on Oxford before 1350.

But first some background concerning the earlier period. The logical writings of Aristotle were all available in Latin by the mid-twelfth century.[1] In addition, except for the theory of 'proofs of propositions'[2] (see section VIII below), the characteristic new ingredients of medieval logic were already in place or at least in progress by the end of the twelfth century or the beginning of the thirteenth.

The theory of inference or 'consequence', for example, was studied as early as Peter Abelard (1079–1142). Again, after about 1120 the circulation of Aristotle's *Sophistical Refutations* in Latin stimulated a study of fallacies and the many features of language that produce them. Out of this investigation there arose twelfth- and thirteenth-century writings on semantic 'properties of terms', like 'supposition' and 'ampliation' (see section VI below).[3] At the same time, treatises on *sophismata* or puzzle-sentences in logic, theology or philosophy of nature began to be produced. (A good analogy for this literature may be found in modern discussions of Frege's 'The morning star is the evening star'.) Likewise, studies were written about the logical effects of words like 'only', 'except', 'begins' and 'ceases' that offer many opportunities for fallacies and involve complications going far beyond syllogistic or the theory of topical inferences.[4] Treatises on 'insolubles'

or semantic paradoxes began to appear late in the twelfth century ([17.42], [17.49]). Simultaneously, a literature developed on a new kind of disputation called 'obligations'.[5] Collectively, these new logical genres are known as 'terminist' logic because of the important role played in them by the 'properties of terms'.

These developments continued into the thirteenth century. By mid-century, authors such as Peter of Spain, Lambert of Auxerre and William of Sherwood were writing summary treatises *(summulae)* covering the whole of logic, including the material in Aristotle's writings as well as new terminist developments.[6]

Then, after about 1270, something odd happened, both in England and on the Continent. In France, terminism was eclipsed by an entirely different theory called 'speculative grammar', which appealed to the notion of 'modes of signifying' and is therefore sometimes called 'modism'. This theory prevailed in France until the 1320s, when John Buridan (b. *c.* 1295/1300, d. after 1358) suddenly restored the theory of supposition and associated terminist doctrines. After Buridan, supposition theory was the leading vehicle for semantic (as distinct from grammatical) analysis until the end of the Middle Ages.

Modism never dominated England as it did elsewhere; terminism survived there during its period of neglect on the Continent. Still, few innovations in supposition theory or its satellite doctrines were made in England during the last quarter of the thirteenth century. But then, in the very early fourteenth century, Walter Burley (or Burleigh, b. *c.* 1275, d. 1344/5) began to do new work in the terminist tradition.

This temporary decline of terminism on both sides of the Channel at the end of the thirteenth century, and its sudden revival shortly after 1300, are mysterious events. But, whatever the underlying causes, when supposition theory and related doctrines re-emerged in the early fourteenth century, they were importantly different from how they had been earlier.[7]

II

This section will survey the main stages of late medieval logic, and introduce important names. Later sections will focus on particular theoretical topics.[8]

In England,[9] logic after 1300 may be divided into three stages: first, 1300–50, when the best work was done. Burley and William of Ockham (*c.* 1285–1347) were the paramount figures during this period. Both made important contributions to supposition theory, and Ockham in particular developed sophisticated theories of 'mental language' and 'connotation'.

In the next generation, several men associated with Merton College, Oxford, were influential in specific areas. Richard Kilvington (early fourteenth century, d. 1361) and William Heytesbury (b. before 1313, d. 1372/3), among others, applied the techniques of *sophismata* to questions in natural philosophy, epistemic logic and other fields. Thomas Bradwardine (*c.* 1295–1349) wrote an *Insolubles* that was perhaps the most influential treatise on semantic paradoxes throughout the Middle Ages. Around 1330–2, Adam Wodeham devised an important theory of 'complexly significables' *(complexe significabilia),* the closest medieval equivalent to the modern notion of 'proposition'. Richard Billingham (fl. 1340s or 1350s) seems to have originated the important theory of 'proofs of propositions'. His treatise *Speculum puerorum* or *Youths' Mirror* will be discussed in section VIII below.

The second stage of English logic after 1300 lasted from 1350 to 1400. This was a time of consolidation, of sophisticated but no longer especially original work. The period has not yet been well researched, but at least three trends can be distinguished. First, there was a remarkable number of school-manuals written in logic, compilations of standard doctrine with little innovation. Works of Richard Lavenham (d. 1399 or after) provide a good example. Gradually, certain of these school-texts congealed into two collections called the *Libelli sophistarum (Little Books for Arguers),* one for Oxford and one for Cambridge. These were printed in several editions around 1500.

Second, English logic from 1350 to 1400 had a special interest in the doctrine of 'proofs of propositions' associated with Billingham. As time passed, the labour devoted to this topic grew enormously. John Wyclif dedicated a large part of his *Logic* (before 1368) and especially of his *Continuation of the Logic* (1371–4) to this theory. So did Ralph Strode, a contemporary of Wyclif s, in his own *Logic.* John Huntman wrote a *Logic* sometime near the end of the century, showing the continued expansion of the Billingham tradition.

A third concern of English logic in this period was the signification of propositions. The most influential work here was probably *On the Truth and Falsehood of Propositions* by Henry Hopton (fl. 1357). There Hopton discussed and rejected several previous views before setting out his own theory.[10] (See section V below.)

Several other English authors during this period should be mentioned, although their works are not yet fully understood. They include Richard Feribrigge (fl. probably 1360s), author of an important *Consequences* and a *Logic or Treatise on the Truth of Propositions*. Of lesser importance are: Robert Fland (fl. 1335–60); Richard Brinkley, the author of a *Summa* of logic probably between 1360 and 1373; Thomas Manlevelt (or Mauvelt), who wrote several treatises around mid-century

that were influential on the Continent; and near the end of the century, Robert Alington, William Ware, Robert Stonham, and others.

One of the most significant events in English logic late in the century was the arrival at Oxford in 1390 of the Italian Paul of Venice (*c.* 1369–1429). Paul studied there for some three years. On his return to Italy, he taught at Padua and elsewhere, and was an important conduit through which English logic became known in Italy in the fifteenth century. His writings include a widely circulated *Little Logic (Logica parva)* and the enormous *Big Logic (Logica magna)*.

The third stage of late medieval English logic includes the whole fifteenth century. This was a period of shocking decline. Except for a few insignificant figures around 1400, not even second-rate authors are known. The manuscripts from this period—and by 1500, early printed books—offer little hope that further research will change this assessment. The Oxford and Cambridge *Little Books for Arguers,* already mentioned, testify to the deterioration of logic during this period. Medieval logic was effectively dead in England after 1400.

Logic on the Continent during these same two centuries cannot be so neatly divided into stages. Still, there as in England, the most important work was done before about 1350. The pre-eminent figure was doubtless Buridan. His writings include a *Consequences,* a *Sophismata* and a *Summulae of Dialectic*. Buridan's students included many influential logicians of the next generation, among them: Albert of Saxony (d. 1390), the author of a *Sophismata* and *A Very Useful Logic,* and the first rector of the University of Vienna; and Marsilius of Inghen (*c.* 1330–96), the first rector of the University of Heidelberg and the author of an *Insolubles* and of treatises on 'properties of terms'.

On many points, Buridan's logical views were like Burley's or especially Ockham's in England. There are differences, but the similarities are more striking, especially when contrasted with logic on either side of the Channel before 1300. The extent of Ockham's own influence on Buridan is doubtful, but Ockham's confrère Adam Wodeham was instrumental in transmitting much English learning to Paris. In particular, Wodeham's theory of 'complexly significables' was adopted by Gregory of Rimini (*c.* 1300–58).

The Parisian Peter of Ailly (1350–1420/1) wrote several interesting logical works, including: *Concepts and Insolubles,* a pair of treatises on 'mental language' and the Liar Paradox; *Destructions of the Modes of Signifying,* against 'modism'; *Treatise on Exponibles* (see section VIII below); and *Treatise on the Art of 'Obligating'* (perhaps by Marsilius of Inghen instead).

Before 1400, the Italian Peter of Mantua (fl. 1387–1400) wrote a *Logic* that already shows knowledge of earlier English work, particularly that stemming from Billingham. Around 1400 Angelo of

Fossombrone, who taught at Bologna (1395–1400) and Padua (1400–2), wrote an *Insolubles* maintaining an elaborated version of Heytesbury's theory. About the same time, the newly returned Paul of Venice spread the gospel of Oxford logic further in Italy. Among his students, Paul of Pergula (d. 1451/5) wrote a *Logic* and a treatise *On the Composite and the Divided Sense* (on the scope of certain logical operators) based on Heytesbury's own work of that name, and Gaetano of Thiene (1387–1465) wrote detailed commentaries on works by Heytesbury and Strode. Other authors in Italy and elsewhere continued to write on logic to the end of the Middle Ages and beyond.[11]

Even these few names will suffice to show that the logical landscape after about 1400 was by no means so desolate on the Continent as in England. Still, on either side of the Channel logical work after 1350 was largely derivative and, while sometimes very sophisticated, not very innovative. There was certainly no one, for example, with the stature of Burley, Ockham or Buridan.

III

This and the following sections will concentrate on five important topics in late medieval logic: (a) the theory of 'mental language', (b) the signification of propositions, (c) developments in supposition-theory, (d) semantic paradoxes, and (e) connotation-theory and the 'proofs of propositions'.

In *On Interpretation,* 16a3–4, Aristotle stated that 'spoken sounds are symbols of affections in the soul, and written marks symbols of spoken sounds'. These words were translated by Boethius and interpreted as implying three levels of language: spoken, written and mental. Through Boethius this three-level hierarchy of language became a commonplace in medieval logical literature.

Of the three, mental language was regarded as the most basic. Its semantic properties are natural ones;[12] they do not originate from any convention or custom, and cannot be changed at will. Unlike spoken and written languages, mental language is the same for everyone.

Careful authors sometimes distinguished 'proper' from 'improper' mental language. The latter occurs when we think 'in English' or 'in French'. Thus a public speaker might rehearse a speech by running through silently the words he will later utter aloud. What goes on there is a kind of 'let's pretend' speaking that takes place in imagination and is in that sense 'mental'. But it is not what most authors meant by 'mental language'. Since silent recitation varies with the spoken language one is rehearsing, it is not the same for everyone. Proper mental language is different. It includes, for example, what happens when one suddenly

'sees' the force of a mathematical proof; in that case there is a 'flash of insight', an understanding or judgement that need not yet be put into words, even silently. This kind of mental language, the theory goes, *is* the same for everyone.[13]

Spoken language, by contrast, has its semantic function parasitically, through a conventional correlation between its expressions and mental ones. The arbitrariness of this convention is what allows the multitude of spoken languages. Written language plays an even more derivative role, through a conventional correlation between its inscriptions and the sounds of spoken language. The arbitrariness of this convention too allows for different scripts among written languages. Only through the mediation of spoken language, the theory went, are inscriptions correlated with thoughts in mental language. This view implies that one cannot read a language one does not know how to speak. Most medieval authors accepted this consequence.

Following Boethius, the correlations between written and spoken language and between spoken and mental language were often regarded as relations of 'signification'. This claim had theoretical consequences, since signification was a well-defined notion in the Middle Ages. A term 'signifies' what it makes one think of ('establishes an understanding of'=*constituit intellectum*+genitive).[14] While there was dispute about what occupies the object-pole of this relation, there was agreement over the criterion. Signification is thus a special case of causality, and so transitive. (Certain authors added to signification in general the particular notions of immediate and ultimate signification. The general relation of signification thus became what modern logicians call the 'ancestral' of the relation of immediate signification;[15] a term t then ultimately signifies x if and only if t signifies x and x does not signify anything else.) Terms in mental language signify (make one think of) external objects only in the degenerate sense that they *are* the thoughts of those external objects.

According to this view, to say that expressions of spoken language immediately signify expressions of mental language is to say that the function of speech is to convey thoughts. Certain authors, e.g. Duns Scotus (*c.* 1265–1308), Burley and Ockham, regarded this as too restrictive. For them, spoken (and written) terms may be made to signify anything, not only the speaker's thoughts. In fact spoken words do *not* always make us think of thoughts; sometimes we are made to think directly of external objects. For these authors, the relations between written and spoken language and between either of these and mental language are not relations of signification. Ockham described them neutrally as relations of 'subordination'.[16]

IV

Although authors since Boethius had recognized mental language, it was not until the fourteenth century that it began to be investigated in detail. Ockham was the first to develop a full theory of mental language and put it to philosophical use. Shortly thereafter, Buridan began to work out his own view. His theory agrees with Ockham's on the whole, although Ockham's is the more detailed. In the early 1340s, Gregory of Rimini refined certain parts of the theory, and applied it to a solution to the Liar Paradox. In 1372, Peter of Ailly's *Concepts and Insolubles* incorporated the work of both Ockham and Gregory.[17] Other authors made contributions to the theory, but these were the major ones. The presentation below will follow Ockham's account except as indicated.

Terms in mental language are concepts; its propositions are judgements. The fact that mental language is the same for everyone explains how it is possible to translate one spoken (or written) language into another. A sentence in Spanish is a correct translation of a sentence in English if and only if the two are subordinated to the same mental sentence. More generally, any two spoken or written expressions—from the same or different languages—are synonymous if and only if they are subordinated to the same mental expression. Again, any spoken or written expression is equivocal if and only if it is subordinated to more than one mental expression.

If mental language accounts for synonymy and equivocation in spoken and written languages, can there be synonymy or equivocation in mental language itself? The textual evidence is mixed. There are passages in Ockham (*Summa logicae* I, 3=[17.7] *OP* 1:11; *Summa logicae* I, 13=[17.7] *OP* 1:44) supporting a negative answer in both cases. Nevertheless other texts (*Ordinatio,* I, d. 3, q. 2=[17.7] *OT* 2:405; *Ordinatio* I, d. 3, q. 3=[17.7] *OT* 2:425; *Quodlibet 5*, q. 9= [17.7] *OT* 9:513–18), where Ockham is discussing the semantics of certain connotative terms (see section VIII below), perhaps imply the existence of mental synonymy. As for equivocation, Ockham's theory of tense and modality, as well as his theory of supposition (see section VI below), commits him outright to certain kinds of equivocation in mental language.[18] But apart from textual considerations, there are philosophical reasons for saying that, given other features of Ockham's theory, mental synonymy or equivocation makes no sense.[19]

What is included in mental language? In two passages (*Summa logicae,* I, 3=[17.7] *OP* 1:11.1–26; *Quodlibet 5*, q. 8=[17.7] *OT 9*:508–13), Ockham remarks that, just as for spoken and written language, the vocabulary of mental language is divided into 'parts of speech'. Thus there are mental nouns, verbs, prepositions, conjunctions, etc. But not all features of spoken and written language are found in mental

language. Ockham acknowledges doubts about mental participles (their job could be performed by verbs) and pronouns (presumably 'pronouns of laziness', as for example in 'Socrates is a man and *he* is an animal'). Moreover, not all characteristics of spoken and written syntax are found in mental language. While mental nouns and adjectives have case and number, and mental adjectives admit of positive, comparative and superlative degrees, they do not have gender and are not divided into grammatical declensions (like Latin's five declensions). Mental verbs have person, number, tense, voice and mood, but are not divided into grammatical conjugations.

Ockham's mental language looks remarkably like Latin. This fact led some modern writers to reject the theory as a foolish attempt to 'explain' features of Latin by merely duplicating them in mental language, which is then regarded as somehow more 'basic' ([17.39] § 23). But more is involved than that. Ockham's strategy is to admit into mental language exactly those features of spoken or written language that affect the truth-values of propositions. All other features of spoken and written language, Ockham says, are only for the sake of decorative style, or in the interest of brevity. They are not present in mental language.[20]

Mental language is thus a logically perspicuous language for describing the world. It has whatever is needed to distinguish truth from falsehood, nothing more. In this respect, mental language is reminiscent of the 'ideal languages' proposed by early twentieth-century philosophers ([17.51]).

How are mental words combined in mental propositions? What is the difference, for example, between the true mental proposition 'Every man is an animal' and the false 'Every animal is a man'? In written language, the difference is the spatial configuration of the words. But the mind does not take up space, so that there can be no such difference there. In speech the difference lies in the temporal sequence of the words. But since proper mental language at least sometimes involves a 'flash of insight' that happens all at once, neither can temporal word order account for the difference between the two mental propositions.

Because of such difficulties, authors such as Gregory of Rimini and Peter of Ailly held that mental propositions (although not all of them for Peter) are simple mental acts not really composed of distinct mental words at all.[21] Ockham too had considered such a theory (*In Sententias* II, qq. 12–13=[17.7] *OT* 5:279; *Exposition of 'On Interpretation'*, proem=[17.7] *OP* 2:356). It is hard to reconcile this view with the claim that mental vocabulary is divided into 'parts of speech'; distinct mental words would appear to have no job to do if they do not enter into the structure of mental propositions.

V

Besides the disagreement over the immediate signification of spoken and written terms (see section III above), there was a dispute over ultimate signification. Metaphysical realists, such as Burley, maintained the traditional view that general terms ultimately signify universal entities, while nominalists (e.g. Ockham and Buridan) held that they ultimately signify only individuals.

Some authors extended the notion of signification to ask not only about the signification of terms but also about the signification of whole propositions. Do they signify anything besides what their component terms signify separately? Do they signify, for example, states of affairs or facts?

Ockham did not explicitly address this question. But Buridan did, and his answer was no. For him ([17.16] II, conclusion 5), a proposition—and in general any complex expression—signifies whatever its categorematic terms signify, nothing more. ('Categorematic' terms are those that can serve as subject or predicate in a proposition; they were regarded as having their own signification. Other words were called 'syncategorematic' and were regarded as not having any signification of their own; they are 'logical particles' used for combining categorematic terms into propositions and other complex expressions.) Thus in the spoken proposition 'The cat is on the mat', when I hear the word 'cat' I am, on Buridan's account, made to think of all cats and when I hear 'mat' I am made to think of all mats. That is all the proposition makes me think of, and so all it signifies.

Elsewhere Buridan maintained a different and incompatible theory ([17.16] II, sophism 5 and conclusions 3–7). The proposition 'Socrates is sitting', for example, signifies *Socrates to be sitting*. And what is that? Buridan held that if Socrates really is sitting, then *Socrates to be sitting* is just Socrates himself. But if he is not sitting, then *Socrates to be sitting* is nothing at all.[22] This view bears some similarity to a theory held earlier at Oxford by Walter Chatton (1285–1344) and discussed as the first previous view in Henry Hopton's *On the Truth and Falsehood of Propositions*. Similar views were defended by Richard Feribrigge and John Huntman. The details of their texts have not been thoroughly investigated, and there is much that is still obscure; it is not certain that all these authors maintained variants of the same doctrine. Still, the motivation is the same in each case: to find something to serve as the significate of a proposition in an ontology that does not allow anything like facts, states of affairs or 'propositions' in the modern sense.

But there were other opinions. As early as Abelard, some authors held that what propositions signify falls outside the Aristotelian categories, and is something like the modern notion of 'proposition'.

Sometimes this new entity was called a 'mode', sometimes a *dictum*.[23] In the fourteenth century, such theories continued to find their defenders. Perhaps a version of it may be seen in the early 1330s in William of Crathorn. Perhaps too Henry Hopton intended such a theory as the second previous view he considered, according to which a proposition signifies a 'mode' of a thing, where a 'mode' is not a *something* but a *being-somehow (esse aliqualiter)*. But an unequivocal statement can be found in the theory of 'complexly significables' ([17.38]; see also [17.35] chs 14–15). According to this theory, complexly significables are the bearers of truth-value. They are not propositions in the medieval sense, not even mental propositions, but are what is expressed by propositions. They are the significates of propositions, and the objects of knowledge, belief and prepositional attitudes generally. Complexly significables do not exist in the way substances and accidents do. Before creation, for example, only God existed. But even then God knew *that the world was going to exist*. This complexly significable cannot be identified with God himself, since God is a necessary being but it was contingent that the world was going to exist. Yet as distinct from God, it cannot have existed before creation. Such extralogical considerations were an important motivation for the theory of complexly significables. Authors such as Buridan and Peter of Ailly rejected the theory; Peter, for example, claimed that the argument about God's knowledge before creation is based on an illegitimate substitution of identicals in an opaque context involving necessity ([17.27] 62).

All these theories offered a real entity (even if an odd one, like a 'complexly significable') as the correlate of a true proposition, and so as the ontological basis for a 'correspondence' theory of truth. Other authors took a different approach. They too maintained a correspondence theory, often expressed as: a proposition is true if and only if it 'precisely signifies as is the case', or if and only if 'howsoever [the proposition] signifies, so it is the case'. For them, the proper question is not *what* but *how* a proposition signifies. This 'adverbial' notion of signification allowed a correspondence theory without being obliged to find any ontological correlate for a true proposition to correspond to. After rejecting earlier views, Henry Hopton's own theory was like this. Heytesbury had earlier held a similar view, as did Peter of Ailly later ([17.22] 61–5; [17.27] 10, 48–54 and nn.).

VI

The theory of 'supposition' is a mystery. Although it is central to the theories of 'properties of terms' that developed from the twelfth century

on, it is not clear what the theory was intended to accomplish, or indeed what the theory as a whole was about.[24]

Throughout its history, there were two main parts to supposition theory. One was a theory of the reference of terms in propositions, and how that reference is affected by syntactic and semantic features of propositions. The question this part of the theory was intended to answer is, 'What does a term refer to (supposit for, stand for) in a proposition?' That much is clear. But from the beginning, there was another part of supposition theory, an account of how one might validly 'descend to singulars' under a given occurrence of a term in a proposition, sometimes combined with a correlative account of 'ascent from singulars'. The mystery surrounds this second part.

Before the decline of terminism after 1270, there is some evidence that the second part of supposition theory, like the first, was intended to answer the question of what a term refers to in a proposition. The first part of the theory says what kind of thing a given term-occurrence refers to, while the second specifies how many such things it refers to (in much the way one finds even today accounts purporting to say whether the terms of a syllogism are about 'all' or 'some' of a class). The evidence for this is mixed, but even if this was the original intent of the second part of supposition theory, some authors quite early realized its theoretical difficulties.

When supposition theory re-emerged with Burley in England and later with Buridan in France, the two parts of the theory had been separated once and for all. By that time the theory of descent and ascent clearly was not about what a term refers to in a proposition. What it was about instead is uncertain.

The account below will mainly follow Ockham, although other authors will be mentioned. Their theories differed from his in detail, sometimes in important detail, but Ockham's is fairly typical.

The first part of supposition theory divided supposition or reference first into proper (literal) and improper (metaphorical). The latter is illustrated by 'England fights', where 'England' refers by metonymy to England's inhabitants. Medieval logic, like modern logic, did not have an adequate theory of metaphor. Ockham, Burley and a few others list some haphazard subdivisions of improper supposition, but really mention it only to set it aside. Their emphasis is on proper supposition.

Proper supposition was divided into three kinds: personal, simple and material. The origin of these names is unclear, although the term 'personal' suggests a connection with the theology of the Trinity and the Incarnation. But it should not be thought that personal supposition has anything especially to do with persons.

Personal supposition occurs when a term refers to everything of which it is truly predicable. Thus in 'Every man is running', 'man' refers to all

men and so is in personal supposition. But so too 'running' refers there to all things now running, and hence is likewise in personal supposition. It does not refer there only to some running things, for example, only to the running men. Again, in 'Some man is running', 'man' refers to all men, not just to running ones.

A term has material supposition when it refers to a spoken or written word or expression and is not in personal supposition. Thus, 'man' in 'Man has three letters' has material supposition. Although there are obvious similarities, material supposition is not merely a medieval version of modern quotation marks. For in 'It is possible for Socrates to run', the phrase 'for Socrates to run' has material supposition. But it refers to the proposition 'Socrates is running', of which the phrase 'for Socrates to run' is not a quotation. (For Ockham, there are no states of affairs or complexly significables that can be said to be possible. Only propositions are possible in this sense.)

The definition of simple supposition was a matter of dispute, depending in part on an author's metaphysical views and in part on his theory about the role of language in general ([17.46]). As a paradigm, 'man' in 'Man is a species' has simple supposition. In general, terms in simple supposition refer to universals. But for nominalists like Ockham, there are no metaphysical universals; the only universals are universal terms in language, most properly universal concepts in mental language. Thus for Ockham terms in simple supposition refer to concepts. It is they that are properly said to be species or genera. To prevent the term 'concept' in 'Every concept is a being' from having simple supposition (it has personal supposition, since it refers to everything it signifies—to all concepts), Ockham added that a term in simple supposition must not be 'taken significatively', i.e. that it not be in personal supposition.

But for a realist like Burley, terms in simple supposition refer to real universals outside the mind. It is they that are species and genera. Furthermore, for Burley and certain others, general terms in language signify those extramental universals. Thus the term 'man' signifies universal human nature, not any one individual man or group of men, and not all men collectively. For Burley, therefore, it is in simple supposition that a term refers to what it signifies. For Ockham, general terms do not signify universals, not even universal concepts; they signify individuals. Even a term like 'universal' signifies individuals, since it signifies concepts, which are metaphysically individuals and are 'universal' only in the sense of being predicable of many things. Hence for Ockham, it is in personal supposition, not simple, that a term refers to what it signifies.

Personal supposition is the default case. Any term in any proposition can be taken in personal supposition. It may alternatively be taken in simple or material supposition only if the other terms in the proposition

provide a suitable context. In such cases, the proposition is strictly ambiguous and may be read in either sense.[25]

From this first part of supposition theory alone, certain authors, e.g. Ockham and Buridan, although not Burley, developed a theory of truth-conditions for categorical propositions on the square of opposition. Thus, a universal affirmative 'Every *A* is *B*' is true if and only if everything the subject term refers to the predicate term also refers to (although it may refer to other things as well). Truth-conditions for other propositions on the square of opposition can be derived from this.

Subordinated to this first part of supposition theory was a theory of 'ampliation', accounting for the effects of modality and tense on personal supposition. A term in personal supposition may always be taken to refer to the things of which it is presently predicable. But in the context of past or future tenses, the term may also be taken to refer to the things of which it was or will be predicable. Likewise, in a modal context (possibility, necessity), the term may also be taken to refer to the things of which it *can* be truly predicable. This expansion of the range of referents was called 'ampliation'.

Ockham and Burley regarded the new referents provided by ampliation as alternatives to the normal ones. Thus in the proposition 'Every man was running', 'man' may be taken as referring either to all presently existing men or to all men existing in the past. The proposition is thus equivocal. But on the Continent, Buridan and others regarded the new referents as additions to the normal ones. For them, in the proposition 'Every man was running' 'man' refers to all presently existing men and all past men as well.[26]

The second main part of supposition theory, the theory of descent and ascent, was a theory subdividing personal supposition only, into several kinds. First, there is discrete supposition, possessed by proper names, demonstrative pronouns or demonstrative phrases (e.g. 'this man'). All other personal supposition is *common,* and was typically subdivided into: determinate (e.g. 'man' in 'Some man is running'), confused and distributive (e.g. 'man' in 'Every man is an animal'), and merely confused (e.g. 'animal' in 'Every man is an animal'). The details varied with the author.

Sometimes these subdivisions were described via the positions of terms in categorical propositions. Subjects and predicates of particular affirmatives, and subjects of particular negatives, have determinate supposition. Subjects of universal affirmatives and negatives, and predicates of universal and particular negatives, have confused and distributive supposition. Only predicates of universal affirmatives have merely confused supposition.

More helpful is the description in terms of descent and ascent. For Ockham (Burley's and Buridan's theories are equivalent), a term has determinate supposition in a proposition if and only if it is possible to 'descend' under that term to a disjunction of singulars, and to 'ascend' to the original proposition from any singular. The exact specification of the notions of 'descent', 'ascent' and 'singular' is subtle, but an example should suffice. In 'Some man is running' one can 'descend' under 'man' to a disjunction: 'Some man is running; therefore, this man is running or that man is running', etc., for all men. Likewise one can 'ascend' to the original proposition from any singular: 'This man is running; therefore, some man is running.' Hence 'man' in the original proposition has determinate supposition.

A term has confused and distributive supposition in a proposition if and only if it is possible to 'descend' under that term to a conjunction of singulars but *not* possible to 'ascend' to the original proposition from any singular. Thus in 'Every man is running' it is possible to descend under 'man': 'Every man is running; therefore, this man is running and that man is running', etc., for all men. But the ascent from any singular 'This man is running; therefore, every man is running' is invalid. Hence the term 'man' in the original proposition has confused and distributive supposition.

A term has merely confused supposition in a proposition if and only if (a) it is not possible to descend under that term either to a disjunction or to a conjunction, but it is possible to descend to a *disjoint term,* and (b) it is possible to ascend to the original proposition from any singular. Thus in 'Every man is an animal' it is not possible to descend under 'animal' to either a disjunction or a conjunction, since if every man is an animal, it does not follow that every man is this animal or every man is that animal, etc. Much less does it follow that every man is this animal *and* every man is that animal, etc. But it does follow that every man is *this animal or that animal or,* etc. Again, if it happens that every man is this animal (i.e. there is only one man and he is an animal), then every man is an animal. Hence the term 'animal' in that proposition has merely confused supposition.

It is hard to see what this doctrine was intended to accomplish, particularly with its appeal to odd 'disjoint terms' in merely confused supposition. At first, modern scholars thought it was an attempt to provide truth-conditions for quantified propositions in terms of (infinite) disjunctions or conjunctions. But if that was its purpose, the doctrine is a failure. The predicate of the particular negative 'Some man is not a Greek' has confused and distributive supposition according to the above definitions, but the conjunction to which one can descend under 'Greek' does not give the truth-conditions for the original proposition. Suppose Socrates and Plato are the only men.

Then the conjunction 'Some man is not this Greek [Socrates] and some man is not that Greek [Plato]' is true, but the original proposition is false.

The problem is that rules for ascent always concern ascent from any one singular, never from a conjunction. Certain later authors, e.g. Ralph Strode, Richard Brinkley and Paul of Venice, do explicitly discuss ascent from conjunctions.[27] But earlier writers such as Burley, Ockham and Buridan conspicuously did not.

Another attempt to explain this second part of supposition theory suggests that the rules for ascent and descent were used in detecting and diagnosing fallacies. This is doubtless correct as far as it goes, but does not account for the details in the theory as we actually find it. In the end, the exact function of this part of the theory in the early fourteenth century remains a mystery.

VII

Medieval discussions of 'insolubles' (semantic paradoxes like the Liar Paradox, 'The sentence I am now saying is false') began in the late twelfth century. By around 1200, theories on how to solve them can be distinguished. Thereafter, three periods in the medieval insolubles literature can be distinguished: (1) *c.* 1200–*c.* 1320, (2) *c.* 1320– *c.* 1350 and (3) everything after that.

The earliest known medieval theory of insolubles (*cassatio* or cancelling) maintained that one who utters an insoluble is simply 'not saying anything', in the sense that his words do not succeed in making a claim. This view, although it has its supporters today, quickly disappeared in the Middle Ages. Other early theories rejected some or all self-reference; these too have their modern counterparts. Still other early theories sound less familiar to modern ears. A few authors argued that, despite the surface grammar, the reference in insolubles is always to some *previous* proposition. For example, 'What I am saying is false' really amounts to 'What I said a moment ago is false'. The insoluble is true or false depending on whether I did in fact say something false a moment ago. Others, e.g. Duns Scotus, appealed to a distinction between signified acts and exercised acts. This is the distinction between what the speaker of an insoluble proposition says he is doing (the signified act) and what he is really doing (the exercised act). Although the distinction is suggestive, it is far from clear how it solves the paradoxes.

Many of these early views are cast in the framework of Aristotle's fallacy of what is said 'absolutely' and what is said 'in a certain respect'. Discussing that fallacy in his *Sophistical Refutations,* Aristotle made

some enigmatic remarks (180a38–b3) that suggested the Liar Paradox [17.42]. Consequently, many medieval authors tried to treat insolubles as instances of that fallacy, although there was little agreement on the details. Some held that insoluble propositions are true 'absolutely' but false 'in a certain respect'. Some had it the other way around. Others said they were both true and false, each 'in a certain respect'. Still others applied the Aristotelian distinction not to truth but to supposition, so that they distinguished between supposition absolutely and supposition in a certain respect. Long after the early period in the medieval literature, the fallacy *absolutely/in a certain respect* was retained as an authoritative framework for many authors' discussions, even when the real point of their theories was elsewhere.

These early theories predominated until about 1320; some of them survived much longer. Burley and Ockham offered nothing new here. Both maintained a theory that merely rejected problematic cases of self-reference without being able to identify which those problematic cases were.

The first to break new ground was Thomas Bradwardine, in the early 1320s. Bradwardine's theory was based on a view linking signification with consequence. He appears to have been the first to hold that a proposition signifies exactly what follows from it.[28] Since he was also committed to saying that *every* proposition implies its own truth (e.g. Socrates is running, therefore 'Socrates is running' is true), this means that the insoluble 'This proposition is false' signifies that it itself is true. Since it also signifies that it is false, it signifies a contradiction, and so is simply false. The paradox is broken.[29]

Bradwardine's view was enormously influential. Buridan later maintained a broadly similar theory, and others held variants of it to the end of the Middle Ages; it was one of the predominant theories.

Shortly after Bradwardine, Roger Swyneshed (fl. before 1335, d. *c.* 1365), an Englishman associated with Merton College, proposed a theory in which truth is distinguished from correspondence with reality. For a proposition to be true, it must not only correspond with reality ('signify principally as is the case'), it must also not 'falsify itself, i.e. not be 'relevant to inferring that it is false'. (This notion of 'relevance' is not well understood.) Swyneshed drew three famous conclusions from his theory: (1) There are false propositions (namely, insolubles) that nevertheless correspond with reality. (2) Valid inference sometimes lead from truth to falsehood. Validity does not necessarily preserve truth, although it does preserve correspondence with reality. (3) Sometimes, two contradictory propositions are both false. The insoluble 'This proposition is false' is false because it 'falsifies' itself. But its contradictory 'That proposition is true' (referring to the previous proposition) is also false, since it fails to correspond with reality—the

previous proposition is *not* true. These conclusions generated much discussion in the later literature. Swyneshed's theory did not have many followers, but it had at least one important one: Paul of Venice maintained a version of Swyneshed's theory in his *Big Logic*.

In 1335, William Heytesbury proposed a theory that rivalled and may have surpassed Bradwardine's in influence. He maintained that in circumstances that would make a proposition insoluble if it signified just as it normally does ('precisely as its terms pretend'), it *cannot* signify that way only, but must signify some other way too. Thus 'Socrates is uttering a falsehood', if Socrates himself utters it and nothing else, cannot on pain of contradiction signify only that Socrates is uttering a falsehood, but must signify that and more. Depending on what else it signifies, and how it is related to the ordinary signification of the proposition, different verdicts about the insoluble are appropriate. Heytesbury himself refused to say what else an insoluble might signify besides its ordinary signification; that could not be predicted. But some late authors went on to fill in Heytesbury's silence. They stipulated that insolubles in addition signify that *they are true,* thus linking Heytesbury's theory with Bradwardine's.

Heytesbury's view has an important consequence. Since signification in mental language is fixed by nature, not by voluntary convention, mental propositions can never signify otherwise than they ordinarily do. Given Heytesbury's account of insolubility, this means that *there can be no insolubles in mental language*. Heytesbury himself did not draw this conclusion, but it is there none the less.

All important developments concerning insolubles between 1320 and 1350 originated with Englishmen and are associated in one way or another with Merton College. Later writers, in the third and last stage of the medieval insolubles literature, sometimes developed this English material in interesting new ways. Thus Gregory of Rimini and Peter of Ailly took the above consequence of Heytesbury's theory to heart. They maintained that there are no insolubles in mental language, and that insolubles arise in spoken and written language only because they correspond (are subordinated) to *two* propositions in the mind, one true and the other false. Apart from these developments of earlier views, there seem to be no radically original theories of insolubles in the Middle Ages after about 1350.

VIII

Ockham's theory of connotation has antecedents in Aristotle's remarks on paronymy (*Categories,* 1a12–15). It is the most highly developed such theory in the Middle Ages.

For Ockham, some categorematic terms are absolute; others are connotative. 'Bravery' is absolute since it signifies only bravery, a quality in the soul. But 'brave' is connotative since it signifies certain persons (brave ones), but only by making an oblique reference to ('connoting') their bravery. Connotative terms have nominal definitions; absolute terms do not. The notion of a nominal definition is difficult to state exactly ([17.44]), but all nominal definitions of a connotative term are 'equivalent' for Ockham in a sense that is perhaps as strong as synonymy. Furthermore, it appears that the connotative term itself is synonymous with each of its nominal definitions, and may be viewed in fact as a kind of shorthand abbreviation for them. Thus the adjective 'white' is a connotative term having the nominal definition 'something having a whiteness' or 'something informed by a whiteness'. All three expressions are synonymous for Ockham.

Since Ockham's 'better doctrine' is that there is no mental synonymy, the elementary vocabulary of mental language (simple concepts) includes no connotative terms. Mental language contains the absolute term 'whiteness' and syntactical devices to form nominal definitions like those above. But it does not, on pain of synonymy, contain a distinct mental adjective 'white'. (But see section IV, above.)

All primitive categorematic mental terms are thus absolute. This has important consequences for Ockham's philosophy. For (barring miracles) the mind has simple concepts only for things of which it has had direct experience ('intuitive cognition'). The supply of absolute concepts is therefore a guide to ontology.

There is a related theory in Ockham, the theory of 'exposition' or analysis (see [17.34] 412–27). The outlines of this theory were established by the mid-thirteenth century. In brief, an exponible proposition is one containing a word (the 'exponible term') that obscures the sense of the whole proposition. It is to be analysed or 'expounded' into a plurality of simpler propositions, called 'exponents', that together capture the sense of the original. Thus 'Socrates is beginning to run' might be expounded by 'Socrates is not running' and 'Immediately hereafter Socrates will be running'.

Ockham's own theory of exposition is not especially innovative, except that he explicitly links it with the theory of connotation. This is an attractive move, since whereas the theory of connotation provides explicit nominal definitions for connotative terms, it is plausible to view exposition theory as providing contextual definitions of exponible terms treated as incomplete symbols. Hence, just as the absence of synonymy in mental language means that it contains no simple connotative terms, so too it would mean that mental language contains no exponible propositions, but only their exponents. Since contextual definitions provide the more general approach, it is not surprising that

connotation theory quickly declined after Ockham, and is treated only perfunctorily in Strode and Wyclif. Its place is taken there by much more elaborate treatments of exponibles. Buridan does retain a fairly full theory of connotation, but it is not so detailed as Ockham's.[30]

Although the theory of exposition continued to have a life of its own, by mid-century it had also been incorporated into the theory of 'proofs of propositions'.[31] Billingham's *Youth's Mirror* was a seminal work here.

The notion of 'proof' involved in this literature was broader than the Aristotelian demonstration of the *Posterior Analytics*. It meant any argument showing that a certain proposition is true. Not all propositions can be 'proved'. Some of them serve as ultimate premisses of all proofs; they must be learned another way. Such elementary propositions Billingham calls 'immediate' propositions, containing only 'immediate' terms that cannot be 'resolved' into more elementary terms. Immediate terms include indexicals such as 'I', 'he', 'this', 'here' and 'now', and very general verbs such as 'is' and 'can' and their tenses. Hence a proposition like 'This is now here' is immediate.

Other propositions can ultimately be 'proved' from immediate propositions. Billingham recognized three methods for such proofs: exposition, 'resolution' and proof using an 'auxiliary' *(officialis)* term.

Exposition has already been explained. Resolution amounts to proof by expository syllogism. Thus 'A man runs' is 'proved' by the inference 'This runs and this is a man; therefore, a man runs'. But there is a problem. The premisses of this inference are not immediate, since their predicates are not immediate terms. And there appears to be no way to reduce them to yet more basic propositions by any of the three ways Billingham recognizes.

'Auxiliary' terms govern indirect discourse. They include epistemic verbs such as 'knows', 'believes', etc., and modal terms such as 'it is contingent'. To 'prove' a proposition containing an auxiliary term is to provide an argument spelling out the role of the auxiliary term. One of the premisses of this argument states how the proposition referred to in indirect discourse 'precisely signifies'. Thus 'It is contingent for him to run' is proved by: '"He runs" is contingent; and "He runs" precisely signifies for him to run; therefore, it is contingent for him to run.'

There are still many obscurities in the theory of 'proofs of propositions'. But it was very widespread.

IX

Our knowledge of late medieval logic has advanced enormously since the 1960s. The availability of previously unpublished texts has shed

great light on this fertile period. Yet, as this chapter shows, there is still much that is unknown. The general reader should regard the claims in this chapter as tentative. Readers with specialized training or interest should regard them as an invitation to further research.

NOTES

1 *CHLMP,* pp. 46, 74–5. See also Chapter 7 above, p. 176.
2 In medieval terminology, a 'proposition' is a declarative sentence, often a sentence-*token*. The term was not typically used in its modern sense, to mean what is expressed by a sentence(-token). I shall use 'proposition' in its medieval sense throughout this chapter except where indicated.
3 De Rijk [17.29], especially vol. 1. On *consequentiae* in the twelfth century, see Chapter 7 above, pp. 157–8, 175–6.
4 *CHLMP,* ch. 11.
5 *CHLMP,* ch. 16. Despite the name, these disputations had nothing to do with ethics or morality. They were not about deontic logic. Their exact purpose is still uncertain.
6 There were also anonymous works of this kind, dating back to the twelfth century. See De Rijk [17.29].
7 With these last three paragraphs, see Spade [17.50], especially pp. 187–8, and references there. See also *CHLMP,* chs 12 and 16B.
8 For information on authors mentioned in this section, see *CHLMP,* pp. 855–92 ('Biographies').
9 On English logic as discussed in this section, see Ashworth and Spade [17.28] and references there.
10 In the 1494 edition of Heytesbury, Hopton's treatise is wrongly attributed to Heytesbury himself.
11 On Angelo, see Spade [17.45] 49–52. For other authors mentioned in this paragraph, see Maierù [17.34], 34–6.
12 There is potential for confusion here. In twentieth-century philosophy, a 'natural' language is one like English, in contrast to 'artificial' languages like Esperanto or the 'language' of *Principia Mathematica*. In medieval usage, the latter would likewise count as 'artificial' languages, but so would English; the only truly natural language is mental language.
13 See Peter of Ailly [17.27] 9, 19–21, 36–7, and references there.
14 See Aristotle, *De interpretatione,* 16b 19–21.
15 Something *a* bears the ancestral of relation *R* to *z* if and only if *a* bears *R* to something *b* that bears *R* to something *c* that…that bears *R* to *z*.
16 With this section, see *CHLMP,* ch. 9.
17 For Gregory and Peter, see Peter of Ailly [17.27].
18 Buridan's theory does not imply this, and Peter of Ailly flatly denies it for supposition.
19 With these last two paragraphs, see Spade [17.47].
20 See the reply to Geach in Trentman [17.51]. For a critique of Ockham's strategy, see Spade [17.47].

21 See Peter of Ailly [17.27] 9 and 37–44, and references there.
22 A similar approach is used in Buridan's discussion of opaque epistemic and doxastic contexts. See *Sophismata* [17.16], IV, sophisms 9–14. With the remainder of this section, see Ashworth and Spade [17.28].
23 Kretzmann [17.40]. See also Chapter 7 above, pp. 157–8.
24 With this section, see Spade [17.50], and *CHLMP,* ch. 9.
25 Spade [17.43]. In so far as such contexts can arise in mental language, this view requires equivocation there. See Spade [17.47].
26 [17.47]. See also n. 18, above.
27 Spade [17.50] n. 78 and the Appendix. For Brinkley I am grateful to M.J. Fitzgerald.
28 In the 'adverbial' sense of prepositional signification, described in section V above.
29 For qualifications and complications, see Spade [17.48].
30 Buridan's name for connotation is *appellatio* or 'appellation' (*Sophismata,* IV).
31 With this last part of section VIII, see Ashworth and Spade [17.28] and references there.

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CHAPTER 18

Late medieval philosophy, 1350–1500

Zénon Kaluza

INTRODUCTION

No fact in philosophical or other history underlies the commonlymade division of fourteenth-century philosophy around the year 1350, except perhaps the Black Death of 1348–9, which overcame the Oxford masters and destroyed an original style of thinking and doing philosophy. Things happened differently on the Continent, at least in 1348–9, so that this division does not apply there. The great philosophers of the Middle Ages who have a place in history were not all dead before 1350; and some, indeed, continued to think and write after this time. The chapter-division in this volume is, then, more than anything a reflection of the state of knowledge of historians, who have been more interested in the first half of the fourteenth century than in the second, so that our knowledge of the years 1300–50 is surer than that of the years 1350–1400. And since, as a general rule—to which this chapter is an exception—historians prefer to speak of what they know, they also adopt the breaks which indicate the limits of their knowledge of the past: breaks which are 'historical' only by convention. This applies also to the other limit of the period, the year 1500, the rough textbook boundary between the Middle Ages and modern times. Such text-book divisions exist to show that there is a moment when every beginning comes to its end and makes way for a new beginning.

The period 1350–1500 is, then, little studied. This is true not only of the philosophers and theologians, but also of the universities where they taught. For speculation—what is called 'medieval speculation'—did not take place outside universities except to a very limited degree.

It was always the work of clerics teaching in *studia*. The only important exception is Italy, where the development of humanism began by introducing philosophical thought into chancelleries and then later made itself a place of its own—the academies. But that is another story which, traditionally, does not belong to 'medieval philosophy'.

The century and a half from 1350 is precisely the period of development of the universities. It saw the foundations of several dozen universities everywhere in Europe, especially in Central Europe, but also in Italy, the south of France, Scandinavia and Scotland. Although they are not entirely indistinguishable, the history of medieval philosophy is also, at least in its origins, the history of the university as an institution. That is why, before discussing doctrines, we must consider the intellectual and institutional context of late medieval philosophy.

THE INSTITUTIONAL CONTEXT

After the tragic years of 1349–50, the University of Oxford became an important centre for realist philosophy, where logicians (who were already well known) worked alongside philosophers and theologians, such as the two secular clerics, Nicholas Aston and Richard Billingham, the Franciscan Richard Brinkley, the Carmelite Osbert Pockingham and the Augustinian Hermit Godfrey Hardeby. The years 1360–80 are notable for the intellectual activity of John Wyclif (*c.* 1328–84), the author of various works in English and Latin, of logic, philosophy and theology, politics, of sermons and of polemic. Pope Gregory XI condemned a set of his political positions in 1377, but it was not until 1380 that the criticisms of his theological doctrines began in England. In the following years, his positions and his writings would be condemned several times at Oxford and London, at Prague and at the Council of Constance. Among his critics we find several outstanding and prolific philosophers and theologians, such as the two Carmelites, Richard Lavenham (d. 1381/3) and Thomas Netter (in his *Doctrinale antiquitatum*). To the same group belongs the Dominican Thomas Claxton (d. 1430), a Thomist and member of the commission which condemned the writings of Wyclif in 1411. With Netter and Claxton we are already in the fifteenth century.[1]

John Wyclif has a decisive position in the intellectual history of Europe for two reasons. First of all, he added weight to the attack on nominalism, and his realism and reformism would profoundly influence the new University of Prague. They underlie the Czech reform and all its political and religious repercussions.[2] Second, after the fairly universal rejection of nominalism at the beginning of the fifteenth century, the criticisms of Wyclif and his condemnation stimulated and perhaps

accelerated the return to the great scholastic thinkers of the thirteenth century. This return (which seems to us today to be the first version of neoscholasticism) took place in England at the very time of the anti-Wyclifite polemics. It was thus earlier than the parallel movement on the Continent.

In Paris, the second half of the fourteenth century continued on the path already set until the beginning of the Great Schism (1378–1414), a period of political and doctrinal crisis for the university. After 1378 the influence of Oxford on Paris was diminished and relations between the two universities, which had already been weakened by the Hundred Years War, became openly hostile. Two schools engaged in explicit polemic: the nominalists (the followers of John Buridan) and the Scotists. A third, Thomism, was attacked brutally and publicly by Peter d'Ailly. In the faculty of theology a number of doctrines were current, and this led in the general direction of eclecticism. But the faculty of arts was dominated by the nominalist school, which seemed to have imposed its textbooks and methods. This position would change in about 1395, the time when Pierre d'Ailly gave up the position of Chancellor. From this date onwards, the realists—especially the Thomists, but also the followers of Albert the Great—made up lost ground and ended the nominalists' monopoly. The 1339 prohibition on teaching Ockham's doctrines, which was considered in the fifteenth century to be a ban on all forms of nominalism, would remain in force until 1481, when Louis XI lifted the prohibition of books and doctrines held to be nominalist.

Italian universities, sometimes older than those north of the Alps, developed in a different way from other *studia*. This came about for three main reasons. First, the great universities of Padua and Bologna opened their theology faculties (the faculties in which doctrinal speculation tended to be most developed) relatively late: Padua in 1363, Bologna in 1364. Other theology faculties would be opened even later. Without the natural support which theology gave it in the northern universities, philosophy as practised in Italy did not succeed, in our period, in producing doctrinal schools. But, for this very reason, the most gifted philosophers, Francis of Marchia, Gregory of Rimini, John of Ripa and many others, went to Paris and became famous there. Second, in Italy the faculties of liberal arts prepared young people for practical careers as physicians or lawyers and placed little emphasis on philosophical speculation. In Italy philosophy consisted most of all in the task of commenting on the writings of Aristotle and the set-books of grammar, astronomy and optics. Indeed, the important Italian philosophers of this period were often also medical doctors. All the same, towards the end of the fourteenth century, a tradition was born, and some people set themselves to studying English logicians and

philosophers, then to studying Averroes, Aquinas and Duns Scotus, whilst others were drawn to the novelty which is called 'humanism'.

Humanism is the third important factor in the development of philosophy in late medieval Italy. Everything which is most original and productive in the intellectual life of the late Middle Ages belongs to the broad movement of humanism, which Petrarch and an extraordinary series of chancellors of Florence, beginning with Coluccio Salutati (1375–1406) and Leonardo Bruni (1410–11, 1427–44), created and continued ([18.47]). These chancellors, assisted later by many 'humanists' (grammar teachers), brought into being the movement which would finally change the course of philosophy. They were attracted to a different sort of philosophy from that of the universities. For, whereas the university philosophers devoted themselves especially to logic, natural philosophy and metaphysics, the humanists were particularly interested in moral and political philosophy, ancient philosophy, literature and philology. The fifteenth century witnessed at once scholastic resistance to humanism and a mingling of the two currents of thought.[3] Their exponents did not always have friendly relations. Sometimes the humanists attacked university philosophy, which was heavily influenced by the English, complaining of *Suissenicae quisquiliae, subtilitates Anglicanae* and *barbari Britanni*.[4] Perhaps they were right, since not only the fourteenth century, which finished with Peter of Mantua (d. 1400), but also the fifteenth, which began with the teaching of Biagio Pelacani (d. 1416) and Paul of Venice (Paolo Nicoletti, d. 1429), and continued with Gaetano da Thiene, was very influenced by English logic and philosophy, that of the *calculatores* and Merton College in particular. In the second half of the fifteenth century, however, and later, humanist philology also conquered the universities and did great service for philosophy, encouraging work on texts, new translations and paraphrases and new commentaries. To it Aristotelianism owed its vigorous revival.[5]

The situation with regard to philosophy was different in the Empire and the countries bordering on it. The University of Prague, which was established in 1347, developed normally until about 1400. Its theologians were allowed great freedom and were influenced by the Church Fathers and twelfth-century writers such as St Bernard, the Victorines and Alan of Lille. Among the philosophers, who enjoyed a similar liberty, John Buridan's doctrines, equated with nominalism, were popular; but, from 1390 to the early 1400s, Wyclif often replaced Buridan as the model. Fairly soon, to Wyclifite philosophy there was linked Wyclifite theology and various attempts at ecclesiastical reform. The Wyclifites became a part of the reform movement and were linked with nationalism. The statute of Kutná-Hora (1409), abolishing the system of voting by nation, shook the university. Those who objected to it—the Germans especially—left to teach and study in German

universities, especially Leipzig (founded in 1409). After the condemnation of Jan Hus and Jerome of Prague at the Council of Constance and their burning at the stake (in 1415 and 1416), the Hussite revolution broke out, destroying the economic base of the university, the system of colleges and benefices. By cutting off the university from the rest of Europe, it caused philosophy to disappear from Prague for many years.

The University of Kracow, though established in 1364, only began functioning properly in 1400, with masters trained at Prague. Students of the following generations sometimes went to study at Cologne, Erfurt or Leipzig. The University of Vienna, founded in 1365, and refounded in 1384, was able to continue despite its difficult beginnings, thanks to the untiring work of Albert of Saxony and of the reorganizers of the university, Henry of Langenstein and Henry of Oyta. All three had previously studied at Paris. At Kracow, Vienna and in the new German universities of the fourteenth century—Cologne, Heidelberg and Erfurt—John Buridan had become the unchallenged authority in the faculty of philosophy. This nominalist *schola communis* persisted for varying lengths of time from place to place: in Paris until about 1395, at Cologne up until 1420/1, in Heidelberg until the 1450s, in Vienna right up until almost the end of the fifteenth century. Each of these schools made its own decision on whether it should continue with this or that philosophy.[6]

ENGLISH PHILOSOPHY

The mainstream of English philosophy after 1350 was realist. Realist philosophers looked to two points of reference in the recent past, which they used in order to define their own identity: the philosophy of William of Ockham and Thomas Bradwardine's *De causa Dei (In God's Defence)*. As a general rule, the writers rejected Ockham's teaching. Such, for instance, was the attitude of the Franciscan Richard Brinkley. His *summa* of logic continues, in this respect, the pseudo-Campsall's tradition of anti-Ockhamist logic.[7] For Wyclif, Ockham and his followers would always be *doctores signorum,* masters whose teaching is about words which signify things, but tells us nothing about the things themselves. By contrast, Bradwardine's masterpiece was criticized only on points of detail, whilst it is very often a rich source of inspiration, particularly in the cases of Thomas of Buckingham and Nicholas Aston.

Nicholas Aston, a theologian and philosopher, is interesting in a number of ways. He read the *Sentences* between 1352 and 1354, and then in 1358 he became a doctor of theology. He was Chancellor of the university from 1358 or 1359 to 1361, and finally Dean of

Chichester in 1362. Aston seems to have wanted to make theology and philosophy subordinate to his logical concerns. His treatise on *insolubilia,* which remains lost, is quoted in his commentary on the *Sentences* (still unpublished). This commentary raises a good many logical problems, such as the signification of affirmative and negative propositions, the nature of contradictory, contingent and false propositions, and the rules of inference. It is as a logician that he raised the great question of God's existence, since he believed that logic is the only discipline accepted by everybody without reservation and that the proof which it could provide would not depend on any philosophical presuppositions. This is to say that he rejected the proofs of God which had been devised previously. In particular, he criticized Bradwardine's proof, which is based on the concept of possibility (*De causa Dei,* I,1). Yet Aston is also Bradwardine's follower, especially in his critique of Duns Scotus's notion of impossibility and in his discussion of the view that the propositional content *Deum non esse* (that God is not) necessarily contains a contradiction (*De causa Dei* I, 13 and 14).[8]

Aston's own demonstration of God's existence is based on three definitions, three suppositions and two principles, one of which is important for us: 'every false proposition is either contingent or includes a contradiction' *(omnis propositio falsa est contingens vel contradictionem includens)*. The main proof (called 'Achilles') takes the following form:

1 If God exists, and if there is a proposition *p* which asserts that God does not exist, then *p* contains a self-contradiction.
2 *p* contains a self-contradiction if it is the case that God does not exist just as it does if it is the case that God does exist.
3 Therefore, in both cases, *p* is self-contradictory.

(2) is based on the principle that no change in things can prevent a self-contradictory proposition from being self-contradictory. Aston proves (1) in this way. Granted that God exists, suppose that the *p,* which denies his existence, is not self-contradictory. It must then be false. Now, according to the principle mentioned above, every false proposition is either contingent or self-contradictory. But *p* is not contingent because, by virtue of the definition of contingents, the statement 'God exists' would equally be contingent and so God, what is designated by the subject term, would be a contingent being. And so the statement 'God does not exist' is and will always be self-contradictory and so 'impossible'.[9]

This proof—one which, to our eyes, shows as much, or more faith in logic than in God—gave rise to lengthy discussion in England, France, Bohemia and even in Italy. These discussions are interesting not for

what they prove, but because of the subjects they touch on, the main one of which is the definition of impossible and self-contradictory propositions. This is, for example, the problem faced by the Augustinian, Godfrey Hardeby, and the Franciscan, Brinkley. Brinkley did not think that a 'simple negative' consisting of a subject and a verb, could be self-contradictory, but merely true or false.[10] In the final years of the fourteenth century, Biagio Pelacani, an Italian physician and philosopher, went on with the discussion of the same problem, and now linked it to causality. He knew very well the English debates about the statement 'God does not exist' ([18.40]). As far as we can discern today, the discussions which took place at Paris seem to have taken another direction. The scholars there tried to show the contradictory character of 'God does not exist' in a more commonplace way, by reference to the Neoplatonic definition of God as pure being *(esse purum),* or by recourse to Anselm's concept of the most perfect being. In each case this being cannot not exist.

Brinkley's discussion of the 'logical proof of God's existence was just one of the reasons for the popularity in Paris of his commentary, dating from 1350 to 1360. In fact the Parisian masters were also interested just as much in problems about the first contingent being *(prima contingentia)* and how contingent beings can be produced by a necessary cause, and those about the status of theology as a science and about the causes and nature of assent to the articles of faith. The two first problems are linked. They concern the reply to the question of whether the notion of creation is conceivable and, if so, whether the contingency of the effect presupposes a certain contingency in its cause. Bradwardine had followed others in putting this question. He had replied that the first and highest freedom and contingency, which causes all other freedom and contingency, is in the divine will (II, 5; 624B). This position was taken up by the Franciscan, John of Ripa and his disciple, Louis of Padua, but it was condemned in 1362 by the theology faculty of Paris. But Brinkley had already rejected it. He held that contingency derives from created things, not God: only being which changes is contingent. To answer the question, however, Brinkley presents God's productive action in an original way—by noun and by adverb: *modo necessario* and *necessario* ('in a necessary way', 'necessarily') *modo contingenti* and *contingenter* ('in a contingent way' and 'contingently'). The noun *modus* implies and determines the nature of the cause which acts. It cannot, therefore, be the case that God can act *modo contingenti* because, being a necessary being, he always acts *modo necessario*. By contrast, the adverb describes God's action in terms of its result, which is sometimes necessary (as in the persons of the Trinity), sometimes contingent (as in created things). The two assertions, that God acts *modo necessario* and that he acts *contingenter*

are not concerned with the same thing and do not rule each other out. Rather, they are complementary.

With regard to proving God's existence, Richard Brinkley rejects every sort of proof, whether a priori or a posteriori. Most frequently he makes clear his differences from the tradition of Duns Scotus and Ockham, in particular on whether *passio* can be demonstrated, rejecting any formulation of the univocity of being and arguing against the trinitarian theology of Scotus.[11]

Brinkley bases his semantics on two concepts: imposition and subordination. To summarize it very briefly: Brinkley maintains that a conventional sign (such as a word) signifies exactly the same thing as the corresponding natural sign (a concept) does—that is to say, an object outside the mind, not a concept. The only conventional signs that signify concepts are those especially imposed to do this. Otherwise, signification is immediate (sign natural/conventional>thing), so we can move from language directly to the world of things. Since conventional signs come after natural signs, their function as signifiers is based on a temporal relationship *(prius/posterius)*. Brinkley adds that no conventional sign depends on any other conventional sign; and he rules out any hierarchy of languages, since every language depends in the same way on natural signs. The relations between mental, spoken and written propositions are explained in the same way, and so is the concept of truth. Brinkley's view of imposition also affects his theory of obligations.[12]

John Wyclif became a member of Merton College in 1356, a master at Balliol in 1360 and a doctor of theology in 1372. A number of the writings of this energetic polemicist are gathered in two collections, the *Summa de ente (Textbook on Entities)* and the *Summa theologiae (Textbook of Theology)*. Wyclif considered himself close to the tradition of Richard Fitzralph and Thomas Bradwardine, and he often described himself as a 'realist philosopher', in this way marking his opposition to the 'doctors of signs'.

Wyclif's metaphysics is founded on two principles, the one positive, the other negative. The negative principle, 'Nothing is and is not at the same time' *(nihil simul esse et non esse)* is one of the many variants of the principle of non-contradiction. Wyclif considers it as a first and pure negation. The positive principle, that being exists *(ens esse),* is the first indubitable and indemonstrable truth. Being, the existence of which is asserted by this principle, is taken in general *(in communi)*. Being is transcendent, and everything which exists participates in it. It exists, then, in singular things: it is impossible to know transcendent being without knowing a singular, and vice versa. Being is identical to entity, one, the true and the good and it is the first object of knowledge *(primum cognitum)* of our intellect. As the first object known, it is also

the first *signabile,* that is to say, the first that is able to be designated by a word, to be signified by an expression. Being is eternal, not because the singulars which contain it are eternal, but by virtue of the first, uncreated being and also by virtue of the universals which are ideal reasons *(rationes ydeales que vocantur universalia)* and other eternal truths, such as the future and past states of things, negations, distinctions and numbers. This transcendent being is unique and the attributes which apply to created things cannot be predicated of it except analogously. It is not made of parts, but the human intellect is capable of distinguishing six transcendental attributes: being, thing, something *(aliquid),* one, true and good: the last three are 'qualities of being' *(passiones entis)*.

It should, all the same, be emphasized that for Wyclif the notion of analogous being has a special sense, derived from Augustine's theology of creation. He holds analogous being to have been created by a sudden and simultaneous act of creation, and he defines it—looking to the *Book about Causes (Liber de causis)* IV, 37 as the 'first created being' *(esse primum creatum)* or 'first of created things' *(prima rerum creatarum)*. When he created it, God placed in this being the models and measures of the genera and species. Afterwards, all particular things were made according to these models. This second act of creation is called by Wyclif 'administration' *(administratio)*. Wyclif's two-stage scheme of creation echoes Augustine's distinction between 'first creation' *(prima conditio)* and 'administration'. For this reason it is legitimate to think of the models contained in analogous being as Wyclif's version of the causal reasons *(rationes seminales)* discussed by Augustine.[13]

The ideal reasons mentioned in the paragraph before last are just one group among universals. In fact, universals are divided in two different ways into three groups. Following Avicenna (*Logica* 3) and Eustratius, Wyclif distinguishes between universals *ante rem,* the divine ideas; universals *in re,* the common natures in singulars; and universals *post rem,* concepts. In fourteenth-century fashion, he also distinguishes universals by causality, by communication, and by representation. The first way of dividing follows the universals' way of being, whereas the second mixes their way of being and their function. For instance, the divine ideas are universals by causation, because they cause genera, species and singular things, but they are also *ante rem,* for the very reason that they precede everything of which they are the cause.[14] Universals by communication are the common natures in which singulars participate, although they are formally distinct from them. Universals by representation are terms predicated in propositions.

Wyclif goes against tradition by identifying real universals with the genera and species listed in Genesis—that is, roughly speaking, with

natural kinds. In this way he combines the word of Scripture, philosophical analysis and our everyday perception of biological differences. Yet the point of his consideration of universals is simply to gain fuller knowledge of the Bible and the mystery of the Trinity: 'The knowledge of universals is particularly useful because it enables the literal sense of the scriptural passages which talk of universals to be understood and it reveals the paralogisms which arise in talking about the Trinity'.[15] In fact the mystery of the Trinity is explained by using the idea of formal distinction (that between the persons and the divine essence) and of communication (the divine essence which communicates itself to the persons). But Wyclif denies that there are any real distinctions in God (so as not to make his essence plural) and that what is common, the divine essence, is in any way prior to what is individual (the persons)—although this priority *is* found in the theory of universals. The formal nature of the distinction between God's essence and the divine persons is based on the epistemological idea of the 'first known' or that which is 'known principally' *(principaliter intellectum)* in God: at one moment this is essence (communicability), at another a person (incommunicability); but the two remain unmixed ([18.6] XIV: 143, 149).

Wyclif's doctrine of universals by causality was inspired by the passages in St Augustine on divine ideas. These universals—also called exemplars, ideas and archetypes—are in God. They are the very essence of God, and so 'essentially' God, whilst formally they are the reason by which God knows created things. The only distinctions between themselves, and between themselves and God, are formal. Wyclif and his followers used this opinion of St Augustine's to show that, thanks to the (universal) ideas, the action and the result of creation are intelligible: without them God would have created something without having knowledge of it. There is another way, too, in which universals make the world intelligible. Granted the priority of what is common and of the universal over the particular, we know a singular in so far as we contemplate its intelligibility, its 'passive intellection', which is the universal in God, placed in the Word, but present in the whole Trinity.[16] As for the number of the ideas, Wyclif merely distinguishes between ideas of singulars, those of universals and that of analogous being (the ontological status of which is not easy to grasp). Every created thing is singular in its existence, belongs to a natural kind, participates in being and reflects in itself the ideal world of causal reasons. And, since the causal chain is finite and infinite regress is impossible, there is no room for talk of ideas of ideas ([18.5] I, c. X: 72).

Wyclif's theory of universals must be clearly distinguished from the ontology of forms devised by the Franciscan Francis of Meyronnes. Whereas Wyclif identified the ideas in the mind of God, taken from

Augustine, with universals, Francis left ideas in the mind of God to the theologians, whilst as a philosopher keeping Platonic ideas. His theory is, indeed, a new interpretation of Platonism—and a more philosophical one than Wyclifs.[17] Spurred by Duns Scotus and Avicenna, Meyronnes imagines a world of formal quiddities, which gives the lie to Aristotle's caricature of Platonic ideas: 'If they exist, they are monsters.' Francis argues that, in Plato's view, essential predication, definition, demonstration and division are all based on ideas, since all these intellectual operations imply a specific nature which is unchangeable and unmoveable and set apart from any material conditions. These operations cannot even take place without there being formal quiddities: if they are to be true and necessary, the links between the terms must be made in the first instance outside the mind and not depend in any way on its workings. These quiddities must be pure and separated from everything which would determine them in a concrete being. For this reason, they must be attributed the same sort of being as Avicenna's essences. And so, if it is necessary to posit ideas, they must be formally separated from everything which has put them into an individual being: place, duration, *haecceitas* (this-ness). To put it in another way: their being is abstract by their nature, not as a result of an intellectual operation. To the final question, 'How can the *esse in pluribus* (being in many) which defines universals fit with quiddities?', Meyronnes has a simple reply: *accidit*. It so happens that a universal is in particulars or in our concept. But, from the point of view of its nature, it is there by accident; whereas from the point of view of the particulars, it is there by necessity.[18]

To return to Wyclif himself. Older views of the 'extreme realism' of his philosophy are not justified, if such extremism is taken to embrace the existence of genera and species outside singulars, and the existence of divine ideas outside the divine essence or really distinct from it. Wyclif rejects such a philosophy. On the question of universals, he places himself between Thomas Aquinas and Walter Burley, and with regard to ideas he accuses Aristotle of having been foolish to claim that Plato thought that ideas were separate essences. Wyclif's realism is not, then, extreme. Its unwonted nature reflects its unusual source of inspiration: it is a theological realism, because it derives from a literal reading of the word of Scripture.

Several Oxford masters adopted Wyclif's doctrine of universals, along with the metaphysics and logic which underpinned it. They carried on teaching a sort of Wyclifism until the 1420s, but they are hardly known to us.[19] At the same time, in the last decade of the fourteenth century, the University of Prague provided excellent ground for the development of Wyclifism, first in the person of Stanislas of Znaim (later the enemy of Wyclif and Hus; d. 1414) and his followers, John Hus (d. 1415) and

Stefan Palec (later the enemy of Wyclif and Hus; d. 1423), and later still in Jerome of Prague (d. 1416), Jacobellus of Misa (d. after 1430) and others.[20] All of these men shared Wyclif's teaching, especially his doctrine of universals as being at once divine ideas, common forms and terms or concepts. For the Wyclifites of Prague, however, universals were of especial interest in their first function, as ideas. Znaim, Palec and Jerome presented, as the basis of their teaching, a nourishing world of ideas, which merited love and adoration because of their real identity with God's essence—a view once rejected by Duns Scotus. None the less, only Znaim—so far as we know—set out to demonstrate at length the existence of universals on the basis of Genesis (cf. [18.26] n. 795).

PHILOSOPHY IN PARIS

If, at Oxford, the second half of the fourteenth century and the fifteenth century were dominated by realism, the situation was very different in Paris, despite the ban on teaching Ockham's doctrines. To consider just the second half of the fourteenth century: the faculty of arts was dominated by 'Parisian nominalism', or the school of Buridan, and this went on to win over the other universities on the Continent. The most famous masters of this school were Albert of Saxony (who went on to become the first rector of the University of Vienna), Themo the Jew, Dominic of Clavasio, Marsilius of Inghen (who became the first rector of Heidelberg), Henry of Langenstein, Peter d'Ailly, Henry Totting of Oyta and John Dorp, all of them famous in the history of science, or the history of logic, or as theologians.[21]

Given the relative silence of the other schools, it was the disputes between the 'Ockhamists' *(hereditas filiorum Ocham)* and the different intellectual inheritors of Duns Scotus which were witnessed by the faculty of theology. These 'Scotists' showed unceasing originality and independence of mind in relation to their doctrinal master. The case of a Spanish Dominican, Juan of Monzon, shows the sad state of Thomism in Paris at the time. It also gave Peter d'Ailly, the future chancellor, a better chance than he could have hoped to attack Aquinas's teaching publicly, at the university and at the court in Avignon. In the aftermath, the Dominicans withdrew from the University of Paris (1388–1403).

The nominalist school in theology is not well known: we cannot even be sure that it existed between the time of Gregory of Rimini and Peter d'Ailly. True, a statute of Louis XI, dated 1474, forbidding nominalism names as nominalist theologians Ockham, Wodeham, John of Mirecourt, Gregory of Rimini and Peter d'Ailly. Yet, of the three Parisians, Gregory and Peter are considered followers of Ockham, whilst John was rather a realist, who followed English writings closely and

plagiarized them energetically. All the same, since Peter d'Ailly also seems to have been as much of a plagiarist, it is hard to speak of his original ideas with confidence until there is a critical edition of his writings and their sources have been established. None the less, for our present purposes it is tempting to reconstruct the main decisions taken by the university and the main disagreements between the schools, since the first as much as the second affected the doctrinal teaching and the institutional life of the University of Paris. We have arranged them around three events which made apparent the situation of the various doctrinal schools: the statutes of 1339 and 1340; Peter d'Ailly's fight against Thomism; and Gerson's fight against the Scotists.

On 25 September 1339, the faculty of arts of Paris instituted a ban on commenting in public or private on the writings of Ockham, and on citing his opinions in disputations. This statute should not be taken, as some scholars have exaggeratedly read it, as a decision made against nominalism, but as a measure directed personally against Ockham, his writings and his teachings. And, since the faculty did not take the statute to go beyond these limits, nominalism was able to develop in Paris better than elsewhere. It was during the doctrinal struggles of the beginning of the fifteenth century, when Ockham was identified as the father of nominalism, that the broader interpretation of the statute was probably first entertained. Louis XI's law of 1 March 1474, which forbade all nominalist teaching and books, refers to the decision of 1339 as a prohibition of nominalism. Between 1339 and 1474 the meanings of terms had slipped and coalesced, and Ockham, Ockhamism and nominalism were considered one and the same. We should note, all the same, finally that the same Louis XI, in 1481, gave permission for nominalist doctrines to be taught, and, at the same time, removed all the earlier prohibitions.

The statute of 29 December 1340 was not a condemnation of Ockham and his own doctrine, nor a decision taken by the realists against the interest of the nominalists. Rather, it was a faculty measure taken against certain Parisian masters who said they were Ockhamists. No other reading is possible, since the text of the statute follows the letter and spirit of Ockham's and Buridan's doctrine.

The central problem in the statute, which occurs in four out of six articles, is that of the distinction between two senses of a proposition: the proper or literal sense *(virtus sermonis, sensus proprius)* and the improper sense, which however is considered as proper when it fits the imposition and use of the words, and when it is determined by a *materia subiecta,* that is to say, according to Aristotle and his commentators, a subject belonging to and treated in a determinate discipline.[22] We can call them 'proper sense' and 'improper sense' (which is 'proper' in a given language). With these two possibilities in mind, the authors of

the statute set out to consider every proposition in the light of two rules:

1 If a proposition *p* is false in the proper sense but true in the improper sense, it is accepted.
2 If a proposition *p* is true in the proper sense, but false in the improper sense, it is rejected.

These rules were known to Buridan, but they were used especially in theology by Peter d'Ailly and Gerson. They determine whether propositions are accepted or rejected, since, by the statute, only those propositions which accord with the first rule can be admitted, and all those which fall under the second rule must be rejected and left to 'sophists'.

The statute of 1340 can be judged as favouring nominalism. It derives from fresh thought about the idea of 'the force of speech' *(virtus sermonis)* and about the division of knowledge into disciplines, each of which has its own language with its special characteristics. Altogether, logic apart, the *virtus sermonis* exists only within a language determined either by the subject being treated, or by the discipline to which the language and the subject belong. By stressing, like Aristotle, the importance of subject matter, the statute introduces another meaning of the term 'certainty' besides the certainty of our act of knowing (already the subject of epistemological discussion): the certainty of a demonstration within a given discipline. In this way, the statute takes the problem of certainty from the domain of epistemology and places it within the context of questions about how we build up a scheme of knowledge and about probability and evidence.

With these remarks in mind, we can see the position of the Parisian Ockhamists. The statute criticizes them for having too rigid a view of the proper meaning of terms, a meaning which can be verified always and everywhere, especially using personal supposition, to which they gave absolute priority. They limited themselves to this universal, logical analysis probably because their interests did not go beyond signs, for the simple reason that they thought that terms and propositions are the only object of human knowledge. The School of Buridan answered this 'Ockhamist' position by showing the flexibility of language and adopting rules of analysis for the technical languages of the different branches of knowledge.

What has come to be known as 'the Monzon affair' (1387–9) was a dramatic series of events with important institutional repercussions. The events are well known, but more often than not the institutional repercussions are presented solely as the abandonment of the University by the Dominicans. The subject of the dispute was the

Immaculate Conception, in which Peter d'Ailly, his brilliant pupil Gerson and the faculty of theology believed, but which Monzon and the Dominicans rejected. The dispute acted as a pretext for a battle between the theology faculty and the powerful Dominican Order, and between nominalists and realists. Quickly, the Monzon affair came to centre on Thomas Aquinas and his doctrine, and it was exactly this development which made the Dominicans leave the university. The decisive episode in the struggle took place at Avignon, before the Pope, his court, some Dominican doctors and a delegation of Paris theologians ([18.49] 197–8).

Peter d'Ailly's long and skilful sermon raised a number of fundamental problems for the Church and the Paris theology faculty: in particular the question of the order of the jurisdiction of the various different ecclesiastical authorities which are empowered to define doctrine, and the hierarchical order of those who are allowed to teach the Word. Here d'Ailly holds that Aquinas is at the bottom of the hierarchy, placed after Peter the Lombard, among his commentators. In the course of giving his answers to these questions, d'Ailly also examines the value of the teaching of Aquinas itself. And it is here that we can see the young theologian attacking the authority of the 'holy doctor'. He gives his views in two sets of three conclusions. The first series gives a general estimation of the doctrine, and the second consists of a wide-ranging demonstration of Aquinas's errors. Conclusions 1–3 state the following: although Aquinas's doctrine might be accepted as being useful and probable, we must not believe that it is true in every part, nor that it is entirely without error or heresy. And Conclusions 4–6: in the *Summa contra Gentiles* (II, 29–30), Aquinas's doctrine on the absolute necessity of created things is literally false *(de virtute sermonis),* blemished with errors and in part suspect. Even if, when understood correctly in accord with its author's intention, it is to a certain extent correct *(aliqualiter vera),* it should not be taught without its correct meaning first being established.[23] The final conclusion has the air of a gratuitous concession, although it fits perfectly with the first of the 1340 rules, which d'Ailly quotes and uses in this very sermon. D'Ailly admits that he has been using the style of the polemic, where one must show up an enemy's weaknesses *(de virtute sermonis)* and disguise his strong points: in the end, Aquinas's thesis can be taught when the distinction of the two senses of *virtus sermonis* is made.

Peter d'Ailly was able to show at Avignon the errors and contradictions of Thomism, and to make himself noticed. In the aftermath of this victory, the faculty of theology succeeded in making the Dominicans leave the university and the office of almoner, whilst d'Ailly was given two appointments: first, to be the royal almoner, and

second (on his nomination from Avignon) the chancellorship of the university (1389). The Monzon affair took place, then, when the university was dominated by the nominalists, and this would continue until d'Ailly left the chancellorship in 1395. We know very little about this period and we cannot talk about it with confidence. It seems very likely, however, that the ban on commenting Aristotle following a realist author, which is mentioned by John of Nova Domus (Maisonneuve) at the beginning of the fifteenth century, could well have come between 1388 and 1395.

We know of several conflicts between theological schools, thanks to the work of Ehrle on Peter of Candia. They are of interest to historians of philosophy in so far as they concerned speculative matters, and also because they afford a precious opportunity to trace the divisions of schools as they were perceived and described by the very participants in these disputes One of the rivalries, in the 1370s and perhaps later, was between the nominalists and the *formalizantes* mentioned above. Although there was some slowing down in the production of Scotist books towards the end of the fourteenth century and at the beginning of the next century, Gerson sustained this conflict up to his death in 1429. He accused the Scotists and *formalizantes* (formalists) of three errors. First, they introduced into theology a principle of causality—'from the same in so far as it is the same nothing but the same can come' *(ab eodem in quantum idem non provenit nisi idem)*—which turns free creation into a necessary act. Second, in order to safeguard the reality of our knowledge, they asserted that a thing in the extramental world corresponds to each of our concepts. Third, by distinguishing between the divine essence and its attributes, they introduced a formal distinction within God.[24] To Gerson, the thinker principally responsible for these errors was John of Ripa.

At this time, the Scotist school was not particularly important at Paris. During the first half of the fourteenth century the school had developed quickly (we need merely mention Francis of Meyronnes, Nicholas Bonet and Peter Thomae); and at the end of the fifteenth it would flourish again (in the treatises *de formalitatibus* by Stephen Brulefer and Antonius Sirect, on which several commentaries were written at Padua). But, during Gerson's working life, Scotism was going through a period of torpor. None the less, there were good reasons for Gerson to criticize the Scotists. Their ontology of forms—especially the priority of *formalitates* to the act of knowing them—contradicted the bases of Gerson's own thought, which owed much to the tradition of Buridan and d'Ailly. Moreover, when eighteen articles of Louis of Padua were condemned in 1362, this was also a condemnation of John of Ripa. When they introduced formal distinction into the absolutely

simple being of God, Louis and John had asserted, among other things, that 'something in God is his real being which is not his formal being' and that 'something intrinsic in God is contingent'.[25] Finally, there was the question of theological language, linked to Buridan's idea that the proper meaning of words is limited to a determinate discipline. Throughout his work, Gerson held that the theological vocabulary of Scotus and the Scotists (and that too of Raymond Lull) was improper and had departed from the tradition of an Aristotelian way of speaking ([18.55] 39–40, 51).

CONCLUSION: FIFTEENTH-CENTURY STAGNATION

In a letter which he wrote in 1400 to the young theologians of the College of Navarre, Gerson advised his readers to study the great scholastics of the thirteenth century. As for more recent theologians, Gerson said that they were excellent in many ways, but beneath the covering of theological language they had busied themselves with problems of physics, metaphysics and logic ([18.1] II, n. 5). This call for a return to classical scholasticism was in harmony both with Gerson's own underlying ideas and with the new intellectual tendencies of his time. Faithful to the school of Buridan, to the 1340 statute and to the programme which Pope Clement VI had given the university in a letter of 1346, Gerson always fought against the mixing of disciplines and their languages.

The revival of realism in Paris began in 1395–1400 (see [18.54] and [18.76] 279–394). Here, as at Cologne, it took the form of a minor intellectual rebellion against the obligation to study only nominalist treatises, in particular those about the properties of terms. Among the rebels there were also a good number of Thomists and Albertists. As the conflict developed, three different ideas of university freedom came into play. There was that of the conservative establishment, who upheld the exclusive position of nominalism although they allowed the chance for realist philosophers to be mentioned (Cologne, 1414). There was that of the Albertist John of Nova Domus, who proposed confining himself to the Christian—that is to say, Aristotelian—tradition, from which he excluded the nominalists (Paris, before 1418). Finally, there was that of the Cologne realists who allowed all the university traditions.

By contrast with the tradition of the school of Buridan, which separated the disciplines and their principles, the realists put forward the old model in which knowledge is unified: its basis is metaphysics, from which all the particular disciplines derive. They also insisted on the unity of the principles governing all philosophical and theological

speculation. Clearest about this was the University of Cologne which, in 1425, declared that the links binding philosophy and theology were indissoluble, and took St Thomas for its model, because 'in his two *Summae* he uses the same principles as he does in expounding the works of Aristotle' *(in omnibus Summis suis utitur eisdem principiis, quibus usus est libros Philosophi exponendo)*.

The nominalists responded to this exaltation of the great thirteenth-century scholastics by looking to the founders of their own school, John Buridan and Marsilius of Inghen. Indeed, strange to say, round about the year 1400 philosophers decided that they would no longer do philosophy on their own account and no longer take any personal responsibility for their philosophical positions. Rather, they spent the whole of the fifteenth century fighting among themselves, with prescriptions and prohibitions as their weapons, not in order to impose on everybody their own thought, but that of their distant models: Thomas Aquinas, Albert the Great, Duns Scotus, Giles of Rome and Buridan. Universities passed statutes to remove undesirables and to close themselves to new ideas. None of these decisions rose above the level of factional in-fighting.

This upholding of traditions and the related and unceasing conflicts (especially in the German universities) were institutional rather than doctrinal in their basis. Historians describe them by the German word *Wegestreit*. Sometimes by their violence and length these conflicts turned universities into a battleground where scholars fought to re-establish one of the old schools, whether realist or nominalist. The courses in these universities were limited to the revival of the thought of one or another great master of the past. Likewise, the practice of teaching centred on the great names of the past. In England, Wyclif was attacked in the name of St Thomas. In Paris, a predominantly Thomist realism became the established doctrine by the last quarter of the century. In Germany, the choice of doctrine was regulated by the statutes of the different universities. Since this return to old scholasticism was the first of a series of such deliberate returns, it is certainly right to call it *the first neoscholasticism*. In Italy alone this type of institutional conflict had no place: there philosophers at once followed the English tradition of 1300–50 and the Parisian traditions of Averroism and Buridanism, as well as the traditions of Thomas Aquinas and Duns Scotus.

(translated by John Marenbon)

NOTES

1 For a general picture, see Catto and Evans [18.37], Hoenan *et al.* [18.52], Robson [18.72] and Courtenay [18.39] 327–80; 384–413, with bibliography. Richard

Billingham's theological writing has not yet been recovered; that of Nicolas Aston is unpublished; that of Richard Brinkley is known only in abbreviated form; that of Godfrey Hardeby, preserved in two manuscripts, has recently been identified by A.Tabarroni [18.75] 341, 348–53. Thomas Netter's *Doctrinale antiquitatum fidei ecclesiae catholicae* (completed in 1437) has been printed several times: see Stegmüller [18.27], n. 9055. Thomas Claxton was critical of Wyclif as well as of Ockham and Duns Scotus. He wrote a commentary on the *Sentences* and a *Quodlibet* consisting of seven questions (which is why it is—wrongly—called *Quodlibeta*); qq. V and VI were edited by M. Grabmann in 1943: see Riva [18.71].

2 H.Kaminsky, *A History of the Hussite Revolution,* Berkeley and Los Angeles, Calif, 1967; F.Smahel, *La révolution hussite, une anomalie historique,* Paris, 1985.

3 See, on the whole of the period 1350–1500, B.Nardi, *Saggi sull'aristotelismo;* A Poppi, *Introduzione,* Padua, 1970; and the studies by Kristeller listed in the bibliography. C.B.Schmitt has given especial attention to problems of methodology in [18.73] and [18.74] ch. 1.

4 See Garin [18.45] 141–77; Vasoli [18.77] 9–27; Murdoch [18.69]. We should remember, as Kristeller has pointed out, that these mocking comments were not always taken in earnest.

5 For details, see notes 3 and 4; Maierù [18.67]; Garin [18.44]; Schmitt [18.73] ch. 3; Federici Vescovini [18.41].

6 Gabriel [18.42] 457–83. It seems that it was only in the faculties of arts that a *via* ('method', later: 'school') had to be followed.

7 Fitzgerald [18.10] 18 n. 44, suggests 'the possible identification of Richard Brinkley with the author of the *Logica contra Ockham*'. But I have shown in my study of Brinkley ([18.11] 266 n. 38, 269 n. 60) that this identification must be rejected.

8 Thomas Bradwardine, *De causa Dei* I, 13, 207C: 'aliter et forte melius potest dici, quod Deum non esse necessarissime contradictionem includit'; and I, 14, 209E–210A. The ground for this idea is prepared through a long discussion of *esse* (being) and *necesse esse* (necessary being). But the doctrine as a whole and its consequences rely on a type of metaphysics called by Etienne Gilson a 'metaphysics of Exodus' (in reference to Exodus 3:14), where the primacy of *esse* is emphasized. In accord with this metaphysics, Bradwardine defines the first necessary, affirmative principle (ibid., I, 11–12). Thus it is the necessary divine being which makes its negation a contradiction. Aston's thought would leave metaphysics and examine the question from the logical point of view. But the Parisian thinkers would return to Bradwardine's more congenial way of thinking.

9 Ms. Worcester, Cathedral Library, F 65, f. 46va; Oxford, Oriel College, 15, f. 221rb: 'Aliter arguo quod Deum non esse contradictionem includit, et hoc argumentum est mihi Achilles. Et arguo sic. Si Deus est, et aliqua propositio est significans praecise Deum non esse, propositio sic praecise significans contradictionem includit; igitur, sive Deus sit sive non sit, si aliqua propositio est significans praecise Deum non esse, ipsa propositio praecise sic significans contradictionem includit. Primo probo consequentiam. Propositio aliqualiter significans et contradictionem includens, quacumque mutatione facta ex parte rei, dummodo ipsa sit semper eodem modo significans praecise, ipsa semper erit contradictionem includens. Verbi gratia, ista propositio "Rex sedet et nullus rex sedet" contradictionem includit rege existente; consimiliter…rege non existente… Item probo antecendens…et arguo sic. Antecedens est una consequentia, quae si non valeat, pono oppositum consequentis stare cum

antecedente, utpote quod Deus est et quod propositio aliqua est significans praecise Deum non esse, et tamen propositio sic praecise significans contradictionem non includit…' See Bender [18.32]; Courtenay [18.39] 343–6; Kaluza [18.54].

10 Godfrey Hardeby has been known for some time as the *Augustinensis subtilis* of Oxford. A copy of his commentary of the *Sentences* is found in Paris, Bibl., nat., lat 16535, f. 75–110. Q. III: *Utrum Deum non esse contradictionem inferat manifestam,* has been edited by L.A.Kennedy, 'A fourteenth-century Oxford Augustinian on the existence of God', *Augustiniana,* 36 (1986):28–47. A. Tabarroni has found a new manuscript of the commentary which has allowed him to make the identification between Godfrey and *Augustinensis subtilis* (see n. 1). On Richard Brinkley, cf. Kaluza [18.11] 230–2, 262–5, nn. 29–33.

11 For a general account, see Kaluza [18.11].

12 Gál and Wood [18.43]; Fitzgerald [18.10] 18–28; Ashworth [18.30] 15fF. We summarize briefly here the *Summa logicae,* Treatise I and part of Treatise V, which is still unpublished.

13 Wyclif [18.4] I, tr. I, c. 1–3. These three chapters are dependent on the *On the Nature of Genus* c. 1, attributed to Thomas Aquinas; cf. S.Thomae Aquinatis *Opuscula philosophica,* I, ed. J.Perrier, Paris, 1949, pp. 495–9. See also Catto [18.37]. On double creation, see Augustine, *Literal Commentary on Genesis,* IV, iii–xii and V, xx–xxiii; Wyclif [18.5] II, ch. 3 and [18.14] ch. 12, and Kaluza [18.56], which also discusses univocity and analogy of being.

14 See especially [18.4], I, tr. 1, c. 4–5, and *Tractatus de universalibus, passim*. For an account of the doctrine, cf. P.V.Spade, in the Introduction to the translation of Wyclif's *On Universals* [18.14] and A.D.Conti, in the doctrinal study following his edition [18.2] 298–309. The second distinction is found here and there in the fourteenth century. Most frequently, it is used to explain the word *universale* (taken either as a noun or an adjective). For example, John Buridan recognizes a causal universal, which he distinguished from the universal as a term: 'Uno modo aliquid dicitur universale secundum causalitatem, quia causa est multorum. Et sic universalissimum in causando esset Deus, et consequenter intelligentiae, et corpora caelestia… Alio modo docitur universale secundum praedicationem vel significationem' (*In Metaphysics,* I, q. 15, Paris 1518, f. 50va). Making the distinction between *universale* and *particulare,* Ockham (*Summa logicae,* I, 14; *Opera philosophica,* I, p. 49, 47–52) asserts: 'Indeed, we call the sun a universal cause, because it is the cause of several things.' The origin of the distinction is unknown. The shift in its meaning is also found in Wyclif: 'From all this it is clear—I think—that all envy or actual sin is caused by the lack of an ordered love of universals,…because every such sin consists in a will preferring a lesser good to a greater good, whereas in general the more universal goods are better'; [18.14] 3, p. 22, 145–50.

15 [18.4] I, tr. I, c. 5, p. 57, 17–20; cf. Conti [18.2] 298. For the whole discussion, see the texts and studies cited in n. 14. A sign is called 'universal' by metaphor: 'magis remote dicitur universale quam urina dicitur sana'; [18.4], p. 55, 3–6. Wyclif recognizes three distinctions: essential, real and formal. Formal distinction is not 'by reason' or 'notional' but by 'formal reason'. Conti [18.2] 301–3, indicates various difficulties raised by the relations between the three types of distinction. Wyclif s English followers would abandon this part of his teaching.

16 Wyclif [18.5] I, c. VIII–IX, p. 66, defines 'idea' thus: 'ydea est essentialiter natura divina, et formaliter ratio, secundum quam Deus intelligit creaturas'. The treatise *De ideis* (part of the *Summa philosophica*) is still unpublished. It is probably with the 'ontological place' of the ideas in the Word that Wyclif s partisans put into his mouth the adage, *Qui negat ideas, negat Filium Dei*. The adage is almost always attributed to Augustine and it was certainly coined before the time of Wyclif: it was known by John of Paris, *In I Sent.,* q. 119; by Master Eckhart, *Expos. Gen.,* I, 5; Thomas Aquinas, *De ver.,* q. 3, a. 1, sed contra; Albert the Great, *In II Sent.,* d. 35, a. 7, n. 4; and William of Auxere, *S. aur.,* II, tr. I, c. 1. The formalist ontology of Francis Meyronnes presents an analogous case. Here the being of essence (the quiddity, the idea) has a separate formal being, which can become concrete 'by chance'. Francis asserts that whoever denies the existence of quiddities must deny the existence of everything *(qui negat quidditates habet omnia negare), Quodl.,* q. 8.

17 Nicholas of Autrecourt provides a third example, but sadly only a sketch of it, preserved on the last page of his unfinished *Exigit ordo,* is known.

18 For a general account, see Vignaux [18.78] 265–78, cited here.

19 Cf. Conti [18.2] 226–7, 309–17. The main figures are John Sharp (Rector in 1403), Robert Alyngton (d. 1398), William Milverley, John Tarteys, Roger Whelpdale (d. 1423), several of whose works have been edited by Conti, and William Penbygull (d. 1420). See also Hudson and Wilks, *From Ockham to Wyclif*.

20 See Spunar [18.26], s.v., and Bartos and Spunar [18.16]. On Znaim, see also Nuchelmans [18.70].

21 On the history of the school of Buridan, see Michael [18.68] 321–89.

22 *Chartularium Universitatis Parisiensis,* II, n. 1042. Art. 1: 'nulli magistri, baccalari vel scolares…audeant aliquam propositionem famosam illius actoris cuius librum legunt dicere simpliciter esse falsam, vel falsam de virtute sermonis…; sed vel concedant eam, vel sensum verum dividant a sensu falso…; *cum sermones sint recipiendi secundum materiam subiectam;* art; 3: 'nullus dicat quod nulla propositio sit distinguenda'; art. 4: 'nullus dicat propositionem nullam esse concedendam, si non sit vera in eius sensu proprio'; 'Magis igitur oportet in affirmando vel negando sermones ad materiam subiectam attendere, quam ad proprietatem sermonis'; art. 6: 'nullus asserat absque distinctione vel expositione, quod Socrates et Plato, vel Deus et creatura nihil sunt'. The distinction between suppositions had been known and followed for a long time. What was new in the 1340 statute was the distinction in the sense of propositions according to their 'matter'. Article 1 refers to the *Nicomachean Ethics,* II, 2, 1104a 3, but the problem is in fact considered in Book I, c. 3. For the detailed interpretation of this text, see Kaluza [18.57] 223–55.

23 Full edition in C.Du Plessis D'Argentré, *Collectio judiciorum,* I–2, Paris, 1728, p. 116a, concl. 1; 116b, concl. 2; 117a, concl. 3; 124a, concl. 4; 125a, concl. 5; 128b, concl. 6.

24 A.Combes, *Gerson commentateur dionysien,* pp. 305–11; 568–687; Kaluza [18.55] 50–60; de Libera [18.65]. Gerson's criticisms of John of Ripa sometimes follow those of Peter d'Ailly. The formal distinction is also called a distinction *ex natura rei sed non realis,* so as to differentiate it from a distinction *ex natura rei,* which is not formal. Scotists made either three distinctions *(rationis, formalis,*

realis), or five (adding a *distinctio modalis* and a *distinctio essentialis*), or eight (adding distinctions: *ex natura rei, se totis subiectiva* and *se totis obiectiva*). A formal distinction pertains between two formalities, that is to say two quiddities or formal reasons, one of which does not belong to the essence of the other and each of which is known by a distinct act of the thought—for instance, all the quiddities, definable or indefinable, which are most specific (humanity), subalternate (animality), most general (quantity) and transcendent (entity). These formalities exist before they are known by the human intellect: *ante omnem operationem intellectus*. It is for precisely this realism that Gerson criticizes the Scotists.

25 A.Combes, p. 644ff.

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CHAPTER 19

Suárez (and later scholasticism)

Jorge Gracia

THE SILVER AGE OF SCHOLASTICISM

The golden age of scholasticism covered a period of roughly one hundred years, from around 1250 to 1350. There were important scholastic developments before 1250 and after 1350, but it is generally thought that they cannot compare with the achievements of the years in between. The sheer number of productive authors during this period and the extraordinary originality and intellectual rigour of their thought makes this one of the periods of highest achievement in the history of ideas. The silver age of scholasticism came roughly one hundred and seventy-five years later and also lasted for a period of about one hundred years, from about 1525 to 1625. Again, there was an extraordinary level of intellectual productivity in terms of both quantity and quality, but as a whole the silver age cannot rival the golden age either philosophically or historically. First, philosophically, because it depended to a great extent on the achievements of the earlier period; thus the silver age cannot be regarded as original as the golden age. Second, historically, because the philosophy that followed it largely moved in a different direction; while many of the thinkers who came after the golden age looked back on it for inspiration, most thinkers who followed the silver age looked away from it, rejecting much that characterized it.[1]

There are, however, remarkable similarities between the golden and silver ages. Both ages were guided by the scholastic aim of understanding the Christian faith. They exerted considerable effort in the defence of that faith and of orthodox doctrine against actual or perceived threats. Scholastics of both ages were heavily Aristotelian, giving 'the Philosopher'

a prominent place in matters philosophical, but relying on authoritative patristic and scriptural sources for their theological doctrines. Both ages followed or were concurrent with periods of translation during which newly discovered works written in other languages were rendered into Latin. The centre of activity in both cases was the university, and the literary forms of expression used were largely a result of curricular activity. Finally, most scholastics were members of religious orders and, thus, had a strong commitment to the goals of those orders.

In spite of these points of similarity, there are profound differences between the two periods. Although both periods had the same aim of understanding the Christian faith, the overall theological emphasis that inspired most activities of the earlier scholastics had decreased in the sixteenth century. In theory and in some aspects of practice, philosophy remained the servant of theology, but a progressive independence of reason, as demonstrated by its increasing use apart from faith, developed in the later period. The traditional scholastic format of argument, in which both theologically authoritative sources and arguments based on reason were given in support of the positions to be defended, ceased to be the norm in non-theological works, and a greater emphasis was put upon reason. Moreover, the political structure and ideological situation of Europe during the silver age—and, in particular, the discovery of the New World—raised new important philosophical and legal issues of a secular nature that encouraged speculation independent of theology. For example, matters that had to do with the rights of conquered peoples produced a body of literature largely purged of theological considerations. There were, of course, many issues discussed by masters of arts and others in the earlier period that had nothing or little to do with theology, and in the discussion of which theological authorities were largely ignored. But the number of these secular issues increased substantially in the later period.

With respect to the apologetic spirit of both periods, again there are substantial differences. In the golden age the defence of Christian doctrine was primarily directed against infidels, as illustrated by Thomas's *Summa contra Gentiles,* or against those who were thought to have accepted too much of the thought of pagan philosophers, as is evident from the list of doctrines officially condemned in Paris in 1277. Yet there was no overall sense of urgency in the Church, nor was there a unified and institutional effort to deal with the challenges to orthodoxy. During the silver age, however, the situation was different. The challenges to the Church came from two different sources within the Christian community and one of them had considerable political power. The first source was humanism. The discovery of new literary, philosophical and artistic works from the ancient world had given rise not only to a renewed interest in pagan ideas, but to a change of attitude

in the intellectual community that seemed to many to pose a threat to the integrity of the Christian faith. The second source was the Reformation, a movement of rebellion against institutionalized Christianity that gained considerable political support. As a result, a sense of urgency among members of the hierarchy and an organized Church-wide effort to meet these challenges developed, culminating in the Council of Trent (1545–63). There was, therefore, much apologetic literature written during this time, and its tone appears more urgent and compelling than that produced in the golden age. Medieval scholastics were fighting ideas, but scholastics from the silver age were fighting not only ideas, but also worldly power.

There is, as noted, remarkable agreement in the sources of both periods, with the later period depending heavily on the first as well. By the sixteenth century, scholasticism had become parcelled out into three traditions according to the author followed by each of them: Thomism, Scotism and Ockhamism. Moreover, these traditions had become identified with certain religious orders that looked upon the founders of these traditions with proprietary interests. For example, Dominicans were generally Thomistic, while Franciscans tended to follow Scotus or Ockham. This sort of ideological alignment had already begun in the thirteenth century, but it was not as rigid as it eventually became during the silver age. Moreover, the influence of Thomas Aquinas became increasingly pervasive in the silver age, particularly in the Iberian peninsula, a fact which has led some scholars to speak of a school of Spanish Thomism.

The heavy use of Aristotelian and medieval scholastic sources by scholastics of the silver age points to another interesting difference between the silver age and the golden age. While both ages coincided with or followed periods of intense translation activity, in the golden age the resulting translations helped shape the thought of the period and were the immediate source of much of that thought.[2] By contrast, scholastics of the silver age largely ignored the new translations. There may be many reasons for this relative neglect, but surely one of them was the heavily Aristotelian character of scholasticism, which must have found distasteful the overwhelmingly Platonic material being translated.

The activity in both periods was concentrated in the university, but again there is an important difference. In the golden age, Paris was the unchallenged centre of both scholasticism and the intellectual life of Europe; it was the 'new Athens'. There were other important universities such as Oxford, Cambridge, Bologna and Naples, but none rivalled Paris. Moreover, an intellectual axis developed along a line which went from Rome to Oxford, passing through Paris. By contrast, the scholasticism of the silver age was most concentrated in the universities

of the Iberian peninsula: Coimbra, Alcalá, and, above all, Salamanca. There were significant places of learning in Italy too, but they were much less influential than the Iberian universities. Intellectual communication now extended from Coimbra, through Salamanca, and ultimately to Rome. These are two other important points to note. First, as in the earlier period, these strongholds of silver-age scholasticism were not alone in promoting great intellectual ferment. Paris, Oxford and Cambridge, for example, were also important, and there was considerable work done in the Netherlands and Germany. Second, these centres of silver-age scholasticism did not hold a monopoly on the intellectual life of Europe. By the sixteenth century scholasticism had become a regional, albeit powerful intellectual force—perhaps the most powerful at the time—but it had ceased to be the only intellectual force in Europe, as it had been during the golden age.

The scholastic literary genres favoured in the golden age, namely, the *summa,* the *quaestio,* and the commentary, were also used in the silver age, but with an important new development in this later period. Iberian scholastics, particularly Fonseca and Suárez, helped develop a new genre that became the standard form of expression among scholastics after the sixteenth century: the systematic and comprehensive treatise. There are plenty of examples of systematic and comprehensive treatises produced in the Middle Ages. Indeed, medieval *summae* are both systematic and comprehensive. But there are some important differences between medieval *summae* and the treatises produced during the silver age and thereafter. First, medieval *summae* tended to follow the established arrangement of the discourse in whatever subject-matter they explored. These patterns were derived from textual traditions going back to original paradigmatic works or particular doctrines. Thus, for example, the pattern of theological *summae* generally reflected an order of progression from God to creatures and back to God, the Neoplatonic *exitus–reditus* theme.

Second, the new type of literature differed from the medieval *summae* in that it abandoned the *quaestio* format, which had been used very frequently by earlier scholastics, in favour of an unbroken exposition of topics. Finally, these treatises were put together and organized into complete courses *(cursus)* of study that extended beyond particular disciplines, and included logic, natural philosophy and other philosophical disciplines. Sometimes these 'courses' were the result of co-operative efforts, as was the case with the well-known *Cursus Conimbricensis,* the main author of which was Fonseca. At other times, they were the result of a single author's effort (or that of his editors), as was the case with John of St Thomas's *Cursus philosophicus*.

The didactic advantages of the new genre should be obvious, for it organized materials in a continuous, comprehensive and logical way

which facilitated teaching and made these works ideal textbooks. On the other hand, it introduced an element of dogmatism that was lacking in most of the earlier literature, for it veered toward the expository and away from the polemical, losing the sense of the controversial character of the topics discussed. This was not the case with all the philosophical treatises of the period; some still presented the *status questionis* of the issues they discussed in a polemical or quasi-polemical manner, but it certainly applied to a considerable portion of the philosophical literature produced at the time. Moreover, the adoption of the systematic and comprehensive format contributed to the neglect of the commentary and, therefore, the further estrangement of scholasticism from humanism. Primary sources were read in conjunction with these secondary sources, resulting in the neglect of the original authors and the frequent misunderstanding of their views (cf. [19.40] 835–7).

Finally, although the most prominent members of both periods belonged to religious orders, the leading order during the silver age was the Society of Jesus, which had been founded by Ignacio de Loyola in 1540 in response, first, to the challenges that the Reformation posed to the Catholic Church and, second, to the need to convert the heathen. The mission of the Jesuit order, then, was from the start an apologetic one; and the order was organized like an army—a clear indication of its aim. By contrast, the Franciscan and Dominican orders, which had dominated the golden age, had less defined and militant missions. The aim of the Franciscans was one of service, and the aim of the Dominicans was instruction through preaching. The latter was in part a response to the need to defend the faith against infidels and heretics—Domingo de Guzmán was a Spaniard and was quite aware of the needs of a frontier church—but the Dominican order was never intended to be an army for the Church.

Understanding the similarities and differences between the golden and silver ages of scholasticism should help us understand Suárez, for he eminently displayed most of the characteristics of the scholasticism of the silver age we have discussed. He pursued the medieval aim of understanding faith, but granted philosophy a sphere of operation separate from and largely independent of theology. As a theologian, he was at the forefront of the defence of Catholic doctrine and the Catholic Church against the attacks of the Reformation. He was aware of the rigid conceptual traditions associated with the medieval religious orders and moved easily within their frameworks, although he frequently tried to break down the barriers among them. His thought was strongly Aristotelian, ignoring to a great extent the recently produced translations of non-Aristotelian works, but he showed extensive and firsthand acquaintance with traditional Christian sources. Suárez spent his

professional life almost entirely within the confines of the leading Iberian universities of the period. He never taught at Paris, and most of his exchanges took place with either Iberian or Italian authors. He was the first to apply a systematic approach to metaphysics, and finally, as a member of the Jesuit order, Suárez displayed some of the combative traits associated with that order in several of his more polemical works. In short, it would be hard to find among scholastics of his time one that displayed more clearly the traits that characterized the silver age.

SUÁREZ'S LIFE, WORKS, AND INFLUENCE

Suárez was born in Granada, Spain, on 5 January 1548, at the height of Spanish imperial power. Under Isabella of Castile and Ferdinand of Aragon, known as *los Reyes Católicos* (the Catholic Kings), a large part of the Iberian peninsula had become unified (1479) and power consolidated after the final defeat of the Moors at Granada (1492). Also in 1492 America was discovered, opening up unheard-of resources to the newly united kingdom. In a matter of fifty years, Spain became the pre-eminent political and economic power in Europe. As a result, artists and intellectuals flocked to Madrid, stimulating the development of arts and letters. Indeed, the period that goes roughly from 1500 to 1650 is generally known as the *Siglo de Oro* of Spanish letters because of the abundance and extraordinary quality of the literature produced. Spain became an intellectual leader in Europe and the undisputed leader of the Counter-Reformation. The Spanish mystics of the time, Teresa of Avila, Juan de la Cruz and Fray Luis de León, were among the most renowned anywhere. Antonio de Nebrija composed the first grammar of any romance language in 1492. The music of Victoria, Cabezón and other Spanish composers was played all over Europe. The theatre flourished under the pens of Lope de Vega and Calderón de la Barca. The novel reached new heights in the work of Cervantes. And Spanish painting achieved international acclaim with Ribera, Zurbarán and Velázquez.

Philosophy, of course, could not be left behind, and so we find a score of Iberian figures of high rank. Among the most celebrated are Juan Luis Vives (1492–1540), Francisco de Vitoria (1492/3–1546), Domingo de Soto (1494–1560), Alonso de Castro (1495–1558), Melchior Cano (1509–60), Pedro Fonseca (1528–99), Domingo Bañez (1528–1604), Francisco Toletus (1532–96), Luis de Molina (1535–1600), Juan de Mariana (1536–1624), Gabriel Vázquez (1549–1604) and Juan de Santo Tomás (1589–1644). The greatest of the philosophers, however, is Francisco Suárez (1548–1617). Indeed, his work surpasses in depth, originality and comprehensiveness that of

any other of these, and his influence, both in modern philosophy and in subsequent scholastic thought, has been substantial.

Suárez decided early in life that he would pursue an ecclesiastical career. Accordingly, he went to Salamanca to study canon law. While engaged in his studies there, he requested admission into the Society of Jesus. At first he was refused admission for reasons of health and what was perceived as a lack of proper intellectual capacity. Insistence paid off, however, and he was allowed to join the order in 1564. After completing his studies, he began a teaching career that would last for over fifty years, taking him to some of the most renowned institutions of his time: Segovia, Valladolid, Rome, Alcalá, Salamanca and Coimbra. Suárez died in Lisbon, at the age of 70, on 25 September 1617.

Suárez did not publish early in his life. His first work, *De incarnatione verbi,* appeared in 1590 when he was 42. After this initial publication, however, a steady stream of works followed. Suárez's contributions are important in three areas in particular: philosophy, law and theology. From a philosophical standpoint his most important works are *De anima* (*On the Soul,* 1621), which contains his psychology, epistemology and philosophy of mind; *De gratia* (*On Grace,* 1619–51), which deals with issues of philosophical theology involving free will and determinism; and the monumental *Disputationes metaphysicae (Metaphysical Disputations,* 1597). The last is undoubtedly one of the great works of Western philosophy: the first systematic and comprehensive treatise on metaphysics composed in the West that is not a commentary on Aristotle's *Metaphysics*. Furthermore, it summarizes and evaluates medieval metaphysical thought and remains the most complete exposition of Aristotelian metaphysics ever produced.

De legibus (1612) is Suárez's most important work dealing with legal and political theory. In it he explores in detail the nature of law and of civil society. His views on *ius gentium* make him, together with Vitoria and other Spanish authors of the time, a founder of international law.

Suárez's contributions to theology are contained in his numerous books on the subject. He touched upon almost every aspect of sacred doctrine, from the Trinity to questions pertaining to the spiritual life. This has made his theological writings a standard source of Catholic theology. Moreover, his role in helping to shape the response of the Catholic Counter-Reformation to the rise of Protestantism guarantees him a place in history.

Suárez's position in the history of philosophy is frequently disputed. Some historians locate him firmly in the medieval tradition, claiming that he should be seen as perhaps the last world-class figure of that tradition, before modern philosophy changed the philosophical direction of the West. Others, however, see Suárez as providing the

foundation for some of the views that came to form the core of subsequent developments, and thus as a precursor of modern philosophy.

There are bases for defending both of these interpretations. Indeed, if one looks at Suárez carefully, it becomes evident that he is both the last major medieval theologian and the first major modern philosopher. This can be best illustrated, perhaps, with reference to the stated intention and method of the *Disputationes metaphysicae*.

With respect to the intention of the work, we need to look no further than the Preface to see that Suárez follows the theological emphasis of the Middle Ages. His purpose is the same as that expressed by the Anselmian saying: *Fides quaerens intellectum* (Faith seeking understanding). Suárez tells us, first, that he deals with metaphysics precisely because his aim is theological, for the good theologian will set down the foundations of metaphysics before he goes on to theology. Accordingly, he postponed his theological commentaries on Aquinas until after he had finished the *Disputationes* in order to provide a proper foundation for theology. Moreover, like Aquinas and other medieval theologians before him, Suárez points out that he never loses sight of Christian doctrine while he philosophizes and, indeed, that he intends his philosophy to be both Christian and an instrument of theology. This end is what guides not only the way he deals with the issues he discusses, but also the very opinions and views he presents, leading him to favour those that appear to him more useful for piety and revealed doctrine. Finally, in strict medieval fashion, he closes the Preface by hoping that the work will lead to God's greater glory and be of use to the Catholic Church.

From this, it appears quite conclusively that Suárez's aim in the *Disputationes metaphysicae* is theological rather than philosophical, and that he fits squarely within the main medieval scholastic view in which philosophy is seen as a handmaiden of theology. However, in the very Preface to which reference has been made there are indications of a different attitude at play as well. First, Suárez speaks of giving back to metaphysics the place and position that rightly belongs to it, and that place and position are interpreted as being separate from and anterior to theology. Second, he states that his role as author of the *Disputationes* is not that of the theologian, but of the philosopher. And, third, he apologizes for the occasional digressions into theological matters found in the work, even though he does not discuss theological issues in depth, since that would certainly be beyond the bounds of the subject-matter of the book. Indeed, even a superficial perusal of the *Disputationes* reveals that, when theological topics come up, Suárez generally suggests to the reader that they do not pertain to the subject-matter and should be discussed, or are, in fact, discussed, elsewhere.

All this indicates Suárez's rigorous view of the distinction between metaphysics and theology and of his role as philosopher and theologian. The fact that he calls himself a philosopher, that in philosophy he avoids arguments based on faith, and that he apologizes for dealing, even incidentally, with theological matters in a work of philosophy should be sufficient to make the point. Although many of the masters who taught liberal arts in the Middle Ages were not theologians and taught subjects independently of theology, the most famous scholastics of the age considered themselves theologians and their philosophical views were generally presented within theological works. Moreover, even though many scholastics distinguished between theology and philosophy, none of them would have apologized for the introduction of theological matter in a philosophical context, and most of them used both faith and reason to argue for both philosophical and theological views. But such a procedure is abandoned in Suárez's *Disputationes*.[3] Occasionally, he does bring up a theological point, but in such cases the aim is to show the reader how to apply metaphysical principles to theology rather than to use theology to prove philosophy. This secular emphasis in metaphysics both sets Suárez apart from his medieval predecessors and situates him at the beginning of the modern tradition.

Another point that sets him apart from medieval scholasticism is the very structure and procedure he follows in the *Disputationes*. The work does not adopt the standard medieval scholastic literary genres used in works of metaphysics. Medieval authors generally presented their metaphysical views in commentaries on Aristotle, which were sometimes internally organized in *quaestiones;* or they presented them in the course of theological works, such as theological *summae* or commentaries on the *Sentences* of Peter Lombard. Occasionally, short didactic or polemical tracts *(opuscula)* such as Thomas's *De ente et essentia* or *De unitate intellectus contra Averroistas* were also composed. But no systematic and comprehensive metaphysical treatises were produced. Suárez, however, adopted precisely this format. Nor did he follow the popular custom of structuring works as *quaestiones* reflecting current controversies and polemics. Rather, he adopted a logical procedure in which metaphysical issues are discussed according to their relation to overall topics. Suárez is the first to apply this procedure to metaphysics. His originality in this is what distinguishes him from his predecessors and points to modern philosophy.

In short, Suárez cannot be considered exclusively a medieval scholastic or a modern philosopher. He has to be seen in context, as restating the past and anticipating the future. His overall aims and views go back to the Middle Ages, but some of his procedures point toward the modern period. He should be seen as both a medieval scholastic and a modern philosopher.

Before concluding this section I should say something about Suárez's influence on the Catholic tradition, modern thought and Latin American scholasticism. Along with Augustine, Aquinas and other figures of similar stature, Suárez is one of the most influential figures in Catholicism. He played a major role in the response to the growing challenge of Protestantism and the secularizing impact of humanism. Many of his theological ideas were considered highly original at the time and have become part of the common stock of Catholic theology. His analogical understanding of the doctrine of the Trinity, his position concerning the motivation for the Incarnation, and his views on morality have all played important roles in Catholic teaching. But perhaps it is his doctrine of the relation between divine grace, merit and human freedom that has most firmly established his influence and most evidently contrasts him with the Protestant ideas of the time.

Suárez's influence, however, is not confined to the Catholic tradition. Most early modern philosophers learned metaphysics from his *Disputationes,* and many of their ideas can be traced to that work. Among those most clearly influenced by Suárez are Jungius, Descartes, Leibniz, Spinoza, Wolff, Berkeley, Schopenhauer and Vico, but echoes of his language and views can be seen in many others, including Locke.[4] Indeed, Suárez is often blamed for contributing to the development of the mentalistic metaphysics characteristic of modern philosophy. Whether this attribution is correct is a matter of debate, but what is clear is that his terminology seeped into early modern philosophy and became a part of the common philosophical way of speaking. In addition to his metaphysics, moreover, his legal and political views had considerable impact on modern legal theorists such as Holdsworth and Grotius. Indeed, some consider Suárez's thought in these areas to be as influential and valuable as, if not more so than, his metaphysical views.

Finally, there is Suárez's impact on Latin American thought. The New World was discovered in 1492, and by the middle of the next century, schools and universities teaching scholastic thought were already functioning in Mexico and elsewhere. Thus, by the time Suárez's *Disputationes metaphysicae* was published in 1597, there was a ready audience available for them. The result was to be expected: his metaphysical and theological views established themselves as alternatives to the already popular views of Aquinas, Scotus and Ockham.

SUÁREZ'S METAPHYSICS

The core of Suárez's philosophical, theological and legal thought is his metaphysics. The rest of this essay will therefore be devoted to the

exploration of two key elements of Suárez's metaphysical thought, which illustrate both the transitional role it played between medieval scholasticism and modern philosophy and the innovation within traditional parameters that is so characteristic of it. These elements are his conception of metaphysics and the doctrine of the transcendentals.

Suárez's Conception of Metaphysics

Most conceptions of metaphysics fall into one of two categories: views that regard metaphysics as concerned with the real as opposed to the mental, and views that conceive it as concerned with the mental rather than the real. Aristotle (*Metaphysics* 1, 1–3) and his medieval commentators are usually identified as proponents of the first view. Metaphysics in this context is conceived as a science not very different from other sciences, except for some peculiarities of the object it studies and the method it employs. Like other sciences its aim is to describe the world, noting its characteristics and the causal relationships that hold among the entities that are part of it. There is, then, nothing mental about the object that metaphysics studies; its object of study is extramental reality, not concepts or other mental entities.

In contrast, the mentalistic conception of metaphysics is a favourite in contemporary philosophical circles.[5] According to it, metaphysics is not concerned with the description of the extramental world or the way it functions; it is concerned with our concepts about the world, rather than the world itself. In that sense, metaphysics is not realistic but mentalistic.

The mentalistic conception of metaphysics did not come about as a result of a single drastic change in the history of philosophy. Descartes, Hume, Kant and many others figure prominently in the slow process that produced a change from realism to mentalism. Among the figures that are often cited as having contributed to that process is Suárez.[6]

Suárez conceives metaphysics as a perfect and a priori science. Something is perfect if it is complete, that is, if it lacks nothing for it to be the sort of thing it is (*Disputationes metaphysicae* 10, 1, 15; [19.1] 25:333). Thus a perfect science is a science that lacks none of the conditions required of sciences. Such conditions stipulate that sciences provide certain and evident knowledge of the objects they study through knowledge of the properties, principles, and causes of those objects (1, 3, 2, and 1, 1, 27; 25, 22 and 11). Moreover, since metaphysics is an a priori science, such knowledge is not based on experience.

A property, in the Aristotelian context within which Suárez works, is a feature of a thing which necessarily characterizes the members of

the species to which the thing belongs but is not part of the essence of the thing in question and thus does not appear in its definition (3, 1, 1; 25, 103). The capacity to laugh, for example, is a property of human beings because it necessarily characterizes human beings, although it is not part of the definition of human being. A property, in contrast with an accident, always accompanies each member of a species. The task of science, and therefore of metaphysics, is twofold: first, to identify the properties of the object it studies and, second, to demonstrate the necessary connection of those properties to the object in question through an analysis of the principles and causes of that object.

The object of metaphysics was a matter of intense discussion in the Middle Ages. The origin of the debate can be traced back to Aristotle's *Metaphysics,* where he presents four different understandings of its object: being *qua* being, substance, divine entities, and primary causes and principles (*Metaphysics* 4, 1; 7, 1; 6, 1; 3, 2). Settling the issue was important, for most medievals believed that the unity of a science is derived from the unity of its object. Yet, the four objects that Aristotle identified as objects of metaphysics were not easily collapsed into one.

By the time Suárez was addressing this issue, the possible objects of metaphysics had grown in number and certain precisions had been introduced. Suárez considers and rejects six different opinions on the object of metaphysics: (1) being taken most abstractly and generally so that it includes not only all real beings, whether substantial or accidental, but also mental beings; (2) only real being, leaving out mental beings, so that its object includes both substantial and accidental beings; (3) the supreme, real being, namely God; (4) immaterial being or substance; (5) categorical being, namely, being as divided into the ten Aristotelian categories; and (6) substance *qua* substance, that is substance considered apart from whether it is material or immaterial, finite or infinite (1, 1, 2–18; 25, 2–8).

Suárez's view is that the object of metaphysics is 'being insofar as it is real being' *(ens in quantum ens reale)*. As such, metaphysics includes the study of God, immaterial substances, and the real accidents of immaterial substances. It excludes, however, the study of purely mental beings *(entia rationis)* and the study of beings which are completely accidental, and abstracts from all matter (1, 1, 26; 25, 11).

If Suárez had said nothing else about the nature of metaphysics and its object than what I have presented in summary so far, he could have been interpreted only as having a realistic conception of metaphysics, albeit a somewhat different one from those of his predecessors. Moreover, it would have been very difficult to accuse him of having moved in the direction of mentalistic metaphysics. After all, he clearly

states that metaphysics deals with real being and only real being, and argues against it having to do with mental being. However, Suárez did not stop there. He went on to discuss the nature of the object metaphysics studies. It is what he says on this matter in particular, coupled with how his views were used by later philosophers, that has given rise to speculation about his role in the history of metaphysics and its development toward mentalism.

The view that Suárez contributed substantially to the mentalization of metaphysics is based, first, on his conception of real being and, second, on his statement that the object of metaphysics is the objective concept of being. Real being for Suárez is not the same as actual being. Actual being is the kind of being existing things have. Real being need not be actual; it can be possible. Thus, real being encompasses both actual being (e.g. my existing cat Minina and the colour of her fur) and possible being (e.g. my non-existing cat Misifus and the colour of his fur). The difference between non-real beings and possible beings is that possible beings have an aptitude for existence, even though they do not exist, whereas non-real beings do not. A possible being like Misifus, has an aptitude such that it could exist even if it does not; but a non-real being like a goatstag, lacks such an aptitude and neither exists nor can exist (31, 2, 10; 26, 232).

Real being, then, includes possible, unactualized essences in addition to actualized ones. This means that the object of science, and thus of metaphysics, is not restricted to actually existing being, but extends to and includes possible being (31, 2, 10; 26, 232). This conception of metaphysics, as the study of not only actual essences but also possible essences, has been identified as one of the sources of the mentalism of modern philosophy; for possible being, so the argument goes, can be nothing but mental, and thus the door is open to a conception of metaphysics as a science of the mental.

This interpretation is disputable, however, for Suárez does not identify possible being with mental being. He understands mental being as 'what has objective being only in the intellect or as what is thought by the mind as a being, although it has no being in itself', that is, what has no being outside the mind (54, 1, 5; 26, 1016). Blindness is a good example of a mental being, for blindness is a lack of something rather than having something and, as such, has no reality outside the mind.[7]

From this it follows that possible beings for Suárez are not the same as mental beings. For possible beings, even though they do not exist, have an aptitude for existence. But it is impossible for mental beings ever to exist, so they cannot have an aptitude for existence. Consequently, that metaphysics includes the study of possible beings does not mean that it is concerned with mental entities.

The second source of the charge that Suárez's conception of metaphysics contributed substantially to the mentalization of the discipline is his claim that the object studied by metaphysics is the objective concept of being (2, 1, 1; 25, 65). This claim may be interpreted as implying mentalism because objective concepts, *qua* concepts, presumably cannot be anything but mental; therefore, it turns out that metaphysics studies something mental rather than something real.

The notion of objective concept is one of two members of a distinction widely used by later scholastics. The other member of the distinction is the formal concept. The formal concept, according to Suárez, is an act of our minds whereby we conceive something. As an act of the mind, it is a quality and thus an accident of the mind. The formal concept is called 'formal' because it informs the mind in the way any form informs its subject, and it is the end of the process of conception. Moreover, it is by means of the formal concept that the mind knows an object, for the formal concept represents the thing known to the mind (2, 1, 1; 25, 65).

The objective concept, on the other hand, is what is represented in the act, or quality, which is the formal concept. The objective concept is not a concept in the way a formal concept is, namely as a form that modifies the mind, determining its conception. Indeed, it is called a concept only derivatively because of the relation it has to the formal concept. It is objective in so far as it is the object with which the formal concept is concerned; it is not objective in the sense of being an image or representation of something else ([19.42] 41). On the contrary, the objective concept is what is represented by the formal concept and, as Suárez states elsewhere, 'the thing signified' by it (29, 3, 34; 26, 59).

In short, we might say that the distinction between the objective concept and the formal concept is the distinction between what I think about (objective) and that through which I think it (formal). So, whereas 'the formal concept cat', for example, is the mental act whereby someone thinks of 'cat', 'the objective concept cat' is whatever one thinks about when one thinks of 'cat', namely cat.

Put this way, it does not look as if objective concepts are mental in any way. As Suárez states, they are not concepts strictly speaking; they are not representations or images; and they are not mental acts or qualities. Instead, they are the objects of the (formal) concepts the mind forms. This would seem to indicate that they are not mental at all.

This inference is corroborated by the fact that the being and unity of objective concepts turn out to be the same being and unity of their objects and, thus, that objective concepts can be mental or real depending on those objects. Suárez makes quite clear that whereas the formal concept is real, always 'a true and positive thing', the objective

concept need not always be something real; it can be mental or real, depending on the objective concept in question. If, for example, the objective concept in question is 'blindness', what we have is a mental being because blindness is not a real entity. If, on the other hand, the objective concept in question is 'humanity', what we have is a real being, namely an actual or possible substance (i.e. a human being). Indeed, Suárez says that this is the case with the objective concept of being (2, 3, 7; 25; 83).

From these considerations we must conclude that not all objective concepts have only a mental status; some objective concepts exist in reality. This entails, then, that to be an objective concept does not necessarily imply mental existence alone. Whether that is the case depends not on the nature of objective concepts as such, but on the particular objective concept involved. In the case of 'blindness', it does imply mental existence alone because blindness does not and cannot exist outside the mind; but in the case of 'humanity', it does not because human beings can and do exist outside the mind. This same point is corroborated when we look at the unity of objective concepts.

Do objective concepts, *qua* objective concepts, have universal or individual unity? Suárez's answer is unequivocal. The formal concept is always present in some mind that produces it and is, therefore, individual. With respect to the objective concept, however, the case is different, for an objective concept is universal or individual depending on the particular objective concept involved (2,1,1; 25, 65). If the objective concept in question is 'man' or 'substance', the objective concept is universal. If, on the other hand, the objective concept in question is something determinate, like 'Socrates', then the objective concept is individual. From this it also follows that only those objective concepts that are individual can exist extramentally and therefore be real, since for Suárez universals have no such existence (5, 1, 4; 25, 146).

The situation with respect to the unity of objective concepts, then, is quite similar to the one with respect to their being. Objective concepts can be individual or universal; therefore, they cannot, *qua* objective concepts, be one of these to the exclusion of the other. In cases where there is an exclusion, as it happens with 'blindness', the exclusion arises from the nature of the objective concept in question, not from the fact that it is an objective concept.

The implication of what Suárez says concerning the being and unity of objective concepts is that objective concepts have the ontological status, that is, the being and unity, of their objects. We know, for example, that the objective concept 'blindness' has the same ontological status as blindness, and that the same applies to the objective concepts 'humanity' and 'Minina'. The being and unity of the objective concept of Minina is the being (real) and unity (individual) of Minina; the being

and unity of the objective concept of tree is the being (real) and unity (universal) of tree; and the being and unity of the objective concept of blindness is the being (mental) and unity (universal) of blindness. This seems quite clear. Now, since the objective concept that metaphysics studies is 'real being', the object of metaphysics cannot be anything but real, and Suárez's conception of metaphysics cannot be anything but realistic.

The Transcendentals

Suárez's conception of metaphysics prompts an interesting objection. The function of science, as already noted, is to identity the properties of its object, demonstrating their necessary connection with it through an analysis of principles and causes. It follows, then, that metaphysics, as a science of being *qua* being, must be concerned with identifying the properties of being and demonstrating how those properties are necessarily tied to being through an examination of the principles and causes of being. The difficulty posed by this view is that being *qua* being does not have any properties, for considered this abstractly, being is common to every being and its properties. Thus it does not appear that being *qua* being can have any properties which are peculiarly its own.

Suárez is aware of this difficulty and gives an explicit answer to it (1, 1, 28; 25, 11). The answer is important both philosophically and historically. It is philosophically important because it makes clear that, even though Suárez never explicitly says so, metaphysics for him turns out to be the science of the transcendentals; it is historically important because this conception of metaphysics may have served to prepare the way for the growth of transcendentalism in later European Continental philosophy.[8]

Suárez's solution to the difficulty is to propose that, although being *qua* being has no properties that are really distinct from it, it does have properties that are conceptually distinct from it (1, 1, 28; 25, 11). These properties are unity, truth and goodness. They are coextensional with being because whatever is a being is also one, good and true, and whatever is one, good or true is also a being.

It is the coextension of these properties with being that makes them transcendental, for they are common to the ten categories into which being is divided. These properties are not cointensional with being, however, because their conceptual analyses do not coincide with that of being or with those of each other. In short, although whatever is a being is also one, good and true, to be and to be one, to be good, and to be true are not the same.

Metaphysics can be conceived as the study of being *qua* real being so long as it is understood that it deals with properties of being that are only intensionally distinct from it. Moreover, since what is coextensional but not cointensional with being are precisely its transcendental attributes (unity, truth, goodness), it turns out that what metaphysics studies as principles and what it studies as properties of being are the same. Under these circumstances, metaphysics turns out to be the science of the transcendentals.

Suárez's answer to the difficulty posed by the fact that being does not appear to have any properties is to argue that indeed being has properties even though they are not the same sort of property other things have. According to Suárez, properties must fulfil several conditions: they must be real, and really distinct from their subjects, and they must be coextensional with their subjects but not included in their essences (3, 1, 1; 25, 103). The capacity to laugh, for example, fulfils all these conditions with respect to human beings and thus is a property of them. But it is obvious that none of the transcendental properties of being Suárez accepts, namely, one, true, and good, fulfil all these conditions.

Suárez grants this conclusion (3, 1, 8; 25, 105), but he argues that being can still have properties because it has some 'attributes which are not mere products of the mind, but are truly and really predicated of it' (3, 1, 10; 25, 106). But how, then, are these attributes related to being? What kind of properties are they if they cannot be properties in the usual way? Suárez's answer is that these attributes add to being negations, privations, or real extrinsic denominations taken from real relations; unity adds a negation or privation, and truth and goodness add real extrinsic denominations (3, 1, 11; 25, 106).

For Suárez, both negations and privations are lacks, but there is an important difference between the two. Privations are lacks of what things ought to have by virtue of their natures. Thus, a privation is a lack or absence in a thing of what naturally belongs to it, such as blindness in a human being. A negation, by contrast, is an absence of what is not natural to a subject, such as the absence of wings in a human being. The issue of what is or is not natural to a thing is determined by a definition which specifies those features that make the thing what it is (54, 5, 7; 26, 1036).

Strictly speaking, therefore, negations and privations are not real if by real one means, as Suárez often does, actual or possible being, for negations and privations are not beings at all, but lacks of being (31, 2, 10; 26, 232). Their only ontological status is as mental beings *(entia rationis)*.

Still, this does not entail that negations and privations are fictitious constructs of the mind. The mind may arrive at truth or falsity regarding reality through negations and privations, for 'negations and privations

can be truly and absolutely predicated of a thing without involving any kind of intellectual fictions' (54, 5, 5; 26, 1032). A person *X* who concludes that another person *Y* is blind has understood something true about *Y* if *Y* is in fact blind and something false about *Y* if *Y* is not blind, even though blindness is not something in the world. In either case, the truth or falsity arrived at by *X* is not dependent on *X's* understanding, but on *Y,* that is, on reality, even if the truth is that *Y* lacks sight.

From this we may gather that 'one', which is predicated of being as a negation of privation, is not real in the sense of being either an actual or possible entity. Its reality lies only in that it is not a fictitious product of the mind and thus can be truly predicated of being. Suárez is using two senses of 'real', then, which allow him to say that unity is both real (i.e. non-fictitious) and not real (i.e. neither actual nor possible) without contradiction.

The other properties of being, namely truth and goodness, are not conceived as negations and privations. Rather, they express real extrinsic denominations based on real relations. For Suárez, real extrinsic denominations have four terms: denomination, thing denominated, denominating form, and relation founding the denomination (54, 2, 14; 26, 1021). In the case of a wall, for example, which is extrinsically denominated as 'seen', the terms of the denomination break down as follows:

denomination:	seen
thing denominated:	a wall
denominating form:	the act of seeing
founding relation:	relation of seeing the wall

Relations for Suárez also have four elements: relation, subject, term and foundation. Consider the case of the relation of similarity of *S,* a white "3×5" card, to *T,* another white "3×5" card. In this example, *S* is what Suárez calls the *subject; T* is the *term* of the relation, the white colour of *S* is the *foundation* of the relation; and the similarity of *S* to *T* is the *relation* (47, 6, 1; 26, 809).

In a real relation, the subject, the term, and the foundation of the relation must be, according to Suárez, real, and the term must also be actual and really—or at least modally—distinct from the foundation (47, 6–9; 26, 809–19). (It must be remembered that for Suárez real being includes not only actual, but also possible being.) Thus, for the relation of similarity of *S* to *T* to be real, *S* and the white colour of *S* must be real, and *T* must actually exist. That does not entail, however, that the relation is something really distinct from its foundation; the relation and its foundation are only conceptually distinct (47, 8, 14; 26, 818). In the example given above, the white colour of *S*, a form in

S which is the foundation of the relation, is not really distinct from the similarity of *S* to *T*.

If any of these conditions is not met, that is, if some of the elements of a relation are not real, or if the term is not actual, or if the distinction between the term and the foundation is not at least modal, then the relation is mental (54, 6, 2 and 47, 6–8; 26, 1039 and 808–18). The reason is that in none of these cases would the relation describe accurately the way things are, and thus would have to be considered, at least in part, a mental construct.

A key difference between a real extrinsic denomination founded on a relation and a real relation is that the real extrinsic denomination applies to the term of the real relation on which the denomination is founded and not to the subject of that relation. It could not be otherwise, for if it were, a real extrinsic denomination would posit in the thing it denominates, namely, in the subject of the relation, a form really distinct from it, which is impossible according to Suárez (54, 2, 9; 26, 1020). That the real extrinsic denomination applies to the term and not the subject of the real relation becomes clear if we use the real relation of similarity of *S* to *T* as the basis for a real extrinsic denomination. In this case, the thing denominated is not *S,* the subject of the relation, but *T,* its term. Thus:

denomination	similar
thing denominated:	*T* (the term of the relation)
denominating form:	the whiteness of *S*
founding relation:	similarity of *S* to *T*
subject of founding relation:	*S*
term of relation:	*T*

Now let us apply what has been established concerning real extrinsic denomination to being and its transcendental attributes true and good:

denomination:	true	good
thing denominated:	being	being
denominating form:	act of intellect	act of will
founding relation:	understanding of being by intellect	desiring of being by will
subject of founding relation:	intellect	will
term of relation:	being	being

Thus, we see what Suárez means when he says that being, true and good are convertible in reality but not conceptually, for whatever is a being is capable also of being the term of a real relation between an intellect or a will and being itself. Such a relation does not affect being, nor do the transcendental attributes true and good refer to a form in

being really distinct from it. True and good express extrinsic denominations of being founded on real relations between an intellect or a will and being. The subjects of the relations are intellects and wills, and the forms on which the relations are founded are the acts which modify those intellects and wills. As such, therefore, true and good are neither real properties of being, strictly speaking, nor real or mental relations of being to something else. If they were real properties or real relations, it would imply a kind of distinction between being and them, or their foundation (in the case of real relations), which would be impossible. If they were mental relations, it would imply that true and good are the result of mental activity and, therefore, fictitious.

CONCLUSION

Suárez is, without a doubt, one of the key figures in the transition from medieval thought to modern philosophy. He played a substantial role in this transition in so far as he worked within a scholastic tradition that went back to the thirteenth century and beyond but introduced modifications in it that anticipated and prepared the way for modern thought. Nowhere else is this more evident perhaps than in his metaphysics. Indeed, his conception of both metaphysics and the transcendentals illustrate well how he was able to introduce innovations within the strict parameters of the tradition within which he worked, thus serving to move Western thought out of the Middle Ages and into the modern period.

This is evident in his conception of metaphysics in so far as he still substantially adheres to the realistic conception of the discipline defended by such medieval scholastics as Aquinas. But the extension of the object of study of metaphysics to possible being and some of the mentalistic language he uses to refer to such an object anticipates and prepares the way for the mentalism so characteristic of modern philosophy.

In the doctrine of the transcendentals, Suárez again works within the parameters he inherits, but he introduces modifications in the doctrine by understanding two of the transcendental properties of being—true and good—as expressions of real extrinsic denominations of being rather than as mental relations, the popular view among scholastics. This understanding of the transcendentals opens the way to interpretations that, again, pave the way for future developments. In short, Suárez is a figure in whom both the scholastic past and the modern future of philosophy meet and interact in interesting and peculiar ways. From studying his works, one can learn much about both the Middle Ages and modern philosophy.

NOTES

1 There is wide disagreement as to how to refer to the scholasticism of the sixteenth and seventeenth centuries. Carlo Giacon has proposed the term 'second scholastic' [19.26]. But this expression seems to suggest a break between the scholasticism of the thirteenth and fourteenth centuries and that of the sixteenth and seventeenth centuries, while, in fact, there is no such break. For a challenge to the general view about the decline of scholasticism after 1350, see Chapter 18 above.
2 Cf. Bernard G.Dod, 'Aristoteles latinus' and C.H.Lohr, 'The medieval interpretations of Aristotle', in *CHLMP,* pp. 45–98.
3 J.Marenbon, 'The theoretical and practical autonomy of philosophy as a discipline in the Middle Ages', in Monika Asztalos *et al.* (eds) *Knowledge and the Sciences in Medieval Philosophy,* Helsinki, Yliopistopaino, 1990, pp. 262–74, and JorgeJ. E.Gracia, 'Philosophy in the Middle Ages', *Diálogos* 9 (1977):233–43.
4 See Cronin [19.18], Ferrater Mora [19.25], Iriarte [19.33], and others in the bibliography.
5 Cf. P.F.Strawson, *Individuals,* London, Methuen, 1959, p. 9.
6 Cf. R.P.D.Dubarle, 'Intervention', *Archives de Philosophie* 42 (1979):274; Courtine [19.16]; and Cronin [19.18], ch. 3.
7 For the details of Suárez's doctrine of mental beings, see Doyle [19.23] (1).
8 This transcendentalism was given an epistemic turn in later thinkers that was not intended by or present in Suárez. See Doyle [19.24].

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Glossary

The Glossary should be used in conjunction with the index, where pages containing good introductory discussion of a term are printed in bold. An '**I**' after an entry here indicates where reference to such discussions will be particularly useful.

absolute/connotative terms: according to Ockham, a term (such as 'man' or 'whiteness') that signifies something directly (a man, the quality whiteness) is absolute, whereas a term that signifies something obliquely, by means of indicating one of its attributes ('white (thing)', which signifies the thing that is white by indicating its attribute of whiteness) is connotative. The distinction corresponds closely to that used earlier in the Middle Ages between words for substances, *differentiae* and accidents on the one hand (=absolute terms) and denominative words on the other hand (=connotative terms). **I**

accident: a property which a substance could conceivably lose or have added to it without ceasing to be the substance it is: wearing a hat is an accident of Socrates; so too is having a snub nose (although his nose is always this shape); see also **categories.**

actuality, in act *(in actu)*/potentiality, in potency *(in potentia):* Aristotle was fond of contrasting what or how things actually are with what or how they will or might be by using the pair 'act/potency'. An acorn is an oak tree in potency; when it grows up into a tree, then it is a tree in act. A movable but still body is moving in potency, and a cold body is hot in potency.

ampliation *(ampliatio):* the extension of the supposition (reference) of a word brought about by the use of the past or future tense or by words such as 'possibly'.

analogy: when a word is used in connection with different sorts of things in such a way that its different **significations** in each case, though not the same, are related to each other, it is said to signify analogously. Often, this similarity between analogous significations consists in

their each bearing a different relation to the same thing. For instance, 'healthy' is used analogously of a person (i.e. he is in a healthy state), of a medicine (i.e. it makes people healthy) and of a blood-sample (i.e. it is a sign of health). **I**

apodictically: using a **demonstration.**

beatific vision: according to most Christian theologians, after death the souls of the blessed will be separated from their bodies and enjoy a vision of God which will make them completely happy.

'Bertrand Russell': Bertrand Russell was an English philosopher who lived from 1872 to 1970. His name is used metonomously by some historians to stand for any modern analytical philosopher who values qualities they believe inappropriate to consider in relation to medieval thinkers (for instance, clarity, precision and cogency in argument).

categorematic/syncategorematic terms *(categoremata/syncategoremata):* as used by medieval authors, this distinction builds on the analysis of categorical statements as: Subject-(copula)-Predicate. Strictly speaking, categorematic terms can stand alone as the subject or the predicate (for instance, *'homo'* ('(the) man'), (*'currit'* ('runs'); a syncategorematic term cannot be used meaningfully in a statement without (at least) a subject and a predicate (for instance, *'si'* ('if'), *'non'* ('not'). Logicians often extended the class of syncategorematic terms to include ones such as 'begins' *('incipit')* which could be used categorematically, but were usually used to modify the **signification** of categorematic terms. One of the branches of the ***logica modernorum*** was the study of those syncategorematic terms, in this wider sense, which logicians found especially interesting.

categories *(categoriae, praedicamenta):* in medieval discussions, these are almost always the ten categories, or most general ***genera*** distinguished by Aristotle in his *Categories:* **substance**/essence (*ousia* (Greek), *substantia, essentia*) and the nine categories of **accident:** quantity, quality, relation, place, time, posture, state, action, being-acted-on. Whether Aristotle's classification concerned things, words, perceptions or some combination of these three was a matter of controversy in late antiquity and the Middle Ages.

causes, material/formal/efficient/final: following Aristotle, medieval writers regularly distinguished between four types of 'cause': the material cause of something is what it is made from, the formal cause that which makes it the sort of thing it is, the efficient cause that which makes it, and the final cause that for the sake of which it is made. In the case of this table, then, the material

cause is the wood it is made from, the formal cause the form of being a table (which would have guided a carpenter when he made the wood into a table, not a chair or a bench), the efficient cause is the carpenter and the final cause my wish to have something to write on.

complexly significable *(complexe significabile):* the term used by some fourteenth-century writers, such as Adam Wodeham and Gregory of Rimini, for what statements signify: the exact ontological status of these significates was debated. **I**

composite/divided sense: a distinction used to define the scope of certain logical operators. For example, 'It is possible that the sitting man is standing' would be read in the composite sense to mean: the following is possible, that the man is sitting and standing (M(p & -p)). In the divided sense it would be read: the man is sitting, and it is possible that he stands (p & M-p). A reading in the composite was also called a *'de dicto'* modality, and that in the divided sense a *'de re'* modality.

connotation/denotation: in modern usage, a word's denotation is its extension (the objects to which it refers) and its connotation is its intension or abstract meaning, which provides the principle by which its denotation is determined. Some writers, however, use the distinction more loosely.

connotative terms: see **absolute/connotative terms**

consequences *(consequential):* either (1) 'if…then…' statements, or (2) arguments consisting of a single (perhaps composite) premiss and a conclusion (for example, (1) 'if he's a man, he's rational' or (2) 'he's a man; so he's rational'). Medieval writers rarely distinguished clearly between (1) and (2).

copula: 'is' (and its other forms) when used to link the subject and predicate of a statement (e.g. 'Socrates is white'). Most medieval philosophers gave a three-part analysis of predication, distinguishing between the subject ('Socrates'), the predicate ('white') and the copula. But some (for instance, Abelard) also suggested a two-part analysis, closer to that used by logicians today, in which the copula is part of the predicate: the logical form of 'Socrates is white' is then 'Socrates whites' (in modern terms, 'Fa', where 'F' stands for being white, and 'a' is a designator for Socrates).

demonstration: in medieval usage, a demonstration is a logically valid argument from premisses which are 'necessary' in the sense that they state a truth about what is unchanging.

denomination: a word 'd' is 'denominated' from a word 'w' when (1) the signification of 'd' is related to that of 'w' and (2) verbally 'd' is similar to, but not the same as, 'w'. For example, 'white' is

denominated from 'whiteness' and 'virtuous' from 'Virtue'. As these examples indicate, adjectives which can be predicated of concrete objects often are denominated from nouns for the abstract qualities which they attribute.

dialectic ***(dialectica):*** in medieval use (and that of modern historians of medieval philosophy), 'dialectic' is usually just a synonym for 'logic'.

emanation: if *A* emanates from *B, A* is produced by *B* without *B's* being in any way changed (as, for instance, light is produced by a source of light). Neoplatonists described intelligible reality as a series of emanations.

epistemology: the theory of knowledge.

equivocation ***(aequivocatio):*** a word is equivocal if it has two or more different significations (e.g. 'bank' signifying a river bank and a place where money is kept).

essence (***essentia;*** from Greek ***ousia***): minimally, something's essence is the formula which states the sort of thing it is. If 'E' is the essence-formula for Socrates, then (1) Socrates is necessarily E and (2) 'E' tells one what is centrally important in understanding what Socrates is.

exponibles: a term *t* is exponible when a statement in which it occurs can be clarified for logical purposes by analysing it into a conjunction of statements ('exponents') which do not contain *t*. For example, 'it is beginning to' is an exponible term in 'Socrates is beginning to run', which is clarified by analysis into 'Socrates was not running a moment ago' and 'Socrates is now running'. **I**

form ***(forma):*** (1) in the period up to *c.* 1200, *'forma'* often meant an accident or a *differentia;* **I** (2) for writers influenced by Aristotle's metaphysics (directly after 1200, or indirectly before then) a *'forma'* was an Aristotelian form which, with matter, makes a concrete whole (Aristotle also considered whether some forms could exist without matter; these were called 'separate forms'); (3) platonic **Ideas** were sometimes called *formae*.

formal distinction: according to Duns Scotus, two things, which are not really distinct may be 'formally distinct'. A formal distinction is not merely a conceptual distinction ('distinction of reason') since it obtains apart from its being considered by any intellect. For instance, a thing's singularity (or 'haecceity'—a term which has been resurrected in modern metaphysics), its existence and its essence are formally distinct from each other. These formally distinct aspects of a thing are usually called *formalitates* ('formalities') by Scotus and his successors. **I**

genus and species: according to Aristotle, substances can be hierarchically ordered according to a series of increasingly more

general essential definitions which give their species and genera. For instance, Socrates is a man, an animal, a living thing and a bodily thing. Man, Animal, Living Thing and Bodily Thing are species or genera: more precisely, Animal is the species of Living Thing, but the genus of Man (and so on—'genus' and 'species' are used relatively). See also **universals. I**

gloss: medieval manuscripts often contained many glosses as well as the main text. Glosses of one or a few words, written between the lines, explain the meanings of difficult words or phrases. Longer glosses, written in the margins of the manuscript and often keyed to the text by reference letters or signs, paraphrase or discuss the text or bring extra information.

homonymy: means the same as **'equivocation'**.

hylomorpnism: the doctrine that things consist of matter and form.

hypothetical statements/propositions, hypothetical syllogisms: a hypothetical statement is a molecular statement: a statement comprising two or more individual statements, linked by a connective such as 'and', 'when' or 'if…then'; a hypothetical syllogism is a syllogism in which at least one of the premisses is a molecular statement.

Ideas/Forms, Platonic (theory of): the view that universals are independently really existing entities, graspable by the intellect.

illumination: some medieval philosophers (in the West usually under the influence of Augustine) held that humans could not know any proposition with certainty without receiving in each case an 'illumination' from God.

indexicals: words such as 'now', 'then', 'I', 'there', the reference of which is determined by the context of its utterance.

insolubles *(insolubilia):* semantic paradoxes, such as the Liar Paradox (e.g. 'The sentence I am now saying is false.'). **I**

Intellect, potential and active: according to Aristotle in *On the Soul,* the human intellect is a receptive capacity, which is put into activity by receiving the universal forms of things. In an obscure passage, he suggests that there is also an active intellect, responsible for putting this potency into activity. Some commentators in antiquity and the Middle Ages held that there is just one agent intellect, others that each human being has an active as well as a potential intellect. Christian thinkers sometimes identified the single active intellect with God; Islamic thinkers often considered that the active intellect was the Agent Intelligence, the last of the series of Intelligences to be emanated.

Intelligences: according to the Neoplatonists, from the Intellect *(nous)*—the Platonic World of Ideas—there comes, by a process of successive **emanations,** a series of Intelligences, which are incorporeal, thinking

beings. The last of these is the Agent Intelligence (see **Intellect, potential and active**). The scheme of Intelligences was taken up by many Islamic thinkers in their interpretation of Aristotle, and through them it influenced Latin thinkers. **I**

intension/remission: an accidental **form** can have different grades of intension or remission whilst remaining the same form. For instance, when I put the kettle on the fire, the form of heat in the water it contains becomes more intense; when I take it off the flame, the form is remitted—the water cools. **I**

intentions, primary and second(ary) ***(intentiones primae/secundae):*** primary intentions are the concepts we can apply directly to reality: for instance, the concept of man, which is a concept we apply directly to a certain sort of real thing—men. Second(ary) intentions are concepts we use in thinking about primary intentions: for instance, the concept of species, which we use in order to distinguish one sort of primary intention (man, horse, donkey) from others. **I**

intuitive cognition: discussed widely from Duns Scotus onwards, intuitive cognition (which may be sensible or intellectual) is a type of immediate cognition like sight (*intueor*='to see, contemplate') of a particular as existent and present. The exact definition of 'intuitive cognition' was, however, debated.

kalām: Islamic scholastic theology.

liberal arts: the seven subjects made up by the **trivium** and the **quadrivium**.

logos: Greek for 'word', 'reason'. Christian theologians often called the second person of the Trinity, the Son, the *logos* or (as a Latin equivalent) the *verbum* ('word') of God.

macrocosm, microcosm: the macrocosm is the greater *(makros)* world *(kosmos)* (usually, the whole universe), the microcosm—literally the small *(mikros)* world—the human being. Many ancient and medieval authors drew parallels between the structure of the macrocosm and the microcosm.

metaphysics: in medieval writing, metaphysics is the study of those questions considered by Aristotle in his *Metaphysics*. These were usually considered to centre around the study of being as *(qua)* being, and especially around the attempt to arrive at some general characterization of existing things which applies to members of all the ten Aristotelian categories or most general genera.

modism, modes: (1) see **speculative grammar;** (2) medieval writers also use *modus* ('mode') in a different way, when they talk about the intrinsic 'modes of being', by which they mean finite being or infinite being. **I**

Mu'tazilites: one of the schools of ***kalām***.

Neoplatonism: the most influential philosophical school of late antiquity. It was founded by Plotinus (205–*c.* 270 AD) who claimed he was reviving Plato's true thought. In fact, he and, especially, successors such as his pupil, Porphyry, and the fifth-century philosopher, Proclus, developed an elaborate system strikingly different from anything Plato himself attempted.

Nestorians: the Christians who follow what Catholics consider to be the heresy, first propounded by Nestorius, that Christ consisted of two separate persons, one human, one divine.

noetic: of or appertaining to the intellect.

obligations: an argument-game, originating in the twelfth century, but most important in the fourteenth and fifteenth centuries. One contestant, the 'respondent' obligated himself to something—in *positio,* the most straightforward form of the game, to maintaining the truth of a statement, the *positum* put forward by the 'opponent'. He also accepted, for the purpose of the game, a certain statement of how things are in reality (the *casus*). The opponent would then put forward a series of sentences which the respondent would have to declare true or false according to a set of strict rules. His object would be to force the respondent into self-contradiction.

ontology: ontology is the discussion of what sorts of thing, according to their broadest types, exist. For instance, are there **universal** things as well as particulars? Are facts a sort of entity or not? To ask what is a philosopher's ontology is usually to enquire what sorts of things that philosopher claims exist.

opaque contexts: are created by 'necessarily', 'possibly' and verbs such as 'know', 'believe', 'wish'. Normally if *a* and *b* are two words which refer to the same thing, one may be substituted for the other in a statement without altering its truth value (e.g. 'Cicero wrote this work' is true; so 'Tully wrote this work' is also true). This is not the case in certain opaque contexts (e.g. 'he believes that Cicero wrote this work' is true, but 'he believes that Tully wrote this work' is false, since he has never heard 'Tully' used as a name for Cicero; 'necessarily, 9 is greater than 7' is true, but not 'necessarily, the number of the planets is greater than 7'.

***Organon,* Aristotle's:** Aristotle's logical works. *Organon* is the Greek for 'tool', and it became the name for these works because some late ancient thinkers held that logic was not a part of philosophy, but rather a tool used by it.

paronymy: means the same as **'denomination'**.

participation: particulars are said to 'participate' in universals when universals are considered to exist independently, apart from

particulars: on this view, if *a* is *F,* it is *F* in virtue of participating in the form of *F*-ness.

potentiality: see **actuality (etc.)**.

predicables: the five terms discussed in Porphyry's *Isagoge* were known as the five predicables: ***'genus', 'species',*** *'differentia', 'proprium',* **accident,** ***(accidens)*****.** For some writers, these terms are words which signify other words, not things; for others, they signify things as well as words.

predication: the attribution of a property to something. In 'Socrates is white', whiteness is predicated of Socrates. According to most medieval analyses, the word 'white' would be regarded as the 'predicate', linked to 'Socrates' by the copula 'is'; see also **copula**.

proposition ***(propositio):*** in medieval usage, a declarative sentence: truth or falsehood is almost always attributed by medieval authors to *propositiones* (although some would say that they are not the primary bearers of truth and falsehood). A *propositio* is usually understood as a token sentence rather than a type sentence: 'I am sitting' said by me now is a different *propositio* from 'I am sitting' said by me in a minute's time, or said by you. The meaning of *propositio* is therefore different from that of 'proposition' used in its modern sense, to designate that which is expressed by a sentence. The nearest medieval equivalents to 'proposition' in the modern sense are Abelard's *'dictum'* and the fourteenth-century **'complexly significable'**.

quadrivium: the four mathematical arts: arithmetic, geometry, music and astronomy.

quaestio: literally 'question'. Texts based on university teaching were usually written up in '*quaestio*-form'. A problem would be phrased in the form of a yes-or-no question: '*p* or not-*p*'. Suppose the author wished to argue that not-*p*. First a set of arguments would be given for the view which the writer did *not* wish to advance (for *p*), preceded by the qualification *videtur* ('it seems that'). Then arguments would be advanced for the opposite view (for not-*p*), preceded by the comment *sed contra* ('but against this'). These might just consist of a single authoritative quotation. There followed the 'body' of the *quaestio,* the author's discussion of his view (that not-*p*) along with his reasons for holding it, preceded by the comment *respondeo dicendum* ('I reply that it ought to be said that…'). Finally, each of the arguments for *p* would be answered in turn.

quiddity ***(quidditas):*** was used in the thirteenth century and later to mean **essence;** sometimes the phrase *quod quid est* was used with the same meaning. A 'quidditative definition' is an essential definition.

regent (master): in the medieval university system, a student became a master of arts or of theology at the end of the arts or theology course. He then taught as a master for a short period, usually one or two years, during which he was a *magister regens* ('regent master') before vacating his post for someone else. Most exceptionally (as in the cases of Aquinas and Eckhart) a master was allowed a second period of regency some years after his first one.

scholastics, scholasticism: the philosophers and theologians of the universities of Latin Europe from the thirteenth to the fifteenth or sixteenth centuries are often called 'scholastics' and their work described as 'scholasticism'. Sometimes eleventh- and twelfth-century thinking is described as 'early' or 'pre-scholasticism', and the age of 'high scholasticism' (roughly 1250–1300) is distinguished from 'late(r) scholasticism'. The value of these labels is doubtful.

science (Aristotelian): a branch of knowledge (for instance, geometry or physics) with its own self-evident first principles. See also **subalternation**.

semantics: the theory of meaning; see **signification, supposition**.

semiotic: that which pertains to the study of semiotics, which is the study of symbolic systems in general. Language is one of these symbolic systems.

Sentences: used in connection with medieval philosophy without further qualification, 'the *Sentences*' almost always refers to the *Liber sententiarum* of Peter the Lombard (written *c.* 1155). From the early thirteenth century until the end of the Middle Ages, Peter the Lombard's *Sentences* and the Bible were the two textbooks of university theology faculties. Commenting on all or part of the *Sentences* was part of the requirements for becoming a master of theology. These commentaries—among which are included the most important works of Duns Scotus, Ockham and many others—offered plenty of opportunity to develop philosophical discussions only tenuously related to the Lombard's text.

separate form: see **form**.

separated soul: the human soul in separation from the body after death.

signification *(significatio):* the broadest of terms used in medieval discussions of semantics. Although 'signifies' could be given a special meaning by qualification (e.g. 'signify by nomination'), usually a word's signification is *x* if and only if *x* is that of which it makes its hearers think.

singular/universal statements or propositions: a singular statement is one about a particular thing ('Socrates is white'); a universal statement is one about all things of a sort ('All men are rational').

sophisms *(sophismata):* puzzle sentences (in logic, theology or natural philosophy), often ambiguous ones which are true under one

interpretation and false under another. Mediaeval interest in sophisms seems to have been stimulated by study (from *c.* 1130 onwards) of Artistotle's treatise on fallacies, *On Sophistical Refutations*.

speculative grammar: the attempt by certain writers, especially in the mid- and late-thirteenth century, to treat grammar as an Aristotelian science. It involved analysing words in sentences according to their various 'modes of signifying' *(modi significandi)* and discussing the relation between modes of signifying, modes of being and modes of understanding. Its practitioners were therefore sometimes known as 'modists' *(modisti)*. **I**

square of opposition: a diagrammatic way of representing the relationship between statements of the forms (A) 'All S are P', (E) 'No S is P', (I) 'Some S is P', (O) 'Some S is not P'.

subalternation: every Aristotelian **science** (or branch of knowledge) is based on first principles, which cannot themselves be demonstrated within that science. Some sciences derive their first principles from another science, to which they are then said to be 'subalternate': for example, optics was considered to be subalternate to geometry, whilst it was much disputed whether theology, as practised by scholars here on earth, was subalternate to the theology practised by the souls of the blessed, enjoying the **beatific vision**.

substance *(substantia):* according to the Aristotelian view, generally accepted in the Middle Ages, a substance is (1) a particular member of a natural kind (particular substance) or (2) the **species** or **genus** of some (1) (universal substance). Some medieval thinkers denied, however, that there are in reality any substances of type (2).

supposition *(suppositio):* the reference of a word within a sentence. Supposition was classified into various types from the late twelfth century onwards. This classification is sometimes called the 'theory of the properties of terms'. **I**

syllogism: a syllogism has two premisses, each with two terms, one of which is common to them both (the 'middle (term)'): for instance, 'All men are mortal', 'All philosophers are men'. From the premisses there follows a conclusion in which the middle term does not appear ('All philosophers are mortal').

syncategoremata: see **categorematic…terms**.

synonymy: means the same as **'univocation'**.

terminist logic: the work of those logicians who laid emphasis on the theory of the properties of terms—the classification of the different sorts of **supposition**. The most popular of terminist

textbooks was Peter of Spain's *Tractatus* (known as his *Summule logicales*) (probably 1230–9).

Thomist: this term is usually applied to those nineteenth- and twentieth-century philosophers and historians who have taken (an often simplified view of) the ideas of Aquinas as an accurate guide to the truth in philosophical and theological matters.

transcendentals: attributes which, it was believed, all things have. They included being an existing thing *(ens),* truth, goodness, unity and, according to some thinkers, beauty. **I**

trivium: the three linguistic arts: grammar, logic (dialectic) and rhetoric.

truth, correspondence theory of: a theory of truth which, at minimum, requires that for a statement to be true it signify exactly what is the case; it may or may not also treat what is the case as some sort of real entity (e.g. a **complexly significable**).

universals: a word is universal if it is of a type suited to be predicated of many things. 'Man', 'white', 'animal', 'run(s)' are all universals, but not 'Socrates' or 'Trinity College'. It was a matter of great dispute throughout the Middle Ages whether there were not just universal words and concepts, but also universals things: Man the species as well as particular men, whiteness in general as well as this or that white thing.

world soul: that which, according to Plato's *Timaeus,* is responsible for the movements and regularity of the universe.

Index

The two indexes cover the text of all the chapters and the glossary, and the notes in so far as they add material not discussed in the text. The bibliographies are not indexed. The *index nominum* includes the names of all writers and their works (but not e.g. kings or popes) and towns, monasteries, convents and universities (but not countries). The *index rerum* is a selective guide to the themes and ideas discussed in the book. Details of individual manuscripts cited in the text and notes are given in the *index rerum* under 'manuscripts, individual'. In cross-references between the two indexes, *IN* abbreviates *index nominum*, *IR* abbreviates *index rerum*. *SC* abbreviates *Sentence Commentary,* i.e. a commentary on all or part of the *Sentences* of Peter the Lombard. Page numbers in bold indicate a detailed discussion dedicated to the author, work or theme in question. Page numbers preceded by an asterisk are those of the glossary-entry for the term indexed. The principles of nomenclature and alphabetization followed are that (a) ancient authors are referred to by their usual names (e.g. Boethius, Cicero); (b) post-classical Latin or Western vernacular writers working before c. 1500 are referred to by Christian name first, almost always in English form (e.g. Walter Burley, under 'W'—not Gualterus Burlaeus, under 'G' or 'B'), and connective particles, such as 'of, are ignored in the ordering; those working after c.1500 are referred to by surname first (e.g. Descartes, Renée, under 'D') (c) Arabic and Jewish writers are referred to by their last name first—often beginning with 'al' or 'ibn'; the commonly accepted Latin and English forms of the name are used for Averroes, Avicenna and Maimonides but not otherwise; (d) names of works are generally given as in the text, but often shortened; (e) a few exceptions to these rules have been made where following them would go against normal usage (e.g. Bonaventure is listed under this name, not under John of Fidanza), but there are cross-references here and elsewhere to avoid confusion.

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Volume IV

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This volume provides a broad, scholarly introduction to this period for students of philosophy and related disciplines, as well as some original interpretations of these authors. It includes a glossary of technical terms and a chronological table of philosophical, scientific and other cultural events.

G.H.R.Parkinson is Emeritus Professor of Philosophy, University of Reading. His numerous books include works on Spinoza, Leibniz, Wittgenstein and Lukács; he is also the General Editor of *An Encyclopaedia of Philosophy* (Routledge, 1988).

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The History is intended not only for the specialist, but also for the student and the general reader. Each chapter is by an acknowledged authority in the field. The chapters are written in an accessible style and a glossary of technical terms is provided in each volume.

Routledge History of Philosophy
Volume IV

The Renaissance and Seventeenth-century Rationalism

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General editors' preface

The history of philosophy, as its name implies, represents a union of two very different disciplines, each of which imposes severe constraints upon the other. As an exercise in the history of ideas, it demands that one acquire a 'period eye': a thorough understanding of how the thinkers whom it studies viewed the problems which they sought to resolve, the conceptual frameworks in which they addressed these issues, their assumptions and objectives, their blind spots and miscues. But as an exercise in philosophy, we are engaged in much more than simply a descriptive task. There is a crucial critical aspect to our efforts: we are looking for the cogency as much as the development of an argument, for its bearing on questions which continue to preoccupy us as much as the impact which it may have had on the evolution of philosophical thought.

The history of philosophy thus requires a delicate balancing act from its practitioners. We read these writings with the full benefit of historical hindsight. We can see why the minor contributions remained minor and where the grand systems broke down: sometimes as a result of internal pressures, sometimes because of a failure to overcome an insuperable obstacle, sometimes because of a dramatic technological or sociological change and, quite often, because of nothing more than a shift in intellectual fashion or interests. Yet, because of our continuing philosophical concern with many of the same problems, we cannot afford to look dispassionately at these works. We want to know what lessons are to be learnt from the inconsequential or the glorious failures; many times we want to plead for a contemporary relevance in the overlooked theory or to reconsider whether the 'glorious failure' was indeed such or simply ahead of its time: perhaps even ahead of its author.

We find ourselves, therefore, much like the mythical 'radical translator' who has so fascinated modern philosophers, trying to understand an author's ideas in his and his culture's eyes, and at the same time, in our own. It can be a formidable task. Many times we fail in the historical undertaking because our philosophical interests are so strong, or lose sight of the latter because we are so enthralled by the former. But the nature of philosophy is such that we are compelled to master both techniques. For learning about the history of philosophy is not just a challenging and engaging pastime: it is an essential

element in learning about the nature of philosophy—in grasping how philosophy is intimately connected with and yet distinct from both history and science.

The *Routledge History of Philosophy* provides a chronological survey of the history of Western philosophy, from its beginnings up to the present time. Its aim is to discuss all major philosophical developments in depth, and with this in mind, most space has been allocated to those individuals who, by common consent, are regarded as great philosophers. But lesser figures have not been neglected, and it is hoped that the reader will be able to find, in the ten volumes of the History, at least basic information about any significant philosopher of the past or present.

Philosophical thinking does not occur in isolation from other human activities, and this History tries to situate philosophers within the cultural, and in particular the scientific, context of their time. Some philosophers, indeed, would regard philosophy as merely ancillary to the natural sciences; but even if this view is rejected, it can hardly be denied that the sciences have had a great influence on what is now regarded as philosophy, and it is important that this influence should be set forth clearly. Not that these volumes are intended to provide a mere record of the factors that influenced philosophical thinking; philosophy is a discipline with its own standards of argument, and the presentation of the ways in which these arguments have developed is the main concern of this History.

In speaking of 'what is now regarded as philosophy', we may have given the impression that there now exists a single view of what philosophy is. This is certainly not the case; on the contrary, there exist serious differences of opinion, among those who call themselves philosophers, about the nature of their subject. These differences are reflected in the existence at the present time of two main schools of thought, usually described as 'analytic' and 'continental' philosophy. It is not our intention, as general editors of this History, to take sides in this dispute. Our attitude is one of tolerance, and our hope is that these volumes will contribute to an understanding of how philosophers have reached the positions which they now occupy.

One final comment. Philosophy has long been a highly technical subject, with its own specialized vocabulary. This History is intended not only for the specialist but also for the general reader. To this end, we have tried to ensure that each chapter is written in an accessible style; and since technicalities are unavoidable, a glossary of technical terms is provided in each volume. In this way these volumes will, we hope, contribute to a wider understanding of a subject which is of the highest importance to all thinking people.

G.H.R.Parkinson
S.G.Shanker

Notes on contributors

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Chronology

Unless otherwise specified, the dates assigned to books or articles are the dates of publication, and the dates assigned to musical or stage works are those of first performance. The titles of works not written in English have been translated, unless they are better known in their original form.

	Politics and Religion	The Arts
1304		
1337		Giotto d.
1370		
1374		
1401		
1405		
1407		
1413	Jan Hus, *De Ecclesia,* proposes church reform	*c.* 1413–16 Limburg brothers, *Les très riches Heures du Duc de Berry*
1415	Hus burnt Battle of Agincourt	
1433		
1434	Cosimo de' Medici in power in Florence	Jan van Eyck, *Arnolfini Wedding Portrait*
1438	1438–45 Council of Florence tries to unify East and West churches	
1440		*c.* 1440 Josquin des Pres, Flemish composer, b.
1444		
1445		Botticelli b.
1452		Leonardo da Vinci b.
1453	Hundred Years' War ends Constantinople falls to Sultan Mehmet II	

	Politics and Religion	The Arts
	1453–5 'Gutenberg Bible' printed in Mainz	
1454		
1457		
1462		
1463		
1464	Cosimo de' Medici d.	
1466		
1468		
1469	Lorenzo de' Medici in power in Florence Machiavelli b.	
1472		
1475		Michelangelo b.
1479	Spanish Inquisition established	
1482	Savonarola, preacher and reformer, active in Florence	
1483	Luther b.	Raphael b.

Science and Technology	Philosophy	
	Petrarch b.	1304
		1337
	Leonardo Bruni b.	1370
	Petrarch d.	1374
	Nicholas of Cusa b.	1401
	Bruni's Latin version of Plato's *Phaedo*	1405
	Lorenzo Valla b.	1407
		1413
		1415
	Ficino b.	1433
		1434
		1438
	Nicholas of Cusa, *De docta ignorantia* *c.* 1440 Lorenzo Valla, *De libero arbitrio* written	1440
	Bruni d.	1444
		1445
		1452

Science and Technology	Philosophy	
		1453
	Angelo Poliziano b.	1454
	Lorenzo Valla d.	1457
	Pomponazzi b.	1462
	Giovanni Pico della Mirandola b.	1463
	Nicholas of Cusa d.	1464
	c. 1466 Erasmus b.	1466
	Cajetan b.	1468
	Gianfrancesco Pico della Mirandola b. *c.* 1469 Agostino Nifo b. 1469–74 Ficino, *Theologia Platonica de immortalitate animae* written	1469
	1472–4 Latin version of Aristotle (Venice)	1472
		1475
		1479
		1482
	1483/6 Francisco de Vitoria b.	1483

	Politics and Religion	The Arts
1484		
1485		Malory, *Morte d'Arthur* *c.* 1485 Titian b.
1486		
1489		
1491		
1492	Conquest of Granada: Muslims expelled from Spain Jews expelled from Spain Columbus's voyage to West Indies Lorenzo de' Medici d.	
1493		
1494		Rabelais b.
1495		
1496		
1497		
1498	Savonarola executed	
1499	Amerigo Vespucci explores coast of Venezuela	

	Politics and Religion	The Arts
1501		
1508		Palladio b. 1508–12 Michelangelo paints ceiling of Sistine chapel
1509	Calvin b.	
1510		Botticelli d.
1511	Erasmus, *In Praise of Folly,* attacks church corruption	
1513	Machiavelli writes *The Prince* 5th Lateran Council restricts freedom of philosophers	
1515		
1516	Erasmus, edition of the Greek New Testament	
1517	Luther posts his ninety-five theses at Wittenberg	
1519		Leonardo da Vinci d.
1520		Raphael d.

Science and Technology	Philosophy	
	Ficino, Latin version of Plato Mario Nizolio b.	1484
		1485
	Agrippa von Nettesheim b.	1486
	Ficino, *De vita libri tres*	1489
	Giovanni Pico, *De ente et uno*	1491
	Latin version of Plotinus	1492
Paracelsus, Swiss alchemist, b.	Valla, *De libero arbitrio* printed	1493
	Giovanni Pico d. Poliziano d.	1494
	Aldine edition of Greek text of Aristotle	1495
Regiomontanus, *Epitome of Ptolemy's Almagest*		1496
	Latin version of Epictetus Melanchthon b.	1497
		1498
	Ficino d.	1499
Cardano b.		1501

Science and Technology	Philosophy	
		1508
	Telesio b.	1509
		1510
		1511
	Aldine edition of Plato	1513
	Ramus b.	1515
	Pomponazzi, *Tractatus de Immortalitate Animae*	1516
		1517
		1519
	Gianfrancesco Pico, *Examen Vanitatis Doctrinae Gentium*	1520

	Politics and Religion	The Arts
1592		
1593		Marlowe d.
1594		
1596		
1597		Bacon, *Essays* (Ist edn)
1598	Edict of Nantes: guarantees given to French Protestants	
1599		Globe Theatre opened, London Velasquez b.
1600		
1601	Jesuit Matteo Ricci goes to Peking	
1603		
1604		
1605		Cervantes, *Don Quixote,* Part I
1606		Rembrandt b.
1608		Milton b.
1609	Truce between Spain and the United Provinces; Dutch achieve *de facto* independence	
1610		Monteverdi, *Vespers*
1611	'King James Bible' published	Shakespeare, *The Tempest*
1612	Bœhme, *Aurora*	
1614		El Greco d.

	Politics and Religion	The Arts
1615		Cervantes, *Don Quixote,* Part II
1616		Shakespeare d. Cervantes d.
1617		
1618	Beginning of Thirty Years' War 1618–19 Synod of Dort strengthens position of Calvinists in Holland	
1619		
1620	*Mayflower* sails to America	
1621		
1622		Molière b.

Science and Technology	Philosophy	
	Gassendi b. Montaigne d.	1592
	Charron, *Les trois véritez*	1593
	Du Vair, *De la constance et consolation ès calamités publiques*	1594
Kepler, *Mysterium cosmographicum*	Descartes b.	1596
	Suarez, *Disputationes metaphysicae*	1597
		1598
	Fonseca d.	1599
Gilbert, *De magnete*	Bruno burnt at Rome Molina d.	1600
	Charron, *De la sagesse*	1601
	Charron d.	1603
	Lipsius, *Manuductio ad Stoicam philosophiam*	1604
	Bacon, *The Advancement of Learning*	1605
	Lipsius d.	1606
Hans Lippershey applies for a patent for his telescope		1608
Galileo constructs his first telescope Kepler, *Astronomia nova*		1609
Galileo, *Sidereus nuncius*		1610
		1611
	Arnauld b.	1612

Science and Technology	Philosophy	
	Suarez, *Tractatus de Legibus ac Deo legislature*	
		1614
		1615
Inquisition pronounces in favour of the Ptolemaic system		1616
	Suarez d.	1617
		1618
Kepler, *Harmonices mundi*		1619
	Bacon, *Novum Organum*	1620
	Greek text of Sextus Empiricus published Du Vair d.	1621
	Johannes Clauberg b.	1622

	Politics and Religion	The Arts
1554		
1555	Peace of Augsburg recognizes the coexistence of Catholics and Lutherans in Germany	
1556		
1558		
1559	*Index Librorum Prohibitorum* promulgated	
1560		
1561		
1562		
1564	Calvin d.	Shakespeare b. Marlowe b. Michelangelo d.
1565		
1567		Monteverdi b.
1568	Revolt of the Netherlands from Spain	
1569		
1571		
1572	St Bartholomew's Day massacre of French Protestants in Paris	John Donne b.
1575	Bœhme b.	
1576		Titian d.

	Politics and Religion	The Arts
1578		
1579	Union of Utrecht: Northern provinces of Netherlands unite	
1580		Palladio d.
1581		
1584		
1586		El Greco, *Burial of Count Orgaz*
1588	Defeat of Spanish Armada	
1589		
1591		

Science and Technology	Philosophy	
	Petrarch, *Opera Omnia* published	1554
	Ramus, *Dialectique*	1555
Agricola, *De re metallica*	Guillaume du Vair b.	1556
	Molina, *Concordia*	1558
		1559
	Melanchthon d. Latin translation of Proclus	1560
	Francis Bacon b.	1561
	Latin version of Sextus Empiricus, *Outlines of Pyrrhonism*	1562
Galileo b.		1564
	Telesio, *De rerum natura*	1565
	Nizolio d.	1567
	Campanella b.	1568
	Latin version of Sextus Empiricus, *Adversus mathematicos*	1569
Kepler b.		1571
Latin version of Euclid	Ramus killed in St Bartholomew's Day massacre	1572
		1575
Cardano d.		1576
	Estienne (Stephanus), edition of Plato	1578
		1579
	Greek text of Plotinus published Montaigne, *Essais,* I–II	1580

Science and Technology	Philosophy	
	Sanches, *Quod nihil scitur*	1581
	Bruno, *De la causa* Bruno, *De l'infinito universo e mondi* Lipsius, *De constantia in publicis malis*	1584
Stevin, *Elements of the Art of Weighing* (On the principles of statics)		1586
	Hobbes b. Telesio d. Molina, *Concordia liberi arbitrii cum gratiae donis*	1588
Latin version of Pappus	Lipsius, *Six Books on Politics* Zabarella d.	1589
	Campanella, *Philosophia sensibus demonstrata*	1591

	Politics and Religion	The Arts
1592		
1593		Marlowe d.
1594		
1596		
1597		Bacon, *Essays* (Ist edn)
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1612	Böhme, *Aurora*	

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1614		El Greco d.
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1616		Shakespeare d. Cervantes d.
1617		
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1619		
1620	*Mayflower* sails to America	
1621		
1622		Molière b.

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Hans Lippershey applies for a patent for his telescope		1608
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Galileo, *Sidereus nuncius*		1610
		1611
	Arnauld b.	1612

Science and Technology	Philosophy	
	Suarez, *Tractatus de Legibus ac Deo legislature*	
		1614
		1615
Inquisition pronounces in favour of the Ptolemaic system		1616
	Suarez d.	1617
		1618
Kepler, *Harmonices mundi*		1619
	Bacon, *Novum Organum*	1620
	Greek text of Sextus Empiricus published Du Vair d.	1621
	Johannes Clauberg b.	1622

	Politics and Religion	The Arts
1623		First Folio edition of Shakespeare William Byrd d.
1624	Richelieu chief minister of Louis XIII Bœhme d.	
1626		
1627		
1628		Bunyan b.
1630		
1631		John Donne d.
1632		Rembrandt, *Dr. Tulp's anatomy lesson* Vermeer b.
1633		Donne, *Poems*
1635		
1637		
1638		Milton, *Lycidas*
1639		Racine b.
1640		
1641		
1642	Richelieu d., succeeded by Mazarin English Civil War begins	Rembrandt, *Night Watch*
1643	Accession of Louis XIV	Monteverdi d.
1644		Milton, *Areopagitica*

	Politics and Religion	The Arts
1646		
1648	Peace of Westphalia ends Thirty Years' War. Dutch independence formally recognized	
1649	Execution of Charles I of England	
1650		
1651	The Netherlands: Republican statesman Jan de Witt in power English Civil War ends	
1655		
1656		Velasquez, *Las Meninas*
1658		
1660		Velasquez d.

Science and Technology	Philosophy	
	Bacon, *De Augmentas Scientiarum* Sanches d.	1623
	Gassendi, *Exercitationes paradoxicae* Geulincx b.	1624
	Cordemoy b. Bacon d.	1626
Robert Boyle b.	Bacon, *New Atlantis*	1627
Harvey, *Concerning the Motion of the Heart and Blood*	*c.* 1628 Descartes's *Regulae ad directionem ingenii* written	1628
Kepler d.		1630
		1631
Galileo, *Dialogue on the Two Chief World Systems*	Spinoza b. Locke b. La Forge b.	1632
Galileo condemned by the Inquisition for upholding the Copernican system		1633
Académie Française founded		1635
Descartes, *Geometry, Optics, Meteorology*	Descartes, *Discourse on Method*	1637
Galileo, *Discourses on Two New Sciences*	Malebranche b.	1638
	Campanella d.	1639
	Hobbes, *The Elements of Law*	1640

Science and Technology	Philosophy	
	Descartes, *Meditations*	1641
Galileo d. Newton b.	Hobbes, *De Cive*	1642
		1643
	Descartes, *Principles of Philosophy*	1644
Mathematical works of Vieta published in Latin	Leibniz b.	1646
		1648
	Gassendi, *Animadversiones in decimum librum Diogenis Laertii*	1649
	Descartes d.	1650
	Hobbes, *Leviathan*	1651
	Hobbes, *De Corpore* Gassendi d.	1655
	Spinoza excommunicated	1656
	Gassendi, *Syntagma philosophicum*	1658
		1660

	Politics and Religion	The Arts
1661	Mazarin d. Louis XIV governs France	
1662		
1664		
1665		
1666		Molière, *Le misanthrope*
1667		Milton, *Paradise Lost*
1669		Rembrandt d.
1670		Molière, *Le bourgeois gentilhomme*
1671		
1672	France invades Netherlands; Jan de Witt murdered	
1673		Molière d.
1674		Milton d.
1675		Vermeer d.
1677		Racine, *Phèdre*
1678		Bunyan, *The Pilgrim's Progress,* Part I

	Politics and Religion	The Arts
1679		
1683		
1684		Bunyan, *The Pilgrim's Progress,* Part II
1685	Louis XIV revokes Edict of Nantes; emigration of French Protestants begins	Bach b. Handel b.
1686		
1687		
1688		Bunyan d.
1690		
1691		
1692		
1694		Voltaire b.

Science and Technology	Philosophy	
Boyle, *The Sceptical Chemist*		1661
Royal Society founded	Arnauld and Nicole, *Port Royal Logic*	1662
	Clauberg, *De corporis et animae in homine conjunctione*	1664
Newton discovers differential and integral calculus Hooke, *Micrographia*	Geulincx, *Disputatio ethica de virtute* La Forge, *Traitté de l'esprit de l'homme* Clauberg d.	1665
Académie Royale des Sciences founded	Cordemoy, *Discernement du corps et de l'âme* La Forge d.	1666
		1667
	Geulincx d.	1669
	Spinoza, *Tractatus Theologico-Politicus*	1670
	Third Earl of Shaftesbury b.	1671
		1672
		1673
	1674–5 Malebranche, *Recherche de la vérité*	1674
Leibniz's independent discovery of the differential and integral calculus		1675
	Spinoza d.	1677

Science and Technology	Philosophy	
	Spinoza, *Ethics* Malebranche, *Conversations chrétiennes*	
Huygens, *Treatise on Light* written		1678
	Hobbes d.	1679
	Malebranche, *Méditations chrétiennes et métaphysiques*	1683
	Cordemoy d.	1684
	Berkeley b.	1685
	Leibniz writes his *Discourse on Metaphysics*	1686
Newton, *Principia*		1687
	Malebranche, *Entretiens sur la métaphysique et la religion*	1688
Huygens, *Treatise on Light* published	Locke, *Essay concerning Human Understanding* Locke, *Two Treatises of Civil Government*	1690
Boyle d.	Geulincx, *Metaphysica vera*	1991
	Joseph Butler b.	1692
	Hutcheson b. Arnauld d.	1694

	Politics and Religion	The Arts
1695	Locke, *The Reasonableness of Christianity*	
1697		
1999		Racine d.
1700		
1703		
1704		Swift, *The Battle of the Books*
1709		Samuel Johnson b.
1710		
1711		Pope, *Essay on Criticism* Handel, *Rinaldo*
1712		
1713		
1714		
1715	Louis XIV d.	

Politics and Religion	The Arts
1716	

Science and Technology	Philosophy	
	Leibniz, *New System*	1695
	Bayle, *Dictionnaire*	1697
		1699
Berlin Academy of Sciences founded		1700
	1703–5 Leibniz's *New Essays on the Human Understanding* written	1703
Newton, *Optics*	Locke d.	1704
	Berkeley, *New Theory of Vision*	1709
	Leibniz, *Theodicy* Berkeley, *The Principles of Human Knowledge*	1710
	Shaftesbury, *Characteristics* Hume b.	1711
	Rousseau b.	1712
	Berkeley, *Dialogues between Hylas and Philonous* Shaftesbury d.	1713
	Leibniz's *Monadology* written	1714
	Malebranche d.	1715
	Leibniz d.	1716

Introduction

G.H.R.Parkinson

The philosophy that is discussed in this volume covers a period of some three hundred and fifty years, from roughly the middle of the fourteenth century to the early years of the eighteenth. What is offered, however, is not a comprehensive history of the philosophy of this period. Topics such as the later stages of scholasticism, and the beginnings of British empiricism in the seventeenth century, are not discussed here, but are reserved for other volumes in this series. The substance of the volume is the history of certain important philosophical movements that occurred during this period: namely, Renaissance philosophy and seventeenth-century rationalism. But the volume does not deal with these movements exclusively. If one is to understand Renaissance philosophy, one must also examine the scholastic thought against which it reacted and with which it frequently interacted. Similarly, if one is to understand the seventeenth-century rationalists, one must also understand some of their contemporaries who were not rationalists— men such as Bacon, Gassendi and Hobbes. They therefore find a place here, as do Renaissance scholastics such as Pomponazzi and Cremonini.

The division of the history of philosophy into a number of movements is a procedure that has often been followed, but it has its critics. In recent years, historians of philosophy have emphasized what one might call the individuality, the 'thisness' of philosophers, and have argued that to try to force this or that individual into pre-set categories can lead to distortions. There is indeed a danger of such distortions; on the other hand, it seems fair to say that during certain epochs certain philosophical questions came to the forefront, and that philosophers provided answers which (although different) had some kinship, so that it is possible to speak of a 'movement' in such cases. Such, at any rate, is the assumption made in this volume; whether the assumption is a fruitful one, the volume itself will show.

The term 'Renaissance philosophy' is a controversial one, as indeed is the term 'seventeenth-century rationalism'. It has been argued that the very notion of the Renaissance is a myth,[1] and one may wonder how it can be useful to speak of the philosophy of a myth. But it is important not to exaggerate. Scholars are in general agreement that there was in Western Europe, between roughly 1350 and the first decades of the seventeenth century,[2] a cultural movement which may

usefully be called 'the Renaissance', and that a philosophy or group of philosophies formed a part of this movement. What is at issue, when people talk of the myth of the Renaissance, is the making of certain inflated claims on behalf of this movement.

In explaining what is meant here by 'Renaissance philosophy', I will begin by stating a commonplace. This is, that the area covered by the term 'philosophy' has shrunk in the course of the centuries; that, for example, what was once called 'natural philosophy' is now called 'physics', and an important part of what was once called 'mental philosophy' is now called 'psychology'. In the Renaissance, the term 'philosophy' had a very wide sense indeed, covering not only physics and psychology, but also such subjects as rhetoric, poetics and history, and even magic and astrology.[3] However, the term also covered what would now be called 'philosophy'; scholars speak of Renaissance logic and metaphysics, Renaissance theory of knowledge, and Renaissance moral and political philosophy. It is Renaissance philosophy in this sense that will be the concern of the present volume.

I have already implied a distinction between Renaissance philosophy and scholasticism—a movement which, incidentally, continued to exist up to the seventeenth century. This indicates that when 'Renaissance philosophy' is spoken of here the term is not taken to mean every philosophy which existed during the period of the Renaissance. Rather, it means a philosophy which was distinctively Renaissance in character. At this stage, it is necessary to try to be a little clearer about the term 'Renaissance'. I have spoken of the period which the Renaissance is generally agreed to have covered; there is also general agreement that the movement began in Italy and spread to the rest of Western Europe. It was a movement in which (to quote one eminent specialist in the field) 'there was a revival of interest in the literature, styles and forms of classical antiquity'.[4] But this definition generates a problem. I have distinguished Renaissance philosophy from scholasticism; but it is well known that the scholastics, too, derived much inspiration from classical philosophy. The question is, then, what distinguishes Renaissance philosophy from scholasticism. Here, one must first consider what the term 'scholasticism' means. As a philosophical movement, scholasticism reached its peak during the Middle Ages, and for some people the terms 'scholasticism' and 'medieval Christian philosophy' are interchangeable.[5] There is a more precise sense of the term, however. In this sense, scholasticism begins in cathedral schools in the eleventh century, and reaches its peak in the universities of Paris and Oxford during a period that lasted from the early thirteenth to the middle of the fourteenth century. As a guide to the nature of scholasticism, taken in this sense, it is helpful to follow the account given by Dom David Knowles in his book *The Evolution of Medieval Thought*.[6] Knowles argues that scholasticism was distinguished by its goal, form and technique. Its goal was to provide a preparation for theology and to explain and defend Christian doctrines. In its form, it depended heavily on ancient philosophy, and in particular on Aristotle. Its technique was, *par excellence,* the method of

quaestio, disputatio and *sententia:* the posing of a problem which was such that authorities differed about the correct answer, arguments concerning the problem, and a solution.[7]

Although Renaissance philosophy did not follow the method of *quaestio, disputatio* and *sententia,* it might be argued that it resembled scholasticism in respect of the fact that it was a book-centred philosophy, deriving its inspiration from the writings of the ancients. It would be granted that Renaissance scholars rediscovered many classical texts, with the result that their knowledge of ancient philosophy was much wider than that which the medievals had. But it may be said that this would not of itself justify one in regarding the Renaissance as a separate movement; it might simply be a movement that did more effectively what the scholastics had tried to do. In order to answer this point, it is necessary to examine more closely the relation between Renaissance writers and classical texts. More specifically, one has to consider that aspect of the culture of the Renaissance which is called 'humanism'. The abstract noun 'humanism', like the term 'the Renaissance', is a nineteenth-century coinage; however, the term 'humanist' is much older. It originated in Italy in the late fifteenth century and was used to refer to a teacher or student of the *studia humanitatis*— the humanities—a term which was used to mean the study of classical texts concerning, in the main, five subjects: grammar, rhetoric, poetics, moral philosophy and history.[8] The deeper knowledge of classical Latin and Greek that the humanists acquired led them to scorn both the scholastics' translations of the classics and their barbarous misuse of the Latin language.[9] Instead of using the cumbrous Latin of the scholastics, the humanists wanted to write about philosophical topics in elegant Latin of the kind that Cicero might have written.

I have said that the philosophy that most concerned the humanists was moral philosophy: that is, a branch of philosophy that concerns human beings and their relations with each other. This concentration of interest upon human beings was emphasized by the Swiss scholar Jakob Burckhardt in his influential book *The Civilisation of the Renaissance in Italy* (1860). Burckhardt saw the Renaissance as an epoch in which man for the first time became a genuine individual; an epoch in which the modern age began. Modern critics are sceptical of Burckhardt's claim, arguing that although the writers and artists of the Renaissance distanced themselves from the Middle Ages, they were in fact more medieval than they realized. When such scholars speak of 'the myth of the Renaissance' it is above all Burckhardt's picture of the Renaissance that they have in mind.[10]

What, then, was the importance of the Renaissance in the history of Western philosophy? Some scholars point to the way in which late Renaissance philosophy questioned 'all authorities, even the classics'; they also see it as leading to seventeenth-century attempts to establish the unity and coherence of knowledge.[11] To this it may be replied that the philosophers of the Middle Ages were by no means uncritical in their response to the classical philosophers, and that the establishment of the unity of knowledge was surely the aim of the

authors of the great medieval *Summae*. That must be granted; but if one is concerned, not with what was new, but rather with what is important about Renaissance philosophy, then what has been said may stand. There is at least one further respect in which the Renaissance did differ from the Middle Ages—though here we are concerned with the Renaissance in general rather than with Renaissance philosophy in particular, and with the sociology of philosophy rather than with philosophy as such. It was during the Renaissance that there began what one may term the laicization of the European culture of the Christian era.[12] Some of the humanists were in holy orders—one may mention Petrarch and Erasmus—but most were not. From the time of the Renaissance onwards, a clerk (in the sense of a scholar) no longer had to be a cleric. In this way, the first moves were made towards loosening the hold that Christian institutions had upon philosophy.

I must emphasize that by the laicization of European culture I do not mean what has been called 'the secularisation of the European mind';[13] that is, the decline in the importance that religious ideas, and more specifically Christian ideas, have had for European thinkers. It is plausible to argue that the two were connected; but they were different from each other. To speak of laicization in this context is to speak of the people who were the bearers of culture, and it is to say that they ceased to be predominantly clerical; it is not to say anything about the content of what such people believed. In fact, what were regarded as Christian concepts and Christian truths continued to be dominant in Renaissance philosophy, just as they had been dominant in the Middle Ages. Humanists might disagree over the answer to the question whether Plato or Aristotle was more compatible with Christianity; but that a sound philosophy should be so compatible was not in dispute. Even the arguments of the ancient sceptics, whose writings became widely available in the sixteenth century, were made to serve religious purposes.[14]

From the Renaissance we move to the beginnings of what may be regarded as modern (as opposed to ancient, medieval or Renaissance) philosophy. For the majority of contemporary philosophers, the first modern philosopher was Descartes. There are two main reasons for this view. One of the main features of the European philosophy of the eighteenth and nineteenth centuries was the role played in it by one form or other of philosophical idealism, and it is argued that one can trace this idealism back to Descartes's view that the human mind is known before any physical object is known. But even those philosophers for whom idealism is no longer a live issue find that Descartes is relevant to their concerns. When Gilbert Ryle published his influential book *The Concept of Mind* shortly after the end of the Second World War,[15] he presented Descartes as the source of philosophical views about the human mind which were profoundly wrong. However, if one's concerns include science and its philosophy, then there is a case for regarding as the first modern philosopher someone who was born thirty-five years before Descartes. This was Francis Bacon.

Born in 1561, Bacon is sometimes discussed in books on Renaissance philosophy,[16] but it is better to regard him as a modern in whom some traces of the Renaissance remained. Certainly, he agreed with the Renaissance philosophers in his scorn for the scholastics; he agreed, too, with some Renaissance writers in his view that magic was not to be rejected entirely, and his views about the nature of knowledge have a Renaissance ancestry.[17] But he was as dismissive of Renaissance authors as he was of the scholastics, saying of them that their concern was primarily with words.[18] He saw himself as a revolutionary, the provider of a new logic—a 'Novum Organum'—which was to supercede the old 'Organon' of Aristotle. Aristotle's logic had already been attacked by humanist logicians, of whom the most influential in the sixteenth and seventeenth centuries was Ramus (Pierre de la Ramée, 1515–72).[19] But the aims of Bacon and Ramus were quite different. Ramus was concerned with thinking in general, and his aim was to replace the Aristotelian syllogism by a less formal logic, which would correspond more closely to the way in which people actually think.[20] Bacon, on the other hand, was concerned chiefly with scientific thinking.

It has been said of Bacon that he made 'the first serious attempt to formulate and justify the procedure of natural scientists'.[21] For many, this attempt is to be found in Bacon's discussions of induction—that is, of that type of argument in which one reaches universal conclusions from particular instances. His 'Novum Organum', his 'New Instru ment', was to be a systematic way of reaching such conclusions. Tables of observations were to be drawn up, and universal laws were to be derived from these by the application of certain rules.[22] Such laws, Bacon thought, were not wholly satisfactory, in that they told us nothing about the fundamental structure of reality; none the less, they were *known,* in that they provided us with rules for the manipulation of nature.[23] This introduces Bacon's distinctive view about the nature of knowledge: namely, that to know is to make. As mentioned earlier, the view has Renaissance antecedents, but Bacon applies it to what we now regard as the beginnings of modern science. It is his emphasis on the fact that the inquirer should not just observe, but should also intervene in nature, that has led him to be called, not the first philosopher of induction, but the first philosopher of experimental science.[24]

Whatever its merits, Bacon's philosophy of science also had serious deficiencies; it is widely recognized that Bacon has no grasp of the importance that mathematics has for the sciences.[25] This cannot be said of the philosophers whose ideas are the concern of over half of this volume: namely, the seventeenth-century rationalists. As mentioned earlier,[26] the term has generated some controversy. It is used to pick out a number of seventeenth-century philosophers, the chief of whom were Descartes, Spinoza and Leibniz, though Malebranche and the Flemish philosopher Geulincx are also included. Now, it must be admitted that none of these ever called himself a rationalist, nor can they be said to have constituted a school, in the sense of a group of people who saw themselves as separated from others by virtue of their adherence to certain shared principles. They seem, indeed, to have been more conscious of their disagreements

with each other than with the respects in which they agreed; so, for example, Spinoza criticized Descartes, Malebranche criticized Spinoza, and Leibniz criticized Descartes, Spinoza and Malebranche. Again, those who regard these philosophers as a group often contrast them with the 'British empiricists', namely Locke, Berkeley and Hume. Yet Locke's use of the important term 'idea' owed something to Descartes, and Malebranche influenced both Berkeley and Hume. Despite all this, the philosophers who are commonly called the seventeenth-century rationalists did have a number of basic views in common. All agreed that it is possible to get to know the nature of reality simply by means of *a priori* reasoning; that is, that we can get to know by means of the reason, without any appeal to the senses, truths about reality that are *necessary* truths. It is these points of resemblance, above all, that the term 'rationalist' picks out. In this sense, rationalism is not peculiar to the seventeenth century; the 'dialectic' that is described in Plato's *Republic* (510–11, 532–4) is a rationalist theory. Nor did rationalism come to an end after the death of Leibniz. It continued to exist, not just in the writings of Leibniz's follower Christian Wolff, but also in the form of the 'objective idealism' of Hegel, and perhaps even after that.[27] Our concern, however, is with its seventeenth-century manifestations.

The time-span of the movement is well enough indicated by the name given to it. Its first public manifestation was in Descartes's *Discourse on Method,* published in 1637; it ended in 1716, the year in which Leibniz—still philosophically active—died. Though not as widespread as the Renaissance, it was by no means confined to one country. Descartes worked in France and the Netherlands; Malebranche worked in France; Geulincx and Spinoza worked in the Low Countries, and Leibniz worked mainly in Germany (though one should not overlook a very productive period which he spent in Paris between 1672 and 1676). Seventeenth-century rationalism also spanned the religions. Descartes and Malebranche were Roman Catholics (Malebranche, indeed, was a priest); Geulincx was initially a Catholic but became a convert to Protestantism after being persecuted for Cartesian views; Spinoza was an excommunicated Jew, with friends among some of the smaller Protestant sects.

Like Bacon, the rationalists saw themselves as making a new start. Most of them were contemptuous of Aristotle and the scholastics;[28] indeed, they rejected everything that passed for received wisdom in their time, as long as it did not meet the demands of rational scrutiny. This is very clearly expressed in Descartes's resolve, stated in the first part of his *Meditations,*[29] 'to demolish everything completely and start again right from the foundations'. But no one philosophizes in an intellectual vacuum, and it is important to note that the rise of rationalism in the seventeenth century occurred at the same time as, and was closely associated with, the rise of what one now calls 'modern science'. The new science is discussed at length in Chapter 3 of this volume; here it must be sufficient to say that the old and largely Aristotelian science stressed the qualitative aspect of nature, and was primarily concerned to classify, whereas the new science stressed the quantitative aspect of things, offering explanations that

were mathematical in character. Of the seventeenth-century rationalists, some played an important part in the new science. Descartes was philosopher, mathematician and scientist; so, too, was Leibniz. Spinoza and Malebranche, for their part, made no serious contribution to science or mathematics, but were well informed about them. The question is how the seventeenth-century rationalists saw philosophy as related to the natural sciences.[30] For present-day philosophers of science, the sciences stand in no need of justification by philosophy, the business of the philosopher being exclusively one of analysis: the clarification of the nature of scientific propositions and of the methods of science. But it is clear that this was not Descartes's attitude; his search for foundations included a search for the foundations of science,[31] and it is generally held that this is true of the other seventeenth-century rationalists.[32]

For the seventeenth-century rationalists, the foundations that they sought could be discovered only by *a priori* reasoning. Perhaps the clearest arguments for this thesis are provided by Descartes's account of systematic doubt in the *Meditations,* from which it emerges that he regards as known only those propositions whose truth cannot be doubted, and also takes the view that such propositions cannot be empirical. There would be general agreement that there is such knowledge of the truths of logic and of mathematics; but Descartes argued that these truths are only hypothetical, stating that *if,* for example, there is such a figure as a triangle, then its interior angles must equal two right angles.[33] What distinguishes the rationalists is their view that there are existential propositions whose truth can be known *a priori*. Mathematics, although concerned only with hypothetical truths, provided them with methods of procedure.[34] Roughly speaking, what the rationalists tried to do was first of all to obtain *a priori* knowledge of certain basic truths about what exists, and then to derive further truths from these by means of pure reasoning.

As is well known, Descartes stated that the existential truth that he knew first of all was the proposition that he existed as a thinking being, a proposition that he could not doubt as long as he was actually thinking. But it is evident (and it did not escape Descartes's notice) that the truth of this proposition was in a way far from fundamental, in that Descartes's existence depended on that of many other beings. Ultimately, the rationalists argued, it depended on the existence of a supreme being. In a sense, therefore, the fundamental item of knowledge is the knowledge that there must exist such a supreme being, or, as the rationalists said, a 'most perfect' or a 'necessary' being. Belief in the existence of such a being was not peculiar to the rationalists, but their arguments for its existence were distinctive. These arguments had to be *a priori,* and the rationalists based them on the concept of God. One argument offered by Descartes was that this concept was such that only a God could have implanted it in us. Alternatively, Descartes argued that the concept was such that one could not, without self-contradiction, deny that God existed. This was the celebrated 'ontological argument', whose soundness was accepted by Spinoza and Leibniz also.[35]

Given a knowledge of the existence and nature of the supreme being, the task of the rationalist was, as it were, to build on this foundation by deriving the consequences which followed. But there were important differences between the ways in which the seventeenth-century rationalists saw this being. For all of them except Spinoza, the supreme being was a personal deity, creator of the universe, and choos ing freely to create it. Spinoza argued that such a concept was incoherent, and that a consistent account of the necessary being must present it as an impersonal being, within which particular things exist, and which cannot rationally be regarded as exercising free will. This was clearly opposed to orthodox Christian doctrine; however, one should not exaggerate Spinoza's role in ending the predominance of Christian ideas in philosophy.[36] His philosophy, at first bitterly attacked, was later largely forgotten until its revival by the German romantics towards the end of the eighteenth century. A more important factor in the loosening of the ties between Christianity and philosophy was the rise in the seventeenth and eighteenth centuries of deism; that is, of belief in a creative deity, unaccompanied by any belief in a divine revelation. With this, rationalism had little to do.[37]

Today, there is widespread agreement that the seventeenth-century rationalists failed to provide an *a priori* proof of the existence of God, however that God was conceived by them. It would also be agreed that they failed to find, by pure reason, necessary connections between the nature of God and the laws of science.[38] But these failures do not deprive their philosophy of all value. For them, science was not merely something that had to be justified; it was also something that posed problems, and their attempts to solve these problems are still found interesting.

The question whether human beings can strictly speaking be called free had long exercised philosophers. Before the seventeenth century, the problem took a theological form. Philosophers, such as Boethius in the sixth century AD and Lorenzo Valla in the fifteenth, asked how human freedom could be consistent with the foreknowledge and providence of God. These problems continued to be discussed in the seventeenth century, but in that era there was a new problem of freedom. For the new science, all physical events were determined by necessary laws; so the question arose how there could be any human freedom, given that we are (even if only in part) physical objects. Spinoza and Leibniz offered solutions which took the form of what are now called 'compatibilist' theories, arguing, in very different ways, that freedom and determinism can be reconciled.[39]

Science posed another problem for the seventeenth-century rationalist. One of Descartes's best known theses is his view that mind and body are 'really distinct', that is, that each can exist without the other. Behind this, there lay a view about scientific explanation: namely, that bodies are to be understood solely in terms of physical concepts, and minds solely in terms of mental concepts.[40] To explain physical events, therefore, we do not need to postulate the intervention of incorporeal agents (such as, for example, the planetary intelligences). But this

raised the philosophical problem of how mind and body could influence each other, and could also constitute one human being. Descartes's solution was notoriously unsatisfactory, and other rationalists took up the problem. Spinoza offered a classical version of the double-aspect theory of mind-matter relations; Malebranche, Geulincx and Leibniz offered various versions of a theory which denied that any created thing strictly speaking acts on any other, and asserted that the apparent interaction was really a divinely produced order that existed between the states of created things—that is, finite minds and bodies.

When Descartes's rationalist successors tried to solve the problem about mind-matter relations that he had bequeathed to them, there were already other solutions in the field. These took the form of saying that there really was no problem, in that mind and matter did not form different kinds of existence. The philosophers who offered these solutions were Gassendi and Hobbes, who were among the contributors to the 'Objections' which were published together with Descartes's *Meditations* in 1641. Neither was a rationalist, but both influenced some of Descartes's rationalist successors,[41] and for this reason their philosophy finds a place in this volume.

Both Gassendi and Hobbes offered materialist theories, though Gassendi was not an out-and-out materialist. A Catholic priest, he resembled the philosophers of the Renaissance in a certain respect, in that he found inspiration in the writings of the ancients. In his case, the inspiration came from the writings of Epicurus; but Gassendi's version of atomism was tailored to fit Christian requirements. In particular, Gassendi shrank from giving a totally materialist account of the human mind, saying that, although the non-rational soul could be explained in materialist terms, such an account could not be given of the rational, immortal soul. In explaining the rational soul and its relation to the human body, Gassendi fell back on the ideas of the scholastics, viewing the soul as the substantial form of the body.

Such Aristotelian ideas were rejected firmly by Hobbes, who offered a materialism of a more radical son. He was, as his biographer Aubrey put it, 'in love with geometry',[42] and this love was manifested in a theory of method which has undertones of rationalism. Science, Hobbes asserted, is 'the knowledge of consequences, and dependence of one fact on another';[43] what we must do, therefore, is define our terms correctly and argue deductively from them.[44] Like the rationalists, too, Hobbes offered a far-reaching metaphysical system, within the context of which he placed a theory of man and society. But there were also important differences between Hobbes and the rationalists. Although rationalism is not obviously inconsistent with materialism, none of the seventeenth-century rationalists was a materialist; but Hobbes was. A more important difference lies in the field of the theory of knowledge, Hobbes arguing (contrary to the rationalists) that the ultimate source of all our knowledge of what exists is provided by the senses.[45]

The philosophy of Hobbes was found deeply offensive by seventeenth-century divines, who accused him of atheism. If they were right, then we must add the

name of Hobbes to the list of those philosophers who began to weaken the links between Christianity and philosophy. But it is not certain that they were right; the subject is one on which scholars still disagree.[46] What is certain is that Hobbes's political philosophy, with its sombre view that a life that satisfies the demands of reason can be lived only under conditions of absolute rule, still fascinates philosophers.[47]

NOTES

1 The arguments for this view have been clearly set out by Peter Burke in his book *The Renaissance* (London, Macmillan, 1987), pp. 1–5. Burke himself does not accept these arguments, saying (p. 5) that the term 'the Renaissance' is 'an organising concept which still has its uses'.
2 See, for example, C.B.Schmitt and Q.Skinner (eds) *The Cambridge History of Renaissance Philosophy* (Cambridge, Cambridge University Press, 1988: abbreviated, CHRP), p. 5.
3 CHRP, Introduction, p. 3.
4 C.B.Schmitt, in R.Sorabji (ed.) *Philoponus and the Rejection of Aristotelian Science* (London, Duckworth, 1988), p. 210.
5 See, for example, the entries for 'scholasticism' and 'medieval philosophy' in J. O.Urmson and J.Rée (eds), *The Concise Encyclopaedia of Western Philosophy and Philosophers* (London, Unwin Hyman, 1989).
6 London, Longman, 2nd edn, 1988, pp. 76–82. Dom David's account applies to what one might call the golden age of scholasticism, up to the middle of the fourteenth century; on the new scholasticism of the late sixteenth century, see Stuart Brown in Chapter 2 of this volume, pp. 76, 81–3.
7 cf. R.W.Southern, *Grosseteste* (Oxford, Clarendon, 1986), p. 32.
8 See, for example, P.O.Kristeller, 'Humanism', in CHRP, pp. 113–37. One should stress the phrase 'in the main'; humanism, like the Renaissance, has a long history, and in the late fifteenth and sixteenth centuries humanists became involved in a range of subjects from logic and science that do not fall within a simple five-part scheme. On this, see the chapters on humanism and science and humanism and philosophy in Jill Kraye (ed.) *The Cambridge Companion to Renaissance Humanism* (Cambridge, Cambridge University Press, forthcoming). See also Anthony Grafton, 'Humanism, Magic and Science', in A. Goodman and A.Mackay (eds) *The Impact of Humanism on Western Europe* (London, Longman, 1990), pp. 99–117.
9 See especially some remarks of the fifteenth-century Florentine chancellor Leonardo Bruni, quoted by B.P.Copenhaver, CHRP, p. 106.
10 cf. Burke, op. cit.
11 Cesare Vasoli, 'The Renaissance Concept of Philosophy', CHRP, p. 73.
12 See especially J.Stephens, *The Italian Renaissance* (London, Longman, 1990), pp. xvi, 54, 137, 149.
13 The phrase comes from Owen Chadwick, *The Secularisation of the European Mind in the Nineteenth Century* (Cambridge, Cambridge University Press, 1975).

14 A Latin translation of Diogenes Laertius' *Life of Pyrrho* was available in the late 1420S; but it was above all the printing of Latin versions of Sextus Empiricus in 1562 and 1569 which stimulated interest in the ancient sceptics. See CHRP, pp. 679–80, and Richard Popkin, *The History of Scepticism from Erasmus to Spinoza* (Berkeley, Calif., University of California Press, 1979), p. 19.

Superficially, the sceptical thesis that one must suspend judgement about everything might seem incompatible with Christian claims to knowledge. In the sixteenth century, however, Catholics employed sceptical arguments against Protestants, arguing that sceptical doubts about the worth of reason meant that it was unsafe to base religion on such a foundation. Religious beliefs must be based on faith, and more specifically on the faith of a community which had endured through the centuries—the Catholic Church. See Popkin, op. cit., pp. 55, 58, 70–3, 78–82, 90, 94–5.

15 London, Hutchinson, 1949.

16 E.g. B.P.Copenhaver, 'Astrology and Magic', CHRP, pp. 296–300.

17 Bacon and the scholastics: *The Advancement of Learning,* Book I, ch. 4 (Everyman's Library Edition, London, Dent, 1973), p. 26. Bacon and magic: Copenhaver, op. cit. Bacon and knowledge: A.Pérez-Ramos, Chapter 4 of this volume, pp. 145–7.

18 Theirs, said Bacon, was a 'delicate learning', as opposed to the 'fantastical learning' of the scholastics, and they 'began to hunt more after words than matter': *The Advancement of Learning,* Book 1, ch. 4, p. 24.

19 Bacon knew of Ramus's work, and gave it his (highly qualified) approval (Bacon, op. cit., Book II, ch. 17, p. 144). On Ramus's logic, see for example Lisa Jardine, 'Humanistic Logic', CHRP, pp. 184–6, and William and Martha Kneale, *The Development of Logic* (Oxford, Clarendon, revised edn, 1984), pp. 301–6.

20 CHRP, pp. 185, 673.

21 W.Kneale, *Probability and Induction* (Oxford, Clarendon, 1949), p. 48.

22 In this connection, Bacon is praised for having seen the importance of the negative instance—that is, of eliminative induction as opposed to induction by simple enumeration. See Bacon, *Novum Organum,* I, secs 46, 105, and Anthony Quinton, *Francis Bacon* (Oxford, Oxford University Press, 1980), p. 56.

23 cf. A.Pérez-Ramos, Chapter 4 of this volume, p. 151.

24 Ian Hacking, *Representing and Intervening: Introductory Topics in the Philosophy of Natural Science* (Cambridge, Cambridge University Press, 1983), p. 246.

25 See, for example, Quinton, op. cit., p. 47.

26 See p. 2 above.

27 For an interesting survey of rationalism as a whole, see J.Cottingham, *Rationalism* (London, Paladin, 1984).

28 Leibniz is an exception: cf. N.Jolley, Chapter 11 of this volume, p. 384.

29 J.Cottingham, R.Stoothoff and D.Murdoch (eds), *The Philosophical Works of Descartes* (Cambridge, Cambridge University Press, 3 vols, 1985, 1991: abbreviated, CSM), ii, p. 12; cf. *Discourse on Method,* CSM i, pp. 111–19.

30 The term, incidentally, is to be found in Spinoza, who speaks of believers in miracles as hostile to natural scientists—'iis, qui scientias naturales colunt'. *Tractatus Theologico-Politicus,* ch. 6; Spinoza, *Opera,* ed. C.Gebhardt (Heidelberg, Winter, 4 vols, 1924–6), vol. 3, p. 81.

31 cf. to Mersenne, 11 October 1638 (CSM iii, p. 124), where Descartes criticizes Galileo on the grounds that 'his building lacks a foundation'. (See also G. Molland, Chapter 3 of this volume, p. 129.)

32 This view has been challenged, where Spinoza is concerned, by Alan Donagan (*Spinoza,* Brighton, Harvester, 1988, esp. p. 68). Donagan argues that Spinoza did not so much try to justify the principles of the new physics as generalize from them. It has also been argued by Stuart Brown that Leibniz was a foundationalist only during his early years, but later took the view that the philosopher should seek out and explore fruitful hypotheses (Stuart Brown, *Leibniz,* Brighton, Harvester, 1984). I have discussed this thesis in my paper, 'Leibniz's Philosophical Aims: Foundation-laying or Problem-solving?', in A. Heinekamp, W.Lenzen and M.Schneider (eds) *Mathesis Rationis: Festschrift für Heinrich Schepers* (Münster, Nodus, 1990), pp. 67–78.

33 *Meditations* V, CSM ii, 45. Compare Leibniz, *Nouveaux Essais,* IV. 11.14, on the 'eternal truths' of mathematics.

34 There were two such methods, traditionally known as 'analysis' and 'synthesis'. These are discussed in this volume in Chapter 3 (pp. 107–9), Chapter 5 (pp. 183–6) and Chapter 8 (pp. 279–80).

35 Though Leibniz added the qualification that it must first be shown that the concept of God—i.e. of a most perfect or necessary being—is self-consistent. See, for example, Leibniz, *Discourse on Metaphysics,* sec. 23.

36 cf. p. 4 above.

37 The main sources of deism were Lord Herbert of Cherbury, *De Veritate* (1624), and Locke, *The Reasonableness of Christianity* (1695). However, they were not the sole sources; as Professor Stuart Brown has pointed out to me, there is reason to believe that the seventeenth-century rationalists had some influence on deistic thought. Deism has a long history, and the term meant different things to different people. (Samuel Clarke, in his *Demonstration of the Being and Attributes of God* (1704–6), recognized no fewer than four types of deism.) What matters here is that many deists believed in a creative deity whose wisdom and power are such as to make it irrational to suppose that he should intervene in the workings of the universe, once he has created it. This position is close to that taken by seventeenth-century rationalists. Pascal declared that he 'could not forgive' Descartes for reducing God's role in the workings of the universe almost to nothing (*Pensées,* Brunschvicg ed., No. 77), and a similar position is implied by what other seventeenth-century rationalists said about miracles. For Spinoza, it was impossible that any miracles should occur; for Leibniz and Malebranche, God's miraculous intervention in the universe was a possibility, but such interventions were very few. See, for example, G.H.R.Parkinson, 'Spinoza on Miracles and Natural Law', *Revue internationale de philosophie* 31 (1977) 145–57, and *Logic and Reality in Leibniz's Metaphysics* (Oxford, Clarendon, 1965), pp. 102, 155–6; Daisie Radner, *Malebranche* (Assen, Van Gorcum, 1978), p. 32.

38 Descartes tried to derive universal laws of science from the immutability of God. Spinoza seems to have thought that no scientific laws other than those that actually hold are strictly speaking thinkable, though in his attempt to establish such laws he was compelled to appeal to experience. (See Chapter 8, pp. 289, 298, on Spinoza's 'postulates'. See also Chapter 3, pp. 131–2, for Descartes's views about hypotheses

and experience.) Leibniz rejected both these approaches, and argued that scientific laws have to be seen in relation to the wise and good purposes of God.

39 Spinoza argued that human beings have no free will, since everything in the mind is determined by a cause, and that by another, and so on to infinity (*Ethics,* Pt II, Proposition 48). His way of reconciling determinism and freedom was to say that freedom consists, not in an absence of determination, but in self-determination. Such self-determination occurs when the reason controls the passions, which are in a way outside us. This view—which amounts to saying that to be free is to be master of oneself—is a form of what Isaiah Berlin has called the concept of 'positive freedom' (Berlin, 'Two Concepts of Liberty', *Four Essays on Liberty* (Oxford, Oxford University Press, 1969), pp. 118–72). Leibniz, for his part, discussed both the theological forms of the problem of freedom and the problems posed by the thesis that every event is caused. He accepted this thesis, but argued (contrary to Spinoza) that there is freedom of the will. In essence, his argument was that human actions are indeed necessary, but that they are only *hypothetically* necessary. That is, given that X is, at the moment, my strongest motive, then I must act in accordance with this motive. But I still could have acted otherwise—that is, my will is free—in that my acting in some other way is always *logically* possible.

On Spinoza's views about determinism see (besides Chapter 8, pp. 294–5, and Chapter 9, pp. 323–6) Jonathan Bennett, *A Study of Spinoza's 'Ethics'* (Cambridge, Cambridge University Press, 1984), pp. 315–29; R.J.Delahunty, *Spinoza* (London, Routledge, 1985), pp. 35–48, 155–65; G.H.R.Parkinson, 'Spinoza on the Power and Freedom of Man', in E.Freeman and M.Mandelbaum (eds) *Spinoza: Essays in Interpretation* (La Salle, Ill., Open Court, 1975), pp. 7–33. A general survey of Leibniz's views about human freedom is provided by G.H.R.Parkinson, *Leibniz on Human Freedom* (Wiesbaden, Steiner, 1970). See also, for example, A.Burms and H.de Dijn, 'Freedom and Logical Contingency in Leibniz', *Studia Leibnitiana* 11 (1979) 124–33; Lois Frankel, 'Being Able to do Otherwise: Leibniz on Freedom and Contingency', *Studia Leibnitiana* 16 (1984) 45–59; Pauline Phemister, 'Leibniz, Free Will and Rationality', *Studia Leibnitiana* 23 (1991) 25–39.

40 In Descartes's terminology, I can have a 'clear and distinct idea' of a mind as a being which is thinking and non-extended, but I have a clear and distinct idea of a body in so far as this is non-thinking and extended. See *Meditations* VI, CSM ii, p. 54, and *Replies to First Objections,* CSM ii, p. 86.

41 Gassendi's atomism influenced the young Leibniz (see especially K.Moll, *Der junge Leibniz* (Stuttgart, Frommann-Holzboog, 1982), vol 2, who was also influenced by Hobbes (see, for example, J.W.N.Watkins, *Hobbes' System of Ideas* (London, Hutchinson, 2nd edn, 1973), pp. 87–94). Whether Spinoza borrowed from Hobbes is a matter of controversy, but he certainly defined his position by reference to Hobbes. See, for example, A.G.Wernham, *Benedict de Spinoza: The Political Works* (Oxford, Clarendon, 1958), pp. 11–36.

42 John Aubrey, *Brief Lives and Other Selected Writings,* ed. Anthony Powell (London, Cresset Press, 1949), p. 242.

43 *Leviathan* (Oxford, Blackwell, 1946), ch. 5, p. 29.

44 ibid.

45 ibid., ch. 7, p. 40.

46 For a recent discussion of this issue, see Arrigo Pacchi, 'Hobbes and the Problem of God', in G.A.J.Rogers and Alan Ryan (eds) *Perspectives on Thomas Hobbes* (Oxford, Clarendon, 1988), pp. 171–88.

47 I am very grateful to Dr Jill Kraye and Professor Stuart Brown for their helpful comments on an earlier draft of this introduction.

CHAPTER 1
The philosophy of the Italian Renaissance

Jill Kraye

TWO CULTURES: SCHOLASTICISM AND HUMANISM IN THE EARLY RENAISSANCE

Two movements exerted a profound influence on the philosophy of the Italian Renaissance: scholasticism and humanism, both of which began to take root in northern Italy around 1300. Differing from one another in terms of methods and aims as greatly as the scientific-and humanities-based cultures of our own times, scholasticism and humanism each fostered a distinctive approach to philosophy.

The centres of scholasticism were the universities, where philosophy teaching was based on the Aristotelian corpus, in particular the works of logic and natural philosophy. In Italian universities the study of philosophy was propaedeutic to medicine rather than, as in Oxford and Paris, theology. This encouraged an atmosphere in which philosophy could operate as an autonomous discipline, guided solely by rational criteria. Scholastic philosophers consistently defended their right to explain natural phenomena according to the laws of nature without recourse to theological arguments.[1] But although theological faculties were absent in the universities, religious authorities had enough power within society at large to challenge thinkers whose single-minded pursuit of natural explanations was perceived to move beyond the territory of philosophy and into the sacred domain of faith. Aristotelian philosophers who dared, for instance, to argue that the soul was material and hence mortal were quickly forced to recant by the ecclesiastical authorities.[2]

On the equally sensitive subject of the eternity of the world, most scholastics limited themselves to pointing out the opposition between the Peripatetic hypothesis that the world was eternal and the 'truth of the orthodox faith' that it was created *ex nihilo* by God.[3] In such cases where religious and philosophical doctrines were in conflict, Aristotelians maintained that Christian dogma, based on faith and revelation, was superior to explanations founded on mere reason. The scholastic doctrine of the 'double truth' did not present a choice between equally valid alternatives, but rather took for granted the subordination of the relative truth of philosophy to the absolute truth of theology. Philosophers had no

desire to challenge this hierarchy. Their primary concern was instead to maintain the separation of the two realms, thus protecting their right to use rational, and *only* rational, arguments in philosophical contexts. Just as it was necessary, they asserted, when discussing matters of faith, to leave behind one's philosophical mentality, so when discussing philosophy, one had to set aside one's Christian faith.[4]

Scholastics read Aristotle in late medieval Latin translations, which were unclassical in style and terminology. This type of Latin continued to be one of the hallmarks of scholastic treatises produced during the Renaissance. Another was their rigidly logical format: works were divided and subdivided into propositions or questions; arguments for and against were laid out; a solution was reached; possible objections were raised and appropriate responses supplied. This structure had the advantage of covering issues from all possible angles and ensuring that the opinions of a wide variety of ancient and medieval thinkers were aired, even if Aristotle's were the most frequently endorsed.

In the judgement of Petrarch (Francesco Petrarca, 1304–74), the founder of Italian humanism, such treatises were barbaric, tediously pedantic, arid and incomprehensible.[5] His own style was diametrically opposed to that of the scholastics. He modelled his Latin prose on that of the best classical authors, avoiding terms and expressions which were unknown in antiquity. He also eschewed the methodical rigour and systematic presentation found in scholastic treatises, favouring instead a loose—almost at times rambling—structure and adopting genres such as the letter, dialogue and invective which had been used by the Roman authors he most admired.

Deeply interested in the state of his own soul, Petrarch ridiculed the scholastics for devoting so much of their energies to natural, rather than moral, philosophy: 'What is the use,' he asked, 'of knowing the nature of quadrupeds, fowls, fishes, and serpents and not knowing or even neglecting man's nature…?' The secrets of nature were 'mysteries of God', which Christians should accept with 'humble faith' rather than attempt to seize 'in haughty arrogance'.[6] As for scholastic logicians, Petrarch had nothing but contempt for what he regarded as their empty loquacity and their addiction to disputation for its own sake: 'They get the greatest pleasure out of strife and set out not to find the truth but to quarrel.'[7] He especially disliked the *logica modernorum,* a highly technical and semantically orientated form of dialectic associated with William of Ockham and his followers, which had come over to Italy from England in the mid-fourteenth century. Petrarch believed that it reduced all speculation to problems of formal terminology, thereby deflecting philosophers from more important matters and turning theologians into mere dialecticians.[8]

Another aspect of scholasticism attacked by Petrarch was the dominance of Aristotelianism. While there was much of value in Aristotle's philosophy, there was also a great deal that from a Christian point of view was harmful, in particular his failure to give a firm endorsement to the immortality of the soul and his belief in the eternity of the world. Aristotle was not alone among pagans

in holding these erroneous views, but he presented the greatest danger, Petrarch believed, because he had the most authority and the greatest number of followers. And while the pagan Aristotle could not be blamed for holding these errors, his present-day acolytes had no excuse.[9]

Despite their adulation of Aristotle, the scholastics failed, in Petrarch's opinion, to understand his thought. They disdained eloquence, treating it as 'an obstacle and a disgrace to philosophy', whereas Aristotle had believed that it was 'a mighty adornment'.[10] He blamed the inelegant style which characterized Latin versions of Aristotle not on the author's inattention to style but on the ignorance of his medieval translators—a censure which was to be frequently repeated by later humanists.[11] Yet aside from the ethical treatises, Petrarch's acquaintance with Aristotle's writings was neither wide nor deep.

If Petrarch was ill-informed about 'the Philosopher', he was positively ignorant about 'the Commentator', Averroes, probably never having read anything at all by him. This did not stop him from criticizing the Arabic interpreter even more strongly than he had done the Greek philosopher.[12] In sharp contrast to the scholastics, who considered Arabic learning to be an important part of their intellectual legacy, Petrarch and his humanist successors restricted their philosophical interests almost exclusively to the Greco-Roman past. Among the doctrines traditionally associated with Averroism was the double truth,[13] which theologians such as Thomas Aquinas rejected, maintaining that there was only one truth, the truth of faith, and that any philosophical proposition which contradicted it was necessarily false. Petrarch shared this point of view, arguing that since 'knowledge of the true faith' was 'the highest, most certain, and ultimately most beatifying of all knowledge', those who temporarily set it aside, wishing 'to appear as philosophers rather than as Christians', were in reality 'seeking the truth after having rejected the truth'.[14] According to him, scholastics were forced into this position not by an inevitable conflict between philosophy and religion, but rather by their support for one particular philosophy, Aristotelianism, which on certain crucial issues —the eternity of the world and the immortality of the soul—denied the fundamental truths of Christianity. The solution was therefore not to abandon philosophy *per se,* but to adopt a different sort of philosophy, one which avoided these theological errors.

That philosophy, for Petrarch, was Platonism. Plato, who offered convincing rational arguments in support of both the immortality of the soul and the creation of the world, had risen higher 'in divine matters' than other pagans. Because Plato 'came nearer than all the others' to Christian truth, he, and not his student Aristotle, deserved to be called 'the prince of philosophy'. By promoting Plato as a more theologically correct, and hence more profound, philosopher than Aristotle, Petrarch was able to mount yet another challenge to the scholastic philosophy of his day.[15] But for all his advocacy of Plato, Petrarch's knowledge of his works—like that of all Western scholars in this period—was very limited. Of the four dialogues then available in Latin, he made extensive use only of the

Timaeus, in which Plato was believed to describe the creation of the world.[16] He owned a manuscript containing many more of the works in Greek; but to his great regret, he never managed to learn the language.[17] The bulk of Petrarch's understanding of Platonism was therefore gained from secondary sources: Cicero, Macrobius, Apuleius, but above all Augustine. It was primarily on Augustine's authority that Petrarch came to believe to strongly in the essential compatibility of Platonism with Christianity and to regard Plato as a Christian by anticipation.[18] Petrarch's Platonism amounted to little more than a propaganda campaign, but it was an effective one, which paved the way for the more philologically and philosophically ambitious efforts of fifteenth-century scholars.

THE NEW ARISTOTELIANISM

Petrarch's antipathy towards Aristotle was far less influential among his followers, many of whom helped to create a new style of Aristotelianism. The key figure in this movement was the humanist Leonardo Bruni (1370–1444), a papal secretary and later chancellor of Florence, who became the most important translator of Aristotle in the early fifteenth century.[19] It was not that he made new texts available, since virtually all of Aristotle had been translated into Latin by the end of the thirteenth century. Rather, he pioneered a novel method of translation. Medieval translators had attempted to find a Latin equivalent for each Greek word and to reproduce as far as possible the exact order of the original. Bruni, who had been trained by the Byzantine scholar Manuel Chrysoloras (*c.* 1350–1414), regarded such word-for-word renderings as worthless since they distorted the meaning of the Greek. From Chrysoloras he learned to translate not individual words but units of meaning—phrases and even sentences.[20] From Cicero, on the other hand, Bruni learned to follow the word order and syntactic structure of the target language (Latin) rather than that of the source language (Greek); this meant adopting the prose style of the best classical Latin authors, above all Cicero himself.[21]

A 'classical' Aristotle who wrote in Ciceronian Latin was a direct challenge to the scholastic culture of the universities, where a very different sort of Latin Aristotle had been the mainstay of the curriculum for centuries. By retranslating Aristotle in this way Bruni was tampering with the fundamental terminology used by scholastics and deliberately calling into question all interpretations based on the medieval versions. Following up a line of attack opened by Petrarch, Bruni maintained that it was impossible for the self-professed Aristotelian philosophers 'to grasp anything rightly…since those books which they say are Aristotle's have suffered such a great transformation that were anyone to bring them to Aristotle himself, he would not recognize them as his own'.[22] Yet for all his criticisms of these translations, Bruni himself relied on them quite heavily, using his knowledge of Greek to correct their worst mistakes, but for the most part simply polishing their rough-hewn Latin.[23]

For Bruni and his fellow humanists these stylistic changes were by no means superficial. Misled by Cicero's praise of Aristotle's writings, they believed that they were restoring his lost eloquence. They saw this as a significant contribution to their larger programme of, replacing the rebarbative treatises of the scholastics with a classically inspired and rhetorically persuasive form of philosophizing.[24] Hardline scholastics responded to the humanist rewriting of Aristotle by complaining that wisdom and philosophy had not been joined to eloquence and rhetoric but rather subordinated to them. Although willing to concede that Bruni's translations were more readable than the medieval versions, they thought that his lacked the scientific precision necessary in a philosophical work. Cicero might be an appropriate model to follow in oratory but not in philosophy, where subtle distinctions had to be made on the basis of careful reasoning.[25]

Bruni's desire to remove Aristotle from the scholastic camp and claim him for the humanist cause was a reflection of his high regard for the philosopher. In his *Vita Aristotelis,* he ranked him higher than his teacher Plato, reversing Petrarch's evaluation. The grounds for this judgement were Aristotle's greater consistency and clarity as well as his caution and moderation, which led him to 'support normal usages and ways of life', in contrast to Plato, who expressed 'opinions utterly abhorrent to our customs', such as the belief that 'all wives should be held in common'. Although he extolled Aristotle's methodical presentation of material in all his teachings, whether 'logic, natural science or ethics', Bruni's interest was in practice limited to moral and political philosophy, as his three Aristotelian translations—the *Nicomachean Ethics, Oeconomics* and *Politics*—clearly show.[26] In his *Isagogicon moralis disciplinae,* he contrasted 'the science of morals', whose study brought 'the greatest and most excellent of all things: happiness', with natural philosophy, a discipline 'of no practical use', unless, he added, in words reminiscent of Petrarch, 'you think yourself better instructed in the Good Life for having learned all about ice, snow and the colours of the rainbow'. Also reminiscent of Petrarch was Bruni's belief that Ockhamist logic, 'that barbarism which dwells across the ocean', had reduced contemporary dialectics to 'absurdity and frivolity'.[27]

The narrow range of Bruni's philosophical interests was typical of Italian humanists in the first half of the fifteenth century. The next wave of Aristotle translators, however, were Greek émigrés, who took a much broader view of Aristotelian philosophy. Johannes Argyropulos (*c.* 1410–87), a Byzantine scholar who taught in Florence, began by lecturing on the *Nicomachean Ethics* and *Politics,* but soon moved on to the *Physics, De anima, Meteorology* and *Metaphysics*.[28] He was able to bring to his teaching and translating of Aristotle an impressive blend of linguistic and philosophical competence, having received his early training in his native Constantinople and later studying at the University of Padua. Argyropulos was concerned to present the entire range of the Aristotelian corpus, which he regarded as the culmination of the Greek philosophical tradition. He did not shy away from logic, producing a compendium on the subject, based primarily on the Aristotelian *Organon* (most

of which he himself translated into Latin) but also drawing on Byzantine commentaries and on standard Western authorities such as Boethius and Peter of Spain.[29] Natural philosophy, another subject shunned by humanists like Petrarch and Bruni, was embraced with enthusiasm by Argyropulos, who began his course on the *Physics* by exclaiming: 'How great is the nobility of this science, how great its perfection, its strength and power, and how great also is its beauty!'[30]

In his lectures on *De anima,* delivered in 1460, Argyropulos tackled the same problems which had exercised scholastic commentators since the thirteenth century: whether there was only one immortal intellect for all mankind, which directed the body's operations in the way that a sailor steered his ship, as Averroes maintained; or whether the soul was instead the substantial form of each individual person, giving the body existence *(esse);* and if so, whether it died with the body, as Alexander of Aphrodisias—according to Averroes—believed, or continued to exist after death, as Christian tradition asserted. Argyropulos rejected both the opinion of Alexander of Aphrodisias that the soul was mortal and the Averroist doctrine of the unity of the intellect, which many believed to be the authentic position of Aristotle. Challenging the double-truth doctrine, which dictated that reason should be kept separate from faith, Argyropulos asserted that there were philosophical as well as religious arguments in favour of the Christian dogma of the immortality of individual souls.[31] On other issues, however, Argyropulos had no qualms about relying on Averroes, whose works he had studied while at Padua.[32] And in his lectures on the *Nicomachean Ethics,* he made use of Albertus Magnus, Walter Burley and other medieval commentators. These lectures were assiduously taken down by his devoted student, Donato Acciaiuoli (1429–78), who later reworked them in the form of a commentary, which, despite his humanist credentials, had a great deal in common, in terminology, organization and content, with scholastic treatises.[33] Humanism and scholasticism were still moving down their separate paths, but in the second half of the fifteenth century those paths were occasionally beginning to cross.

A large number of Aristotle's works, mostly in the field of natural philosophy, were translated by another Greek émigré, George of Trebizond (1395/6–1472/3), as part of a plan, devised and financed by the humanist pope Nicholas V, to produce a new version of the entire corpus.[34] Like Bruni and most other fifteenth-century Aristotle translators, George made use of the medieval versions; but unlike them, he went out of his way to acknowledge and praise them. His own translations resembled the medieval ones in that he tried as far as possible to produce word-for-word versions, avoiding, however, their readiness to violate the rules of Latin syntax and usage. George had a sophisticated understanding of Aristotle's style and was aware that he had not attempted, or had not been able, to write eloquently when dealing with technical subjects. It was therefore misguided to impose elegance where it was lacking in the original.[35]

George's comments were directed not at Bruni but at his fellow Greek, Theodore Gaza (*c.* 1400–75). Gaza was the protégé of Cardinal Bessarion (*c.* 1403–72), a distinguished Byzantine theologian and philosopher who had transferred his allegiance to the Roman Catholic church. Bessarion's political and intellectual clout (he himself had translated the *Metaphysics*) helped to convince Nicholas V that he should commission Gaza to make new Latin versions of some of the Aristotelian texts translated by George.[36] George's loss of papal favour and patronage was no doubt caused by his notoriously difficult behaviour,[37] as well as his failure on occasion to live up to his own high standards of translation. There was a theoretical difference between his position and that of Gaza, however. Gaza's primary concern was to ensure the elegance and Latinity of his translations even when this entailed imprecision and inconsistency. George, by contrast, took the view that in rendering philosophical works exactitude and fidelity to the author's words were all-important; judged by this criterion, the medieval translators, for all the inadequacies of their Latin style, had been more successful than Gaza.[38]

George believed moreover that Gaza's version, or rather 'perversion', of Aristotle would undermine scholasticism, which relied on the long-established terminology of the medieval translations. For George, a Greek convert to Roman Catholicism, a humanist admirer of medieval thinkers such as Albertus Magnus and Thomas Aquinas, and a deeply paranoid personality, the classical Latin which Gaza put in Aristotle's mouth was part of a conspiracy to destroy Christian theology by removing the scholastic Aristotelianism which underpinned it.[39] And that, he believed, was only the beginning. The hidden agenda of Gaza and his patron Bessarion included the replacement of Aristotelianism by another ancient philosophical system, one which (as we shall see) George thought was destined to pave the way for a return to paganism.

George's merits as a translator of Aristotle found at least one admirer. Angelo Poliziano (1454–94), the most learned Italian humanist of his day, recognized that Gaza's much-praised translation of the zoological works borrowed heavily from the earlier version by George, whom Gaza had ungenerously referred to as a 'brothel keeper'.[40] The fact that Poliziano, a teacher of Greek and Latin literature at the Florentine *studio,* was sufficiently concerned with Aristotelian natural philosophy to study these translations is an indication of the widening philosophical interests of late fifteenth-century Italian humanists. In 1490 Poliziano lectured on the *Nicomachean Ethics,* a treatise which was within the typical humanist ambit of moral philosophy; but during the next four years he worked his way through the entire *Organon*. Though keenly interested in Aristotle's logic, Poliziano—like Petrarch and Bruni—held no brief for the British logicians who dominated the scholastic curriculum. He wanted to apply humanist philological methods to Greek philosophical texts in order to reform subjects such as logic and natural philosophy, corrupted by centuries of scholastic ignorance.[41]

The professional philosophers whose ability to understand Aristotle Poliziano called into question and whose preserve he invaded, responded, not surprisingly, by accusing him of teaching technical subjects which he knew nothing about. These vampires *(lamiae),* as Poliziano called them in his 1492 inaugural lecture on the *Prior Analytics,* had taken to ridiculing him as a would-be philosopher. He in turn replied that he had never claimed to be a philosopher, but rather a philologist *(grammaticus),* a scholar who used his knowledge of classical languages and culture to interpret ancient texts, be they literary, legal or philosophical.[42]

Another philologist who brought his talents to bear on philosophical and scientific works was Poliziano's great friend, the Venetian humanist Ermolao Barbaro (1454–93).[43] In 1474–6 Barbaro lectured at Padua on the *Nicomachean Ethics* and *Politics,* using the medieval Latin versions—no doubt because of university requirements—but correcting them against the Greek.[44] His experiences in the citadel of traditional scholastic Aristotelianism convinced him of the need to promote the new, humanist approach to philosophy. This involved an ambitious plan to retranslate all of Aristotle, although owing to his early death he completed only a version of the *Rhetoric* and a humanistic reworking of the *Liber sex principiorum,* a twelfth-century Latin treatise on the categories which had become a regular part of the Aristotelian logical corpus. The latter work allowed him to prove that even the most technical philosophical subjects could be rendered with elegance. Barbaro also wrote a brief treatise which demonstrated that the English calculatory tradition, a highly technical form of logico-mathematical physics developed in fourteenth-century Oxford, could be treated in classical Latin. His overall goal was to reunite eloquence and philosophy, which he believed had been artificially sundered, to the detriment of both, by generations of scholastics.[45]

Giovanni Pico della Mirandola (1463–94), although on good terms with both Barbaro and Poliziano, did not share their humanist disdain for the 'dull, rude, uncultured' scholastics. Pico, who had spent 'six years on those barbarians', denied that their lack of eloquence detracted from the quality of their philosophical thought. In his view it was rhetoric and oratory which were the greatest obstacles to philosophy, for they were nothing but 'sheer mendacity, sheer imposture, sheer trickery', while philosophy was 'concerned with knowing the truth and demonstrating it to others'. A philosopher's style should therefore be not 'delightful, adorned and graceful' but 'useful, grave, something to be respected'. Orators who sought the roar of the crowd's approval had to be well spoken, but not philosophers, who wanted only the silent respect of the discerning few.[46] Pico's disparagement of eloquence is itself so eloquent that irony is almost certainly in play. But the argument he presented was a serious one, which highlighted a long-standing difference between the scholastic and humanist styles of philosophy.

There were substantive as well as stylistic differences between humanist and scholastic Aristotelianism. While Averroes still reigned supreme as 'the

Commentator' in the universities, humanists like Barbaro, echoing—from a more informed position—Petrarch's hostility, were determined to replace this Arabic influence with ancient Greek expositors more acceptable to their classical tastes.[47] A few works by the ancient Greek commentators on Aristotle had been translated into Latin in the Middle Ages, and some of their views, especially those of Alexander of Aphrodisias, were known through reports given by Averroes; but the vast bulk of the material was unavailable to Western readers.[48] To help remedy this situation, Barbaro in 1481 published a Latin translation of the paraphrases of Themistius; and in 1495 Girolamo Donato, a Venetian humanist who belonged to Barbaro's circle, published a translation of Alexander of Aphrodisias's commentary on *De anima*. These versions were soon to have a significant impact on philosophical discussions in Padua.[49]

While Barbaro and Donato were producing their Latin translations of Aristotle and his ancient commentators, other humanists also working in Venice were directing their efforts towards editing the Greek texts of these works. Their supreme achievement was the Greek Aristotle published between 1495 and 1498 by Aldus Manutius (*c.* 1452–1515).[50] This multi-volume deluxe edition was primarily the fruit of humanist philology, but important contributions came from the scholastic side as well: Francesco Cavalli (d. 1540), a physician who taught at Padua, worked out the proper arrangement of the treatises on natural philosophy and convinced Aldus to substitute Theophrastus's botanical works for *De plantis,* a work he recognized to be pseudoAristotelian.[51] Aldus also had ambitious plans to publish Greek editions of the Aristotelian commentators, but the project did not get off the ground until early in the next century.[52]

The rest of the thriving Venetian publishing industry, with an eye to profit rather than to intellectual lustre, focused its energies on producing Latin editions of Aristotle, still, and for some time to come, the staple diet of the philosophical curriculum. One such work, published in 1483–4 and containing the commentaries of Averroes as well as the medieval translations of Aristotle, was edited by Nicoletto Vernia (d. 1499), the leading professor of natural philosophy at the University of Padua. For much of his career Vernia was a typical scholastic, who regarded Averroes and Albertus Magnus as the greatest of Aristotelian commentators. Insisting on the double-truth distinction between theological and rational discourse, Vernia maintained that although the belief in the soul as the substantial form of individual human beings was true according to faith, it was nevertheless completely foreign to Aristotle, whose thought should not be interpreted as if he had been a Christian. Averroes, not Thomas Aquinas, had correctly understood Aristotle, recognizing that according to Peripatetic principles (e.g. the indivisibility of separate substances) there was only one intellective soul for all mankind.[53]

Vernia's stance had to be altered when, in 1489, the bishop of Padua banned any further discussion of the Averroist doctrine of the unity of the intellect. Just as earlier scholastics had been forced to recant views which were unacceptable to the Church, Vernia abandoned his Averroist beliefs. In the 1490s he completely

rethought his position on the controversial problem of the soul, making considerable use of the newly Latinized works of Themistius and Alexander of Aphrodisias. No longer accepting Averroes as a reliable guide to Aristotelian psychology, Vernia turned to the Greek commentators, who he believed (wrongly in the case of Alexander) provided evidence that Aristotle, like Plato, had argued for the immortality of individual souls. Christian doctrine was therefore not simply an article of faith but could be demonstrated on purely rational grounds.[54]

This standpoint had already gained philosophical respectability earlier in the century through the influence of Paul of Venice (1369–1429), the most famous scholastic of his time. Although Paul never ceased to regard the Averroist unity of the intellect as the correct interpretation of Aristotle's *De anima,* he did not think that this in itself made the position a demonstrable doctrine, for a number of objections to it could be raised, objections based on reason as well as faith. Although Paul and Vernia came to their conclusions by different routes, they both maintained that there were rational as well as theological arguments in favour of Christian dogma.[55] The barrier separating the realms of philosophy and theology, used by generations of scholastics to defend the autonomy of their discipline, was starting to crumble.

THE REVIVAL OF PLATONISM

Interest in Plato had been stirred among Italian humanists by Petrarch's portrayal of his philosophy as a theologically acceptable alternative to Aristotelianism, one whose closeness to Christianity, moreover, had been endorsed by no less an authority than Augustine, But until the end of the fourteenth century little first-hand knowledge of the dialogues was possible since so few Latin versions existed: the *Timaeus* was widely accessible in the fragmentary fourth-century version of Chalcidius; the *Phaedo* and *Meno* had been translated in the twelfth century by Henricus Aristippus; and part of the *Parmenides* was embedded in William of Moerbeke's thirteenth-century translation of Proclus's commentary.[56]

Although the *Phaedo* was already available in medieval Latin, Bruni chose to produce a new humanist version in 1405. This allowed him, as with his Aristotle translations, to demonstrate the stylistic superiority of the humanist approach to philosophy. But there was another reason for this choice. The theme of the *Phaedo,* the personal immortality of individual human souls, was a minefield for Aristotelians. As such it was an ideal means to emphasize the superiority, from a Christian point of view, of Platonism. In his dedication of the translation to Innocent VII, Bruni told the pope that, although Christian doctrine on the afterlife did not require any confirmation from classical philosophy, it would none the less 'bring no small increase to the true faith' if people were made to see 'that the most subtle and wise of pagan philosophers held the same beliefs about the soul as we hold' and about many other matters as well.[57] These other matters included, as Bruni specified in the dedication of his *Gorgias* translation

to John XXIII (1410), God's creation of the world: the doctrine which, along with immortality, had determined Petrarch's preference for Platonism over Aristotelianism.[58]

As he translated more of the dialogues, however, Bruni became increasingly disillusioned with their ethical and political doctrines. In his partial translations of the *Phaedrus* (1424) and the *Symposium* (1435), he resorted to extensive bowdlerization in order to remove any hint of homosexuality; and he refused to translate the *Republic* because it contained so many repellent notions, among them the community of wives and property, one of those 'abhorrent' opinions which led him to transfer his philosophical loyalties to the less wayward Aristotle.[59]

Bruni's intense dislike of the *Republic* was not shared by his teacher Chrysoloras, who appears to have had no scruples about divulging its contents to the Latin reading public. He had produced in 1402 a literal version of the text—the best he could do with his limited knowledge of Latin—which was then revised and polished by one of his Milanese students, Uberto Decembrio (*c.* 1370–1427). Unfortunately this collaboration resulted in the worst of both worlds: a crude mixture of word-for-word translation and inaccurate paraphrase, which garbled the technical terminology and utterly failed to convey the complexity and sophistication of Plato's doctrines.[60] Thirty-five years later Uberto's son Pier Candido (1399–1477) decided to make a new translation, one which would ensure that the *Republic,* a byword for eloquence among Greeks, would not appear lacklustre in Latin. He was also anxious to prove that Aristotle's account of Plato's work in *Politics* II.1 was misleading—that, for instance, the common ownership of wives and goods was not meant to be universal but rather was restricted to the class of guardians. In line with other humanists, Pier Candido emphasized the points of contact between Platonism and Christianity, identifying in his marginal notes to the translation the Form of Good in Book VI with God, and drawing attention to Plato's proofs of immortality in Book X. Aspects of the dialogue which he found offensive— the equality of the sexes and homosexuality—were treated as ironic or were deliberately mistranslated or, when all else failed, simply left out.[61]

Since none of these humanists had the philosophical training to come to grips with the elaborate conceptual apparatus of Platonism, they were unable to go beyond an appreciation of Plato's style, his (carefully censored) moral thought and his agreement with Christianity. Similarly, humanist educators taught their students to read the dialogues in Greek but were not in a position to provide a philosophical framework that would allow them to interpret what they read in its Platonic context. Instead, they encouraged their pupils to use the works as a quarry for wise sayings and pithy maxims, which they could then insert in their thematically organized commonplace books for future use.[62] The sheer difficulty of Plato's teachings on metaphysics and epistemology forced humanists to rely on more straightforward second-hand accounts even when they had access to the original works. Thus an accomplished Greek scholar such as Francesco Filelfo

(1398–1481), who had translated Aristotle *(Rhetorica ad Alexandrum)* as well as Plato (the *Euthyphro* and some of the *Letters*), did not turn to the dialogues when writing his treatise on Platonic ideas but relied on the more accessible treatments of the subject in Cicero, Augustine and certain Middle Platonic sources.[63]

As in the case of Aristotle, it was the Byzantine émigrés who brought a new depth to the study of Plato. Since Platonism was part of their educational background, they were more capable of dealing with the entire range of Plato's philosophy, speculative doctrines as well as practical ethics and politics. Argyropulos allowed a small Platonic element to seep into his university courses on Aristotle and gave at least one private lecture on the *Meno*.[64] Even Aristotle's staunchest defender, George of Trebizond, had gone through a Platonic phase in his youth and was later commissioned by Nicholas of Cusa to make a complete Latin version of the *Parmenides,* only a portion of which was available in the medieval translation. George, who needed the money, agreed with reluctance, and in 1459 produced a reasonably accurate rendering of the text.[65]

Eight years earlier George had made a far less successful translation of the *Laws* and *Epinomis,* this time at the behest of Nicholas V—another offer he could not afford to refuse, although his slipshod and distorted version may have been an attempt to subvert the dialogue's potential influence. After falling out with the pope,[66] George transferred the dedication to the Venetian Republic, suggesting in the new preface that the city's founders must have read the *Laws*—Greek, he pointed out, was spoken in Italy during the early Middle Ages—because their government perfectly exemplified the mixed constitution described by Plato in Book III (692–3): the Grand Council representing democracy, the Council of Ten aristocracy and the doge monarchy. George's real opinion of the dialogue and its author is not to be found in the flattering words he addressed to the Venetians but rather in some marginal notes which he wrote in his own copy of the translation: 'What shallowness!' 'Look at his arrogance!' 'The man should be stoned!'[67]

These harsh remarks were inspired by George's increasing fear that Platonism would not only replace Aristotelianism as the dominant philosophy of the West but would also be the springboard for a world-wide return to paganism. He blamed Cardinal Bessarion and his accomplice Gaza for promoting Platonism, but the *éminence grise* of this ruinous movement was, he believed, Bessarion's teacher, Georgios Gemistos Plethon (*c.* 1360–1454).[68] During the Council of Florence (1439), a last-ditch attempt to reunify the Eastern and Western churches in the face of the approaching Turkish menace, Plethon, a member of the Greek delegation, had written a brief treatise, *De differentiis Aristotelis et Platonis,* which compared the doctrines of the two philosophers to Aristotle's great disadvantage. The work was addressed to Westerners, both the minority who were already convinced of Plato's supremacy and the majority who, taken in by the extravagant claims of Averroes, gave their preference to Aristotle.[69] Plethon, who for many years had taught Platonic philosophy at Mistra in the Peloponnese, discussed a wide range of topics—metaphysics, epistemology, cosmology,

psychology, ethics—in each case demonstrating the superiority of Plato's views to those of his student Aristotle.

One of the aims of Plethon's treatise was to suggest that Aristotelian philosophy was unfit to serve as a mainstay of Christian theology and that Platonism would more suitably fill that role. Pouncing on the two issues where Aristotelianism's claims to support Christianity were weakest, the creation of the world and the immortality of the soul, Plethon pointed out, first, that Aristotle 'never calls God the creator of anything whatever, but only the motive force of the universe'; and, second, that Aristotle's position on the afterlife of the soul was at best ambiguous, since he asserted the eternity of the human mind in *De anima* ($408^{b}19$–20) and the *Metaphysics* (1070^{a} 26–7), but never applied this belief to his moral philosophy and even suggested in the *Ethics* ($1115^{a}26$–7) that 'nothing whatever that is good lies in store for man after the end of his present life', a premise which had led Alexander of Aphrodisias to the 'deplorable conclusion' that 'the human soul is mortal'.[70]

Plethon's views do not seem on the face of it very far from those of Petrarch and other humanist supporters of Plato. But the difference between them was in fact considerable. While the Italians genuinely wanted to use Platonic philosophy to buttress Christianity, Plethon envisaged it as the foundation on which to rebuild the polytheistic paganism of ancient Greece. Convinced that the Turks were soon to destroy both the Eastern and Western churches, Plethon saw the only hope for the disintegrating Byzantine Empire in the replacement of Christianity by a revitalized paganism, solidly grounded in Platonic metaphysics. He therefore composed—but did not dare to publish— *The Laws,* modelled on the Platonic dialogue of the same name, in which he presented a concrete programme for the revival of the beliefs and moral values of the pre-Christian past.[71] Plethon's paganism contained Stoic as well as Platonic elements: he regarded absolute determinism as a necessary concomitant to the divine providence of Zeus, who had fixed the entire future in the best possible form. Free will, therefore, consisted of voluntary subjection to the absolute good which Zeus had decreed.[72] In *De differentiis* Plethon had revealed nothing of his revolutionary plans, pretending for the benefit of his Italian readers to be sincerely concerned about the conflicts between Aristotelian philosophy and Christian theology. But his long-term goal seems to have been to destroy confidence in Aristotelianism so that it could be supplanted by Platonism, which would then sever its ties with Christianity and renew its former alliance with paganism.

De differentiis, written in Greek and requiring a level of philosophical understanding far beyond the competence of most Italian humanists, made little impact on its intended audience. It did cause quite a stir among the Byzantines, however, many of whom rushed to Aristotle's defence.[73] Writing in Latin and therefore attracting a wider public, George of Trebizond produced the *Comparatio Platonis et Aristotelis* (1458), in which he unstintingly praised Aristotle while heaping abuse on Plato and his present-day followers. George

claimed to have had a conversation with Plethon during the Council of Florence in which the latter predicted that the whole world would soon be unified under one religion: neither Christianity nor Islam, but a religion which would 'differ little from paganism'.[74] This proved to him that Plethon was the mastermind behind a Platonic conspiracy to overthrow Christianity. As it turns out, George, who had probably heard rumours about Plethon's *Laws,* was not far from the truth, although he was certainly wrong to assume that Bessarion and his circle were involved in (or even knew anything of) the plot.

In the first book of the *Comparatio* George argued that Aristotle's knowledge of all intellectual disciplines was superior to Plato's. In the second, he showed that although Platonism appeared to be close to Christianity, in reality its doctrines, above all Plato's belief in the pre-existence of souls and in the creation of the universe from pre-existent matter, were inimical to religion. Aristotle, on the other hand, was in complete agreement with Christianity since he believed in the personal immortality of the soul, creation *ex nihilo,* divine providence, free will and even had some inkling of the Trinity. These extravagant claims went far beyond what Thomas Aquinas, the father of Christian Aristotelianism, had maintained, for Thomas had always insisted on a firm demarcation between the proofs of philosophy, which could be borrowed from the pagans, and the truths of religion, which were accessible only through revelation.[75] In the third and final book George, drawing on the *Symposium, Phaedrus* and the *Laws* (in his own misleading translation), disclosed the sexual depravity and moral corruption of Plato and his disciples, among whom he numbered Epicurus and Mohammed. According to George, Mohammed had been a second Plato, Plethon an even more pernicious third and worse might be in store: a fourth Plato, the most dangerous of all, could soon arise— presumably a reference to Cardinal Bessarion, who was a strong candidate for the papacy, a position which would give him the power to destroy Christianity from the inside.[76]

George knew, however, that this nightmare would not come to pass, for he had been granted an apocalyptic vision which allowed him to predict (just as his arch-enemy Plethon had) the defeat of Western as well as Eastern Christendom by the Turks. This Islamic triumph would not, he knew, be the prelude to the re-emergence of a Plethon-style paganism: the sultan Mehmed II was destined to be converted to Christianity by none other than George himself, who would convince him to turn his might against the true enemies of the Church, Bessarion and his band of paganizing Platonists. Unfortunately, when George travelled to Constantinople, twelve years after its fall to the Turks, in order to play his pivotal role in world history, he failed to gain even an audience with the sultan. On his return to Rome he was imprisoned on suspicion of apostasy, a prophet without honour in his own country.[77]

While George's bizarre drama was unfolding, scholars from the Greek community in Italy were busy composing responses to his *Comparatio*. By 1459 Bessarion, the chief spokesman for Christian Platonism and—as he probably suspected—the main target of George's attack, had drafted a reply, which he

sent to Gaza for comments. Gaza, although identified by George as one of the Platonic conspirators, thought of himself as an Aristotelian and had earlier written two tracts against Plethon, one refuting his concept of substance and the other answering his uncompromising determinism. In the second work Gaza attempted, following a long-established Byzantine tradition, to reconcile the views of Plato and Aristotle, demonstrating that the Stoic-inspired determinism postulated by Plethon had been rejected by both philosophers.[78]

In the comments which he sent to Bessarion, Gaza set out his Aristotelian critique of the hyper-Aristotelianism of George's *Comparatio*. Such a corrective was necessary, he said, because George lacked 'all understanding of Aristotle's language and subject matter'. Similar charges had been levelled against Gaza himself by George in his blast against Gaza's 'perversion' of Aristotle; it was now time to settle old scores.[79] Gaza focused on the two issues which were at the centre of the debate about the relationship between classical philosophy and Christianity: the doctrines of creation and immortality. On the first, he showed that Aristotle had not, as George claimed, believed in creation *ex nihilo* but had maintained that the world was eternal, as indeed had Plato, although with far less clarity than Aristotle. The problem of immortality was more complex. Gaza admitted that the Averroist doctrine of the unity of the intellect was difficult to refute on philosophical grounds but pointed out that Aristotle had never explicitly endorsed it; on the other hand, he had never given any indication that he supported the notion of personal immortality. Given, however, that the expectation of just rewards and punishments in the afterlife is essential for the maintenance of public and private morality, Gaza argued that we should adopt Plato's belief in immortality, even though it is not capable of rational demonstration.[80]

A decade later Bessarion published his own refutation of the *Comparatio,* which appeared in a Latin translation so as to reach the same large readership as George's work. The aim of Bessarion's treatise, *In calumniatorem Platonis,* was to defend Plato against the calumnies which threatened to destroy his reputation among Christians and also to damage the reputation of his calumniator by revealing the shoddy scholarship on which his work was based. Following up Gaza's claim that George censured Platonic doctrines which he could no more understand ᶜthan some rustic fresh from tilling the fields', Bessarion gave a practical demonstration of George's ignorance and incompetence by pointing out over two hundred errors, philosophical as well as linguistic, in his translation of the *Laws*.[81] But while Bessarion wanted to lower George's standing, he had no desire to harm that of Aristotle, whom he respected as a philosopher and whose *Metaphysics* he had translated. Like Gaza, he accepted the Byzantine position that there were no fundamental differences between the two philosophers, although Bessarion tended to follow the ancient Greek commentators in ranking Plato, the supreme metaphysician, higher than Aristotle, the supreme natural philosopher and logician.[82]

What Bessarion could not accept was George's insistence that Aristotle was closer than Plato to Christianity. Both philosophers, Bessarion asserted, were polytheistic pagans who held many beliefs which were entirely foreign to true religion. He therefore had no intention of turning Plato into a Christian, as George had done with Aristotle. Nevertheless, he maintained that if one was looking for philosophical confirmation of Christian dogmas, there was far more in Plato's works than in those of Aristotle. Although Plato had not fully understood doctrines such as the Trinity, he had received enough illumination from the light of nature to allow him to gain a shadowy knowledge of the mysteries of faith, a knowledge which, however imperfect, could play a valuable role in leading men towards the ultimate truths of the Bible.[83] Bessarion's ability to find intimations and anticipations of Christianity in Plato's dialogues was greatly aided by his familiarity with the hermeneutical techniques of the ancient Neoplatonists, especially Plotinus and Proclus. He learned from them how to go beyond the often embarrassing literal sense of Plato's words: his accounts of metempsychosis, for example, or his frank references to homosexual love, which the Italian humanists had deliberately mistranslated or excised. The Neoplatonists taught Bessarion to look for the deeper meaning of such passages by reading them in terms of allegory, myth and symbol—devices which Plato had used to hide his profoundest doctrines from the gaze of the vulgar.[84] These tools of analysis, combined with his understanding of Platonic metaphysics, also gained from the Neoplatonists, permitted Bessarion to discredit George's slanders of Plato and, far more importantly, to lay the philosophical and theological foundation for a systematic Christian Neoplatonism.

The philosopher who was to construct that system, Marsilio Ficino (1433–99), had just completed the first draft of his Latin translation of all thirty-six Platonic dialogues when Bessarion's *In calumniatorem Platonis* was completed in 1469. Like many others, Ficino wrote to the cardinal to congratulate him on his treatise, from which he clearly learned a great deal.[85] Adopting Bessarion's figurative method of reading the dialogues, Ficino insisted that Plato's doctrine of the transmigration of souls should be interpreted in a moral key, as an allegorical representation of what happened to those who behaved like animals. Similarly, passages describing Socrates's sexual passion for his young disciples were, in Ficino's view, marvellous allegories, 'just like the Song of Solomon'.[86]

Although Ficino relied on the work of the earlier humanist translators of Plato, especially Bruni, he did not share their stylistic concerns. He simply wanted to make his translations as accurate and clear as possible, which meant employing an unadorned Latin and not avoiding useful philosophical terms just because they were unclassical or non-Ciceronian. The fact that Ficino's version remained the standard Latin translation of Plato until the nineteenth century is sufficient testimony of his success.[87] He also made advances in the analysis of Platonic works. Instead of mining the dialogues for isolated nuggets of ethical wisdom, as the humanists had taught their students to do, he offered complex and coherent

analyses of themes—metaphysical and epistemological as well as moral—which ran through the entire corpus.

Humanists quickly began to take account of Ficino's work, which inspired new interpretations of classical literature. Cristoforo Landino (1425–98) used Ficino's philosophical ideas in his exegesis of Vergil's *Aeneid,* which he saw as a Platonic allegory of the soul's journey from sensuality and hedonism, symbolized by Troy, to a life of divine contemplation, represented by Italy.[88] Ficino was himself influenced by humanists, sharing many of their prejudices about contemporary scholastics, whom he referred to as 'lovers of ostentation' *(philopompi)* rather than 'lovers of wisdom' *(philosophi)*. Like Bruni and Poliziano, Ficino accused so-called Aristotelians of not understanding the texts they professed to expound, reading them as they did in barbarous medieval translations. He also displayed a humanistic distaste for the logical nitpicking to which scholastics were addicted, leaving them little time, he felt, for more serious philosophical endeavour.[89]

Not that Ficino was a stranger to scholastic Aristotelianism. His early university training in logic, natural philosophy and medicine gave him a thorough grounding in Aristotle, Averroes and Avicenna, not to mention more recent writers such as Paul of Venice. Although he soon turned against most of the ideas and doctrines associated with this tradition, it left a lasting impact on his terminology and method of argument: there is a definite scholastic feel about the presentation of most of his treatises.[90] *De vita libri tres* (1489), Ficino's most popular work, contains many scholastic elements. Book II, on methods of prolonging life, borrows liberally from the thirteenth-century English Franciscan Roger Bacon; Book III deals with medical astrology, as transmitted to the medieval West by Arabic thinkers, and also develops a theory of magic based on the doctrine of substantial form elaborated by Thomas Aquinas and other scholastics.[91] Even in his Platonic commentaries scholastic ideas often make an appearance: his defence of the superiority of the intellect to the will in the *Philebus* is taken verbatim from Thomas.[92]

Although significant, this scholastic strain in Ficino's work was overshadowed by ancient Neoplatonism. The philosopher whom he most revered after Plato was Plotinus, the founder of Neoplatonism, whose *Enneads* he translated and commented upon. He also translated works by Proclus, Iamblichus, Porphyry and Synesius, all of whom helped to shape his understanding of the Platonic corpus.[93] By promoting Neoplatonic interpretations, already ventilated to a certain extent by Bessarion, Ficino altered the Western perception of Plato, transforming him from a wise moral philosopher into a profound metaphysician.

It was Plotinus who first systematized Platonic ontology, dividing reality into a series of hierarchical levels of being or hypostases, extending from the highest, the transcendent One, which was above being, to the lowest, matter, which was below it. This metaphysical scheme was taken over, with various modifications, by the later Neoplatonists, who used it, as Plotinus had done, to explain the deepest layers of meaning in the dialogues. Proclus, for instance, saw the

Parmenides as a metaphysical work dealing with the nature of the One and in particular its ontological priority to being. According to the Neoplatonists, being was co-terminous not with the One but with the second hypostasis, Mind, for it was in Mind that the Platonic Ideas, the primary components of reality, were located. Ficino adopted this view of the *Parmenides,* treating it as a masterpiece of Platonic theology, in which essential truths about the One—God in Ficino's Christian version of the scheme—were revealed.[94]

This interpretation of the dialogue, however, was challenged by other members of the intellectual circle of Medicean Florence. Giovanni Pico, in his *De ente et uno* (1491), recounts how Poliziano asked him to defend the Aristotelian position that being and one are convertible against the Neoplatonic claim that the One is beyond being. To discredit the main evidence for the Neoplatonic stand, Pico went back to the Middle Platonic account of the *Parmenides,* which portrayed it not as a dogmatic exposition of unknowable truths about the ineffable One, but rather as 'a sort of dialectical exercise' in which nothing was definitively asserted or denied. He also criticized the Neoplatonists for misreading the *Sophist,* in which—according to Pico—Plato actually maintained that one and being were equal.[95] Ficino, of course, sided with Plotinus and Proclus against Poliziano and Pico. His commentary on the *Sophist* is likewise deeply indebted to the Neoplatonic view of the dialogue as a metaphysical discussion of Mind, with special emphasis on the various relationships between the Platonic Ideas.[96]

Although Ficino used such Neoplatonic insights to give Renaissance Platonism greater depth and coherence, he never lost sight of the primary motivation which had led his contemporaries to admire this philosophy: its compatibility with Christianity. This was in fact the mainspring of his own commitment to Platonism. At the end of 1473 Ficino became a priest, and in the following year he produced an apologetic work, *De christiana religione,* which attempted to convince the Jews to abandon their obstinate rejection of the true faith. This interest in religious polemics in no way conflicted with his enthusiastic promotion of Platonism. He believed that scholastic Aristotelianism, with its doctrine of the double truth, had given rise to an artificial rift between reason and faith, which were in reality natural allies. By maintaining, as scholastics had traditionally done, that philosophy was of no use to religion and vice versa, the former had become a tool of impiety, while the latter had been entrusted to ignorant and unworthy men. To show those who had separated philosophical studies from Christianity the error of their ways it was necessary to reunite piety and wisdom, creating a learned religion and a pious philosophy.[97]

The answer to this dilemma lay for Ficino, as it had for Petrarch, in Platonism. Plato had been both a theologian and a philosopher, many of whose doctrines were in harmony with the Judaeo-Christian tradition. The Church Fathers had recognized this when they repeated Numenius's description of him as a 'Greek-speaking Moses' and speculated that he had learned of the Bible on his travels in Egypt.[98] Plato was also believed to be the last in a long line of 'ancient

theologians', which included Hermes Trismegistus, an Egyptian priest and near-contemporary of Moses. The Hermetic corpus—like the other documents comprising the ancient theology, a Greek forgery from the early Christian era—was translated by Ficino, who thought that it contained a gentile revelation analogous to that granted to the Jews. This quasi-Mosaic wisdom, which had been transmitted to Plato via Orpheus, Pythagoras and other venerable figures, helped to account for the similarity between Platonic doctrines and those of the Old Testament.[99] But Plato had not only followed the Mosaic law, he had foretold the Christian one.[100] All this made Platonism an ideal gateway to Christianity, especially for those intellectuals who so admired pagan antiquity that they could not be convinced by arguments based on faith alone.[101] Aristotelianism, *pace* Thomas Aquinas and George of Trebizond, had been unequal to this formidable task, for on those two crucial issues —the immortality of the soul and the creation of the world—it had failed to provide solid philosophical support for Christian dogma. One had therefore to turn instead to Platonism.

Early humanists like Bruni had looked primarily to the *Phaedo* for Plato's demonstration of immortality. So too did Ficino, but he found further proof in the *Phaedrus* (245C–246A), where Plato puts forward the thesis that the soul, as the self-moving principle of motion, moves and hence lives perpetually.[102] The centrality of this issue for Ficino's synthesis of Platonism and Christianity can be seen in his major philosophical treatise, *Theologia platonica de animorum immortalitate,* 'The Platonic Theology of the Immortality of Souls'. Maintaining that in order to accomplish the goal of our existence as human beings, which is the eternal contemplation of God, our souls must be immortal, he produced fifteen different philosophical arguments which established conclusively, on the basis of reason rather than Christian dogma, that the soul survives the body.[103] Ficino's primary philosophical authorities were Plato and the Neoplatonists, but he believed that Aristotle too had supported the doctrine of immortality, although in a vague and confused manner. Ficino had been persuaded by Themistius and other ancient Greek commentators on Aristotle, as well as by Bessarion, that the two philosophers were in essential agreement in most areas.[104] Aristotle's ambiguous presentation of this doctrine, however, had given rise to two erroneous interpretations, both 'wholly destructive of religion': Alexander of Aphrodisias's belief that the soul was mortal and Averroes's contention that there was only one rational soul for all mankind.[105] The best way to combat these pernicious opinions was to go back to the pristine Platonic source from which Aristotle's muddled teachings derived.

No such reconciliation of Plato and Aristotle was possible on the issue of creation, since Aristotle had declared the world to be eternal, while Plato had produced in his *Timaeus* a Greek counterpart to the Book of Genesis. Yet although Plato's description of creation was in agreement with the Mosaic account, Ficino questioned its congruence with Christian theology.[106] Recognizing that Plato, as a pagan living long before Christ, was necessarily

denied access to mysteries such as the Trinity, Ficino was careful to keep sight of the fact that Plato was not a Christian and that he himself was one.[107]

The revival of Platonism which Petrarch had wished for in the mid-fourteenth century was brought to completion by Ficino at the end of the fifteenth. All the dialogues were now available in reliable Latin translations, as were the major works of the Neoplatonists. A systematic framework of interpretation, closely linked to Christianity but clearly distinguishable from it, had also been established. Platonism had been put on an entirely new and much surer footing. But despite the efforts of its adherents, it had not displaced Aristotelianism, which would continue to be at the centre of Italian Renaissance philosophy for another century.

THE ARISTOTELIAN MAINSTREAM

During the fifteenth century the traditional separation of reason and faith had begun to break down as philosophical arguments were increasingly used to confirm religious doctrines, above all the immortality of the soul. Ficino, as we have seen, had employed Platonism as a source of rational support for the Christian belief that individual souls were immortal. Even scholastics like Paul of Venice and Nicoletto Vernia had taken the view—in Vernia's case under pressure from the Church —that personal immortality was demonstrable in philosophical terms. The culmination of this trend was the Fifth Lateran Council's decree of 1513, which compelled professors of philosophy to present philosophical demonstrations of the Christian position on immortality. The decree meant that it would no longer be permissible to have recourse to the double-truth doctrine in order to discuss the issue on strictly philosophical grounds, independent of theological criteria.

This deliberate attempt by the Council to restrict philosophy's claims to operate autonomously within its own intellectual sphere was soon challenged by Pietro Pomponazzi (1462–1525), a student of Vernia who succeeded him as the leading natural philosopher at Padua, before transferring in 1512 to Bologna. Throughout his career Pomponazzi lectured and wrote on Aristotelian texts in the time-honoured scholastic fashion: addressing the standard questions, reviewing the opinions of previous commentators and employing the philosophical terminology established during the Middle Ages. Though he was in no sense a humanist himself, he was nevertheless influenced, like Vernia, by the humanist approach to Aristotelianism, particularly by the new availability of the Greek commentators on Aristotle, whom he regarded not as replacements for medieval authorities but rather as further reserves in the arsenal of Aristotelian interpretations on which philosophers could freely draw.[108]

In his early Paduan lectures on *De anima,* Pomponazzi rejected Alexander of Aphrodisias's materialist and mortalist view of the soul. According to Aristotle (I.1), the crucial question in relation to immortality was whether the soul needed the body for all its operations. Pomponazzi accepted the answer given by

Thomas Aquinas, who admitted that the body was necessary as the soul's object but not as its subject, thereby preserving the soul's immateriality and immortality. Alexander's belief that the soul was the material form of the body had the additional failing of being unable to account for the intellect's capacity to understand immaterial universals. The Averroist thesis, which in these years Pomponazzi regarded as the authentic interpretation of Aristotle, was able to explain the comprehension of universals, but at the unacceptable cost of severing the essential unity of body and soul, since the single immortal intellect for all mankind merely guided the activities of individual bodies rather than serving as their substantial form. Pomponazzi never questioned the truth of the Christian belief in personal immortality, but he remained undecided for many years as to the correct position on purely philosophical grounds.[109]

The breakthrough came during a series of lectures on *De caelo* which he gave at Bologna in 1515–16. In discussing the eternity of the world (I.10), Aristotle establishes an indissoluble link between generation and corruption. Pomponazzi realized that, following this principle, if the soul was immortal it did not have a beginning in time; and if it did have a beginning, it was not immortal. Following Duns Scotus, Pomponazzi now recognized that since Aristotle believed the soul to be generated, he could not have regarded it as immortal.[110] Consequently, it was Alexander, not Averroes, who offered the most accurate interpretation of Aristotle and the most satisfactory answer, in terms of philosophy, to the question of immortality. More importantly, since neither this answer nor the Averroist one bolstered the Christian position, as the Lateran decree demanded, it was essential to defy the Council's pronouncement, reasserting philosophy's right to treat philosophical issues philosophically, without theological constraints.

This is precisely what Pomponazzi did in *De immortalitate animae* (1516), which is an attempt to resolve the problem of immortality, remaining entirely within natural limits and leaving all religious considerations aside. Pomponazzi now maintained, against Thomas, that the body was necessary for all the soul's operations, because thought, for Aristotle, always requires the images provided by the imagination from the raw material of sense data. Therefore, based solely on philosophical premises and Aristotelian principles, the probable conclusion was that the soul was essentially mortal, although immortal in the limited sense of participating in the immaterial realm through the comprehension of universals.[111] Despite this, Pomponazzi claimed that his belief in the absolute truth of the Christian doctrine of personal immortality remained unshaken, 'since the canonical Scripture, which must be preferred to any human reasoning and experience whatever, as it was given by God, sanctions this position'. In 'neutral problems' such as immortality and the eternity of the world, natural reasoning could not go beyond probabilities; certainty in such matters lay only with God.[112] Nevertheless Pomponazzi's treatise made the point that, however provisional their conclusions, philosophers must be allowed to pursue them without external interference—wherever they might lead.

Since the thirteenth century theologians had looked to Aristotle for philosophical support of the Christian doctrine on the soul. Pomponazzi was effectively ruling out this role. The theologians were quick to fight back, publicly burning the treatise, lobbying the pope to compel Pomponazzi to retract the work and writing, along with philosophers who shared their perspective, a stream of attacks on him. Pomponazzi responded to this onslaught by restating his position that immortality was not rationally demonstrable since it was contrary to natural principles. As an article of faith, it could—and should—only be founded on supernatural revelation.[113] The theologians, for their part, continued to insist that it was possible to demonstrate immortality. But Pomponazzi forced them to shift their ground. No longer did they argue in terms of natural philosophy; instead, discussions of the soul were transferred to the discipline of metaphysics, where theological considerations were allowed to hold sway. Aristotelian natural philosophy, abandoned by the theologians, was left to the natural philosophers, who were much freer to interpret Aristotle as they chose and to develop an autonomous science of nature.[114]

Pomponazzi himself contributed to the development of this science in his *De naturalium effectuum causis sive de incantationibus,* in which he demonstrated that events normally regarded as miraculous could be explained in natural terms. Dismissing the supernatural agency of angels and demons, he argued that the celestial spheres, governed by the Intelligences, were responsible for most so-called miracles.[115] Scholastic natural philosophy, combining Aristotle with Arabic astrology, regarded the stars as secondary causes by means of which God controlled the sublunary realm.[116] The heavens, though mediators of divine action, were part of nature, operating according to constant, regular and predictable laws, which could be studied scientifically. So Pomponazzi's emphasis on astrological causation transformed miracles into natural phenomena, accessible to reason. He did not, however, apply this scientific explanation to all miracles: those in the New Testament were exempted on the grounds that they, unlike other wondrous occurrences, violated the natural order and could therefore only have been brought about by direct divine intervention.[117] As with the immortality of the soul, he conceded that in religious matters the probable hypotheses provided by scientific enquiry were overruled by the absolute truths of Christian revelation. But in the domain of nature, from which he had excluded theological and supernatural explanations, rational criteria constituted the sole authority.

Alongside the scholastic Aristotelianism of Pomponazzi, the humanist variety continued to thrive, even moving into the universities. Pomponazzi's Paduan colleague Niccolò Leonico Tomeo (1456–1531) was the first professor to lecture on the Greek text of Aristotle. As a Venetian of Greek parentage, Leonico Tomeo inherited the mantle of Byzantine scholars such as Gaza and Argyropulos along with that of Italian humanists like Poliziano and Barbaro. He brought, like his predecessors, an increased accuracy and enhanced elegance to an ever wider range of Aristotelian texts. His finely tuned philological skills— good enough to

win the admiration of Erasmus—were deployed in translations of the *Parva naturalia, Mechanics* and other scientific works. In his prefaces all the standard humanist complaints about contemporary scholastics were repeated: their inability to understand Aristotle, their barbaric language and their futile search for answers to pointless questions. And in his learned scholia ample space was given to the Greek commentators, whose method of exposition he tried to imitate.[118]

For humanists like Leonico Tomeo the Greek commentators represented a purer and more authentic exegesis of Aristotle than could be found in the scholastic tradition. By the middle of the sixteenth century virtually all the ancient commentaries on Aristotle were in print, both in the original and in Latin translation. Access to these works affected the way that Aristotle was read in a number of ways. Alexander of Aphrodisias's doubts about the second book of the *Metaphysics* set off a long-lived debate (continued in the twentieth century by Werner Jaeger) about its authenticity and correct placement within the corpus. While Alexander's views on the soul decisively influenced Pomponazzi, many in the Averroist camp preferred Simplicius's exposition of *De anima,* which they believed could be used in support of the unity of the intellect. Simplicius, along with Themistius, also provided evidence for the essential harmony of Aristotle and Plato. And Philoponus, by arguing for the existence of a void in nature, gave ammunition to those—Galileo among them—who were challenging the fundamental principles of Aristotelian physics.[119]

The philhellenic bent of humanist Aristotelianism provoked a backlash among scholastic philosophers, who feared that Arabic and medieval expositors were becoming unfashionable as the Greek commentators gained in popularity. In order to remain competitive, they produced up-to-date editions of approved authors such as Thomas Aquinas, replacing the accompanying medieval translations of Aristotle with modern ones, making editorial improvements to the text and providing indexes, cross-references and other scholarly tools.[120] The most elaborate of such enterprises was the eleven-volume Giuntine edition of Aristotle and Averroes (1550–2). Its editors were happy to borrow what they could from the humanists. They adopted the Aristotle translations of Bruni, Bessarion, George of Trebizond and Leonico Tomeo; and they applied philological techniques to Averroes, collating different texts, revising them to enhance readability and including versions recently translated from Hebrew intermediaries. But this edition was designed to strike at the heart of the humanist assumption that the Greeks had a monopoly on philosophical achievement. 'Our age', wrote the publisher Tommaso Giunta, 'worships only the Greeks', while the writings of the Arabs are treated as 'nothing other than dregs and useless dirt'. Giunta and his editorial team set out to counter this prejudice by presenting Averroes as the only Aristotelian commentator worthy of the name and as a substantial philosopher in his own right, one who had developed and refined the material he found in Aristotle.[121]

Progressive Aristotelians in the second half of the sixteenth century took advantage of both the Arabic and Greek traditions. Jacopo Zabarella (1533–89), a professor of logic and natural philosophy at Padua, developed an extremely influential theory of method by drawing in equal measure on Averroes and Simplicius. Certain knowledge, he concluded, could be attained through a demonstrative regression, proceeding first from effect to cause *(resolutio),* and then working back from cause to effect *(compositio)*.[122] Zabarella regarded induction, which dealt only with the effects known to the senses, as an inferior form of 'resolutive' or *a posteriori* demonstration, but he recognized that it was essential for disciplines like natural philosophy.[123] Zabarella was himself a great believer in observation, often calling on his experience of meteorological phenomena or his acquaintance with contemporary technological processes to corroborate Aristotelian theories.[124] The best Peripatetic science in this period showed a similar empirical basis: Andrea Cesalpino (1519–1603), who revised the Aristotelian taxonomy of plants, made extensive use of the botanical garden at Pisa and even took into account specimens recently brought back from the New World.[125]

Yet even the most advanced Aristotelians did not progress from empiricism to experimentalism. They remained content to observe nature passively in order to confirm established doctrines rather than trying to devise methods of active intervention or validation. They saw their task not as searching out new approaches to the study of nature but as explaining and at best extending the Aristotelian framework within which they operated. This also meant leaving aside matters on which Aristotle had not made explicit pronouncements, such as the immortality of the soul—a problem which Zabarella referred to the theologians.[126]

Territorial disputes between philosophy and theology were not, however, at an end. Zabarella's successor Cesare Cremonini (1550–1631) was attacked by the Inquisition for discussing from a Peripatetic viewpoint the eternity of the world and the absence of divine providence in the sublunary realm. Reiterating the traditional Paduan commitment to a naturalistic exposition of Aristotle, Cremonini replied: 'I have acted as an interpreter of Aristotle, following only his thought.'[127] This statement was a strong reaffirmation of the autonomy of philosophy.[128] But in the context of the early seventeenth century, it also signified that Aristotelian natural science was a spent force, reduced to sterile and pedantic exegesis of set texts. Cremonini, the most eminent (and highly paid) Aristotelian of his day, was a completely bookish philosopher, lacking the interest in direct observation displayed by the previous generation but sharing their unwillingness to question the doctrinal foundation of Aristotelian philosophy. He is best remembered—appropriately, if perhaps apocryphally—as the man who refused to look in Galileo's telescope, preferring to learn about the heavens from the pages of Aristotle's *De caelo*.[129]

ALTERNATIVE PHILOSOPHICAL CURRENTS

Flowing around the edges of the Aristotelian mainstream were a number of alternative philosophical currents. Not all of them were hostile to Aristotelianism —though most were—but each challenged the prevailing Peripatetic orthodoxy by putting forward a new model of philosophical enquiry.

Complaints about the impenetrable jargon of scholastic logic were commonplace among humanists, but few critics were as incisive as Lorenzo Valla (1407–57). Believing that the limits of allowable discourse were fixed by the usage of the best classical authors, Valla banned virtually the entire logical and metaphysical vocabulary of scholasticism. Not satisfied with assaulting medieval and Renaissance Aristotelianism, he attacked Aristotle himself, rejecting his basic terminology (e.g. potentiality and actuality) and reducing his ten categories to only three (substance, quality and action). Even more radical was Valla's refusal to consider logic as an independent discipline, treating it instead as a part of rhetoric, on the grounds that the logician's repertoire was limited to the syllogism, while the orator could draw on the full range of argumentative strategies, both necessary and probable, both demonstrative and persuasive. Moreover, orators, who needed to be understood by their audiences, respected the common manner of speech of learned men (by which Valla meant good classical Latin), whereas logicians created their own language, which was meaningless to non-specialists. This subordination of logic to rhetoric entailed a drastic lowering of Aristotle's authority and a concomitant rise in the prestige of Cicero and Quintilian.[130]

Valla's programme did not find another champion until the mid-sixteenth century.[131] Mario Nizolio (1488–1567), a fanatical Ciceronian, who compiled a Latin lexicon devoted entirely to words used by his hero, was indignant when some of his contemporaries questioned Cicero's competence in philosophical matters. In reply to these 'Cicerobashers' *(Ciceromastiges)* Nizolio wrote a series of works, culminating in the treatise *De veris principiis et vera ratione philosophandi contra pseudophilosophos* (1553). The 'pseudo-philosophers' of the title were Aristotelian logicians and metaphysicians, whose false, obscure and useless disciplines he wanted to replace with a 'true method of philosophizing', one which combined Ciceronian rhetoric, Latin grammar and philological expertise. Nizolio cited Valla's attacks on Aristotelianism with approval and shared his humanist contempt for scholastic terminology as well as his desire to demote logic to a mere subdivision of rhetoric. But Valla had not gone far enough, merely cutting off the foliage and branches of Aristotelian philosophy while leaving its trunk and roots intact.[132] To eradicate it completely Nizolio employed a thorough-going nominalism, dismissing Platonic ideas as harmless poetic fictions, but arguing forcefully against the reality of Aristotelian universals, which he regarded as the pillars of scholastic logic and metaphysics. Through philological and philosophical analysis, he demonstrated that universals were simply collective names given to concrete particulars belonging to the same

class.[133] The treatise, which had little impact in the sixteenth century, was reissued in 1670 by Leibniz, who was interested in Nizolio's nominalism and in his attempt to produce a linguistic reform of logic. Leibniz, however, pointed out a number of errors committed by Nizolio, not least his failure to appreciate Aristotle's real merits.[134]

He also criticized Nizolio's claim that there were serious doubts about the authenticity of the works attributed to Aristotle. This line of attack had appealed to Nizolio because it made Aristotelians appear foolish as well as servile by suggesting that the *ipse* of their revered *ipse dixit* was not the genuine Aristotle.[135] The evidence for his assertion was borrowed, with acknowledgement, from Gianfrancesco Pico della Mirandola (1469–1533), a follower of Savonarola, who had learned from him to distrust all human learning and to rely solely on the divine philosophy of the Scriptures. In his *Examen vanitatis doctrinae gentium et veritatis Christianae disciplinae* (1520), Gianfrancesco set out to prove the futility of pagan doctrine and the truth of Christianity. The first half of the work employs arguments from the ancient Greek sceptic Sextus Empiricus—virtually unknown in the West—to discredit secular knowledge by showing that on every conceivable issue scholars have disagreed with one another and adhered to incompatible views. The second half targets Aristotle, by far the most influential pagan thinker and therefore the most important to subvert. Displaying immense erudition about the Aristotelian tradition, particularly the Greek commentators, Gianfrancesco revealed that all facets of Peripatetic philosophy lacked certitude: the works assigned to Aristotle were doubtfully authentic; his sense-based epistemology could not produce reliable data; his doctrines, often presented with deliberate obscurity, had been disputed by opponents and followers alike and had been criticized by Christian theologians; even Aristotle himself was uncertain about some of them.[136] Aristotelian philosophy, the pinnacle of human wisdom, was therefore shown to be constructed on the shakiest of foundations. Christian dogma, by contrast, was built on the bedrock of divine authority and therefore could not be undermined by the sceptical critique. Or so he believed, unaware that scepticism, which he had revived as an ally of Christianity, would eventually become a powerful weapon in the hands of its enemies.[137]

By stressing the dissension among competing philosophical schools and their fundamental irreconcilability with each other and with Christianity, Gianfrancesco was intentionally deviating from the path set out by his famous uncle Giovanni Pico.[138] Giovanni, the literal and metaphorical 'prince of concord'—he was the hereditary ruler of Concordia and Mirandola—devoted his brief life to demonstrating that, although different philosophical and religious systems appeared to be in conflict, their disagreements were primarily a matter of words, which disguised an underlying unity. The centrepiece of his project was an attempt to reconcile the philosophies of Plato and Aristotle, partially realized in his *De ente et uno,* a treatise which managed to antagonize both Platonists and Aristotelians.[139] Another part of his synthesis involved bridging the gap between the humanist and scholastic approaches to Aristotle. Differing from

his friends Poliziano and Barbaro, Pico's interest in the Greek commentators did not prevent him from paying equal attention to scholastic thinkers such as Thomas Aquinas and Duns Scotus—whom, characteristically, he wanted to reconcile—nor from studying the works of Averroes and commissioning translations of those extant only in Hebrew.[140] With help from Jewish scholars, he also acquired enough knowledge of Cabbala, a mystical theology purporting to derive from Moses, to apply its hermeneutic techniques to the first verses of Genesis.[141]

Pico believed that each of these traditions—Greek, Latin, Arabic and Hebrew—despite apparent discrepancies, was an incomplete manifestation of a single truth, whose fullest revelation was to be found in Christianity.[142] The real objective of his syncretism was the confirmation of Christian dogma,[143] although he scrupulously denied that profound mysteries such as the Trinity had any true parallels outside the Church.[144] For Ficino it was Platonism, supplemented by the ancient theology, which provided the philosophical justification of religious beliefs.[145] Pico had a much grander design: to prove that every genuine form of wisdom was a witness to some aspect of the ultimate truth embodied in Christianity.[146] Since there was no room in this scheme for a double truth, doctrines which conflicted with the demands of faith (the attribution of miracles to the power of the stars, the eternity of the world and the mortality of the soul) were excluded as the products of false philosophy and pseudo-science.[147]

Pico's Christian syncretism exerted a formative influence on Francesco Giorgi (1460–1540), a Franciscan theologian, whose *De harmonia mundi* (1525) used the metaphor of musical harmony to express the universal concord of ideas.[148] Giorgi found prefigurations of Christianity wherever he looked and was far less discriminating than Pico in registering the differences between Christian and non-Christian doctrines. He also departed from Pico in his hostility to Aristotelianism, especially the Averroist variety, favouring a more Ficinian synthesis in which Neoplatonic philosophers were combined with Hermes Trismegistus, Zoroaster and other putative ancient theologians.[149] To this mixture he added an interest in the Christian application of Cabbala, which was more enthusiastic—though less informed—than Pico's.[150]

Pico's concordism was also the inspiration behind *De perenni philosophia* (1540), in which Agostino Steuco (1497/8–1548) presented a learned account of the 'perennial philosophy', a divinely revealed wisdom known to mankind since earliest times. Steuco was an Augustinian biblical scholar, bishop and prefect of the Vatican Library,[151] with a solid knowledge of Hebrew and Aramaic along with Greek and Latin. Using the Old Testament—but not Cabbala, which he scorned—and the (spurious) works of ancient theologians, he showed that Jews, Chaldeans, Egyptians and other early peoples had transmitted to the Greeks a body of doctrines which, beneath a diversity of forms, contained the same truths. These included the existence of a triune God, the creation of the world and the immortality of the human soul.[152] Christianity's advent had not brought new truths, as Pico believed, but had simply renewed the knowledge of old ones,

which had been corrupted in transmission. Even though Steuco shared Giorgi's predilection for Neoplatonic authors, he did not exclude Aristotle from the perennial philosophy. His Aristotle, however, was the author of *De mundo* and other misattributed works, containing hints—amplified by Steuco—of belief in divine providence and immortality, though not, alas, in creation.[153] Despite (or more likely because of) having studied in Bologna during Pomponazzi's final years there, he distanced himself from scholastic Aristotelianism and strongly opposed the notion that philosophical truth was independent of theology. For Steuco, reason and revelation, which both flowed from God, necessarily led to the same conclusions.[154]

Ficino's Christianized Neoplatonism, although a key element in the syncretism of thinkers like Giorgi and Steuco, did not gain much support as an independent philosophical system. The only aspect which excited general interest was the theory of love elaborated by Ficino in his *Symposium* commentary, a theory which became so popular that it dominated the public perception of Platonism throughout the sixteenth century and beyond.[155] Even Francesco da Diacceto (1466–1522), Ficino's Florentine successor, concentrated on the issues of love and beauty, investing them, however, with a metaphysical and theological significance absent in the stylized, literary treatments that proliferated throughout Italy. Beauty, for Diacceto as for Ficino, was a divine emanation, which inspired the human soul with a celestial love that fuelled its spiritual ascent and guided it to an ecstatic union with the One.[156] As a philosophy professor at the University of Pisa, Diacceto was constrained to lecture on Aristotle; but he took every opportunity to defend Plato against Aristotle's attacks and attempted to establish a concord of the two philosophers which, in deliberate contrast to Pico's, squeezed Aristotle into a Platonic mould.[157]

Not until 1576 did Platonism enter the curriculum at Pisa. Even then it was merely an ancillary subject assigned to a professor whose main job was to lecture on Aristotle.[158] Professorships specifically devoted to Platonism were established in the universities of Ferrara (1578) and Rome (1592), but both were essentially *ad hominem* chairs created for Francesco Patrizi da Cherso (1529–97). An encounter with Ficino's *Theologia platonica* had converted Patrizi, then studying medicine at Padua, into a fervent Platonist, committed to overthrowing the Aristotelian monopoly of the universities.[159] The first stage in this crusade was the demolition of Aristotelianism. Combining superb humanist erudition with unflagging polemical energy, he accused Aristotle of both plagiarizing and misrepresenting earlier philosophers; questioned—like Nizolio and Gianfrancesco Pico—the authenticity of the Aristotelian corpus; and challenged the philosophical competence of ancient, medieval and Renaissance Peripatetics.[160] His most damning charge against Aristotelianism, however, was the same as that made by Petrarch two centuries earlier: its fundamental incompatibility with Christianity. Addressing Pope Gregory XIV, Patrizi pointed out the absurdity of teaching a philosophy so manifestly detrimental to religion in universities throughout Europe and of using its impious tenets as the

philosophical foundation of Christian theology. In its place he wanted to substitute the pious philosophy set out in his *Nova de universis philosophia* (1591), which was entirely consonant with Catholicism and which was capable of providing such strong rational proofs of dogmatic beliefs that not only Jews and Muslims but even Lutherans would be won over.[161]

What Patrizi offered the Pope was a Ficinian amalgam of Platonism, Neoplatonism and Christianity, with particular emphasis given to the ancient theology. By the late sixteenth century the genuineness of texts like the Hermetic corpus was beginning to be doubted. But Patrizi, who had read his Steuco, clung to a belief in them as documents of a primitive, divinely inspired wisdom, which had prefigured Christianity and formed the core of Platonism before being crushed by the weight of Aristotelian rationalism.[162] In only one treatise had Aristotle incorporated material from this ancient tradition: the *Theology* (actually a ninth-century Arabic reworking of Plotinus's *Enneads* that had come to be attributed to Aristotle) which, according to Patrizi, was a record of his notes on Plato's lectures concerning Egyptian religion. For Patrizi, as for Steuco, it was pseudonymous works such as this, containing uncharacteristic affirmations of divine providence and immortality, which represented the acceptable face of Aristotelianism.[163] The *Theology* was therefore included, along with the works of Hermes, Zoroaster, Plato and the Neoplatonists, in the new canon of godly philosophy which Patrizi hoped would replace the ungodly Aristotelian one.[164] The Roman Inquisitors, evidently unconvinced by Patrizi's claims, placed the *Nova philosophia* on the Index—a fate which had earlier befallen Giorgi's *De harmonia mundi*.[165] These authors, attempting to protect Christianity from the impieties of Aristotelianism, discovered that the Church was not prepared to abandon its long alliance with Peripatetic philosophy.

Patrizi's 'new philosophy', aiming to be as comprehensive as the Aristotelian system it was designed to supplant, was basically Neoplatonic. The cosmos consisted of a hierarchical series of nine levels of being, all emanating ultimately from the One. Patrizi's One was not, like Aristotle's Unmoved Mover, the final cause of motion, but rather the efficient cause of light, which he regarded as one of the four fundamental principles of the physical world, the others being heat, space and fluid or flux *(fluor)*.[166] In substituting these building-blocks for those of Aristotle (fire, air, water and earth), Patrizi was working along similar lines to another anti-Aristotelian philosopher, Bernardino Telesio (1509–88). In his *De rerum natura iuxta propria principia* (1565–86), a treatise which Patrizi knew well, Telesio too postulated heat as one of the principles of nature, although the other elements in his tripartite scheme were cold and matter.[167] Telesio's philosophy was also presented as an alternative to Aristotelianism—and also ended up on the Index. But he rejected Platonic as well as Aristotelian metaphysics, grounding his system on an extreme form of empiricism, which maintained that nature could only be understood through sensation and observation—a manifesto which would earn him the qualified praise of Francis Bacon.[168]

Coming from very different directions, Telesio and Patrizi both attacked many of the same weaknesses in the Peripatetic structure, especially Aristotle's concept of space or place as an attribute of body and his denial of the existence of a void in nature. Telesio, appealing to the evidence of the senses, argued that space could indeed exist without bodies and that empty space was therefore possible.[169] Patrizi, building on statements in Plato's *Timaeus* (49A, 52B), regarded space as prior to all bodies, an empty receptacle which, although incorporeal, was an extended, dimensional entity.[170] These views of Patrizi were taken up in the seventeenth century by Pierre Gassendi, whose atomist physics required precisely this sort of vacuist conception of space.[171] Patrizi also maintained, against Aristotle, that there was an infinite stretch of empty space beyond the outermost sphere of the heavens. Below the heavens, however, his cosmos was the traditional Ptolemaic Aristotelian one: finite and closed, with the earth—despite Copernicus —at its centre.[172]

A more radical cosmology was proposed by Giordano Bruno (1548–1600), who not merely accepted Copernican heliocentrism but expanded it by making our solar system only one of an infinite number of worlds which existed within an infinite universe.[173] Bruno did not come to these conclusions on the basis of mathematics, for which he had little respect or talent.[174] Nor did he approve of the scholarly method of Patrizi, which he described as 'soiling pages with the excrement of pedantry'. And while Telesio had 'fought an honourable battle' against Aristotle, his empirical epistemology was unable to grasp essential notions like infinity, which were imperceptible to the senses.[175] Bruno looked instead to the cosmological poetry of Lucretius, the metaphysical theories of the Neoplatonists and, above all, the theological speculations of Nicholas of Cusa.[176] For Bruno, the infinity of the universe was a reflection of the infinity of its divine creator, although God's infinity was simple and indivisible, while that of the universe consisted of a multiplicity of finite constituent parts. He furthermore maintained that the universe, as the image of God, partook in His eternity, thus giving an entirely new slant to the standard Peripatetic doctrine. In like manner, Bruno—a renegade Dominican monk, thoroughly trained in Peripatetic philosophy—retained much of the accepted metaphysical terminology while dramatically transforming its significance. He still talked of form and matter, actuality and potentiality, but he treated them (as Spinoza would later treat Cartesian thought and extension) as aspects of a single, universal substance, whose accidents were the particular objects which we perceive.[177]

When put on trial by the Inquisition in the 1590s, Bruno stated that he pursued philosophical ideas 'according to the light of nature', without regard to any principles prescribed by faith.[178] This was as clear a statement of the autonomy of philosophy as any made by the scholastic Aristotelians that he despised. Unlike them, however, he did not believe in a double truth. There was only one truth for Bruno; but it was not the single truth of faith upheld by non-Aristotelian thinkers from Petrarch to Patrizi. While they were aiming for a pious philosophy, Bruno sought a philosophical piety: a rationalistic and naturalistic religion, patterned on

that of ancient Egypt, as portrayed in the Hermetic corpus; a religion which left behind Christian superstitions, such as transubstantiation and the virgin birth, and adopted in their place beliefs and values that reflected the cosmological, physical and metaphysical principles which he had uncovered.[179] Bruno was not simply defending the rights of reason, he was usurping those of faith; and it was this, far more than his espousal of Copernicanism or the infinite universe, which led the Church to burn him at the stake on 17 February 1600.[180]

Some of Bruno's ideas had a limited influence after his execution, but his philosophy never gained a wide following.[181] Nor did that of other sixteenth-century opponents of Aristotelianism, although individual doctrines gained the approval of later thinkers. The critiques of Peripatetic philosophy formulated in the late Italian Renaissance undoubtedly helped to weaken it, but it was the scientific and epistemological revolutions of the seventeenth century which delivered the death blow.

NOTES

1 Pietro d'Abano (*c.* 1250–1316) noted that this outlook had been endorsed by Albertus Magnus: Pietro d'Abano [1.29], diff. IX, propter 3; see also Paschetto [1.40].
2 E.g. Blasius of Parma (Biagio Pelacani, *c.* 1365–1416): see Blasius of Parma [1.22], I.8, and also Federici Vescovini [1.33].
3 Pietro d'Abano [1.29], diff. IX, propter 3; Blasius of Parma [1.22], 58. See Aristotle, *De caelo* I.10 and *Physics* VIII.
4 Blasius of Parma [1.22], 71; see also Federici Vescovini [1.33], 395–402; Nardi [1.14], 47–8, 55–8, 71–3.
5 Petrarch [1.25], 21; see also Foster [1.34]; Mann [1.39]; Kristeller [1.11], ch. 1.
6 Petrarch [1.30], 58–9, 76; see also Garin [1.6], 149–50.
7 Petrarch [1.31], vol. 1, 37 (I.7); see also Petrarch [1.27], 52 (*Secretum* I); Petrarch [1.28], 75.
8 Petrarch [1.25], vol. 3, 213 (XVI.14); Petrarch [1.32], 245–8 (*Seniles* V.2); see also Garin [1.6], 150–2; Gilbert [1.36], 210–16; Vasoli [1.19], 9–15.
9 Petrarch [1.24], 40, 62, 65; see also Kamp [1.37].
10 Petrarch [1.30], 53; see also Petrarch [1.26], 65 (II.31); Petrarch [1.24], 61.
11 Petrarch [1.26], 65 (II.31); Petrarch [1.24], 67.
12 Petrarch [1.30], 142–3 (*Seniles* XII.2 and XV.6); Petrarch [1.32], 247 (*Seniles* V.2); see also Kamp [1.37], 37–9; Kristeller [1.10], vol. 1, 210; Garin [1.6], 147–9.
13 See, for example, Kuksewicz [1.23], 127–46.
14 Petrarch [1.30], 93, 95, 117.
15 Petrarch [1.26], 27–9 (I.25); Petrarch [1.30], 58, 72, 75; Petrarch [1.25], vol. 1, 93 (II.9), vol. 3, 255 (XVII.8); see also Gerosa [1.35]; Kamp [1.37]; Garin [1.6], 269, 277.
16 Petrarch [1.24], 58, 94. On the availability of Plato in Latin see p. 26 below.
17 Petrarch [1.24], 76. On the Greek manuscript see Kristeller [1.12], 57, 153–4.

18 Petrarch [1.24], 66, 78–9; Petrarch [1.26], 31 (I.25); Petrarch [1.28], 662–4; Augustine, *De civitate Dei* VIII.9–10 and XXII.7, *De vera religione* III.3, *Confessions* III.iv.7; see also Foster [1.34], 170; Gerosa [1.35], 246, 252–3.

19 On Bruni see *Dizionario* [1.4], vol. 14, 618–33; Bruni [1.56], 21–42. Aside from Aristotle, Bruni translated works by Plato, Demosthenes, Aeschines, Xenophon and Plutarch.

20 Bertalot [1.57], vol. 2, 132–3; Bruni [1.46], vol. 1, 17 (I.8); see also Cammelli [1.63], vol. 1; Schmitt and Skinner [1.17], 86–7; Schmitt [1.16], 68; Gerl [1.65], 125–6.

21 Bruni [1.46], vol. 2, 88, 216 (VII.4; X.24); Bruni [1.56], 208, 210, 213; Bruni [1.47], 77, 84–6.

22 Bruni [1.56], 68–9 *(Dialogi);* see also Gilbert [1.36], 209; Vasoli [1.19], 26.

23 Garin [1.64], 62–8.

24 Petrarch [1.24], 67; Bruni [1.56], 82, 91, 226, 229; Bruni [1.47], 48, 77; see also Seigel [1.18], ch. 4. Cicero's praise (*Academica* II.xxxviii.119, *De finibus* I.v.14; *Topica* I.3) was based on Aristotle's lost exoteric works, not on the so-called school treatises we now have.

25 See Alonso de Cartagena's *Liber* in Birkenmajer [1.59], 168, 173, 175; Bruni [1.56], 201–6; see also Garin [1.64], 63–4; Schmitt and Skinner [1.17], 79, 90.

26 Bruni [1.56], 45. For the prefaces to his Aristotle translations, see Bruni [1.47], 70–81, 120–1.

27 Bruni [1.56], 59–60, 268; see also Garin [1.6], 151–2; Vasoli [1.19], 23–7; Gilbert [1.36], 205–13.

28 Cammelli [1.63], vol. II; *Dizionario* [1.4], vol. 4, 129–31; Field [1.92], ch. 5; for his inaugural lectures, see Müllner [1.51], 3–56.

29 Argyropulos [1.42]. He translated Aristotle's *Categories, De interpretation, Prior* and *Posterior Analytics,* as well as Porphyry's *Isagoge:* see Cammelli [1.63], vol. 2, 183–4; Garin [1.64], 83–5.

30 Müllner [1.51], 43. He translated the *Physics, De caelo* and *De anima:* Cammelli [1.63], vol. 2, 183; Garin [1.64], 84–5.

31 Müllner [1.51], 51–2: he describes Alexander's opinion as 'quite false and totally abhorrent', and Averroes's as 'extremely dangerous'; in support of the Christian position, he produced 'some rational arguments based on natural philosophy', as well as those based on 'faith'; see also Garin [1.5], 102–5.

32 Argyropulos [1.43].

33 Acciaiuoli [1.41]; see also Bianchi [1.58]; Field [1.92], ch. 8. He wrote a similar commentary on the *Politics*.

34 George translated the *Physics, De anima, De generatione et corruptione, De caelo,* the zoological works and the *Rhetoric,* as well as the Pseudo-Aristotelian *Problems:* Garin [1.64], 75–81; see also Monfasani [1.103].

35 George of Trebizond [1.49], 142–3, 191, 268; see also Monfasani [1.103], 26, 42, 76–7; Minio-Paluello [1.67], 264–5; Schmitt and Skinner [1.17], 77, 88.

36 George of Trebizond [1.49], 106–7. Gaza retranslated the zoological works and the *Problems,* as well as translating Latin works, such as Cicero's *De senectute,* into Greek; on Gaza see Monfasani in Hankins *et al.* [1.8], 189–219, esp. 207–19; on Bessarion see Mohler [1.102], vol. 1; Garin [1.64], 74–5.

37 In 1452 he was imprisoned for brawling with another humanist in the chancery of the papal Curia: Monfasani [1.103], 109–11.

38 George of Trebizond [1.49], 107, 132–3; George of Trebizond in Mohler [1.102], vol. 3, 277–342 *(Adversus Theodorum Gazam in perversionem Problematum Aristotelis);* see also Monfasani [1.103], 152–4

39 George of Trebizond in Mohler [1.102], vol. 3, 319 *(Adversus Theodorum Gazam);* George of Trebizond [1.49], 142; see also Monfasani [1.103], 155–6; Garin [1.6], 288–9. He also treated scholastic logicians with respect and drew on their works in his *Isagoge dialectics*.

40 Poliziano [1.53], 303 (*Miscellanea* I.90); see also Garin [1.64], 78–80; *Dizionario* [1.4], vol. 2, 691–702.

41 Poliziano [1.53], 310 (*Miscellanea* I, Coronis), 529–30 *(Praelectio de dialectica),* 502 *(Praefatio in Suetonii expositionem);* see also Klibansky [1.97], 316; Branca [1.61], 13. The *Praelectio de dialectica,* a by-product of Poliziano's teaching, became a standard introduction to Aristotelian logic: Schmitt [1.16], 61.

42 Poliziano [1.54], xiv–xxiii, 18; Poliziano [1.53], 179 (*Epistolae* XII); see also Wolters [1.69].

43 *Dizionario* [1.4], vol. 4, 96–9; Branca [1.60]; Branca [1.61], 13–15. Aside from his Aristotelian work, Barbaro also produced philological commentaries on Pliny's *Natural History (Castigationes Plinianae)* and on Dioscorides.

44 Barbaro [1.44] is based on his lectures; see also Kristeller [1.10], vol. 1, 337–53.

45 Barbaro [1.45], vol. 1, 16–17, 92, 104–5 (*Epp.* XII, LXXII, LXXXI), vol. 2, 108 *(Oratio ad discipulos);* see also Garin [1.64], 87–9; Dionisotti in *Medioevo* [1.13], vol. 1, 217–53; Branca [1.62], 131–3.

46 Pico [1.166]; see also Kristeller [1.182], 56–8; Valcke [1.197], 191; Roulier [1. 193], 85–6; Branca [1.60], 227–8.

47 Barbaro *Epistolae,* vol. 1, 77–8 (*Ep.* LXI); see also Branca [1.62], 132.

48 See Kretzmann *et al.* [1.38], 74–8; Kristeller [1.10], vol. 1, 341–2 n. 13.

49 Branca [1.62], 131, 166–7; Nardi [1.14], 366–8.

50 Manutius [1.50], vol. 1, 5–7, 13–18, 22–3; see also Minio-Paluello [1.67], 489–93.

51 Cavalli [1.48], a 2^{v}; Manutius [1.50], vol. 1, 14; see also Schmitt in Poppi [1.68], 287–314.

52 Manutius [1.50], vol. 1, 7, 17; see also p. 40 below.

53 Minio-Paluello [1.67], 489, 496; Mahoney [1.66]; Mahoney in Poppi [1.68], 135–202.

54 Vernia [1.55], 89^{v}; see also Mahoney [1.126], 169–70; Mahoney in Poppi [1.68], 156; Mahoney [1.66], 149–63; Schmitt and Skinner [1.17], 493–4; Di Napoli [1.3], 181–93. Vernia corresponded with Barbaro: see Barbaro [1.44], vol. 1, 79–80 (*Ep.* LXII).

55 Paul of Venice [1.52], $z7^{r}$–8^{r}; see also Kuksewicz in Olivieri [1.15], vol. 2, 297–324; Schmitt and Skinner [1.17], 490.

56 Klibansky [1.96].

57 Bruni [1.47], 4; translation in Hankins [1.95], vol. 1, p. 50; Bruni [1.46], vol. 1, 15–16 (I.8); see also Garin in *Medioevo* [1.13], vol. 1, 339–74, esp. 361–3; Di Napoli [1.3], 125.

58 Bertalot [1.57], vol. 2, 269.

59 Bruni [1.46], vol. 2, 148 (IX.4); Hankins [1.95], vol. 1, 58–81. For Bruni's second version of the *Crito* (1424–7) see Plato [1.82]; he also translated the *Apology* (1424): see Garin in *Medioevo* [1.13], vol. 1, 365; for his knowledge of the *Cratylus* see Bruni [1.46], vol. 1, 11–12 (1.6).

60 Bruni [1.46], vol. 2, 148 (IX.4), described the translation as very inept; see also Garin in *Medioevo* [1.13], vol. 1, 341–4; Hankins in Hankins *et al.* [1.8], 149–88, esp. 149–60.
61 Hankins [1.95], vol. 1, 105–54, vol. 2, 548–75; Garin in *Medioevo* [1.13], vol. 1, 347–57. A third version of the *Republic* was undertaken by the Sicilian humanist Antonio Cassarino (d. 1447): Hankins [1.95], vol. 1, 154–60.
62 Hankins in Hankins *et al.* [1.8], 166–76.
63 Kraye [1.98]; Hankins [1.95], vol. 2, 515–23.
64 See, for example, his lectures on the *Ethics* in Müllner [1.51], 15, 20, 22–3; see also Garin [1.5], 119–20; Field [1.92], 107–26.
65 George of Trebizond [1.49], 304; Klibansky [1.97], 289–94; Monfasani [1.103], 18–19, 167; Garin in *Medioevo* [1.13], 372–3.
66 See p. 22 above.
67 George of Trebizond [1.49], 198–202 (Preface), 746–7 (marginal notes); see also Monfasani [1.103], 102–3, 171–2 and appendix 10 (for the original Preface to Nicholas V); Hankins [1.95], vol. 2, appendix 11.
68 Woodhouse [1.105]; Mohler [1.102], vol. 1, 335–40.
69 Plethon [1.84], 321, trans. in Plethon [1.87], 192; see also Woodhouse [1.105], ch. 10.
70 Plethon [1.84], 321–2, 327–8, trans. in Plethon [1.87], 192–3, 198–9; Monfasani [1.103], 157, 205–6.
71 Plethon [1.83], Woodhouse [1.105], ch. 17; Webb [1.104]; Hankins [1.95], vol. 1, 193–208.
72 Plethon [1.83], 64–79 (II.6); Woodhouse [1.105], 332–4. This portion of the treatise circulated independently in the West under the title *De fato* and was translated into Latin for Nicholas of Cusa: Kristeller [1.100].
73 Woodhouse [1.105], chs 13 and 15.
74 George of Trebizond [1.80], V vi^{v}; see also Monfasani [1.103], 39.
75 George of Trebizond [1.80], D ii^{r}–Niii^{r}; see also Hankins [1.95], vol. 2, appendix 14; Monfasani [1.103], 157; Labowsky [1.101], 175–6.
76 George of Trebizond [1.80], T v^{r}–X ii^{v}; Monfasani [1.103], 159; Garin [1.6], 290–2.
77 Monfasani [1.103], 179–94; for his earlier spell in jail see note 37 above.
78 Gaza [1.79]; for his *Adversus Plethonem de substantia* see Mohler [1.102], vol. 3, 153–8.
79 Labowsky [1.101], 180, 194; see also p. 23. Argyropulos also wrote a refutation of the *Comparatio,* which is now lost: Monfasani [1.103], 212, 228.
80 Labowsky [1.101], 180–4, 194–7.
81 Labowsky [1.101], 180, 194. Bessarion's critique of George's translation occurs in Book V, which is not printed in the edition of Bessarion's treatise in Mohler [1.102], vol. 2; see Hankins [1.95], vol. 1, 191; Garin [1.6], 287.
82 Bessarion in Mohler [1.102], vol. 2, 72–3 (I.7), 90–3 (II.4), 154–5 (II.9), 410–13 (III.28); see also Hankins [1.95], vol. 1, 246–7; Monfasani [1.103], 219–20.
83 Bessarion in Mohler [1.102], vol. 2, 3 (I.1), 102–3, 109 (II.5), 282–95 (III.15).
84 Bessarion in Mohler [1.102], vol. 2, 161–3 (II.8), 443–59 (IV.2), 467 (IV.2); see also Hankins [1.95], vol. 1, 255–9, vol. 2, appendix 13.
85 Ficino's letter is published in Mohler [1.102], vol. 3, 544–5, as are the letters of Argyropulos (545–6) and Filelfo (599–600). On Ficino see Kristeller [1.

99]; Kristeller [1.11], ch. 4; Kristeller in Garfagnini [1.93], vol. 1, 15–196; Copenhaver and Schmitt [1.2], 143–63.

86 Ficino [1.70], vol. 2, 1304, 1427, 1438, 1484; see also Hankins [1.95], vol. 1, 312–14, 345, 358, 361.

87 Hankins [1.95], vol. 1, 310–12, vol. 2, appendix 18A.

88 Landino [1.81], Books III and IV; see also Field [1.92], ch. 9.

89 Ficino [1.72], 176–7 (I.100); Ficino [1.70], vol. 2, 1300–3 *(In Euthydemum epitome).*

90 Kristeller [1.10], vol. 1, 35–97. The major exception is his exposition of the *Symposium* (Ficino [1.73], trans. in Ficino [1.85], where he adopted a dialogue format and gave more than usual care to literary elegance. It was also the one commentary which Ficino himself translated into Italian.

91 Ficino [1.78]; see also Copenhaver [1.91]. Ficino's attitude towards astrology fluctuated considerably: see, for example, his attack on judicial astrology: Ficino [1.71], vol. 2, 11–76 *(Disputatio contra indicium astrologorum);* see also the articles by Walker and Kaske in Garfagnini [1.93], vol. 2, 341–9, 371–81.

92 Ficino [1.75], 35–48, 368–83 (I.37); he later moved to a more voluntarist position: see Ficino [1.72], 201–10 (I.115), trans. in Ficino [1.86], vol. 1, 171–8.

93 For his Plotinus commentary, first published in 1492, see Ficino [1.70], vol. 2, 1537–1800; see also Wolters [1.69]; Gentile [1.94], 70–104.

94 Ficino [1.70], 1154 *(In Parmenidem):* see also Allen [1.88].

95 Pico [1.155], 386–9 (Prooemium), 390–6 (cap. II), trans. in Pico [1.165], 37–8, 38–41; see also Allen in Garfagnini [1.93], vol. 2, 417–55; Schmitt and Skinner [1.17], 582–4; Klibansky [1.97], 318–25; Garin [1.175], 75–82; Valcke [1.197], 221–3; Roulier [1.193], 96–7.

96 Ficino [1.77], esp. chs 32–5.

97 Ficino [1.74], vol. 1, 36 (prohemium); Ficino [1.70], vol. 1, 1–2 *(De christiana religione),* 853–4, 871; see also Vasoli [1.20], 19–73.

98 Ficino [1.70], vol. 1, 774, 866, 956. For an earlier use of this argument see Bruni [1.47], 4, 136; Bertalot [1.57], vol. 2, 269. For Numenius, see Eusebius, *Praeparatio evangelica* II.10.14 and Clement of Alexandria, *Stromateis* I.22.150.

99 Ficino [1.70], vol. 1, 156, 268, 386, 854, 871, vol. 2, 1537, 1836; see also Walker [1.21]; Allen in Henry and Hutton [1.9], 38–47; Schmitt [1.195], 507–11; Gentile [1.94], 57–70.

100 See his letter to Prenninger in Klibansky [1.96], 45; Ficino [1.70], vol. 1, 899 (*Ep.* IX).

101 Ficino [1.74], vol. 1, 36 (I.1), vol. 2, 283 (XIV. 10); Ficino [1.70], vol. 1, 855 (*Ep.* VII).

102 Ficino [1.70], vol. 2, 1390–5 *(In Phaedonem epitome);* Ficino [1.76], chs 5–6; see also Allen [1.89], ch. 3.

103 Ficino [1.74], vol. 1, 174–222 (V); see also Kristeller [1.99], ch. 15; Di Napoli [1.3], ch. 3.

104 Ficino [1.70], vol. II, 1801 *(Expositio in interpretationem Prisciani Lydi super Theophrastum).*

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107 Ficino [1.70], vol. 1, 956, vol. 2, 1533 *(Argumentum in sextam epistolam Platonis);* see also Allen [1.90]; but see Pico's criticism of Ficino in note 144 below.
108 Kristeller in Olivieri [1.15], vol. 2, 1077–99, esp. 1080–4; Kristeller [1.11], ch. 5.
109 Pomponazzi [1.114]; Pomponazzi [1.115]; see also Nardi [1.127], ch. 4; Di Napoli [1.3], 229–34.
110 Nardi [1.127], 197–9; Di Napoli [1.3], 235–8; Olivieri [1.128], 69–76.
111 Pomponazzi [1.112], 36–7, 82–137; see also Aristotle, *De anima* I.1, III.7; Di Napoli [1.3], 245–64; Olivieri [1.128], 76–84.
112 Pomponazzi [1.119], 302, 377; Pomponazzi [1.112], 82, 232; see also Pine [1.129], 109–12.
113 Pomponazzi [1.110], 52–75 *(Apologia),* 81–108 *(Defensorium);* see also Di Napoli [1.3], 265–75; Schmitt and Skinner [1.17], 504–7.
114 Schmitt and Skinner [1.17], 602–5; Lohr [1.125].
115 Pomponazzi [1.111], 198; see also Pine [1.129], 235–53; Schmitt and Skinner [1. 17], 273. The treatise, written *c.* 1520, was published posthumously in 1556; it was the only work by Pomponazzi to be put on the Index.
116 The astrological determinism postulated by Pomponazzi in *De incantationibus* was reiterated in Books I and II of his *De fato* (Pomponazzi [1.113], in which he attempts to refute Alexander of Aphrodisias's defence of contingency.
117 Pomponazzi [1.111], 315; see also Pine [1.129], 256–8; Kristeller in Olivieri [1. 15], vol. 2, 1093–6.
118 De Bellis [1.122]; Branca [1.60], 225.
119 Schmitt [1.134]; Kraye [1.124]; Cranz [1.120]; Nardi [1.14], 365–442; Mahoney [1. 126]; Schmitt [1.135].
120 Cranz [1.121].
121 Aristotle [1.106], vol. 1, A A II 2^{v}–3^{r}; see also Schmitt [1.132]; Minio-Paluello [1. 67], 498–500.
122 Zabarella [1.117], 178–9 (*De methodis* III.18); see also Gilbert [1.7], ch. 7; Poppi [1.130], ch. 6.
123 Zabarella [1.117], 180–1 (*De methodis* III. 19); see also Schmitt and Skinner [1. 17], 689–93.
124 Zabarella [1.118], 69, 541–56, 1056, 1067, 1069; see also Schmitt [1.131]; Poppi [1.130], ch. 7.
125 Cesalpino [1.108]; his treatise on minerals and metals, *De metallicis* (1596), also makes use of observational material.
126 Zabarella [1.118], 1004 (*De speciebus intelligibilibus* 8); see also Schmitt and Skinner [1.17], 530–4.
127 Cremonini [1.109], † 3^{r}; see also Schmitt [1.133], 15; Schmitt [1.16], 101–12, 33, 138; *Dizionario* [1.4], vol. 30, 618–22.
128 Another late Aristotelian, Francesco Buonamici (1533–1603), one of Galileo's teachers at the University of Pisa, was equally insistent on the separation of philosophy and religion: Buonamici [1.107], 810; see also Helbing [1.123], 65.
129 Viviani [1.116], 610; see also Schmitt [1.133], 14; Kessler in Henry and Hutton [1. 9], 137–4, esp. 141; Lohr [1.125], 99.
130 Valla [1.159], vol. 1, 1–8 (I, proemium), 128–9 (I.16), 148 (I.17), 175–6 (II, proemium), 277–8 (III, proemium); see also Camporeale [1.171]; Seigel [1.18], ch. 5; Vasoli [1.19], 28–77; Monfasani [1.185], 181–5; Copenhaver and Schmitt [1.2],

209–27; Kristeller [1.11], ch. 2. For Valla's critique of Aristotelian moral philosophy see Schmitt and Skinner [1.17], 335, 340–1.

131 His *Repastinatio* had only limited manuscript diffusion and was not printed until 1496–1500.

132 Nizolio [1.146], vol. 1, 21–31 (I.1), 34–5 (I.2), vol. 2, 52, 62 (III.5), 92 (III.8), 140 (IV.2); see also Monfasani [1.185], 192; Vasoli [1.19], 606–13.

133 Nizolio [1.146], vol. 1, 29 (I.1), 52 (I.4), 59–68 (I.6), 89–96 (I.8), 112 (I.10); see also Rossi [1.192]; Wesseler [1.202].

134 Leibniz [1.144], 398–476.

135 Leibniz [1.144], 429–30; Nizolio [1.146], vol. 2, 165–77 (IV.6).

136 Pico [1.151], 1011–1264 (IV–VI); see also Schmitt [1.194]; Siraisi in Henry and Hutton [1.9], 214–29, esp. 217–21.

137 Pico [1.151], 853 (II.20), 913 (II.37), 1007 (III.14), 1029 (IV.3); see also Popkin [1.189], ch. 11.

138 Pico [1.151], 738 (I.2), 1026 (IV.2); see also Schmitt [1.194], 47–8, 62.

139 Pico [1.155], 385–441 *(De ente),* trans. in Pico [1.165], 24–5, 37–62; see also p. 35 above. For his announcement of the project in 1486 see Pico [1.154], 54: 'There is no natural or divine enquiry in which Aristotle and Plato, for all their apparent verbal disagreement, do not in reality agree.' For an earlier attempt to establish a concord of Plato and Aristotle see Bessarion in Mohler [1.102], vol. 2, 411–13 (III.28).

140 Pico [1.154], 34–5 (for his Averroist theses), 54 (for the concord of Thomas and Duns Scotus); Pico [1.155], 144–6 *(Oratio);* see also Nardi [1.14], 127–46.

141 Pico [1.155], 167–383 *(Heptaplus),* trans. in Pico [1.165], 65–174; see also Wirszubski [1.204].

142 See his letter to Aldus Manutius (11 February 1490) in Pico [1.152], 359: 'Philosophy seeks the truth, theology finds it and religion possesses it'.

143 See, for example, Pico [1.154], 83–90, where he puts forward Cabbalistic theses that 'confirm Christianity'; see also Pico [1.155], 160–1 *(Oratio),* 246–8 (*Heptaplus,* III, proemium); Pico [1.152], 124 *(Apologia)*.

144 Pico [1.155], 466–7 (*Commente* 1.5); he also pointed out important differences between the Christian and Platonic accounts of the angelic intelligence and criticized Ficino for attributing to the Platonists the Christian doctrine of God's direct creation of individual souls: ibid., 464–6 (I.3–4).

145 On the ancient theology see p. 36. Pico shared Ficino's interests: see Pico [1.154], 41–50, for theses taken from Neoplatonists and ancient theologians.

146 Roulier [1.193], ch. 2; Valcke [1.197]; Garin [1.175], 73–89; Kristeller [1.182]; Schmitt [1.195], 511–13.

147 Pico [1.153], vol. 1, 126–37 (II.5), vol. 2, 474 (XI.2). Like Vernia, with whom he studied in Padua 1480–2, Pico brought Alexander of Aphrodisias into his Christian synthesis by denying his mortalist view of the soul: Pico [1.154], 40; see also Di Napoli [1.3], 172; Nardi [1.14], 369; on Vernia, see p. 25.

148 Giorgi [1.143], esp. D ii^{r}–E vi^{v} (I.ii.1–13); see also Schmitt [1.195], 513–14.

149 For his anti-Aristotelianism see Giorgi [1.143], B vii^{v}–viii^{r} (I.i.13), c vii^{v} (III.ii.7); see also Vasoli [1.198]; Vasoli [1.20], 233–56.

150 Giorgi [1.143], D vi^{v}–vii^{r}, for a list of Cabbalistic books (not necessarily read) which he compiled; and A vii^{r} (I.i.5) for a parallel between Cabbala and Aristotle's ten categories; see also Wirszubski [1.203].

151 During the late 1520s, Steuco was in charge of the library of Cardinal Domenico Grimani, who had purchased Pico's books: see Kibre [1.178], 18–20; Crociata [1.172], 16–17.

152 Steuco [1.156], 1–122 (I–II), 279–411 (VII), 490–560 (IX); see also Schmitt [1.195], 515–24.

153 Steuco [1.156], 166–207 (IV), 364 (VII.15), 537 (IX.22); like Vernia and Pico, Steuco believed that Alexander of Aphrodisias, as well as Aristotle, supported the immortality of the soul; see also Kraye [1.181], 344–5.

154 Steuco [1.156], 539–43 (IX.25); see also Vasoli [1.200]; Muccillo [1.187]; Crociata [1.172], ch. 1.

155 Ficino [1.173], trans. in Ficino [1.85]; see also Nelson [1.188]; Kristeller [1.12], 59, 61–2.

156 Diacceto [1.139]; Diacceto [1.141]; see also Kristeller [1.10], vol. 1, ch. 15.

157 Diacceto [1.140], 19, 216, 246, 263, 345; he defended Ficino and the Neoplatonists against Pico by arguing, on the basis of the *Parmenides,* that the One is superior to being: ibid., 14; see also p. 35.

158 According to Francesco de' Vieri, one of the holders of the chair, his philosophical colleagues objected to Plato being taught in universities because of the lack of order and method in the Dialogues and their use of probable, rather than demonstrative, arguments: Vieri [1.160], 97; see also Kristeller [1.10], vol. 1, 292.

159 See his autobiographical letter of 1597: Patrizi [1.150], 47; see also Muccillo in Garfagnini [1.93], vol. 2, 615–79. The only subject on which he departed from Ficino was love, all manifestations of which, even that between man and God, he believed to be motivated by self-interest: Patrizi [1.149]; see also Vasoli [1.201]; Antonaci [1.167]; Kristeller [1.11], ch. 7; Copenhaver and Schmitt [1.2], ch. 3.4.

160 Patrizi [1.147]; see also Muccillo [1.186].

161 Patrizi [1.148], a 2^{r}–3^{v}.

162 Purnell [1.190]; Vasoli [1.199]; Muccillo in Garfagnini [1.93], vol. 2, 636, 650, 660, 665.

163 Like Steuco, he regarded *De mundo* as authentic (Patrizi [1.147], 44^{r}–45^{v}) but he did not place it on the exalted level of the *Theology*.

164 See the appendix to Patrizi [1.148] for his editions of the *Theology,* the Hermetic corpus and *Chaldaean Oracles* (attributed, by Gemistos Plethon, to Zoroaster). Patrizi also had high regard for Proclus's *Elements of Theology,* which he translated, together with the *Elements of Physics,* in 1583.

165 Kraye [1.180], 270–3, 282–4; Vasoli [1.198], 229 n. 249. Steuco's *Cosmopoeia,* a commentary on Genesis, was also placed on the Index, though for different reasons: Muccillo [1.187], 51 n. 21, 59 n. 37.

166 Patrizi [1.148], 1^{r}–3^{r} (*Panaugia* I), 74^{r}–79^{v} (*Pancosmia* IV–VI); see also Brickmann [1.170].

167 Telesio [1.157]. For Patrizi's constructive criticisms of Telesio's work, see Fiorentino [1.174], vol. 2, 375–91; for Telesio's reply, see Telesio [1.158], 453–95; see also Kristeller [1.11], ch. 6; Copenhaver and Schmitt [1.2], ch. 5.3.

168 Bacon referred to Telesio as 'the first of the moderns', but criticized him because, like his Peripatetic opponents, he devised theories before having recourse to experimentation: Bacon [1.136], 107, 114; see also Giachetti Assenza [1.176].

169 Telesio [1.157], vol. 1, 188–97 (I.25).

170 Patrizi [1.148], 61^{r}–73^{v} (*Pancosmia* I–III).

171 Gassendi [1.142], 246 (I.iii.3); see also Henry [1.177], 566–8.
172 Patrizi [1.148], 63^{v}–64^{r} (*Pancosmia* I); see also Henry [1.177], 564–5; Brickmann [1.170], 62.
173 Bruno [1.137], vol. 1.1, 191–398 *(De immense et innumerabilibus);* Bruno [1.138], 343–537 *(De l'infinito, universe e mondi),* trans. in Bruno [1.163]; see also Michel [1.184], chs 6 and 8; Koyré [1.179], 39–55; Kristeller [1.11], ch. 8; Copenhaver and Schmitt [1.2], ch. 5.2.
174 See, for example, his criticism of Copernicus for being 'more interested in mathematics than in nature': Bruno [1.138], 28 *(La cena de le ceneri);* Bruno [1. 137], 380–9 (*De immenso* III.9).
175 Bruno [1.138], 260–1 *(De la causa, principio e uno).*
176 See Lucretius, *De rerum natura* II.1048–89, and Nicholas of Cusa [1.145], 57–75 (II.1–4), for discussions of the infinite universe and plurality of worlds. For the influence of Plotinus on Bruno see Kristeller [1.11], 131, 135; his most Neoplatonic work, *De gli eroici furori* (Bruno [1.138], 925–1178, trans. in Bruno [1.161], transforms Platonic love into a heroic but doomed struggle to comprehend God's infinity.
177 Bruno [1.138], 225–53 (*De la causa* II), trans. in Bruno [1.164], 108–23; see also Blum [1.169], ch. 3; Deregibus [1.173]; Kristeller [1.183], 4.
178 See the trial document published in Spampanato [1.196], 708.
179 See, for example, Bruno [1.138], 547–831 *(Spaccio de la bestia trionfante),* trans. in Bruno [1.162]; see also Badaloni [1.168].
180 For a summary of the charges against Bruno see *Dizionario* [1.4], vol. 14, 663–4.
181 Ricci [1.191].

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CHAPTER 2
Renaissance philosophy outside Italy

Stuart Brown

Italy might justly be described as the home of Renaissance philosophy. Many of the important cultural developments of the period originated in Italy and only gradually spread north and west to other countries. But each of the other major centres[1] of West European cultural activity —the German States, France, the Iberian Peninsula, England and the Low Countries—provided a distinct context for philosophical activity. Their very different political and religious histories had a more or less direct effect on the kind of philosophy that flourished in each country or region. Each, in its own way, added to what it inherited from Italy and developed what it received from elsewhere in Europe. In different ways and to varying extents, they prepared for or anticipated the transition to modern philosophy. In one way or another, Renaissance philosophy and philosophies continued to develop and flourish somewhere in Europe throughout the seventeenth century. They provided an often neglected part of the context for modern philosophy, both in some ways being continuous with it and in other ways shaping some of the responses to it. There are a number of philosophers, indeed, such as Gassendi and Leibniz,[2] who can fruitfully be represented as Renaissance as well as early modern philosophers.

A distinguishing mark of Renaissance philosophers was their deference to the thought of the ancients. Their arguments often consisted in citing the support of some ancient authority or the consensus of a number of ancient authorities for the view they wished to advance. The tendency of modern philosophers, by contrast, was to rely on appeals to reason and experience rather than on citing authorities to advance their arguments. Some, of course, did both and the decision whether to call them modern or Renaissance philosophers might depend on whether their arguments turned more on one kind of appeal than the other.

Renaissance philosophy needs also to be distinguished from the earlier style of scholastic philosophy. And Renaissance philosophy, at least originally, was in part a reaction against the philosophy of the academic and ecclesiastical world. A reliance on authority was also a feature of scholastic philosophy, though it is in some ways more difficult to locate. The scholastics relied on a tradition of interpreting Aristotle in which appeals to reason, tradition and the word of ‘the

philosopher' were confused. Some Renaissance philosophers turned their backs on the Aristotelian tradition and, as we shall see, all the ancient philosophical systems were revived at one time or another during the Renaissance. But, quite characteristically, Renaissance philosophers had a high regard for Aristotle and accused the scholastics of perverting Aristotle's meaning.[3]

Nor did scholastic philosophy remain the same in the Renaissance period. On the contrary, the criticisms from the humanists were often taken to heart and new developments outside were often reflected in changes within the scholastic tradition. Thus the Renaissance did not merely bring back neglected traditions of philosophy but also revitalized the scholastic tradition itself.

It is convenient for the historian of philosophy to label periods by the style of philosophy that predominates or is most significantly new in them. Any period of philosophy, however, is always a period of transition and includes both individuals and movements that are difficult to place. Such qualifications are particularly needed when writing about the significant movements in European philosophy over a period of two centuries or more. For while the sixteenth is the main century for Renaissance philosophy outside Italy, we need to acknowledge some figures who flourished earlier. We also need to recognize its continuing vitality well into the period of modern philosophy and even in the eighteenth century.[4]

For ease of exposition the leading philosophical figures will be grouped under distinct strands within Renaissance philosophy. The strands are often interwoven, however, and, whilst some individuals belong straightforwardly within one strand, other more complex philosophers can be related to two or more. There are even those, such as Nicholas of Cusa, who should arguably be assigned to the late medieval period and others, such as Agrippa, whom some would represent as early modern philosophers. The value of such debates lies less perhaps in the prospect of their receiving a definitive resolution than in the light thrown on the individual philosophers discussed by the possibility of seeing them from quite different perspectives.

CUSANUS (NICHOLAS OF CUSA) AND RELIGIOUS NEOPLATONISM

Nicholas Kryfts or Krebs was born (in 1401) in the German town of Kues or Cusa, hence his Latin name of Cusanus. He became a priest and eventually a bishop, playing an important role in the debates concerning the authority of the Pope and the Church Councils and in negotiations towards a reunion of the communions of Rome and Constantinople. He wrote many theological works and, by the time he died in Italy in 1464, he was a cardinal. His philosophical writings reflect his concern with the nature and knowledge of God. But he was a man of great learning who wrote treatises on science and mathematics. He was influenced by the Italian humanists, learning Greek and amassing a considerable

library of manuscripts. Together with his younger contemporary, Ficino, he played an important part in the Renaissance revival of Platonism.

Cusanus and his contemporaries did not make the distinction now recognized between Plato and the school of Neoplatonism begun by Plotinus. By the end of the seventeenth century Leibniz had begun to make distinctions between the true Plato and the distortions of and accretions to his thought to be found in the writings of his successors.[5] But such distinctions were not made by the religious Neoplatonists of the Renaissance. They inherited a tradition in which Plato had been presented in a Christianized form. Important as a background source for Cusanus are the writings of Pseudo-Dionysius—the writings falsely attributed to St Paul's first Athenian convert Dionysius the Areopagite. These writings had influenced Meister Eckhart (*c.* 1260–1327) and the medieval Rhineland school of mysticism to which Cusanus was indebted. He was also indebted to Proclus and commissioned a translation of his *Platonic Theology*.

Typically of the religious Neoplatonists Cusanus took God's creation of the world to imply that the world reflected God's infinite nature. The world, for him, is a 'contraction' of God and each finite thing is in turn a 'contraction' of the larger universe. It follows that all things, including contradictory opposites, coincide in a harmonious unity. If that is so then the principle of contradiction is not a necessary condition of truth and human reason is not equal to grasping the true nature of the world. Cusanus accordingly taught what he called 'learned ignorance', partly in opposition to the Aristotelians and their insistence on the principle of contradiction. He also taught the 'negative theology' of Pseudo-Dionysius, that God transcends all positive knowledge we can have of Him.

Cusanus's Platonic tendency to mysticism and scepticism in religious matters did not prevent him from having definite opinions in cosmology. If, for example, the universe is a mirror of God then it should, he thought, be conceived as having no determined boundary. The view that everything in the universe is a microcosm of the whole also committed him to rejecting the Aristotelian orthodoxy that the heavenly bodies were made of a different substance from the earth. Cusanus departed in these and in a number of other respects from the established cosmology of Ptolemy and Aristotle.

The case of Cusanus illustrates how Neoplatonism helped to liberate some from the (as it happens, false) assumptions of Aristotelian science and thus contributed to the development of what, with the benefit of hindsight, we would judge to be a truer view of the world. The influence of Neoplatonism on how people thought about the world was not, however, invariably helpful in this way. The view that man is a microcosm of the universe (the macrocosm) played a central part in the thought of Paracelsus and the very influential tradition of occult philosophy during the Renaissance. That view, to which we shall return,[6] led to a number of false beliefs, for instance about what in nature could be used to cure what diseases in humankind.

Cusanus was himself part of a tradition of philosophy in Germany which was to continue throughout the Renaissance period and beyond. That, no doubt, is

why he appears to anticipate later German philosophy as much as he does. Cusanus held, for instance, a number of characteristically Leibnizian doctrines such as that each thing in the world is a reflection not only of God but of all other things.[7] Moreover, his doctrine of the coincidence of opposites in God seems like Schelling's theory of the Absolute as the point at which all contrasts and distinctions disappear. But Cusanus, though perhaps the major Renaissance Neoplatonist outside Italy, was neither the first nor the last in the German tradition of Neoplatonism and religious mysticism. Nor were these doctrines peculiar to him. The thought that God's nature is reflected in every created thing is a natural consequence of the characteristically Neoplatonist doctrine of emanation, according to which the world comes about by a kind of overflowing of the divinity. Nor was Cusanus the only German philosopher of the period to hold that in God all contrasts and differences disappear.

One philosopher in the German tradition to hold both of these views was Jakob Boehme (1575–1624), a self-educated artisan. Boehme's ideas were the result of much reading and reflect the work of the occult philosopher and doctor Paracelsus (see pp. 77–8) as well as the mystic Valentin Weigel (1493–1541). But he included highly idiosyncratic elements of his own. For instance he identified God the Father with the Will, the Son with the Heart and the Holy Spirit with the 'moving life' that emanated from these, giving rise to the spiritual world. In Boehme, as in other Neoplatonists, the material world results by a process of degeneration. His stress on religious intuition put him outside philosophy, as it put him outside religious orthodoxy. He was immensely influential, however, not only in his own time (some of his followers formed themselves into a religious sect) but also, much later, when his work was rediscovered by German Romantics such as Schelling.

Another strand of religious Neoplatonism that became assimilated into the German tradition was that of the Christian Cabbala. 'Cabbala' is a Hebrew word (variously transliterated) which means 'tradition' and became attached to an occult tradition for interpreting the Bible which legend had it Moses passed down through a succession of Jewish leaders. Some of the earlier Italian Renaissance philosophers, such as Giovanni Pico della Mirandola and Francesco Giorgi, had taken a Christian interest in the Cabbala.[8] This interest was pursued in Germany by the humanist Johannes Reuchlin (1455–1522)[9] and culminated in the late seventeenth century in a project to put together in Latin translation the Hebrew writings known as the Zohar with other expository material. This project involved the collaboration of two older contemporaries and friends of Leibniz, Christian Knorr von Rosenroth (1636–89) and Francis Mercury van Helmont (1618–99). Knorr was responsible for the main work of editing and seeing through the publication of *Kabbala Denudata* (1677–84). But amongst van Helmont's contributions was a short *Cabbalistical Dialogue* in which he sought to expound Cabbalism and defend it from some of the criticisms levelled against it by one of its former admirers, the distinguished Cambridge Platonist Henry More (1614–87).[10]

Van Helmont's exposition of Cabbalism gives central place to a recognizably Neoplatonic paradox: how could the base material world have resulted from a God who is pure Spirit? How, to put it in what for a Neoplatonist is just another way, can what is passive and inert be caused by a being whose nature contains nothing of that kind but who is 'pure activity'? Van Helmont's resolution of the paradox is through a theory that, in the first place, is a theory of emanation, according to which God immediately produces from Himself things of a purely spiritual nature. These spirits do, however, degenerate and become dull, clinging together to form matter. The individual spirit, in this reduced state, is 'now a natural *Monade* or *single Being,* and a very *Atome*'.[11] In common with the other Neoplatonists of the late seventeenth century—Leibniz, arguably, included—van Helmont produced a monadology that sought to combine a Neoplatonic metaphysics with contemporary scientific speculation about the nature of matter.

Religious Neoplatonism had some influence in the Iberian Peninsula in the early sixteenth century, for instance on the thought of the Portuguese Jewish philosopher Leon Hebreo (or Abarbanel) (*c.* 1460– *c.* 1523), who wrote a dialogue on love. In France the common Neoplatonic view of Plato's writing as *prisca theologia,* as part of a wisdom shared by Moses and other ancient writers, was taken up by Symphorien Champier and the brothers de la Boderie in the mid-sixteenth century.[12] But Platonism's reputation for containing the seeds of many heresies was not forgotten. And in the reaffirmation of orthodoxy during the Catholic reformation and after the Council of Trent (1545–63) Aristotle was encouraged and Platonism actively discouraged.[13] None the less religious Neoplatonism continued to be influential, at least in liberal Protestant circles in Germany and Britain, right into the eighteenth century.[14]

ERASMUS AND CHRISTIAN HUMANISM

Christian humanism was not so much a philosophical system but a set of attitudes which could be held by people who were sympathetic to any or none of the philosophies of the ancient world. The Christian humanists characteristically opposed metaphysical dogma with a sceptical outlook, preferring to rely on faith than to defend the Christian religion by scholastic proofs, and they stressed a simple undogmatic Christianity rather than doctrinal correctness.[15] They also gave a place to ordinary human pleasures in opposition to the monastic virtues and helped to prepare the way for a revival of Epicureanism.[16] The humanists were very influential in opposing the then academic (scholastic) philosophy and theology during the Renaissance period. They were inclined to defend certain philosophical positions, such as belief in free will, but to do so in a non-theoretical way. Humanism was characteristically a lay movement and naturally encouraged a tendency to address more applied and topical questions.

The doyen of Christian humanism was undoubtedly the great Dutch scholar Desiderius Erasmus (1466–1536). He was a pioneer in applying the critical methods of the humanists to the text of the Bible as well as in advocating its

translation into the languages of the people. Erasmus wrote a sceptical work *(In Praise of Folly)* which, if not itself rigorously philosophical, helped to establish the role of Christian sceptic that others adopted in the late sixteenth and the seventeenth century. Like Martin Luther (1483–1546), Erasmus was hostile to scholasticism. More tolerant and less dogmatic than Luther and not in the least schismatic, he remained a moderate and conservative but liberal and sceptical Catholic to the end of his life. The two men engaged in a debate about free will, Luther denying that men were able to achieve salvation of their own accord. Erasmus for his part defended the availability of divine grace and human freedom to accept or refuse it.[17]

Amongst the Christian humanists in England, also distinguished followers of Erasmus, were Thomas More (1478–1535) and John Colet (*c.* 1467–1519). More's *Utopia* shows some debt to Plato's *Republic,* for instance in its communistic rather than individualistic ideal of human living. Yet his utopians are given to a life of pleasure and the work is Epicurean rather than Stoic or Platonic in its view of the highest good. At the same time the higher pleasures of reading literature are important to them. More's work had a considerable influence on English literature, for instance on Bacon's *New Atlantis*. Colet was an educational reformer who was strongly influenced by the Italian Neoplatonist Ficino.[18]

Erasmus also enjoyed a very considerable following in Spain where the *erasmitas* were influential both at court and in the universities until the mid-sixteenth century. One of the most outstanding Spanish Christian humanists was Juan Luis Vives (1492–1540). Vives was a keen opponent of Aristotelianism and was sceptical about the attainment of knowledge as understood in Aristotelian terms. His thought anticipates the 'mitigated scepticism' of many of the early modern philosophers. He advocated a form of inductive method and a more limited view of what could be achieved in science.[19] His views influenced another sceptical Spanish philosopher, Sanches. Vives was not only a theoretician but also a social reformer who criticized the Church for failing to do enough for the poor and who advocated a system of poor relief.

After the Council of Trent and the revival of orthodox belief and piety in Catholic Spain, the *erasmitas* lost their positions of importance. But their influence was strongly felt in the writings of the new scholastics who emerged in their place. The new scholastics adopted a less formal style of writing than in earlier scholasticism and often their philosophical writings were reflections on problems of practical life. The humanist concern with practical problems was shared by many of the Spanish Jesuits, notwithstanding their commitment to doctrinal orthodoxy and their involvement in doctrinal controversies.

This concern was shown by Juan de Mariana (1536–1624), who risked trouble with his Order and with the Spanish authorities through his pronouncements on the problem of poverty. Mariana also created trouble for himself by a book he wrote that offered guidance on the rights and duties of kings.[20] This book became notorious by appearing to sanction regicide in certain circumstances. Its

author went so far as to refer to the assassin of Henry III as 'the eternal glory of France', words which his Order required him to delete from later editions. Such lapses of discretion were perhaps a hazard for a work which adopted the relaxed and personal style of the humanists and which developed its arguments through discussions of particular cases. At the same time Mariana wrote within the intellectual framework for discussing political philosophy provided by Aristotle and Aquinas. His book was thus very traditional and very topical and provocative at the same time. When Henry IV was also assassinated part of the blame fell on Mariana's book, copies of which were publicly burned in Paris. He himself spent some time in prison, but no charges were brought against him in Spain.

It is not certain how much Mariana would have acknowledged a humanist influence on his practical concerns and on his style of writing. But one figure who represented himself as a Christian humanist and who sought the support of Erasmus was the German "occult philosopher' Heinrich Cornelius Agrippa von Nettesheim (1486–1535). Agrippa wrote a highly iconoclastic book to expose the 'uncertainty' and 'vanity' of the arts and sciences. He wrote the book, as he explained in the preface he wrote for the reader, 'because I see that so many men, puffed up with human knowledge and learning, not only condemn and despise the words of the Sacred Scriptures, but also prosecute and deride it with the same contempt…'. To the extent that he sought to encourage scepticism about human learning and institutions and a return to a simple biblical Christianity, Agrippa was similar to Erasmus. But he was more radical though perhaps even less consistently sceptical. He sought to demolish the edifice of received wisdom in order to remove the barriers to the discovery of truth that were placed in people's way by deference to established authorities. Thus he could exclaim: 'how impious a piece of tyranny it is, to capture the minds of students for prefixed authors, and to deprive them of the liberty of searching after and following the truth….'[21] This suggests that Agrippa was by no means content to accept an Erasmian fideism. On the contrary, he seems to have believed that there was a method of attaining truth that was not vulnerable to the sceptic's attack.[22] He remained a Catholic but he was by no means disposed to accept the authority of the Church. Erasmus, by contrast, whilst acknowledging the fallibility and imperfection of the Church and its institutions, taught that in matters of faith they provided the best guide available.

PARACELSUS AND THE TRADITION OF OCCULT PHILOSOPHY

It is perhaps artificial to distinguish religious Neoplatonism from its manifestations in what has become known as 'occult philosophy'. The former is concerned with the relation of humankind to God and only in a metaphysical way with the material world. The latter is more concerned with the relation of humankind to the world and with possible ways of manipulating the world for

human benefit. There is no reason why these concerns should not be shared by the same people, as to some extent they were. They might, moreover, be given almost equal emphasis, as they were in the case of the Christian Cabbalist F. M.van Helmont, who in his own day was celebrated throughout much of Europe as a physician whose alternative medicine brought some spectacular cures where other doctors had failed. None the less there is some justification for the distinction between religious Neoplatonism and the occult philosophy. If the theoretical claims of the former brought charges of heresy, the practical bent of the occult philosophers led them to attach importance to experience.

One of the most influential figures in the Renaissance tradition of occult philosophy was Theophrastus Bombastus von Hohenheim (*c.* 1493–1541), who styled himself and is generally known as Paracelsus. Paracelsus was a self-taught Swiss physician who, like Agrippa and perhaps partly under his influence, set himself against all established scientific authority. 'My proofs', he insisted, 'derive from experience and my own reasoning, and not from reference to authorities.'[23] In some ways Paracelsus and Agrippa belong in the modern period. But their empiricism was unrigorous and their rejection of past assumptions and traditional authorities was not thoroughgoing. Both accepted the Neoplatonic view of humankind as a microcosm of the universe. Paracelsus based his medicine on this assumption. There are, for him, all sorts of correspondences between what we discover in man and what we discover in nature. These correspondences are evidence of hidden causal relations which the occult philosopher can learn to trigger and so manipulate the course of nature in a magical way. The discovery of such correspondences is a matter of what Agrippa termed 'long experience'. But the occult philosophers lacked a rigorous methodology for identifying them reliably. The kidney bean may look like a kidney but, contrary to what Paracelsians supposed, such beans have no special powers to cure kidney disorders.

Paracelsus, like other practitioners of an alternative medicine, had an erratic career as a physician, but he was credited with some spectacular cures. He did introduce some specific treatments of value, such as the use of laudanum as a pain-killer. Moreover some of his ideas would have been of great benefit had they been adopted. On his account all disease is natural and this led him to reject the view that mental disorders are due to inhabitation by demons. At the same time he was overly optimistic in his belief that nature had a cure for every disease.

Amongst the Paracelsians were some, including Boehme and the younger van Helmont, who have here been categorized as religious Neoplatonists. Mention should be made, however, of John Baptiste van Helmont (1577–1644)—who, though less of a philosopher than his son, is an important figure in the history of chemistry and is credited with the discovery of gases.[24] The Paracelsians were influential through much of the seventeenth century, when they were represented in England by Robert Fludd (1574–1637) and others.[25] But they and many of the religious Neoplatonists were opposed by, and some later opposed themselves to,

the mechanical philosophy. Gassendi wrote a book attacking Fludd, and the moderns, especially the rationalists, tended to dismiss the occult philosophers and Neoplatonists generally precisely because they rejected such 'hidden' or unintelligible factors in the explanations for phenomena.[26]

ARISTOTELIANISM AND ITS OPPONENTS

During the medieval period, Aristotle's authority was undisputed and he was usually referred to simply as 'the philosopher'. But, though Aristotle remained by far the single most important philosopher during the Renaissance, this monopoly came to an end. Some of the Italian Renaissance humanists like Lorenzo Valla (see Chapter 1) associated Aristotle with the scholasticism they rejected. Others, however, such as Ermolao Barbaro (1454–93), sought to revive what they regarded as the true Aristotle, studied in the Greek, as against the distorted Aristotelian doctrines taught by the scholastics. Some, like Ficino, turned to other traditions, particularly the Platonic. Others, like Giovanni Pico della Mirandola, sought to reconcile Aristotle with those other traditions. These were just some of the responses available also to those outside Italy.

Martin Luther seems to have taken the extreme view of Valla and largely opposed himself to all philosophy, taking the view that Christianity had been corrupted by the Greek philosophical influence. Such a view could hardly be sustained in the long run in view of the central role that philosophy played both in the articulation of theological doctrine and in the educational curriculum. Not surprisingly, therefore, one of Luther's closest associates, Philipp Melanchthon (1497–1560), went back to an eclectic Aristotelianism. Melanchthon played a key role in the consolidation of Lutheranism in Germany, partly through his published works such as the *Loci communes*. Though this was a basically theological work, Melanchthon adopted a broadly Aristotelian framework. At the same time he was willing to interpret Aristotle in a modern way (for instance, as a nominalist) and, where the defence of religion might be advantaged by it, he did not refrain from incorporating notions that are quite foreign to Aristotelianism, such as the doctrine of innate principles.

Within the German university context a kind of Renaissance Aristotelianism became possible which embraced the humanist critique of the scholastics but insisted that they had distorted Aristotle's meaning. This had been the position of the so-called 'father of German humanism', Roelof Huysman (1444–85), known by his Latin name of Rodolphus Agricola. It was to become a common humanist position—one held, for instance, by the French humanist Jacques Lefèvre d'Étaples (*c.* 1460–1536), who sought to reform Aristotelianism via more accurate texts.[27]

The thought that the scholastics had debased Aristotle and departed from his true teachings invited, within the Protestant context, a comparison with the religious Reformation and its return to the correct text and true teachings of the Bible. There could be reformers *(reformatores)* in philosophy who would call for

a return to the true Aristotle—the thought being that Aristotle was right after all and not to be condemned on account of the errors and obscurities of the scholastics.[28] In reality, however, the distinction between such a pure Aristotelianism and scholasticism was virtually impossible to sustain. In the short run, at least, the tacit and unthinking influence of traditional interpretations of Aristotle, like traditional interpretations of the Bible, was likely to be greater than new interpretations based on a humanist treatment of the Greek texts. Moreover the virtual equivalence of Aristotelianism with rationality disposed many to credit Aristotle with any view that had the authority of reason. Aristotelian and scholastic philosophy were inevitably confused and the assignation of individuals to one category rather than another is often highly problematic. Some of the new scholastics (see pp. 81–3) seem to have played an important part in ensuring that Aristotle's texts continued to receive attention. Indeed it is a remarkable fact that the publication of Aristotle's texts reached a high point in the mid-sixteenth century when the Catholic Reformation was at its peak.[29] The return to Aristotle in philosophy may have seemed like a return to good order in intellectual life. That, at any rate, seems to have been the thinking of Ignatius of Loyola, whose quasi-military teaching order, the Society of Jesus (founded in 1534), was committed to the restoration of papal authority, to Aquinas in theology and to Aristotle in philosophy.

If it is difficult to treat scholastics and Aristotelians as a separate class, there is no difficulty about separating the anti-Aristotelians from either of them. One of the most prominent and influential opponents of Aristotle was the French convert to Calvinism, Pierre de la Ramée (1515–72), usually known by his Latin name of Ramus. Ramus's criticisms fastened on the artificiality of Aristotelian logic which, in common with other humanists, he claimed was useless for discovering new truth. What was needed was a 'natural logic' that reflected human thought processes. What was needed was an art of discovery and an art of judgement. Ramus's writings were much more influential than they were original. In particular they helped to focus the preoccupation with method characteristic of such early modern philosophers as Descartes and Leibniz.[30]

SUAREZ AND THE NEW SCHOLASTICISM

I suggested in discussing Christian humanism (pp. 75–7) that part of what was new about the new scholasticism of the late sixteenth century was its reflection of humanistic values. This is already evident in the writings of the Dominican Francisco de Vitoria (*c.* 1492–1546), who had been acquainted during his time in Paris with Erasmus, Vives and some of the other leading humanists. Vitoria was appointed in 1526 to the most important theological chair at Salamanca and it is partly through this appointment that he was to exercise such a formative influence on the new scholasticism that flourished in Spain in the late sixteenth century.

Vitoria is best remembered for his pioneering work in international law.[31] He gave lectures at the university on current issues and the notes of some of these were published as *relectiones* on particular topics. In his *De Indis* (1532) he considered and defended the rights of the American Indians against the Spanish colonizers. In the same year he also produced a study of the rights and wrongs of war, his *De Jure Belli,* in which he argued for proportionality in the use of force as well as for the rights of non-combatants. Although Vitoria accepted there could be a 'just war', he rejected religious grounds as a 'just cause'. Thus the Spanish had no right, on his arguments, to make war on the American Indians or to dispossess them of their property merely because they were heathens. Vitoria was arguing within a framework of natural law that derived from Aristotle and Aquinas. But his concern with applied questions, which led to his being consulted by Charles V on matters of state, shows the influence of humanism.

As well as lecturing on such topics as the just war, Vitoria also lectured on theology. Here he broke with a centuries-old tradition by lecturing on Aquinas's *Summa Theologica* instead of the *Sentences* of Peter Lombard. This had already been done by another Dominican in Italy, Thomas de Vio, commonly known as Cajetan (1468–1534). But Vitoria pioneered the change in Spain. In doing so he prepared the way for even greater changes from traditional styles of presentation. These were initiated by his pupil, Francisco Suarez (1548–1617), perhaps the most important systematic philosopher of the period.[32] The traditional scholastic mode of presentation was the commentary. Suarez's most important work, his *Disputationes metaphysicae* (1597), was the first systematic and independent treatise on metaphysics. It dealt with a wide range of topics, from the nature of metaphysics to the existence of God, from universals to our knowledge of singulars, causality, freedom, individuality and many others. Although, as a Jesuit, Suarez was committed to Aquinas in theology, he departed from St Thomas in treating philosophy as independent of theology. His Latin was easy to read by comparison with the usual run of scholastic writings. Moreover some of his thought, for instance his nominalism, already reflected a critical approach to traditional scholasticism, and some accommodation to the 'modern way' of William of Occam and his followers. These are among reasons why he may have been so influential. But the pervasive influence of Suarez on seventeenthcentury philosophy was not due entirely to the virtues of his own writings—remarkable though they were. Suarez was the major philosopher of the Society of Jesus and the Jesuits played a key role in the best educational institutions of Catholic Europe. Suarez's metaphysics also found its way into textbooks and was widely taught in Protestant universities. In these diverse ways his *Disputations* became an important part of the background to Descartes[33] in a Catholic context and to Leibniz in his Protestant German context.[34]

Suarez was also very influential as a political philosopher. The Dutch theorist Huig de Groot (1583–1645), known by his Latin name of Grotius, was indebted to Suarez and the Thomist tradition of natural law.[35] Grotius, who is regarded as the first theorist of natural rights, found in this tradition an answer to the

relativism of Montaigne. Suarez himself drew rather conservative conclusions. Although he held the view that government derives its authority from the consent of the people, Suarez held that the community corporately invested its authority in the monarch in such a way that it could not be taken back. Unlike the more radical Jesuit Mariana,[36] Suarez thought it was almost never right to kill a tyrant, unless he was threatening to destroy the community. Again Suarez distinguished the *ius gentium* from natural law by making the former depend on customary practices of states rather than on what was true for all states. Since slavery conformed to the *ius gentium,* Suarez did not condemn it.

Suarez's work had great influence within the Jesuit order. Some took to writing systematic treatises on philosophy. The Spaniard Roderigo de Arriaga (1592–1667) wrote a systematic introduction to philosophy called *Cursus philosophicus* (1632) which was widely read and cited throughout the century. Others engaged in applied philosophy. One of Suarez's pupils, the Flemish Jesuit Leonard Lessius (1554–1623) wrote a book largely devoted to what nowadays would be called 'business ethics'.[37] Lessius, who taught theology in Louvain, travelled regularly to Antwerp to learn at first hand about business practices in what was then one of Europe's major financial centres. His *De jure et justitia* drew on the thought of Aquinas but sought to answer contemporary moral problems, including the fraught problem of usury. Lessius was the first Catholic theologian to defend the view that lending money with interest was not wrong in itself.

Throughout the late Renaissance period Jesuit philosophers were to be found at the frontiers of the subject. That is not to say that they did not engage in debates relating to traditional philosophical topics. One frequent topic of Renaissance philosophy was free will, and the traditional problem of how this could be reconciled with God's foreknowledge and preordination was addressed by, amongst others, Luis de Molina (1535–1600).[38] Molina, as also Suarez, held that God knows through what he called the 'middle science' *(scientia media)* what any individual would do (freely) if given sufficient grace to do it. In extending sufficient grace and so preordaining a right action God does not detract from the freedom of the individual. Such freedom is quite consistent, Molina argued, with the fact that nothing happens but God knows it will happen and ordains that it will happen.

Others of the Society of Jesus worked and wrote commentaries on the texts of Aristotle. One who influenced Suarez himself was 'the Portuguese Aristotle', Peter da Fonseca (1528–99). Fonseca's own books—one of which went into fifty-three editions between 1564 and 1625—were by themselves highly influential in restoring Aristotelianism.[39] Moreover, as a teacher at the University of Coimbra, he was able to instigate the work of a team of Jesuit scholars to produce a set of texts and commentaries on Aristotle's major works. The Coimbra commentaries (1592–1606) were often reprinted and widely used throughout the seventeenth century.

JUSTUS LIPSIUS AND THE REVIVAL OF STOICISM

Stoicism was one of the great systems of ancient Greek philosophy and one that was adopted by some of the greatest writers of the Roman world, such as Seneca and Cicero. The Stoics believed that events in the material world were profoundly and necessarily interconnected. They believed that there was an underlying cause of these events but did not identify this first cause with a providence. Wise men do not allow themselves to be dependent on the way the world goes but seek to achieve tranquillity through recognizing the interconnection of things.

The Renaissance revival of Stoicism is due, in particular, to the Flemish humanist Joest Lips (1547–1606), usually known by his Latin name, Justus Lipsius. Lipsius's first Neostoic work was his *De constantia* (1584),[40] a dialogue set during the revolt of the Low Countries against Spanish rule. The work commends the virtue of steadfastness *(constantia)*—of being unmoved by changes in external circumstances. Lipsius's main accounts of Stoicism were his *Physiologia Stoicorum* and *Manuductio ad stoicam philosophiam,* both published in 1604. He also produced an edition of the texts of Seneca.

Stoicism was introduced into Germany by Kaspar Schoppe (1576–1649), known by his Latin name of Scioppius, and seems to have become well established in the Low Countries.[41] It was also influential in France,[42] thanks partly to Guillaume Du Vair (1556–1621). Du Vair wrote several works in French, including his *De la philosophie morale des Stoïques,* which he wrote as a preface to his French translation of Epictetus's *Enchiridion* in 1594. Like Lipsius, he advocated a Christianized Stoicism. Both were translated into English in the late sixteenth century—Du Vair's *Moral Philosophie of the Stoicks* being favoured with two translations.[43]

Stoicism was highly influential at the beginning of the seventeenth century, when it was taken to be entirely compatible with Christianity.[44] During the century, however, this compatibility came to be questioned and its influence declined.[45] Epicureanism, on the other hand, seems to have become regarded more favourably.[46] For long misrepresented and dismissed as a debased philosophy, it was revived in a Christianized form by Pierre Gassendi, who published three books on Epicurus in 1647–9. Gassendi was able to do this by presenting Epicurean atomism as a hypothesis and combining it with scepticism as to whether humans are capable of arriving at definitive knowledge of the world.[47]

Stoicism and Epicureanism, together with Platonism and Aristotelianism, comprised what were seen as the four great 'dogmatic' philosophical systems of the ancient world. As we have seen, each of them was revived and defended in the late Renaissance period. The embarrassment of choice was no doubt one factor promoting a more persistent revival, that of scepticism, which opposed itself to the claims of such dogmatic systems. Yet some, like Gassendi, found it possible in practice to combine scepticism with a suitably tempered allegiance to

any of the ancient 'schools', except Aristotelianism. Montaigne began as a Stoic before rejecting that System for the scepticism of his later period. But his associate and disciple Pierre Charron (1541–1603) combined his scepticism with a Stoic moral philosophy.[48]

MONTAIGNE AND THE REVIVAL OF ANCIENT SCEPTICISM

We have already seen that the Christian humanists, in their reaction against academic philosophy and theology, tended to adopt a highly sceptical view of human aspirations to knowledge apart from revelation. In the case of Agrippa this scepticism was argued for in a comprehensive and systematic way by a critical and highly iconoclastic treatment of the pretensions of all the known arts and sciences. Agrippa alluded to the ancient Greek sceptics but made little use of their arguments. Renaissance philosophers often argued by seeking to establish a consensus amongst ancient authorities. Agrippa turned this mode of argument on its head and sought to argue, on the contrary, that on every major point the ancient authorities contradicted one another.

During the Renaissance period some of the important sources for classical scepticism were rediscovered, including Cicero's *Academica,* Diogenes Laertius's *Life of Pyrrho* and the collected writings of Sextus Empiricus.[49] These arguments were frequently taken up in a Christian humanist way—in the first place, to discredit the claims of Aristotelian and scholastic philosophy and, more positively, to underline the 'fideist' claim that humans could not achieve knowledge by their own resources and should rely instead on faith and divine revelation. The Christian Pyrrhonist, François de La Mothe le Vayer (1588–1672), wrote as if the entire purpose of scepticism was to reduce people to a total suspense of judgement (called the *Epoché*). In that state of mind they had abandoned the arrogance of the scholastics (referred to abusively as 'the Pedants') for the humility of those able to receive the fruits of faith: 'O precious Epoché! O sure and agreeable mental retreat! O inescapable antidote against the presumption of knowledge of the Pedants!'[50]

There is little doubt that La Mothe le Vayer was sincere in his profession of a religious motivation. It was so usual, however, to plead such a motivation that it became something of a convention adopted later by many of the best-known sceptics of the modern period such as Pierre Bayle and David Hume. Just because it was a way of making scepticism publicly acceptable and a way of avoiding the charge of subversion, it was a motive that might readily be professed insincerely, either because it was not the motive at all or because it was not as important a motive as was made out. For this reason the interpretation of the writings of Renaissance sceptics such as Agrippa, Michel de Montaigne (1533–92) and Pierre Bayle (1647–1706) has been fraught with difficulty and controversy.[51]

Agrippa sought to present himself, as we have seen, as an Erasmian sceptic whose purpose was to make people turn back to a simple biblical Christianity. But, as the author of *De occulta philosophia* he was represented in the late sixteenth century as a Faust figure, who had made a pact with the devil in order to obtain a knowledge of the magical arts. This evil reputation should probably be regarded as an almost total fabrication, as a propaganda coup by the monks to whom Agrippa was so bitterly opposed. At the same time it is notable that one form of magic—a natural or empirical magic—was exempted from the otherwise complete scepticism of Agrippa's *De vanitate*. This makes him appear as a Faust figure in a more positive way, as someone who rejected established knowledge as of no value to human beings and who sought rather to unlock the secrets of nature so as to use natural powers for human benefit. But it may be wrong to expect a simple consistent interpretation of the thought of such figures as Agrippa. The existence of tensions and inconsistencies in their thought may more fruitfully be seen as a reflection of what has been identified as the deepening 'sceptical crisis'[52] of Renaissance and early modern philosophy.

Montaigne's *Apologie de Raimond Sebond* (1580) used the arguments of the ancient sceptics in order to cast doubt on the reliability of the senses, to show how human judgements are made fallible by all sorts of social and cultural factors. Montaigne advocated the Pyrrhonian suspension of judgement and urged that people should live in accordance with nature and custom. He professed Christian fideism but at least part of his purpose in using sceptical arguments seems to have been to oppose bigotry and promote greater tolerance. He seems to have been a conservative, suggesting that people, having been led to a due sense of the limitations of human faculties, should accept the guidance of established authority, be it civil or ecclesiastical.

Another direction in which scepticism might be pursued was to the conclusion that only God, strictly speaking, was capable of knowledge, if knowledge be understood in the Aristotelian sense of giving necessary reasons or causes for phenomena. Human beings could not hope to achieve such knowledge. This is the conclusion, for instance, of the arguments put forward by the Portuguese physician and philosopher Francisco Sanches (*c.* 1550–1623) in his *Quod Nihil Scitur*.[53] One corollary Sanches drew was the fideistic one, that the Christian religion cannot be defended by philosophy and depends wholly on faith. But he also, and quite consistently, proposed an experimental method that would lead to a true 'understanding of natural phenomena'. Sanches thus anticipated one kind of response to scepticism in modern philosophy (for instance in Gassendi and Locke) which was to accept the impossibility of knowledge but to seek a reliable substitute through methods which would at least give results that were highly probable.

The arguments of the sceptics provided an important part of the intellectual context in which Descartes (see Chapters 5 and 6) developed his philosophical thought. Descartes sought to meet the sceptics on their own ground. Yet it is not known that any sceptic thought he had been refuted by Descartes's arguments.

On the contrary, the sceptics, notably Simon Foucher (1644–97), were amongst his keenest critics. Foucher presented himself, in Renaissance style, as an apologist for the sceptics of the ancient Platonic Academy. His characteristic mode of attack was to identify the underlying assumptions of the metaphysical dogmatists (Descartes and Malebranche particularly) and then complain that these had not been demonstrated.[54] He did believe that certain truths (e.g. the existence of God) could be demonstrated but denied Descartes's demonstration of the existence of the material world. Foucher was an early critic of the distinction between primary and secondary qualities. He played an important role in showing how Cartesianism tended towards idealism.[55] Indirectly, through Bayle and Berkeley, Foucher's scepticism is linked with that of David Hume.[56]

CONCLUDING REMARKS

It is convenient to distinguish Renaissance from early modern philosophy. But, in some respects, modern philosophy continued tendencies that already existed beforehand. Humanism took philosophy out of the schoolroom and the cloister and made it, to a degree unprecedented in the history of Christendom, a layperson's subject. Whereas previously Latin had been the language for philosophy as for academic discourse generally, the development of printing and a wider lay readership made translation into vernacular languages an increasingly common practice. This in turn led, particularly in France, to the practice of writing philosophical works in the vernacular. Amongst late-sixteenth-century philosophers, Montaigne, Du Vair and Charron all wrote in French.

Another modern tendency already apparent in the late sixteenth century was to treat philosophy as a subject independent of theology. This showed itself even in the new scholasticism, a movement which originated amongst clergy. It is a curious feature of the Catholic reformation that it promoted a more secular view of philosophy. Grotius put it famously, if controversially, in his suggestion that the obligations of natural law hold even 'if we concede that there is no God'. In this respect his view of natural law was no different from that of the Jesuit Suarez, to whom he acknowledged a considerable debt. It seems clear that one reason why Suarez and other Jesuits gave so much time to political theory was that they wished to see a radical separation between the authority of a monarch and the authority of the Church. Whereas the authority of a monarch was secular and derived ultimately from the consent of the people, the Church and papal authority was directly ordained by God.

The respect in which Renaissance philosophy is most obviously different from that of modern philosophy is in its willingness to use arguments that rely upon appeal to traditional authorities. Renaissance philosophers believed, or affected to believe, that they were reviving the thought of the ancients. For some this meant believing in an ancient wisdom that had been lost and needed to be recovered. But ancient authorities could be found to disagree with one another.

This consideration left a choice between becoming a partisan of a particular ancient 'sect' or becoming a sceptic.

One might, of course, combine a moderate scepticism with the qualified adoption of one of the ancient systems.[57] To do this consistently, however, it would be necessary to find a basis for accepting what the ancient authors had said which did not consist simply in the fact that they had said it. To do that was to begin to be a modern philosopher. To the extent that this is what Gassendi did in his defence of Epicureanism, he is properly regarded as a modern philosopher.

Some of the early modern philosophers have, like Gassendi, a Renaissance face and indeed philosophy could still be presented in a Renaissance style right through the seventeenth and even in the eighteenth century.[58] But, if moderns could sometimes behave like Renaissance philosophers, it is also true that some Renaissance philosophers were in some respects early moderns. For instance, many of the most sceptical and iconoclastic figures, such as Agrippa, Vives, Sanches and Ramus sought independent methods of making discoveries and verifying them. Methodology was already becoming a preoccupation of late Renaissance philosophy, as it was for the early moderns. The two periods of philosophy are to that extent continuous. For this reason the sixteenth century may as aptly be represented as a period of transition as a period of revival or 'renaissance'.

NOTES

1 These countries and regions were home to most of the major Renaissance philosophers outside Italy. Mention should also be made of Switzerland, which was the native country of Paracelsus. Renaissance philosophy was not, of course, confined to these countries. But other parts of Europe are largely neglected in the literature. For accounts of humanism in Croatia, Hungary and the Czech Lands, see Rabil [2.96], Part III.

2 See, for instance, Brown [2.171], See also Heinekamp [2.176].

3 See pp. 79–81.

4 See note 14 below.

5 See note 26 below.

6 See pp. 77–9.

7 In his *Discourse on Metaphysics,* sec. IX, for instance, Leibniz put forward a number of paradoxical propositions, beliefs made more credible by his theory of substance, including that no two substances are exactly alike and that each substance is a mirror of God and of the entire universe. These doctrines are all anticipated in *De docta ignorantia,* but it is unlikely that Leibniz owed any of them directly to Cusanus. Indeed he wrote as if the first of them was a refinement by him of a doctrine of Aquinas.

8 See Chapter 1, pp. 45–6, for a more detailed account of the interest in the Cabbala in the Italian Renaissance.

9 See Reuchlin [2.56], particularly the introduction by G.Lloyd Jones.

10 Henry More is discussed in vol. 5, Chapter 1, as is another Neoplatonist, Ann Conway. For a discussion of the connection between these two philosophers, F.M.van Helmont and Leibniz, see Brown [2.170].
11 Van Helmont, [2.62], 13.
12 On the influence of Champier, see Copenhaver [2.115]. On the 'ancient theology' in sixteenth-century France, see Walker [2.108], ch. 3.
13 For the encouragement of Aristotle's philosophy, see note 29 below. The fate of Bruno discussed at the end of the previous chapter is symptomatic of the reaction against Neoplatonism in Catholic orthodoxy. For an account of the reaction against the occult philosophy, see also Yates [2.109].
14 Thus Berkeley, in his late work *Siris* (1744), sought to argue that 'the *Pythagoreans* and Platonists had a notion of the true System of the World' (sec. 266) and explicitly acknowledged key Neoplatonic figures such as Plotinus, Proclus and Iamblichus.
15 Some of those discussed as sceptics on pp. 85–7, such as Montaigne, may also be classed as Christian humanists. Erasmus, Vives and perhaps Agrippa can also be discussed under both heads.
16 See pp. 83–4. See also Allen [2.75] and Jungkuntz [2.93].
17 There is a version of this debate edited and translated by E.W.Winter as *Erasmus-Luther: Discourse on Free Will,* New York, 1961.
18 See Miles [2.137].
19 See Limbrick [2.162], 3off.
20 See Mariana [2.54]. See also Talmadge [2.148],
21 Agrippa [2.46], from the preface 'To the Reader'.
22 Agrippa also (see pp. 77 and 85–6) had positive commitments to the occult philosophy, in particular to natural magic. Whether his overall position is a consistent one has puzzled those who have studied his work. See Bowen [2. 127], Nauert [2.128] and Zambelli [2.129],
23 Quoted from Paracelsus [2.42], 55.
24 See Redgrove and Redgrove [2.166].
25 See Debus [2.111],
26 The Paracelsians invoked an 'Archeus' or 'world soul' as a kind of universal cause and the Neoplatonists generally sought to defend a vitalistic view of the world in opposition to the mechanical philosophy. Leibniz frequently criticized them for doing this (e.g. L.E.Loemker (ed.) *Gottfried Wilhelm Leibniz: Philosophical Papers and Letters* (Dordrecht, Reidel, 2nd edn, 1969), p. 409; P.Remnant and J.Bennett (eds) *G.W.Leibniz: New Essays on Human Understanding* (Cambridge, Cambridge University Press, 1981), p. 72). That is partly why he distinguished the Renaissance Neoplatonists from and contrasted them unfavourably with Plato. Thus he criticized Ficino for launching into extravagant thoughts and abandoning what was more simple and solid. 'Ficino speaks everywhere of ideas, soul of the world, mystical numbers, and similar things, instead of pursuing the exact definitions Plato tries to give of notions' (C.I. Gerhardt (ed.) *Die Philosophischen Schriften von G.W.Leibniz* (Berlin, 1875–90), vol. i, p. 380).
27 Lefèvre d'Étaples was not exclusively interested in Aristotle. He was also influenced by Neoplatonism and edited Neoplatonic works.
28 Leibniz cast himself as such a reformer of philosophy, as a reviver of the true Aristotle against the distortions of the scholastics in a letter to his former teacher,

Jacob Thomasius, in 1669. He interpreted Aristotle as a nominalist and argued that modern philosophy was consistent with Aristotle's physics. (See Loemker, op. cit., pp. 93ff.)

29 C.B.Schmitt [2.100] has cited the (probably incomplete, but none the less significant) statistical information, which shows the number of Aristotle editions dipping to fifty-one in the 1520s and rising to 219 in the 1550s. The first two sessions of the Council of Trent were held in 1545–7 and 1551–3. The conjecture that this revival of Aristotle owes a good deal to the Catholic Reformation is my own.

30 Leibniz was less dismissive of scholastic logic than was Descartes. But he contrasted the 'true logic' with 'what we have previously honoured by that name' and offered a Ramist redefinition of the subject as 'the art of using the understanding not only to judge proposed truth but also to discover hidden truth' (Loemker, op. cit., p. 463).

31 See Scott [2.167]. See also Hamilton [2.124].

32 See Mora [2.164].

33 Descartes studied at the Jesuit College of La Flêche and is reputed to have carried a copy of the *Disputations* around with him on his travels. On Descartes's debt to Suarez, see Cronin [2.173] and Wells [2.186].

34 See Lewalter [2.177] and Wundt [2.187]. Suarez's followers in Germany included Leibniz's teacher, Jacob Thomasius. Leibniz himself claimed that, as a young man, he could read Suarez like a novel. There is a direct influence of Suarezian nominalism on Leibniz's early dissertation on the principle of individuation. Though his thought developed along quite different lines, Leibniz included Suarez amongst the 'deeper scholastics' and not amongst those whom, as a modern, he frequently abused.

35 See Grotius [2.52]. See also Tuck [2.144].

36 See pp. 76–7 for a brief account of Mariana.

37 Lessius [2.27], See Chamberlain [2.146].

38 See Molina [2.33]. See also Pegis [2.151].

39 See Ferreira Gomez [2.142].

40 This work was translated into English in 1595 and has been reprinted. See Lipsius [2.53].

41 Lipsius is further discussed in connection with Spinoza in Chapter 9, pp. 316–17. See also Kristeller [2.178].

42 Chesneau [2.114] gives an account of the history of Neostoicism in early-seventeenth-century France.

43 The new Stoicism seems to have been well received in England. There were two English translations of Du Vair's treatise and one of Lipsius's *De constantia* at the end of the sixteenth century.

44 The assumption that it was an inherently Christian philosophy was not confined to lay people. One of the adherents of Stoicism in England was the Anglican Bishop, Joseph Hall.

45 Stoicism was attacked as a naturalistic and unChristian philosophy by the Jansenists, especially by Biaise Pascal. In a paper attacking the 'two sects of naturalists in fashion today', Leibniz placed Hobbes within the Epicurean tradition and Spinoza within the tradition of Stoicism. He criticized Spinoza and the Stoics for their fatalism and for seeking to make a virtue of enforced 'patience'. (See

G.W.Leibniz: Discourse on Metaphysics and Related Writings, ed. and trans. R.N.D.Martin and S.Brown (Manchester, Manchester University Press, 1988), pp. 104f.)

46 See Jungkuntz [2.93].

47 Gassendi's philosophy is discussed more fully in Chapter 7.

48 See Charron [2.16].

49 See Schmitt [2.98] and Schmitt [2.101].

50 Quoted from Popkin [2.95], 93. The original is from La Mothe le Vayer's 'Petit Traitté Sceptique sur cette façon de parler', La Mothe le Vayer [2.5], IX, 280.

51 Few modem commentators and probably few of his contemporaries have supposed that Hume's fideistic conclusion to his sceptical essay 'Of Miracles' is anything other than ironic. But many of the Renaissance sceptics seem to have been perfectly sincere in their fideism, even as late as Bayle, whom Elizabeth Labrousse [2.131] has suggested should be so interpreted.

52 The phrase is that of Richard Popkin, whose pioneering book [2.182] on the history of scepticism in the early modern period remains one of the most original and perceptive treatments of this topic.

53 This work was written in 1576 and published in 1581. It is available in a modern English translation [2.57] with a good introduction.

54 For an account of late seventeenth-century philosophy that gives some prominence to Foucher, see R.A.Watson, *The Breakdown of Cartesian Metaphysics* (Atlantic Highlands, N.J., Humanities Press, 1987).

55 Foucher seems to have been responsible for Leibniz's perception of Descartes as a Renaissance philosopher, whose most important contribution had been to restore the study of Plato and to add to it the doubts (concerning the senses) of the Platonic Academy. (See, for instance, Loemker, op. cit., p. 469.)

56 Hume's scepticism is treated in the next volume of this series, vol. 5, Chapter 6.

57 See pp. 83–4.

58 When Leibniz wrote his *Specimen of Dynamics,* he presented it as a restoration of Aristotelianism:

> Just as our age has already saved from scorn Democritus' corpuscles, Plato's ideas, and the Stoic's tranquillity in light of the most perfect
>
> interconnection of things, so now we shall make intelligible the teachings of the Peripatetics concerning forms or entelechies…
>
> (*G.W.Leibniz, Philosophical Essays,* ed. and trans. R.Ariew and D. Garber (Indianapolis, Ind., Hackett, 1989), p. 118)

Leibniz was himself in many ways a late Renaissance philosopher. But in the early 1690s he was still willing to present himself as a post-modern or néo-Renaissance philosopher, arguing in a modern way without appeals to ancient authority but none the less claiming that, properly understood, his conclusions were not really entirely novel but important confirmation of truths taught by a 'philosophy accepted for so many centuries'. Berkeley's late defence of the

Neoplatonists should perhaps also be understood as such a development. See note 14.

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CHAPTER 3
Science and mathematics from the Renaissance to Descartes

George Molland

Early in the nineteenth century John Playfair wrote for the *Encyclopaedia Britannica* a long article entitled 'Dissertation; exhibiting a General View of the Progress of Mathematics and Physical Science, since the Revival of Letters in Europe'.[1] Ever since the Renaissance's invention of its own self, there has been a persistent belief that, during a general rebirth of learning, the natural and mathematical sciences made advances that effectively eclipsed what William Whewell later called the 'Stationary Period of Science'.[2] No wonder that this myth triggered a 'revolt of the medievalists',[3] who in this century have done much to redress the balance in favour of their own period. But like all myths this one contains truth as well as falsehood, and this chapter will dwell more on the former than the latter, and so concentrate on areas of innovation. But the revolt still reminds us that innovation was not the norm: for most people (both educated and uneducated) the traditional wisdom, together with its non-trivial modifications, was a more important former of consciousness than any radical new developments, and Aristotelian natural philosophy remained firmly ensconced in the universities until well into the second half of the seventeenth century, retaining in many cases a strong vitality of its own.

Besides its bias in favour of innovation, this chapter will exhibit other, perhaps more insidious, forms of selectivity. It will neglect almost completely many important areas, especially in the life sciences, in order to give prominence both in coverage and mode of treatment to those areas that may be 'philosophically' more illuminating. (The inverted commas are intended to emphasize that, for this period, to distinguish rigidly between philosophy and science would be grossly anachronistic, and add even more to the historiographical distortion introduced by the policy of selectivity.) The chapter will comprise just three sections, dealing respectively with general ideas of advancement; a new picture of the heavens; a new mechanics embedded in a new view of nature.

TECHNOLOGY/PROGRESS/METHOD

It will be useful in the manner of Alexandre Koyré to distinguish technics from technology[4] and so allow ourselves to retain an older meaning of the English

'technology'—as 'the scientific study of the practical or industrial arts'.[5] It is now commonplace to refer to the great abundance of technical activity and of technical advances in the Latin Middle Ages, but it is more problematic how far the latter were recognized as constituting a progressive movement. Many, and particularly those emphasizing the effects of Christian doctrine and monastic discipline, have seen a conscious thrust in the direction of improvement, but the evidence is sparse, especially compared with that to be found in the Renaissance and later periods. Then, a frequently met symbolic triad to emphasize the technical superiority of the moderns over the ancients was that constituted by printing, gunpowder and the magnetic compass, although ironically all of these can in one form or another be traced back to China, in whose civilizations few symptoms of a general idea of progress have been located.[6] We should add the example of clocks. In China, and also in the Muslim countries, there had been a penchant for producing very elaborate water-driven clocks. Around 1300, mechanical clocks appeared in Europe, and very soon cathedrals and cities were vying with each other to produce ever more ornate devices, which, by their very public display, had a better chance than the other three of infecting the populace with the ideal of progress. Interestingly enough, Giovanni Dondi, the fourteenth-century constructor of a particularly impressive astronomical clock, was at pains to disparage modern achievements in comparison with those of the ancients.[7] But Giovanni was a university man, associated with the nascent humanism, and particularly that represented by Petrarch. His show of modesty may not have been shared by his less learned contemporaries: it certainly was not by their successors, and very soon humanists also were singing to the same tune.[8]

In a seminal article published almost half a century ago Edgar Zilsel[9] saw the effective genesis of the ideal of scientific progress as located among the 'superior artisans' of the sixteenth century, and with qualifications this thesis has proved remarkably resilient. One necessary modification was to bring contemporary scholars who systematically examined the crafts more centrally into the picture, and, together with this, I think that we should emphasize more than has sometimes been done a somewhat speculative aspect of the indisputably important role of printing. This is in shifting the image of knowledge. In the Middle Ages, knowledge was viewed as predominantly an individual affair, a *habitus* ingrained into a person's mind by education. In acquiring such a *habitus* the individual progressed, but there was no very potent image of a general increase of knowledge. With the advent of printing, books multiplied in overall physical volume far more than ever before, and it is plausible to envisage with this the image of a concomitant (although not proportional) increase in their *contents,* so that the sum total of knowledge itself appeared to have increased. To put it in contemporary terms, we have progress in Sir Karl Popper's 'Third World' of objective knowledge, conceived as existing independently of the knowing subject.[10]

But, whatever the causative influences, the idea of technical progress certainly became prominent in the sixteenth century, and was associated with a search for

more strictly scientific progress. This was due partly to superior artisans, such as Leonardo da Vinci, looking at the theoretical bases of their arts as a source for improvement, and partly to scholars publishing surveys of craft techniques, for example the *De re metallica* of Georg Bauer (Georgius Agricola) in which the author gave a systematic account of current mining and metallurgical practices. Many such techniques had remained unchanged since Antiquity, and were simply passed from master to apprentice by word of mouth. Bringing them out into the cold light of print could suggest modes of improvement, and later became formalized in the injunction to produce histories of trades—what can be, and sometimes were, called 'technologies'. These and many other factors provoked a strong urge towards improvement, and a conviction that systematic intellectual activity was at least as important as trial and error or reliance upon tradition. And this applied not only to the more banausic areas of technics, but also to more rarefied and seemingly 'impractical' fields.

But a desire for progress is one thing: achieving it is another. And here we meet more and more frequently with the term 'method' and its relations. The search for this had roots in several fields, mathematical, philosophical, medical, magical…. We consider briefly the first two. The mathematical revival of the sixteenth century is characterized particularly by the greater availability of important ancient works, through both the production of new translations and the dissemination of these in print. This gave rise to two reflections. First, it became evident that many significant works were (probably irretrievably) lost, but second, sufficient evidence was often available about their contents for plausible attempts at reconstruction to be made. This did not directly imply method, but it did make for mathematical progress, for restoration was to be achieved not by philology alone but by trying to do mathematics in the Greek spirit. As an attempt at exact replication this failed, but it did produce new mathematics, and so we have a kind of surreptitious progress in which efforts at reviving the old produced developments that were radically new.

Others were more open in their endeavours, and indeed accused the ancients of being clandestine. From Antiquity onwards it had been realized that some of the most impressive results of Greek geometry resembled a beautiful building from which all trace of scaffolding and other accessories had been removed. Hence Plutarch on Archimedes:

> It is not possible to find in geometry more difficult and weighty questions treated in simpler and purer terms. Some attribute this to the natural endowments of the man, others think it was the result of exceeding labour that everything done by him appeared to have been done without labour and with ease. For although by his own efforts no one could discover the proof, yet as soon as he learns it, he takes credit that he could have discovered it: so smooth and rapid is the path by which he leads to the conclusion.[11]

The paradox suggested that the ancients had knowledge of a particularly fruitful way of *discovering* new mathematical truths. As Descartes put it, 'We perceive sufficiently that the ancient Geometricians made use of a certain analysis which they extended to the resolution of all problems, though they grudged the secret to posterity.'[12] Such suspicions were partially vindicated at the beginning of this century (although without evidence of a grudge) by the discovery of a lost work by Archimedes, known as the *Method (Ephodos),* in which the author showed how to use theoretical mechanics and considerations of indivisibles in order to discover new theorems about equating areas and volumes between different plane and solid figures. These theorems were then open to proof by more rigorous geometrical methods, particularly the *reductiones ad absurdum* involved in the so-called method of exhaustion, in which inequalities of the relevant areas and volumes were shown to lead to contradictions.

There were a few brief and vague ancient references to Archimedes' 'method', but rather more to the procedures of 'analysis and synthesis', whose exact interpretation have caused much scholarly perplexity. In a famous passage Pappus wrote:

> Analysis is the path from what one is seeking, as if it were established, by way of its consequences, to something that is established by synthesis. That is to say, in analysis we assume what is sought as if it has been achieved, and look for the thing from which it follows, and again what comes before that, until by regressing in this way we come upon some one of the things that are already known, or that occupy the rank of a first principle. We call this kind of method 'analysis', as if to say *anapalin lysis* (reduction backward). In synthesis, by reversal, we assume what was obtained last in the analysis to have been achieved already, and, setting now in natural order, as precedents, what before were following, and fitting them to each other, we attain the end of the construction of what was sought. This is what we call 'synthesis'.[13]

Pappus went on to distinguish theorematic *(zetetikos)* and problematic *(poristikos)* analysis. The general thrust of the passages is clear. In theorematic analysis we work backwards towards the first principles from which a theorem follows, and in problematic analysis our goal is the solution of a problem, say the finding of a figure whose area or other features will meet certain conditions, while in synthesis we in some sense prove our results. But when we descend towards the logical niceties a host of difficulties appear,[14] and these may themselves have made the subject a particularly suitable candidate for seventeenth-century transformation.

An especially important figure in this process was François Viète, who drew on both the Diophantine 'arithmetical' tradition and more general algebraic traditions, as well as those deriving from primarily geometrical works. Viète's most striking innovation in assuming a problem solved was to name the 'unknown'

quantity or quantities with letters of the alphabet, as well as those that were 'known', and then to operate on both in the same way. This produced formulae that looked far more like equations in the modern sense than anything that had gone before, and this trend is even more accentuated in the work of Descartes, where we often have no more than minor and accidental features of notation to remind us that we are not in the twentieth century. All this may be seen as reflecting a general psychological trend in mathematics to focus more on written symbols than on what they are meant to symbolize.

It is this movement that has made it seem plausible to speak of Descartes as the founder of 'analytical geometry', meaning thereby a geometry in which curves may be substituted by the equations representing them. But this ignores the extent to which Descartes still demanded explicitly geometrical constructions for solving what we would regard as purely algebraical problems. Nevertheless it does draw attention to how geometry and algebra could seem to proceed in tandem. This trend was to continue into the work of Newton, and can be seen as leading towards an eventual reduction of the former to the latter. With hindsight it is possible to see ripening other fruits of mathematical method, such as those associated with the infinitesimal calculus, but until well past the time of Descartes these are decidedly muted in Comparison with the algebraic results.

As may be expected, philosophers were more explicit than mathematicians in their discussions of method, although one head was often capable of wearing two hats, as in the case of Descartes. In the Aristotelian tradition we frequently meet with the methods of analysis and synthesis in the Latinate guise of resolution and composition. As in mathematics, the terms are a little slippery, but resolution was basically a form of argument from effects to causes, whereas composition was demonstration of effects from their causes. The development of these ideas by medieval and Renaissance commentators on Aristotle (and also on Galen's methodological writings) have led some scholars, for instance John Hermann Randall, Alistair C.Crombie and William A. Wallace, to place strong, and perhaps extravagant, emphasis on the positive role of Aristotelianism in furthering the emergence of modern science.

One thinker who would not have been convinced by this was Francis Bacon. Although Bacon had a grudging respect for aspects of Aristotle's own thought, he saw medieval scholasticism as the embodiment of sterility and futile contentiousness. He therefore sought a more fruitful way of eliciting knowledge from nature, of a kind that would eventually prove useful in practice. In this he displayed some affinities with the magical and alchemical traditions, but their secrecy and apparent obscurantism were antithetical to his programme for which he sought more public, methodical and 'democratic' procedures. In this a central role was played by his idea of induction, the careful collection and tabulation of facts (although in practice often derived from nonetoo-reliable reports), and then the cautious ascent to higher levels of generalization, with only a very wary use of hypotheses, strictly controlled by the use of experiments. Although usefulness was the remote aim, this could not properly be achieved without first seeking the

truths of nature: as opposed to what he saw as the alchemists' habits, luciferous experiments must always precede lucriferous ones.

Francis Bacon very soon became a hero of science, and especially of British science, but it remains controversial how much substantive as opposed to rhetorical influence he exerted upon its development. One would be very hard pushed to find anyone successfully following the Baconian method to the letter, and some notable writers denigrated his scientific importance. For instance, it is reported that William Harvey, the discoverer of the circulation of the blood, 'esteemed [Bacon] much for his witt and style, but would not allow him to be a great Philosopher. Said he to me, "He writes philosophy like a Lord Chancellor," speaking in derision.'[15] And in the more mathematical sciences, with which the remainder of this chapter will be mainly concerned, it is less easy to make out a case for his influence than in the biological and descriptive sciences. This is largely due to his generally acknowledged blind spot as regards the potential of mathematics in forwarding the development of science.

THE ASTRONOMICAL REVOLUTION

Developments in cosmology must play a leading, if not the dominating, role in any consideration of the science of this period. It all started very quietly. The first really public event occurred in the year 1543, but it was not accompanied with the stir appropriate to what many used to regard as the inaugural date of the Scientific Revolution (the other symbolic event being the publication of Vesalius's *De humani corporis fabrica*). The title of Copernicus's book of that year, *De revolutionibus orbium caelestium,* incorporated what can now, but not then, be regarded as a pun on the word 'revolution', and also a point of disputed translation concerning the word *orbis*. The book had been a long time in the making, but probably not for the devious reasons sometimes proposed: it simply took a long time to prepare and write. The initial conception had come some thirty years earlier, if not before, by which time Copernicus had completed a good scholastic education at the flourishing university of Cracow, together with a tour around the universities of Renaissance Italy, before settling into a canonry at the Cathedral of Frauenberg (Frombork).

In about 1514 he completed and circulated in manuscript a short work, now usually known as the *Commentariolus,* outlining a heliocentric system of the world, with the Earth rotating daily on its axis and as a planet orbiting the now stationary Sun once a year. His reasons for the change have been a matter of controversy. Here I shall not undertake the delicate, and possibly tedious, task of assaying the various hypotheses, but present what appears a likely story, and one which seems both in accord with the majority scholarly view and with Copernicus's explicit statements as to why he proceeded as he did.

The conventional astronomical wisdom at Copernicus's time derived from Ptolemy's *Almagest,* which provided sophisticated mathematical models for showing where at any particular time a planet (the list included the Sun and

Moon) would appear from the vantage point of a stationary Earth against the background of the fixed stars; or, more precisely, in a co-ordinate system determined by the great circles of the ecliptic (the path of the Sun through the sky) and the celestial equator. The devices worked by combining circular motions. Usually we have a deferent circle whose centre is at some distance from the Earth, and an epicycle, a smaller circle whose centre moves around the circumference of the deferent, while the planet is imagined to move about the circumference of the epicycle. Speeds are regulated in terms of an equant point, situated at the same distance from the centre of the deferent as the Earth but on the opposite side, so that the centre of the epicycle moves with uniform angular velocity about this point. The models for Mercury and the Moon were more complicated than this description may suggest, and that for the Sun simpler, but all incorporated sufficient flexibility in choice of parameters to make them good predictive devices. At least, they were good enough for Copernicus, but the status of the equant point was another matter.

> [The theories] were not sufficient unless there were imagined also certain equant circles, by which it will appear that the star is moved with ever uniform speed neither in its deferent orb nor about its proper centre, on which account a theory of this kind seems neither sufficiently absolute nor sufficiently pleasing to the mind.[16]

This famous passage has led some to speak of Copernicus's Pythagorean obsession with uniform circular motion, with the implied suggestion that this was beyond the bounds of rationality. But in fact Aristotle is a better target. In Copernicus's time, as it had been from Antiquity onwards, astronomy was regarded as a branch of mathematics, what Aristotle had referred to as one of its more physical branches; in the later Middle Ages these were often called middle sciences, as lying between mathematics and physics. Whatever Ptolemy may have thought, it was not generally seen as a hallmark of mathematics to look at causes: that was the province of the physicist. For Aristotle the heavens were made of the fifth element or aether, to which it was natural to move eternally with a uniform rotation. In his more detailed astronomical picture, for which he borrowed from the mathematicians (astronomers) of his time, Aristotle had some fifty-five spheres, centred on the Earth, of which nine carried planets. Any deviation from uniformity of motion would need an interfering cause, which could not seem plausible in the perfection of Aristotle's celestial realm. Copernicus did not maintain the Aristotelian distinction between celestial and elementary regions, but he did demand a cause for deviation from uniformity, and none seemed available: hence, if for no other reason, farewell the equant.

Here we must emphasize that Copernicus, although more mutedly than Kepler, was much concerned with causes, and also, in the context of an often bitter recent controversy, that he almost certainly ascribed a fair degree of reality to the orbs (be they spheres, circles, orbits, hoops or whatever) to which the

planets were conceived as attached or along which they moved. A causal and harmonious structure for the universe was also theologically supported, for a good Creator God would surely have proceeded according to a rational plan. This attitude clearly lay behind Copernicus's criticism of astronomers in the Ptolemaic tradition for producing fine parts which could by no means be fitted together in a tidy fashion.

> It was with them exactly as if someone had taken from different places, in no way mutually corresponding, hands, feet, head and other members, all excellently depicted but not in relation to a single body, so that a monster was composed from them rather than a man.[17]

Copernicus's own system as portrayed in the famous diagram included in Chapter 10 of Book I of the *De revolutionibus* (with an accompanying panegyric on the Sun) appears admirably simple and rational, but important cracks lie very near to the surface. In the first place the system was obviously physical nonsense. If the Earth is really moving with such huge speed, we should surely experience it by such phenomena as constant high winds and stones that refused to fall at the bottom of the towers from which they are dropped; also its whole body should fly apart, like the materials on a potter's wheel that is spun too fast. Copernicus was not blind to such objections, and answered them in summary fashion, but in terms which we may find easier to accept than did his own contemporaries. And after all, was it worth destroying important foundations of the well-tried edifice of Aristotelian physics at the behest of a mere astronomer? All this relates to Book I of the *De revolutionibus,* understandably the only part that is read by more than a few specialists in mathematical astronomy. But the later five books destroy most of the simplicity of this book in order to make the system work, that is, to 'save the phenomena', or provide a relatively good predictive device for planetary positions, for in doing this Copernicus, although rejecting the equant point, retained most of the techniques of earlier astronomy for explaining the planetary movements by combinations of circular motions, and in so doing produced a system that was arguably as complicated as Ptolemy's. This was not arrant conservatism but a natural use of procedures with which he had been brought up, and which if rejected would almost certainly have prevented him from doing any work worthy of serious astronomical recognition.

With these points made, the result is not surprising. The book did not fall on dead ground, but neither did it win unconditional acclaim. Among the general public it was seen to propose a pleasing or unpleasing paradox, perhaps interesting for idle conversation, but only to be taken seriously by eccentrics or fanatics. For instance, even before the book was published, Luther remarked that,

> Whoever wants to be clever must agree with nothing that others esteem. He must do something of his own. This is what that fellow does who

> wishes to turn the whole of astronomy upside down. Even in those things that are thrown into disorder I believe the Holy Scriptures, for Joshua commanded the Sun to stand still, and not the Earth.[18]

Among professional astronomers the work was greatly admired, but for its astronomy, not its physics. A characteristic posture was to adopt what Robert S.Westman[19] has called the Wittenberg interpretation of the theory: to take a connoisseur's delight in Copernicus's mathematical techniques and employ them about the astronomer's proper business, such as the construction of tables, but to reject as utterly mistaken the idea of a moving Earth. Paradoxically this instrumentalist outlook received support from Copernicus's own volume, for Andreas Osiander, the Lutheran pastor who saw it through the press, inserted an anonymous preface, possibly to ward off theological criticisms, which gave a low truth status to astronomical theories.

> It is proper to an astronomer to bring together the history of the celestial motions by careful and skilful observation, and then to think up and invent such causes for them, or hypotheses (since he can by no reasoning attain the true causes), by which being assumed their motions can be correctly calculated from the principles of geometry for the future as well as for the past. The present author has eminently excelled in both these tasks, for it is not necessary that the hypotheses be true nor indeed probable, but this one thing suffices, that they exhibit an account *(calculus)* consistent with the observations.[20]

And some careless readers of the work were misled into thinking that this was Copernicus's own view.

Instrumentalism has rarely been a satisfactory psychological stance for working scientists, and so it is not surprising that soon schemes were brought forward that gave a more realist slant to the Wittenberg interpretation. The most famous of these, and one which he guarded jealously as his very own intellectual property, was by the great Danish astronomer Tycho Brahe. In this the Moon and the Sun orbited the stationary Earth, while the other planets circled the Sun and accompanied it on its annual journey about the Earth. This had all the astronomical advantages of the Copernican system and none of what were perceived as its physical disadvantages. It also had no need to accommodate the fact that no parallax (apparent relative motion among the fixed stars) had been observed, which would have been expected if the Earth were moving. Tycho laid particular emphasis on this difficulty for Copernicanism, and calculated that, if the Earth were moving, then even a star that had only a moderate apparent size would have to be so far away that it would in fact be as big as the whole of the Earth's orbit. Not surprisingly, when Copernicanism came under ecclesiastical fire, the Tychonic compromise emerged as the favourite system of the Jesuits, who were themselves strong pioneers of scientific advance.

But Tycho's theorizing was of less scientific importance than his practice. He was unusual among men of science in being of aristocratic birth, and this made substantial patronage easier to obtain. The King of Denmark granted him the island of Hveen (situated between Copenhagen and Elsinore), on which he built a magnificent observatory called Uraniborg. Up to that time it could only have been rivalled by Islamic or Mongol observatories, such as those at Maragha and Samarkand. Not only was the hardware, so to speak, superb, but Tycho had it manned by a group of able assistants whom he at least tried to rule with a rod of iron. The result was an incomparably accurate collection of observations of stellar positions, which historically was to play a far more significant role than his famous demonstrations that the New Star (to us a supernova) of 1572 and the comet of 1577 were supralunary, and hence symptoms of change in supposedly immutable regions, and that the latter would have to be passing through the solid spheres of Aristotelian cosmology. Nevertheless these made important dents in the old world picture, although ironically Galileo denied the validity of his arguments with regard to the comet.

There is a waggish yet revealing quip that Tycho's most important discovery of all was that of a person, namely Johann Kepler. Kepler was born into a Lutheran family, and was himself heading for the Lutheran ministry when he entered the University of Tubingen in 1587.[21] However, his course was deflected by a growing interest in astronomy, fostered by one of his teachers, Michael Maestlin, who happened to be one of the few convinced Copernicans of the era, and in 1594 with Maestlin's encouragement Kepler accepted the post of District Mathematician at Graz. His duties involved some elementary mathematical teaching and the drawing up of astrological prognostications, but he also pursued his own theoretical interests in astronomy, and in 1596 published a small book entitled *Mysterium Cosmographicum*. It could be tempting to pass this book over as merely 'quaint' were it not for Kepler's much later claim that,

> Just as if it had been literally dictated to me, an oracle fallen from heaven, all the principal chapters of the published booklet were immediately recognised as most true by the discerning (which is the wont of God's manifest works), and have these twenty-five years carried before me more than a single torch in accomplishing the design (initiated by the most celebrated astronomer Tycho Brahe of the Danish nobility) of the restoration of astronomy, and, moreover, almost anything of the books of astronomy that I have produced since that time could be referred to one or other of the chapters set forth in this booklet, of which it would contain either an illustration or a completion.[22]

And an attentive reading shows that much of this was indeed the case.

In the book Kepler reveals himself as one who would out-Copernicize Copernicus in his belief in the physical reality of a heliocentric system, and this attitude is reinforced by a commitment to asking *why,* and answering it in terms

of both geometrical and physical causes. An important example is the question of why there are six and only six (primary) planets, Mercury, Venus, Earth, Mars, Jupiter, Saturn. (This question is quite rational, if it is assumed that the world was created much as it is now some finite time ago.) Georg Joachim Rheticus, Copernicus's first champion, had answered it arithmetologically by saying that six was a perfect number. This had a precise meaning, for 6's factors 1, 2, 3, when added together, produce 6 itself, a property shared by relatively few numbers, the next example being 28. Kepler would have none of this *mystica numerorum,* and firmly believed in geometry's priority to arithmetic, so that it, rather than arithmetic as Boethius had held, provided God with the archetype for the creation of the world.

Kepler found the required linkage with geometry in the remarkable fact that there are five and only five regular solids. He then discovered even more remarkably, and we would say coincidentally, that these solids and the spherical shells enclosing the planetary orbits could be fitted together in a sort of Chinese box arrangement, so that, if an octahedron was circumscribed about the sphere of Mercury, it was almost exactly inscribed in the sphere of Venus, and so on, giving the order, Mercury, octahedron, Venus, icosahedron, Earth, dodecahedron, Mars, tetrahedron, Jupiter, cube, Saturn. This idea understandably so excited Kepler that he planned a model for presentation to the Duke of Württemberg. Another preoccupation was with what moved the planets, for Kepler remained in the tradition in which each motion demanded an efficient cause. His answer was that there was a single 'moving soul' (later to be depersonalized to 'force') located in the Sun. This had the natural consequence that the planetary orbits lay in planes passing through the Sun, which in turn virtually removed the messy problem of latitudes (the deviations of the planetary paths from the plane of the ecliptic) from mathematical astronomy.

Kepler circulated copies of his book to other astronomers, includ ing Tycho Brahe, who, perhaps surprisingly, was favourably impressed, although complaining that Kepler had too great a tendency to argue *a priori* rather than in the *a posteriori* fashion more appropriate to astronomy. He invited Kepler to visit him, but this did not come to fruition until, after a series of disputes, Tycho moved from Denmark and came under the patronage of the Emperor Rudolf II, who granted him a castle near Prague for his observatory. Kepler went to see him there and soon became a member of his team. The relationship between the rumbustious and domineering Tycho and the quieter but determinedly independent Kepler was not an easy one, but it did not last too long, for Tycho died in 1601 and was succeeded by Kepler in his post as Imperial Mathematician.

On joining Tycho, Kepler was set to work on Mars, whose movements had been proving particularly recalcitrant to mathematical treatment. We may count this a fortunate choice, for, to speak with hindsight, its orbit is the most elliptical of the then known planets. But it was one of Kepler's important innovations to seek for the actual orbit of the planet rather than for the combination of uniform circular motions that would give rise to the observed appearances. However, he

was traditional in at first seeking for a circular orbit and reintroducing an equant point, although not necessarily at the same distance as the Sun from the centre of the orbit. In this manner he formed a developed theory, which he later called his 'vicarious hypothesis'; it became especially famous for a crucial deviation of eight minutes of arc from observational evidence, which would previously have been undetectable.

> Since the divine goodness has given to us in Tycho Brahe a most careful observer, from whose observations the error of 8 minutes in the Ptolemaic account *(calculus)* is argued in Mars, it is fitting that with grateful mind we should recognise and cultivate this gift of God…. For if I had treated these 8 minutes of longitude as negligible, I should already have sufficiently corrected the hypothesis…. But because they could not be neglected, these eight minutes alone have led the way to reforming the whole of astronomy, and have been made the matter for a great part of this work.[23]

With the vicarious hypothesis rejected, Kepler embarked on a bewildering variety of sophisticated procedures. One strategy was to place the Earth more on a par with the other planets; for it provided the moving platform from which we observed, but hitherto its orbit had lacked an equant point. To this end Kepler found it useful to imagine that he was on Mars and observing the Earth from there. Another strategy was that of quantifying the causes of the planetary motions. A force emanating from the Sun, and inversely proportional to the distance from the Sun, was conceived as pushing the planets around. This eventually led to what we know as Kepler's second law of planetary motion, that the radius vector from the Sun to a planet sweeps out equal areas in equal times. But this force did not explain a planet's varying distance from the Sun. For this purpose a quasi-magnetic push-pull force was introduced with allusion to William Gilbert's *De magnete* which had been published in 1600. This caused a libration of the planet on an epicycle's diameter directed towards the Sun. With this theoretical apparatus Kepler proceeded to seek the actual path of Mars. For this he experimented with a variety of egg-shaped orbits. Readers of *Gulliver's Travels* will remember that eggs have big ends and little ends, but Kepler did use ellipses as calculating devices, and eventually came with a start to a realization that the orbit itself was an ellipse, with the Sun at one focus (the 'first law').

> O, how ridiculous of me! As if the libration in the diameter could not be a way to the ellipse. I have become thoroughly convinced that the ellipse stands together with the libration, as will be evident in the next chapter, where at the same time it will be demonstrated that no figure remains for the orbit of the planet other than a perfectly elliptical one.[24]

Kepler's first two laws (which were soon generalized to the other planets) were published, with a detailed account of his procedures, in 1609 in his *Astronomia*

Nova, whose full title is particularly evocative: *New Astronomy, Reasoned from the Causes, or Celestial Physics, Delivered Up by Considerations of the Motions of the Star Mars, From the Observations of the Great Tycho Brahe*.[25] What we call the third law linked together the various planets in stating that the square of the periodic time of a planet was proportional to the cube of its mean distance from the Sun. It appeared in print in Kepler's *Harmonice Mundi* of 1619. As the title indicates, the principal aim of this work was in a very literal way the search for musical harmonies in the heavens, and it is illustrated with scales appropriate to the various planets. This has misleadingly encouraged the anachronistic, and now thankfully outdated, attitude that Kepler can properly be split into two distinct halves, the mystical and the scientific.

Another consequence of this attitude was to cause some unnecessary puzzlement about the subsequent fate of Kepler's laws. To a superficial modern eye, it can seem that Kepler had now definitively established the facts about planetary motion (in a commodious description) which only awaited a Newton in order to explain them, and indeed the Kepler-Newton motif played a marked role in later scientific rhetoric, as with Ampère and Maxwell. But this interpretation raises the question of why Kepler's 'laws' seem to have been so neglected between their formulation and the time of Newton. Certainly Kepler's writings are not easy to penetrate, and the laws themselves are not so clearly sign-posted as a modern reader may expect. Also Kepler's second law in particular was not easy to calculate with, and some astronomers, such as Seth Ward and Ismael Boulliau, found it easier to combine the ellipse with an equant point at the focus not occupied by the Sun. In general it seems that knowledgeable astronomers were well aware of the laws but did not accept them with quite the alacrity that we might think appropriate, so that even Newton could comment that, 'Kepler knew ye Orb to be not circular but oval & guest it to be Elliptical'.[26] The situation has been much clarified in important articles by Curtis Wilson. The validity of Kepler's laws did not rest solely on observational evidence, with the quasi-animist forces (his 'mystical' side) being mere psychological scaffolding that could be cleared away once the building was erected. These laws depended on theoretical support as well, for the former was insufficient by itself. But Kepler's theory, his system of forces, was very much of his own making, and did not transfer easily to other workers, especially in an age in which both conservatives and more mechanistically minded radicals were wary of any suspicion of unmediated action at a distance, and when the latter were moving towards a new type of inertial physics in which the continuance of a motion did not demand a continually acting force to explain it. Thus, before Newton, it was quite rational to regard Kepler as having provided an ingenious and useful, but only approximate, account of the planetary motions. When Newton showed how his inverse square law could be derived from Kepler's second and third laws, and then the first law deduced from this, the 'laws' were back in business with new theoretical support, but, despite the use of distance-related forces, this was very different from that provided by Kepler. It nevertheless fitted well with a new

general system of mechanics, and gave good licence for Kepler's laws to be named as such.

But this was for the future. For the time being popular educated and less educated interest in the new astronomy was to centre on a more accessible figure. One of the people to whom Kepler sent a copy of his *Mysterium Cosmographicum* was Galileo Galilei. This was natural, for Galileo, then in his early thirties, was the occupant of the Chair of Mathematics at one of the foremost scientific centres in Europe, the University of Padua. Galileo replied immediately, saying how much he was looking forward to perusing it, since he had been of Copernicus's opinion for many years. But, remarkably, this document itself is one of the few pieces of evidence for Galileo's own opinion until some thirteen years later, and the change depended upon a new observational instrument.

It is probably better to think in terms of the emergence of the telescope rather than its invention, but we may take 1608 as a symbolic year, when the Dutchman Hans Lippershey presented a spyglass to Prince Maurice, and also applied for a patent, thereby indicating the passage of the device from the realm of fairground attraction for producing illusions to that of something potentially useful. Whoever should be given the prime credit for the invention, the news spread rapidly, and reached Italy by the following year. Galileo seized on it avidly and constructed glasses for himself, but in his reports probably exaggerated the extent to which he had employed optical theory. Then, like Thomas Harriot in England at almost exactly the same time, he turned his telescope to the skies, but unlike Harriot he quickly published his findings, in a booklet of 1610 entitled *Sidereus Nuncius*.

This caused a sensation, not only because of the new facts themselves, but on account of their possible implications for rival cosmological systems. We isolate three discoveries. The first concerns the Moon. The Man in the Moon was, so to speak, an old friend, and scholastic discussions had frequently touched on the reason for this feature always pointing towards us. The telescope revealed to Galileo that the man was far more pock-marked than hitherto thought, and by observing the changing configuration of the spots he was able plausibly to infer the existence of shadows caused by mountains and chasms on the Moon's surface. This made the Moon more like the Earth, and was a great help in breaking down the gulf separating the perfect celestial regions from the imperfect elementary ones, and as such offered indirect support to heliocentric cosmology.

As regards the fixed stars, Galileo observed far more of them than had been done previously, and plausibly argued that the Milky Way was composed of stars too numerous to separate from one another with the naked eye. But a more important discovery concerned their magnification, for they were not increased in apparent size as much as would be expected from observation of nearer objects. Galileo therefore concluded that much of the observed size was to be attributed not to the body of the star itself, but to twinkle, or, as he called it,

adventitious light, and he later confirmed this with experiments using naked eye observations. This had the important implication that the stars could be a vast distance away without needing to be of the enormous size that Tycho thought would have been necessary to explain the absence of observed parallax on the hypothesis of a moving Earth.

But for Galileo the most exciting discovery related to Jupiter. He recounts how in early 1610 he observed three small but bright stars near it, which changed their relative positions without straying far from the planet itself. He was later to add a fourth, and reasonably concluded that all four were satellites of Jupiter, 'four PLANETS never seen from the creation of the world up to our own time'.[27] With a piece of calculated flattery he named them the Medicean stars, after Cosimo de' Medici, the Grand Duke of Tuscany. This paid off, for soon Galileo procured appointment as Chief Mathematician and Philosopher to the Grand Duke, with the phrase 'and Philosopher' being added at his own insistence to emphasize that his interests were not merely mathematical but intimately concerned with the structure of the physical universe. And Galileo was quick to show how his discovery could support (but again only indirectly) the Copernican system of the world.

> Here we have a fine and elegant argument for quieting the doubts of those who, while accepting with tranquil mind the revolutions of the planets about the Sun in the Copernican system, are mightily disturbed to have the Moon alone revolve about the Earth and accompany it on an annual rotation about the Sun. Some have believed that this structure of the universe should be rejected as impossible. But now we have not just one planet rotating about another while both run through a great orbit about the Sun; our own eyes show us four stars which wander around Jupiter as does the Moon around the Earth, while all together trace out a grand revolution about the Sun in the space of twelve years.[28]

The initial reaction to Galileo's book, including that from the Jesuit College in Rome, was favourable, although for some this meant attempts to incorporate the new evidence within a traditional cosmological framework. There were a few who were reported to have refused (probably half jokingly) to look through the telescope on the grounds that they would not trust what they saw there; this was not *completely* unreasonable, given the previous reputation of optical devices for making things appear as they were not, and also given the difficulty of properly manipulating the instrument to show what was in fact there. Meanwhile Galileo continued observing, and also frequently allowed his disputatious temperament to lead him into behaviour which in retrospect we can see as unfortunately tactless. One of his preoccupations was with sunspots, about which he carried on an adversarious correspondence through an intermediary (Mark Welser) with the Jesuit Christopher Scheiner, writing under the pseudonym of Apelles; although Welser informed him that Apelles did not read Italian Galileo persisted in writing

in that language rather than the mutually accessible Latin, and the result of Galileo's side of the exchange was published in 1613 as *Istoria e Dimostrazioni intorno allé Macchie Solari*.

Besides a rather fruitless dispute about priority, the authors disagreed about the nature of sunspots, with Galileo favouring the view that they were like clouds around the Sun, thus emphasizing the theme of mutability of the heavens. But other matters were discussed, the most important of which was undoubtedly the phases of Venus. It is a notable consequence of Ptolemaic theory that the two inner planets, Mercury and Venus, never deviate far from the Sun in celestial longitude—hence the position of Venus as both morning and evening star. Also, it was almost universally held that they were nearer to us than the Sun. There accordingly arose the question of how they received the light to make them visible, for on the common assumption that this came from the Sun they would be almost entirely illuminated from behind, and at most we should see a small sliver. One opinion had it that they were possessed of their own light and another that they were translucent, but basically the problem remained unresolved, or, to use T.S.Kuhn's phraseology, was an anomaly within the Ptolemaic paradigm. On the Copernican hypothesis the predictions were different, for, if these planets were orbiting the Sun, they should display phases in the manner of the Moon. And this is what Galileo observed in the case of Venus, and triumphantly reported in the *Letters on Sunspots*.

> These things leave no room for doubt about the orbit of Venus. With absolute necessity we shall conclude, in agreement with the theories of the Pythagoreans and of Copernicus, that Venus revolves about the Sun just as do all the other planets.[29]

So far so good, but what Galileo fails to mention, and what remained a thorn in his flesh, was that these observations were also perfectly compatible with the Tychonic system of the world, which, as mentioned above, soon became a favourite with Jesuit astronomers.

Until the 1610s the Copernican system had aroused little religious discussion, apart from a few casual references to scriptural passages that seemed to contradict it, such as the command to the Sun to stand still over Gibeon in order to lengthen the day, so that Joshua could have time to finish a battle. With the new popularity that Galileo had brought to the issue, the religious implications became of major concern, and opposition to the system was probably egged on by mere conservatism masquerading as high principle. Galileo was himself drawn into the controversy, and wrote a long letter on the relation of Copernicanism to the Scriptures. This closely reasoned piece made relatively liberal use of the principle of accommodation in biblical interpretation. The Bible was addressed to ignorant people, and appealed to the common understanding of the time; it was not intended as a textbook in astronomy. In the epigram of one Cardinal Baronius, which Galileo gleefully quoted, 'The intention of the Holy

Ghost is to teach us how one goes to heaven, not how heaven goes.'[30] A tougher line, although also closely reasoned and susceptible of its own nuances of interpretation, was taken by Cardinal Bellarmine in a letter to Paolo Foscarini, a priest who had espoused Copernicanism.

> The Council [of Trent] prohibits interpreting Scripture against the common consensus of the Holy Fathers; and if Your Paternity wants to read not only the Holy Fathers, but also the modern commentaries on Genesis, the Psalms, Ecclesiastes, and Joshua, you will find all agreeing in the literal interpretation that the Sun is in the heavens and turns around the Earth with great speed, and that the Earth is very far from heaven and sits motionless at the center of the world.[31]

In 1616 the matter had become sufficiently serious for Rome to take a hand, and the Theologians to the Inquisition, after what may seem indecently hasty deliberations, reported that the proposition that 'The Sun is the centre of the world and completely devoid of local motion' was 'foolish and absurd in philosophy, and formally heretical', and that the proposition that 'The Earth is not the centre of the world nor motionless, but it moves as a whole and also with diurnal motion' should receive 'the same judgement in philosophy and that in regard to theological truth it is at least erroneous in faith'.[32] What precisely happened next as regards Galileo himself is debatable, but at the least he was at the Pope's behest officially informed of the judgement and acquiesced therein. And so the matter rested for several years. Galileo did not exactly refrain from controversy, and in fact carried on a bitter dispute centring on the nature of comets but taking in many aspects of what constituted proper scientific procedure with the Jesuit Horatio Grassi, but he kept quiet on the question of the motion of the Earth.

In 1623 there was a change of Pope, and Maffeo Barberini, an old friend and supporter of Galileo's, ascended to the Throne of St Peter with the title of Urban VIII. Galileo visited Rome and was granted several audiences, from which he seems to have come away with the impression that he could say what he liked about the Copernican system provided that he treated it as hypothetical and did not bring in scriptural arguments (which should be left to the theologians). He then set to work on one of his most important books, which, after a little sharp practice in getting it past the censor, was published in 1632 as *Dialogo…sopra i Due Massimi Sistemi Del Mondo Tolemaico, E Copernicano*. This was in the form of a dialogue lasting for four days between three friends, Salviati, Sagredo and Simplicio. Salviati can usually be taken as acting as spokesman for Galileo, Sagredo as an intelligent layman and Simplicio as the Aristotelian, but not one that is too stupid, for after all there is no honour in winning arguments over fools. The burden of the first three days is basically to show that everything would appear to happen the same whether or not the Earth was moving, and if the book had stopped there (and the Preface had been strongly modified), there

would probably have been no trouble. But Galileo was not content with showing that the Copernican system was possible: he wanted to show that it actually was the case. As Salviati says early in the Fourth Day, 'Up to this point the indications of [the Earth's] mobility have been taken from celestial phenomena, seeing that nothing which takes place on the Earth has been powerful enough to establish the one position any more than the other.' He then continued,

> Among all sublunary things it is only in the element of water (as something which is very vast and is not joined and linked with the terrestrial globe as are all its solid parts, but is rather, because of its fluidity, free and separate and a law unto itself) that we may recognise some trace or indication of the Earth's behaviour in regard to motion and rest.[33]

This provided the cue for Salviati to expound, but not in highly developed form, Galileo's notorious doctrine of the tides. This, which attributed the tides to a 'sloshing around' of the seas caused by the Earth's twofold motion of translation and rotation, was based on a phoney argument, even on Galileo's own terms, and Galileo should have known it, but apparently genuinely did not.

But historically its main importance is that Galileo thought that he had found a particularly weighty argument for establishing the Copernican system. To be sure, it could not be regarded as utterly conclusive, but the statement to that effect was put at the end of the Day in the mouth of Simplicio, who had been regularly losing all the arguments.

> As to the discourses we have held, and especially this last one concerning the reasons for the ebbing and flowing of the ocean, I am really not entirely convinced; but from such feeble ideas of the matter as I have formed, I admit that your thoughts seem to me more ingenious than many others I have heard. I do not therefore consider them true and conclusive; indeed, keeping always before my mind's eye a most solid doctrine that I once heard from a most eminent and learned person, and before which one must fall silent, I know that if asked whether God in His infinite wisdom could have conferred upon the watery element its observed reciprocating motion using some other means than moving its containing vessels, both of you would reply that He could have, and that He would have known how to do this in many ways which are unthinkable to our minds. From this I forthwith conclude that, this being so, it would be excessive boldness for anyone to restrict the Divine power and wisdom to some particular fancy of his own.

The reference to the Pope was unmistakable, and the offence was heavily compounded by Salviati's ironic comment.

> An admirable and angelic doctrine, and well in accord with another one, also Divine, which, while it grants to us the right to argue about the constitution of the universe (perhaps in order that the working of the human mind shall not be curtailed or made lazy) adds that we cannot discover the work of His hands. Let us, then, exercise these activities permitted to us and ordained by God, that we may recognize and thereby so much the more admire His greatness, however much less fit we may find ourselves to penetrate the profound depths of His infinite wisdom.[34]

There has been much discussion as to exactly why Galileo himself was condemned, but it seems clear that this thinly veiled insult to the Pope together with his open flaunting (in all but the letter) of the injunction to treat the Copernican system as no more than hypothetical would in themselves have provided ample reason. In any case he was called before the Inquisition in the following year, made to recant, and spent the rest of his life under house arrest.

As we shall see, this did not prevent Galileo from preparing and having published another book of outstanding importance, but he naturally refrained from making any statements about the motion of the Earth. And for a while the events of 1632–3 did put a damper on discussions of the Copernican system, especially in Catholic countries. Descartes, for instance, had finished his *Le Monde* at about this time, but suppressed it because

> I learned that people to whom I defer and whose authority over my own actions can hardly be less than is that of my own reason over my own thoughts, had disapproved an opinion on physics published a little before by someone else.[35]

But in general the condemnation probably had less lasting effect on the development than did natural inertia, and in both England and Scotland it was well into the second half of the seventeenth century before Aristotelian cosmology was displaced from university teaching. In the eighteenth century the end of the old cosmology was symbolized by the curt note inserted by the minimite friars Le Seur and Jacquier in their standard edition of Newton's *Principia*. At the beginning of Book III, they wrote:

> In this Third Book Newton assumes the hypothesis of the motion of the Earth. The author's propositions could only be explicated by our making the same hypothesis. Hence we are driven to don an alien persona. For the rest we promise to obey the decrees borne against the motion of the Earth by the high pontiffs.[36]

And they then proceeded to elucidate the work with no further mention of the matter.

MOTION AND MECHANICAL PHILOSOPHY

The new cosmology necessitated a new theory of motion, for, as had been obvious from the time of Copernicus and even before, Aristotelian 'mechanics' could not accommodate a moving Earth. Some have even seen cosmological reform as providing the prime motivation for reform in mechanics, but the old system also had many strains of its own. Aristotle made a sharp distinction between the celestial and sublunary regions. The former, which we have already considered in summary fashion, was the province of the fifth element and of universal circular motions, but the latter was far more chaotic; as also was Aristotle's account of it, seeing that his usual technique was to start from the situation in front of him and try to impose some semblance of order on it, rather than develop a new science axiomatically from first principles.

All bodies were composed of a mixture of the four elements, earth, water, air and fire, and their basic behaviour was dominated by the doctrines of natural places and natural motions. The natural place of earth was at the centre of the universe and that of fire at the periphery of the elementary regions, with the other two elements being in between. All bodies aspired towards their natural places, so that a heavy, or predominantly earthy, body would tend to move downwards and a predominantly fiery one upwards. These motions were conceived mainly in terms of their final causes, and less attention was paid to the question of their efficient causes. This was not the case with violent motions, in which a body was moving against its own nature. If I am lifting a heavy body, I am clearly the efficient cause of its motion, but if I throw it upwards the situation is more difficult, since there is no obvious mover once it has parted company with my hand. Aristotle proved himself a model of consistency. The projectile has nothing in contact with itself except the air surrounding it: therefore the air must be the mover, and in the process of throwing it I must have communicated a power of continuing the motion to the air, which would then, besides moving the projectile, pass the power on to the succeeding parts of itself. Despite the internal coherence of this scheme, it understandably drew much criticism from different cultural areas, and we find many thought experiments, such as those concerning the efficacy of shooting arrows by means of flapping the air behind them. Along with other Italians, the young Galileo saw these considerations as providing a fine stick with which to beat Aristotle. Like many of their predecessors these 'radicals' replaced the power communicated to the air with an internal moving force communicated to the projectile itself, which in the later Western Middle Ages was often known as 'impetus'.

But Galileo was different in that he came to realize that, even though he was giving anti-Aristotelian answers, he was still asking Aristotelian questions, and this led to his imposing a self-denying ordinance whereby he did not consider causes in his discussions of motion. This new attitude took root from around the beginning of the century, and received its most mature public expression in what is arguably his greatest work, the *Discorsi e dimostrazioni matematiche, intorno*

à due nuove scienze of 1638, another dialogue between the three friends Salviati, Sagredo and Simplicio, but this time steering well clear of the dangerous question of the motion of the Earth.

Galileo's strategy in considering local motions (that is, motions according to place rather than to quality or quantity) was to split them into two components, horizontal and vertical. In an amusing exchange in the *Dialogo,* the unwary Simplicio is trapped by Salviati into admitting that a perfectly shaped ball rolling on a perfectly smooth horizontal surface would continue its motion indefinitely and with uniform speed. The context is the question of the behaviour of stones let drop from the mast of a moving ship (relevant of course to arguments about Copernicus). The Aristotelian Simplicio had demanded experiment, but Salviati was adamant that without experiment he could demonstrate that they would fall at the bottom of the mast and not be left behind by the motion of the ship. For this purpose he made use of an ingenious thought experiment with inclined planes. Passages like this led Alexandre Koyré and others to lay great stress on what they saw as Galileo's Platonic streak, and heated controversy continues concerning the importance of experiment in Galileo's work as regards both the context of discovery and the context of justification, but no serious scholar would now go to Koyré's extremes in denigrating its role.

Although Salviati demonstrated to his companions' satisfaction the uniform speed of unimpeded horizontal motion, a complication remained, for such a motion is in fact in a circle about the centre of the Earth. In the *Dialogo* Galileo made some play with this to illustrate the circle's superiority over the straight line, but in the *Discorsi* he quickly approximates this with a straight line, and in doing so appeals to Archimedes (a particular hero of his), who in his *On Floating Bodies* had said that verticals could be treated as parallel even though in fact they all pointed towards the Earth's centre.

Vertical motion needed two considerations. In Day 1 of the *Discorsi* Salviati argued that in a vacuum all bodies, whatever their density, would fall with the same speed. A vacuum was unrealizable in practice, and so his main strategy employed thought experiments concerning ever rarer media, but he does cite somewhat exaggeratedly some actual experimentation with pendulums: we certainly do not need to consider here objects dropped from the Leaning Tower of Pisa. His more famous, and much discussed, argument about falling bodies occurs in Day 3, and concerns the acceleration of falling bodies. That they do accelerate had been known from time immemorial, but since at least the time of Aristotle most discussion had centred on why they did so. Salviati would have none of this.

> The present does not seem to me to be an opportune time to enter into an investigation of the cause of the acceleration of natural motion, concerning which various philosophers have produced various opinions, some reducing it to approach to the centre, others to there remaining successively less parts of the medium to be divided, others to a certain extrusion of the

> ambient medium which, in being rejoined at the rear of the mobile, is continually pressing and pushing it; which fantasies and others like them it would be appropriate to examine and resolve but with little gain. For now, it suffices our Author that we understand that he wishes to investigate and demonstrate to us some properties of a motion accelerated (whatever be the cause of its acceleration) in such a way that….[37]

The structure of Day 3 is that Salviati reads aloud a Latin treatise by Galileo, which the friends concurrently discuss in Italian.

The form of Galileo's Latin text is mathematical. After a brief introduction, there follow (without interruption for comment) one definition, four axioms and six theorems concerning uniform motion. We then move on to accelerated motion, for which 'it is appropriate to search for and explicate a definition that above all agrees with what nature employs'.[38] The basic criterion of choice was simplicity.

> When therefore I observe a stone falling from rest from on high to acquire successively new increments of speed, why should I not believe these increments to be made in the simplest way and that most accessible to everyone? And, if we consider attentively, we shall find no addition and no increment simpler than that which is applied always in the same way…. And so it seems in no way discordant with right reason if we accept that intensification of speed is made according to extension of time, from which the definition of the motion that will be our concern can be put thus: I call an equably or uniformly accelerated motion one which proceeding from rest adds to itself equal moments of swiftness in equal times.[39]

An obvious point, and one that is made by Sagredo, is that it might be clearer to say that speed increased proportionally with distance rather than with time. Salviati reports that Galileo himself had once held this view, but that it was in fact impossible, and indeed we may say that, if falling bodies did behave in this way, they could not start naturally from rest but would remain suspended as it were by skyhooks until given a push.

Galileo adds to the definition a principle that will allow him to draw into his discussion of falling bodies the behaviour of balls rolled down inclined planes. 'I accept that the degrees of speed acquired by the same mobile on different inclinations of planes are equal when the elevations of the planes are equal.' After Salviati has adduced some experimental evidence from pendulums for this, he proceeds to quote Galileo's first two theorems on accelerated motion. The first states that

> The time in which a space is traversed by a mobile in uniformly accelerated transference from rest is equal to the time in which the same space would be traversed by the same mobile carried with a uniform

> motion whose degree of speed was half of the last and highest degree of speed of the former uniformly accelerated motion.[40]

The medieval version of this theorem is now usually referred to as the Merton rule, after its probable origins in Merton College, Oxford, in the first half of the fourteenth century. There has been much discussion of the possibility of medieval influence on Galileo in this regard, but it seems ill-advised to look for anything more specific than the important step of (implicitly or explicitly) representing the intensities of speeds by segments of straight lines.

The second theorem and its corollary descend from speeds, or their intensities, to distances. The theorem shows that in a uniformly accelerated motion the distances traversed are as the squares of the times, and the corollary that the successive distances traversed in equal times, starting from rest, are as the successive odd numbers 1, 3, 5, 7,…. We are now reaching directly measurable quantities, and so the stage is set for Simplicio to ask for experimental evidence to show whether this is in fact the mode of acceleration employed by nature in the case of falling bodies. Salviati willingly complies.

> As a true man of science *[scienziato]* you make a very reasonable demand, and one that is customary and appropriate in the sciences which apply mathematical demonstrations to physical conclusions, as is seen with perspectivists, with astronomers, with mechanicians, with musicians, and others who confirm with sensory experiences their principles, which are the foundations of the whole succeeding structure.[41]

The experiments involved rolling well-prepared bronze balls down different lengths of an extremely smooth channel arranged at different inclinations to the horizontal, and measuring the times of their descents by water running out of a hole in a pail of water. One's initial impression may be that the set-up smacks of Heath Robinson (or Rube Goldberg), but repetitions of the experiments in recent years have shown that they can be surprisingly accurate, and so we may say that they did indeed give Galileo strong support for his 'law' of falling bodies.

The burden of the Fourth Day of the *Discorsi* is to combine the horizontal and the vertical, and so produce a general description of the behaviour of unimpeded 'natural' motion. The result is the famous parabolic path for projectiles. This was admirable mathematically but less satisfactory empirically for, as gunners and others were quick to point out, the maximum horizontal trajectory was not to be achieved by firing at an elevation of 45°, nor did actual cannon balls follow a neat mathematical parabola.[42] All this goes to show the extent to which, despite his practical rhetoric, such as that provided by setting the *Discorsi* in the Arsenal at Venice, the success of Galileo's mechanics depended on his focusing on ideal situations and ignoring many of the messy complexities of the actual physical world.

The extent of Galileo's reliance upon mathematics, sometimes to the neglect of exact correspondence with empirical facts, may have worried a good Baconian, but to his younger contemporary René Descartes the principal fault lay in a different direction. Writing to Marin Mersenne in 1638, shortly after the publication of the *Discorsi,* he gave the opinion that, although Galileo 'philosophized much better than most, yet he has only sought the reasons of certain particular effects without considering the first causes of nature, and so has built without foundation'.[43] This was to be seen as contrasting with Descartes himself, whose science of mechanics depended intimately upon both his method and metaphysics, and whose *Discours de la Méthode,* together with the *Diotrique, Météores* and *Géométrie,* had been published in the preceding year. And before that Descartes had almost completed his *Le Monde,* a major work on natural philosophy, which, as noted above, he then suppressed because of Galileo's condemnation in 1633.

After Descartes had in a familiar manner proved to his own satisfaction the existence of himself, of God, and of an external physical world, he was in a position to consider more exactly the nature of the last of these. And a very austere picture it was that he had of it. As he put it in the *Principia Philosophiae* (published in 1644), if we attend to the intellect, rather than the senses,

> We shall easily admit that it is the same extension that constitutes the nature of body and the nature of space, nor do these two differ from each other more than the nature of the genus or species differs from the nature of the individual. If while attending to the idea which we have of a body, for example a stone, we reject from it all that we recognize as not required for the nature of body, let us certainly first reject hardness, for if a stone is liquefied or divided into the minutest particles of dust, it will lose this, but will not on that account cease to be body; let us also reject colour, for we often see stones so transparent as there were no colour in them; let us reject heaviness, for although fire is so light, we do not the less think it to be body; and then finally let us reject cold and heat, and all other qualities, because either they are not considered to be in the stone, or, if they are changed, the stone is not on that account thought to have lost the nature of body. We shall then be aware that nothing plainly remains in the idea of it other than that it is something extended in length, breadth and depth, and the same is contained in the idea of space, not only full of bodies, but also that which is called a vacuum.[44]

In this way the physical universe is reduced to characterless matter swirling around in the famous Cartesian vortices, and by its actions on our sense organs producing our perceptions of all the different qualities.

Descartes's physical universe has certain similarities with that of the ancient atomists, but there were important differences. In the first place, matter for Descartes was not composed of indivisible atoms moving in void, but constituted

a continuous plenum without empty spaces, although for most scientific purposes one could focus on the three different sorts of particles that were separated out, in a manner similar to relatively self-subsistent eddies, by the vortical motion. These were in a way a replacement for the Aristotelian elements. The first comprised extremely subtle and mobile matter, the second small spherical globules, and the third larger particles which were less apt for motion.

> And from these three we show that all the bodies of this visible world are composed, the Sun and the fixed stars from the first, the heavens from the second, and the Earth together with the planets' and the comets from the third.[45]

In this way one is relieved from the almost impossible task of thinking all the time starkly in terms of the motions of fundamentally undifferentiated continuous matter.

A perhaps more important difference from ancient atomism was that the motions of matter were by no means random, and Descartes's system was also more effectively rule-governed than those of Empedocles, with his guiding principles of Love and Strife, and of Anaxagoras with that of Mind. Descartes believed that any system of matter created by God would obey certain laws of motion that followed from God's unchangeableness. The first is that every body would remain always in the same state unless this was changed by the action of external forces, and Descartes was adamant that there be included in this (contrary to the Aristotelian tradition) a body's state of motion. The second[46] is that the motion of any part of matter always tends to be in a straight line, and this when added to the first gives a fair approximation to Newton's first law of motion, the principle of rectilinear inertia, which may rightly be regarded as the foundation stone of classical mechanics. The third law is rather more complicated: it concerns the collisions of bodies, and asserts *inter alia* that in these the amount of motion is conserved. From it Descartes deduces some hideously incorrect laws of impact, which older fashioned histories of mechanics used often to crow over, but this was to neglect the fact that, as regards historical influence, the form of Descartes's discussion was far more important than its exact content.

Descartes's first two laws in particular led to some novel questions about forces. For instance, the acceleration of falling bodies implied the existence of a force to bring about this change from its preferred state of uniform rectilinear motion, and similarly did the deviation of the planetary orbits from this state. Armed with hindsight, the reader will recall how important these questions were for Newton on his journey towards the principle of universal gravitation, but this serves to show up important differences between the two men. Whereas Newton asked typically how big the forces were (at least as a preliminary to deeper explanation), Descartes sought for their causes, and in both cases specified these

elaborately, but still vaguely, in terms of what we may call differential pressures from the vortices.

Compared with Newton on this and other issues, Descartes appears a qualitative rather than a quantitative scientist, and this ties in with another important methodological difference. Newton, at least rhetorically within the context of justification, was a strong inductivist.

> In experimental philosophy we are to look upon propositions inferred by general induction from phenomena as accurately or very nearly true, notwithstanding any contrary hypotheses that may be imagined, till such time as other phenomena occur, by which they may either be made more accurate, or liable to exceptions.[47]

For Descartes and his followers, however, hypotheses played a crucial role. The general structure of matter and the general laws of motion could be reached purely by deduction, but this process could not proceed unaided to unique explanations of particular phenomena.

> When I wished to descend to [effects] that were more particular, so many different ones were presented to me that I did not think it possible for the human mind to distinguish the forms or species of bodies that were on Earth from an infinity of others which could have been there if it had been the will of God to put them there, nor consequently to relate them to our use without coming to the causes by means of the effects and employing several particular experiences. Following this, in passing my mind again over all the objects which were ever presented to my sense, I indeed dare to say that I have not remarked there anything that I could not explain suitably enough by the principles that I have found. But I must also admit that Nature's power is so ample and so vast and that my principles are so simple and so general that I hardly remark any particular effect without immediately recognising that it can be deduced in many different fashions, and that my greatest difficulty is usually in finding upon which of these fashions it does depend. And for this I know no other expedient than to seek once again some experiences which are such that their outcome will not be the same if it is in one of the fashions that one must explain it as it will be if it is in the other.[48]

In this way Descartes gives a reasonably clear, if not unproblematic, expression of what is often referred to as a hypothetico-deductive methodology, of a kind which was employed by many notable scientists of the later seventeenth century.

Descartes was not alone in producing a mechanical philosophy— one need only think of the work of Pierre Gassendi and of Thomas Hobbes—but it was his system together with later developments and modifications that was most generally influential. And when Aristotelian natural philosophy began at last to

be displaced from the universities it was usually replaced by a version of Cartesianism, although this enjoyed a relatively short reign before succumbing to the incursions of Newtonianism. We may thus conveniently regard Descartes's work as representing the culmination of the first phase of the Scientific Revolution.

NOTES

1 *The Works of John Play fair, Esq.... with a Memoir of the Author* (Edinburgh, Archibald Constable, 1822), vol. 2. This was being completed at the time of his death in 1819; cf. vol. 1, pp. lxi-lxii, vol. 2, pp. 3–4. For helpful comments on an earlier draft of this chapter I am very grateful to Steven J.Livesey and Jamil Ragep.
2 W.Whewell, *History of the Inductive Sciences, from the Earliest to the Present Time* (London, Parker, 3 vols, 3rd edn, 1857), vol. 1, p. 181.
3 cf.Ferguson [3.10], ch. 11.
4 cf. A.Koyré, *Etudes d'Histoire de la Pensée Philosophique* (Paris, Armand Colin, 1961), pp. 279–309.
5 *Oxford English Dictionary,* s.v.
6 But cf. J.Needham, *The Grand Titration: Science and Society in East and West* (London, Allen & Unwin, 1969), pp. 276–85.
7 cf. N.W.Gilbert, 'A Letter of Giovanni Dondi dall'Orologia to Fra'Guglielmo Centueri; A Fourteenth-Century Episode in the Quarrel of the Ancients and the Moderns', *Viator* 8 (1977) 299–346.
8 See for example A. Keller, 'A Renaissance Humanist Looks at "New" Inventions: The Article "Horologium" in Giovanni Tortelli's *De Orthographia*', *Technology and Culture* 11 (1970) 345–65.
9 Zilsel [3.56].
10 cf. K.R.Popper, *Objective Knowledge: An Evolutionary Approach* (Oxford, Clarendon, 1972), ch. 3; Molland [3.51].
11 I.B.Thomas, *Selections Illustrating the History of Greek Mathematics* (London, Heinemann, 1939), vol. 2, p. 31.
12 Descartes [3.36], vol. 10, p. 373.
13 Pappus of Alexandria, *Book 7 of the Collection,* ed. A.Jones (New York, Springer, 1986), p. 82.
14 See, for instance, R.Robinson, 'Analysis in Greek Geometry', in R.Robinson, *Essays in Greek Philosophy* (Oxford, Clarendon, 1969), pp. 1–15; M.S. Mahoney, 'Another Look at Greek Geometrical Analysis', *Archive for History of Exact Sciences* 5 (1968–9) 318–48; J.Hintikka and U.Remes, *The Method of Analysis: Its Geometrical Origin and General Significance* (Dordrecht, Reidel, 1974).
15 *Aubrey's Brief Lives,* ed. O.L.Dick (London, Seeker & Warburg, 1949), p. 130.
16 L.Prowe, *Nicolaus Coppernicus* (Berlin, Weidmannsche Buchhandlung, 1883–4), vol. 2, p. 185.
17 Copernicus [3.33], sig. iii.v.
18 *Luther's Worksy Volume 54: Table Talk,* ed. and trans. Theodore G.Tappert (Philadelphia, Penn., Fortress Press, 1967), p. 359.
19 Westman [3.72].

20 Copernicus [3.33], sig. i.v.
21 This is the date of his matriculation; he did not actually move to Tubingen until 1589. See the article on him by Owen Gingerich in the *Dictionary of Scientific Biography*.
22 Kepler [3.46], vol. 8, p. 9; Kepler [3.47], 38–9.
23 Kepler [3.46], vol. 3, p. 178.
24 Kepler [3.46], vol. 3, p. 366.
25 *Astronomia Nova* ΑΙΤΙΟΛΟΓΗΤΟΣ*, seu Physica Coelestis, tradita commentaniis De Motibus Stellae Martis, Ex Observationibus G.V.Tychonis Brahe*.
26 *The Correspondence of Isaac Newton,* ed. H.W.Turnbull *et al.* (Cambridge, Cambridge University Press, 1959–77), vol. 2, p. 436.
27 Galileo [3.43], 50–1.
28 Galileo [3.43], 57.
29 Galileo [3.43], 93–4.
30 Galileo [3.43], 186.
31 Finocchiaro [3.65], 67–8.
32 Finocchiaro [3.65], 146.
33 Galileo [3.44], 416–17.
34 Galileo [3.44], 464.
35 Descartes [3.36], vol. 6, p. 60.
36 Isaac Newton, *Philosophiae Naturalis Principia Mathematica…. Perpetuis Commentariis illustrata, communi studio pp. Thomae Le Seur & Francisci Jacquier Ex Gallicana Minimorum Familia, Matheseos Professorum* (Geneva, Barrillot, 1739–42), vol. 3.
37 Galileo [3.40], vol. 8, p. 202. In producing my own translations from the *Discorsi,* I have made use of those by Stillman Drake in Galileo [3.45], whose volume includes the page numbers from the *Edizione Nazionale*.
38 Galileo [3.40], vol. 8, p. 197.
39 Galileo [3.40], vol. 8, p. 198.
40 Galileo [3.40], vol. 8, p. 208.
41 Galileo [3.40], vol. 8, p. 212.
42 cf. A.R.Hall, *Ballistics in the Seventeenth Century: A Study in the Relations of Science and War with reference particularly to England* (Cambridge, Cambridge University Press, 1952), and M.Segre, 'Torricelli's Correspondence on Ballistics', *Annals of Science* 40 (1983) 489–99.
43 Descartes [3.36], vol. 2, p. 380.
44 *Principia Philosophiae* II. 11, in Descartes [3.36], vol. 8–1, p. 46.
45 *Principia Philosophiae* III. 52, in Descartes [3.36], vol. 8–1, p. 105.
46 The numbering is from the *Principia Philosophiae* (II. 37–40); it was different in *Le Monde,* where the laws are deduced rather more vividly from God's creation of an imaginary world.
47 *Sir Isaac Newton's Mathematical Principles of Natural Philosophy and his System of the World,* trans. Andrew Motte, revised by Florian Cajori (Berkeley, Calif., University of California Press, 1934), p. 400.
48 Descartes [3.36], vol. 6, pp. 64–5.

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CHAPTER 4
Francis Bacon and man's two-faced kingdom

Antonio Pérez-Ramos

Two closely related but distinct tenets about Bacon's philosophy have been all but rejected by contemporary historiography. The first is Bacon's attachment to the so-called British empiricist school, that is, the perception of him as the forerunner or inspirer of thinkers such as Locke, Berkeley or Hume. This putative lineage has been chiefly the result of nineteenth-century German scholarship, beginning with Hegel's own *Vorlesungen über die Geschichte der Philosophie* and his trail of imitators and disciples.[1] The glaring fact that Bacon's name is hardly (if at all) mentioned by his progeny of would-be co-religionists, or the serious questioning of the existence of any such entity as the 'British empiricist school', has added further weight to this radical work of revision of the Lord Chancellor's significance.[2] The canon of great philosophers is, to a great extent, a matter of flux, and nationalistic attachments or polarizations should always pale beside the historically recorded use of the same idiolect in philosophical matters, as is largely the case with Descartes or Malebranche—those French 'rationalists'— and Locke, Berkeley or Hume—those 'British empiricists'.

The second tenet that awaits clarification is the exact nature of Bacon's own philosophical achievement as regards the emergence of the new scientific movement—a movement usually associated with the names of Copernicus, Galileo, Kepler, Descartes or Newton. This point is extremely difficult to assess, for it is almost demonstrably true that no such stance or category as our 'science' (any more than our 'scientist') existed in Bacon's day and for a long time thereafter,[3] and hence the web of interpretations must make generous allowances for an inevitable although self-aware anachronism. Bacon was systematically deified by the English Royal Society, by eighteenth-century French *philosophes* and by eminent Victorian figures such as Herschel or Whewell. Research has shown, however, that the tenor of such deifications was different in each case; for example, the last-named *Baconsbild* was largely prompted by criticism of supposedly Baconian doctrines coming from David Brewster and other Scottish scientists and philosophers, as well as from Romantic notions about the role of 'genius' in science, hardly compatible with the allegedly egalitarian character of Bacon's methodology.[4] Be that as it may, as an example of the sort of cultural

consensus which transcends the limits of what can be reasonably termed 'philosophy' and adopts the sweeping pathos of an all-embracing ideology, we can profitably read this anonymous passage[5] from the *Quarterly Review*—a sample of Bacon's cult in Victorian England:

> The Baconian philosophy, having for its object the increase of human pleasures and the decrease of human pains, has on this principle made all its brilliant discoveries in the physical world, and having thereby effected our vast progress in the mechanical arts, has proved itself to be the all-sufficient philosophy.

This evaluation has radically changed in our century. Bacon's philosophy has been solemnly declared a fraud, bearing, as a methodology, no relation whatsoever to the heritage of the true founding fathers of modern science—all of them representatives of mathematically inspired patterns of thought, that is, men such as Copernicus, Galileo, Kepler, Descartes or Mersenne. Thus, any talk about Bacon's methodology has been dismissed as 'provincial and illiterate'.[6] Now and then, however, Baconian *apologiae* have appeared, for example Paolo Rossi's book *Francesco Bacone. Dalla Magia alla Scienza* (Italian original published in 1957),[7] but it is a most telling sign of the ostensibly difficult position that would-be apologists have to defend that nowadays the terms of the debate are most of the time centred around the 'arts of communication and rhetoric', the general history of ideas, politics and literature, rather than dealing with philosophy proper.[8] Reminders such as Paolo Rossi's have been all too rare, and scant attention has been paid to Bacon's philosophical credentials:

> One very obvious thing must not be forgotten: the science of the 17th and 18th centuries was at once Galilean *and* Baconian *and* Cartesian.[9]

Yet, the sense in which a branch at least of the new science was Baconian remains opaque if a precise answer is not given to this precise historical query: *what exactly makes a science Baconian?*

Now, it is the great merit of T.S.Kuhn to have solved (partly at least) this scholarly enigma by providing a highly plausible profile of that new entity in Western culture: the Baconian sciences which, both as regards their objects of knowledge and their methodology, entered the sanctioned canon of secular research about half a century after the death of their inspirer. Contrary to his mathematically tutored counterpart, the Baconian natural philosopher aspired to isolate some humble pieces of knowledge by drawing copious histories or inventories of the phenomena under investigation—sometimes viewing them for the first time as worthy objects of study—and then cautiously and provisionally theorizing on his findings.[10] In brief, the Baconian natural philosopher *created* or partook of a novel 'style of scientific thinking'.[11] The contention that experimenting in certain new fields of research— e.g. magnetism, electricity,

living matter and so forth—in the way we observe in men like Boyle or Hooke and a host of minor virtuosi is a legitimate goal of the inquiring mind bypasses the blunt question as to Bacon's direct influence on Western science. Those thinkers and their changing relation with their mathematical counterparts established the rise of a solid experimental tradition whose ultimate source we find in the then prevalent interpretation of the Lord Chancellor's writings.[12] The fusion of the mathematical tradition with the Baconian was to become a fascinating and decisive chapter in the history of Western thought, but it took place with different rhythms and priorities in each science as well as in each country. To date, however, this is the best answer that we possess as regards the significance of Baconian ideas amongst methodologically minded scientists. As to philosophy proper and the intrinsic merits of, say, Bacon's seminal insights on method or induction (questions intriguingly absent from the concerns of the early Baconians), the only significant exception to the chorus of universal denigration seems to be the study systematically undertaken by L. Jonathan Cohen. From his interpretations there emerges, amongst other findings, the unexpected notion of a Baconian as against a Pascalian conception of probability, and the general and radical revision of Bacon's ideas in the context of scientific methodology. In fine, a new philosophical setting for re-evaluation and study is beginning to take shape.[13]

Bacon's main starting-point is expressly announced in the very title of his overambitious *Instattratio Magna* and of its second (and only completed) part: the *Novum Organum*.[14] That is, Bacon places himself, as a thinker, under the aegis of beneficent and radical innovation. Now, it would be utterly naive to presuppose that categories of innovation and novelty have been coextensive throughout history. On the contrary, men have devised different techniques when dealing with new ideas or objects whenever it was felt that the accepted fabric of meanings was unable to account for or assimilate a challenging *novum*. In Bacon's case most scholars agree that a particular kind of utopianism was the driving force that acted behind his philosophical endeavours. Nevertheless, there are many brands of utopianism and Bacon's cognitive project of a new *instauratio* blends together some of the most recondite meanings of early modern Utopian thought. First of all, that thought does *not* recognize or think itself as revolutionary in our sense of the term, and therefore it does not inscribe itself in a linear conception of history, contrary to what Bacon's most vocal admirers were to assume in the eighteenth century.[15] The living roots of Bacon's utopianism, as manifested by his frequent use of the concept of *instauration,* are simultaneously religious, ritual, civil and 'technological'. *Instaurare* is nothing less than 'restoring' man's power over Nature as he wielded it before the Fall; *instaurare,* furthermore, means to channel the pathos of novelty towards epistemic and political goals that bear the traces of spiritual edification and societal initiation (as in the phrase *instauratio imperii* to be found in the tract *Temporis Partus Masculus,* drafted *c.* 1603); and, lastly, *instaurare* strikes a technological chord because Bacon makes his own the architectural topos which

the term had come to express in most Western languages.[16] Thus, Bacon explicitly refers to God as 'Deus universi, conditor, conservator, instaurator'(II, 15). Or, as he puts it in the celebrated lines of *Novum Organum* II, 52:

> Man by the Fall fell at the same time from his state of innocency and from his dominion over Creation. Both of these losses, however, can even in this life be in some part repaired, the former by religion and faith, the latter by arts and sciences.
>
> (IV, 247f.; I, 365f.)

Further yet, when Bacon expresses himself in a more sober manner, what he seems to present as his own golden age of thought turns out to be the pre-Socratic period, as though the tradition of 'yet former ages' had an unexplored potential that modern thought, however innovative, could perhaps restore but hardly surpass or emulate.

> Bacon's *instauratio ab imis fundamentis* ('a new beginning from the very foundations', IV, 53) in fact leads from past-oriented humanism and Christian ideas of innovation to the early modern concept of revolution, *for which antecedents become irrelevant*. Instauratio is a flexible vehicle that helps Bacon to leap that distance.[17]

There is a second starting-point in Bacon's speculations which is not, historically speaking, so tied to the particular kind of culture to which Bacon belonged and against which he reacted. Like Plato's Myth of the Cave or Kant's Dove of Reason, Bacon's typology of human error can be understood and appreciated (and in fact it usually is) outside the specific province of Bacon's philosophy. So his theory of the Idols or canonical forms of error imprinted on the human mind (*Nov. Org.* I, 39–41) is one of the most brilliant precedents of later attempts at systematically building up a catalogue or anthropological classification of ideologies.[18] Mankind, according to Bacon, is fatally prone to err for a variety of reasons. As a species, it has its own limitations which make error inescapable; such intellectual and sensory constraints are called *Idola Tribus* or Idols of the Tribe, and there is no hint of an optimistic note as to whether they can be overcome or cured (*Nov. Org.* I, 399–41). Moreover, each man, when trying to know anything, invariably brings with him his own set of preferences and dislikes, that is, his own psychological make-up, which will colour whatever he attempts to cognize in its purity. These prejudices are the so-called *Idola Specus* or Idols of the Cave (Bacon is alluding to Plato's image in *Republic* 514A–519D), to which all of us, as individuals, are subject (*Nov. Org.* I, 42). Further yet, man is the hopeless victim of the traps and delusions of language, that is, of his own great tool of knowledge and communication, and hence he will fall prey to the *Idola Fori* or Idols of the Marketplace, which unavoidably result from his being a speaking animal (*Nov. Org.* I, 43). And, lastly, the very act of entering into intercourse

with others conjures up a great panoply of illusion and imposture, where truth succumbs to the sophistries of social convention: these are the *Idola Theatri* or Idols of the Theatre. According to Bacon, there is no thinking in a vacuum: man is beset by what others thought before him, and therefore he is the appointed heir to all past sects and philosophies. The Idols of the Theatre are for ever hovering over the prospective philosopher (*Nov. Org.* I, 44). The mind of man, in sum, is by no means a *tabula abrasa,* to use the consecrated empiricist shibboleth, but rather an 'enchanted glass' or 'distorted mirror' (St Paul, I Cor. 13: 9–10, 12). The true interpreter of Nature, that is, the true philosopher, must be always on his guard against the intrusion of such *Trugbilder* or mirages into his field of cognitive interests. Bacon, however, never expressly states that man can become entirely free from such deceiving propensities. Not even the last of them, that is, the *Idola Theatri* or unlawful children of philosophy, disappear from the menacing potential of Bacon's own speculations.

Let us go back to the technocratic component that the concept of *instauratio* encapsulated. Bacon, seemingly innocently, defines philosophy as 'the Inquiry of Causes and the Production of Effects' (*De Augmentis* III, 4: I, 550; IV, 346). Likewise, the High Priest in the *Nova Atlantis* instructs the admiring visitor by telling him that 'the end of our Foundation [that is, Salomon's House] is the knowledge of causes, and secret motions of things; and the enlarging of the bounds of human empire to the effecting of all things possible' (III, 156). Now, the decisively striking point in these and similar definitions is their second part, for traditional philosophical discourse did not contemplate the *physical* production of anything. Surely, the 'effects' *(opera)* to be achieved are dictated by the general philanthropic tenor of Bacon's philosophy, but it would be a gross mistake to confuse it, as is often done, with any form of utilitarianism.[19] First of all, we have to identify the ideological trend that Bacon is recapturing when proffering such pithy definitions. Now, this trend leads us back to a tradition which, though prior to humanistic thought, inspired a great deal of philosophical writing in the sixteenth and seventeenth centuries. In fact, the first great representative of this current in the modern epoch is Nicholas of Cusa (1401–64), who systematically reflected on the much-discussed relationship between God's and man's intellect and their *opera*. Heir to Neoplatonic traditions, Cusa establishes that man, that fallen creature, is not wholly devoid of that all-important and defining attribute of the Christian Godhead: the power to create.[20] Even as God created the world, man is empowered to create another world (that of mathematicals and abstract notions) in so far as he is not eternally condemned to copying or imitating Nature but is able to surpass her by making items (e.g. a spoon) for which Nature has no exemplar or prototype.[21] Of course, Cusa's main interests were theological and hence he did not develop a line of thought which we could easily link with 'the question of technology', as it came to be formulated much later. But it is surprising how tantalizingly close he came to giving a systematic response to many of the sporadic pronouncements—

sometimes articulated in interrogative form—which abound in the perhaps better known reflections of the humanists. Let us quickly review some of them.

Juan Luis Vives (1492–1540) pithily writes that 'man knows as far as he can make',[22] posing thereby a pragmatic criterion for knowledge and certainty which others were to exploit in various forms. Cardanus (1501–76) establishes that only in mathematics is there certainty, because the intellect itself *produces* or *brings forth* the entities it operates with.[23] Leonardo (1452–1519) states that human science is a second creation.[24] The sceptic Francisco Sanches (1552–1623), in *Quod Nihil Scitur* (1581), uses this topos to castigate human reason, since only God can know what he has made.[25] Bruno (1548–1600) rejects the primacy of contemplation and argues that, where there is the power to make and to produce something, there is also the certainty of that something being known.[26] Paracelsus (1493–1541) clearly argues that Nature has to be artificially brought to the point where she discloses herself to man's enquiring gaze.[27] Even less known figures are eager to stress that it is *homo faber* only who wields the sole and true weapons enabling him to enter into Nature's mysteries. For example, the sixteenth-century Italian engineer Giuseppe Ceredi expresses the notion that modelling 'Nature as if it become mechanical in the construction of the world and of all the forms of things' would enable the natural philosopher, by proper and voluntary manipulation, to attain 'to the perfection of art and to the stable production of the effects that is expected'.[28] Now, this tradition of thought goes back to classical Antiquity, and identifies objects of knowledge and objects of construction in various fields and degrees. For example, this is done in mathematics, craftsmanship, theology, astronomy and other disciplines, and later on this topos helped people to rethink the essence and role of human art, which, in view of the fertility of man's inventiveness, could no longer be perceived as a simple mimesis or imitation of Nature.[29] Several labels can be aptly applied to this particular cast of the human mind when reflecting on the problem of knowledge: the 'ergetic ideal' is a very accurate appellation;[30] the *verum ipsum factum* principle echoes a historically consecrated formula (by Giambattista Vico in the eighteenth century); and the name 'maker's knowledge' reminds us that images of science, ideals of thought and abstract speculations on the cognitive powers of man are grounded on and ultimately lead to a handful of historically and socially given archetypes: man as beholder, man as user, man as maker.[31] For these reasons, Bacon's definition of philosophy and its 'productive' appendix turns out to be slightly less original than it appeared at first sight (or rather, at second sight, for at first sight it could well be taken for a trivial utilitarian tag). True, it must have seemed so to Bacon's contemporaries, accustomed as they were to a 'verbal' kind of culture which Bacon so directly attacks. Likewise, the famous dictum 'Knowledge is power' appears in a different light now: knowledge is that manipulatory power *(potentia)* which serves as its own guarantee.[32]

Thus far what we might term Bacon's implicit or tacit starting-point in epistemological matters. He is the (unexpected?) representative of an established but almost hidden gnoseological tradition. His driving force seems to be the

vindication of a prototype or paradigm of knowledge and of a criterion to gauge it that he (unlike other thinkers) nowhere appears to have fully articulated in an abstract and systematic manner. Yet, Bacon's starting-point, as revealed by the rhetorical devices he employs in order to commend his cognitive project and by the religious mould in which he chooses to cast his programme, is as transparent as it could be. Most significantly, Bacon contrasts the progress and perfectiveness of human art, as portrayed in technical innovation, with the stagnation and backwardness of philosophy (*Parasceve* I, 399; IV, 257; *De Augmentis* II, ch. 2: I, 399f.; IV, 297f.). The printing press, the mariner's compass and the use of gunpowder are not only the indelible marks of modernity but the living proof of the fertility of the human mind when correctly applied to those things it is legitimately fit to know or invent. Yet, one should stress here the tremendous axiological shift that Bacon is silently proposing as his rock-bottom option for, on purely logical grounds, *nothing* is intrinsically more 'useful' than anything else, except with respect to a scale of values which, in itself, ought to remain beyond the very scope of discussion about fertility or sterility.[33]

The specific contents of a given philosophical discourse may originally correspond to or be the basis of an ideal of science which, for a variety of reasons, is subsequently forgotten or overshadowed by a competing one. That Bacon's insights into the nature of human knowledge constitute a coherent type of operativist or constructivist epistemology in the sense enunciated above by no means implies that the *ingredients* of Bacon's scientific ideal could not have been extracted from the original context and taken over by other cognitive programmes or proposals. Ideas about induction, experiment, mattertheory and the like belong to this class of ingredients, as do in other domains techniques of measurement or the register of natural constants. The latter build up the specific 'grammar' of a discourse (i.e. its syntactic rules, its vocabulary and so on), whilst the former are akin to the general semantics which the text ultimately appeals to or reveals. Thus, the elementary propositions of geometrical optics (e.g. the laws of refraction or reflection) can serve the purposes of and be incorporated into both a corpuscularian and an undulatory theory of light. Likewise, Bacon's seminal insights about induction or experiment may be studied, to a large extent at least, independently of any discussion about the maker's knowledge ideal.

Contrary to a widespread opinion, Francis Bacon was not the first philosopher who tried to elaborate something akin to a logic of induction, and the wealth of remarks left by Aristotle on *epag*$\vec{o}$*g*$\vec{e}$ well deserve exposition and comment.[34] The scholastic tradition, by contrast, was more bent on the predominantly deductive cast of Aristotle's mind, and hence the Schoolmen's references to induction are both repetitive and shallow.[35] In brief, they distinguished between a so-called *inductio perfecta,* which enumerated all the particulars under consideration, and an *inductio imperfecta,* which omitted some of them and therefore was liable to be overthrown by any contradictory instance. In neither

case, however, did the scholastics or rhetoricians consider induction as a logical process for gaining knowledge. Francis Bacon was well aware of this tradition, and so he calls 'puerile' (*Nov. Org.* I, 105: I, 205; IV, 97; cf. also I, 137; IV, 24) the imperfect induction of the Schoolmen. That he did not care to mention the *inductio perfecta* may mean that, like other theoreticians afterwards, he did not consider it induction at all.[36] Be that as it may, a cursory perusal of Bacon's description of his own form of induction, and, above all, of the illustrations he gives of its deployment and use in *Novum Organum* II, 11–12, 36, builds up a strong case for deciding that Bacon's employment of the term (even as of the term 'form', as we shall see) is but a mark of his self-confessed terminological conservatism (*Nov. Org.* II, 2), rather than a direct reference to a lexically well-established notion.

The starting-point for the deployment of Bacon's *inductio* is roughly similar to that of previous *inductiones* (as described in contemporaneous textbooks of philosophy and rhetoric).[37] Nevertheless, it covers a register of logical procedures and is directed towards an aim —i.e. the discovery of Forms—that separates it off from traditional acceptations of that term. As a matter of fact, Bacon's *inductio* belongs to the new-born movement of the *ars inveniendi,* and perhaps we should understand the term *inductio* as an umbrella word of sorts covering different steps and procedures.[38] For brevity, I shall call them (1) the inductive, (2) the deductive and (3) the analogical steps.

Bacon never tired of stressing that before his great logical machine could be put into use a vast collection or inventory of particulars should be made, building up a 'natural history' *(historia naturalis et experimentalis)* on which the investigator could firmly base himself before proceeding further. This notion of a 'natural history' found its finest hour with the members of the Royal Society, and even Descartes wrote to Mersenne most approvingly about this Baconian project.[39] The notion, however, is somewhat circular in Bacon's mind, for natural histories worth their salt should contain a record of artificial things or of 'effects' *(opera)* wrought by man, that is, 'Nature in chains' (I, 496ff.; III, 33ff.; IV, 253), and also of what we would term today 'theory-laden experiments' or, in Bacon's colourful phrase, information resulting from 'twisting the lion's tail': these are called upon to show how Nature behaves under unforeseen or 'unnatural' circumstances. The artificialist twist that Bacon gave to his original notion was not always well understood, and the full meaning of his concept of 'experience' became duly simplified as time went on and Bacon's insight simply came to mean 'compilation'.[40]

If, as L.Jonathan Cohen argues, all inductions can be divided into ampliative and summative,[41] then Bacon's concept is clearly a case of ampliative induction by way of elimination. It is not the sheer number of instances that counts in Baconian induction, but what we can term their 'quality'. This is clearly expressed by Bacon in the *Novum Organum* by isolating twenty-seven privileged or ostensibly telling manifestations of the phenomenon under study (i.e. a *natura* in Bacon's terminology) which carry a special, sometimes decisive, weight in the

unfolding of the whole inquiry: *unde terminatur questio* (I, 294; IV, 150). Amongst other things, such privileged or *prerogative* instances (like main witnesses in a judicial hearing) are to help the investigator to establish the three canonical tables of Baconian *inductio,* that is, of Absence, Presence, and Degree of the *natura* in question, according as to whether a given phenomenon or *natura* appears always on its own, always accompanied by another, concomitant phenomenon, or sometimes varies in its conjunction according to circumstances that the investigator has to determine *or* manipulate (IV, 149–55; I, 261–8). Now, it is self-evident that the result of all these procedures is to isolate the phenomenon X, with whose manifestation we started, in order to find a kind of explanation *(forma)* of its essence or innermost being, as Bacon profusely illustrated with the cases of heat and motion in *Novum Organum* II, 20. In his own worked-out example, heat turns out to be, after all due rejections have been made, a species or particular class of motion, duly qualified and distinct. But here something exceptionally important happens. It is not the inductive work, that is, the summative or accumulative operation consisting of tabulating the different types of heat and their concomitant *naturae,* that seems to be functioning now, but a calculated series of deductive procedures aiming for the most part at eliminating redundant material in the form of a battery of deductive tests, that is, prerogative instances whose 'inductive' role is to serve as a deductive canon. These instances are sometimes falsification procedures of sorts, sometimes verificationist or probative attempts. For clarity, let us dwell on the following example. Bacon is here discussing the *natura* and *forma* of weight, that is, the best explanation which could answer this particular query: is weight, as a *natura,* a quality inherent in all bodies (something akin to form and extension) or is the weight of a particular body a variable depending on that body's distance from the Earth? The following reasoning belongs to Bacon's induction, but its deductive credentials are impeccable when he casts his argumentation into the scheme of an *instantia crucis,* or Instance of the Fingerpost in Victorian English:

> Let the nature in question be Weight or Heaviness. Here the road will branch into two, thus. It must needs be that heavy and weighty bodies either tend of their own nature to the centre of the Earth by reason of their proper configuration *[per proprium schematismum];* or else that they are attracted by the mass or body of the Earth itself *[a massa corporea ipsius Terrae]* as by the congregation of kindred substances, and move to it by sympathy *[per consensum]*. If the latter be the case, it follows that, the nearer heavy bodies approach the Earth, the more rapid and violent is their motion; and that the further they are from the Earth, the feeble and more tardy is their motion (as in the case of magnetical attraction); and that this action is confined to certain limits *[intra spatium certum],* so that if they were removed to such a distance from the Earth that the Earth's virtue could not act upon them, they would remain suspended like the Earth itself, and not fall at all.

(IV, 184f.; I, 298f.)

It is obvious from this presentation of the dilemma that Bacon is stressing the importance of a falsificationist procedure of the *modus tollens* kind: the end result expresses, logically speaking, the rejection of one hypothesis rather than the confirmation of its rival. The tacit presupposition that they exhaust the field of possible hypotheses is irrelevant at this stage; for Bacon *inductio* is an open-ended process and a third hypothesis may be suggested afterwards.

Now in order to decide between the two theories Bacon goes on to propose an experiment which reproduces a pattern of reasoning already deployed in the Table of Rejections and Exclusions. The following *instantia crucis*[42] bears the mark both of Bacon's artificialist approach to natural inquiries (the whole point now is to *create* new data) and of the eminently deductive character of the whole procedure:

> Take a clock moved by leaden weights, and another moved by the compression of an iron spring; let them be exactly adjusted, that one go no faster than the other; then place the clock moving by weights onto the top of a very high steeple, keeping the other down below; and observe carefully whether the clock on the steeple goes more slowly than it did on account of the diminished virtue of its weights *[propter diminutam virtutem ponderum]*. Repeat the experiment *[experimentum]* in the bottom of a mine, sunk to a great depth below the ground; that is, observe whether the clock so placed does not go faster than it did, on account of the increased virtue of its weights *[per auctam virtutem ponderum]*. If the virtue of the weights is found to be diminished on the steeple and increased in the mine, we may take the attraction of the mass of the Earth as the cause of weight.
>
> (IV, 185; I, 299)

Thus, we may extract at least five deductive procedures embedded in the fabric of Bacon's so-called induction, all of them leading to an educated guess *(opinabile)* as to the Form or explanation of the phenomenon under scrutiny.[43] This of course reinforces our claim that Bacon was using the term *inductio* in an extremely loose sense, meaning perhaps what a modern would call 'a logic of scientific discovery', rather than trying to 'ameliorate' the procedure called by that name as understood by contemporary rhetoricians and philosophers.

Nor is this all. If we go back to the famous Baconian inquiry as to the Form of heat, we shall find that the (provisional) end result or *vindemiatio prima* (literally, 'first vintage') runs as follows:

> Heat is a motion, expansive, restrained and acting in its strife upon the smaller particles of bodies. But the expansion is thus modified; while it expands all ways, it has at the same time an inclination upwards. And the

> struggle in the particles is modified also; it is not sluggish, but hurried *[incitatus]* and with violence *[cum impetu nonnullo]*.
>
> (*Nov. Org.* II, 20; iv, 153; i, 266)

This is, in Bacon's phrase, the 'first vintage' or *permissio intellectus,* which is obviously a way of saying his first *hypothesis* after the exclusions and rejections resulting from the Tables. Now, it would be utterly useless to seek the relevant adjectives *(incitatus, expansivus…)* in the foregoing Tables—those indeed that make possible the exercise of 'inductive' reason—nor in the main thesis itself, namely that heat is a species of motion of such and such a kind. Bacon's reasoning now is neither deductive nor inductive but *analogical,* that is, it seems to leap beyond what logic proper would allow. If Bacon calls these highly speculative jumps *permissiones intellectus,* and the moment the mind is allowed to make them *vindemiatio* or vintage, then one has to stress that in such stages negative instances are the most valuable and trustworthy of all: *major est vis instantiae negativae* (*Nov. Org.* I, 46). This, of course, no verificationist would adopt as a guideline. But when, how and why is it 'permissible' for the human intellect to proceed to such flights of creative imagination is something Bacon leaves embarrassingly in the dark: his approach is, so to speak, phenomenological as regards the inquiring mind, rather than, as with Descartes and others, foundationist or legitimatizing. Thus, that heat is a motion of such and such characteristics is the result of our 'first vintage' in the investigation of that phenomenon or *natura,* but as a theoretical statement it only possesses a certain degree of certainty: the method of inference is gradual (*Nov. Org.* II, 18), and hypothetical (*Nov. Org.* II, 18, 20). All this notwithstanding, a crucial qualification should be made here, and this sends us back to our chief thesis about Bacon's being a proponent of the ergetic ideal or of a maker's knowledge type of epistemology. In a nutshell, although the statements resulting from the first vintage are not in themselves theoretically definitive or binding and, in Bacon's gradualist epistemology, they are subject to further revisions and refinements, all of them should be true in one all-important aspect, that is, as *rules of action or as recipes for the successful manipulation of Nature*. That is why the above aphorism continues in one breath:

> Viewed with reference to operation, it is the same thing *[res eadem]*. For the direction is this: If in any natural body you can excite a dilating or expanding motion, and can so repress this motion and turn it back upon itself, that the dilatation shall not proceed equably, but have its way in one part and be counteracted in another, you will undoubtedly *[proculdubio]* generate heat.
>
> (IV, 155; I, 266)

That Bacon's 'rule of action' has rather a conative character should not detain us here. The essential point to grasp is that, though the process of investigating

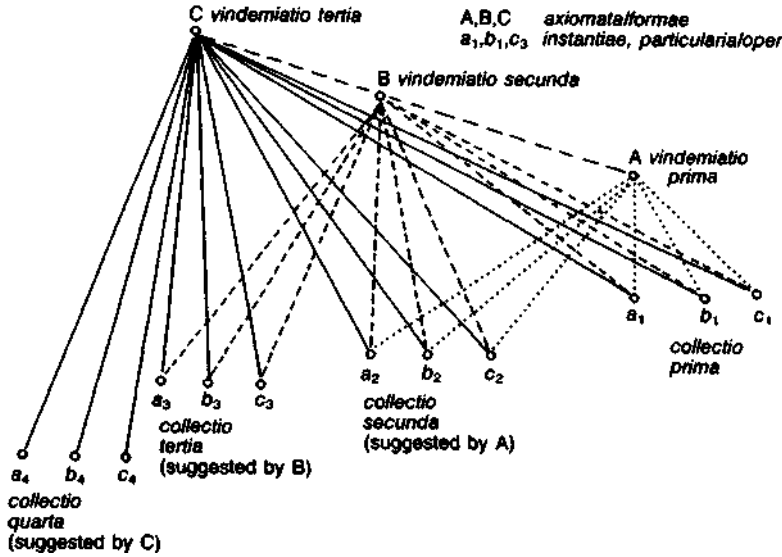

Figure 4.1 Articulation between *particularia/opera* and *axiomata/formae* in Bacon's method: ascent and descent of axioms (*Nov. Org.* I. 19, 24, 103, 106)

natural phenomena is theoretically open-ended, the investigator has to attain some kind of collateral security (*quasi fidejussione quadam: Nov. Org.* I, 206) which results from the 'production of effects' (I, 550; IV, 346) appearing in Bacon's very definition of philosophy. Such manipulation (ideally, 'production') shall shed further light on the object under investigation, in so far as by actively engaging in Nature's processes those statements may disclose new and unexpected phenomena. To put it graphically, the cognitive process which Bacon seems to have in mind would look something like Figure 4.1.[44]

As we can see, the net of theoretical pronouncements (remember, 'rules of action') does not stand on a level, but goes up the scale according as it covers more and more phenomena: sometimes an *axioma* is 'derived' from a collection of phenomena or *naturae;* sometimes it points the way ('downwards') to unexpected and 'artificial' evidence. The leapfrogging articulation of the whole does justice, I think, to the several kinds of support that theory has to receive in Bacon's conception. The term by which an axiom or theoretical statement of a given generality is declared to be a rule of action *(ad operativam),* as well as being capable of receiving support from unforeseeable quarters, is *fidejussio,* as pointed out above, and it is a proof of Bacon's extraordinary acumen that he hit on one of the very characteristics that later theoreticians were to develop, namely that the worth of a scientific conjecture or hypothesis (an *opinabile*) is most vividly shown by evidence that it originally was *not* designed to explain.[45]

The vexed question of the Baconian Form is inextricably linked to the doctrine of induction, since the aim of Bacon's *scientia* is to discover the 'Forms of

Things'. Scholars are to this day divided as to what exactly Bacon meant by this term. There are two main opposing groups: those for whom the Baconian Form was an inchoate and clumsy equivalent of our conception of natural law, and those who stress the most archaic elements of the notion and hence regard it as a remnant of a misunderstood Aristotelianism.[46] I have already mentioned Bacon's self-confessed lexical conservatism, and recent research tends to regard the Baconian Form as a highly idiosyncratic response to the then prevalent theory of 'substantial forms' which most thinkers of the modern age had to combat.[47] The doctrine of substantial forms was an elaborate attempt on the part of a renewed Aristotelianism to defend itself against the ongoing attack of particulate theories of matter such as atomism. In the words of one of its most conspicuous representatives, Francisco Suarez (1548–1617),[48]

> the most true opinion is that according to which in each composite substance there is only a substantial formal cause, and in each natural compound a substantial form.

That is, within the matter and form dichotomy, the substantial forms are presumed to penetrate into the ultimate reality of things by imparting to each lump of matter those attributes and qualities that we can perceive. Fire, for example, has a substantial form whose nature is to burn, shine and so forth; an apple tree and a pine tree are different because the substantial form which configures their timber is different. The Baconian Form, on the other hand, tried to blend traditional elements coming from Aristotelian matter theory with proto-corpuscularian doctrines close to his own, and wavering, response to atomism:[49]

> For since the Form of a thing is the very thing itself *[ipsissima res]* and the thing differs from the Form no otherwise than as the apparent differs from the real, or the external from the internal, or the thing in reference to man from the thing in reference to the Universe; it necessarily follows that no nature can be taken as the true Form unless it always decreases when the nature in question decreases, and in like manner always increases when the nature in question increases. This Table I call the Table of Degrees *[Tabula Graduum]* or the Table of Comparisons.
>
> (*Nov. Org.* II, 13: I, 248; IV, 137; cf. also *Nov. Org.* II, 17: I, 257f.; IV, 146)

As we see, then, there is no qualitative gulf between Forms and natures, and some of the latter can be promoted to the rank of Forms. This is so, as we saw in *Novum Organum* II, 20, whenever we find the constructivist stance built in within the Baconian formula. The notion it purports to portray in both aphorisms (II, 13, 20) is not that scientific truth may be utilized or deployed in, say, technological achievements, but that truth itself, understood now as a process inseparable from manipulation, necessarily conveys that very constructivist

component: the Form is *real, internal* and *with reference to the Universe* as any genuine rule of action should be. No wonder, then, that 'in this sense truth and utility are the very same things' (*in hoc genere ipsissimae res sunt veritas et utilitas: Nov. Org.* I, 124). This is a far cry from any utilitarian and, *qua* utilitarian, reductionist credo, for truth, in Bacon's ideal, may be 'useful' but is always conceived as a result or spring of an axiologically neutral manipulation *(uti, utilitas)*. Thus, it does not convey the evaluative tenor associated with utilitarianism in its historical forms.[50] It goes without saying that the reception of all these doctrines was entirely biased in favour of utilitarian and pragmatic considerations, so that, paradoxically, the ferocious satire of Jonathan Swift against the inventors of Lagado was not the brainchild of the writer's deranged imagination: the promises of real 'usefulness', both by the Royal Society and by its sister association, the Académie des Sciences, were soon sorely disappointed.[51] In sum, Bacon's notion of truth detaches itself from the theoretically inclined spirit of the greatest part of Western philosophical discourse and recaptures that subterranean current of thought to which allusion was made at the outset: maker's knowledge versus beholder's or user's. To engage actively in the processes of Nature mirrors the systematically held conviction not only that such an engagement is legitimate—a conviction which in its turn corresponds to a certain image of Nature *qua* object of human construction or fabrication[52]—but also that only from such an active engagement can truth emerge. Theoretically speaking, Bacon's epistemology is impeccably gradualist, as L.Jonathan Cohen remarks,[53] but it ceases to be so from the moment we reflect that each pronouncement, each general statement, each *axioma* has to be truth-producing *at any level* if we are genuinely after manipulative success. It hardly needs to be pointed out that all this remains an ideal, for Bacon does not even attempt to teach us how precisely we can manipulate those corpuscles he postulates as existing in each body in order to achieve this or that 'effect'. His recipes in *Novum Organum* or in other places (e.g. in III, 240) seem the imaginative or fantastic projection of a magus' mentality. But this would be, I think, a rather jejune line of criticism for a philosophically minded hermeneutic to take. Knowledge, we saw, operates with ideas as much as with ideals. If indeed Bacon failed on that particular account, the crucial point to remember is that the tradition he bequeathed to Western philosophy, in the hands of other philosophers and scientists less prone to such visionary flights of fancy, succeeded where he only sowed the seeds of its desiderata. That is, after all, a tradition that, for better or worse, our world appears to have made its own in its utilitarian, scientistic and technocratic versions.

In his indictment against the philosophers of the past, Bacon wrote in the Preface to *De Interpretatione Naturae* that they did not even teach man 'what to wish'. This criticism backfires dangerously when we consider that the realm of desires, that is, of values and priorities, is by no means dependent on nor results from any theoretically informed epistemology, no matter how brilliant its merits or how eloquent its proponents. Bacon's world, if we judge by the scattered

remarks left in the unfinished *Nova Atlantis,* does not show its credentials of desirability in the apodictic manner that the Lord Chancellor expected. 'To assuage human suffering and miseries' is one thing; to maintain that the technocratic control over Nature—a control secretly wielded by a handful of men—provides the sole manner of fulfilment of the above desire is quite another. Bacon failed to work out the notion that all that wonderful machinery, that is, the realm of human art, could, however well administered, control its own controller some fateful day. It could, that is, engender a logic of its own and, as in Samuel Butler's nightmare,[54] become a parallel or second nature, as formidable to master as the first *fallen* Nature was. Bacon's man seems therefore condemned to live in a menacing two-faced kingdom: the ship sailing beyond the pillars of Hercules that the philosopher chose as the frontispiece of his *Novum Organum* is not bound for a peaceful or uneventful voyage. To be both the master and the slave at her helm is not amongst the lesser premonitions of the Lord Chancellor's dream.

NOTES

I cite Bacon from the standard edition of J.Spedding, R.L.Ellis and D.D.Heath, *The Works of Francis Bacon,* 14 vols (London, 1857–74; Stuttgart-Bad Cannstatt, Friedrich Frommann, 1963). Bacon's *Philosophical Works* are in vols 1–5 (Latin and English) and *De Sapientia Veterum,* misleadingly included in vol. 6 (pp. 605–764). References are to volume and page (as a rule both to the English and Latin), except when quoting from *Novum Organum,* where I have usually indicated Book and Aphorism.

1 *Vorlesungen über die Geschichte der Philosophie,* in *Werke,* ed. E.Moldenhauer and K.M.Michel (Frankfurt-am-Main, 1971), pp. xviii–xx, xx, 76ff. Hegel repeatedly calls Bacon 'der Heerführer der Erfahrungsphilosophen' ('the armyleader of the philosophers of experience') and links his name to Locke and the so-called empiricists. Kuno Fischer, *Franz Baco von Verulam: die Realphilosophie und ihr Zeitalter* (Leipzig, 1856; 2nd edn, 1875), and Wilhelm Windeband and H.Heimsoeth, *Lehrbuch der Geschichte der Philosophie* (Tübingen, 1930), pp. 328ff.), do not depart substantially from Hegel's views. Compare also H. E.Grimm, *Zür Geschichte des Erkenntnisproblems. Von Baco zu Hume* (Leipzig, 1890), and W.Frost, *Bacon und die Naturphilosophie* (München, 1927). Two very notable exceptions to the then prevalent approach are to be found in French authors: Charles de Rémusat, *Bacon, sa vie, son temps, sa philosophie jusqu'à nos jours* (Paris, 1857), and Charles Adam, *Philosophie de François Bacon* (Paris, 1890), esp. pp. 328ff.

2 cf. D.F.Norton, 'The Myth of British Empiricism', *History of European Ideas* 1 (1981) 331–4; Shapiro [4.75]; H.G.van Leeuwen, *The Problem of Certainty in English Thought (1630–1690)* (The Hague, Nijhoff, 1963).

3 cf. Nicholas Jardine, 'Epistemology of the Sciences', in C.B.Schmitt and Q. Skinner (eds), *The Cambridge History of Renaissance Philosophy* (Cambridge,

Cambridge University Press, 1988), pp. 685–712, at p. 685. Compare also M. N.Morris, 'Science as *Scientia*', *Physis* 23 (1981) 171–96, and S.Ross, '"Scientist": the Story of a Word', *Annals of Science* 18 (1964) 65–85.

4 cf. R.Yeo, 'An Idol of the Market Place: Baconianism in 19th-century England', *History of Science* 23 (1985) 251–98; Pérez-Ramos [4.62], 7–30.

5 *Apud* R.C.Cochrane, 'Francis Bacon and the Rise of the Mechanical Arts in 18th-century England', *Annals of Science* 11 (1956) 137–56, at p. 156. Compare also A.Finch, *On the Inductive Philosophy: Including a Parallel between Lord Bacon and A.Comte as Philosophers* (London, 1872).

6 I. Lakatos, 'Changes in the Problem of Inductive Logic', in his *The Problem of Inductive Logic* (Amsterdam, 1968), pp. 315–427, at p. 318; A.Koyré, *Etudes d'histoire de la pensée scientifique* (Paris, Presses Universitaires de France, 1966). To speak of Bacon as one of the founding fathers of modern science, Koyré argues on p. 7, would be a *mauvaise plaisanterie*.

7 *Francis Bacon. From Magic to Science* [4.70]. This book is a turning point as regards the revival of Baconian studies in our century.

8 For an example of this kind of literature, cf. Farrington [4.35]; Christopher Hill, *The Intellectual Origins of the English Revolution* (Oxford, 1965); Frances Yates, *The Rosicrucian Enlightenment* (London, Routledge, 1972); Lisa Jardine [4.45].

9 *Dictionary of the History of Ideas,* 4 vols, chief ed. P.Wiener (New York, 1968–73), s.v. Baconianism, i, pp. 172–9, at p. 172.

10 'Mathematical versus Experimental Tradition in Western Science', *The Essential Tension* (Chicago, University of Chicago Press, 1977), pp. 31–66, esp. pp. 41–52.

11 On the notion of 'scientific style', cf. Crombie [4.25].

12 cf. T.S.Kuhn, note 10; Pérez-Ramos [4.62], 33ff.

13 L.Jonathan Cohen, *The Implications of Induction* (London, Methuen, 1970); *The Probable and the Provable* (Oxford, 1977); [4.22], 219–31; 'What has Inductive Logic to Do with Causality', in L.J.Cohen and M.B.Hesse (eds) *Applications of Inductive Logic* (Oxford, Clarendon, 1980); *An Introduction to the Philosophy of Induction and Probability* (Oxford, 1988). Some of Cohen's ideas about Bacon's 'inductive' gradualism seem to have been foreshadowed by J.M.Keynes in *A Treatise on Probability* (first published London, Macmillan, 1929), ed. R.B.Braithwaite (London, Macmillan, 1973), esp. pp. 299ff.

14 A brief and accurate description of Bacon's gnoseological plan is given by M. B.Hesse in 'Francis Bacon's Philosophy of Science', in Vickers [4.14], 114–39, esp. p. 114. This plan should proceed as follows:

> (1) The classification of the sciences. (2) Directions concerning the Interpretation of Nature; i.e. the new inductive logic. (3) The Phenomena Universi, or natural history. (4) The Ladder of the Intellect, that is, examples of the application of the method in climbing from Phenomena on the ladder of axioms to the 'Summary Law of Nature'. (5) Anticipations of the New Philosophy, that is, tentative generalizations which Bacon considers of insufficient interest and importance to justify him in leaping ahead of the inductive method. (6) The New Philosophy or Active Science, which will exhibit the whole result of induction in an ordered system of axioms. If men will apply themselves to this method, Bacon thinks that the system will be

> the result of a few years' work, but for himself, he confesses, 'the completion of this last part is a thing both above my strength and beyond my hopes' (iv, 22, 32, 102, 252).

(*apud* Hesse [4.14], 115f.) Compare also Ducasse [4.33], 50–74. W.SchmidtBiggeman places this and other epistemic projects in a wider context: *Topica Universalis. Eine Modellgeschichte humanistischer und baroker Wissenschaft* (Hamburg, 1983), esp. pp. 212ff.

15 Pérez-Ramos [4.62], 18ff.; M.Malherbe, 'Bacon, L'Encyclopédie et la Révolution', *Etudes Philosophiques* (1985) 387–404, esp. pp. 392ff.

16 cf. Charles Whitney, *Francis Bacon and Modernity* (New Haven, Yale University Press, 1986), *passim;* 'Francis Bacon's Instauratio: Dominion of and over Humanity', *Journal of the History of Ideas* 48 (1989), esp. pp. 377ff.

17 Whitney, 'Francis Bacon's Instauratio…' op. cit., p. 386.

18 cf. Karl Mannheim, *Ideologie und Utopie* (Bonn, F.Cohen, 2nd edn, 1930), pp. 14f. Hans Barth, *Truth and Ideology* (1945, 1961), trans. F.Lilge (Los Angeles, Calif., University of California Press, 1976), disputes Mannheim's claim. Compare in general R.Boudon, *L'Idéologie. L'origine des idées reçues* (Paris, 1980), esp. pp. 53ff.

19 cf. B.Vickers, 'Bacon's So-called "Utilitarianism": Sources and Influence', in Fattori [4.12], 281–314.

20 cf. Vinzenz Rüfner, 'Homo secundus deus. Eine geistesgeschichtliche Etüde zum menschlichen Schöpfertum', *Philosophisches Jahrbuch* 63 (1955) 248–91; Hans Blumenberg, '"Nachahmung der Natur": zur Vorgeschichte des schöpferischen Menschen', *Stadium Generale* 10 (1957) 266–83.

21 *Philosophisch-Theologische Schriften,* ed. L.Gabriel, 3 vols (Vienna, 1967), iii, *De Beryllo,* pp. 8f., 68ff., *De Possest,* pp. 318f. Compare Charles H.Lohr, 'Metaphysics', *The Cambridge History of Renaissance Philosophy,* op. cit., pp. 548–56. Compare also Blumenberg, op. cit., *passim;* and, especially, *Aspekte der Epochenschwelle. Cusanus und Nolanus* (Frankfurt-am-Main, 2nd edn, 1968), pp. 34–108. The example of the spoon appears in *Idiota de mente*.

22 *Tantum scis quam operabis,* in *Satellitum Mentis, Opera Omnia,* ed. G.Mayans, 8 vols (Valencia, 1782–90), iv, 63. On the influence of Vives's views on Bacon's conception of logic, cf. Maurice B.McNamie, 'Bacon's Inductive Method and Humanist Grammar', *Studies in the Literary Imagination* 4 (1971) 81–106.

23 Gerolamus Cardanus (Cardano), *Opera Omnia,* ed. C.Spon, 10 vols (Lugduni, 1663), introduction to the facsimile edition by A.Beck; cf. *De Arcanis Aeternitatis,* cap. iv; also i, 597, and iii, 21ff.

24 cf. Rodolfo Mondolfo, *Il verum factum prima di Vico* (Naples, Guida, 1969), ch. 3.

25 *Tratados Filosóficos* (Latin/Portuguese), introduction and notes by A.M.de Sa; Portuguese translation by B.de Vasconcelos and M.P.de Meneses (Lisbon, 1955), pp. 4–157; cf. also Pérez-Ramos [4.62], 58, and Part III, *passim,* for the sceptical understanding of that ideal in (early) modern philosophy.

26 'Where there has always been the power to make, there has always been, too, the power of being made, produced and created *[onde se è sempre stata la potenza di fare, di produrre, sempre è stata la potenza di esser fatto, produto (sic) e creato]'*

(*Delia Causa, principio ed uno,* III, in *Dialoghi Metafisici,* ed. Giovanni Gentile, 2 vols (Florence, 1985), i, 280ff. Compare especially this passage from *Lo Spaccio della Bestia Trionfante,* vol. i:

> The gods have given [man] intellect and hands and have made him similar to them, giving him power over other animals. This consists in his being able not only to operate according to Nature and to what is usual, but also to operate outside the normal course of Nature *[poter operare secondo la Natura ed ordinario ma ed oltre, fuor le leggi di quella],* in order that by forming new or being able to form other natures, other paths and other categories with his intelligence *[ingegno]* by means of that liberty…he would succeed in preserving himself as god of the Earth…. And for that reason Providence has determined that he will be occupied in action by means of his hands and in contemplation by means of his intellect, so that he will not contemplate without act and will not act without contemplation.
>
> (*The Expulsion of the Triumphant Beast,* trans. A.D.Imerti (New York, 1964), p. 205)

I have slightly modified the translation.

27 'Die Natur dahin gebracht werden [muss], daß Sie selbst erweist', *Opus Paramirum* (*c.* 1530), *apud* Werner Kutscher, *Der Wissenschaftler und sein Körper* (Frankfurt-am-Main, 1986), p. 111.

28 Giuseppe Ceredi, *Tre discorsi sopra il modo d'alzar acque da luoghi bassi* (Parma, 1567), pp. 5–7, *apud* A.C.Crombie, 'Expectation, Modelling and Assent in the History of Optics: Part I. Alhazen and the Medieval Tradition', *Studies in the History and Philosophy of Science* 21 (1990) 605–33, at p. 605.

29 Hans Blumenberg, work cited in note 20, *ad finem,* and, more generally, *Die Legitimität der Neuzeit* (Frankfurt-am-Main, 1983; English translation, Cambridge, Mass., MIT Press, 1986), Part 3, and Robert Lenoble, *Histoire de l'idée de Nature* (Paris, A.Michel, 1969), esp. pp. 311ff. As Lenoble stresses, in the perception of Nature one should never ignore or undervalue the pathos that usually presupposes and/or conveys a 'scientific style'. In the words of F. Anderson, for Bacon

> all statements of observation and experiment are to be written in truth and with religious care, as if the writer were under oath and devoid of reservation of doubt and question. The record is the book of God's works and—so far as there may be an analogy between the majesty of divine things and the humbleness of earthly things—is a kind of second Scripture.
>
> (Anderson [4.17], 264)

30 A.Funkenstein, *Theology and the Scientific Imagination* (Princeton, N.J., Princeton University Press, 1986), esp. pp. 29off.; and my essay on this book 'And Justify the Ways of God to Men', *Studies in the History and Philosophy of Science* 21 (1990) 323–39.

31 For such archetypes, see Plato, *Cratylus* 390 A, *Euthydemus* 289 A–D, *Republic* 601 E-602 A; and Aristotle, *Politica* 128 a 17ff. J.Hintikka has studied this question in *Knowledge and the Known* (Dordrecht and Boston, Reidel, 1974), *passim,* and has been criticized by J.L.Mackie in 'A Reply to Hintikka's Article "Practical versus Theoretical Reason"', in S.Körner (ed.) *Practical Reason* (New Haven, Conn., Yale University Press, 1974), pp. 103–13. For a profound anthropological insight into that archetype (the maker is the knower *par excellence*), cf. Mircea Eliade, *Forgerons et Alchimistes* (Paris, Flammarion, 1956), ch. x: *homo faber* and *homo sapiens* coincide for the faber knows in the most obvious and convincing way, i.e. by doing, making or producing things.

32 cf. W.Krohn, 'Social Change and Epistemic Thought (Reflections on the Origins of the Experimental Method)', in I.Hronsky, M.Fehér and B.Dajka (eds) *Scientific Knowledge Socialized* (Dordrecht, 1988), pp. 165–78:

> 'The goal of the new science is a knowledge by which "one will be capable of all manner of works" *(omnis operum potentia)* in contrast with the "felicitous contemplation" *(felicitas contemplativa)* of classical philosophy (I, 144; IV, 32). For Bacon, causes are related to knowledge just as rules are to action. The equivalence between the knowledge of causes and the ability to produce something can be regarded in both directions: not only are our actions more manageable as a result of the
>
> knowledge of the laws of Nature, but the laws of Nature can be understood better when our point of departure is not the *observation* of Nature, but the *vexationes artis,* Nature under constraint and vexed (I, 140; IV, 29)…. This makes his [i.e. Bacon's] turning from Aristotle that much more noticeable, as his claim that a condition for the understanding of Nature is our interfering with it is irreconcilable with the Aristotelian concept of knowledge…. According to Bacon, laws have to be investigated with a view to the type of *praeceptum* (doctrine), *directio* (direction), *deductio* (guidance) one needs to produce something'

(I, 229; IV, 124, pp. 171f.) Paolo Rossi had already stressed this point ([4.71], esp. Appendix ii, 'Truth and Utility in Bacon', pp. 148–73). For an exegesis of the crucial term *opus/work,* cf. Pérez-Ramos [4.62], 135–49.

33 cf. Karl-Otto Apel, 'Das Problem einer philosophischen Theorie der Rationalitätstypen', in G.H.Schnädelbach (ed.), *Rationalität* (Frankfurt-am-Main, 1984) pp. 15–31.

34 cf. G.Buchdahl, *Induction and Necessity in the Philosophy of Aristotle* (London, 1963); 'Die ἐπαγωγή bei Aristoteles', *Sitzungsberichte der Bayerischen Akademie der Wissenschaften* (Phil.-hist. Klasse) (1964); W.Schmidt, *Theorie der Induktion: Die prinzipielle Bedeutung der epagõgẽ bei Aristoteles* (Munich, 1974); Nelly Tsouyopoulos, 'Die Induktive Methode und das Induktionsproblem in der griechischen Philosophie', *Zeitschrift für allgemeine Wissenschaftstheorie* 5 (1974) 94–122; J.R.Milton, 'Induction before Hume', *British Journal for the Philosophy*

of Science 38 (1987) 49–74, esp. pp. 58ff.; C.C.W.Taylor, 'Aristotle's Epistemology', in Stephen Everson (ed.), *Epistemology* (Cambridge, Cambridge University Press, 1990), pp. 116–42.

35 See Pérez-Ramos [4.62], 72–82, for examples taken from Petrus Hispanus to Albert the Great and Aquinas.

36 Most notably, J.S.Mill, 'Of Inductions Improperly So-called', *A System of Logic, Ratiocinative and Inductive* (first published 1843; London, 1884), III, 2, pp. 188–99.

37 cf. Wilhelm Risse, *Logik der Neuzeit,* 2 vols (Stuttgart, Frommann, 1964), I, *passim*.

38 cf. W.Schmidt-Biggeman, *op. cit.;* M.B.Hesse, 'Francis Bacon's Philosophy of Science', in Vickers [4.14], esp. pp. 212–31.

39 'Nous nous complétons, Vérulamius et moi. Mes conseils serviront à étayer dans ses grandes lignes l'explication de l'univers; ceux de Vérulamius permettront de préciser les détails pour les expériences nécessaires', *Oeuvres de Descartes,* ed. G.Adam and P.Tannery, 12 vols (Paris, 1897–1910), i, 318; cf. also ii, 597f., and iii, 307. For other references amongst continental philosophers and the Cartesian perception of Bacon, cf. A.I.Sabba, *Theories of Light from Descartes to Newton* (Cambridge, Cambridge University Press, 2nd edn, 1982), pp. 33ff., esp. pp. 170–80. For a different approach, cf. Malherbe, 'L'induction baconienne: de l'échec métaphysique à l'échec logique', in Fattori [4.12], 179–200.

40 F.Kambartel, *Erfharung und Struktur. Bausteine zu einer Kritik des Empirismus und Formalismus* (Frankfurt-am-Main, 2nd edn, 1976), pp. 81ff., on the notion of *historia* and the various senses of *experientia (vaga, literata,…);* cf. Malherbe, 'L'expérience et l'induction chez Bacon', Malherbe and Pousseur [4.13], 113–34.

41 Cohen, *An Introduction…*(cited in note 13), p. 195.

42 The felicitous phrase *experimentum crucis* is not Bacon's but Boyle's. He first used it in *Defence of the Doctrine touching the Spring and Weight of the Air* (1662). Others attribute its (independent) coinage to Robert Hooke in *Micrographia* (1665).

43 For these procedures, cf. Horton [4.43], 241–78, and Pérez-Ramos [4.62], 243–54.

44 Pérez-Ramos [4.62], 257. Reproduced by kind permission of Oxford University Press.

45 This principle (as against the sole principle of instantiation) appears as much in inductivist epistemologies as the *modus tollens* procedures; cf. J.S.Mill, *A System of Logic,* III, 10, 10, and Adolf Grünbaum, 'Is Falsifiability the Touchstone of Scientific Rationality? Karl Popper versus Inductivism', *Boston Studies in the Philosophy of Science* 39 (1976) 213–52. For a detailed account, stressing this aspect of Bacon's *ars inveniendi,* cf. Peter Urbach [4.77], where Bacon is presented as a proto-Popperian. See my criticism of this book: 'Francis Bacon and the Disputations of the Learned', *British Journal for the Philosophy of Science* 42 (1991) in press.

46 cf. Emerton [4.32], 76–105. A comprehensive summary of the whole learned dispute is to be found in Pérez-Ramos [4.62], 116f., nn. 4 and 6.

47 Peter Alexander admirably sums up the whole issue in *Ideas, Qualities and Corpuscles. Locke and Boyle on the External World* (Cambridge, Cambridge University Press, 1985). For the doctrines contained in university manuals, cf. P.Reif,

'The Textbook Tradition in Natural Philosophy', *Journal of the History of Ideas* 30 (1968) 17–32.

48 Sometimes this view was expressly linked to the Aristotelian doctrine of the four elements: cf. Alexander on Daniel Sennert, op. cit, p. 36.

49 cf. R.Macciò, 'A proposito dell'atomismo di Francesco Bacone', *Rivista Critica di Storia della Filosofia* 17 (1962) 188–96; Kargon [4.47]; and especially the erudite researches of J.Rees, 'Francis Bacon's Semiparacelsian Cosmology and the Great Instoration', *Ambix* 22 (1975) 161–73; 'Atomism and Subtlety in Francis Bacon's Philosophy', *Ambix* 37 (1981) 27–37. Compare my nuanced criticism of Rees's approach in 'Bacon in the Right Spirit', *Annals of Science* 42 (1985) 603–11.

50 Vickers, in Fattori [4.12], 281–314.

51 Jonathan Swift, *Gulliver's Travels* (first published 1726; London, Dent, 1970), Part III, ch. V, pp. 190–205. On the sources of the Academy of Lagado, cf.A. E.Case, 'Personal and Political: Satire in *Gulliver's Travels'* (1945), in *Jonathan Swift,* ed. D.Donoghue (Harmondsworth, Penguin, 1971), pp. 335ff. On contemporary charges of sterility against the new science, cf. M.Hunter, *Science and Society in Restoration England* (Cambridge, Cambridge University Press, 1981), esp. pp. 188–93.

52 cf. Lenoble (cited in note 29), pp. 217–77.

53 See, amongst other places, Cohen, *An Introduction…*(cited in note 13), pp. 4–12, 145–75.

54 *Erewhon* (first published 1872; London, 1951) 'The Book of the Machines', ch. XXIIII, pp. 142ff. The literature concerning the political and social implications of the Baconian project is immense; cf. W.Leiss, *The Domination of Nature* (New York, Braziller, 1972), pp. 45–71; J.R.Ravetz, 'Francis Bacon and the Reform of Philosophy' (1972), in *The Merger of Knowledge with Power. Essays in Critical Science* (London, 1990), pp. 116–36; Timothy Paterson, 'Bacon's Myth of Orpheus. Power as a Goal of Science in *Of the Wisdom of the Ancients', Interpretation* 16 (1989) 429–44. For a different philosophical idiolect, cf. T.W.Adorno and M.Horkheimer, *Dialectic of Enlightenment,* trans. J. Cumming (first published 1944; New York, Herder and Herder, 1972).

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CHAPTER 5
Descartes: methodology

Stephen Gaukroger

INTRODUCTION

The seventeenth century is often referred to as the century of the Scientific Revolution, a time of fundamental scientific change in which traditional theories were either replaced by new ones or radically transformed. Descartes made contributions to virtually every scientific area of his day. He was one of the founders of algebra, he discovered fundamental laws in geometrical optics, his natural philosophy was *the* natural philosophy in the seventeenth century before the appearance of Newton's *Principia* (Newton himself was a Cartesian before he developed his own natural philosophy) and his work in biology and physiology resulted, amongst other things, in the discovery of reflex action.[1] Descartes's earliest interests were scientific, and he seems to have thought his scientific work of greater importance than his metaphysical writings throughout his career. In a conversation with Burman, recorded in 1648, he remarked:

> A point to note is that you should not devote so much effort to the *Meditations* and to metaphysical questions, or give them elaborate treatment in commentaries and the like. Still less should one do what some try to do, and dig more deeply into these questions than the author did: he has dealt with them all quite deeply enough. It is sufficient to have grasped them once in a general way, and then to remember the conclusion. Otherwise they draw the mind too far away from physical and observable things, and make it unfit to study them. Yet it is just these physical studies that it is most desirable for men to pursue, since they would yield abundant benefits for life.[2]

Despite this, Descartes has often been considered a metaphysician in natural philosophy, deriving physical truths from metaphysical first principles. Indeed, there is still a widespread view that the 'method' Descartes espoused is the *a priori* one of deduction from first principles, where these first principles are truths of reason. This view has two principal sources: an image of Descartes as the *de facto* founder of a philosophical school—'rationalism'—in which

deduction from truths of reason is, almost by definition, constitutive of epistemology, and a reading of a number of passages in Descartes in which he discusses his project in highly schematic terms as accounts of his method of discovery. The reading of Descartes as founder of a school is largely a nineteenth-century doctrine first set out in detail in Kuno Fischer's *Geschichte der neueren Philosophie* in the 1870s. There is a hidden agenda in Fischer which underlies this: he is a Kantian and is keen to show Kant's philosophy as solving the major problems of modern thought. He sets the background for this by resolving modern preKantian philosophy into two schools, rationalism and empiricism, the first basing everything on truths of reason, the second basing everything on experiential truths. This demarcation displaces the older Platonist/Aristotelian dichotomy (which Kant himself effectively worked with), marking out the seventeenth century as the beginning of a new era in philosophy, one dominated by epistemological (as opposed to moral or theological) concerns.[3]

This reading of Descartes is not wholly fanciful, and it has been widely accepted in the twentieth century by philosophers who do not share Fischer's Kantianism. On the face of it, it has considerable textual support. Article 64 of Part II of Descartes's *Principles of Philosophy* is entitled:

> That I do not accept or desire in physics any principles other than those accepted in geometry or abstract mathematics; because all the phenomena of nature are explained thereby, and demonstrations concerning them which are certain can be given.

In elucidation, he writes:

> For I frankly admit that I know of no material substance other than that which is divisible, has shape, and can move in every possible way, and this the geometers call quantity and take as the object of their demonstrations. Moreover, our concern is exclusively with the division, shape and motions of this substance, and nothing concerning these can be accepted as true unless it be deduced from indubitably true common notions with such certainty that it can be regarded as a mathematical demonstration. And because all natural phenomena can be explained in this way, as one can judge from what follows, I believe that no other physical principles should be accepted or even desired.[4]

This seems to be as clear a statement as one could wish for of a method which starts from first principles and builds up knowledge deductively. Observation, experiment, hypotheses, induction, the development and use of scientific instruments, all seem to be irrelevant to science as described here. Empirical or factual truths seem to have been transcended, and all science seems to be in the realm of truths of reason. One gains a similar impression from a number of other passages in Descartes, and in the *Sixth Meditation,* for example, we are presented

with a picture of the corporeal world in which—because we are only allowed to ask about the existence of those things of which we have a clear and distinct idea, and because these are effectively restricted to mathematical concepts—it is little more than materialized geometry. The deduction of the features of such a world from first principles is not too hard to envisage.

Nevertheless, there are serious problems with the idea that Descartes is advocating an *a priori,* deductivist method of discovery, and I want to draw attention to four such problems briefly. First, there is the sheer implausibility of the idea that deduction from first principles could generate substantive and specific truths about the physical world. The first principles that Descartes starts from are the *cogito* and the existence of a good God. These figure in the *Meditations* and in the *Principles of Philosophy* as explicit first principles. Now by the end of the *Principles of Philosophy* he has offered accounts of such phenomena as the distances of the planets from the Sun, the material constitution of the Sun, the motion of comets, the colours of the rainbow, sunspots, solidity and fluidity, why the Moon moves faster than the Earth, the nature of transparency, the rarefaction and condensation of matter, why air and water flow from east to west, the nature of the Earth's interior, the nature of quicksilver, the nature of bitumen and sulphur, why the water in certain wells is brackish, the nature of glass, magnetism, and static electricity, to name but a few. Could it seriously be advocated that the *cogito* and the existence of a good God would be sufficient to provide an account of these phenomena? Philosophers, like everyone else, are occasionally subject to delusions, and great claims have been made for various philosophically conceived scientific methods. But it is worth remembering in this connection that Descartes is of a generation where method is not a reflection on the successful work of other scientists but a very practical affair designed to guide one's own scientific practice. It is also worth remembering that Descartes achieved some lasting results in his scientific work. In the light of this, there is surely something wrong in ascribing an unworkable methodology to him.

Second, Descartes's own contemporaries did not view his work as being apriorist and deductivist, but rather as being committed to a hypothetical mode of reasoning, and, in the wake of Newton's famous rejection of the use of hypotheses in science, Descartes was criticized for offering mere hypotheses where Newtonian physics offered certainty.[5] A picture of Descartes prevailed in his own era exactly contrary to that which has prevailed in ours, and, it might be noted, on the basis of the same texts, that is, above all the *Discourse on Method,* the *Meditations* and *The Principles of Philosophy*. The possibility must therefore be raised that we have misread these texts.

Third, if one looks at Descartes's very sizeable correspondence, the vast bulk (about 90 per cent) of which is on scientific matters, one is left in no doubt as to the amount of empirical and experimental work in which he engaged. For example, in 1626 Descartes began seeking the shape of the 'anaclastic', that is, that shape of a refracting surface which would collect parallel rays into one

focus. He knew that the standard lens of the time, the biconvex lens, could not do this, and that the refracting telescope constructed with such a lens was subject to serious problems as a result. He was convinced on geometrical grounds that the requisite shape must be a hyperbola but he spent several years pondering the practical problems of grinding aspherical lenses. In two detailed letters to Jean Ferrier (a manufacturer of scientific instruments whom Descartes was trying to attract to Holland to work for him grinding lenses) of October and November 1629, he describes an extremely ingenious grinding machine, with details as to the materials different parts must be constructed of, exact sizes of components, instructions for fixing the machine to rafters and joists to minimize vibration, how to cut the contours of blades, differences between rough-forming and finishing-off, and so on. These letters leave one in no doubt that their author is an extremely practical man, able to devise very large-scale machines with many components, and with an extensive knowledge of materials, grinding and cutting techniques, not to mention a good practical grasp of problems of friction and vibration. The rest of his large correspondence, whether it be on navigation, acoustics, hydrostatics, the theory of machines, the construction of telescopes, anatomy, chemistry or whatever, confirm Descartes's ability to devise and construct scientific instruments and experiments. Is it really possible that Descartes's methodological prescriptions should be so far removed from his actual scientific practice?

Fourth, Descartes has an extremely low view of deduction. He rejects Aristotelian syllogistic, the only logical formalization of deductive inference he would have been familiar with, as being incapable of producing any new truths, on the grounds that the conclusion can never go beyond the premises:

> We must note that the dialecticians are unable to devise by their rules any syllogism which has a true conclusion, unless they already have the whole syllogism, i.e. unless they have already ascertained in advance the very truth which is deduced in that syllogism.[6]

Much more surprisingly, for syllogistic was generally reviled in the seventeenth century, he also rejects the mode of deductive inference used by the classical geometers, synthetic proof. In Rule 4 of the *Rules for the Direction of Our Native Intelligence,* he complains that Pappus and Diophantus, 'with a kind of low cunning', kept their method of discovery secret, presenting us with 'sterile truths' which they 'demonstrated deductively'.[7] This is especially problematic for the reading of Descartes which holds that his method comprises deduction from first principles, since this is exactly what he is rejecting in the case of Pappus and Diophantus, who proceed like Euclid, working out deductively from indubitable geometrical first principles. Indeed, such a procedure would be the obvious model for his own method if this were as the quotations above from the *Principles* suggest it is.

These considerations are certainly not the only ones, but they are enough to make us question the received view. Before we can provide an alternative reading, however, it will be helpful if we can get a better idea of what exactly Descartes is rejecting in traditional accounts of method, and what kind of thing he is seeking to achieve in his scientific writings.

THE REJECTION OF ARISTOTELIAN METHOD

Aristotelian syllogistic was widely criticized from the mid-sixteenth century onwards, and by the middle of the seventeenth century had been completely discredited as a method of discovery. This was due more to a misunderstanding of the nature and role of the syllogism, however, than to any compelling criticism of syllogistic.

Aristotle had presented scientific demonstrations syllogistically, and he had argued that some forms of demonstration provide explanations or causes whereas others do not. This may occur even where the syllogisms are formally identical. Consider, for example, the following two syllogisms:

The planets do not twinkle
That which does not twinkle is near
The planets are near

The planets are near
That which is near does not twinkle
The planets do not twinkle

In Aristotle's discussion of these syllogisms in his *Posterior Analytics* (*A*17), he argues that the first is only a demonstration 'of fact', whereas the second is a demonstration of 'why' or a scientific explanation. In the latter we are provided with a reason or cause or explanation of the conclusion: the reason why the planets do not twinkle is that they are near. In the former, we have a valid but not a demonstrative argument, since the planets' not twinkling is hardly a cause or explanation of their being near. So the first syllogism is in some way uninformative compared with the second: the latter produces understanding, the former does not. Now Aristotle had great difficulty in providing a convincing account of what exactly it is that distinguishes the first from the second syllogism, but what he was trying to achieve is clear enough. He was seeking some way of identifying those forms of deductive inference that resulted in epistemic advance, that advanced one's understanding. Realizing that no purely logical criterion would suffice, he attempted to show that epistemic advance depended on some non-logical but nevertheless internal or structural feature which some deductive inferences possess. This question of the epistemic value of deductive inferences is one we shall return to, as it underlies the whole problem of method.

For Aristotle, the epistemic and the consequential directions in demonstrative syllogisms run in opposite directions. That is, it is knowing the premises from

which the conclusion is to be deduced that is the important thing as far as providing a deeper scientific understanding is concerned, not discovering what conclusions follow from given premises. The seventeenth-century misunderstanding of the syllogism results largely from a failure to appreciate this. It was assumed that, for Aristotle, the demonstrative syllogism was a method of discovery, a means of deducing novel conclusions from accepted premises. In fact, it was simply a means of presentation of results in a systematic way, one suitable for conveying these to students.[8] The conclusions of the syllogisms were known in advance, and what the syllogism provided was a means of relating those conclusions to premises which would explain them. Two features of syllogistic are worth noting in this respect.

First, the syllogism is what might be termed a 'discursive' device. Consider the case of the demonstrative syllogism. This is effectively a pedagogic device, involving a teacher and a pupil. If it is to be successful, the pupil must accept the conclusion: the conclusion having been accepted, the syllogism shows how it can be generated from premises which are more fundamental, thereby connecting what the pupil accepts as knowledge to basic principles which can act as an explanation for it. This reflects a basic feature of the syllogism, whether demonstrative or not. Generally speaking, syllogistic works by inducing conviction on the basis of shared assumptions or shared knowledge. For this, one needs someone who is convinced and someone who does the convincing. Moreover, the conviction occurs on the basis of shared assumptions, and these assumptions may in fact be false. The kind of process that Descartes and his contemporaries see as occurring in an argument is different from this. Descartes, in particular, requires that arguments be 'internal' things: their purpose is to lead one to the truth, not to convince anyone. Correlatively, one can make no appeal to what is generally accepted: one's premises must simply be true, whether generally accepted or not.[9] The discursive conception of argument that Aristotelian syllogistic relies upon requires common ground between oneself and one's opponents, and in seventeenth-century natural philosophy this would not have been forthcoming. In other words, the case against conceiving of inference in a discursive way links up strongly with the case against appealing in one's enquiries to what is generally accepted rather than to what is the case. It is from this that the immense polemical strength of Descartes's attack on syllogistic derives.

Second, conceived as a tool of discovery, the demonstrative syllogism does indeed look trivial, but this was never its purpose for Aristotle. Discovery was something to be guided by the 'topics', which were procedures for classifying or characterizing problems so that they could be solved using set techniques. More specifically, they were designed to provide the distinctions needed if one was to be able to formulate problems properly, as well as supplying devices enabling one to determine what has to be shown if the conclusion one desires is to be reached. Now the topics were not confined to scientific enquiry, but had an application in ethics, political argument, rhetoric and so on, and indeed they were meant to

apply to any area of enquiry. The problem was that, during the Middle Ages, the topics came to be associated very closely and exclusively with rhetoric, and their relevance to scientific discovery became at first obscured and then completely lost. The upshot of this was that, for all intents and purposes, the results of Aristotelian science lost all contact with the procedures of discovery which produced them. While these results remained unchallenged, the problem was not particularly apparent. But when they came to be challenged in a serious and systematic way, as they were from the sixteenth century onwards, they began to take on the appearance of mere dogmas, backed up by circular reasoning. It is this strong connection between Aristotle's supposed method of discovery and the unsatisfactoriness not only of his scientific results but also of his overall natural philosophy that provoked the intense concern with method in the seventeenth century.[10]

DESCARTES'S NATURAL PHILOSOPHY

Descartes's account of method is intimately tied to two features of his natural philosophy: his commitment to mechanism, and his commitment to the idea of a mathematical physics. In these respects, his project differs markedly from that of Aristotle, to the extent that what he expects out of a physical explanation is rather different from what Aristotle expects. This shapes his approach to methodological issues to a significant extent, and we must pay some attention to both questions.

Mechanism is not an easy doctrine to characterize, but it does have some core theses. Amongst these are the postulates that nature is to be conceived on a mechanical model, that 'occult qualities' cannot be accepted as having any explanatory value, that contact action is the only means by which change can be effected, and that matter and motion are the ultimate ingredients in nature.[11] Mechanism arose in the first instance not so much as a reaction to scholasticism but as a reaction to a philosophy which was itself largely a reaction to scholasticism, namely Renaissance naturalism.[12] Renaissance naturalism undermined the sharp and careful lines that medieval philosophy and theology had drawn between the natural and the supernatural, and it offered a conception of the cosmos as a living organism, as a holistic system whose parts were interconnected by various forces and powers. Such a conception presented a picture of nature as an essentially active realm, containing many 'occult' powers which, while they were not manifest, could nevertheless be tapped and exploited if only one could discover them. It was characteristic of such powers that they acted at a distance —magnetic attraction was a favourite example—rather than through contact, and indeed on a biological model of the cosmos such a mode of action is a characteristic one, since parts of a biological system may affect one another whether in physical contact or not. The other side of the coin was a conception of God as part of nature, as infused in nature, and not as something separate from his creation. This encouraged highly unorthodox doctrines such as

pantheism, the modelling of divine powers on natural ones, and so on, and, worst of all, it opened up the very delicate question of whether apparently supernatural phenomena, such as miracles, or phenomena which offered communion with God, such as the sacraments and prayer, could receive purely naturalistic explanations.[13] It is important that the conception of nature as essentially active and the attempts to subsume the supernatural within the natural be recognized as part of the same problem. Mechanists such as Mersenne[14] saw this clearly, and opposed naturalism so vehemently because they saw its threat to established religion. Mersenne himself also saw that a return to the Aristotelian conception of nature that had served medieval theologians and natural philosophers so well was not going to be successful, for many of the later Renaissance naturalists had based their views on a naturalistic reading of Aristotle which, as an interpretation of Aristotle, was at least as cogent as that offered by Christian apologists like Aquinas. The situation was exacerbated by a correlative naturalistic thesis about the nature of human beings, whereby the soul is not a separate substance but simply the organizing principle of the body. Whether this form of naturalism was advocated in its Averroistic version, where there is only one intellect in the universe because mind or soul, lacking any principle of individuation in its own right, cannot be divided up with the number of bodies, or whether it was advocated in its Alexandrian version, where the soul is conceived in purely functional terms, personal immortality is denied, and its source in both versions is Aristotle himself.[15] Such threats to the immortality of the soul were noted by the Fifth Lateran Council, which in 1513 instructed Christian philosophers and theologians to find arguments to defend the orthodox view of personal immortality.

Something was needed which was unambiguous in its rejection of nature as an active realm, and which thereby secured a guaranteed role for the supernatural. Moreover, whatever was chosen should also be able to offer a conception of the human body and its functions which left room for something essentially different from the body which distinguished it from those animals who did not share in immortality. Mechanism appeared to Mersenne to answer both these problems, and in a series of books in the 1620s he opposes naturalism in detail and outlines the mechanist response.[16]

Descartes's response is effectively the same, but much more radical in its execution. Like Mersenne, he is concerned to defend mechanism, and the idea of a completely inert nature provides the basis for dualism. Dualism in turn is what he considers to be the successful way of meeting the decree of the Lateran Council, as he explains to us in the Dedicatory Letter at the beginning of the *Meditations*. What he offers is a picture of the corporeal world as completely inert, a separation of mind and body as radical as it could be, and an image of a God who is so supernatural, so transcendent, that there is almost nothing we can say about him.

In accord with the mechanist programme, the supernatural and the natural are such polar opposites in Descartes that there is no question of the latter having

any degree of activity once activity has been ascribed to the former. His contemporaries were especially concerned to restrict all causal efficacy to the transfer of motion from one body to another in impact but Descartes goes further. While he recognizes the need for such a description at the phenomenal level, at the metaphysical level he does not allow any causation at all in the natural realm.[17] Motion is conceived as a mode of a body just as shape is, and strictly speaking it is not something that can be transferred at all, any more than shape can be. The power that causes bodies to be in some determinate state of rest or motion is a power that derives exclusively from God, and not from impact with other bodies. Moreover, this power is simply the power by which God conserves the same amount of motion that he put in the corporeal world at the first instant.[18] On Descartes's account of the persistence of the corporeal world, God is required to recreate it at every instant, because it is so lacking in any power that it does not even have the power to conserve itself in existence. As he puts it in the replies to the first set of objections to the *Meditations,* we can find in our own bodies, and by implication in other corporeal things as well, no power or force by which they could produce or conserve themselves. Why, one may ask, is such a force or power required? The answer is that causes and their effects must be simultaneous: 'the concept of cause is, strictly speaking, applicable only for as long as it is producing its effect, and so is not prior to it.'[19] My existence at the present instant cannot be due to my existence at the last instant any more than it can itself bring about my existence at the next instant. In sum, there can be no causal connections between instants, so the reason for everything must be sought within the instant:[20] and since no such powers are evident in bodies, they must be located in God. Such an inert corporeal world certainly contains none of the powers that naturalists saw as being immanent in nature, it is not a world in which God could be immanent, and it is, for Descartes and virtually all of his contemporaries (Hobbes and Gassendi being possible exceptions), a world quite distinct from what reflection on ourselves tells us is constitutive of our natures, which are essentially spiritual. And it also has another important feature: a world without forces, activities, potentialities and even causation is one which is easily quantifiable.

This brings us to the second ingredient in Descartes's natural philosophy: his commitment to quantitative explanations. This is often seen as if it were a necessary concomitant of mechanism, but in fact mechanism is neither sufficient nor necessary for a mathematical physics. Most mechanists in the early to mid-seventeenth century offered mechanist explanations which were almost exclusively qualitative: Hobbes and Gassendi are good cases in point. Moreover, Kepler's thoroughly Neoplatonic conception of the universe as being ultimately a mathematical harmony underlying surface appearances could not have been further from mechanism, yet it enabled him to develop a mathematical account in areas such as astronomy and optics which was well in advance of anything else at his time. But it cannot be denied that the combination of mechanism with a

commitment to a mathematical physics was an extremely potent one, and Descartes was the first to offer such a combination to any significant extent.

This question must be seen in a broad context. The theoretical justification for the use of mathematical theorems and techniques in the treatment of problems in physical theory is not obvious. To many natural philosophers it was far from clear that such an approach was necessary, justified, or even possible. Aristotle had provided a highly elaborate conception of physical explanation which absolutely precluded the use of mathematics in physical enquiry and it was this conception that dominated physical enquiry until the seventeenth century. Briefly, Aristotle defines physics and mathematics in terms of their subject genera: physics is concerned with those things that change and have an independent existence, mathematics with those things that do not change and have dependent existence (i.e. they are mere abstractions). The aim of scientific enquiry is to determine what kind of thing the subject matter of the science is by establishing its general properties. To explain something is to demonstrate it syllogistically starting from first principles which are expressions of essences, and what one is seeking in a physical explanation is a statement of the essential characteristics of a physical phenomenon—those characteristics which it must possess if it is to be the kind of thing it is. Such a statement can only be derived from principles that are appropriate to the subject genus of the science; in the case of physics, this means principles appropriate to explaining what is changing and has an independent existence. Mathematical principles are not of this kind. They are appropriate to a completely different kind of subject matter, and because of this mathematics is inappropriate to syllogistic demonstrations of physical phenomena, and it is alien to physical explanation. This approach benefited from a well-developed metaphysical account of the different natures of physical and mathematical entities, and it resulted in a physical theory that was not only in close agreement with observation and common sense, but which formed part of a large-scale theory of change which covered organic and inorganic phenomena alike.

By the beginning of the seventeenth century, the Aristotelian approach was being challenged on a number of fronts, and Archimedean statics, in particular, was seen by many as the model for a physical theory, with its rigorously geometrical demonstrations of novel and fundamental physical theorems. But there was no straightforward way of extending this approach in statics (where it was often possible to translate the problem into mathematical terms in an intuitive and unproblematic way), to kinematics (where one had to deal with motion, i.e. continuous change of place) and in dynamics (where one had somehow to quantify the forces responsible for changes in motion). Moreover, statics involved a number of simplifying assumptions, such as the Earth's surface being a true geometrical plane and its being a parallel force field. These simplifying assumptions generate all kinds of problems once one leaves the domain of statics, and the kinds of conceptual problems faced by natural

philosophers wishing to provide a mathematical physics in the seventeenth century were immense.[21]

In the *Rules for the Direction of Our Native Intelligence,* Descartes outlined a number of methodological and epistemological proposals for a mathematical physics. The *Rules,* the writing of which was abandoned in 1628, is now thought to be a composite text, some parts deriving from 1619–20 (Rules 1–3, part of Rule 4, Rules 5–7, part of Rule 8, possibly Rules 9–11) and some dating from 1626–8 (part of Rule 4, part of Rule 8, and Rules 12–21).[22] The earlier parts describe a rather grandiose reductionist programme in which mathematics is simply 'applied' to the natural world:

> When I considered the matter more closely, I came to see that the exclusive concern of mathematics is with questions of order or measure and that it is irrelevant whether the measure in question involves numbers, shapes, stars, sounds, or any object whatever. This made me realize that there must be a general science which explains all the points that can be raised concerning order and measure irrespective of the subject-matter, and that this science should be termed *mathesis universalis*.[23]

This project for a 'universal mathematics' is not mentioned again in Descartes's writings and, although the question is a disputed one,[24] there is a strong case to be made that he abandoned this kind of attempt to provide a basis for a mathematical physics. The later Rules set out an account of how our comprehension of the corporeal world is essentially mathematical in nature, but it is one which centres on a theory about how perceptual cognition occurs. Throughout the *Rules,* Descartes insists that knowledge must begin with 'simple natures', that is, with those things which are not further analysable and can be grasped by a direct 'intuition' *(intuitus).* These simple natures can only be grasped by the intellect—pure mind, for all intents and purposes—although in the case of perceptual cognition the corporeal faculties of sense perception, memory and imagination are also called upon. The imagin ation is located in the pineal gland (chosen because it was believed to be at the geometrical focus of the brain and its only non-duplicated organ), it is the point to which all perceptual information is transmitted, and it acts as a kind of meeting place between mind and body, although Descartes is understandably coy about this last point. In Rule 14, Descartes argues that the proper objects of the intellect are completely abstract entities, which are free of images or 'bodily representations', and this is why, when the intellect turns into itself it beholds those things which are purely intellectual such as thought and doubt, as well as those 'simple natures' which are common to both mind and body, such as existence, unity and duration. However, the intellect requires the imagination if there is to be any knowledge of the external world, for the imagination is its point of contact with the external world. The imagination functions, in fact, like a meeting place between the corporeal world and the mind. The corporeal world is represented in the intellect

in terms of spatially extended magnitudes. Since, Descartes argues, the corporeal world is nothing but spatially extended body, with the experience of secondary qualities resulting from the mind's interaction with matter moving in various distinctive ways, the representation of the world geometrically in the imagination is an entirely natural and appropriate mode of representation. But the contents of the mind must also be represented in the imagination and, in so far as the mind is engaged in a quantitative understanding, the imagination is needed in order that the mathematical entities on which the intellect works can be rendered determinate. For example, the intellect understands 'fiveness' as something distinct from five objects (or line segments, or points or whatever), and hence the imagination is required if this 'fiveness' is to correspond to something in the world. In fact, 'fiveness' is represented as a line comprising five equal segments which is then mapped onto the geometrical representations of the corporeal world.

In this way, our understanding of the corporeal world, an understanding that necessarily involves sense perception, is thoroughly mathematical. It should be noted that the intellect or mind, working by itself, could never even represent the corporeal world to itself, and *a fortiori* could never understand it.

DESCARTES'S METHOD OF DISCOVERY

In the *Discourse on Method,* Descartes describes the procedure by which he has proceeded in the *Dioptrics* and the *Meteors* in the following terms:

> The order which I have followed in this regard is as follows. First, I have attempted generally to discover the principles or first causes of everything which is or could be in the world, without in this connection considering anything but God alone, who has created the world, and without drawing them from any source except certain seeds of truth which are naturally in our minds. Next I considered what were the first and most common effects that could be deduced from these causes, and it seems to me that in this way I found the heavens, the stars, an earth, and even on the earth, water, air, fire, the minerals and a few other such things which are the most common and simple of all that exist, and consequently the easiest to understand. Then, when I wished to descend to those that were more particular, there were so many objects of various kinds that I did not believe it possible for the human mind to distinguish the forms or species of body which are on the earth from the infinity of others which might have been, had it been God's will to put them there, or consequently to make them of use to us, if it were not that one arrives at the causes through the effects and avails oneself of many specific experiments. In subsequently passing over in my mind all the objects which have been presented to my senses, I dare to say that I have not noticed anything that I could not easily explain in terms of the principles that I have discovered. But I must also admit that the power of nature is so great and so extensive, and these

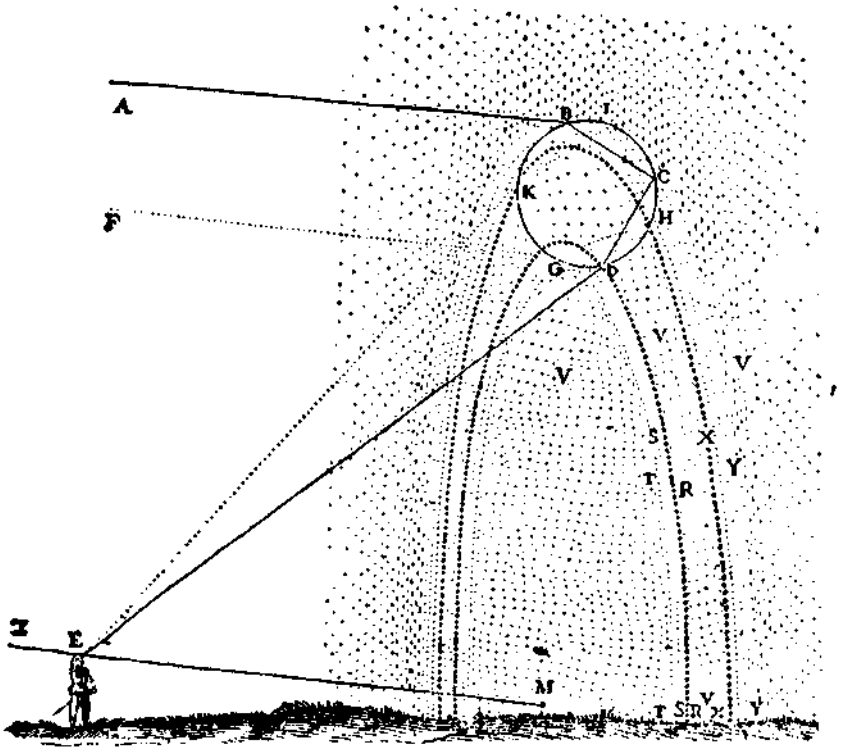
> principles so simple and general, that I hardly observed any effect that I did not immediately realize could be deduced from the principles in many different ways. The greatest difficulty is usually to discover in which of these ways the effect depends on them. In this situation, so far as I know the only thing that can be done is to try and find experiments which are such that their result varies depending upon which of them provides the correct explanation.[25]

But what exactly is Descartes describing here? We cannot simply assume it is a method of discovery. In a letter to Antoine Vatier of 22 February 1638, Descartes writes:

> I must say first that my purpose was not to teach the whole of my Method in the Discourse in which I propound it, but only to say enough to show that the new views in the *Dioptrics* and the *Meteors* were not random notions, and were perhaps worth the trouble of examining. I could not demonstrate the use of this Method in the three treatises which I gave, because it prescribes an order of research which is quite different from the one I thought proper for exposition. I have however given a brief sample of it in my account of the rainbow, and if you take the trouble to re-read it, I hope it will satisfy you more than it did the first time; the matter is, after all, quite difficult in itself. I attached these three treatises [the *Geometry,* the *Dioptrics* and the *Meteors*] to the discourse which precedes them because I am convinced that if people examine them carefully and compare them with what has previously been written on the same topics, they will have grounds for judging that the Method I adopt is no ordinary one and is perhaps better than some others.[26]

What is more, in the *Meteors* itself, Descartes tells us that his account of the rainbow is the most appropriate example 'to show how, by means of the method which I use, one can attain knowledge which was not available to those whose writings we possess'.[27] This account is, then, clearly worth looking at.

The *Meteors* does not start from first principles but from problems to be solved, and Descartes then uses the solution of the problem to exemplify his method. The central problem in the *Meteors,* to which Book 8 is devoted, is that of explaining the angle at which the bows of the rainbow appear in the sky. He begins by noting that rainbows are not only formed in the sky, but also in fountains and showers in the presence of sunlight. This leads him to formulate the hypothesis that the phenomenon is caused by light reacting on drops of water. To test this hypothesis, he constructs a glass model of the raindrop, comprising a large glass sphere filled with water and, standing with his back to the Sun, he holds up the sphere in the Sun's light, moving it up and down so that colours are produced. Then, if we let the light from the Sun come



> from the part of the sky marked AFZ, and my eye be at point E, then when I put this globe at the place BCD, the part of it at D seems to me wholly red and incomparably more brilliant than the rest. And whether I move towards it or step back from it, or move it to the right or to the left, or even turn it in a circle around my head, then provided the line DE always marks an angle of around 42° with the line EM, which one must imagine to extend from the centre of the eye to the centre of the sun, D always appears equally red. But as soon as I made this angle DEM the slightest bit smaller it did not disappear completely in the one stroke but first divided as into two less brilliant parts in which could be seen yellow, blue, and other colours. Then, looking towards the place marked K on the globe, I perceived that, making the angle KEM around 52°, K also seemed to be coloured red, but not so brilliant…[28]

Descartes then describes how he covered the globe at all points except B and D. The ray still emerged, showing that the primary and secondary bows are caused by two refractions and one or two internal reflections of the incident ray. He next describes how the same effect can be produced with a prism, and this indicates that neither a curved surface nor reflection are necessary for colour dispersion.

Moreover, the prism experiment shows that the effect does not depend on the angle of incidence and that one refraction is sufficient for its production. Finally, Descartes calculates from the refractive index of rainwater what an observer would see when light strikes a drop of water at varying angles of incidence, and finds that the optimum difference for visibility between incident and refracted rays is for the former to be viewed at an angle of 41°–42° and the latter at an angle of 51°–52°,[29] which is exactly what the hypothesis predicts.

This procedure is similar to that followed in the *Dioptrics,* and in some inspects to that followed in the *Geometry*. It is above all an exercise in problem-solving, and the precedent for such an exercise seems to have been developed in Descartes's work in mathematics. Indeed, the later parts of the *Rules* turn towards specifically mathematical considerations, and Rules 16–21 have such close parallels with the *Geometry* that one can only conclude that they contain the early parts of that work in an embryonic form. Rule 16 advises us to use 'the briefest possible symbols' in dealing with problems, and one of the first things the *Geometry* does is to provide us with the algebraic signs necessary for dealing with geometrical problems. Rule 17 tells us that, in dealing with a new problem, we must ignore the fact that some terms are known and some unknown; and again one of the first directives in the *Geometry* is that we label all lines necessary for the geometrical construction, whether these be known or unknown. Finally, Rules 18–21 are formulated in almost identical terms in the *Geometry*.[30]

There is something ironic in this, for one would normally associate a mathematical model with a method which was axiomatic and deductive. Certainly, if one looks at the great mathematical texts of Antiquity —Euclid's *Elements* or Archimedes's *On the Sphere and the Cylinder* or Apollonius's *On Conic Sections,* for example—one finds lists of definitions and postulates and deductive proofs of theorems relying solely on these. If one now turns to Descartes's *Geometry,* one finds something completely different. After a few pages of introduction, mainly on the geometrical representation of the arithmetical operations of multiplication, division and finding roots, we are thrown into one of the great unsolved problems bequeathed by Antiquity—Pappus's locus problem for four or more lines, which Descartes then proceeds to provide us with a method of solving.

Descartes's solution to the Pappus problem is an 'analytic' one. In ancient mathematics, a sharp distinction was made between analysis and synthesis. Pappus, one of the greatest of the Alexandrian mathematicians, had distinguished between two kinds of analysis: 'theoretical' analysis, in which one attempts to discover the truth of a theorem, and 'problematical analysis', in which one attempts to discover something unknown. If, in the case of theoretical analysis, one finds that the theorem is false or if, in the case of problematical analysis, the proposed procedure fails to yield what one is seeking, or one can show the problem to be insoluble, then synthesis is not needed, and analysis is complete in its own right. In the case of positive results, however, synthesis is needed, albeit for different reasons. Synthesis is a difficult notion to specify, and it appears to

have been used with slightly different meanings by different writers, but it is basically that part of the mathematical process in which one proves deductively, perhaps from first principles, what one has discovered or shown the truth of by analysis. In the case of theoretical analysis, one needs synthesis, because in the analysis what we have done is to show that a true theorem follows from a theorem whose truth we wish to establish, and what we must now do is to show that the converse is also the case, that the theorem whose truth we wish to establish follows from the theorem we know to be true. The latter demonstration, whose most obvious form is demonstration from first principles, is synthesis. A synthetic proof is, in fact, the 'natural order' for Greek and Alexandrian mathematicians, the analysis being only a 'solution backwards'. So what we are invariably presented with are the 'naturally ordered' synthetic demonstrations: there is no need to present the analysis as well. Descartes objects to such procedures. He accuses the Alexandrian mathematicians Pappus and Diophantus of presenting only the synthesis from ulterior motives:

> I have come to think that these writers themselves, with a kind of pernicious cunning, later suppressed this mathematics as, notoriously, many inventors are known to have done where their own discoveries were concerned. They may have feared that their method, just because it was so easy and simple, would be depreciated if it were divulged; so to gain our admiration, they may have shown us, as the fruits of their method, some barren truths proved by clever arguments, instead of teaching us the method itself, which might have dispelled our admiration.[31]

In other words, analysis is a method of discovery, whereas synthesis is merely a method of presentation of one's results by deriving them from first principles. Now it is true that in many cases the synthetic demonstration will be very straightforward once one has the analytic demonstration, and indeed in many cases the latter is simply a reversal of the former. Moreover, all equations have valid converses by definition, so if one is dealing with equations, as Descartes is for example, then there is no special problem about converses holding. But the synthetic demonstration, unlike the analytic one, is a deductively valid proof, and this, for the ancients and for the vast majority of mathematicians since then, is the only real form of proof. Descartes does not accept this, because he does not accept that deduction can have any value in its own right. We shall return to this issue below.

The case of problematical analysis with a positive outcome is more complicated, for here there was traditionally considered to be an extra reason why synthesis was needed, namely the production of a 'determinate' solution. In rejecting synthesis in this context, Descartes is on far stronger ground. Indeed, one of the most crucial stages in the development of algebra consists precisely in going beyond the call for determinate solutions. In the case of geometry, analysis provides one with a general procedure, but it does not in itself produce a

particular geometrical figure or construction as the solution to a problem and, until this is done, the ancients considered that the problem had not been solved. Parallel constraints applied in arithmetic. Arithmetical analysis yields only an indeterminate solution, and we need a final synthetic stage corresponding to the geometrical solution; this is the numerical exploitation of the indeterminate solution, where we compute determinate numbers. Now in traditional terms the *Geometry* is an exercise in problematical analysis, but Descartes completely rejects the traditional requirement that, following such an analysis, synthesis is needed to construct or compute a determinate figure or number. For the mathematicians of Antiquity this was the point of the exercise, and it was only if such a determinate figure or number could be constructed or computed that one could be said to have solved the problem. Towards the end of the Alexandrian era, most notably in Diophantus's *Arithmetica,* we do begin to find the search for problems and solutions concerned with general magnitudes, but these are never considered an end in themselves, and they are regarded as auxiliary techniques allowing the computation of a determinate number, which is the ultimate point of the exercise. Descartes's approach is completely and explicitly at odds with this. As early as Rule 16 of the *Rules* he spells out the contrast between his procedure and the traditional one:

> It must be pointed out that while arithmeticians have usually designated each magnitude by several units, i.e. by a number, we on the contrary abstract from numbers themselves just as we did above [Rule 14] from geometrical figures, or from anything else. Our reason for doing this is partly to avoid the tedium of a long and unnecessary calculation, but mainly to see that those parts of the problem which are the essential ones always remain distinct and are not obscured by useless numbers. If for example we are trying to find the hypotenuse of a right-angled triangle whose given sides are 9 and 12, the arithmeticians will say that it is ′ (225), i.e. 15. We, on the other hand, will write a and b for 9 and 12, and find that the hypotenuse is ′ $(a^2 + b^2)$, leaving the two parts of the expression, a^2 and b^2, distinct, whereas in the number they are run together…. We who seek to develop a clear and distinct knowledge of these things insist on these distinctions. Arithmeticians, on the other hand, are satisfied if the required result turns up, even if they do not see how it depends on what has been given, but in fact it is in knowledge of this kind alone that science consists.[32]

In sum, for Descartes, concern with general magnitudes is constitutive of the mathematical enterprise.

Descartes's algebra transcends the need to establish converses, because he is dealing with equations, whose converses always hold, and it transcends the traditional view that one solves a problem only when one has constructed a determinate figure or computed a determinate number. But Descartes goes further

than this, rejecting the need for deductive proof altogether. The reason why he does this lies ultimately not so much in his rejection of synthetic demonstrations in mathematics but in his conception of the nature of inference. Before we look at this question, however, it is worth looking briefly at what role deduction does play in Descartes's overall account.

METHODS OF DISCOVERY AND PRESENTATION

In Article 64 of Part II of *The Principles of Philosophy,* Descartes writes:

> I know of no material substance other than that which is divisible, has shape, and can move in every possible way, and this the geometers call quantity and take as the object of their demonstrations. Moreover, our concern is exclusively with the divisions, shape and motions of this substance, and nothing concerning these can be accepted as true unless it be deduced *(deducatur)* from indubitably true common notions with such certainty that it can be regarded as a mathematical demonstration. And because all natural phenomena can be explained in this way, as one can judge from what follows, I believe that no other physical principles should be accepted or even desired.

Like the passage from the *Discourse on Method* that I quoted above, there is a suggestion here that deduction from first principles is Descartes's method of discovery. Can we reconcile these and many passages similar to them with Descartes's rejection of deductive forms of inference, such as synthesis in mathematics and syllogistic in logic? I believe we can.

Descartes's procedure in natural philosophy is to start from problem-solving, and his 'method' is designed to facilitate such problem-solving. The problems have to be posed in quantitative terms and there are a number of constraints on what form an acceptable solution takes: one cannot posit 'occult qualities', one must seek 'simple natures', and so on. The solution is then tested experimentally to determine how well it holds up compared with other possible explanations meeting the same constraints which also appear to account for the facts. Finally, the solution is incorporated into a system of natural philosophy, and the principal aim of a work like the *Principles of Philosophy* is to set out this natural philosophy in detail. The *Principles* is a textbook, best compared not with works like the *Optics* and the *Meteors,* which purport to show one how the empirical results were arrived at, but with the many scholastic textbooks on natural philosophy which were around in Descartes's time, and from which he himself learnt whilst a student.[33] Such a textbook gives one a systematic overview of the subject, presenting its ultimate foundations, and showing how the parts of the subject are connected. Ultimately, the empirically verified results have to be fitted into this system, which in Descartes's case is a rigorously mechanist system presented with metaphysical foundations. But the empirical results themselves

are not justified by their incorporation within this system: they are justified purely in observational and experimental terms. It is important to realize this, because it is fundamental to Descartes's whole approach that deduction cannot *justify* anything. What it can do is display the systematic structure of knowledge to us, and this is its role in the *Principles*.

Again, there is something of an irony here, for the kind of misunderstanding of Descartes's methodological concerns which has resulted in the view that he makes deduction from first principles the source of all knowledge is rather similar to the kind of misunderstanding that Descartes himself fosters in the case of Aristotle on the one hand and the Alexandrian mathematicians on the other. In the case of Aristotle, he takes a method of presentation of results which have already been established to be a method of discovery. In the case of Pappus and Diophantus, he maintains that a method of presentation is passed off as a method of discovery. Yet both followers and critics of Descartes have said exactly the same of him; taking his method of presentation as if it were a method of discovery, they have often then complained that there is a discrepancy between what he claims his method is and the procedure he actually follows in his scientific work.[34]

This suggests that there may be something inherently problematic in the idea of a 'method of discovery'. If one compares the kind of presentation one finds in the *Geometry* with what one finds in the *Principles of Philosophy,* there is, on the face of it, much less evidence of anything one would call 'method' in the former than in the latter. Certain basic maxims are adhered to, and basic techniques developed, in the first few pages of the *Geometry,* but the former are really too rudimentary to be graced with the name of 'method', and the latter are specifically mathematical. In the very early days (from around 1619 to the early 1620s), when Descartes was contemplating his grand scheme of a 'universal mathematics', there was some prospect of a really general method of discovery, for universal mathematics was a programme in which, ultimately, everything was reduced to mathematics. But once this was (wisely) abandoned, and the mathematical rules were made specifically mathematical, the general content of the 'method' becomes rather empty. Here, for example, are the rules of method as they are set out in the *Discourse on Method:*

> The first was never to accept anything as true if I did not have evident knowledge of its truth: that is, carefully to avoid precipitate conclusions and preconceptions, and to include nothing more in my judgements than what presented itself to my mind so clearly and so distinctly that I had no occasion to doubt it. The second, to divide each of the difficulties I examined into as many parts as possible and as may be required in order to resolve them better. The third, to direct my thoughts in an orderly manner, by beginning with the simplest and most easily known objects in order to ascend little by little, step by step, to knowledge of the most complex, and

> by supposing some order even among objects that have no natural order of precedence.[35]

There is surely little that is radical or even novel here, and the list is more in the nature of common-sense hints rather than something offering deep enlightenment (unless it is specifically interpreted as a some-what cryptic statement of an algebraic approach to mathematics, in which case it is novel, but it then becomes very restricted in scope and can no longer have any claim to be a general statement of 'method'). The same could be said of Aristotle's 'topics': they too offer no systematic method of discovery, and certainly nothing that would guarantee success in a scientific enterprise, but rather general and open-ended guidance. But 'methods of discovery' do not perform even this modest role unaided.

It is interesting in this respect that, in this passage as in others, Descartes finds it so difficult to present his 'method of discovery' without at the same time mentioning features appropriate to his method of presentation. The reason for this lies in the deep connections between the two enterprises, connections which Descartes seems reluctant to investigate. While it is legitimate to present the deductive structure of the *Principles of Philosophy* as a method of presentation as opposed to a method of discovery, it must be appreciated that the structure exhibited in, or perhaps revealed by, the method of presentation is a structure that will inevitably guide one in one's research. It will not enable one to solve specific problems, but it will indicate where the problems lie, so to speak, and which are the important ones to solve: which are the fundamental ones and which the peripheral ones. Leibniz was to realize this much more clearly than Descartes ever did, arguing that we use deductive structure to impose order on information, and by using the order discerned we are able to identify gaps and problematic areas in a systematic and thorough way.[36] Failure to appreciate this crucial feature of deductive structure will inevitably result in a misleading picture in which the empirical results are established first and then, when this is done, incorporated into a system whose only role is the ordering of these results. But such a procedure would result in problem-solving of a completely unsystematic and aimless kind, and this is certainly not what Descartes is advocating. The method of presentation does, then, have a role in discovery: it complements discovery procedures by guiding their application. The extent to which Descartes explicitly recognizes this role is problematic, but there can be no doubt that his account of method presupposes it.

THE FUNDAMENTAL PROBLEM OF METHOD: EPISTEMIC ADVANCE

The heart of the philosophical problem of method in Descartes lies not in reconciling his general statements on method with his more specific recommendations on how to proceed in scientific investigation, or in clarifying

the relation between his 'method of discovery' and his 'method of presentation', but in an altogether deeper and more intractable question about how inference can be informative. Inference is necessarily involved in every kind of scientific enterprise, from logic and mathematics to natural philosophy, and the whole point of these enterprises is to produce new knowledge, but the canonical form of inference, for Descartes and all his predecessors, is deductive inference, and it is a highly problematic question whether deductive inference can advance knowledge.

The question became highlighted in the sixteenth century when there was intense discussion of the Aristotelian distinction between knowledge how and knowledge why, and the ways in which the latter could be achieved. Turnebus,[37] writing in 1565, tells us that the (Aristotelian) question of method was the most discussed philosophical topic of the day. These debates were conducted in the context of the theory of the syllogism, and although, with the demise of syllogistic, the explicitly logical context is missing from seventeenth-century discussions of method, there is always an undercurrent of logical questions. Descartes raises the question of method in the context of considerations about the nature of inference in the following way in Rule 4 of the *Rules:*

> But if our method rightly explains how intellectual intuition should be used, so as not to fall into error contrary to truth, and how one must find deductive paths so that we might arrive at knowledge of all things, I cannot see anything else is needed to make it complete; for I have already said that the only way science is to be acquired is by intellectual intuition or deduction.[38]

Intellectual intuition is simply the grasp of a clear and distinct idea. But what is deduction? In Rule 7 it is described in a way which makes one suspect that it is not necessary in its own right:

> Thus, if, for example, I have found out, by distinct mental operations, what relation exists between magnitudes *A* and *B,* then what between *B* and *C,* between *C* and *D,* and finally between *D* and *E,* that does not entail that I will see what the relation is between *A* and *E,* nor can the truths previously learned give me a precise idea of it unless I recall them all. To remedy this I would run over them many times, by a continuous movement of the imagination, in such a way that it has an intuition of each term at the same time that it passes on to the others, and this I would do until I have learned to pass from the first relation to the last so quickly that there was almost no role left for memory and I seemed to have the whole before me at the same time.[39]

This suspicion is confirmed in Rule 14:

> In every train of reasoning it is merely by comparison that we attain to a precise knowledge of the truth. Here is an example: all *A* is *B*, all *B* is *C,* therefore all *A* is *C*. Here we compare with one another what we are searching for and what we are given, viz. *A* and *C,* in respect of the fact that each is *B,* and so on. But, as we have pointed out on a number of occasions, because the forms of the syllogism are of no aid in perceiving the truth about things, it will be better for the reader to reject them altogether and to conceive that all knowledge whatsoever, other than that which consists in the simple and pure intuition of single independent objects, is a matter of the comparison of two things or more with each other. In fact practically the whole task set the human reason consists in preparing for this operation; for when it is open and simple, we need no aid from art, but are bound to rely upon the light of nature alone, in beholding the truth which comparison gives us.[40]

The difference between intuition and deduction lies in the fact that whereas the latter consists in grasping the relations between a number of propositions, intuition consists in grasping a necessary connection between two propositions. But in the limiting case, deduction reduces to intuition: we run through the deduction so quickly that we no longer have to rely on memory, with the result that we grasp the whole in a single intuition at a single time. The core of Descartes's position is that by compacting inferential steps until we come to a direct comparison between premises and conclusion we put ourselves in a position where we are able to have a clear and distinct idea of the connection, and this provides us with a guarantee of certainty.

What is at issue here is the question of the justification of deduction, but we must be careful to separate out two different kinds of demand for justification. The first is a demand that deductive inference show itself to be productive of new knowledge, that it result in episte-mic advance. The second is a question about whether deductive inference can be further analysed or explained: it is a question about the justification of deduction, but not one which refers us to its epistemic worth for, as Dummett has rightly pointed out, our aim 'is not to persuade anyone, not even ourselves, to employ deductive arguments: it is to find a satisfactory explanation for the role of such arguments in our use of language.'[41] Now these two kinds of question were not always clearly distinguished in Descartes's time, and it was a prevalent assumption in the seventeenth century that syllogistic, in both its logical and its heuristic aspects, could be justified if and only if it could show its epistemic worth. But the basis for the distinction was certainly there, and while the questions are related in Descartes, we can find sets of considerations much more relevant to the one than the other.

The first question, that of epistemic informativeness, concerns the use of formalized deductive arguments, especially the syllogism, in the discovery of new results in natural philosophy. Earlier, we looked very briefly at how Aristotle tried to deal with this question, by distinguishing two different forms of

syllogism, one scientific because it provided us with knowledge why something was the case, the other non-scientific because it only provided us with knowledge that something was the case. The logicians of antiquity were crucially concerned with the epistemic informativeness of various kinds of deductive argument, and both Aristotle and the Stoics (founders of the two logical systems of Antiquity) realized that there may be no logical or formal difference between an informative and an uninformative argument, so they tried to capture the difference in non-logical terms, but in a way which still relied on structural features of arguments, for example the way in which the premises were arranged. All these attempts failed, and the question of whether deductive arguments can be informative, and if so what makes them informative, remained unresolved.

The prevalent seventeenth-century response to this failure was to argue that deductive arguments can never be epistemically informative. Many critics of logic right up to the nineteenth century criticized syllogistic arguments for failing to yield anything new, where what is meant by 'new' effectively amounts to 'logically independent of the premises'. But of course a deductive argument is precisely designed to show the logical dependence of the conclusion on premises, and so the demand is simply misguided. Descartes's response is rather different. It consists in the idea that the deduction of scientific results, whether in mathematics or in natural philosophy, does not genuinely produce those results. Deduction is merely a mode of presentation of results which have already been reached by analytic, problem-solving means. This is hard to reconcile, however, with, say, our learning of some geometrical theorem by following through the proof from first principles in a textbook. Even if Descartes could show that one can never come to know new theorems in the sense of inventing them by going through some deductive process, this does not mean that one could not come to know them, in the sense of learning something one did not previously know, by deductive means. Indeed, it is hard to understand what the point of the *Principles* could be if Descartes denied the latter. But in that case his argument against deduction as a means of discovery is a much more restricted one than he appears to think. Moreover, I have already indicated that deduction seems to play a guiding role in discovery, in the sense of invention or 'genuine' discovery, in Descartes, because his procedures for problem-solving are quite blind as far as the ultimate point of the exercise is concerned. Finally, the way in which he sets up the argument in the first place is somewhat question-begging. We are presented with two alternatives: using his 'method', or deduction from first principles. But someone who has a commitment to the value of deductive inference in discovery, as Leibniz was to have, will not necessarily want to tie this to demonstration purely from first principles: Leibniz's view was that deduction only comes into use as a means of discovery once one has a very substantial body of information (discovered by non-deductive means). This is a possibility that Descartes simply does not account for.

On the second question, Descartes's view is expressed admirably in Rule 4 of the *Rules for the Direction of Our Native Intelligence,* when he says that 'nothing can be added to the pure light of reason which does not in some way obscure it.' Intuition, and the deductive inference that must ultimately reduce to a form of intuition, is unanalysable, simple and primitive. Like the *cogito,* which is the canonical example of an intuition, no further question can be raised about it, whether in justification or explanation. This raises distinctive problems for any treatment of the nature of deduction. It is interesting to note here the wide gulf between Aristotle's classic account of the justification of deductive principles and Descartes's approach. In the *Metaphysics,* Aristotle points out that proofs must come to an end somewhere, for otherwise we would be involved in an infinite regress. Hence there must be something that we can rely on without proof, and he takes as his example the law of non-contradiction. The law is justified by showing that an opponent who denies it must, in denying it, actually assume its truth, and by showing that arguments that apparently tell against it, such as relativist arguments purporting to show that a thing may both have and not have a particular property depending on who is perceiving the thing, cannot be sustained. Descartes can offer nothing so compelling. It is something ambiguously psychological—the 'light of reason' or the 'light of nature'—that stops the regress on Descartes's conception. Whereas Aristotle was concerned, in his justification, to find a form of argument which was irresistible to an opponent, all Descartes can do is postulate some form of psychological clarity experienced by the knowing subject. Nevertheless, it was Descartes's conception that held sway, being adopted in two extremely influential works of the later seventeenth century: Arnauld and Nicole's *Port-Royal Logic,* and Locke's *Essay Concerning Human Understanding*.[42] The reason for this is not hard to find. The Aristotelian procedure relies upon a discursive conception of inference, whereby one induces an opponent to accept what one is arguing on the basis of accepting certain shared premises: such a mode of argument works both at the ordinary level of convincing someone of some factual matter, and at the metalevel of justifying the deductive principles used to take one from premises to conclusion. But as I indicated earlier, the discursive conception was generally discredited in the seventeenth century. It requires common ground between oneself and one's opponents, and Descartes and others saw such common ground as the root of the problem of lack of scientific progress within the scholastic-Aristotelian tradition. It was seen to rest on an appeal to what is generally accepted rather than to what is the case. The 'natural light of reason', on the other hand, provided internal resources by which to begin afresh and reject tradition.

The acceptance of this view had disastrous consequences for the study of deductive logic. Descartes's algebra contained the key to a new understanding of logic. Just as Descartes had insisted that, in mathematics, one must abstract from particular numbers and focus on the structural features of equations, so analogously one could argue that one should abstract from particular truths and explore the relation between them in abstract terms. Such a move would have

been tantamount to the algebraic construal of logic, something which is constitutive of modern logic. But Descartes did not even contemplate such a move, not because of the level of abstraction involved, which would not have worried him if his work in mathematics is any guide, but because he was unable to see any point in deductive inference.

CONCLUSION

Descartes's approach to philosophical questions of method was extremely influential from the seventeenth to the nineteenth centuries, and it replaced Aristotelianism very quickly. It was part of a general anti-deductivist movement, whether this took the form of a defence of hypotheses (in the seventeenth century) or of induction (in the eighteenth and nineteenth centuries). This influence was transmitted indirectly through Locke, however, and with the interpretation of seventeenth- and eighteenth-century philosophy in terms of two opposed schools of thought, rationalism and empiricism, this aspect of Descartes's thought tended to become forgotten, and his more programmatic statements about his system were taken out of context and an apriorist and deductivist methodology ascribed to him. The irony in this is that Descartes not only vehemently rejected such an approach, but his rejection goes too far. It effectively rules out deduction having any epistemic value, and this is something he not only could not establish but which, if true, would have completely undermined his own *Principles of Philosophy*. But this is not a simple oversight on Descartes's part. It reflects a serious and especially intractable problem, or rather set of problems, about how deductive inference can be informative, which Descartes was never able to resolve and which had deep ramifications for his account of method.

NOTES

1 This is, at least, the usual view. For a dissenting view see G.Canguilhem, *La formation du concept de réflexe an XVIIe et XVIIIe siècles* (Paris, Presses Universitaires de France, 1955), pp. 27–57.
2 (Nottingham [5.10], 30.
3 On the issue of rationalism versus empiricism see Louis E.Loeb, *From Descartes to Hume: Continental Metaphysics and the Development of Modern Philosophy* (Ithaca, N.Y., Cornell University Press, 1981), ch. 1.
4 [5.1], vol. 8 (1), 78–9.
5 See L.Laudan, *Science and Hypothesis* (Dordrecht, Reidel, 1981), ch. 4.
6 Rule 10, [5.1], vol. 10, 406.
7 [5.1], vol. 10, 376–7.
8 See Jonathan Barnes, 'Aristotle's Theory of Demonstration', in J.Barnes, M. Schofield, and R.Sorabji (eds) *Articles on Aristotle,* vol. 1, *Science* (London, Duckworth, 1975), pp. 65–87.

9 There is one occasion on which Descartes does in fact make use of a form of argument with a distinctively discursive structure: in his treatment of scepticism. Sceptical arguments have a distinctive non-logical but nevertheless structural feature. They rely upon the interlocutor of the sceptic to provide both the knowledge claims and the definition of knowledge (i.e. the premises of the argument). The sceptic then attempts to show a discrepancy between these two. Were the sceptic to provide the definition of knowledge, or to provide knowledge claims or denials that certain things are known, the ingenious dialectical structure of sceptical arguments would be undermined. This is a very traditional feature of sceptical arguments, and it is a sign of Descartes's ability to handle it that he not only uses it to undermine knowledge claims in the *First Meditation,* but he also uses it to destroy scepticism in making the sceptic provide the premise of the *cogito,* by putting it in the form 'I doubt, therefore I exist'. In other words he is able to turn the tables on the sceptic by using the same form of argument that makes scepticism so successful. But, of course, once he has arrived at his foundation, he shuns this form of argument, for now he has premises he can be certain of and so he no longer has any need to use forms of argument which demand shared (but possibly false) premises.

10 It should be noted that 'method' was a central topic in the sixteenth century, but the focus of the sixteenth-century discussion is different, and it derives from Aristotle's distinction between scientific and non-scientific demonstration. On the sixteenth-century disputes, see Neal W.Gilbert, *Renaissance Concepts of Method* (New York, Columbia University Press, 1960).

11 For more detail on the problems of defining mechanism, see J.E.McGuire, 'Boyle's Conception of Nature', *Journal of the History of Ideas* 33 (1972) 523–42; and Alan Gabbey, 'The Mechanical Philosophy and its Problems: Mechanical Explanations, Impenetrability, and Perpetual Motion', in J.C.Pitt (ed.) *Change and Progress in Modern Science* (Dordrecht, Reidel, 1985), pp. 9–84.

12 See K.Hutchison, 'Supernaturalism and the Mechanical Philosophy', *History of Science* 21 (1983) 297–333.

13 See D.P.Walker, *Spiritual and Demonic Magic from Ficino to Campanella* (London, the Warburg Institute, 1958).

14 Marin Mersenne (1588–1648) was one of the foremost advocates of mechanism, and as well as writing extensively on a number of topics in natural philosophy and theology he played a major role in co-ordinating and making known current work in natural philosophy from the mid-1620s onwards. He attended the same school as Descartes but their friendship, which was to be a lifelong one, began only in the mid-1620s, during Descartes's stay in Paris.

15 Averroes (*c.* 1126–*c.* 1198), the greatest of the medieval Islamic philosophers, developed what was to become the principal form of naturalism in the later Middle Ages and Renaissance. The naturalism of Alexander of Aphrodisias (fl. AD 200), the greatest of the Greek commentators on Aristotle, does not seem to have been taken seriously until the Paduan philosopher Pietro Pomponazzi (1462–1525) took it up, and even then it was never explicitly advocated as a doctrine that presents the whole truth. On the Paduan debates over the nature of the soul see Harold Skulsky, 'Paduan Epistemology and the Doctrine of One Mind', *Journal of the History of Philosophy* 6 (1968) 341–61.

16 See Robert Lenoble, *Mersenne on la naissance de mécanisme* (Paris, Vrin, 2nd edn, 1971).

17 On this question see M.Gueroult, 'The Metaphysics and Physics of Force in Descartes', and A.Gabbey, 'Force and Inertia in the Seventeenth Century: Descartes and Newton', both in [5.27], 196–229 and 230–320 respectively.
18 See, for example, his reply to Henry More's objection that modes are not alienable in [5.1], vol. 5, 403–4.
19 [5.1], vol. 7, 108; [5.5], vol. 2, 78.
20 See Wahl [5.73].
21 For details of this issue see Stephen Gaukroger, *Explanatory Structures: Concepts of Explanation in Early Physics and Philosophy* (Brighton, Harvester, 1978), ch. 6.
22 For details see Jean-Paul Weber, *La Constitution du texte des Regulae* (Paris, 1964).
23 [5.1], vol. 10, 377–8; [5.5], vol. 1, 19.
24 See John Schuster, 'Descartes' *Mathesis Universalis* 1619–28', in [5.27], 41–96.
25 [5.1], vol. 6, 63–5.
26 [5.1], vol. 1, 559–60.
27 [5.1], vol. 5, 325.
28 [5.1], vol. 6, 326–7.
29 [5.1], vol. 6, 336.
30 See the discussion in Beck [5.39], 176ff.
31 Rule 4, [5.1], vol. 10, 276–7; [5.1], vol. 5, 19.
32 [5.1], vol. 10, 455–6, 458.
33 On the authors whom Descartes would have studied at his college, La Flèche, see Gilson [5.20]. On the textbook tradition more generally, see Patricia Reif, 'The Textbook Tradition in Natural Philosophy, 1600–1650', *Journal of the History of Ideas* 30 (1969) 17–32.
34 It is rare to find anyone who not only takes the deductive approach at face value and also believes it is viable, but there is at least one notable example of such an interpretation, namely Spinoza's *Principles of the Philosophy of René Descartes* (1663).
35 [5–1], vol. 6, 18–19; [5.5], vol. 1, 120.
36 See, for example, Leibniz's letter to Gabriel Wagner of 1696, in C.I.Gerhardt (ed.) *Die philosophischen Schriften von Gottfried Wilhelm Leibniz* (Berlin, Weidman, 1875–90), vol. 7, 514–27, especially Comment 3 on p. 523. The letter is translated in L.E.Loemker, *Gottfried Wilhelm Leibniz: Philosophical Papers and Letters* (Dordrecht, Reidel, 1969), pp. 462–71, with Comment 3 on p. 468.
37 Adrianus Turnebus (1512–65) was Royal Reader in Greek at the Collège de France. He was one of the leading humanist translators of his day, and had an extensive knowledge of Greek philosophy.
38 [5.1], vol. 10, 372; [5.5], vol. 1, 16.
39 [5.1], vol. 10, 387–8; [5.5], vol. 1, 25.
40 [5.1], vol. 10, 439–40; [5–5], vol. 1, 57.
41 M.Dummett, 'The Justification of Deduction', in his *Truth and Other Enigmas* (London, Duckworth, 1978), p. 296.
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CHAPTER 6
Descartes: metaphysics and the philosophy of mind

John Cottingham

THE CARTESIAN PROJECT

Descartes is rightly regarded as one of the inaugurators of the modern age, and there is no doubt that his thought profoundly altered the course of Western philosophy. In no area has this influence been more pervasive than in metaphysics and the philosophy of mind. But Descartes himself would perhaps have been surprised to learn that these aspects of his work were to be singled out by subsequent generations for special attention. For his own conception of philosophy, and of the philosophical enterprise he was engaged on, was enormously wide ranging; so far from being confined to 'philosophy' in the modern academic sense of that term, it had to do principally with what we should now call 'science'. Descartes attempted, in his writings on cosmology, astronomy and physics, to develop a general theory of the origins and structure of the universe and the nature of matter, and he also did a considerable amount of detailed work in more specialized areas such as optics, meteorology, physiology, anatomy and medicine. In all these fields, Descartes aimed for explanatory economy; his goal was to derive all his results from a small number of principles of great simplicity and clarity, and he took mathematics as a model for the precise and unified structure of knowledge which he was seeking.

Descartes's ambition, however, was not just to produce a clear, precise and unified system of scientific explanations. He insisted that nothing could count as genuine *scientia,* as true knowledge, if it contained any hidden assumptions or presuppositions which had not been thoroughly scrutinized. As a schoolboy, he received a thorough training in philosophy and theology from the Jesuits at the College of La Flèche, but he later observed wryly that although the school had the reputation of being 'one of the best in Europe' he found that the philosophy he was taught, 'despite being cultivated for many centuries by the most excellent minds', contained not a single point that was not 'disputed and hence doubtful'.[1] Although Descartes clearly believed that the scientific work he pursued as a young man was free from this son of uncertainty,[2] there remained the possibility that some unexamined premise—some 'preconceived opinion'[3]—was infecting

the whole system. Complete certainty could be attained only by 'demolishing everything completely and starting again right from the foundations'.[4] It is this 'foundational' project that forms the core of Cartesian metaphysics.

In addition to his celebrated architectural metaphor of demolishing and rebuilding, Descartes also made use of an organic simile to explain the importance of metaphysics: 'The whole of philosophy is like a tree: the roots are metaphysics, the trunk is physics and the branches emerging from the trunk are all the other sciences.'[5] The simile is sometimes interpreted to mean that metaphysics is, for Descartes, the most important part of philosophy; but this is in some respects misleading. Descartes himself goes on to observe that 'it is not the roots or the trunk of a tree from which one gathers fruit, but only the branches', and he evidently saw the principal goal of his system as that of yielding practical benefits for mankind: in place of the 'speculative philosophy taught in the schools' he aimed to develop a 'practical philosophy' which would be 'useful in life' and ultimately make us 'lords and masters of nature'.[6] Metaphysics was in this sense a means to an end, for Descartes, rather than an end in itself; he had no patience with abstract speculation for its own sake, and frequently told questioners and correspondents not to become bogged down in metaphysical inquiries.[7] Nevertheless, Descartes believed that at least once in a lifetime *(semel in vita)*[8] anyone pretending to construct a reliable system of knowledge would have to engage in metaphysical inquiries: without such inquiries, there could be no guarantee of the stability of the rest of the system. Indeed (and the tree simile is again illuminating here), Descartes regarded the whole of human knowledge as a quasi-organic unity: in place of the scholastic conception of knowledge (ultimately derived from Aristotle) as an amalgam of separate disciplines, each with its own standards of precision and methods of inquiry, Descartes (reverting to an older Platonic idea) saw all truths as essentially interconnected. We need to grasp, he wrote in an early notebook, that all the sciences are 'linked together' like a series of numbers;[9] later he developed the idea further: 'those long chains of very simple and easy reasonings which geometers customarily use to arrive at their most difficult demonstrations gave me occasion to suppose that all the items which fall within the scope of human knowledge are interconnected in the same way.'[10] Cartesian metaphysics attempts to start from scratch and establish, once and for all, the philosophical basis for these interconnections, aiming thereby to provide a kind of validation for the system as a whole.

THE SIMPLE NATURES

From some standard accounts of Descartes's life one might get the impression that as a young man he was predominantly concerned with mathematical and scientific issues, and that his metaphysical interests came later. It is certainly true that mathematics was a major preoccupation of the young Descartes. Many of the results later incorporated in his *Geometry*[11] were worked out during the

1610s, and we know from his letters that a great inspiration during his early years was the Dutch mathematician Isaac Beeckman, whom he met in Holland in 1618. Beeckman seems to have played for Descartes something of the role which Hume was later to play for Kant—waking him from his dogmatic slumbers: 'you alone roused me from my state of indolence' wrote Descartes to Beeckman on 23 April 1619 'and reawakened the learning that by then had almost disappeared from my mind'.[12] One of the chief points to strike Descartes was that mathematics could attain complete clarity and precision in its arguments, and that the demonstrations it employed were completely certain: no room was allowed for merely probabilistic reasoning.[13] The mathematical model continued to influence his scientific work throughout the following decade,[14] leading up to the composition of his treatise on physics and cosmology, *Le Monde,* which announced, at any rate in outline, a comprehensive programme for the elimination of qualitative descriptions from science in favour of exact quantitative analysis.[15]

Even in this early period, however, Descartes's interests were never *purely* scientific (in the restricted modern sense): right from the start he seems to have been concerned with how the results achieved in mathematics and physics were to be related to more fundamental issues about the nature and basis of human knowledge. In his *Regulae ad directionem ingenii* ('Rules for the Direction of our Native Intelligence', written in Latin in the late 1620s but not published during his lifetime), Descartes makes it clear that his interest in subjects like geometry and arithmetic derives in large part from the fact that they are merely examples of a more general procedure of potentially universal application:

> I came to see that the exclusive concern of mathematics is with questions of order or measure, and that it is irrelevant whether the measure in question involves numbers, shapes, stars, sounds or any other object whatever. This made me realize that there must be a general science which explains all the points that can be raised concerning order and measure, irrespective of the subject-matter, and that this science deserves to be called *mathesis universalis*.[16]

It is important to note that the 'universal discipline' described here does not merely encompass quantitative subject matter. Descartes believes that there is a formal structure which all valid systems of knowledge manifest, and that this structure consists essentially in a hierarchical ordering: the objects of knowledge are to be arranged in such a way that we can concentrate to begin with on the items which are 'simplest and easiest to know', only afterwards proceeding to the more complex truths which are derived from these basic starting-points.[17] The human intellect, Descartes goes on to explain, has the power to 'intuit' these 'simple natures' or fundamental starting-points for human knowledge: it simply 'sees' them with a simple and direct mental perception which allows for no

possibility of error, since the simple natures are 'all self-evident and never contain any falsity'.[18]

Some of the simple natures are 'purely material'; these include shape extension and motion (and will be the building-blocks of Cartesian quantitative science). But others, Descartes asserts, are 'purely intellectual', and are 'recognized by the intellect by a sort of natural light, without the aid of any corporeal image'; it is the intellectual simple natures which enable us, for example, to recognize 'what knowledge or doubt or ignorance is'.[19] Further, in addition to the intellectual simple natures, there are what Descartes calls the 'common' simple natures, which include the fundamental laws of logic (principles 'whose self-evidence is the basis for all the rational inferences we make').[20] Using the basic rules of inference, we can make necessary connections and so link the simple natures together to build up a body of reliable conclusions. Descartes, though in the *Regulae* he goes into no details of how such reasonings are conducted, provides some striking examples: 'if Socrates says that he doubts everything, it necessarily follows that he understands at least that he is doubting'; or again, 'I understand, therefore I have a mind distinct from a body'; or again (most striking of all), *'sum, ergo Deus est'*—'I am, therefore God exists'.[21] These examples have an unmistakable resonance for anyone familiar with Descartes's mature metaphysics. The mind's awareness of its own activity and of its incorporeal nature, and the route from knowledge of self to knowledge of God, were to be the central themes of Descartes's metaphysical masterpiece—the *Meditations on First Philosophy* (1641). But already in the *Regulae* we find a recognition that these issues are an inescapable part of any well-ordered system of knowledge. The intellectual simple natures, together with the corporeal simple natures, comprise the two fundamental sets of building-blocks for human knowledge (and, to preserve the metaphor, the common simple natures, or logical rules of inference, are the cement which binds them together in the appropriate relations). 'The whole of human knowledge', Descartes resoundingly declares in Rule 12, 'consists uniquely in our achieving a distinct perception of how all these simple natures contribute to the composition of other things'.[22] The materials, then, are ready to hand, Descartes seems to be telling us in his early writings. The task of putting them together, of constructing a reliable edifice of knowledge, remains to be undertaken. But it is already clear that this will have to involve not just our mathematical intuitions about number and measure, but our introspective reflections on our own nature as conscious beings. Descartes claimed in his intellectual autobiography in the *Discourse on the Method* (1637) that the task was one whose importance he realized in his early twenties. Although he postponed its implementation, he knew that sooner or later a metaphysical journey of self-scrutiny would have to be undertaken: *je pris un jour résolution d'étudier aussi en moi-même*—'I resolved one day to pursue my studies within myself'.[23]

FIRST PHILOSOPHY

In using the term 'first philosophy' to describe his fundamental metaphysical inquiries Descartes meant to draw attention to the fact that he proposed to deal 'not just with questions about God and the soul but in general with all the first things to be discovered by philosophizing in an orderly manner'.[24] The discovery of reliable first principles is effected by a characteristic technique which has come to be known as the 'method of doubt'. Descartes (though he was accused of being one[25]) is certainly no sceptic; he uses doubt purely as a means to an end, to demolish unreliable 'preconceived opinions' and clear away the resulting rubble in order to establish a bedrock of certainty. The strategy is sketched out in Part Four of the *Discourse on the Method,* and developed fully in the First Meditation; its point is neatly summarized in the Synopsis which Descartes had printed with the first edition of the *Meditations:*

> Reasons are provided which give us possible grounds for doubt about all things, especially material things, so long as we have no foundations for the sciences other than those which we have had up till now. Although the usefulness of such extensive doubt is not apparent at first sight, its greatest benefit lies in freeing us from all our preconceived opinions, and providing the easiest route by which the mind may be led away from the senses. The eventual result of this doubt is to make it impossible for us to have any further doubts about what we subsequently discover to be true.[26]

Although commentators often present Descartes as a revolutionary philosopher, the technique of 'leading the mind away from the senses' had a long ancestry. Augustine had compared the senses to a ship bobbing around on the ocean; to achieve reliable knowledge (e.g. of mathematics), we have to leave the ship and learn to walk on dry land.[27] The general theme goes back ultimately to Plato, who insisted that the first step to true philosophical understanding is to move away from the shifting world of sense-based beliefs.[28] Descartes begins his metaphysics, then, with a traditional softening-up process. Drawing on classical arguments for doubt (whose revival had been a major feature of renaissance philosophy[29]), he undermines our confidence in the senses as a source of knowledge by pointing out that they sometimes deceive, and 'it is prudent never to trust wholly those who have deceived us even once'.[30] He goes on to deploy the celebrated 'dreaming argument' ('there are no sure signs by means of which being awake can be distinguished from being asleep') to cast a general doubt on the reliability of the inference from sensory experiences to the existence of their supposed external causes. In the first phase of this argument, particular judgements like 'I am sitting by the fire' are impugned: any particular experience may be a dream. In the second, more radical, phase, doubt is cast on whole classes of objects: perhaps things like 'heads, eyes and hands' are all imaginary—part of some pervasive dream.[31] The conclusion reached is that any science (such

as physics) whose truth depends on the actual existence of objects is potentially doubtful; and that we may rely with certainty only on subjects like arithmetic and geometry, which deal 'with the simplest and most general things, regardless of whether they exist in nature or not'.[32]

At this stage in the First Meditation Descartes launches into a far more disturbing and extreme doubt, which takes us into the heart of his metaphysics—the possibility of error even concerning the simplest and apparently most self-evident truths of mathematics. This possibility is initially introduced by invoking an idea which was much misunderstood by Descartes's contemporaries, that of divine deception. Some found the suggestion impious; others saw the thrust of the argument as leading to atheism.[33] But in fact the project of the First Meditation, which is essentially one of suspension of belief, does not permit any assumptions to be made, one way or another, about the existence of God. Instead, we are presented with a simple dilemma: if there is an all-powerful creator, then he could 'bring it about that I go wrong every time I add two and three or count the sides of a square'; if, on the other hand, there is no God, then I owe my existence not to a divine creator but to chance, or some other chain of imperfect causes, and in this case there is even less reason to believe that my intuitions about mathematics are reliable.[34] What the argument appears to do, in effect, is to cast doubt on the most basic perceptions of our intellect —on what Descartes had earlier, in the *Regulae,* called our intuition of the 'simple natures'. But if the basic building-blocks of our knowledge are called into question, if the very framework of human cognition is suspect, then how could any cognitive process conceivably be validated?

Descartes's strategy in dealing with the dilemma he has raised is to show that even the most extreme doubt is self-defeating. 'I immediately noticed', he writes in the *Discourse,* 'that while I was trying in this way to think everything false, it was necessary that I, who was thinking this, was something'.[35] In the *Meditations,* essentially the same point is made, but in a rather more vivid way: having dramatized the extreme level of doubt by deliberately imagining a 'malicious demon of the utmost power and cunning who employs all his energies in order to deceive me', Descartes triumphantly exclaims:

> In that case I too undoubtedly exist, if he is deceiving me; and let him deceive me as much as he can, he will never bring it about that I am nothing so long as I think that I am something. So… I must finally conclude that this proposition, *I am, I exist,* is necessarily true whenever it is put forward by me or conceived in my mind.[36]

Elsewhere expressed in the famous dictum *Cogito ergo sum* ('I am thinking, therefore I exist'), this is the 'Archimedean point'—the first indubitable certainty which the meditator encounters; it is, says Descartes, 'so firm and sure that all the most extravagant suppositions of the sceptics are incapable of shaking it', and

hence he can 'accept it without scruple as the first principle of the philosophy [he is] seeking'.[37]

The precise logical status of Descartes's *cogito* argument has called forth an unending stream of commentary and analysis. But Descartes himself regarded it as an extremely simple piece of reasoning: 'when someone says *I am thinking, therefore I exist,* he does not have to deduce existence from thought by means of any syllogism, but recognizes it as something self-evident, by a simple intuition of the mind.'[38] There is, of course, nothing necessary about either one's thought or one's existence: I might not have existed; I could cease to think, or to exist, at any time. But what is necessary is that while I am actually engaged in thinking, I must exist. The validity of the *cogito* is thus not to be analysed simply in terms of the static inference patterns of formal logic; rather, it is something to be grasped by each individual meditator as he follows the Cartesian path and becomes aware of the unavoidable fact of his own existence as a subject of conscious awareness.[39] What is more, the fact of my thinking is self-confirming, in a way which is not the case with the other simple and self-evident truths (such as 'two plus three makes five') which Descartes has hitherto been considering. For the very act of doubting that I am thinking entails that I am thinking (since doubt is a species of thought).[40] In this sense, the *cogito* has a privileged status; it enjoys a primacy in the Cartesian quest for knowledge, since it alone is validated by the very fact of being doubted.

There is, however, another, philosophically more problematic, aspect to the 'primacy' of the *cogito*. Descartes frequently described it as the 'first principle' of his philosophy; but astute contemporary critics challenged him on just this point. In order even to get as far as realizing his own existence, does not the meditator already have to have a considerable amount of knowledge—for example of what is meant by the very terms 'thought' and 'existence'.[41] In reply, Descartes conceded, and indeed insisted, that such prior conceptual knowledge was indeed required; the *cogito* was 'primary' only in the sense that it is the first existential truth which the meditator arrives at.[42] But this reply in turn raises two fascinating difficulties. The first may be termed the problem of 'Cartesian privacy', and is one whose full implications have only become apparent in the twentieth century, chiefly as a result of the work of Ludwig Wittgenstein. What Wittgenstein showed, in his famous 'private language argument' was that for a term in any language to have meaning, there must be public criteria determining its correct application.[43] Yet this result, if we apply it to the Cartesian meditator, seems to undermine his entire project. For the project requires the meditator to doubt the existence of everything and everyone apart from himself, in order to reach subjective awareness of his own existence. Yet if the very understanding of terms like 'thought' and 'existence' presupposes a public realm of criteria determining their application, there is something inherently unstable about the private, autocentric perspective of the Cartesian quest for knowledge. If, as the Wittgensteinian argument seems to show, our grasp of concepts is an inescapably public, socially mediated, phenomenon, then the very ability of the meditator to

employ concepts presupposes from the outset the existence of that extra-mental world which he is supposed to be doubting. From a modern perspective, in short, the very idea of the primacy of the subjective dissolves away, and yields to the primacy of the social.

The second problematic feature about the primacy of the *cogito* arises even within the seventeenth-century context. Descartes's concession that the *cogito* is not entirely self-standing, but presupposes the meditator's grasp of the concepts involved, allows the following question to be raised. The extreme doubts of the First Meditation left open the possibility that the meditator might go astray 'every time he adds two and three or counts the sides of a square, *or in some even simpler matter, if that is imaginable*'.[44] But if a deceiving God could pervert my intuitions regarding the simplest concepts of mathematics, why could he not also pervert my grasp of the fundamental concepts I need in order to reach the *cogito*? How, in short, can I trust my basic intuitions of the 'intellectual simple natures' like the concepts of thought and of doubt, not to mention the 'common simple natures', which include the concept of existence and also the fundamental rules of logic which seem necessary for any thought process at all to get off the ground?

The correct answer to this conundrum, at least as far as Descartes's own strategy is concerned, seems to be that the doubts of the First Meditation are not intended to be as radical as is often supposed. Doubts about our grasp of mathematics are raised by the deceiving God argument, but a careful reading of the First Meditation confirms that doubts about our intuitions of the intellectual simple natures are never entertained. Despite his talk of 'demolishing everything', Descartes is chiefly concerned, as he says in the Synopsis,[45] to challenge our preconceived opinions concerning the nature and existence of the material world around us. He wants to direct the mind away from physical things, so that it can turn in upon itself and let the 'natural light' within each of us reveal the truths that cannot be doubted. The Cartesian project is not to 'validate reason',[46] for such a project would be doomed to incoherence by the very attempt to undertake it by using the tools of reason. Descartes cannot, and does not propose to, generate a system of knowledge *ex nihilo*. What he does propose to do is to demolish commonly accepted foundations for knowledge, based largely on sensory experience and preconceived opinion, and utilize instead more stable foundations derived from the inner resources which have been implanted in each soul. The project is aptly summarized in Descartes's dramatic dialogue, the *Search for Truth,* which was perhaps composed around the same time as the *Meditations:*

> I shall bring to light the true riches of our souls, opening up to each of us the means whereby we can find within ourselves, without any help from anyone else, all the knowledge we may need…in order to acquire the most abstruse items of knowledge that human reason is capable of possessing.[47]

THE ROLE OF GOD

It is scarcely possible to underestimate the role played by God in the development of Descartes's foundational project. The meditator's awareness of his own existence is a curiously transitory insight: I can be sure I exist only so long as I am thinking.[48] Admittedly, my awareness of myself as a thinking thing is quite indubitable and transparent: it surely could not turn out, Descartes observes, that 'something I perceived with such clarity and distinctness was false'; and yet the earlier suggestion that an all-powerful God might make me go wrong 'even in those matters which I think I see utterly clearly with the mind's eye' gives me pause for doubt. Although I have found one unshakeable truth, no general progress towards a systematic structure of knowledge will be possible unless I remove this residual doubt and establish 'whether God exists and, if so, whether he can be a deceiver'.[49]

Deprived, at this stage of his inquiries, of any certain knowledge of the outside world, the Cartesian meditator has to establish the existence of God drawing purely on the resources of his own consciousness. This is done by making an inventory of the ideas found within the mind. We cannot know at this stage whether our ideas correspond to anything real, but it is clear that they are 'like images of things': that is, they have a certain representational content.[50] Descartes now reasons that the content of each idea must have a cause; for nothing can come from nothing, yet 'if we suppose that an idea contains something which was not in its cause, it must have got this from nothing'. In most cases, the content of an idea presents no great explanatory problem: the content of many of my ideas, observes Descartes, could easily have been drawn from my own nature; other ideas (like those of unicorns) are simply fictitious, or made up—put together by my own imagination. But the idea that gives me my understanding of 'a supreme God, eternal, infinite, immutable, omniscient, omnipotent and the creator of all things' is different: 'all these attributes are such that the more carefully I concentrate on them, the less possible it seems that they could have originated from me alone.' So the idea of God must have, as its cause, a real being who truly possesses the attributes in question. In creating me, God must have 'placed this idea within me to be, as it were, the mark of the craftsman stamped on the work'.[51]

Of the many problematic features of this argument, the most striking is the extent to which it relies on what are (to the modern ear at least) highly questionable assumptions about causation. A swift reading might suggest that all Descartes needs is the (relatively uncontroversial) deterministic principle that everything has a cause (which Descartes expresses as the maxim that 'Nothing comes from nothing'). But in fact the argument requires much more than this: it is not just that my idea of God needs *a* cause, but that its cause must actually contain all the perfection represented in the idea. It is 'manifest by the natural light' claims Descartes, that 'there must be at least as much reality in the cause as in the effect', and hence 'that what is more perfect cannot arise from what is

less perfect'.[52] What Descartes is in effect presupposing here is a theory of causation that is deeply indebted to the scholastic philosophical apparatus which it is his official aim to supplant. According to the scholastic conception, causality is generally understood in terms of some kind of property transmission: causes pass on or transmit properties to effects, which are then said to derive their features from the causes.[53] And this in turn presupposes that certain kinds of similarity relations hold between causes and effects—in the words of the traditional maxim which Descartes is reported to have quoted approvingly, 'the effect is like the cause'.[54] This allegiance to traditional models of causality casts a shadow on Descartes's bold professions of novelty—his claim to be 'starting afresh' in metaphysics. That might not matter in itself, had not the explicit goal of the whole enterprise been to build on solid foundations by demolishing unscrutinized preconceptions. Yet to read through the proof of God's existence in the Third Meditation is to be confronted with a positive barrage of traditional technical terms ('substance' and 'mode', and terms denoting various grades of reality—'formal', 'objective', 'eminent' and the like), whose application the reader is asked to take as self-evident. The scrupulous caution and methodological rigour which were employed earlier to establish the *cogito* argument seem to dissolve away here. In short, when endeavouring to establish the metaphysical foundations for his new science, Descartes seems unable to free himself from the explanatory framework of his scholastic predecessors.[55]

But even if the details of Descartes's proofs of God are taken on trust, deeper structural problems remain. The most serious is what has come to be known as the problem of the 'Cartesian circle' which was first raised by Descartes's own contemporaries, notably Marin Mersenne and Antoine Arnauld.[56] The function of Descartes's proof of God is supposed to be to establish the possibility of systematic knowledge. If a perfect God exists, then the intellectual apparatus which he bestowed on me cannot be intrinsically inaccurate. Of course, I may make mistakes from time to time, but this is due (Descartes argues in the Fourth Meditation) to incorrect use of free will: I often rashly jump in and give my assent to a proposition when I do not have a clear and distinct perception of it. But if I confine myself to what I clearly and distinctly perceive, I can be sure of avoiding error: 'I shall unquestionably reach the truth if only I give sufficient attention to all the things which I perfectly understand, and separate these from all the cases where my apprehension is more confused and obscure'.[57] Provided I keep to this rule, I can achieve knowledge of countless things, including, most importantly, the structure of the physical universe—the 'whole of that corporeal nature which is the subject of pure mathematics'.[58] Now the problem, in a nutshell, is this: if existence of a non-deceiving God has to be established in order for me to have confidence in the clear and distinct perceptions of my intellect, then how, without circularity, can I rely on the intellectual perceptions needed to construct the proof of God's existence in the first place? Descartes's answer to this challenge appears to be that the divine guarantee enables us to construct long chains of scientific reasoning but is not needed to establish the premises needed

to prove God exists, since it is impossible to doubt these so long as we are actually attending to them.[59] Unfortunately, however, the premises of Descartes's proofs for God seem to rely (suggested above) on a host of complex presuppositions which have to be taken on trust: the transparent, self-confirming quality which Descartes relied on to reach awareness of his own existence is simply not available in the elaborate causal reasoning needed to establish the existence of a perfect non-deceiving God. If this is right, then Descartes's metaphysical project must be counted a failure: the journey from indubitable subjective self-awareness to systematic objective knowledge cannot be completed. The challenge which Descartes puts into the mouth of an imaginary objector in his dialogue *The Search for Truth* seems both apt and unanswerable:

> You seem to me to be like an acrobat who always lands on his feet, so constantly do you go back to your 'first principle'. But if you go on in this way, your progress will be slow and limited. How are we always to find truths such that we can be as firmly convinced of them as we are of our own existence?[60]

THE ETERNAL VERITIES

The central place of God in Cartesian metaphysics should by now be more than clear. But no account of this relationship would be complete without some attention to one of Descartes's most perplexing doctrines —that of the divine creation of the eternal truths. This is a doctrine which does not emerge explicitly in the *Meditations,* but it surfaces in the *Replies* to the *Objections,* and Descartes appears to have held it consistently throughout his life. He is reported to have insisted on it in an interview held two years before his death,[61] and he explicitly asserted it, in his correspondence, as early as 1630:

> The mathematical truths which you call eternal have been laid down by God and depend on him no less than the rest of his creatures…. They are all inborn in our minds just as a king would imprint his laws on the hearts of all his subjects if he had enough power to do so.[62]

Traditional theology maintained that divine omnipotence does not entail the power to do absolutely anything, if 'anything' is taken to include even what is logically impossible. God cannot, on pain of absurdity, do what is self-contradictory (e.g. make something which is both three-sided and a square); his supreme power operates, as it were, only within the sphere of the logically possible.[63] One might suppose that it is hardly an objectionable limitation on the power of God that he cannot do nonsensical and incoherent things like creating three-sided squares; but Descartes's conception of the deity is of a being of absolutely infinite power—a being who is immune to any limitation which the human mind can conceive. Thus, not only is he the creator of all actually existing

things, but he is the author of necessity and possibility; he was 'just as free to make it not true that the radii of a circle were equal as he was free not to create the world'.[64] Some of Descartes's critics objected that this was incoherent, but Descartes replied that just because we humans cannot grasp something is no reason to conclude that it is beyond the power of God. God thus turns out, on Descartes's conception, to be in a real sense *incomprehensible:* our soul, being finite, cannot fully grasp (French, *comprendre;* Latin *comprehendere*) or conceive him.[65]

From Descartes's insistence on the 'incomprehensibility' of God, two profoundly disturbing problems arise for Cartesian philosophy. The first relates to Descartes's attempt to found his scientific system on secure metaphysical foundations. In the First Meditation, the possibility had been raised that the human intellect might go astray 'even in those matters which it seemed to perceive most evidently'. And the doubt so generated extended, on Descartes's own insistence, even to our fundamental intuitions about the mathematical simple natures. But what of the intellectual simple natures—the fundamental conceptual apparatus needed for the meditator to arrive at knowledge of his own existence? We suggested earlier that if the doubt was allowed to go this far, then the very possibility of the meditator's achieving any coherent reflection on his own existence as a conscious being would be foreclosed at the outset. But the doctrine of the divine creation of the eternal verities seems to entail that even our grasp of these basic concepts could be unreliable, in the sense that what is necessary for us may not be necessary for God. A gap is thus opened up between the basic processes of the human mind, and the true nature of things. And if we have no reliable hold on the true logical implications of our concepts, if there is no sure route from what is 'true for us' to what is 'true for God', the entire Cartesian journey from indubitable subjective awareness to reliable objective knowledge seems threatened at the outset.

From this nightmare of opacity, an even more disturbing threat to the Cartesian project seems to follow. If the structure of the fundamental principles of logic is not ultimately accessible to human reason, but depends on the inscrutable will of God, then the very notion of ultimate truth, of something's being 'true for God', turns out to be beyond our grasp.[66] In his programme for science, Descartes needs to insist constantly on the immutability and coherence of the fundamental laws which govern the universe. By appealing to these laws, we are able, asserts Descartes, to derive a whole structure of necessary connections which operate in the world, and unravel a complex series of results which describe the behaviour of matter in motion in accordance with the laws of mathematics.[67] But now, given that the rationale behind these necessities is ultimately opaque to us, it seems to follow that the rationally ordered universe which Cartesian science had hoped to reveal becomes in the end merely a series of arbitrary divine fiats; and against this background it is hard to see how the laws of nature could ultimately be construed as anything more than brute regularities. In short, the doctrine of the divine creation of the eternal truths generates, from

our perspective at least, an ineradicable element of contingency in the system. The project of Cartesian rationalism, of uncovering a universe whose structure is supposed to be in principle transparent to the human intellect, now seems radically unstable. At the heart of the system is a worm of doubt, an element of arbitrariness which prefigures, if only faintly and in outline, the post-Humean world in which the working of the universe is in the end opaque to human reason.[68]

SCIENCE AND THE HUMAN MIND

The problems touched on in the previous sections have to do with the role of God in Descartes's conception of knowledge, and the status of scientific truth in the Cartesian system. But there are certain features of the Cartesian programme which remain largely unaffected by these foundational issues. Whatever the metaphysical status of the ultimate laws governing the universe, Descartes could, and did, claim that his scientific approach was, in explanatory terms, both economical and comprehensive. These two features of Cartesian science are in fact two sides of the same coin. The system could claim to be economical because it subsumed a wide variety of phenomena under a very few simple principles specifying the behaviour of matter in motion;[69] and it could claim to be comprehensive because it included hitherto separated categories of events—terrestrial and celestial, organic and inorganic, natural and artificial—under a single explanatory apparatus.[70]

In his early work, *Le Monde,* Descartes aimed to describe the evolution of a complete universe, starting from a chaotic initial configuration of matter in motion and using simple mechanical principles to explain the subsequent formation of stars and planets, the Earth and the Moon, light and heat, the ebb and flow of the tides, and much else besides. And he explicitly went on to include the human body as something which could be explained mechanically on the self-same principles. The fact that living creatures are 'automata'—that is, initiate their own movements without requiring any external impulse—was, Descartes claimed, no obstacle whatever to his explanatory programme:

> We see clocks, artificial fountains, mills and other such machines, which, although only man-made, have the power to move of their own accord in many different ways. But I am supposing this machine [of the human body] to be made by the hand of God, and so I think you may reasonably believe it capable of a greater variety of movements than I could possibly imagine in it, and of exhibiting a greater mastery than I could possibly ascribe to it.[71]

Descartes's investigations into animal physiology (he performed frequent experimental dissections during his long residence in Holland[72]) led him to the conclusion that many of the workings of the body could be explained by reference to the minute particles of matter which he called 'animal spirits',

transmitted to and from the brain via the nervous system. Such 'animal spirits' were purely physical in character, operating in a way very analogous to that in which gases or fluids are transmitted along systems of pipes and conduits. There was no need to posit any internal principle such as a 'nutritive' or 'sensitive' soul in order to explain biological processes like digestion and growth; indeed, the ordinary laws of matter in motion were quite sufficient to account even for complex animal behaviour like pursuit and flight.[73] The ways in which the beasts operate can be explained by means of mechanics, without invoking any 'sensation, life or soul';[74] and even in the case of humans,

> we have no more reason to believe that it is our soul which produces the movements which we know by experience are not controlled by our will than we have reason to think that there is a soul in a clock which makes it tell the time.[75]

Reflection led Descartes to conclude, however, that there were severe limits on the power of mechanical explanations when it came to accounting for the characteristically human processes of thought and language. In the *Discourse,* he argues that one could in principle construct an artificial automaton which was indistinguishable from a dog or a monkey. But any such attempt to mimic human capacities would be doomed to failure. A mechanical android, however complex, would betray its purely physical origins in two crucial respects: first, it could never possess genuine language, and second, it could never respond intelligently to the manifold contingencies of life in the way in which humans do. The first of these arguments, the argument from language, is a crucial weapon in Descartes's strategy of showing that human capacities are not just different in degree from those of non-human animals, but are radically different in kind:

> We can certainly conceive of a machine so constructed that it utters words, and even utters words which correspond to bodily actions causing a change in its organs (e.g. if you touch it in one spot it asks what you want of it, and if you touch it in another it cries out that you are hurting it, and so on). But it is not conceivable that such a machine should produce different arrangements of words so as to give an appropriately meaningful answer to whatever is said in its presence, as even the dullest of men can do.[76]

The vital point here is that a mechanical system produces responses in accordance with a fixed schedule: there is a finite number of possible responses, each triggered by a specified stimulus. But genuine language is 'stimulus-free': it involves the ability to respond innovatively to an indefinite range of situations.[77] Hence it is 'for all practical purposes impossible for a machine to have enough different organs to make it act in all the contingencies of life in the way in which our reason makes us act'.[78]

The power of reason in human beings was thus, Descartes concluded, incapable of being explained by reference to the workings of a mechanical system; a material structure, however complex its organization, could never approach the human capacity for thought and language. And hence, even in his earliest scientific work, Descartes acknowledged a limit in principle to the scope of physical explanation. The properties of stars and planets, rainbows and vapours, minerals, plants and animals could all be reduced to complex interactions of matter in motion. But if God wanted to create a thinking human being, he would have to create, in addition to all the physiological mechanisms of the brain and nervous system, a separate entity, a 'rational soul'.[79] The nature of this soul, and its relation to the physical world, was to become one of Descartes's principal preoccupations, when he came to develop his mature metaphysics.

THE INCORPOREALITY THESIS

The *Discourse on the Method* contains, in outline, Descartes's central doctrines on the nature of the human soul. The central claim, which he introduces at the end of a summary of his previous work on physiology, is that 'the rational soul, unlike any other things previously dealt with, cannot be derived in any way from the potentiality of matter, but must be specially created'.[80] Anti-reductionism about the human mind—the insistence that the phenomena of cognition and rationality are not reducible to physical events—is a thesis that still finds a good deal of support among present-day philosophers. But nowadays this thesis is generally advanced as a thesis about mental *properties* or *events:* statements about such properties or events, asserts the anti-reductionist, cannot be replaced without remainder by statements about purely physical properties or events (e.g. statements about brain workings). But many modern anti-reductionists are still in some sense *physicalists;* that is, they hold that mental processes and events must be realized or instantiated in the workings of physical systems, so that, if all such systems were destroyed, no mental happenings could occur. Descartes, however, takes a far more radical line. The Cartesian view is that the distinction between mind and matter is a matter of ontology: the mind is a distinct entity in its own right, which operates, or can in principle operate, entirely independently of the material universe. This is the claim which has come to be known as Cartesian (or substantival) dualism: the mind is 'really distinct' from the body, a separate and independent substance.

Descartes's initial argument for the incorporeality of the mind or soul (he makes no distinction between the two terms[81]) arises from the meditative process which leads to the *cogito*. In becoming aware of his own existence, the meditator is able to separate or bracket off all his beliefs about the existence of an external material world:

> Next I examined attentively what I was. I saw that while I could pretend that I had no body, and that there was no world and no place for me to be in, I could not for all that pretend that I did not exist…. From this I knew I was a substance whose whole essence or nature is solely to think, and which does not require any place, or depend on any material thing, in order to exist. Accordingly this 'I', that is the soul by which I am what I am, *[ce Moi, c'est à dire l'Ame par laquelle je suis ce que je suis]* is entirely distinct from the body…and would not fail to be whatever it is even if the body did not exist.[82]

It could be (and indeed was in Descartes's own day[83]) objected that merely because I can think of 'myself' without thinking of my body, it does not follow that I could really exist if my body were destroyed. After all, I may (if I am ignorant of the real nature of gold) be able to think of gold without thinking of its atomic structure, but it does not follow that something could still exist as gold without that structure. Descartes's position, however, is that if an object (in this case the thinking thing that is 'me') can be clearly conceived of as lacking a given property (in this case having a body), then that property cannot be essential to the object in question.

The phrase 'whose whole essence or nature is solely to think' is the key to Descartes's reasoning here. Drawing on the traditional terminology of substance and attribute, Descartes maintains that each substance has a nature or essence—that is, a property or set of properties which makes it what it is. The standard scholastic view (derived from Aristotle) held that there is a large plurality of substances, but Descartes reduces created substances to just two categories: mind and matter. The principal attribute of matter is extension (the possession of length, breadth and height), and all the features of matter are reducible to 'modes' or modifications of this essential characteristic; thus a piece of wax, for example, may take on a variety of shapes, but all these are simply mathematically determinable modifications of *res extensa,* or 'extended substance'.[84] But now, just as all the properties of physical things are modifications of extension, so all the properties of a mind (thinking, willing, doubting, desiring and so on) are all modifications of *res cogitans* or thinking substance. And Descartes took it as self-evident that the properties of thought and extension were not just different but utterly distinct and incompatible. 'On the one hand,' he later wrote in the Sixth Meditation,

> I have a clear and distinct perception of myself, in so far as I am simply a thinking, non-extended thing; and on the other hand I have a distinct idea of body, in so far as this is simply an extended, non-thinking thing. And accordingly it is certain that I [that is the soul by which I am what I am] is really distinct from the body and can exist without it.[85]

By the time this full-blown argument is deployed in the Sixth Meditation, Descartes has more resources at his disposal than he had in the *Discourse* when he blandly observed that he could pretend he did not have a body without thereby pretending that the 'I by which I am what I am' did not exist. In the Sixth Meditation, God (whose existence is taken to have been proved at this stage) is invoked as the guarantor of the clear and distinct perceptions of the human mind. Hence, if we can clearly and distinctly conceive of X without Y, it follows that Y cannot be essential to X. The modern reader may feel uncomfortable here: surely all the argument proves is that mind and body could conceivably exist separately, not that they are in fact separate entities. But it is precisely the conceivability of mind separate from body which Descartes relies on in order to establish his dualistic thesis: 'the mere fact that I can clearly and distinctly understand one thing apart from another is enough to make me certain that the two things are distinct, since they are capable of being separated, at least by God.'[86] Whether *in fact* the mind will exist after the death of the body is something that Descartes is content to leave undetermined by reason: it is a matter of religious faith.[87] It is enough that it is, as we should say nowadays, *logically possible* that it should exist without physical matter. That possibility, which Descartes takes himself to have demonstrated, is enough to guarantee the incorporeality thesis—that what makes me *me,* the conscious awareness of myself as a *res cogitans,* cannot depend on the existence of any physical object.

What the above analysis suggests is that Descartes's version of dualism stands or falls with the claim that the existence of mind without matter is at least a logical possibility. And a good many modern philosophers, however adamantly they may be disposed to insist that mental properties are structural or functional properties of a physical or biological system (the brain, the nervous system), often concede that disembodied consciousness is at least *logically* conceivable. But what does the alleged logical possibility of mind without matter amount to? It must presumably boil down to some such claim as that there is no logical contradiction in conjoining (as Descartes does in the *Discourse*) the two statements (a) 'I exist as a conscious being at time *t*' and (b) 'my body (including my brain and nervous system) does not exist at time *t*'. But this seems a very weak argument. As Leibniz was later to observe (in a rather different context), it is not enough, to establish the coherence of a set of propositions, that one cannot immediately detect any obvious inconsistency in them. For it is quite possible that a set of propositions which seems consistent on the face of it might turn out on further analysis to contain hitherto undetected incoherence.[88] Borrowing the terminology of Karl Popper from our own time (and transferring it from the realm of philosophy of science to that of logic), we may say that claims of logical possibility are falsifiable (by producing a contradiction) but not conclusively verifiable. Now admittedly, when we are dealing with very simple and transparent truths (those of elementary arithmetic or geometry, for example), we may be entitled to be sure that there could be no hidden inconsistency which would undermine the logical coherence of a group of propositions. But when we

are dealing with a phenomenon as complex and difficult as consciousness, it seems far from clear that we are entitled to declare, just by simple reflection, that its occurrence in the absence of any physical substrate is a coherent possibility. Moreover, when we start to ponder on many of the key elements that make up our conscious life—'internal' sensations of pain and pleasure, and 'external' sensations such as those of vision, touch, hearing, taste and smell—then it becomes difficult to see how, if at all, these could be attributed to a disembodied entity.[89] Such sensory events do not of course exhaust our conscious experience: there remain what Descartes called the 'pure' cogitations of the intellect —thoughts about triangles or numbers, for example. But it is by no means clear that such 'pure' forms of abstract thought would be enough to constitute an individual conscious existence.[90] In short, the logical possibility of the continued independent existence of the *Moi*—the 'soul by which I am what I am'—is by no means as clear and straightforward a matter as Descartes invites us to suppose.

THE RELATION BETWEEN MIND AND BODY

Despite his insistence on the incorporeality of the mind, Descartes both acknowledged, and made serious attempts to explain, the intimate relationship between mind and body. That relationship, as he frequently pointed out, is manifested in the facts of everyday experience:

> nature teaches me by these sensations of pain, hunger, thirst and so on, that I am not merely present in my body as a sailor is present in a ship, but that I am very closely conjoined and as it were intermingled with it, so that I and the body form a unit.[91]

Contemporaries of Descartes were puzzled by this admission: during an interview which he conducted with the philosopher in the Spring of 1648, the young Dutchman Frans Burman asked him how the soul could be affected by the body, and vice versa, given the supposed radical difference in their natures. Descartes answered that the point was 'difficult to explain', but that our own inner experience was 'so clear' that it could not be gainsaid.[92]

Reflections on the phenomenology of sensory experience help to identify what Descartes is pointing to here. When we are thirsty, to take one of his examples, we do not merely have an intellectual *understanding* that our body needs water; we experience a characteristic and intrusive sensation of a distinctive kind—the mouth and the throat 'feel dry'. What kind of event is this 'feeling'? According to the standard expositions of 'dualism' found in modern textbooks on the philosophy of mind, to have a sensation like thirst is to be in a certain kind of *conscious* state; and hence, feeling thirsty is, for the dualist, assignable to the category of mind rather than body, since all consciousness belongs on the 'mental' side of the dualist's mind-body divide. So familiar has this approach to the phenomena of 'consciousness' become that it takes some effort to realize that

Descartes's own views about sensory experience are in fact rather different. Descartes does *not* say that sensations are mental events simpliciter; on the contrary, he explicitly says that 'I could clearly and distinctly understand the complete "me" without the faculty of sensation'.[93] Sensation, though it is an inescapable part of my daily experience, does not form an essential part of the *res cogitans* that is 'me'. Rather, Descartes explains, it is a 'confused' mode of awareness which 'arises from the union and as it were intermingling of the mind with the body'.[94]

It emerges from this that Descartes's universe is not quite as neat and tidy as the label 'Cartesian dualism' tends to suggest. It is true that there exist, for Descartes, examples of pure thinking things—angels are his standard example—whose existence consists essentially and entirely in modifications of intellection and volition; such beings are examples of a *res cogitans* in the strict sense. On the other side of the divide, there is pure *res extensa,* mere extended matter whose every feature can be analysed as some kind of modification of the geometrically defined properties of size and shape;[95] the human body is an example of a structure, or assemblage of structures, composed entirely of extended matter. But *human beings* fit into neither of the two categories so far described. For a human being consists of a mind or soul 'united' or 'intermingled' with a body; and when such intermingling occurs, there 'arise' further events, such as sensations, which could not be found in minds alone or in bodies alone.

Although the 'union' between body and soul is explicitly mentioned in the *Meditations,* the concept is left somewhat obscure, and it was not until he was questioned in detail by Princess Elizabeth of Bohemia that Descartes came to examine in more detail exactly what it implied. We have, he wrote in a letter to the Princess of 21 May 1643, various 'primitive notions' which are 'models on which all our other knowledge is patterned'. He proceeds to list some of the categories which he had much earlier labelled as 'simple natures': first, there are 'common' notions, such as being, number and duration, 'which apply to everything we can conceive'; second, there is the corporeal notion of extension, 'which entails the notions of shape and motion'; and third, there is the 'notion of thought, which includes the conceptions of the intellect and the inclinations of the will'. All this is straightforward Cartesian doctrine. But now Descartes adds a fourth category: 'as regards soul and body together, we have the notion of their union, on which depends our notion of the soul's power to move the body, and the body's power to act on the soul and cause sensations and passions'.[96] He later made it clear that the notion of a 'union' was meant to be taken literally:

> to conceive the union between two things is to conceive them as one single thing…. Everyone invariably experiences the union within himself without philosophizing. Everyone feels that he is a single person *[une seule personne]* with thought and body so related by nature that the thought can move the body and feel the things that happen to it.[97]

The notion that two different substances can unite to form a single thing is not, in itself, obscure or problematic. We are familiar nowadays, for example, with the idea that hydrogen and oxygen can unite to form water; furthermore, this 'substantial union' generates 'emergent' properties—water has properties such as that of being drinkable which were not present in its constituent elements—and this (though it is not of course Descartes's own example) might be thought to give some grip on the Cartesian notion that events like sensations emerge or 'arise' when mind and body are united, even though they are not part of the essence of either *res cogitans* or *res extensa*. Nevertheless, Descartes himself clearly felt that his notion of the 'substantial union' of mind and body presented problems. For mind and body, as defined throughout his writings, are not just different, but utterly incompatible substances: in terms of their essential characteristics, they mutually exclude one another, since mind is defined as non-extended and indivisible, whereas matter is by its nature extended and divisible. And it is not easy to see how incompatible items can be, in any intelligible sense, 'united'. As Descartes rather ruefully put it:

> it does not seem to me that the human mind is capable of conceiving at the same time the distinction and the union between body and soul, because for this it is necessary to conceive them as a single thing and at the same time to conceive them as two things, and this is absurd.[98]

CAUSAL INTERACTION AND OCCASIONALISM

The idea of the union of utterly heterogeneous items is not the only problematic feature of Descartes's theory of the mind and its relation to the body. Descartes frequently talks in a way which suggests both that the mind has causal powers *vis-à-vis* the body (e.g. it can cause the body to move), and that the body has causal powers with respect to the soul (e.g. passions and feelings are 'excited' by corporeal events in the blood and nervous system). A great deal of Descartes's last work, the *Passions of the Soul,* is devoted to examining the workings of this two-way causal flow between body and mind. The following is his account of memory:

> When the soul wants to remember something, this volition makes the [pineal] gland lean first to one side and then to another, thus driving the animal spirits [the tiny, fast moving particles which travel through the nervous system] towards different regions of the brain until they come upon the one containing traces left by the object we want to remember. These traces consist simply in the fact that the pores of the brain through which the spirits previously made their way owing to the presence of this object have thereby become more apt than the others to be opened in the same way when the spirits again flow towards them. The spirits thus enter these pores more easily when they come upon them, thereby producing in

> the gland that special movement which represents the same object to the soul, and makes it recognize the object as the one it wanted to remember.[99]

What strikes the reader here is not so much the wealth of obsolete physiological detail (modern readers will readily be able to substitute electrochemical events in the cerebral cortex for Descartes's movements of the pineal gland and 'animal spirits') as the way in which that physiological detail is expected to 'mesh' with events in the non-physical realm of the soul. Descartes has managed to supply a host of mechanisms whereby movements, once initiated in the pineal gland, can be transferred to other parts of the brain and body; but he does not seem to have tackled the central issue of how an incorporeal soul can initiate such movements in the first place. And the same problem will apply when the causal flow is in the other direction. Descartes devotes a lot of attention to the physiological mechanisms whereby bodily stimuli of various kinds cause changes in the nervous system and brain which 'dispose' the soul to feel emotions like anger or fear.[100] But he does not explain how mere brain events, however complex their physiological genesis, could have the power to arouse or excite events in the mental realm.

Why exactly is the *causal* aspect of the mind-body relation problematic for Descartes? The answer, in brief, is that throughout the rest of his metaphysics and physics he seems to presuppose that causal transactions should be in some sense transparent to the human intellect. 'The effect is like the cause' was a standard maxim of the scholastics which (as noted earlier in this chapter) Descartes readily accepts.[101] In his causal proofs of God's existence he relies on the principle that the cause of an object possessing a given degree of perfection must itself possess as much or more perfection: whatever is found in the effect must be present in the cause. In physics, too, Descartes often seems inclined to require explanations that reveal transparent connections between causes and effects (in the unfolding of the laws of motion, for example, a simple transmission model is invoked—a cause transmits or passes on a determinate quantity of motion to its effect).[102] In all these cases, Descartes apparently wants to be able to appeal to something very simple and self-evident: if we could not 'see' how effects inherited features from their causes, we would have a case of something arising 'from nothing', which would be absurd. But now it is immediately clear that no such transparency could be available in the mindbody interactions which Descartes describes in such detail in the *Passions of the Soul*. Transparent connections can be unfolded so long as we remain within the realm of physiology and trace how the stimulation of a sense organ generates changes in the 'animal spirits' which in turn cause modifications in the movements of the pineal gland. But at the end of the story, there will be a mental event which simply 'arises' in the soul: the smooth progression of causal explanations abruptly jolts to a halt. Whatever it is that bridges the gulf between the bodily and the mental realms, it seems that it must remain opaque to causal explanation, in the sense in which that notion is normally understood by Descartes.[103]

Descartes's way round this impasse is to invoke an innate, divinely ordained, power of the human mind. In creating the human soul, God structured it in such a way that various sensory experiences will 'arise' in it whenever the body to which it is united is stimulated in a certain way. Thus, the mind has the innate capacity of 'representing colours to itself *on the occasion* of certain corporeal motions [in the brain]'. There is, in effect, no genuine causal transmission between mind and body; 'nothing reaches the mind from external objects except corporeal motions'; we make judgements about external things 'not because these things transmit ideas to our mind through the sense organs, but because they transmit something which, at exactly the right moment, gives the mind *the occasion to form these ideas by means of the faculty innate to it*.'[104] What we have here is something powerfully reminiscent of developments later in the seventeenth century—the occasionalism of Malebranche, and the Leibnizian theory of 'pre-established harmony'. And the lesson to be learned from this is that the ideas of Malebranche and Leibniz were not, as is sometimes suggested, bizarre attempts to cobble together an *ad hoc* solution to the problem of mind-body interaction which Descartes had bequeathed to Western philosophy; rather, they take their cue from Descartes's own terminology, and his insistence that the relationship between physical events and mental phenomena must be explained on the model of divinely decreed correlations rather than transparent causal transactions. The heterogeneous worlds of mind and matter cannot, properly speaking, interact; only the decrees of God can ensure that they work harmoniously together.

To conclude from this that Descartes's theory of the mind is a failure would be easy enough; but any sense of superiority that the modern commentator may feel should be tempered by the thought that, even today, the relationship between brain occurrences and conscious experience is very far from having been elucidated in a coherent and philosophically satisfying way. What may be a more fruitful theme for reflection is Descartes's own implicit recognition of the limits of human knowledge. The Cartesian project for a unified system of knowledge, founded on transparently clear first principles, faltered, as we saw in the first half of this chapter, when the human mind came to confront the incomprehensible greatness of God. And in a different way, the project faltered when it came to integrating into science that most basic fact of human awareness—our everyday experience, through our external and internal senses, of the world around us and the condition of our bodies. To 'explain' that awareness, Descartes was constrained to admit that only the decrees of God, ultimately opaque to human reason, will suffice. Causal transparency gives way to mere regular conjunction. If this, once again, seems to prefigure the thought of Hume, that should perhaps be no surprise. For however much commentators may wish to present it as a contest between opposing teams of 'rationalists' and 'empiricists', the history of the early modern period is a continuous unfolding tapestry in which the threads endlessly cross and re-cross. The picture that has come down to us is the work of

many hands, but however we view it, there can be no disputing Descartes's role as one of its principal designers.

NOTES

1 AT VI 8: CSM I 115. 'AT' refers, by volume and page number, to the standard Franco-Latin edition of Descartes: *Oeuvres de Descartes,* ed. C.Adam and P. Tannery [6.1]. 'CSM' refers by volume and page number to the standard English translation: *The Philosophical Writings of Descartes,* vols I and II, ed. J.Cottingham, R.Stoothoff and D.Murdoch, and 'CSMK' refers to vol. III *(The Correspondence)* by the same translators and A.Kenny [6.2]. 'CB' refers to *Descartes' Conversation with Burman,* ed. and trans. J.Cottingham [6.5].

2 Compare Descartes's remarks on his early work, *Le Monde,* in Part Five of the *Discourse* (AT VI 41f.; CSM I 131).

3 For the significance of this term (Latin *praejudicium*), see *Principles of Philosophy,* Book I, arts 1 and 71.

4 First Meditation: AT VII 17; CSM II 12.

5 From the introduction to the 1647 French edition of the *Principles of Philosophy* (first published in Latin in 1644): AT VIIIA 14; CSM I 186. The simile is also found in other writers of the period, notably Francis Bacon (*De augmente scientiarum,* 3, i).

6 *Discourse on the Method* (1637), Part Six: AT VI 62; CSM I 142.

7 cf. *Conversation with Burman* (AT V 156; CB 30) and letter to Elizabeth of 28 June 1643 (AT III 695; CSMK 228).

8 First Meditation: AT VII 17; CSM II 12.

9 AT X 215; CSM I 3.

10 AT VI 19; CSM I 120.

11 First published in French in 1637 as one of the three 'specimen essays' (the other two were the *Optics* and the *Meteorology*) illustrating Descartes's method.

12 AT X 163; CSMK 4. Descartes dedicated to Beeckman his first work, the *Compendium Musicae,* a study of the application of mathematical methods to the understanding of harmony and dissonance.

13 cf. *Discourse,* Part Two (AT VI 19; CSM I 120) and Part One (AT VI 8; CSM I 115).

14 Descartes began work on his *Optics* and *Meteorology* prior to 1630; cf. CSM I 109f.

15 See especially AT XI 26; CSM I 89. Descartes never published *The World.* Although it was complete and ready to go to press in 1633, he suppressed the work on hearing of the condemnation of Galileo by the Inquisition for advocating the heliocentric hypothesis.

16 *Regulae,* Rule 4: AT X 378; CSM I 19.

17 See the end of Rule 4: 'I have resolved in my search for knowledge of things to adhere unswervingly to a definite order, always starting from the simplest and easiest things and never going beyond them till there seems to be nothing further to be achieved where they are concerned' (AT X 379; CSM I 20). See also Rule 5, which insists on the importance of 'ordering and arranging the objects on which we must concentrate our mind's eye if we are to discover some truth' (ibid.), and Rule 6, which

asserts that the 'main secret of the method is to distinguish the simplest things from those that are complicated' (AT X 381; CSM I 21).

18 Rule 12: AT X 420; CSM I 45.

19 ibid.

20 AT X 419; CSM I 45. In addition, the common simple natures include fundamental concepts like 'unity, existence and duration' which may be applied either to the material or to the intellectual simple natures.

21 AT X 421; CSM I 46.

22 AT X 427; CSM I 49.

23 *Discourse,* Part One, AT VI 10; CSM I 116. Descartes implies that his resolution was made during his visit to Germany as a young man of 23, when he had his famous series of dreams in the 'stove heated room' near Ulm on the Danube. These early reflections are described in Part Two of the *Discourse;* see also the early notebooks (AT X 217; CSM I 4). In *Discourse,* Part Three, Descartes suggests that after postponing these metaphysical inquiries he took them up again soon after arriving in Holland (i.e. after 1629). We know from a letter to Mersenne that about this time he actually began to compose a 'little treatise on metaphysics' whose principal themes were 'to prove the existence of God and that of our souls when they are separated from our bodies': *je ne dis pas que quelque jour je n'achevasse un petit traité de Métaphysique lequel j'ai commencé étant en Frise, et dont les principaux points sont de prouver l'existence de Dieu et celle de nos âmes, lorsqu'elles sont séparées du corps* (23 November 1630, AT I 182; CSMK 29).

24 Discussing what title to give his *écrit de métaphysique* (what we now know as the *Meditations*), Descartes wrote: *Je crois qu'on le pourra nommer…* Meditationes de Prima Philosophia; *car je n'y traité pas seulement de Dieu et de l'âme, mais en général de toutes les premières choses qu'on peut connaître en philosophant par ordre* (letter to Mersenne of 11 November 1640, AT III 329; CSMK 158). The terms 'metaphysics' and 'first philosophy' were of course not invented by Descartes; the latter comes from Aristotle who used it to describe fundamental philosophical inquiries about substance and being, and the former from the name given by early editors to Aristotle's treatise on 'first philosophy' (the name 'metaphysics' coming originally from the fact that in collected editions of Aristotle this work was traditionally placed after (Greek *meta*) his physics). Descartes's conception of metaphysics was significantly different from the Aristotelian one, however, not least (as will appear) because of its radically subjective orientation. For a discussion of crucial disparities between Aristotelian essences and Cartesian simple natures, see J.-L.Marion, 'Cartesian metaphysics and the role of the simple natures', in J.Cottingham (ed.) *Cambridge Companions: Descartes* [6.32].

25 In particular by the Jesuit Pierre Bourdin; cf. Seventh Replies, AT VII 549; CSM II 375.

26 AT VII 12; CSM II 9.

27 *Soliloquies,* Book I, ch. 4; cf. AT VII 205; CSM II 144.

28 cf. *Republic,* 525. The abstract reasoning of mathematics is, for Plato, as it was later to be for Augustine and Descartes, a paradigm of stable and reliable cognition of the kind which sense-based beliefs could never attain. The term 'rationalism' is an over-used and problematic one in the history of philosophy, but it can serve to indicate interesting similarities between groups of philosophers: one such indisputable similarity is the mistrust of the senses which runs like a clear thread

from Plato down to Descartes (and beyond). For further discussion of the label 'rationalist', see J.Cottingham, *The Rationalists* [6.12], ch. 1.

29 Compare, for example, Francisco Sanches, *Quod Nihil Scitur* (1581), ed. and trans. E.Limbrick and D.F.S.Thomson (Cambridge, Cambridge University Press, 1988). See also R.Popkin, *The History of Scepticism from Erasmus to Descartes* [6.23].

30 AT VII 18; CSM II 12. Elsewhere Descartes discusses such standard examples as that of the straight stick which looks bent in water: AT VII 438; CSM II 295.

31 AT VII 20; CSM II 14. The dreaming argument in fact has a number of complex twists and turns, but the two main phases, particular and general, are as indicated. The argument appears in much more compressed form in Descartes's summary of his metaphysical views in Part Four of the *Discourse: considérant que toutes les mêmes pensées que nous avons étant éveillés nous peuvent aussi venir quand nous dormons, sans qu'il y en ait aucune pour lorsqui soit vraie, je me résolus de feindre que toutes les choses qui m'étaient jamais entrées en l'esprit n'étaient non plus vraies que les illusions de mes songes.*

32 ibid.

33 cf. AT VIIIB 175; CSMK 223.

34 For more on this argument, see R.Stoothoff, 'Descartes' dilemmatic argument' [6.52].

35 AT VI 32; CSM I 127.

36 *Haud dubio igitur sum, si me fallit;* & *fallat quantum potest, nunquam tamen efficiet, ut nihil sim quamdiu me aliquid esse cogitabo. Adeo ut…denique statuendum sit hoc pronuntiatum,* Ego sum, ego existo *quoties a me profertur, vel mente concipitur, necessario esse verum* (AT VII 25; CSM II 17).

37 The phrasing here is from the *Discourse,* Part Four (AT VI 32; CSM I 127). The notion of the Archimedean point appears in the Second Meditation: 'Archimedes used to demand just one firm and immovable point in order to shift the entire earth; so I too can hope for great things if I manage to find just one thing, however slight, that is certain and unshakeable' (AT VII 24; CSM II 16). The actual phrase *cogito ergo sum* appears in the *Principles of Philosophy,* Part I, article 7; its French equivalent, *je pense, donc je suis,* in the *Discourse,* op. cit.

38 AT VII 140; CSM II 100. For discussion of the *cogito* argument, see A. Kenny, *Descartes* [6.20], ch. 3; B.Williams, *Descartes* [6.28], ch. 3; M.Wilson, *Descartes* [6.29], ch. 2.

39 Compare Descartes's comment in the Preface to the *Meditations:* 'I would not urge anyone to read this book except those who are able and willing to meditate seriously with me' (AT VII 9; CSM II 8). For the importance of the meditator's *activity,* see Wilson, op. cit., and compare J.Hintikka, 'Cogito ergo sum: Inference or Performance?' [6.46], reprinted in W.Doney, *Descartes* [6.33].

40 For more on this, see J.Cottingham, *Descartes* [6.11], 38ff.

41 cf. Sixth Objections: AT VII 413; CSM II 278.

42 See *Principles of Philosophy,* Part I, art. 10 (AT VIIIA 8; CSM I 196).

43 See L.Wittgenstein, *Philosophical Investigations,* trans. G.E.M.Anscombe (Oxford, Blackwell, 1953), I, p. 243.

44 AT VII 21; CSM II 14.

45 *In prima [Meditatione] causae exponuntur propter quas de rebus omnibus,* prasertim materialibus, *possumus dubitare* (AT VII 13; CSM II 9).

46 cf. H.Frankfurt, *Demons, Dreamers and Madmen. The Defence of Reason in Descartes' Meditations* [6.14].

47 AT X 496; CSM II 400. For the work's date of composition, see CSM II 399.

48 'I am, I exist—that is certain. But for how long? For as long as I am thinking…' (AT VII 27; CSM II 18).

49 All quotations in this paragraph are from the opening of the Third Meditation: AT VII 35–6; CSM 24–5.

50 Or what Descartes calls (using scholastic terminology) 'objective reality' *(realitas objectiva)*. The more helpful reference to the 'representational' aspect of ideas is supplied in the 1647 French translation of the *Meditations* (by the Duc de Luynes) which was issued with Descartes's approval.

51 Third Meditation: AT VII 40, 45, 51; CSM II 28, 31, 35.

52 *Lumine naturali manifestum est tantundem ad minimum esse debere in causa… quantum in ejusdem causae effectu…Hinc autem sequitur [non] posse…fieri…id quod magis perfectum est…ab eo quod minus* (AT VII 40; CSM II 28).

53 It is interesting to note that Cartesian physics, in so far as it offers explanations purely in terms of mathematical covering laws, offers the possibility of dispensing with traditional models of causality; the opportunity, however, was not fully seized by Descartes (see pp. 222–5). For more on Descartes's conception of causality, and its influence on the philosophical history of the seventeenth and eighteenth centuries, see N.Jolley, *The Light of the Soul* [6.19], ch. 3.

54 *Conversation with Burman,* AT V 156; CB 17. For more on the scholastic background to Descartes's causal proof for God's existence, see J.Cottingham, 'A New Start? Cartesian Metaphysics and the Emergence of Modern Philosophy', in T.Sorell (Ed.) *The Rise of Modern Philosophy* [6.37].

55 In the Fifth Meditation, Descartes offers a further proof of God's existence, namely that since God is defined as the supremely perfect being, all perfections, including that of existence, must necessarily be part of his essential nature:

> it is quite evident that existence can no more be separated from the essence of God than the fact that its three angles equal two right angles can be separated from the essence of a triangle, or than the idea of a mountain can be separated from the idea of a valley. Hence it is no less of a contradiction to think of God (that is a supremely perfect being) lacking existence (that is, lacking a perfection) than it is to think of a mountain without a valley.

(AT VII 66; CSM II 46) A version of this argument (known since Kant as the 'ontological argument') had originally been put forward by St Anselm of Canterbury in the eleventh century, but it had been strongly criticized by Aquinas, and its revival by Descartes was a source of considerable surprise to his contemporaries. For some of the objections raised by contemporary critics, see the First Set of Objections to the Meditations, AT VII 98; CSM II 70. For a discussion of some of the problematic aspects of the argument, see further J.Cottingham, *Descartes* [6.11], 57ff.

56 Second and Fourth Objections respectively: AT VII 125; CSM II 89 and AT VII 214; CSM II 150.
57 AT VII 62; CSM II 43.
58 Fifth Meditation: AT VII 71; CSM II 49.
59 cf. Second Replies, AT VII 140ff.; CSM II 100ff.; Fourth Replies, AT VII 246; CSM II 171; *Conversation with Burman,* AT V 148; CB 6. For more on the circle objection and Descartes's reply to it, see especially A.Gewirth, 'The Cartesian Circle' [6.45] and L.Loeb, 'The Cartesian Circle', in J.Cottingham (ed.) *Cambridge Companions: Descartes* [6.32].
60 AT VII 526; CSM II 419.
61 *Conversation with Burman* (1648): AT V 160; CSMK 343.
62 Letter to Mersenne of 15 April 1630, AT I 145; CSMK 23; cf. Sixth Replies: 'God did not will that the three angles of a triangle should be equal to two right angles because he recognized that it could not be otherwise;…it is because he wills that the three angles of a triangle should necessarily equal two right angles that this is true and cannot be otherwise' (AT VII 432; CSM II 291).
63 See, for example, Aquinas, *Summa Theologiae,* Ia, 25, 3. See further A.Kenny, *Descartes* [6.20], 37f.
64 Letter to Mersenne of 27 May 1630; AT I 152; CSMK 25.
65 *Notre âme, étant finie, ne le puisse comprendre ni concevoir* (ibid.). For further discussion of this theme, cf. J.-M.Beyssade, 'The Idea of God' [6.38].
66 For an interesting development of this point, see S.Gaukroger, *Cartesian Logic* [6. 15], ch. 2.
67 See *Principles,* Book II, art. 64.
68 I use the term 'post-Humean' in accordance with what may be called the traditional interpretation of Hume as a philosopher who undermined the idea of science as the discovery of necessary connections in the world. For an alternative interpretation, see J.Wright, *The Sceptical Realism of David Hume* (Cambridge, Cambridge University Press, 1983).
69 For the simplicity and economy claimed by Descartes for his system see the letter to Huygens of 10 October 1642 (AT II 797; CSMK 216) and *Principles,* Part IV, arts 199 and 206.
70 For the breaking down of the barriers between terrestrial and celestial, see *Principles,* Part IV, *passim;* for the barrier between organic and inorganic, see *Description of the Human Body* (AT XI 226; CSM I 315); for that between natural and artificial, see *Treatise on Man* (AT XI 120f., CSM I 99f.).
71 *Treatise on Man:* AT XI 120; CSM I 99. Though published (after Descartes's death) as a separate work, the *Treatise on Man* was originally conceived by Descartes as part of *Le Monde*. See further CSM I 79.
72 He lived for a time in Kalverstraat in Amsterdam, where he obtained carcasses for dissection from the butcher; some of his later experiments in vivisection are described in the *Description of the Human Body* (AT XI 242f.; CSM I 317f.).
73 AT VII 230; CSM II 161.
74 AT VII 426; CSM I 288.
75 *Description of the Human Body:* AT XI 226; CSM I 315.
76 *Discourse,* Part Five, AT VI 56f.; CSM I 140.

77 This feature of language has been highlighted in our own day by Noam Chomsky: for his account of language as essentially 'stimulus-free', see N. Chomsky, *Language and Mind* (New York, Harcourt, Brace & World, 1968).
78 *Discourse,* Part Five, op. cit. For more on the strengths and weaknesses of Descartes's language argument, see J.Cottingham, 'Cartesian Dualism: Theology, Metaphysics and Science', in *Cambridge Companions: Descartes* [6.32].
79 In the *Treatise on Man,* Descartes compares the nervous system to the complex set of pipes and reservoirs found in a park with fountains and moving statues:

> Visitors who enter the grottos of these fountains…cannot enter without stepping on certain tiles which are so arranged that if, for example, they approach a Diana who is bathing they will cause her to
>
> hide in the reeds, and if they move forward to pursue her they will cause a Neptune to advance and threaten them with his trident.

All these events happen purely mechanically, according to the 'whim of the engineers who made the fountains'. But a human being is more than a physiological system of pipes and levers:

> when a rational soul is present in the machine, it will have its principal seat in the brain and reside there like the fountain keeper who must be stationed at the tanks to which the fountain's pipes return if he wants to produce or prevent or change their movements in some way.
> (AT XI 131; CSMI 101)

80 *Discourse,* Part Five: AT VI 59; CSM I 141.
81 cf. Synopsis to *Meditations: '…l'esprit OH l'âme de l'homme (ce que je ne distingue point)…'* (AT IX 11; CSM II 10).
82 *Discourse,* Part Four: AT VI 32f.; CSM I 127.
83 cf. AT VII 8; CSM II 7.
84 Meditation Two: AT VII 30–1; CSM II 20–1.
85 AT VII 78; CSM II 54. The gloss in square brackets does not appear in the original Latin text of 1641, but is inserted in the later French translation. See above, note 50.
86 Sixth Meditation, op. cit.
87 See AT VII 49; CSM II 33: 'I do not take it upon myself to try to use the power of human reason to settle any of those matters which depend on the free will of God.'
88 Compare Leibniz's critique of the ontological argument: *Discourse on Metaphysics,* §23. See further J.Cottingham, *The Rationalists* [6.12], 100.
89 See further T.Penelhum, *Survival and Disembodied Existence* (London, Routledge, 1968).
90 This line of thought was the basis of the 'Averroist heresy' (condemned by the Lateran council in 1513) which denied personal immortality. See further AT VII 3; CSM II 4; and Cottingham, cited in note 78.
91 Sixth Meditation: AT VII 81; CSM II 56.

92 *Conversation with Burman,* AT V 163; CB 28.
93 Imagination and sensation are faculties *'sine quibus totum me possum dare & distincte intelligere'* (AT VII 78; CSM II 54). The 'hybrid' faculties of sensation and imagination are often singled out for special treatment by Descartes. Compare a passage earlier in the same Meditation, which asserts that imagination is not a necessary constituent of my essence as a thinking thing: *vim imaginandi, prout differt a vi intelligendi, ad mei ipsius, hoc est ad mentis meae essentiam non requiri* (AT VII 73; CSM II 51). For more on the 'hybrid' faculties, see J.Cottingham, *Descartes* [6.11], I22ff.
94 Sixth Meditation: AT VII 81; CSM II 56.
95 To this should be added motion, which Descartes sometimes describes as a straightforward mode of extension (AT II 650; CSMK 217), but which, in the *Principles,* is said to be specially imparted to matter by divine action (see *Principles,* Part II, arts 36ff.
96 AT III 665; CSMK 218.
97 Letter of 28 June 1643, AT III 692 and 694; CSMK 227 and 228.
98 ibid.
99 *Passions of the Soul,* Part I, art. 42 (AT XI 360; CSM I 344). Descartes regarded the pineal gland (or *conarion*) as the 'principal seat of the soul' and the locus of psycho-physical interactions; cf. *Passions,* Part I, arts 31 and 32.
100 See for example *Passions,* Part I, art. 39.
101 See p. 211.
102 See *Principles,* II, 36 and 40.
103 It should be noted that some recent commentators have argued that Descartes did not in fact regard interaction between heterogeneous substances as problematic. See R.C.Richardson, 'The Scandal of Cartesian Interactionism' [6.51]. For criticism of this view, see J.Cottingham, *The Rationalists* [6.12], 212f. and 202.
104 *Comments on a Certain Broadsheet:* AT VIIIB 359; CSM I 304. Compare also *Optics,* Section Six: AT VI 130; CSM I 167. For more on the 'occasionalist' elements in Descartes's account of mind and body, see J.Cottingham, 'Descartes on Colour', *Proceedings of the Aristotelian Society* 90 (1989–90) Part 3, 231–46.

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CHAPTER 7
Seventeenth-century materialism: Gassendi and Hobbes

T.Sorell

In the English-speaking world Pierre Gassendi is probably best known as the author of a set of Objections to Descartes's *Meditations*. These Objections, the fifth of seven sets collected by Mersenne, are relatively long and full, and suggestive of a number of distinctively Gassendist doctrines—for example his nominalism, his insistence on distinguishing mathematical objects from physical ones, and his doubt whether we can know the natures of things, even our selves. Perhaps more prominent than these doctrines, however, is a kind of materialism. Gassendi adopts the ironic form of address 'O Mind' in challenging Descartes's claim that one's nature has nothing to do with body. He insists that all ideas have their source in the senses, and he sketches an account of perception that dispenses with a role for a pure intellect but emphasizes the contribution of the brain. In physics he was partial to explanation in terms of the motions of matter, ultimately the motions of material atoms. These points suggest that Gassendi was a mechanistic materialist of some kind, and they link him in intellectual history with Hobbes, who proposed that physical as well as psychological phenomena were nothing more than motions in different kinds of body.

The grounds for associating Gassendi and Hobbes are contextual as well as textual. They both lived in Paris in the 1640s. They were close friends and active in the circle of scientists, mathematicians and theologians round Mersenne. They were both at odds, intellectually and personally, with Descartes. They read one another's manuscripts, apparently with approval. There are even supposed to be important similarities of phrasing in their writings about morals and politics. Gassendi wrote a tribute to Hobbes's first published work, *De Cive,*and Hobbes was reported in a letter as saying that Gassendi's system was as big as Aristotle's but much truer.

Whatever the extent of the mutual admiration and influence, it did not produce a particularly marked similarity of outlook except in psychology, where each developed strongly materialistic lines of thought, and even in psychology the match between their views is not perfect. Unlike Hobbes's materialism, Gassendi's cannot be said to be wholehearted. He held that there was an incorporeal as well as a corporeal or vegetative part of the soul, and he ascribed to the incorporeal part cognitive operations that in some respects duplicated, and

in other respects surpassed, those of the corporeal part. Hobbes denied that there were such things as incorporeal souls, and he would have doubted the conceivability of an incorporeal part of the soul. His theory of knowledge invoked no purely psychological capacities and he recognized no purely spiritual entities. The different materialisms of Hobbes and Gassendi also fit into rather different systems of philosophy. Both systems were motivated by a repudiation of Aristotle and a desire to provide philosophical grounding for the new science of the seventeenth century, but Gassendi's provides that grounding in the form of a theory attributed to, or at least inspired by, an ancient authority, while Hobbes's does not. The ancient authority in question was Epicurus. Probably Gassendi revised Epicurean thought to a greater degree than he revived it; nevertheless, he took himself to be engaged in a humanist enterprise of bringing back to life a badly understood, unfairly maligned and long-discredited way of thinking. Hobbes's system was in no sense intended to rehabilitate traditional thought. It was supposed to lay out the new elements of a new natural philosophy and an even newer and largely Hobbesian civil philosophy.

INTRODUCTION

The different intellectual development of the two writers makes it surprising that the philosophies of Gassendi and Hobbes converge as much as they do. Gassendi was the younger of the two by about four years, born in Provence in 1592. At Digne, Ruez and Aix he received a thorough scholastic education in mathematics, philosophy and theology during which, at the age of 12, he began to train for the priesthood. He was a very talented pupil, even something of a child prodigy. At the age of 16 he was a teacher of rhetoric at Digne. He received the doctorate in theology from Avignon six years later, and in 1616, when he was 24, he won competitions for two chairs at the university of Aix, one in theology and one in philosophy. He chose the chair in philosophy. Though his career as a teacher was cut short when the university was transferred to the control of the Jesuits in 1622, Gassendi was occupied for virtually the whole of his working life with theological, philosophical, historical and scientific studies. He conducted these to begin with as a member of the chapter, and eventually as provost, of the cathedral at Digne, and at intervals under the patronage of wealthy and powerful friends in Provence and Paris. By the time he came into regular contact with Hobbes in the early 1640s he had already lectured and written extensively about the whole of Aristotle's philosophy, had carried out a number of astronomical observations, as well as investigations in biology and mechanics, had corresponded with and travelled to meet some eminent Copernicans, had read widely in natural philosophy and had engaged in numerous erudite researches concerning the lives and thought of Epicurus and other ancient authorities. He had also worked on reconciling the scientific theories that he admired with his Catholicism.

Hobbes did not have a comparable grounding in the sciences or philosophy. Prior to 1629 or 1630 he is supposed to have been completely innocent of Euclid. When he took up residence in Paris in 1640 he had a respectable grounding in the classics but a still not very deep knowledge of the elements of geometry, or the new astronomy or mechanics. He was over 40 before he took a serious interest in natural science or its methods, and he was probably over 50 before he began to articulate a considered general philosophy of his own. He had published a translation of Thucydides' *History of the Peloponnesian Wars* in 1628. He had completed a treatise on psychology, morals and politics shortly before leaving England for Paris in 1640. He may have composed a fairly substantial optical work in the late 1630s, and a socalled 'short tract' on first principles in natural philosophy as early as 1630: the date of the one and the authorship of the other are not entirely certain. But it was apparently after arriving in Paris rather than before that Hobbes engaged in any concentrated scientific research.

That he developed an interest in natural philosophy at all was probably a kind of accident. For most of his life he was attached to the households of successive Earls of Devonshire as tutor, travelling companion, secretary, confidant, political adviser, keeper of accounts and, finally, elderly retainer. From 1608, when he first entered the service of the Devonshires, to 1629, when he temporarily took employment elsewhere, he seems not to have had scientific interests. At Oxford he had received an arts degree. As tutor he gave instruction in rhetoric, logic and morals. In his spare time he studied classical poetry and history. It was not until he left the Devonshires and was employed for two years as the travelling companion of a baronet's son on the European Grand Tour that he happened to come upon an open copy of Euclid in a gentleman's study. From then on, according to Aubrey's biography, Hobbes was in love with geometry. On this journey to the Continent also he is supposed to have stopped for some months in Paris in 1629. It was then that he met Mersenne, according to the latter's correspondence, probably becoming acquainted with some of the scientific researches of Mersenne's circle.[1] Another episode at about this time is supposed to have made him curious about natural science. Either during the Grand Tour or shortly afterwards Hobbes was present at a discussion of sense perception in which it emerged that no one present was able to say what sense perception was. His best scientific work—in optics—probably had its origins in thinking that was prompted by this discussion.

After the Grand Tour Hobbes's interest in science found outlets in England. When he returned to the service of the Devonshires in 1631, he started to come into frequent contact with a branch of his master's family who lived at Welbeck, near the Devonshire family home of Hardwick Hall. For the Welbeck Cavendishes, who were headed by the Earl of Newcastle, he performed some of the duties that he had been discharging for the Earls of Devonshire. He became their adviser and agent and did other odd jobs. These Cavendishes had scientific interests. The Earl of Newcastle is known to have sent Hobbes to London in the

early 1630s to find a copy of a book of Galileo's. The Earl's younger brother, Charles, had an even greater interest in science, and acted as a kind of patron and distributor of scientific writing, notably the writings of a scientist called Walter Warner. Hobbes was one of those who gave his opinion of the writings that Charles Cavendish circulated. Cavendish also had contacts with many Continental scientists, including Mersenne and Descartes.

Hobbes accompanied the third Earl of Devonshire on another Grand Tour from 1634 to 1636. He probably met Galileo in Italy and once again saw Mersenne when he passed through Paris. His activities in the 1630s, however, did not provide him with a real scientific education, and it may seem surprising that when he renewed his contact with Mersenne in the 1640s he should have been treated as the equal of people whose knowledge of natural philosophy and mathematics was far greater than his own. Perhaps his knowledge mattered less than his enthusiasm. Hobbes shared with the intellectuals that he met in Paris a profound admiration for Galileo, and a belief that deductive methods could be applied to fields outside natural science. He was applying them himself in psychology, ethics and politics, subjects that Mersenne especially was keen to see placed on a scientific footing. Then, apart from what he had in common intellectually with members of Mersenne's circle, many of them found him an agreeable personality.

It was one thing for Hobbes to be accepted as a full member of Mersenne's circle, however, and another for his views to be endorsed. His extreme materialism could not be reconciled with orthodox theology; his views about the necessity of subordinating the ecclesiastical to the secular power could not have been accepted by members of the circle who were subject to the Catholic authorities. Mersenne and Gassendi, who were both Catholic churchmen, needed to keep their distance in matters of doctrine. Mersenne managed to do this while at the same time acting as a publicist for Hobbes's hypotheses in natural philosophy and a promoter of his political treatise, *De Cive*. His method was to be vague in identifying the author of the hypotheses, and discreet in his praise for Hobbes's civil philosophy. When Mersenne published any of Hobbes's work or reported it to correspondents, Hobbes was usually referred to merely as 'l'Anglais'. At other times Mersenne exercised an influence from behind the scenes. He encouraged the publication in 1647 of a second edition of Hobbes's political treatise, *De Cive:* the first, limited and anonymous printing had been a success in Paris five years earlier. However, Sorbière, who saw the work through the press, was instructed by Mersenne not to publish his own or Gassendi's letters praising the book. In Gassendi's case, the need to keep Hobbes at arm's length was made urgent by the parallels between his and Hobbes's responses to the *Meditations*. It is also possible that during the 1640s Gassendi saw in Hobbes's writing precisely the combination of atheistic materialism and determinism that a too sympathetic treatment of Epicurus might have committed Gassendi himself to, and that, in order to avoid this, he strengthened the theological 'corrections' to the doctrine.[2]

Though they were friends, then, and though their views coincided up to a point, Hobbes and Gassendi also had some unsurprising doctrinal differences. We shall see more of the differences to do with theology and materialism later. But there were also others. They differed in important ways in their attitudes toward the ancients. Gassendi was a critic of Aristotle throughout his intellectual life and a critic also of the neo-Aristotelian doctrines of the scholastic curriculum. In the preface to his first published work, *Exercitationes Paradoxicae Adversus Aristoteleos,* he says that he was disappointed that the philosophy that he was taught brought him none of the freedom from vexation that writers such as Cicero promised the subject could provide. Still, Gassendi did not believe that a better overall philosophy was to be found in his own age, and those of his contemporaries whom he did admire, such as Pierre Charron, made use of ancient rather than modern doctrine to criticize Aristotle. In Charron's case the ancient doctrine employed was pyrrhonism. Gassendi followed Charron's lead in his lecture courses in the university of Aix. Pyrrhonist arguments were used in criticism of the whole range of Aristotle's philosophy, and the material for these lectures was the basis in turn for the first volume of the *Exercitationes,* which appeared in 1624. Book II of this work contained arguments suggesting that science in Aristotle's sense, that is, demonstrative knowledge of the necessity of observed effects based on knowledge of the natures or essences of substances, was beyond human capacities, while a more modest science, presupposing no essences of substances and no knowledge of essences and ending up only in probabilistic conclusions about effects, *was* possible. Books IIIV were devoted to would-be refutations, inspired by pyrrhonism, of Aristotelian doctrines in physics, astronomy and biology. Book VI was an attack on Aristotle's metaphysics. Finally, Book VII expounded the non-Aristotelian moral philosophy of Epicurus.

A second volume of the *Exercitationes* was planned, but it was suppressed by Gassendi for reasons that still are not well understood. He may have become dissatisfied with sceptical arguments, believing that they fuelled a potentially endless controversy about Aristotelian science without putting anything in its place. He may have come to the conclusion that others, such as Patrizi, had already criticized Aristotle so thoroughly as to make more of the *Exercitationes* redundant. He may have found in Mersenne's writings a more sophisticated and satisfactory approach to the questioning of Aristotle.[3] Or again, he may have taken his cue from the increasingly severe reaction of the educational establishment in Paris to challengers of the learned authorities: in 1624 the Sorbonne managed to prevent the public defence in Paris of a number of theses against Aristotle. Whatever his reasons for holding back the second volume, Gassendi did not cease to make use of the ancients in working out an anti-Aristotelian philosophy of science. Within a few years of the publication of the first volume, and perhaps on the advice of Mersenne, he was already studying Epicurus and contemplating the rehabilitation of his philosophy as a rival to Aristotle's. He was confirmed in this plan by a journey he made in December

1628. He travelled to Holland to meet, among others, scientists sympathetic to the Copernican approach to astronomy. The one who most impressed him was the physician and savant Isaac Beeckman, who ten years earlier had been Descartes's mentor. Beeckman discussed the physical problem of free fall with Gassendi and spoke with approval of Epicurus. It was apparently after this meeting[4] that Gassendi began to think of publishing a treatise favourable to Epicurus. That this work on Epicurus was supposed to take further the anti-Aristotelianism of what he had already published is suggested by the fact that at first Gassendi planned to bring out a demythologized life of Epicurus and an apology for Epicureanism as an appendix to the *Exercitationes*. As early as 1630, however, this modest project had given way to the much more ambitious one of writing a perfectly comprehensive exposition and defence of Epicurus, something that could articulate a positive philosophy to rival Aristotle's but without its pretensions to demonstrativeness or to acquaintance with essences that transcended appearance.

Now a little later than Gassendi Hobbes also began to plan a large-scale work: an exposition of the 'elements' of a non-Aristotelian philosophy. Perhaps by the late 1630s he had completed an outline that divided the elements into three sections, on body, man and citizen. None of these, however, was derived from traditional philosophy. Indeed, when it came to the elements expounded in the first section, Hobbes claimed that they could be collected together by reflection on the mind's contents in the abstract. In the Epistle Dedicatory of *De Corpore,* the book that opened the trilogy, Hobbes likened the process of deriving the concepts of first philosophy to the creation described in Genesis. From the inchoate and undifferentiated material of sense, distinction and order would be created in the form of a list of definitions of the most general concepts for understanding body. In arriving at the foundations of his philosophy *de novo,* Hobbes was closer to Descartes than to Gassendi. As in Descartes, an entirely ahistorical and abstract starting point is adopted and this proclaims the novelty of the philosophy subsequently developed, and its independence of the approved learned authors, Aristotle, Ptolemy and Galen.

The intention of breaking with such authorities was underlined in Hobbes's writings in his account of correct teaching or demonstration. 'The infallible sign of teaching exactly, and without error' Hobbes writes in *The Elements of Law,* 'is this: that no man hath ever taught the contrary…' (Pt 1, ch. 13, iii, 65). Or, as he goes on to put it, 'the sign of [teaching] is no controversy' (ibid., 66). Hobbes goes on to explain what it is about the content and format of exact teaching or demonstration that keeps controversy from breaking out. He considers the practice of successful teachers and observes that they

> proceed from most low and humble principles, evident even to the meanest capacity; going on slowly, and with most scrupulous ratiocination (viz.) from the imposition of names they infer the truth of their first proposition;

> and from two of the first, a third, and from two of the three a fourth, and so on.
>
> (ibid.)

Practitioners of this method are called 'the *mathematici*', and of the two sorts of men commonly called learned, they alone really are learned. The other sort are

> they that take up maxims from their education, and from the authority of men, or of authors, and take the habitual discourse of the tongue for ratiocination; and these are called the *dogmatici*.
>
> (EL, Pt 1, ch. 13, iv, 67)

These men are the breeders of controversy, according to Hobbes, breeders of controversy precisely because they take their opinions undigested from authorities and act as mouthpieces for views they have not worked out from 'low, humble and evident' principles. He seems to be referring to the same class of men at the beginning of *De Corpore* when he speaks of people 'who, from opinions, though not vulgar, yet full of uncertainty and carelessly received, do nothing but dispute and wrangle, like men that are not well in their wits' (ch. i, i, E I 2). And in the same spirit there is the remark in *Leviathan* that 'he that takes up conclusions on the trust of authors, and doth not fetch them up from the first item in every reckoning, which are the significations of names settled by definitions, loses his labour, and does not know anything but merely believeth' (ch. 5, E III 32).

Hobbes blames the *dogmatici* for the backward state of moral and civil philosophy before *De Cive,* and he traces the then modest development of natural philosophy to a misconception that had prevailed for a long time about how far the methods of the *mathematici* could be applied. The misconception was due to the Romans and Greeks (cf. *De corp.* ch. 6, xvi, E I 86), who wrongly believed that demonstration or ratiocination was only applicable to geometrical figures, as if it were the figures that made the conclusions of geometrical demonstrations evident. What in fact made the geometrical conclusions of writers like Euclid so compelling was not the use of figures but the use of true principles as the starting-points of geometrical demonstrations. Were other doctrines to start from similar principles, they too would enjoy conclusiveness and truth. As Hobbes writes in *De Corpore,* 'there is no reason but that if true definitions were premissed in all sorts of doctrines, the demonstrations also would be true' (ibid., E I 87). The idea that 'all sorts' of doctrine might be true, that is, that doctrines on all sorts of topics might be true, if they were to begin from true principles, has an epistemological counterpart: demonstrative *knowledge* of all sorts of truth might be acquired, were the knowledge to be the result of reasoning from definitions known to be true.

GASSENDI

When Hobbes warns against relying on authors and insists on reaching conclusions from evident first principles, he may seem to reflect the intellectual style of early modern philosophy better than Gassendi does by his use of Epicurus. But this impression may have more to do with a certain kind of historiography than with the facts of intellectual life in the 1600s. The usual histories of this period of philosophy emphasize novelty, revolution and methodological principles that seem to prepare the way for nineteenth- and twentieth-century science. Bacon's, Galileo's and Descartes's writings lend themselves particularly well to this conception of a time of decisive intellectual change, a time that ushered in modernity and saw out tradition, and these writings tend to be discussed to the exclusion of works of other seventeenth-century figures—even figures whom the canonical moderns respected and took for allies, such as Gassendi. The standard histories may not only be criticized for overlooking the celebrity and influence that Gassendi enjoyed in his own day; they may not only be criticized for making this celebrity hard to understand once it is pointed out; they may also be criticized for missing the strengths of the traditional form of presentation used by Gassendi in the context of the early seventeenth century.

Many of those who promoted the new science and attacked the old philosophy did so in books that they knew would meet hostility from the church and the schoolmen. By choosing for some of his works the literary form of the erudite rehabilitation of an ancient authority like Epicurus, Gassendi was employing the methods that the doctors of the church had used to appropriate Aristotle. Again, by being comprehensive in his treatment of Epicurus's critics Gassendi gave the impression of being an even-handed exponent of his chosen author, in contrast with sycophantic followers of Aristotle. He discussed the views of Epicurus in the context of the antagonisms between the ancient Greek schools of philosophy, including the Peripatetics, and so he was able to revive a sense of Aristotle and his school as representing just one way of thinking among others during a period in which Greek philosophy was sectarian, and when no one sect had any special authority. Again, by showing that the genuine Epicurus had been completely lost in the lore about Epicurus, Gassendi was able to introduce to intellectual life a virtually new figure, not just a relatively familiar one who deserved a second hearing. Apart from the novelty of the Epicurus that Gassendi revived, there was the relevance of his views to the topical issues of the anomalies in Aristotle's physics, and the significance of scepticism. In relation to scepticism, Epicureanism seemed to claim less, and so to be less vulnerable to sceptical criticism, than Aristotelianism. This was the lesson of Gassendi's exposition of Epicurean canonics as a preferred logic. In relation to seventeenth-century physics, Epicurean explanations avoided some of the anomalies that Aristotelian explanations were increasingly embarrassed by.[5] At the same time, it could be regarded as a comprehensive natural philosophy.Finally, Gassendi was able to

give special prominence to views, for example about whether the world was eternal, that showed Epicurus in a better theological light than Aristotle. Of course Epicurus needed theological correction; but so did Aristotle.

That it made sense for Gassendi to present ideas favourable to the new science in the form of erudite commentary does not mean that he hit on the most satisfactory form for such a commentary, or even one that was adequate in his own eyes. His principal work on Epicurus, *Animadversiones in Decimum Librum Diogenis Laertii* (1649), was disorderly and ran to three volumes. Gassendi allowed it to appear with great reluctance. The posthumously edited *Syntagma Philosophicum* (1658), which is generally taken to be the culmination of his work on Epicurus, is a commentary in part and contains material from redactions intended to result in a commentary, but it is also and primarily a statement of the philosophy Gassendi himself arrived at from a starting point in Epicurus. It is known that he revised the manuscripts incorporated into the *Syntagma* many times over a period of decades and that he tried out many different ways of putting together his material, never finding one that was satisfactory.[6] The point is that it was reasonable, even shrewd, to choose *some* form of erudite commentary as a medium for his ideas, given the hostile elements in the audience he was addressing. Descartes, who in the *Discourse* and the *Meditations* experimented with quite different and innovative literary styles for the presentation of his ideas, and who was either misunderstood or criticized for not being explicit enough as a result, himself turned to something like a scholastic presentation in the *Principles of Philosophy,* which was much more widely cited by his followers and critics in the second half of the seventeenth century than the other two works. And he toyed with the idea of writing an *abrégé* of a *summa philosophiae* by Eustachius a Sancto Paulo as a vehicle for some of his thought.

What were the main Epicurean ideas that Gassendi expounded? In logic, the idea that 'canons' or precepts for conceiving the real and finding the true were an antidote to the complexities of Aristotelian dialectic, and the idea that we might have, through signs, some access to what otherwise are relatively unknowable things beyond sensory experience; in physics, the idea that the universe is composed of atoms of matter in the void, and that the substances composed of these atoms do not realize purposes intrinsic to those substances; in ethics, the idea that well-being is an unperturbed state, in particular a state of freedom from pain or of elevated pleasure. To see how these ideas were adapted to the requirements of a 'modern' philosophy, it is necessary to turn to *Syntagma Philosophicum*.

Logic

Logic occupies the First Part of the *Syntagma,* and Epicurus is mentioned in different connections in each of the two introductory books. In the first of the two, *De origine et varietate logica,* Epicurus's canons for cognitive and practical judgement are listed as part of a survey of existing logical systems. The second

book, *De logicae fine,* on the goal of logic, makes clear the significance of Epicurus's canons for cognitive judgement. Gassendi says (ch. 4) that the canons reveal Epicurus to be one of those who held, contrary to the sceptics, that criteria of truth and falsity exist, and that they are provided by both sense and intellect. Chapter 5 of *De logicae fine* defends the anti-sceptical claim that, with the help of signs determined by the criteria of truth and falsehood, some knowledge is possible. Among the things that are supposed to be knowable by sense are the shapes of closely observed things, that is, things observed with allowances made for the distorting effects of media like water or the failings of sight at long distances. As for things knowable by signs determined by reason—indicative signs—Gassendi explains what he means with the help of examples:

> The indicative sign pertains to things naturally hidden, not because it indicates a thing in such a way that the thing can ever be perceived and the sign can be visibly linked to the thing itself, so that it could be argued that where the sign is the thing is too, but on the contrary, because it is of such a nature that it could not exist unless the thing exists, and therefore whenever it exists, the thing also exists. An illustration of this is sweat as it indicates the existence of pores in the skin, for pores cannot be seen; still sweat is of such a nature that it would not appear upon the skin unless pores existed through which it could pass from inside to outside. Such also is vital action as it indicates the existence of the soul, and motion as it indicates the existence of the void….
>
> (Brush, 323)

These signs, when properly made use of in reasoning, are supposed to make possible a kind of science, though not one with the pretensions of the science described by Aristotelian dogmatists. That this antisceptical view is seen by Gassendi as Epicurean is shown by the attribution to Epicurus of a virtually identical position in an earlier manuscript commentary (IL, 256–7).

Though Gassendi seems to follow Epicurus in his views about the availability of criteria of truth, there are aspects of Epicurean logic that he finds unappealing. In Chapter 6 of *De logicae fine* he criticizes Epicurus for failing to state rules of deduction, and then blames some of Epicurus's mistaken conjectures in natural philosophy on this omission. He also complains that 'the rules for organizing thought clearly are…lacking' (Brush, 360), and he seems to suggest that Epicurus was wrong to suppose that ethics had to make use of criteria other than those of sense and reason (ibid.). Sense has a bearing on ethical questions, he says, because pleasure and pain are among its objects (ibid.).

Gassendi's disagreements with Epicurus are reflected in the logic that he himself puts forward. He borrows only selectively from Epicurus, just as he picks and chooses from the other logics he has surveyed, logics ranging from Aristotle's to, in his own day, those of Ramus, Bacon and Descartes. Gassendi's positive logical doctrine is set out in the *Institutio Logica,* the part of the

Syntagma that follows *De logicae fine* and that serves as transition from logic to physics. The *Institutio* is in four parts, corresponding to the four ways in which good thinking brings one closer to the truth and so to achieving the goal of logic. There are canons for (1) forming clear ideas, (2) forming propositions, (3) making sound inferences and (4) ordering or organizing correctly, by which Gassendi means methods of discovery and of instruction. Of the four sets of canons, it is the first and last that have the most philosophical interest. The third set consists almost entirely of rules for simplifying Aristotelian syllogistic. Gassendi has moved from the extreme hostility to syllogistic that he expressed in the *Exercitationes* to a guarded acceptance of its value in the last chapter of *De logicae fine,* and in the canons he suggests ways of improving Aristotelian logic rather than arguing that it should be scrapped altogether. The tedium of the rules for simplifying syllogistic is relieved by canon 16, which has some deflationary remarks about the strength and source of knowledge conferred by so-called 'scientific syllogisms'. These remarks are in keeping with Gassendi's adoption in *De logicae fine* of a *via media* between dogmatism and scepticism. The second set of canons—concerned with forming propositions—is once again mainly on Aristotelian lines.

The remaining two sets of canons, on forming clear ideas and on method respectively, have closer connections with Gassendi's physics than the other two sets, and also reflect more clearly the influence of Epicurean canons that Gassendi has discussed earlier in the logical books of the *Syntagma*. The first set is to do with ideas or images of things in abstraction from the operations of affirming or denying propositions about those things. Canons 1, 7, 8 and 18 tell us what we are to aim at in our ideas. Accuracy and vividness are desirable (canons 1 and 10); the greater the number of things of which we have ideas the better (canon 18); and, above all, ideas should be 'complete' (ibid.). Completeness in singular ideas or ideas of individuals is a matter of the comprehensiveness of parts and attributes registered:

> Since a particular thing…is also some kind of whole made up of its own parts, just as a man is made up of a head, trunk, arms, legs and the other smaller parts from which these are made, and is also some kind of subject endowed with its own attributes, adjuncts, properties or qualities, just as the same man is endowed with size, shape, colour, strength, wit, memory, virtue, wisdom and so on, it is quite clear that the idea of this man will be the more complete the more parts and attributes of him it represents.
>
> (IL, 91)

Gassendi recommends 'anatomy, chemistry and the other sciences' as means of acquiring more perfect singular ideas. More perfect general ideas are acquired the more particulars are known to be covered by a given genus. An idea of mankind that is at first confined to Europeans, Africans and Asians becomes more perfect if it comes to extend to Americans. In the ideal case an idea of a

kind of thing can serve as its definition (canon 15). Completeness in ideas can be achieved only within the limits allowed by our ways of forming ideas, which Gassendi stipulates in the first few canons of the logic. All our ideas come from the senses and are in the first place ideas of individual things. Mental operations rather than the external world are responsible for our general, analogical and chimerical ideas (canon 3). Finally, our ideas can only aspire to perfection or completeness if we are aware of the way in which the senses deceive us and keep in mind these sources of deception as we form ideas (canons 11–14).

The fourth set of canons in Gassendi's logic have a different relation to the physics. Instead of speaking of operations of the mind that physics illuminates, they prescribe methods of ordering thought that regulate physics and other sciences. Only the first four canons govern investigation in science; the remaining ten are to do with teaching what one learns. Canon 4 reintroduces the Epicurean criteria of truth: judgements are to be submitted to sense *and* reason (IL, 160). Canon 1 recommends the use of signs as a way of finding the key or middle term in the solution of questions. Canon 3 introduces the distinction between analysis or resolution and synthesis or composition, suggesting that whichever has been used to arrive at an answer, the other should be used to check it.

When he comes to the precepts governing the presentation of one's findings for the purposes of instruction Gassendi produces by way of illustration a description of how to teach physics that is hard not to take as a blueprint for the next major part of the *Syntagma*. He is making the point that in the sciences, as in the productive arts, it pays to teach as if you were explaining how something was made; in the case of natural science, how the universe is made up from its parts:

> Thus a physicist who is giving instruction in the natural sciences places as a model before our eyes, like the larger and smaller parts of a building, only on an extended scale, the structure of nature or the machine of the world, the sky, the earth, all that they contain, and analysing them into their smallest possible components takes these as the primary units which go to make up the whole. His next step is to inquire into the precise nature and pattern of the various combinations responsible for the formation of the sun, the moon and the other heavenly bodies, and in the same way the earth and all the many inanimate, animate and sentient beings…until he has unfolded the entire panoply of the world like a man who has explored and thoroughly inspected a house which someone else has built.
>
> (IL, 162–3)

An order very similar to the one prescribed is apparent in the sections on physics in the *Syntagma*.

Physics

Gassendi's physics begins with questions about the number of worlds, the existence of the world-soul and the known locations of the known parts of the world. This helps to define in a preliminary way the scheme of nature that physics is concerned with. He goes on to consider the metaphysical status of place and time. From Galileo's results concerning falling bodies he knew that physical effects could be a function of elapsed time or space traversed, and yet none of the traditional categories for real things—substance, attribute, corporeal or incorporeal —seemed to classify place and time adequately: Gassendi opens his physics with reasons why the traditional categories are unsuitable and reasons why place and space and duration are real and similar in their incorporeal natures. He then tries to play down his evident departure from Aristotelian physics by saying that what he calls space is just the same as 'that space which is generally called imaginary and which the majority of sacred doctors admit exists beyond the universe' (Book II, ch. 1, Brush, 389). By 'imaginary' he does not mean fictional. Rather, as he explains, he means something that it takes imagination, and in particular the power the imagination has of constructing analogues of the space it senses, to conceive. The power of making analogues is mentioned in Part One of *Institutio Logica* (canon 3) and consists of forming a likeness to something borne in by the senses.

Section One of the physics continues with the exposition of a number of competing theories of the nature of the matter of the universe, culminating in the acceptance of a revised Epicurean atomism in Book III, ch. 8. The chapter starts with a list of departures from Epicurus. Although Gassendi agrees that 'the matter of the world and of all the things in it is made up of atoms' (Brush, 398), he denies all of the following: that the atoms are eternal; that they are uncreated; that they are infinite in number, capable of being any shape, and self-moving (ibid., 399). He claims instead that 'atoms are the primary form of matter, which God created finite from the beginning, which he formed into this visible world, which, finally, he ordained and permitted to undergo transformations out of which, in short, all the bodies which exist in the universe are composed' (ibid., 399).

He conceives matter not in Cartesian fashion as extension in three dimensions simply, but as solid or offering resistance. Atoms are indivisible particles of matter. To the question of whether a physical indivisible is conceivable, given that whatever is physical would seem to have parts, Gassendi generally replies by drawing an analogy between a physical minimum and minimum sensible. Something so small as to be at the limit of what the human eye can register—Gassendi's example is the itch mite—can nevertheless be conceived to have a surface made up of indefinitely many physical parts—atoms, say. This does not take away its claim to be the smallest visible thing; similarly, the fact that it is possible to think of the atom's extremities matched one to one with indefinitely many geometrical points does not take away its status as the smallest physical

thing: though there is a way of dividing it into parts in thought, the atom cannot actually exist in parts (cf. Op. Omn. VI, 160; I, 268).

Matter coexists with the void. The existence of motion is supposed to be a sign of this, as Gassendi has already been quoted as saying in a passage on the indicative sign. The existence of relatively soft bodies is another sign of the existence of a void, or, more specifically, of the existence of a void enclosed by compound bodies. In the void there are no privileged directions and positions, and in particular no central point toward which a body like a stone might move if it were put into the void. A stone would move in any direction it is propelled or attracted to move, in a straight line with uniform velocity. The Aristotelian doctrine that there are natural positions for different substances is rejected. So is the Epicurean idea that atoms naturally move 'down' in straight lines unless deflected by an arbitrary swerve.

Gassendi has arrived at 'the primary units' of the material world. He thinks that the primary units are a very large number of atoms with a large number of different shapes. In Book IV of the *Syntagma,* on causation, he insists on viewing the primary units as active, rather in the way that the troops in an army are, once the general has given his orders (ch. 8, Brush, 418). All motion of matter is local (Op. Omn. I, 338), even gravitation, which is effected by a kind of hooking together of particles between bodies. Different atoms are endowed with different kinds of mobility, as well as different shapes, and these are capable of producing everything else observed in the physical world. Motion is at the root of effects rather than form; causation in nature is efficient rather than formal (Op. Omn. I, 283). Gassendi takes qualitative differences to be the joint effect of the primary qualities of atoms and their effects on our senses (Book 5, ch. 7). The variety in biological creation he traces to God's production in the beginning of 'the seeds, so to speak, of all things capable of generation, in other words, that from selected atoms he fashioned the first seeds of all things, from which later the propagation of species would occur by generation' (Book 3, ch. 8, Brush, 401).

Having discussed the nature of atoms and indicated in a general way how their possibilities of combination can explain the existence of big classes of substances, his next task, if we are to go by the passage about teaching physics that we quoted earlier from Part Four of *Institutio Logica,* is to 'inquire into the precise nature and pattern of the various combinations responsible for the formation of the sun, the moon and the other heavenly bodies, and in the same way the earth and all the many inanimate, animate and sentient beings…'. This is indeed how he proceeds in the subsequent sections of the *Syntagma*. We can pass over the astronomy and his treatment of terrestrial inanimate objects and come at once to the area where the atomistic explanation is extended to psychology, only to be curtailed in the interest of theological orthodoxy.

This occurs toward the beginning of Section III, Part 2, of the *Syntagma,* in the book *De anima*. Gassendi discusses the animating principle in non-human as well as human creatures. He thinks it is a highly mobile corporeal substance, a flame-like tissue of very subtle atoms (Op. Omn. II, 250) spread throughout the

animal body. It accounts for body heat and provides the heat for digestion and nutrition; it is sustained by the circulation of the blood. This animating principle is present in humans as well as animals, but in humans it is present together with a rational soul. The rational soul is infused by God in each human being individually, presumably at the moment of conception; the non-rational soul is transmitted by the processes of biological generation themselves. A letter of 1629[7] suggests that it was only to reconcile his position with Scripture, not with biological evidence, that Gassendi departed from the simple hypothesis that a single soul was derived by each person from its parents (Op. Omn. VI, 19). Finally, in the *Syntagma* the relation of the rational soul to the human being in whom it is infused is said to be rather like that of a substantial form to the matter it informs, Gassendi suggests (Op. Omn. II, 466), lifting what is otherwise a total ban on the invocation of substantial forms in the rest of the physics.

Gassendi's account of the soul (Op. Omn. II, 237–59), and of its faculties of phantasy (II, 398–424) and intellect (II, 425–68), is for the most part an account of the biologically generated soul, not the divinely instilled one. It is the biological soul that is the seat of the faculty of imagination or phantasy, and most cognitive operations are varieties of operations on ideas in the imagination. This is true in particular of the operations regulated by the canons of Gassendi's logic: forming ideas, reasoning, correcting for the deceptions of sense and so on. The logic says that all our ideas come from the senses and are in the first place ideas of individual things. The physics explains that corpuscles constituting the sensible species enter channels in the eye, ear and so on, and make impacts on tensed membranes, the vibrations from which are communicated to the brain by nerves filled with animal spirits. The brain then interprets the vibrations and they occur to the mind as conscious sensations. Episodes of the sensation leave traces or vestiges in the brain, and these are the physical substrate of ideas. As for operations on ideas, the physics relates each of these to vestiges of sense understood as brainfolds (Op. Omn. II, 405). Habits of mind also have a material basis. Finally, various forms of deception of the senses are possible because it is possible for the same pattern of vibration reaching the brain to be produced in different ways, or for it to be interpreted in different ways.

So much for the biological soul. A rational soul is needed to account for capacities that surpass those of the imagination, such as the capacity of the soul to know itself, to know the universal independently of abstracting from particulars, and to know God. Not that it is incapable of forming, composing, analysing and ratiocination: it can do what the non-rational soul can do: but it can do more as well. On the other hand, it is dependent on the material of the imagination: when it apprehends things it apprehends the same sort of ideas that the imagination does, not intelligible species. In this sense intellection and imagination are not really distinct (as for example Descartes had claimed in *Meditation* VI). Apart from cognitive operations, the rational soul is called upon to make sense of some practical capacities, specifically the ability to will the Good rather than aim for pleasure.

Ethics and politics

In his physics Gassendi departs considerably from Epicurus but retains a version of atomism and a largely materialistic account of the biological soul.[8] The effect of the departures is to make the Epicurean doctrine cohere with Christianity. God is brought in not only as creator but as a maintainer of order in material causation: the combination of atoms by chance is outlawed. God is also brought in as immediate source of a higher immaterial soul. Epicurean physics is corrected by theology, and it is the same with Epicurean ethics, which Gassendi takes up in the third and concluding part of the *Syntagma*.[9]

Epicurus is upheld in claiming that pleasure is to be pursued and pain avoided, but the pleasure of certain types of action is interpreted by Gassendi as a divinely appointed sign of the individual or communal preservation that such actions promote, while the pain of other types of action must be seen as a sign of their interfering with conservation (Op. Omn., 701). There are pleasures of motion and pleasures of rest, and Epicurus was right, according to Gassendi, to associate happiness with enjoyment of the pleasures of rest. He was right, in other words, to prefer the quiet pleasures of the mind to the pleasures of eating, drinking and sex. The fact that it does not come naturally to us to give the quiet pleasures their due; the fact that we are inclined to pursue the earthier pleasures to the exclusion of the others; these facts do not show that happiness is beyond us. They only show that happiness is not automatically attained. Fortunately, however, we are blessed by God with a freedom that, if properly used, enables us to judge that the earthier pleasures are not superior and are even at times merely apparent rather than real pleasures. This power of correcting valuations through judgement does not deprive the lower pleasures of their attraction, or bring it about that there is nothing to disturb us once we have chosen the higher goods. In other words, our freedom cannot bring about happiness in the form of perfect freedom from perturbation; on the other hand, it does make choices of the higher pleasures into genuine choices. Someone whose valuations of pleasure were completely correct morally speaking and who was incapable of making the wrong choices would in a certain sense resemble creatures who acted badly under the influence of impulse, for they, like the unfailingly right-acting, act in the absence of spontaneity (Op. Omn. II, 822–3).

Going by the theological corrections one finds elsewhere in his system, one might expect Gassendi to make Epicurean tranquillity consist of the quiet contemplation of God in a place away from the distracting pressures of social life. This would fit in not only with the demands of piety but with Epicurus's endorsement of the life in retirement. But in fact the pleasant life appears to be both more active and more social than this (Op. Omn. II, 717, 720). For Gassendi, the preferred sort of tranquillity appears to be that of the man who quietly and calmly gets on with large undertakings (ibid., 717), rather than someone who withdraws into serene and solitary meditation. Of course, it is possible to get on quietly and calmly with purely self-interested projects, such as

that of making oneself as wealthy as one can or as famous as one can, but Gassendi advocates stillness of mind in the pursuit of not just any personal project, still less any self-interested project. One is supposed to confine one's desires to those that are natural and necessary (Op. Omn. II, 694): a dedication to wealth or luxury or fame is out of keeping with the pleasant life; and so is much else—even a strong desire to stay alive may be criticized as the product of a misplaced fear of death.

Quiet determination in someone of modest desires, someone who has the pleasures of motion in proportion and under control—this comes close to the principle of a pleasant life. But it takes wisdom to aim at the right pleasures; and prudence to know how to get what one aims at. And the pleasant life calls for the exercise of other virtues, including justice. Justice is giving to each what is his right: it is the virtue that answers to the status of humans as social beings, and it is what keeps people from suffering the excesses of a natural struggle for human survival.

Justice manifests itself in the existence of mutual agreements that limit the steps anyone can take to preserve himself. It is prudent to enter such agreements, since otherwise people have a natural right to do whatever they like and go to whatever extremes they like to improve their chances of staying alive. They can take anything or do anything, and they must be prepared to see others take the same liberties (Op. Omn. II, 751). The extreme unpleasantness of a situation in which no holds are barred and no one is secure in whatever he has motivates people who are rational to lay down the natural right. Or, instead of speaking of the way the unpleasantness of pre-social existence rationally motivates people to lay down rights, Gassendi is willing to speak of a 'law of nature' (ibid., 800), or universally acknowledged rational precept, that men will come together to live in society (ibid., 802). This they do by making pacts with one another. At first they make a pact laying down their unlimited right to do and take what they like. The effect of this pact is to leave each in rightful possession of whatever the pact does not say should be given up. The pact also leaves each protected by the combined forces of the other parties to the pact. A second pact creates laws specifying rights, and so creates conditions for justice, that is, conditions for recognizing infringements of rights and determining what belongs to each by right (Op. Omn. II, 786, 795).

The two pacts already described are not by themselves sufficient for the smooth running of society, for it is impractical to have all the parties to the social contract involved in making and declaring laws. The authority to do these things must be delegated by the many to a single person or to a group of men (ibid., 755), and according to Gassendi this delegation of authority may be understood to originate in a third pact. It is by this third pact that people become subject to government. Is this third pact in their interest? It may seem not to be: the authority that the many vest in government may, Gassendi admits, be misused, as when a monarch or assembly makes too many laws or makes what laws there are too exacting. Nevertheless the interest of rulers themselves in a certain kind of

pleasant life gives them a reason to refrain from making laws that overburden their subjects, while the predictable excess of pain over pleasure in rebellion or civil disobedience provides a reason for law-abidingness on the part of subjects. In Gassendi's theory of politics the pleasure principle promotes the stability of states.

HOBBS

How far does Gassendi's Epicurean system agree with Hobbes's philosophy? Their politics appear to provide at least one point of agreement, for the respective treatments of the state of nature and the right of nature are similar. They diverge strikingly, however, in their theories of the social contract, the laws of nature, and the relations of subjects to rulers. Not three pacts but one take people from the Hobbesian state of nature into society. Hobbes's laws of nature provide a more detailed analysis than Gassendi's of what it is to come into society, and they rest on an account that implies that people's personal judgements about the relative pleasantness of life within the state and out of it are unreliable. Accordingly, in the act by which a Hobbesian subject simultaneously contracts for protection and makes himself subject to a sovereign, he also gives up the right to let his own judgements about pleasure and pain rule his impression of his well-being. He delegates the judgements to someone—a sovereign—who has a wider and more detached view than he does.

The disagreements between Hobbes and Gassendi do not stop there. It is crucial to Hobbes's morals and politics that death be an evil and that it be rationally compulsory to avoid premature death (De cive, ch. 1, vii, E II, 8), while Gassendi's account tends to minimize the disvalue of death and the importance of staving it off. Another disagreement, this time on the borderline between ethics and politics, is over whether man is by nature sociable. Gassendi, inclining uncharacteristically toward Aristotle, thinks that man *is* naturally sociable; Hobbes, in a political treatise that Gassendi admired, argues vigorously to the contrary. The divergences extend to other sectors of philosophy. In logic Gassendi puts forward precepts that reflect his sensitivity to scepticism; Hobbes does not. In metaphysics and physics Gassendi makes much of God's activity; in comparable parts of Hobbes's philosophy, on the other hand, a discussion of God's nature and attributes is either omitted or is highly curtailed. In physics proper Hobbes doubts the existence of the vacuum (*De corp.,* ch. 26, vi–xi, E I 426–44) and probably also, though not so explicitly, the divisibility of anything material (*De corp.,* ch. 7, xiii). He is thus at odds twice over with Gassendi's belief in the existence of atoms in the void.

Where the theories of Hobbes and Gassendi do resemble one another is in the reductive and materialistic bent of their psychologies. After examining Hobbes's doctrine in this connection I shall consider the relation of his materialism to the rest of his philosophy. Then I shall ask whether there is a way of comparing

Hobbes and Gassendi that takes account of their shared materialism while accommodating other points of contact.

Matter and motion

Perhaps no passage in Hobbes's writings declares his materialism with greater directness than the following one from Chapter 46 of *Leviathan:*

> The world, (I mean not the earth only, that denominates the lovers of it *worldly men,* but the *universe,* that is, the whole mass of things that are), is corporeal, that is to say, body; and hath the dimensions of magnitude, namely length, breadth, and depth: also every part of body, is likewise body, and hath the like dimensions; and consequently every part of the universe, is body, and that which is not body, is no part of the universe: and because the universe is all, that which is no part of it, is *nothing;* and consequently *nowhere*. Nor does it follow from hence, that spirits are *nothing:* for they have dimensions, and are therefore really bodies.
>
> (E III 381)

Hobbes is claiming that to exist is to exist as a material thing. Even spirits are bodies. If spirits seem not to be bodies, he goes on to suggest, that is only because in common usage 'body' is a term for things that are palpable and visible as well as extended in three spatial dimensions (ibid.).

Forthright as the passage just quoted is, Hobbes's materialism is more often implied than asserted in his writings. The reason is not that Hobbes was particularly prudent or cautious outside *Leviathan,* but that he thought that motion rather than matter was the key concept for the explanation of natural difference and change. It is true that, as he defines it, cause is motion, and motion is the displacement of body, so that his frequent references to the varieties of motion, and his frequent attempts to reduce phenomena to motion, are at the same time expressions of materialism. Still, it is through a commitment to mechanical explanation in physics, rather than as a result of some argument or requirement in an entirely prior and independent metaphysics, that Hobbes is materialistic.

An early example in Hobbes's writings of the inclination to mechanistic, rather than materialistic, reduction comes from *The Elements of Law* (1640). Just as 'conceptions or apparitions are nothing really, but motion in some internal substance of the head' he says, so '…contentment or pleasure…is nothing really but motion about the heart…' (Pt I, ch. 7, i, 28). In the same vein, but from the Introduction to *Leviathan,* written about eleven years later, there is the remark that 'life is but a motion of the limbs'. And that there is a principled basis for the stress on motion can be seen from the chapter on the methodology of philosophy or science in *De Corpore,* the first volume of Hobbes's three-part statement of the elements of philosophy. In that chapter, method in philosophy or science is related to the definition of philosophy as the working out of causes from effects

or effects from causes. Method prescribes, as a stage in the search for causes, the identification of universal things in particulars, that is, the most general properties that can be inferred from the analysis of descriptions of specific phenomena. But to find the relevant universals is not yet to know the ultimate cause of the phenomena, for the universals themselves have a universal cause, which is motion.

Finding causes is a matter of finding one of the many varieties of motion that is capable of generating a given effect. The varieties of motion that each of the main branches of science are concerned with are described in article 6 of Chapter 6 of *De Corpore*. Geometry studies motion in general—motion in the abstract—in body in general (E I 71). The rest of the sciences deal with differentiated motions in differentiated bodies. Thus pure mechanics deals with motions in bodies considered only as numerically distinct, and as having parts. It deals with the effects of motions of the parts of bodies on whole bodies, and also with the transmission of motion in collisions involving different numbers of bodies (E I 71–2). Physics deals with the sensory effects in animate bodies of motions transmitted by inanimate bodies. It deals also with the after-effects of sensory episodes and images compounded in imagination (E I 71; ch. 25, vii, E I 396–7; cf. L, ch. 1, E III 6). Moral philosophy, or, perhaps more accurately, moral psychology, deals with further after-effects of sensation in the form of passions. In this branch of science 'we are to consider the emotions of the mind, namely, appetite, aversion, love, benevolence, hope, fear, anger, emulation, envy etc.' (*De corp.* ch. 1, vi, E I 72).

It should now be clear that for Hobbes physics and moral psychology are sciences of motion, and therefore branches of mechanics. Both sciences are supposed to be concerned with the motions of the mind, physics because it considers the nature of sensation, and moral psychology because it studies some of the psychological effects of sensation. It is clear also that the psychological parts of physics and moral psychology are at the same time, but secondarily, sciences of matter, and support the classification of Hobbes as a materialist.

It is time to look at these sciences in more detail. The theory of sensation is not only a part of Hobbes's physics, but the part that Hobbes thinks has to be expounded first. The reason is that the data explained by physics are appearances, and these appearances could not exist if there were no sensation to produce them. Sense being what provides the data of physics, how does it work? Hobbes's answer is that it works by reaction, reaction to motion propagated through the parts of the sense organs. The process that culminates in sense experience affects the whole living creature, but it starts with pressure on some external and sensitive part of the living creature. This is the 'uttermost' part of the sense organ. When

> it is pressed, it no sooner yields, but the part next within it is pressed also; and, in this manner, the pressure or motion is propagated through all the parts of the sense organ to the innermost.

(*De corp.* ch. 25, ii, E I 390)

'Press' and 'pressure' are terms from the theory of pure mechanics. Hobbes defines them in Part Three of *De Corpore*. One body presses another when 'with its endeavour' the first body displaces the other or displaces part of the other (*De corp.* ch. 15, ii, E I 211). In the case of sensation, the pressure on the outermost part of the sense organ is exened either by the body sensed, what Hobbes calls 'the object of sense', or by some part of the medium, like air, which is itself set in motion by the object of sense. The pressure on the outermost part of the organ of sense displaces the nearest internal parts, which in turn press the next adjoining, which in turn press the next. Sensation does not result simply from this communication of pressure, but from the *resistance* of pressed to pressing bodies. Each pressure inwards is met with resistance outwards by the parts of the sense organ, so that there is a chain of reactions to a chain of pressures in the parts of the organ. From the last of this chain of reactions and its effect on the brain 'a phantasm or idea hath its being' (ch. 25, ii, E I 391). Only the strongest of the endeavours outward from the innermost parts of the sense organ constitutes a sensory reaction, and there can only be one sensory reaction at a time. Moreover, a given sensory reaction at a time can be experience *of* no more than one object at a time (*De corp.* ch. 25, v, E I 395), if the various sense organs are applied at a single time to a single object. So sense experience is an orderly succession of images of discrete things.

This much of the theory of sense is supposed to explain more than the existence of phantasms and their occurring in orderly sequences: it explains also some features of their content. For example, since a phantasm or idea results from the last of a chain of reactions *outwards* in the parts of the sense organ, to have a phantasm of a thing is to have an experience as of something *outside* the organ of sense (ibid.). Again, the theory as so far sketched makes some sense of the fact that 'things when they are not the same seem not to be the same but changed' (cf. *De corp.* ch. 6, vi, E I 72). Hobbes gives the example of things that appear to sight to be different sizes at different times. This is the effect of variations in the angle at which motion from the innermost part of the organ of sight is propagated outwards (*De corp.* ch. 25, xi, E I 405). Another phenomenon is variation in the number of stars visible in the heavens. This is the effect not of generation or destruction of stars, but of the state of the medium through which the motion of the stars is propagated. Cold air facilitates, and hot air hinders, stellar action on the eyes; so more stars appear on cold, calm nights, than on warm, windy ones (cf. *De corp.* ch. 25, xi, E I 406).

Hobbes's theory of sense is an account not only of the objects and causes of phantasms but also of the cognitive operations performed with them. To be endowed with sense, Hobbes believes, is not merely to be the momentary site of phantasms; it is to be able to recall ideas to mind, and to be able to compare and distinguish them. Indeed, judgement, which is the capacity to keep track of differences between objects presented to the senses (*De corp.* ch. 25, viii, E I

399; L, ch. 8, E III 57), is not really a capacity distinct from sense (*De corp.* ch. 25, viii, E I 399). Neither, apparently, is memory or imagination. Even the distinction between imagination and dreaming is not very firmly drawn (cf. EL, Pt 1, ch. 3, viii, 12; L, ch. 2, E III6f.; *De corp.* ch. 25, ix, E I 399f.)' The reason is that Hobbes tries to mark differences between these psychological capacities with the same apparatus he has applied in the account of sense proper. To explain the variety of sense experience he appeals to the variety of the sense organs, the different ways in which the sense organs are linked up with the nervous and arterial systems, differences in the objects of sense, and differences in the motions they impart to the sense organs. But when it comes to accommodating the variety of ways in which sense information can be operated upon after transactions between the sense organ and external objects are completed, he no longer has available to him a wide enough array of distinct causes for the distinct operations. He must make the retention of motion in the sentient suffice as a basis for memory, imagination and many other apparently quite distinct mental capacities. Unsurprisingly, this basis proves too slight for explaining the range of effects proper to the individual capacities. By memory, for example, we are not only supposed to be able to compare and distinguish the individuals we observe; we are also supposed to be able to hit upon regularities involving them so as to be able to form expectations (EL, Pt 1, ch. 4, vii, 15). Can all of this be managed by short-lived reflection on qualitative similarity and difference in objects we have fleeting contact with? Can even qualitative comparison and discernment be accomplished by memory if it is no more than a device for storing and scanning the colours, shapes, smells etc. of unsorted bodies? Hobbes offers a sophisticated reconstruction of the mechanisms that make it possible for us to be affected with phantasms, but he lacks the resources for a substantial account of the various operations—memory is only one—that cognition involves.

Hobbes's account of the motions of the mind extends beyond sensation and cognition. There is also a theory of the passions. Passions are understood as after-effects of sense. For example, when someone sees something, the thing imparts motion to the innermost part of the organ of sight. One effect of the motion is to set up an outward reaction to the brain that produces visual experience. But there can be an additional effect. The 'motion and agitation of the brain which we call conception' can be 'continued to the heart, and there be called passion' (EL, Pt 1, ch. 8, i, 31). The heart governs 'vital motion' in the body, that is, the circulation of the blood. In general, when motion derived from an act of sense encourages vital motion, the sentient creature experiences pleasure at the sight, smell or taste of the object of sense, and is disposed to move his body in such a way as to prolong or intensify the pleasure (*De corp.* ch. 25, xii, E I 407). If the object of sense is at some distance from the sentient creature, the creature will typically move toward it (ibid.). In *De Corpore* Hobbes describes the physiological processes that underlie the approach. Animal spirits impulse into the nerves and retract again, causing muscular swelling and relaxation and eventually full-scale movements (E I 408). The 'first beginnings' of this process,

the small movements in the body below the threshold of consciousness that start the process off, constitute what Hobbes calls 'appetite' (E I 407). With appropriate adjustments aversion is treated in the same way. Aversion is connected with retreat from an object of sense whose effect on a creature is to retard vital motion.

In roughly the way that he tries to conjure imagination, memory and other cognitive operations out of the basic capacity for sense, Hobbes tries to relate a long list of passions to the basic affections of appetite and aversion. There are many complexities, but the idea that the passions are kinds of motion involving the heart is never abandoned. The heart and its motion are also appealed to in Hobbes's conception of biological life, and his conception of biological life is brought into deflationary interpretations of the ideas of spirit, soul, eternal life and resurrection. In a famous passage in Chapter 44 of *Leviathan* he says:

> The *soul* in Scripture signifieth always, either the life, or the living creature; and the body and soul jointly, the body alive.
>
> (E III 615)

As for life itself, 'it is but motion' (L, ch. 6, E III 51). When God is said in *Genesis* to have '*inspired* into man the breath of life, no more is meant than that God gave him vital motion' (L, ch. 34, E III 394). Death consists of the ceasing of this motion, but the ceasing of this motion at a time does not preclude an after-life. If God created human life out of dust and clay, it is certainly not beyond Him to revive a carcass (E III 614–15). For the same reason, it is unnecessary to hold that a soul leaves the body at death in order to make sense of resurrection. One can say that life stops and then starts again at the resurrection, with no intervening incorporeal existence.

Hobbes's materialism and Hobbes's system

Hobbes identifies the ensouled human body with the living body, and he thinks that the living body is a body with vital motion, that is, a body with a heart pumping blood through the circulatory system. He identifies the passions with different effects of vital motion, and he identifies thought or cognitive operations with various effects on the sense organs, nerves and brain of impacts of external bodies. It is a thoroughgoing materialistic psychology, and it is in keeping with the method and first philosophy that Hobbes prescribes for natural philosophy in *De Corpore* and other writings. Effects or phenomena of all kinds are referred to bodily motion, the specific kinds of motion depending on the analysis of the descriptions of the phenomena as well as relevant experiments. This is the approach Hobbes follows for geometrical effects, pure mechanical effects, physical and psychological effects. In the teaching of the elements of philosophy as a whole, the assignment of causes to these effects is supposed to be preliminary to stating the rules of morality and polity. Are the rules of morality

and politics supposed to be materialistic or mechanistic or based on a mechanical conception of nature?

In some formulations Hobbes's theory of politics does indeed draw on mechanistic psychology. But in others, notably that of the official statement of his politics in *De Cive,* the third volume of his trilogy, no properly scientific claims about the passions or about psychology are employed at all. The Preface to *De Cive* indeed insists on the independence of the principles of morals and politics from those of the sciences of body and man treated earlier in the trilogy (E II xx). And similar comments are made in *Leviathan* (ch. 31, E III 357) and *De Corpore* (*De corp.* ch. 6, vi, E I 74). Hobbes's insistence on the autonomy of his morals and politics seems to go against the claim that his morals and politics are derived from, or a case of, mechanistic materialism. It is better to say that the morals and politics are consistent with, and sometimes worked out against the background of, mechanistic materialism, but not strictly deduced from mechanistic materialism.

Let us consider how Hobbes's mechanistic psychology contributes to Hobbes's morals and politics when he does choose to make use of it, as in *Leviathan*. A crucial passage in this connection, which incidentally shows Hobbes in disagreement with Gassendi, concerns the son of happiness that man can aspire to while he is alive.

> *Continual success* in obtaining those things which a man from time to time desireth, that is to say, continual prospering, is that men call FELICITY; I mean the felicity of this life. For there is no such thing as perpetual tranquillity of mind, while we live here, because life itself is but motion, and we can never be without desire, nor without fear, no more than without sense.
>
> (E III 51)

He is claiming that desire, fear and sense are permanent facts of life, and that life being motion, it cannot be tranquil. Desire is a fact of life because it is an inescapable effect of the vital functions of sense and vital motion; fear is a fact of life because it is a probable effect of sense and vital motion. We learn through trial and error what to avoid and pursue, and trial and error reveals that some things we might otherwise try and get can harm us. So long as our environment is not wholly hospitable there are bound to be fearful things. As for life being but motion, this is an assertion of Hobbes's identification of life with vital motion.

The claim that human life can never be without fear and desire has a natural scientific grounding, and it in turn helps to support a central thesis of Hobbes's moral philosophy: that the prospects of felicity in human life in its natural condition are not very good. For one thing, the pursuit of felicity is unending, there always being a next desire to satisfy, and risky, there being things to fear. The unendingness of desire and the constant presence of fearful things both diminish the prospect of continual success in getting what one wants unless one

has tremendous resources to put into the pursuit of felicity. The unendingness of desire and the permanence of fear are among the harsh natural conditions of life that the construction of a body politic is supposed to alleviate. So Hobbes's mechanistic psychology does some of the stage-setting for Hobbes's civil philosophy.

It would be a mistake, however, to suppose that it is very extensive stage-setting. A state or commonwealth or body politic is an answer to the problem of war, and it takes more than continual desire and ever-present fear in the pursuit of felicity to create conditions of war. War involves competition, insecurity of possession and, crucially, what Hobbes calls 'the right of nature', that is, the right of each person to be able to take whatever steps he thinks are appropriate for his security and well-being (cf. L, ch. 14, E III 116). These additional conditions, and especially the last, do not belong to a description of the state of nature purely in terms of matter in motion. And while there may be analogies between the way that human beings come into conflict with one another, and what happens when inanimate bodies meet on a collision course, the explanation of war and the prescriptions for avoiding it are not for Hobbes primarily mechanistic. War and peace are primarily things that can be deliberated about and chosen or rejected.They are only secondarily the effects of blind impersonal forces within human beings. That is why Hobbes presents the causes of peace in the form of precepts it is rational to follow and the causes of war as seditious beliefs or ill-conceived policies of action that it is rational to abandon.

At the heart of his case-both for following the precepts and abandoning the seditious beliefs is the fearfulness of death through war and (though less prominently) the desirability of commodious living in the commonwealth (EL, Pt 1, ch. 14; De cive ch. 1; L, ch. 13). War is what the pursuit of felicity degenerates into when each human being is the rightful judge of how to pursue felicity, that is, when no-one can be blamed by any one else for any choice of means to ends, and when it is common knowledge that this is so. In these circumstances, whatever one's character or personality, it can make sense to injure or dispossess one's neighbour. Vainglorious people will be disposed to pursue felicity ruthlessly anyway, and will not stop at fraud or theft or even, if there is nothing to stop them, killing to get what they want. Moderate people, concerned with safety before felicity, will have reason to act violently to pre-empt the attacks of the vainglorious. And in any case people will be set against one another by the mere fact of having to compete for goods everyone wants. Whether they are vicious, virtuous or morally indifferent, people who pursue felicity, and who have no common power to fear, must suffer from the general insecurity Hobbes calls 'war'.

By 'war' he does not mean only open fighting between large numbers of men. It is enough that most men show that they are *willing* to come to blows (EL, Pt 1, ch. 14, xi, 73; De cive ch. 1, xi, E II 11; L, ch. 13, E III 113). Hobbes recognizes what we would now call 'cold war', and he does not underestimate its costs. When most people show that they are willing to enter a fight that can be foreseen

to be a fight to the death, most people are unlikely to channel their efforts into production. If people agree to work at all while under the threat of all-out war, then, according to Hobbes, they will tend to produce things on their own and for themselves. War, even cold war, threatens production by the division of labour, and indeed threatens to halt production of any kind (ibid.). And the effects of open as against latent war are of course much worse. Besides the loss of the good of society, open war brings the loss of reliable shelter, the loss of methods of distributing goods in general demand, the decline of learning, the good of assured survival, the probable loss of life and, what is worse, a probably painful death. The life of man is reduced to being 'solitary, poor, nasty, brutish and short' (E III 113).

The fearfulness of war is supposed to give people who are at war a reason for putting an end to it and people who are not at war a reason for continuing to live in peace. The goal of securing peace and the means of doing so are specified by the so-called laws of nature (L, chs 14 and 15), about eighteen such laws in all. The fundamental laws require one to seek peace if it is safe to do so; and to lay down rights that will enable peace to be made and kept. These two laws, as well as one requiring that one keep one's agreements, are the laws of nature that enable the state to be established and war ended. Further laws of nature call for traditionally recognized virtues: equity, gratitude, a willingness to be accommodating and so on.

Now anyone who sees that peace is good and sees that the behaviours enjoined by the laws of nature are means to peace has a reason for abiding by the laws of nature—even in the course of a war. Each person has a reason for abiding by the laws of nature, but not an utterly compelling or categorical reason. For in a state of war each person retains the right of conducting himself as he likes, and may judge that it is better to violate the laws of nature even while others obey them. Since those who obey the laws put themselves at risk by doing so, and since even the laws of nature do not have to be observed when it is unsafe to do so, the general uncertainty over how others will behave makes the laws of nature into ineffective instruments of peace.

Hobbes's solution to this problem is to make the right of private judgement one of the rights laid down for the sake of peace. He describes a covenant that transfers responsibility for the personal safety and well-being of individuals from those individuals themselves to a man or body of men who are empowered to act for the safety and well-being of them all. The covenanters become subjects of the responsible individual or assembly, and are obliged to obey his or their laws for as long as it is not life-threatening to do so. In other words, the parties to the covenant delegate the right to see to security and well-being to others, in return for more certainty about survival and well-being. The man or body of men to whom the decisions are delegated then declares, in the form of coercive civil laws, those things that must and must not be done if the peace is to be kept and security and well-being promoted. The laws can touch virtually any sphere of private or public life, though Hobbes counsels against a legal regime that is very

intrusive and very exacting. The authority of the sovereign power extends in particular to declaring what forms of religious practice are lawful and who may or may not preach. This, in a nutshell, is Hobbes's solution to the problem of war: the many are to agree to subject themselves absolutely to a sovereign with undivided and absolute power.

Hobbes's system and Gassendi's

How satisfactory is it to classify Hobbes's system as a whole—the elements of natural and civil science taken together—as materialistic or mechanistic? Plainly the mechanical conception is prominent in all of Hobbes's writings in natural science. In morals and politics, on the other hand, it is far less conspicuous, and in *De Cive* it virtually disappears. Commentators sometimes claim that, however different in content they are, Hobbes's natural and civil sciences are nevertheless worked out according to the same methodological precepts, precepts calling for the resolution of bodies—either natural or artificial—into properties for which causes can be found, causes which, when put together, make the body from which one started fully intelligible.[10] Though Hobbes himself encourages the idea that there is a close parallel between the methods of civil and natural philosophy, it is very difficult to read any of the political treatises as exercises in the resolution of a state or civil society into its parts.[11] They are better seen as justifying precepts for the behaviour of subjects and sovereigns engaged in the common project of keeping the peace.

Another interpretation of Hobbes's system, which avoids the implication that Hobbes's civil philosophy is mechanistic, or that natural and civil philosophy are methodologically unified, is to the effect that each of the two principal parts of Hobbes's system are responses to the seventeenth-century pyrrhonist challenge to science: on this reading, the metaphysics and natural philosophy attempt what Descartes attempts in the *Meditations,* only without relying on doubtful proofs of God's existence, while the civil philosophy meets a sceptical challenge to a science of morals along the lines of one that Grotius tried to meet.[12] Putting these readings together, the whole system may be regarded as 'post-sceptical'. If this interpretation were correct, it would have the considerable merit of linking not only the two parts of Hobbes's system but the two systems of Hobbes and Gassendi; for it can hardly be doubted that Gassendi's system has consciously antisceptical motivation.

Unfortunately, the textual evidence for the claim that Hobbes directed his philosophy against pyrrhonism is very slight.[13] The main proposer of the 'post-sceptical' interpretation has mainly relied on Hobbes's association with Gassendi and Mersenne. Though the interpretation seems uncompelling, its form seems to me to be right. That is, it seems sensible to look for a way of unifying the two parts of Hobbes's philosophy and the two systems of Hobbes and Gassendi in something they were both reacting against. There is much stronger evidence for the claim that it was Aristotelianism than that it was scepticism about the

possibility of science. We have already seen that Gassendi was attracted to Epicureanism partly because it could rival Aristotle's philosophy, and because Gassendi was from early on dissatisfied with Aristotelianism. In Hobbes's case equally the departures from Aristotle's theory of causation and the categories, as well as the theory that man is naturally sociable and that one exercises the duties of citizenship by judging and legislating rather than obeying, are very clear and well documented.

Hobbes does not believe, as people do who take scepticism seriously, that one can live long or well by appearances alone. He thinks that to live and live well in both nature and society one needs science, that is, some methodical way of finding the causes of appearances and the consequences of one's actions. But he also thinks, this time very much as Gassendi does, that, except with regard to the appearances of things we make, appearances of artefacts, science does not reveal the necessary causes of appearances; and though he believes that science can be acquired by human beings he does not think that they have a natural aptitude for it. Similarly, though he thinks that virtue can be acquired, and even that there can be a science of virtue in the form of the system of the laws of nature, he does not think that the virtues can be learned by simple habituation, or that there is the relation of virtue to pleasure or virtue to personal judgement and experience that Aristotle insists upon. In all of these respects he is antiAristotelian.

With Gassendi Hobbes is a mechanistic and-Aristotelian in natural philosophy. He is a different kind of anti-Aristotelian in civil philosophy. In civil philosophy he is anti-Aristotelian in redrawing the distinction between natural and artificial so that politics no longer falls on the 'natural' side of the divide; aptness for the polity is not written into human nature, according to Hobbes: man has to be *made* sociable and the order with the polity is not a natural one either, but one that is artificial and expressible in the terms of a contract. Gassendi, too, is a contract theorist, but apparently not one who invests the fact that contracts are made and states manufactured with anti-Aristotelian significance. For him entering into a contract can be the expression of natural sociableness, albeit understood in an Epicurean rather than Aristotelian way.

ABBREVIATIONS

The following abbreviations are used in references. Gassendi: Op. Omn.—*Opera Omnia* (Lyon, 1658), 6 vols, references are by volume and page number; Brush—*The Selected Writings of Pierre Gassendi,* trans. C.Brush (New York, Johnson Reprint, 1972); IL—*Institutio Logica,* ed. and trans. Howard Jones (Assen, Van Gorcum, 1981). Hobbes: EL—*The Elements of Law Natural and Politic,* ed. F.Tönnies (London, Simpkin & Marshall, 1889), references are by part, chapter, section and Tönnies page number; L—*Leviathan, or the Matter, Form and Power of Commonwealth, Ecclesiastical and Civil,* references are by chapter and page number to the edition in vol. 3 of the *English Works* (E), ed. Sir W.Molesworth (London, 1869), 11 vols; *De corp.* —*Elementorum Philosophiae,*

Sectio prima de corpore, references are by chapter, section and page number of the English translation in vol. 1 of Molesworth; *De cive—Elementorum Philosophiae, Sectio tertia, de cive;* I use 'De cive' to refer to the English translation, *Philosophical Rudiments concerning Government and Society,* in vol. 2 of Molesworth; DP—*Decameron physiologicum or Ten Dialogues of Natural Philosophy,* vol. 7 of Molesworth.

NOTES

1 For more detail, see A.Beaulieu, 'Les Relations de Hobbes et de Mersenne', in Y.-C.Zarka and J.Bernhardt, *Thomas Hobbes: Philosophie Première, Théorie de la science et politique* (Paris: Presses Universitaires de France, 1990), pp. 81–90.
2 See Sarasohn [7.32], 370–1.
3 See Joy [7.13].
4 For more detail, see Clark [7.17], 353.
5 See Brundell [7.11], ch. 2.
6 See Brundell's Introduction for more detail.
7 Quoted in Brett [7.10], 114n.
8 For a review of the textual evidence of Gassendi's materialism which adds to the details given here, see Bloch [7.9], ch. 12.
9 I am indebted in my discussion of Gassendi's ethics and politics to Sarasohn [7.34].
10 The originator of this interpretation is J.W.N.Watkins. See Watkins [7.61], 47–81.
11 See Sorell [7.50], ch. 2.
12 See Richard Tuck, 'Sceptics and Optics', in E.Leites (ed.) *Conscience and Casuistry in Early Modern Europe* (Cambridge, Cambridge University Press, 1988), pp. 235–63; 'Hobbes and Descartes', in G.A.J.Rogers and A.Ryan (eds) *Perspectives on Thomas Hobbes* (Oxford, Clarendon, 1988), pp. 11–42; Tuck [7.53].
13 See my 'Hobbes without Doubt', forthcoming in M.Bell and N.Martin (eds) *Scepticism and Modern Philosophy*.

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CHAPTER 8
Spinoza: metaphysics and knowledge

G.H.R.Parkinson

The philosophical writings of Spinoza are notoriously obscure, and they have been interpreted in many ways. Some interpreters see Spinoza as (in the words of a contemporary)[1] 'the reformer of the new [sc. Cartesian] philosophy'. That is, they see him as someone who has been deeply influenced by Cartesianism, but who has introduced major changes in it, without rejecting it altogether (as, say, philosophers such as Hobbes and Gassendi did). Others, however, see Spinoza's philosophy as deeply imbued with medieval thought, both Jewish and Christian. In the words of one prominent exponent of this view,[2] 'his mind is crammed with traditional philosophic lore and his thought turns along the beaten logical paths of mediaeval reasoning'. Such a way of thinking would be alien to that of Descartes, who (like many seventeenth-century philosophers) spurned the philosophy of the Middle Ages. There are other disagreements between Spinoza's interpreters. For example, some see his philosophical writings as a way of expressing a kind of mystical insight, but others deny this.[3] In trying to decide between these interpretations, it will be helpful to begin by giving some account of the social and intellectual *milieu* within which Spinoza formed his ideas.

Spinoza was born in Amsterdam on 24 November 1632. His father, Michael de Spinoza, was a Jewish merchant, one of many Portuguese Jews who had taken refuge in the Netherlands to escape religious persecution. The family language would have been Portuguese, and the philosopher who later called himself by the Latin name 'Benedictus' was generally known in his youth by the Portuguese name 'Bento'. (It is worth adding that the Hebrew name 'Baruch', which is still sometimes used to refer to Spinoza, was for ritual purposes only.) The Portuguese Jews of Amsterdam had founded in 1616 a school, the 'Talmud Torah' ('The Study of the Law'), and the young Spinoza would have attended this school. Here, there were in effect two divisions, a junior and a senior. Instruction in the junior division continued until a boy's thirteenth year;[4] it was confined to the Bible and the elements of the Talmud, more advanced study being reserved for the senior division. The registers of this senior division have been preserved, and it is notable that, among the entries for the relevant years, the name of Spinoza is not to be found. It would be wrong, then, to suppose that

Spinoza was deeply read in Talmudic lore in his youth, and that he was intended to be a rabbi. Rather, it seems to have been Michael de Spinoza's intention that Spinoza should concentrate on a career in business; and indeed, when Michael died in 1654 Bento and his brother Gabriel carried on the family business for a time.

The mature Spinoza displays far more knowledge of Jewish thought and history than could have been acquired by a twelve-year old, however precocious; and in fact when Spinoza left school he continued his Jewish studies as a member of a 'Yeshivah', a kind of study-circle, led by the famous rabbi Saul Levi Morteira. Spinoza, however, proved to be a rebellious pupil, and on 27 July 1656 he was formally excommunicated on account of what were called his 'wrong opinions' and 'horrible heresies'.[5] The exact nature of these heresies is not certain. It can be said with certainty that they were not the philosophical views for which Spinoza later became famous; it is very improbable that they were even Cartesian views, which at that time were being keenly discussed in the Netherlands—so keenly, indeed, that in 1656 Dutch university professors were required to take an oath that they would not propound Cartesian doctrines that were found offensive.[6] The slender evidence that is available suggests that Spinoza was already taking up a critical attitude towards the Bible, that he disbelieved in the immortality of the soul, and that his views about God were deistic in character. These doctrines suggest, not so much the ideas of Descartes, as those of the French 'libertins' or free-thinkers of the period.[7]

There is much that is obscure about the next five years of Spinoza's life, but it is certain that they were a decisive period in his philosophical development. By the time that his surviving correspondence begins (26 August 1661) Spinoza appears as a man who has a philosophy of his own, which is treated with respect by such men as Henry Oldenburg, who was to become the first secretary of the Royal Society in London. At this stage, Spinoza was already critical of Cartesianism, but this is not to say that he owed nothing to Descartes. Rather (as a friend of his remarked) 'The philosophical writings of the great and famous René Descartes were of great service to him.'[8] What is not certain is just when and in what way Spinoza obtained his knowledge of Descartes's philosophy. There is reason to believe that Spinoza may have attended philosophy lectures, on an informal basis, at the University of Leiden at some time between 1656 and 1659; if he did so—and the evidence is inconclusive[9]—he would almost certainly have studied Descartes there. It is also possible that it was a common interest in Descartes which led Spinoza to associate with members of some of the smaller Christian sects of the period, the Collegiants and the Mennonites. The Collegiants were a group of people who tried to dispense with clergy, and who met together in groups, *collegia,* for the purpose of worship. The Mennonites were followers of the Dutch Anabaptist Menno Simons (1496–1561); holding themselves aloof from politics, they did not suffer the persecution that many Anabaptists did.

It was in about 1661—that is, five years after his excommunication —that Spinoza wrote his first philosophical works. These were the *Tractatus de Intellectus Emendatione (Treatise on the Correction of the Intellect)* and the *Korte Verhandeling van God¸ de Mensch en deszelfs Welstand (Short Treatise on God, Man and his Well-being).* The firstnamed of these was a treatise on method, which was meant to be the first part of a two-part work, the second part of which was to have dealt with metaphysics.[10] Spinoza did not complete the work, which was first published in 1677 as part of his posthumous works. The *Short Treatise* may be a first draft of the work on metaphysics which was to have followed. Confused and obscure, it was clearly not intended for publication in the form in which it stands.[11]

In both these works Spinoza's distinctive philosophy is already present, though in a form that is still immature. The works are also interesting in that they afford a clear view of some of the influences on Spinoza. The *Short Treatise* is particularly instructive in this respect. Not surprisingly, Spinoza makes use of Descartes; for example, arguments for the existence of God contained in the eleventh chapter of Part I of the work are clearly derived from Descartes's *Meditations,* Numbers 3 and 5. Equally interesting are the Dutch sources—more specifically, the Leiden sources—that Spinoza uses. In his account of God as cause[12] he uses a classification of causes introduced by Franco Burgersdijck (d. 1636), who had been a professor of philosophy at Leiden; his *Institutionum Logicarum Libri Duo* (Leiden, 1626) and his *Synopsis Burgersdiciana* (published posthumously at Leiden in 1645), a manual of scholastic logic, were popular textbooks. It is not certain, however, that Spinoza read Burgersdijck's works; he may have known them only through the works of Burgersdijck's successor at Leiden, Adrian Heereboord (d. 1651). Heereboord produced a revised version of the *Synopsis,* entitled *Hermeneia Logica* (Leiden, 1650), which includes an exposition of Burgersdijck's classification of causes; he also commented on this doctrine in his *Meletemata Philosophica* (Leiden,1654), a work actually quoted by Spinoza.[13] Spinoza could also have found in the *Meletemata* the antithesis between *natura naturans* and *natura naturata,* used in the *Short Treatise,* and later in the *Ethics*.[14] Heereboord is of particular interest in that he sympathized both with Descartes and with the scholastics, and in particular with Suarez. One should not assume, therefore, that whenever Spinoza uses scholastic terms this indicates a study of the original texts; he may well be using the scholastic Cartesian Heereboord.[15]

Spinoza wrote the *Tractatus de Intellectus Emendatione* and the *Short Treatise* at Rijnsburg, a village near Leiden, to which he had moved in about 1660. It was at Rijnsburg also that he began work on his first published book, a geometrical version of the first two parts of Descartes's *Principia Philosophiae,* together with an appendix of 'Metaphysical Thoughts' *(Cogitata Metaphysica),* published in Amsterdam in 1663. Spinoza's version of Descartes's *Principia* is purely expository, and the *Cogitata Metaphysica* is as it were a Cartesian exercise, dealing with traditional problems of metaphysics in a Cartesian way (G i, 131).

By the time that he wrote this book, Spinoza was already severely critical of Descartes, and it is not surprising that he should have said, 'I do not acknowledge as my own everything that is contained in this treatise'.[16] However, this does not mean that he rejected everything that the work contains. The author of the preface to the book (Spinoza's friend Lodewijk Meyer) stated that 'He judges some of it to be true' (G i, 131), and indeed several passages in Spinoza's mature works refer to his geometrical version of Descartes or to the *Cogitata Metaphysica* as expressing his own views.[17] All this is consistent with the view of Spinoza stated at the beginning of this chapter: namely, that he is the reformer of the Cartesian philosophy, not its destroyer.

Spinoza left Rijnsburg in April 1663 and moved to Voorburg, a village near the Hague. In 1670 he moved to the Hague itself, where he continued to live until his death from consumption on 21 February 1677. Between 1663 and 1677 Spinoza wrote the works for which he is most famous. He seems to have begun work on his masterpiece, the *Ethics,* whilst still at Rijnsburg; certainly, he sent the first propositions of what appears to be a draft of the book to his friends in Amsterdam in February 1663 (Ep 8). By June 1665 a draft of the work was near completion. At that stage, incidentally, the work consisted of three parts; the third of these was later expanded into what became Parts Three, Four and Five of the final version. However, Spinoza suspended work on the *Ethics* in the latter half of 1665 (Ep 30; to Oldenburg, September/October 1665), so that he could concentrate on a book which was to be published in 1670 as the *Tractatus Theologico-Politicus.* In this book, Spinoza aimed to show (contrary to the views of the Dutch Calvinists) that the Scriptures are compatible with freedom of thought. In pursuit of this end he offered one of the first critical accounts of the Bible, presenting it as a historical document. The book was published anonymously and under a false imprint, but its authorship was widely known and Spinoza was attacked in print by numerous defenders of religious orthodoxy. After 1670 Spinoza returned to work on the *Ethics,* and by July 1675 it was complete (Ep 68). However, Spinoza thought it advisable to delay publication, and the work did not appear until after his death, as part of his posthumous works. These appeared in December 1677 (G ii, 313–4) in both the Latin original and a Dutch translation.[18] They contained, besides the *Ethics,* the *Tractatus de Intellectus Emendatione,* an unfinished *Tractatus Politicus* on which Spinoza was working during his last years, an incomplete *Compendium of Hebrew Grammar,* and those items of Spinoza's correspondence which his editors believed to be of philosophical importance.

The correspondence of Spinoza is valuable, not only for the philosophical arguments that it contains, but also for the light that it throws on his interests, and so indirectly on his philosophy as a whole. I have argued that Spinoza owed much to Descartes; now, Descartes's philosophy was closely connected with the science of his time, and it is therefore not surprising that Spinoza's letters should display an interest in science. Of the eighty-seven letters to or from Spinoza that have survived,[19] nineteen touch on scientific or mathematical issues.[20] That some

of these—Ep 36, 39, 40, 46—should deal with problems of optics, and more specifically with problems concerning lenses, is not surprising; it is well known that Spinoza, after his expulsion from the synagogue, supported himself by grinding and polishing lenses. But other letters display an interest in science that is not purely professional. Spinoza corresponds with Robert Boyle about nitre, fluidity and firmness (Ep 6, 11, 13, 16); he discusses with the secretary of the Royal Society, Henry Oldenburg, recent work on comets (Ep 29–32) and Descartes's theories about the planets (Ep 26); he comments on Descartes's laws of motion and Huygens's criticism of these, and asks for news of an experiment carried out in the Royal Society to test a hypothesis of Huygens (Ep 32, 33); he discusses the calculation of chances (Ep 38) and reports on an experiment of his own about pressure (Ep 41). This interest in the sciences is confirmed by a list of books from his library that were put up for sale after his death.[21] Of the 161 books listed, roughly a quarter are mathematical or scientific works.[22]

To sum up, my aim has been to determine the intellectual context within which Spinoza's thought is to be placed. I have argued that there is no reason to believe that Spinoza was deeply imbued with the Jewish or Christian philosophy of the Middle Ages. He may occasionally quote the medievals in order to make a point, but they are not the well-spring of his philosophy. His interest is not in old philosophical ideas, but in modern ones, in particular the philosophy of Descartes, which he 'reforms', and the new science of his time.

I have spoken of Spinoza's interest in contemporary science; before going further into his philosophy, something must be said in general terms about the way in which he saw the relations between science and his philosophy. It is a commonplace that, whereas Descartes was chiefly concerned with the answer to the question, 'What do I know, and how do I know it?', Spinoza is chiefly concerned with the question, 'What is a good life for a human being?' It may be that had Spinoza lived longer the *Ethics* would not have had the dominant position in his output that it now has; it might have been accompanied, not only by a completed *Tractatus Politicus,* but by a revised and completed version of his treatise on method, a book on physics, and an introduction to algebra.[23] Notwithstanding all this, there is no doubt that Spinoza's initial and chief motive for philosophizing was a moral one. In the famous autobiographical opening of his *Tractatus de Intellectus Emendatione,* he writes:[24]

> After experience had taught me that all the things which occur frequently in ordinary life are vain and futile; when I saw that all the things on account of which I was afraid, and which I feared, had nothing of good or bad in them except in so far as the mind was moved by them, I resolved at last to inquire if there was some good which was genuine and capable of communicating itself, and by which the mind would be affected even if all the others were rejected.

Since the time of Hume,[25] many philosophers have taken the view that there is a gap between questions of fact and questions of value, between 'is' and 'ought'. Philosophers who take a contrary view, and argue that human nature is relevant to questions about the nature of what is morally good, are termed 'naturalists'. Spinoza is such a naturalist. He argued that if we are to discover the kind of life that is good for a human being, we must discover the true nature of human beings, and that this implies seeing ourselves in the context of nature as a whole. Human beings, he says,[26] follow the universal laws of nature; the position of man in nature is not that of a kingdom within a kingdom. One could summarize his view by saying (adapting a phrase used by A.J.Ayer)[27] that man is a subject for science. More will be said of Spinoza's views about science and philosophy in the course of this chapter, which is concerned with Spinoza's metaphysics and theory of knowledge (see especially pp. 287–9); his views about ethics and politics will be discussed by Dr Blom in the next chapter.

In discussing Spinoza, I shall take as my primary source his *Ethics*. This is his acknowledged masterpiece; a work of great range, covering not only moral philosophy but also metaphysics and theory of knowledge, besides containing the outlines of a system of physics and a theory of politics. The full title of the book is *Ethics, demonstrated in geometrical order,* and indeed the most immediately striking feature of the book is the geometrical order in which it is presented. It is worth noting that, in presenting his philosophy in this form, Spinoza is following a lead given by Descartes. The relevant topic here is Descartes's distinction between 'analysis' and 'synthesis', and although this has already been discussed in a previous chapter,[28] it will not be superfluous to return to it here. In Part II of his *Discourse on Method,* Descartes had written (CSM i, 120) that 'Those long chains composed of very simple and easy reasonings, which geometers customarily use to arrive at their most difficult demonstrations, had given me occasion to suppose that all the things which can fall under human knowledge are interconnected in the same way.' This might lead one to expect that Descartes would present his philosophy in geometrical form, and indeed in the Second Set of Objections to Descartes's *Meditations* Mersenne suggested that this would be a worthwhile undertaking (CSM ii, 92). Descartes's reply turns on that distinction between analysis and synthesis which has just been mentioned. The distinction goes back to classical Greek mathematics, and there is a famous account of it in the writings of Pappus (fourth century AD), which Descartes is known to have studied. Pappus states[29] that

> In analysis, we assume as a fact that which we seek [to prove] and we consider what arises out of this assumption; then we consider what *that* follows from, and so on until, proceeding in this way, we come upon something which is already known, or is one of our principles.

In short, in analysis we proceed back from what has to be proved to first principles (Descartes calls them 'primary notions': *Reply to Second Objections,*

CSM ii, III). Synthesis, on the other hand, is the reverse of this; as Descartes explains (ibid.) one starts with first principles and demonstrates conclusions from them, employing 'a long series of definitions, postulates, axioms, theorems and problems'. Descartes stated a preference for the analytic method, which was, he said, the method that he had used throughout the *Meditations* (CSM ii, 111). However, in response to Mersenne's suggestion he concluded his reply to the *Second Objections* by arguing 'in synthetic style' for some of the propositions argued for in the *Meditations*. But he insisted (CSM ii, 113) that these proofs were not a substitute for the *Meditations,* and said indeed that the analytic reasoning used in that work was superior.

Spinoza, on the other hand, clearly thought that the best way in which to discuss ethics was by means of the synthetic method. One naturally asks what Spinoza hoped to achieve by the use of this method; that is, what he thought he would gain by presenting his philosophy in the form of theorems, derived from definitions and axioms. The answer may seem to be obvious. Spinoza does not explain how he viewed axioms, but there can be no doubt that he would have agreed with the remarks made by his friend Lodewijk Meyer, in the Preface that Meyer wrote to Spinoza's geometrical version of Descartes's *Principles*. In that Preface, Meyer said (G i, 127) that axioms are 'statements so clear and evident that all who simply understand correctly the words that they contain can in no way refuse their assent to them'. Axioms, in short, are self-evident truths, and Spinoza's aim in the *Ethics* is to derive from these, by deductive means, other propositions whose truth is not self-evident. In this way, he will demonstrate the truth of these propositions.[30]

I said just now that this explanation of Spinoza's use of the geometrical method may seem to be obvious. By this I did not mean that the explanation is wrong; I meant only that there is more to be said. Spinoza has a deeper reason for using the geometrical method, as can be seen from the Preface to Part III of the *Ethics*. Here (G ii, 138) Spinoza discusses his application of a geometrical method to human emotions, and contrasts his approach with that of those who 'prefer rather to abuse and ridicule the emotions and actions of men than to understand them'. Such people, he says, will find it extraordinary that he should want to demonstrate with sure reasoning *(certa ratione)* what they merely condemn rhetorically. But, he continues, human emotions follow from the same necessity and power of nature as other things do, and 'acknowledge certain causes through which they are understood, and have certain properties equally worthy of our knowledge as the properties of any other thing, the contemplation alone of which delights us'. This shows that Spinoza thinks that the geometrical method, although it is certainly a means of establishing truths, is more than that. The person who has grasped the reasoning of the *Ethics,* Spinoza claims, will not just know the truth of a number of propositions, but will *understand* why things are as they are. In short, Spinoza is concerned not just to establish truths but to offer explanations.

That this is Spinoza's view of the geometrical method is confirmed by his use of definitions in the *Ethics*.[31] These definitions are usually stated in the form, 'By…I understand…'; and this raises a problem. Spinoza is in effect saying that he proposes to take a term in such and such a way. Such definitions seem to be of the kind that is commonly called 'stipulative', and it is now usually held that (in the words of a modern textbook of logic) 'a stipulative definition is neither true nor false, but should be regarded as a proposal or resolution to use the definiendum to mean what is meant by the definiens, or as a request or command'.[32] Given that that is so, one may ask why one should accept Spinoza's definitions. Why should we use words in the way that he tacitly requests or commands? Why play one particular language game, rather than another?

To answer this question, it will be useful to consider first what Spinoza is excluding when he states his definitions. The terms that he defines are not words that he has invented; he uses terms that others had used, but he often uses them in a new way. So when he says something of the form 'By…I understand…', he is often excluding what some, and perhaps most, philosophers understood by the term defined. His reason for rejecting such definitions, and for defining terms in the way that he does, is made clear in the course of the definitions of the emotions in Part III of the *Ethics*. Here, Spinoza says that 'It is my purpose to explain, not the meanings of words, but the nature of things.'[33] What he is doing when he defines terms has a parallel in the practice of scientists, who sometimes coin completely new terms and sometimes use old terms in a new way—as when a scientist uses the word Velocity' to mean, not just speed, but speed in a certain direction.[34]

Definitions form an integral part of the geometrical method, so what has just been said confirms the view suggested earlier: namely, that Spinoza uses the geometrical method not just to establish truths, but also to *explain,* to achieve *understanding*. This point will meet us again when we consider the distinctive way in which Spinoza uses the terms 'true' and 'false' (see pp. 296–7). At present, however, there is a further question to be raised. The idea that deductive reasoning can be used to provide explanations was by no means new with Spinoza, or indeed in the seventeenth century in general; on the contrary, it can be traced back as far as Aristotle. In the *Posterior Analytics* (I 13, 78 a38–b3) Aristotle explains the fact that all planets shine steadily by presenting it as the conclusion of a deductive, or more precisely a syllogistic, argument.[35] This raises the question why Spinoza should have chosen to present his explanatory system in geometrical, rather than in syllogistic, form. The answer must surely be that he was influenced by the new science of his time. For this science, mathematics was the key to the understanding of nature. So, for example, Descartes had declared in his *Principles of Philosophy* (Pt II, 64; CSM i, 247) that the only principles that he required in physics were those of geometry and pure mathematics; to this one may add Spinoza's observation, made in the Appendix to Part I of the *Ethics* (G i, 79), that truth might have lain hidden from the human race through all eternity had it not been for mathematics. As to the possibility of an explanatory system

cast in syllogistic form, Spinoza would probably have agreed with Descartes that the syllogism is useful only as a means of instruction, which enables others to understand what their teachers already know, and that its proper place is in rhetoric, not in philosophy.[36]

From a discussion of Spinoza's reasons for putting his philosophy in the form of a deductive system we turn now to an account of the system itself. I said earlier (p. 278) that Spinoza takes the view that, if one is to discover what is the genuine good for human beings, one must get to know their true nature; and further, that this implies seeing human beings within the context of nature as a whole. In the *Ethics,* Spinoza (following the synthetic method) starts from certain definitions and axioms which enable him to derive conclusions about the universe in general, and from these, with the help of further definitions and axioms, he derives a number of conclusions about the nature of human beings in particular, and about what is good for us.

The first part of the *Ethics* is concerned with what Spinoza calls 'God'. His first definition, however, is not of God, but of a 'cause of itself—though it later emerges that to speak of God and of a cause of itself is to speak of one and the same being. Spinoza explains that by 'cause of itself' he understands 'that whose essence involves existence; or, that whose nature cannot be conceived except as existing'. The term 'essence' plays an important part in the *Ethics,* though it does not receive a formal definition until Part II. In the first definition of Part I, Spinoza is implying that the predicate P (here, existence) belongs to the essence of S if one *has to think* of the nature of S as involving the predicate P.[37] Some observations made by Descartes in his *Notae in Programma quoddam* ('Comments on a certain Broadsheet', Amsterdam 1648; CSM i, 297) are helpful here. The nature of contingent things, Descartes says, leaves open the possibility that they may be in either one state or another state, for example he himself may at present be either writing or not writing.

> But when it is a question of the essence of something, it would be quite foolish and self-contradictory to say that the nature of things leaves open the possibility that the essence of something may have a different character from the one it actually has.

So it belongs to the essence of a mountain that it exists with a valley; or, as Spinoza would say, the nature of a mountain cannot be conceived except as existing with a valley.

Let us now return to Spinoza's definition of a cause of itself as that whose essence involves existence. This is reminiscent of what is commonly called the 'ontological argument' for the existence of God; and indeed, the definition of a cause of itself plays an important part (by way of Proposition 7 of Part I) in the first of Spinoza's arguments for the existence of God in Proposition 11 of Part I. It is worth noting, however, that the term 'ontological argument' is used of two different arguments, which have in common the fact that they move from a

definition of something to an assertion of the existence of what is defined. In the version which is familiar from Descartes's fifth *Meditation* (CSM ii, 44–9) the argument is based on the definition of God as a most perfect being, together with the thesis that existence is a perfection. This is basically the same as the argument put forward by Anselm, in the eleventh century AD, in his *Proslogion,* although there the argument proceeds from the definition of God as 'that than which nothing greater can be thought'.[38] Spinoza, on the other hand, is arguing from the concept of a *necessary* being. His argument is that a necessary being is a being which has to be thought of as existing; and that which has to be thought of as existing, necessarily exists. It may be added that another seventeenth-century rationalist, Leibniz, put forward both versions of the argument, though he declared his preference for the second version.[39]

The concept of a cause of itself is interesting, not only for the relation that it has to Spinoza's version of the ontological argument, but also because it illustrates his distinctive views about causality. Someone who (like Hume or Kant[40]) takes the view that a cause must precede its effect in time will find the concept of a cause of itself self-contradictory; for how can something first exist, and then cause its own existence? Spinoza, however, does not view causality in this way; his view is a version of what it is usual to call the rationalist theory of causality. According to this theory, to state the cause of X is to give a reason for X's existence or nature. So much might be generally agreed, if this is taken to mean that to give a reason is to answer the question 'Why?', and that in stating the cause of something one is answering such a question. What is distinctive about the rationalist theory of causality is the view that, in giving such a reason, one is doing what geometers do when they state the reason for the truth of some geometrical proposition—as when, for example, it is said that the reason why the base angles of a certain triangle are equal is the fact that the triangle in question is isosceles. In such a case, the relation between the triangle's being isosceles, on the one hand, and having base angles which are equal, on the other, is a *timeless* relation; and Spinoza takes the view that such a relation holds in every case of a cause-effect relation. This is what he means when, in the second proof of the existence of God in Proposition 11 of Part I of the *Ethics,* he uses the phrase 'cause, or reason' (*causa seu ratio;* G ii, 52–3), where 'reason' is used in the non-temporal sense that has just been described.[41] This being so, to speak of a cause of itself is not to speak of that which exists before it produces itself; rather, it is to speak of that whose existence is self-explanatory.

Why Spinoza should have taken this view of the nature of causality can only be conjectured, but it does not seem fanciful to relate his view to the science of his time. I have said already that this science was mathematical in character (p. 281); now, many causal propositions belong to the sciences, and it would have been tempting to see the causal propositions asserted by physicists as not different in kind from the propositions asserted by geometers, and from this to argue that absolutely all causal propositions are to be viewed in this way. It may be added that the influence of the rationalist theory of causality was still felt in

the eighteenth century; certainly, Hume thought it worthwhile to refute the view that inferences from cause to effect are 'demonstrative', that is, that when one thing causes another, 'the contrary is impossible, and implies a contradiction'.[42] But there is no reason to believe that he was attacking Spinoza in particular.[43]

The 'God' whose existence is argued for in Proposition 11 of Part I of the *Ethics* is defined by Spinoza in a distinctive way. By 'God', he says (*Ethics,* Pt I, Definition 6), he understands a being which is absolutely infinite, that is, 'a substance consisting of infinite attributes, each of which expresses eternal and infinite essence'. Superficially, there is nothing here to which any of Spinoza's contemporaries might object (though the absence of any reference to God as creator might have caused some surprise). But from what is said about substance and its attributes in Part I of the *Ethics,* it becomes clear that the God defined by Spinoza is very different from the God of theism. This section will be concerned with Spinoza's views about substance and attribute.

There is no one philosophical problem of substance; rather, there are two main problems.[44] These are: 'What is it that really exists?' and 'What is it that remains the same when some change occurs?' Spinoza's theory of substance is concerned only with the first of these.[45] In the third definition of Part I of the *Ethics,* Spinoza says of substance that it is 'that which is in itself. A seventeenth-century reader would have seen this as involving concepts which go back to Aristotle. In Chapter 5 of the *Categories* Aristotle says that a substance is that which is 'neither said of a subject nor in a subject' (2 a11–13, trans. J.L.Ackrill). The first part of the definition is not important here (although it does matter in the case of the philosophy of Leibniz); what matters is the idea that a substance is not 'in' a subject. Aristotle explains (*Categories,* ch. 2, 1 a24–5) that, in this context, to say that something is in a subject is to say that it cannot exist apart from the subject. A substance, then, is something which has an independent existence. Spinoza means much the same when he says that a substance is 'in itself', with the difference that he maintains that a substance, though not dependent on anything other than itself, has to be regarded as self-dependent, by which he presumably means that its existence depends solely on its own nature. Spinoza adds (going beyond the account of substance in Aristotle's *Categories*) that a substance is also *conceived through* itself. Once again, the idea of not being dependent on anything external is present. Spinoza is asserting that, in thinking of a substance, we do not have to think of anything else; that is, a substance is *logically* independent of anything else. The notion of something which is conceived through itself will re-emerge in the context of Spinoza's theory of attributes.

So far, Spinoza's account of substance may seem to travel along a well-worn path.[46] However, Spinoza forsakes this for a much less-used path when he considers the question, 'What satisfies the criteria of a substance?' For the Aristotle of the *Categories* there are many substances: this man, this horse and so on (2 a11–13). For Spinoza, on the other hand, there is and can be only one substance, and that substance is God. The argument for this conclusion that is contained in Proposition 14 of Part I of the *Ethics* is obscurely expressed, but it

is clear that it rests on the concept of God as an *infinite* substance.[47] The thrust of the argument is that God's infinity as it were crowds out all other possible substances, God remaining as the one and only substance. Descartes, too, understood by 'substance' that which depends on no other thing for its existence, and said that there is a sense in which the only substance is God (*Principles of Philosophy,* Pt I, 51; CSM i, 210). However, he said that there is another sense of 'substance', in which we may call by the name of 'substance' that which depends for its existence only on God; in this sense, we may speak of corporeal substance and of created thinking substance.[48] Spinoza will not allow this second sense of the word 'substance'; indeed he would argue (as will be seen shortly) that, by using it, Descartes had rendered insoluble the problem of the relations between mind and matter. In place of corporeal and thinking substances, Spinoza refers to 'extension' and 'thought', and says that these are not substances but are attributes of the one substance.

Spinoza defines an attribute in the fourth definition of Part I of the *Ethics* as 'that which the intellect perceives of substance as constituting its essence'; he also speaks of the attributes as 'expressing' the essence of substance.[49] In mentioning the intellect in his formal definition of an attribute, Spinoza has seemed to some scholars to make the relation between substance and attribute a subjective one; the intel-lect has been thought to impose attributes on a substance which is in reality without them. This, however, is surely wrong. From the mass of evidence that has been brought against the subjectivist interpretation,[50] it will be sufficient to cite a remark contained in the proof of Proposition 44 of Part II. Here, Spinoza says that 'It is of the nature of reason to perceive things truly… namely,…as they are in themselves.' If, as is reasonable, one equates the 'reason' that is mentioned here with the 'intellect' mentioned in the definition of an attribute, then Spinoza is saying that, if the intellect perceives X as constituting the essence of substance, then X does indeed constitute the essence of substance.

In the first part of the *Ethics,* Spinoza's discussion of the attributes is carried on in quite general terms; nothing is said expressly that enables the reader to say that this or that is an example of an attribute.[51] Only in the first two propositions of Part II are we told that, of the infinite attributes that God has, two are extension and thought.[52] Two points must be noted here. First, it must be realized that the attributes of extension are not abstractions, even though Spinoza uses abstract nouns to refer to them. Spinoza makes it clear that to speak, for example, of the attribute of extension is to speak of God as extended, God as an 'extended thing' (*Ethics,* Proposition 2 of Part II). Second, each attribute (by Definition 6 of Part I) is infinite; so to talk about extension is to talk about an extended reality that is infinite.

In saying that extension and thought express the essence of substance, Spinoza obviously means that each is of fundamental importance to our understanding of reality. What is perhaps not so obvious is that his views about attributes are not entirely at variance with those of Descartes. When Descartes spoke of corporeal

and thinking substance, he implied that each has many attributes (*Principles of Philosophy,* Pt I, 53; CSM i, 210), understanding by an attribute (ibid., Pt I, 56) that which always remains unmodified, such as existence and duration in the case of created things. Each substance, however, has one 'principal attribute', and these are extension in the case of corporeal substance and thought in the case of thinking substance. Spinoza and Descartes, then, agree in holding that one must explain physical nature in terms of extension and mental states and events in terms of thought. They also agree to some extent (though here there are also important differences) that we must explain the former in terms of extension alone and the latter in terms of thought alone. Descartes expresses this by saying (*Meditation* VI, CSM ii, 54) that corporeal and thinking substance are 'really distinct'.[53] Spinoza would say that Descartes was right in holding that we cannot mix mental terms with physical terms when we try to explain either mind or matter—still less can we reduce mental terms to physical terms (as in the case of materialism) or physical terms to mental terms. But, he would say, the metaphysics in terms of which Descartes made this point was seriously at fault. Contrary to Descartes, there is only one substance, and what Descartes says in terms of two substances must be translated into terms of the attributes of thought and extension, each of which is 'conceived through itself'.[54]

Spinoza would also argue that by regarding thought and extension in this way —as self-enclosed attributes, which are attributes of *one* substance—he can solve a problem which had faced Descartes: that of the relation between mind and body. Descartes wanted to maintain two theses: first, that corporeal and mental substance are really distinct, but second, that mind and body act on each other, and indeed that the human being is a unity of mind and body. The problem for Descartes was to explain how these propositions can both be true, and Spinoza thought (as many others have thought) that he failed to do so. To grasp Spinoza's solution, however, it is necessary to go further into his system. This is because the problem is one which concerns particular minds and particular bodies, and this means that one has to see how Spinoza accommodates these within his system. That is, it is necessary to consider his theory of 'modes'.

Spinoza argues, not only that the infinite substance must be unique, but that it must also be indivisible, and that the same can be said of any of its attributes.[55] This raises the question of how the indivisible substance, or its indivisible attributes, is to be related to the particular things that we meet in our experience. That is, it raises the question: what is the place of the concept of a particular thing in Spinoza's system? The answer is that it enters by way of the concept of a 'mode'. Particular things, Spinoza says, are simply 'modes by which attributes of God are expressed in a certain and determinate manner'.[56] Spinoza has already defined a mode in the fifth of the definitions of Part I of the *Ethics,* saying that it is 'that which is in something else, through which it is also conceived'. This definition can be illuminated by relating it to what Descartes has to say about real and modal distinctions. For Descartes, a real distinction holds between two or more substances, and is recognized by the fact that one can be clearly and

distinctly understood without the other (*Principles of Philosophy,* Pt I, 60; CSM i, 213). A mode, on the other hand, cannot be understood apart from the substance of which it is a mode. 'Thus there is a modal distinction between shape or motion and the corporeal substance in which they inhere; and similarly, there is a modal distinction between affirmation or recollection and the mind' (ibid., Pt I, 61; CSM i, 213). Although Spinoza rejects the idea that there can be a real distinction between substances, he accepts the distinction between a mode and that of which it is a mode, the only difference from Descartes being that Spinoza's modes are modes of the one substance, or of its attributes. He is saying in effect that when we talk about particular things, then (even though there is in a sense only one being, God) we are not indulging in mere fantasy. What would be a mistake, and a serious one, would be to regard as independent substances what are in fact modes of the one substance.

What makes Spinoza's concept of a mode more than just a terminological exercise is the use to which he puts it. It will be convenient to begin by considering his views about the modes of the attribute of extension, where the line of thought is easier to follow. In the first definition of Part II of the *Ethics,* Spinoza explains that by a 'body' he understands a mode of the attribute of extension. (This, incidentally, is a good example of his use of definitions. By calling a body a 'mode', he claims, we understand what a body really is.) A body, then, is distinct from another body in that they are different modes of one and the same attribute. To explain the precise way in which they differ, Spinoza inserts in the *Ethics,* between the Scholium to Proposition 13 of Part II and the next proposition (G ii, 97–102), a sketch of a theory of physics. He takes it as axiomatic that all bodies either move or are at rest, and that each body moves now more slowly and now more quickly. What differentiate bodies (Lemma 1) are differences in respect of motion and rest, speed and slowness; and these are *modal* differences. Spinoza singles out motion and rest for special mention, saying that they follow from the absolute nature of the attribute of extension, and exist for ever and infinitely.[57] This means in effect that motion and rest (which scholars call an 'immediate infinite mode' of extension) are universally present in matter, and are of fundamental importance for the physicist.

Spinoza goes on to say that those bodies which are differentiated *only* by motion or rest, speed or slowness, may be called 'most simple bodies' (Axiom 2 after Lemma 3). These corpuscles are the basic building-blocks of Spinoza's system of physics; they correspond roughly to atoms,[58] with the difference that Spinoza's 'most simple bodies' are modes, not independent substances. The most simple bodies combine to form groups (Definition after Lemma 3), and each such group is called by Spinoza *one* body, or an 'individual'. An individual has a certain structure, and as long as that structure is preserved, we say that the individual is the same. (This, incidentally, has a bearing on one of the two problems of substance mentioned on p. 284—namely, the problem of what it is that remains the same when change occurs). Individuals are of varying complexity, culminating in an individual of infinite complexity—that is, the

whole of nature, 'whose parts, that is, all bodies, vary in infinite ways without any change of the individual as a whole' (Scholium to Lemma 7). In *Epistolae* 64 Spinoza calls this individual the 'aspect of the whole universe' *(facies totius universi)*. Scholars refer to it as a 'mediate infinite mode'—mediate, because it depends on motion and rest. Spinoza seems here to be thinking of the whole physical universe as manifesting some general law—perhaps that of the overall preservation of the same ratio of motion to rest.[59]

All this throws light on the way in which Spinoza saw the relations between science and philosophy. I have mentioned (p. 277) Spinoza's deep interest in the science of his day; but this does not mean that he accepted without question the propositions of contemporary science, and tried to generalize from them.[60] I have indeed suggested (p. 281) that his preference for a geometrical order in philosophy was influenced by the mathematical physics of his time. But this merely explains his preference for one sort of explanatory deductive system—one cast in the form of a work of geometry—over another kind, cast in the form of syllogisms. It does not imply that he thought it impossible to provide a rational justification of the truths of science. In his view, such justification would on the whole proceed in the way that metaphysical truths are justified—namely, by deduction from self-evident truths. In sum, science for Spinoza is not something on whose conclusions philosophers merely reflect; rather, philosophy is needed in order to justify the propositions of science.

I said just now that Spinoza thought that scientific propositions could 'on the whole' be justified by deducing them from self-evident truths. The type of corporeal 'individual' which is of most interest to him, as a moral philosopher, is of course the human body. Now, Spinoza's account of the human body is based on a number of 'postulates' (indeed, the assertion that the human body is a highly complex individual is itself a postulate: see Postulate 1 after Lemma 7). By a 'postulate' Spinoza means a proposition which is assumed to be true, but which does not have the self-evidence that belongs to axioms. The question is why a postulate should be assumed to be true. Spinoza's answer is contained in an assertion made later (Scholium to Proposition 17 of Part II) that his postulates contain hardly anything that is not borne out by experience. This raises the question of the place that Spinoza gives to experience in his system; but before this can be discussed (pp. 297–9 below) it is necessary to consider his account of the modes of thought.

When Spinoza says that a body is a mode of the attribute of extension he can be regarded as adapting, to his own theory of substance, Descartes's views about corporeal substance. For there are indications that Descartes held that there is just one corporeal substance, whose parts are distinguished only modally.[61] But where the human mind is concerned, the situation is very different. Descartes believes that every human mind is a substance—more specifically, a thinking substance—and such a plurality of substances is something that Spinoza cannot allow. For him, the human mind has to be viewed in terms of the concept of mode. To talk of the human mind is to talk of something complex (Proposition

15 of Part II of the *Ethics*), just as to talk of the human body is to talk of something complex. In the case of the mind, the basic units are again modes, but modes of the attribute of thought. Spinoza calls these modes 'ideas'.[62]

In what he says about 'ideas', Spinoza is opposing Descartes. Descartes had introduced his sense of the term in the third of the *Meditations,* in which he said (CSM ii, 25) that ideas are those thoughts which are 'as it were the images of things…for example when I think of a man, or a chimera, or the sky, or an angel, or God'. The force of the phrase 'as it were' is that one cannot have a genuine mental picture of an angel or of God; however, it does seem that for Descartes an idea is at any rate picture-like, and that it is an entity which the mind perceives, as distinct from the activity of perceiving. So, for example, in his reply to the third *Objections,* Descartes explains (CSM ii, 127) that the word 'idea' means 'whatever is immediately perceived by the mind'. Spinoza, on the other hand, insists that an idea is an activity. In his definition of an idea in Definition 3 of Part II of the *Ethics,* he says that an idea is a 'conception' *(conceptus)* of the mind, and adds that he prefers the term 'conception' to 'perception' because the former term 'seems to express an action of the mind'. It emerges later[63] that, when Spinoza speaks of an action of the mind here, he means that to have an idea of X is to think of X, in the sense of making a judgement about it, that is, affirming or denying something of it. It may be added that in using the term 'idea' in this way Spinoza is not being innovative, but is taking up a suggestion which Descartes had put aside. In the Preface to the *Meditations* (CSM ii, 7) Descartes had said that the term 'idea' could be taken to mean an operation of the intellect, but went on to say that this was not how he proposed to use the word.

It emerges from what is said later in the *Ethics* that Spinoza has two chief reasons for preferring his definition of the word 'idea'. Briefly, these are as follows: (i) Descartes's sense of the term forms part of a mistaken theory of judgement. Descartes believed that two faculties are involved, namely the intellect and the will (*Meditation* IV; CSM ii, 39). Spinoza, on the other hand, argues[64] that the two are the same. To think of something (i.e. to have an idea of something) is to make a judgement about it; for example, to think of a winged horse is to affirm wings of a horse, (ii) Descartes is unable to explain our knowledge of the truth; for how can we know that a true idea agrees with that of which it is the idea?[65]

All this is intelligible as a criticism of Descartes, but Spinoza's own views raise a problem: namely, that of the way in which an idea, as a mode of thought, is related to the attribute of thought. The problem springs from the infinity of the attribute of thought. In what sense, one asks, can an idea which a particular person has be called a mode of this infinite attribute? One might perhaps suggest that (by analogy with the attribute of extension and its modes) Spinoza views the attribute of thought as some kind of infinite mind-stuff; but it is not at all clear what might be meant by such a stuff. It may be that some light is thrown on the problem by Spinoza's theory of truth, which is discussed on pp. 296–7. To

anticipate, Spinoza holds that a true idea fits, and a false idea does not fit, into an explanatory system, and it may be that the relation between an idea and its attribute has to be conceived along such lines. However, perhaps enough has been said here about Spinoza's theory of ideas to enable one to grasp his answer to the problem posed on p. 287—the problem of mind-matter relations.

It will be recalled that the problem arose for Descartes because he wanted to maintain two propositions. On the one hand, he wanted to say that mind and body are 'really distinct'; on the other hand, he felt compelled to grant that, despite this, mind and body act on one another, and indeed that the human being is a unity of mind and matter. Spinoza's answer to the problem is given in terms of his theory of attributes and modes. In effect, he holds that Descartes was right in saying (Reply to *First Objections,* CSM ii, 86) that one has a complete understanding of what a body is without ascribing to it anything that belongs to the nature of a mind, and conversely in the case of a mind. Descartes's error, Spinoza would say, lay in his supposition that there must exist substances of basically different kinds, namely mental and corporeal substances. Really, there exists just one substance with different attributes, each of which (and here Spinoza expresses a qualified agreement with Descartes) must be 'conceived through itself'.

It is because the attributes are conceived through themselves that we must explain physical states and events in physical terms only, and mental states and events in mental terms only. Yet the human mind and body are not wholly unrelated; for any state of or event in the one there is a corresponding state of or event in the other. This is because thought and extension are different attributes of one and the same substance. As Spinoza puts it in an important note to Proposition 7 of Part II of the *Ethics,*

> A mode of extension and the idea of that mode are one and the same thing, but expressed in two ways…. For example, a circle existing in nature and the idea of an existing circle…is one and the same thing, though explained through different attributes.

In Proposition 2 of Part III of the *Ethics,* Spinoza observes that it follows from what he has said about the nature of the attributes that 'The body cannot determine the mind to think, nor the mind the body to motion, nor to rest.' As he recognizes, this may seem paradoxical. Suppose, for example,[66] that some craftsman is building a temple; surely the craftsman's mind must guide the movements of his hands? Spinoza replies that this cannot be so, and that people only suppose that it must be so because 'they know not what a body can do, or what can be deduced from mere contemplation of its nature'. He goes on to hint that, when people think of the capabilities of the human body, they tend to think in terms of the machines they can construct. But 'the construction of the human body *(corporis humani fabrica*[67]*)*…far surpasses any piece of work made by

human art'. So (Spinoza implies) there is no reason to think that the movements of the craftsman's hands cannot be explained in purely physical terms.

Spinoza's theory of the relations between mind and body is often, and with some justice, said to be a form of 'psycho-physical parallelism'. By this is meant the view that body does not act on mind, nor mind on body, but that the states of mind and body are such that for each bodily state there is a corresponding mental state and conversely; and similarly for bodily and mental events. However, to describe Spinoza's theory of mind-body relations in this way does not identify it completely. This is because to talk of psycho-physical parallelism is to talk, not of one theory, but of a group of theories. One could say, for example, that Leibniz's theory of pre-established harmony,[68] as applied to the relations between mind and body, is a form of psycho-physical parallelism; but Leibniz's theory of mind-body relations is very different from Spinoza's. To categorize Spinoza's theory more precisely, we have to consider his answer to the question why the parallelism should hold. The answer, as we have seen, is that each attribute is not only 'conceived through itself but is also an attribute of *one and the same substance*. Seen in this way, Spinoza's theory of the relations between mind and body is a classical form of what is often called the 'double-aspect theory'.[69] This theory is clearly defined in Baldwin's *Dictionary of Philosophy and Psychology* (London, 1901) as the theory which states that 'mental and bodily facts are parallel manifestations of a single underlying reality'. The theory

> professes to overcome the onesidedness of materialism and idealism by regarding both series as only different aspects of the same reality, like the convex and the concave views of a curve; or, according to another favourite metaphor, the bodily and the mental facts are really the same facts expressed in different language.

Spinoza never calls an attribute an 'aspect' of substance; however, he often describes the relation between substance and attribute in terms of expression (cf. pp. 285–6), and it has just been noted (p. 292) that he says expressly that a mode of extension and the corresponding mode of thought are 'one and the same thing, but expressed in two ways'.

What Spinoza has to say about the relation between God and his modes is intimately connected with what he has to say about God as a cause. It has already been seen that God is self-caused, *causa sui* (p. 282); but Spinoza also says that God is the efficient cause of all modes. His reason for saying this[70] is that an infinity of modes follows from the necessity of the divine nature. Now, by virtue of Spinoza's thesis that the causal relation is a logical relation (p. 283), this is the same as saying that God is the cause of an infinity of modes.

In calling God an 'efficient cause', Spinoza is using traditional terminology, which goes back to Aristotle. Such a cause, according to Aristotle, is a source of change or coming to rest (*Physics* II, 3, 194 b29–32). So, for example, a man who gave advice is a cause in this sense, and a father is the efficient cause of his

child. In these cases, the cause is outside the effect, and of course Spinoza's substance, God, is not outside the modes. However, this does not prevent Spinoza from calling God the efficient cause of what is in him; God, as he explains in a letter (Ep 60, G iv, 271) is an internal efficient cause, or, as he says in Proposition 18 of Part I of the *Ethics,* God is the 'immanent' cause of things. This means that Spinoza has to reject the idea of a creative deity, as understood by theistic philosophers.[71]

Efficient causality was traditionally distinguished from 'final' causality. A 'final' cause, for Aristotle, is the end or purpose for the sake of which something is done—as, for example, health is the cause of taking a walk (*Physics* II, 3, 194 b32–195 a3). Spinoza insists that, although we can and indeed must think of God as an efficient cause, we cannot ascribe final causality to God. In this respect he is in partial agreement with Descartes. In the *Principles of Philosophy,* Descartes had declared that 'It is not the final but the efficient causes of created things that we must inquire into' (Pt I, 28; CSM i, 202). So far, Spinoza would have agreed; but he would not have agreed with Descartes's reason for the assertion. Descartes does not deny that God has purposes, but is content to say that we cannot know God's purposes (ibid.; cf. op. cit., Pt III, 2; CSM i, 248). For Spinoza, on the other hand, the notion of a purposive God has no sense. Such a concept, he says, would be inconsistent with the perfection of God;[72] for if God were to act on account of an end, he would necessarily be seeking something that he lacks (Appendix to Part I of the *Ethics,* G ii, 80). But, as an absolutely infinite being, God can lack nothing.

Not only does Spinoza think that the concept of final causality cannot be applied to God, but he also thinks that it cannot be applied to finite beings such as ourselves. This thesis is not only of intrinsic interest, but also leads to a deeper understanding of Spinoza's views about God's causality. Spinoza would concede that finite beings, unlike God, can in a sense be said to have purposes; but, he would say, such purposive activity has to be explained in terms of efficient causation. In order to understand Spinoza's position, it is necessary to consider what he says about the ways in which things follow from God as a cause. He says that some modes follow from the absolute nature of God; these are the so-called 'infinite modes' (cf. pp. 288–9). Finite modes, on the other hand, cannot follow from the absolute nature of God (for that would make them infinite); instead, they must be determined by God, in so far as God is conceived as modified by some mode (*Ethics,* Pt I, Proposition 28). The upshot of this is (ibid.) that each particular thing is determined by some other particular thing, and that by another, and so on to infinity. This may seem to make each finite mode the helpless plaything of external forces—something which is merely pushed about. But in an important note to Proposition 45 of Part II, Spinoza indicates that this is not so. This note shows that there is a dual causality in God, or that there are two distinct ways in which a thing's existence and nature follows necessarily from something else. What Spinoza says is that although each particular thing is determined by another to exist in a certain way, yet 'the force

wherewith each of them persists in existing follows from the eternal necessity of the nature of God'.

This force or power[73] is something which is usually referred to as 'conatus' (literally, 'endeavour'). Spinoza is here anticipating the important sixth proposition of Part III of the *Ethics,* which states that 'Each thing, in so far as it is in itself *(quantum in se est)* endeavours to persist in its own being.' The phrase 'is in itself echoes Spinoza's definition of substance in Definition 3 of Part I (cf. p. 284), and serves to connect Proposition 6 of Part III with the Scholium to Proposition 45 of Part II, which was discussed in the last paragraph. For since there is only one substance, Proposition 6 of Part III must be taken to mean that each thing endeavours to persist in its own being in so far as it is God—or (to use the language of the Scholium to Proposition 45 of Part II) in so far as it 'follows from the eternal necessity of the nature of God'. This concept of *conatus* is central to Spinoza's moral philosophy, and a detailed discussion of it belongs to the next chapter. But it is worth noting here that, for Spinoza, *each* particular thing— and not just the very complex things that we call living beings—endeavours, in so far as it is 'in itself, to persist in its own being. So when Spinoza says, in the Corollary to Lemma 3 of Part II of the *Ethics,* that 'a moving body continues in motion until determined to rest by another body', this may be regarded as an example of *conatus* —namely, the kind that is displayed by a 'most simple body'.

What is most striking about Spinoza's views concerning the causality of God is the extreme form of determinism that they display. We have already seen several respects in which Spinoza's God differs from the God of the theist: how God, although an efficient cause, does not create the universe from nothing, and how God cannot act for an end. But there is another major difference. The God of the theist creates *freely:* that is, God chooses to create, and could have chosen differently. God's freedom of choice was something on which Descartes laid great stress; Spinoza, on the other hand, says[74] that God does not act out of free will, but that things could not have been produced by God in any other way or order from that in which they were produced. This means that there is no objective justification for calling things contingent. Just what Spinoza is claiming here can be seen from the way in which he argues for his conclusion. We know that, if B is caused by A, then B follows necessarily from A. Now, everything is, in the last analysis, caused by God, that is, follows necessarily from him; but God (by Proposition 11 of Part I of the *Ethics*) exists necessarily. Therefore everything that exists *cannot but* exist, and in the way that it does; or to put this in another way, strictly speaking no other world order is conceivable. More than this, Spinoza argues that whatever we conceive to be in God's power (i.e. whatever is logically possible) necessarily exists (*Ethics,* Pt I, Proposition 35). From this it follows that, if something does not exist, then it is impossible that it should have existed. In calling this an extreme form of determinism, I meant that Spinoza is not content to say that *given* a certain set of laws, and *given* an initial state of the universe, then absolutely all states of the universe can in principle be

inferred from these. Such a position is consistent with the supposition that there could have been other laws, or that the initial state of the universe could have been different. For Spinoza, on the other hand, both the laws and the initial state are necessary, in the sense that no others are strictly speaking thinkable.

Spinoza's chief concern in the *Ethics* is with the human being, and more specifically with the human mind. It has already been seen that Spinoza, contrary to Descartes, argues that the human mind is not a substance; on the positive side he argues that, just as the human body is something highly complex, so also is the human mind. More precisely, the human mind is an idea which is composed of many ideas (*Ethics,* Pt II, Proposition 15). Spinoza's account of the human mind is much more elaborate than his account of the human body, and falls into two main sections. The first of these, which occupies much of Part II of the *Ethics,* concerns topics which belong to the theory of knowledge—namely, the nature of a true idea, and of the kinds of knowledge. The second section, which begins in the course of Part III, concerns the human mind as something which is appetitive and has emotions. Our primary concern in this chapter is with the topics that belong to the theory of knowledge.

Spinoza speaks both of 'true ideas' and 'adequate ideas'; these are closely related. He says of a true idea that it must 'agree with' its object; an adequate idea is a true idea which is as it were abstracted from its relation to its object and considered only in respect of its internal properties.[75] In speaking of truth as 'agreement', Spinoza might seem to have in mind some version of the correspondence theory of truth. It will be recalled that, for Spinoza, to have an idea involves making a judgement (p. 290); so one might suppose him to mean that my idea of (say) an existent Peter is true when my judgement that Peter exists corresponds to a certain fact, namely, Peter's existence. In fact, however, this is not so; when Spinoza speaks of a true idea he is speaking not so much of truth as of knowledge.

Perhaps the first hint of this is given in Proposition 43 of Part II of the *Ethics,* where Spinoza says that 'He who has a true idea, knows at the same time that he has a true idea.' This may seem to be a glaring error; Plato, one may object, was obviously right when he said (*Meno,* 97a) that to have a true belief that this is the road to Larissa is not the same as *knowing* that this is the road to Larissa. However, the appearance of paradox vanishes when it is realized that Spinoza is using the term 'true' in a special sense. A passage from the early *Tractatus de Intellectus Emendatione* is relevant here. Spinoza says (G ii, 26) that

> If anyone says that Peter, e.g., exists, but does not *know* that Peter exists, his thought is, as far as he is concerned, false— or, if you prefer, is not true —even though Peter really does exist. The assertion 'Peter exists' is true only with respect to a person who knows for certain that Peter exists.[76]

That this was also Spinoza's view in the *Ethics* is indicated by the note to Proposition 43 of Part II, which states that to have a true idea is to 'know

something perfectly or in the best way'. When Spinoza says in the *Ethics,* therefore, that a person who has a true idea knows that he has a true idea, he is not saying something that is inconsistent with what Plato had said about knowledge and true belief; what he is saying is that the person who knows, knows that he knows.

There is more to be said about Spinoza's views concerning knowledge and truth. In the note to Proposition 43 of Part II of the *Ethics* that has just been cited, Spinoza says, not just that to have a true idea is to know, but that it is to know something 'perfectly or in the best way' *(perfecte sive optime)*. Here, he is referring to a point already made in Part II of the *Ethics* (Note 2 to Proposition 40)—namely, that there are various kinds of knowledge.[77] Now, from what he says about these kinds of knowledge it emerges that it is possible to have knowledge of a sort—knowledge which is not perfect—without having a true idea, in that the idea that one has is only inadequate. The suggestion that one can know that p, even though the proposition that p is not true, may seem to be yet another paradox. However, a consideration of what Spinoza has to say about the kinds of knowledge shows that the paradox is only apparent.

In the note just mentioned, Spinoza says that there are three kinds of knowledge, which he calls respectively 'imagination', 'reason' and 'intuitive knowledge'. The first of these is the one that is relevant to the topic now at issue, and will concern us in the rest of this section. 'Imagination' includes particular propositions that are based on sense experience and general propositions which are derived by induction from particular instances.[78] Spinoza says that such knowledge is knowledge from what one may render as 'uncertain' or 'inconstant' *(vaga)* experience. By this he means (ibid.) that the ideas involved are fragmentary and without rational order; he also says that they are 'inadequate and confused' (Proposition 41 of Part II). This means, then, that there is a kind of knowledge—namely, imagination—which involves inadequate or false ideas. Light is thrown on this by Spinoza's remark (*Ethics,* Pt II, Proposition 28) that confused ideas are 'like consequences without premises'. What Spinoza means may be explained as follows. Suppose that I see a certain pen in front of me; suppose, too, that there really is a pen there—i.e. no sense illusion is involved. Now, my seeing this pen is the result of a complex set of causes; but in so far as I merely see the pen, I am unable to trace these causes. That is, I am unable to *give an explanation* of what it is for me to see this pen. So although I know that there is a pen there (more of this later) I have only an inadequate idea of the pen. If I am to have an adequate idea of it, I must make use of knowledge which does not rest on sense experience alone. For example, I must make use of physics, to explain the relation between the pen and my sense organs and brain, and I must also make use of metaphysics, to explain the relation between a corporeal state and the corresponding idea.

Another sort of imagination recognized by Spinoza is knowledge based on induction. His account of this is very brief but appears to proceed along lines that are similar to his account of sense experience. Just as there is knowledge that

rests on sense experience, so there is knowledge that rests on induction; indeed, in the *Tractatus de Intellectus Emendatione* Spinoza says that such knowledge is of great importance in everyday life (G ii, 11). One may infer that Spinoza regards such knowledge as defective in that it does not give us any satisfactory explanation of *why* the inductive generalization holds. It tells us (say) that oil feeds a fire, but does not tell us why it does so.

It is clear from all this why Spinoza should regard sense experience and induction as involving inadequate ideas; what is not so clear is why he regards them as providing us with *knowledge*. Some indication of an answer is provided by the note to Proposition 17 of Part II of the *Ethics,* already quoted on pp. 291–2. In this, Spinoza defends his postulates on the grounds that they contain scarcely anything that is not borne out by experience. This itself may seem to stand in need of justification, in view of the attacks on the reliability of sense experience contained in the first and sixth of Descartes's *Meditations,* and in fact Spinoza attempts to provide this. What he says is that we may not doubt of experience 'after having shown that the human body as we sense it exists'. Spinoza is in effect saying that sense experience may not be doubted once it has been backed up by sound science and sound metaphysics, that is, once we realize that sense experience is the expression in the attribute of thought of that which, in the attribute of extension, consists of causal processes involving the percipient's body and the external world.[79]

What Spinoza says about imagination, and in particular what he says about sense experience, is important in that it serves to correct the impression that he believes that human beings, in their search for knowledge, could in principle proceed in a purely *a priori* way, in the sense that all they have to do is to deduce consequences from definitions and axioms. The passage just quoted, in which Spinoza supports his postulates by an appeal to sense experience, shows that this is not so, and this is confirmed by an early letter (Ep 10, *c.* March 1663). In this, Spinoza says that we need experience in the case of those things 'which cannot be inferred from the definition of a thing, as e.g. the existence of modes'. What he seems to mean is that (say) the true proposition that there is a pen in front of me is something that cannot be established by deductive means; if its truth is to be known, it can only be by means of sense experience. Spinoza, then, is not advocating arm-chair science; for him, experience has an important part to play in the acquisition of knowledge. At the same time, however, he would insist that, if we are to obtain the explanations that we seek, we must be able to place the data of experience within the context of a deductive system, whose axioms are self-evident.

The second and third kinds of knowledge—'reason' and 'intuitive knowledge'—are said to involve adequate ideas (*Ethics,* Pt II, Proposition 41). This means that (unlike imagination) they do not present us with conclusions that are cut off from their premises. In the case of 'reason', Spinoza says that it is the kind of knowledge that we have when we possess 'common notions and adequate ideas of the properties of things', and derive valid conclusions from

them.[80] The term 'common notions' was in general use in Spinoza's time to refer to axioms;[81] for example, in the deductive arguments that conclude his replies to the *Second Objections,* Descartes lists a number of 'axioms or common notions' (CSM ii, 116; see also *Principles of Philosophy,* Pt I, 49; CSM i, 209). Spinoza also requires for his system certain undefined concepts, which he uses in his definitions, and it may be assumed that these also are included in the 'common notions'. In speaking of the 'properties of things', Spinoza appears to be following traditional usage, according to which a property of X is something that belongs necessarily to X but is not part of its essence.[82] More exactly, he seems to have in mind that which follows from the definition of X (and therefore belongs necessarily to X) but is not a part of that definition. So, for example, in Proposition 31 of Part II of the *Ethics* Spinoza demonstrates that it is a property of any particular thing that it is caused by another, and that by another, and so on *ad infinitum*.

Unlike the imagination, reason grasps the necessary relations between things (*Ethics,* Pt II, Proposition 44). A corollary of this is that reason perceives things 'under a certain species of eternity' *(sub quadam aeternitatis specie)*. What this means can be understood by referring to Definition 8 of Part I of the *Ethics,* in which Spinoza defines 'eternity' as a certain kind of existence—namely, that which follows from the definition of God. The existence in question 'is conceived as an eternal truth…and therefore cannot be explained by duration or time, even though the duration is conceived as wanting beginning and end' (ibid.). Eternity, then, has no relation to time; 'in eternity there is no *when, before* and *after*'.[83] As applied to reason, this means that to know things by the second kind of knowledge is not simply to say 'This happened, then that happened'; the relations that are grasped are timeless, logical relations.

Reason has another important feature. The bases of reason, Spinoza says, 'explain the essence of no particular thing' (Corollary 2 of Proposition 44 of *Ethics,* Pt II). This must mean that common notions and adequate ideas of the properties of things do not enable us to explain (say) the essence of this particular angry man, but only of anger in general. The same point is made later in the *Ethics* when Spinoza says (Pt V, Scholium to Proposition 36) that knowledge of the second kind is 'universal'. On the basis of this one can say that when Spinoza, in the *Ethics,* provides us with general propositions which are deduced from definitions and self-evident truths, he is providing us with examples of the second kind of knowledge, reason.

The universality of the second kind of knowledge is important in that it is this which distinguishes the second from the third kind of knowledge, which (ibid.) is a 'knowledge of particular things'. With the third kind of knowledge, 'intuitive knowledge', we enter upon one of the most obscure and controversial regions of Spinoza's philosophy. Some interpreters see this kind of knowledge as a kind of mystical vision of the whole; others think that a more prosaic account is called for. Here, I will state a number of features of intuitive knowledge which are not controversial, and which any interpretation must take into account; I will then

suggest an interpretation which relates this kind of knowledge both to Descartes's views about knowledge and to Spinoza's moral philosophy.

Four features can safely be ascribed to intuitive knowledge.

1 Like reason, it is necessarily true;[84] that is, the truths known by such knowledge are necessary truths.
2 Like reason, intuitive knowledge conceives and understands things 'under a species of eternity'.[85]
3 Unlike reason, intuitive knowledge is (as has just been pointed out) knowledge of particular things.[86]
4 Unlike reason, again, intuitive knowledge is, as its name suggests, 'intuitive'.

It is this last feature of intuitive knowledge which causes most difficulty. The difficulty arises out of a passage in the second Scholium to Proposition 40 of Part II of the *Ethics,* in which Spinoza illustrates all three kinds of knowledge by a single mathematical example.[87] He takes the problem of finding a fourth proportional. One is given three numbers, and one is required to find a fourth number which is to the third as the first is to the second. Spinoza points out that, in this case, there is a well-known rule: multiply the second number by the third and divide the product by the first. The use of this rule, however, raises two questions. First, on what grounds is the rule accepted? And second, is the use of such a rule always requisite if the problem is to be solved? With regard to the first question, Spinoza points out that some people may have found the rule to work for small numbers, and generalize it to cover all numbers. This would be a case of inductive reasoning, and belongs to the first kind of knowledge, imagination. Others may accept the rule because they know the proof given in Euclid VII, 19. This is based on what Spinoza calls a 'common property' of proportionals, and belongs to the second kind of knowledge, reason. But when the numbers involved are small numbers—say, 1, 2 and 3—there is no need to make use of a rule. In such a case, Spinoza says, everyone sees that the fourth proportional is 6; this is because 'we infer the fourth number from the very ratio which, with one intuition, we see the first bears to the second'. Or, as Spinoza says in the *Tractatus de Intellectus Emendatione* (G ii, 12), we see the 'adequate proportionality' of the numbers 'intuitively, without performing any operation'. To see things in this way is to make use of the third kind of knowledge, 'intuitive knowledge'.

The problem is that what Spinoza says about the third kind of knowledge appears to be self-contradictory. On the one hand, he seems to hold the view that intuitive knowledge is immediate, in the sense that no process of inference, no application of a general rule to a particular instance, is involved. Yet when he describes intuitive knowledge in the *Ethics* he speaks of *inferring* a fourth number. However, it may be that one can get some help here from Descartes. Although Spinoza does not refer to Descartes in the context of the third kind of

knowledge, what he says about such knowledge can be illuminated by comparing it with what Descartes says about his famous utterance, *Cogito, ergo sum*. It is well known that Descartes denied that, in saying 'I am thinking, therefore I exist', he was deriving existence from thought by a kind of syllogism. ('Everything that thinks, exists; I am a being that thinks; therefore…etc.') (Reply to *Second Objections,* CSM ii, 100). Rather, he said that he recognized his existence 'as something self-evident by a simple intuition of the mind' (ibid.). This may seem to involve him in a difficulty which is similar to Spinoza's: namely, that Descartes expresses this 'simple intuition' in what appears to be the form of an inference, in that it involves the term 'therefore'. What is of great interest here is the solution that Descartes offered in his conversation of 1648 with the young Dutch scholar Frans Burman.[88] Burman had asked about the nature of *Cogito, ergo sum;* in his reply, Descartes said that the universal proposition 'Everything that thinks, exists' is logically prior to 'I am thinking, therefore I exist', but that I do not need to know the former proposition before I can recognize the truth of the latter. He went on to say, 'We do not separate out these general propositions from the particular instances; rather, it is *in* the particular instances that we think them'. Now, it is not suggested here that Spinoza knew of Descartes's conversation with Burman,[89] or indeed that he would have regarded *Cogito, ergo sum* as an instance of the third kind of knowledge. The point is simply that we can make sense of what he says about intuitive knowledge by supposing him to be thinking along lines similar to those followed by Descartes. That is, when Spinoza says that, in order to discover a fourth proportional, we do not have to appeal to a universal rule but can make use of intuitive knowledge, what he means can be put in Descartes's terms by saying that we think of the general rule in the particular instance.

The question now arises whether the *Ethics* contains any substantive examples of the third kind of knowledge, or whether it, at best, only points the way towards such knowledge. There is of course the case of the discovery of a fourth proportional; but this is merely illustrative, and does not play an essential part in the structure of the work. However, there does seem to be an important use of intuitive knowledge in the *Ethics*. This is to be found in Proposition 36 of Part V, together with its Corollary and Scholium. In the Scholium, Spinoza remarks that, from what he has said elsewhere in the work, 'It is quite clear to us how and in what way our mind follows with regard to essence and existence from the divine nature and continually depends on God', and he continues by saying that this is an example of the third kind of knowledge. The Scholium does more than give an example of the third kind of knowledge; it also shows precisely how this kind of knowledge differs from the second, and why Spinoza ascribes such importance to it. Spinoza says (ibid.) that, in the first part of the *Ethics,* he has already shown[90] that 'all things (and consequently the human mind) depend on God with regard to essence and existence'. This, he says, is an example of the second kind of knowledge; what is more, the proof of this proposition is 'perfectly legitimate and placed beyond the reach of doubt'. We have, then, no

reason to suppose that Spinoza thinks that propositions known by the second kind of knowledge are in any respect less true than those known by the third kind. Rather, the superiority of intuitive knowledge lies in the fact that (ibid.) it is 'more powerful' than reason, affecting the mind in a different way. And it is more powerful precisely because it is not universal knowledge, but is the knowledge of particular things.

Spinoza's explanation of the way in which intuitive knowledge is more powerful involves the difficult propositions (beginning in Proposition 32 of Part V of the *Ethics*) in which he expounds his doctrine of the intellectual love of God. This cannot be discussed here;[91] however, one can perhaps get some idea of what is meant by the greater power of intuitive knowledge by considering a hypothetical case. Consider a man who is convinced by Spinoza's proof (in Proposition 45 of Part IV of the *Ethics*) of the universal proposition that hatred can never be good. Despite his acceptance of the truth of this universal proposition, such a man may still hate some particular individual who has injured him. Now contrast such a man with another who has intuitive knowledge of the proposition in question, that is, who grasps it in the particular instance of a person who has offended him. The latter kind of knowledge may be called more powerful in that (as Spinoza would say) it affects his mind in a different way, taking away his urge to hurt the offender in question. This, it must be stressed, is only a hypothetical case, offered as a means of throwing light on what Spinoza says. But what can be said without hesitation is that Spinoza's theory of knowledge was not intended to be purely a contribution to epistemology, but has to be seen in an ethical context.

ABBREVIATIONS

The following abbreviations are used in Chapters 8 and 9.

Spinoza's works

DPP	*Renati des Cartes Principiorum Philosophiae,* Parts I and II
E	*Ethica, ordine geometrico demonstrata*. In referring to the contents of the *Ethics,* 'P' is used for 'Proposition' and 'S' for 'Scholium'. So, for example, E II P40S2 refers to *Ethics,* Part II, Proposition 40, Scholium 2. 'Ax' is used for 'Axiom', 'C' for 'Corollary', 'D' for 'Definition' and 'L' for 'Lemma'
Ep	*Epistolae*
G	C.Gebhardt (ed.), *Spinoza, Opera* (cf. [8.1]); references are to volume and page
KV	*Korte Verhandeling van God, de Mensch en deszelfs Welstand*
TDIE	*Tractatus de Intellectus Emendatione*

TP	*Tractatus Politicus*
TTP	*Tractatus Theologico-Politicus*

Other works

CSM	J.Cottingham, R.Stoothoff and D.Murdoch (eds.) *The Philosophical Writings of Descartes* (Cambridge, Cambridge University Press, 3 vols, 1985, 1991).

NOTES

1 Nicolaus Steno (the Danish scientist Niels Stensen). The phrase occurs in an open letter published by Stensen in 1675; the original letter had been written four years previously. (See M.Walther (ed.) *Baruch de Spinoza: Briefwechsel* (Hamburg, Meiner, 1977), p. 410.) The text is published as No. 67a of Spinoza's correspondence (G iv, 292–8).

2 Wolf son [8.43], vol. I, p. vii.

3 For a brief survey of the dispute, see H.G.Hubbeling, *Spinoza* (Freiburg/ Münich, Alber, 1978), pp. 81–2.

4 For this and other valuable information about Spinoza's youth, see A.M.Vaz Dias and W.G.van der Tak, *Spinoza, Mercator et Autodidactus* (The Hague, Nijhoff, 1932), pp. 56ff.

5 For the circumstances of this excommunication, and in particular the relation between Spinoza and Dr Juan de Prado, see C.Gebhardt, 'Juan de Prado', *Chronicon Spinozanum* 3 (1923) 269–91; Révah [8.23]; Révah [8.24]; Yirmiyahu Yovel, *Spinoza and other Heretics* (Princeton, N.J., Princeton University Press, 1989), vol. I, *The Marrano of Reason,* pp. 57–83.

6 Thijssen-Schoute [8.27], 210.

7 Révah [8.23], 43. On the *libertins,* see A.Adam, *Les libertins an 17e siècle* (Paris, Buchet/Chastel, 1964: a selection of texts), and Popkin [8.22], 87–109.

8 Jarig Jelles, Preface to Spinoza's *Posthumous Works*. See C.Gebhardt, *Spinoza: Lebensbeschreibungen und Gespräche* (Leipzig, Meiner, 1914), p. 3. On the Mennonite Jelles, cf. Siebrand [8.26], 25, 35–49.

9 Révah [8.23], 31–2, 36.

10 See Ep 6 (G iv, 36); also Joachim [8.45], 5–7, 14–15.

11 A useful summary of scholarly discussions of this work may be found in Curley [8.4], 46–53.

12 KV I, 3.

13 *Cogitata Metaphysica,* II, 12 (G i, 279); cf. Gueroult [8.55], 245n.

14 KV I, 8–9; E I P29S; cf. Gueroult [8.55], 564, and note 71 below.

15 It is hardly necessary to add that Descartes, too, sometimes used scholastic terminology. On Spinoza's use of the works of Heereboord, see H.de Dijn, 'Historical Remarks on Spinoza's Theory of Definition', in J.G.van der Bend (ed.) *Spinoza on Knowing, Being and Freedom* (Assen, Van Gorcum, 1974), pp. 41–50.

16 Ep 13 (G iv, 63).

17 For details, see Parkinson [8.47], 6 n3.
18 *B.d.S. Opera Posthuma* and *De Nagelate Schriften van B.d.S.* Both must be based on manuscript sources, and so the Dutch version can be used as a check on the Latin text. It has been argued by Gebhardt (G ii, 341–3) that the Dutch version of the first two parts of the *Ethics* was based on an early text which Spinoza abandoned in 1665 when he turned aside to work on the *Tractatus Theologico-Politicus,* but this view has been called in question (F.Akkerman, 'L'édition de Gebhardt de l'Ethique et ses sources', *Raison présente* 43 (1977) 43).
19 This includes a recently discovered letter to Meyer of 26 July 1663. For this letter, see S.Hessing (ed.) *Speculum Spinozanum* (London, Routledge, 1977), pp. 426–35.
20 Ep 6, 7, 11, 13, 14, 16, 25–6, 29–33, 36, 38–41, 46.
21 See J.Freudenthal, *Die Lebensgeschichte Spinozas* (Leipzig, Veit, 1899), pp. 160–4. The list is perhaps more readily accessible in Préposiet [8.16], 339–43.
22 The mathematical works include books by Euclid, Diophantus, Descartes and Viète. Works on astronomy include 'The Sphere' *(Sphaera)* by Johannes de Sacrobosco (John of Holywood), a thirteenth-century writer whose account of the heavens was still widely used in the sixteenth and seventeenth centuries, and a book by Christian Longomontanus, a Danish astronomer who had been Tycho Brahe's assistant. The works on physics in Spinoza's library included books by Descartes, Huygens, James Gregory, Robert Boyle and Niels Stensen. Spinoza also owned a number of books on anatomy, including Descartes's *De Homine* and works by Stensen and by the Dutch physician Nicolaes Tulp.
23 See the Preface to the *Opera Posthuma* (Gebhardt, *Spinoza: Lebensbeschreibungen und Gespräche,* p. 7); also Ep 60, January 1675, and Ep 83, 15 July 1676.
24 All translations from Spinoza in this chapter are my own, with the exception of the translation of the *Ethics,* where Boyle [8.9] is used.
25 *A Treatise of Human Nature,* Book III, Pt 1, sec. 1.
26 E III Pref. (G ii, 137).
27 'Man as a Subject for Science', in Ayer, *Metaphysics and Common Sense* (London, Macmillan, 1969), p. 219.
28 See Chapter 5, pp. 183–6. The distinction was known to Spinoza; it is mentioned by Meyer, in his Preface to Spinoza's geometrical version of Descartes's *Principles of Philosophy* (G i, 129).
29 *Collection,* beginning of Book VII. I translate from the Latin version by the Renaissance mathematician Federico Commendino (Venice, 1589), which Descartes used. (cf. E.Gilson, *René Descartes, Discours de la Méthode* (Paris, Vrin, 1947), p. 188.) On the concept of analysis in Pappus, see also H.-J.Engfer, *Philosophie als Analysis* (Stuttgart, Frommann-Holzboog, 1982), pp. 78–89.
30 In the case of Spinoza's geometrical version of the *Principles* of Descartes, where not all the derived propositions are held by Spinoza to be true (cf. p. 276 above), it may be assumed that Spinoza would say that some of the axioms are false.
31 I have discussed this topic at greater length in my paper 'Definition, Essence and Understanding in Spinoza', in J.A.Cover and Mark Kulstad (eds) *Central Themes in Early Modern Philosophy: Essays presented to Jonathan Bennett* (Indianapolis, Ind., Hackett, 1990), pp. 49–67.
32 I.M.Copi, *Introduction to Logic* (New York, Macmillan, 3rd edn, 1968), p. 98.
33 E III, Definitions of the Emotions, No. 20 (G ii, 195); cf. Parkinson, in Cover and Kulstad, op. cit., pp. 52–4.

34 In his *Introduction to Logic,* p. 101, Copi calls such definitions 'theoretical definitions' and points out how, in the course of the history of science, 'one definition is replaced by another as our knowledge and theoretical understanding increase'.
35 The major premise is 'All bodies near the earth are bodies that shine steadily', the minor premise is 'All planets are bodies near the earth', giving the conclusion 'All planets are bodies that shine steadily'.
36 Descartes, *Discourse on Method,* Part II (CSM i, 119); *Regulae,* No. 10 (CSM i, 37).
37 Spinoza's formal definition of the essence of a thing in E II D2 is much more complex. I have discussed it in Cover and Kulstad, op. cit., pp. 58–62.
38 See, for example, John Marenbon, *Early Medieval Philosophy* (London, Routledge, 1983), pp. 98–101.
39 For Leibniz's views about the ontological argument, cf. G.H.R.Parkinson, *Logic and Reality in Leibniz's Metaphysics* (Oxford, Clarendon, 1965; reprinted, New York, Garland, 1985), pp. 77–85.
40 Hume, *Treatise of Human Nature,* Book I, Pt 3, sec. 2; Kant, *Critique of Pure Reason,* B 247–8.
41 The rationalist theory of causality is also implicit in E I P16 and its three corollaries, where Spinoza begins (E I P16) by speaking of certain things as 'necessarily following from' the divine nature, and then goes on to describe the various ways in which God is a cause.
42 *An Abstract of a Treatise of Human Nature:* see Hume, *An Enquiry concerning Human Understanding,* ed. A.G.N.Flew (La Salle, Ill., Open Court, 1988), p. 34; cf. *A Treatise of Human Nature,* Book I, Pt 3, sec. 3.
43 There is indeed no evidence that Hume had read Spinoza at all; his views about Spinoza appear to be derived from a well-known article in Bayle's *Dictionary* (cf. *A Treatise of Human Nature,* Book I, Pt 4, sec. 5). Of this dictionary, Flew says (op. cit., p. 186, n. 121) that it was, in some version or other, 'in every gentleman's library throughout the eighteenth century'.
44 cf. Nicholas Jolley, Chapter 11 of this volume, pp. 385–6.
45 This is not to say that Spinoza ignores the second problem, but his answer to it involves, not his concept of substance, but his concept of an 'individual'. See p. 288.
46 Though Spinoza's assertion that a substance must be conceived through itself could hardly be accepted by Aristotle. For Aristotle (though not for Spinoza) Socrates would be a substance; but Aristotle would say that Socrates is not 'conceived through himself, in that Socrates has to be conceived through various genera and species.
47 The argument appears to rest on E I P8 and E I P11. E I P8 says in effect that, if there is a substance, then it is infinite; E I P11 asserts that there is such a substance —namely, God.
48 The reference to 'created' thinking substance serves to distinguish minds such as ours from the mind of God, the uncreated substance.
49 E I P10S, P11, P16, P19, P29S.
50 For a very thorough survey of the issue, see F.S.Haserot, 'Spinoza's definition of attribute', in Kashap [8.36], 28–42.
51 Though there is a hint of this in E I P14C2.

52 Spinoza regards these as two out of an infinity of attributes, the rest of which are, and indeed must be, unknown to us. Some scholars have argued that he regarded thought and extension as the only attributes, and that in calling them 'infinite' he meant that they are all the attributes that exist. (See A.Wolf, 'Spinoza's Conception of the Attributes of Substance', in Kashap [8.36], 24–7.) But this is hard to reconcile with the textual evidence: see especially E II P7S and Ep 64.
53 *Principles of Philosophy,* I, 60 (CSM i, 213).
54 E I P10.
55 E I P13 and C3; cf. E I P15S.
56 E I P25C.
57 E I P21. This is explained in Ep 64.
58 Incidentally, Spinoza had the greatest respect for the atomists among the classical Greek philosophers (Ep 56).
59 Ep 32 (G iv, 173); cf. DPP II P13.
60 For a contrary view, see Donagan [8.31], 68.
61 See especially the synopsis of *Meditation* II, CSM ii, 110: 'secondly we need…'.
62 E.g. E II P9.
63 See especially E II P49 and S.
64 E II P49C and S. For a discussion of Spinoza's criticism of Descartes's theory of judgement, see J.G.Cottingham, 'The Intellect, the Will and the Passions: Spinoza's Critique of Descartes', *Journal of the History of Philosophy* 26 (1988) 239–57.
65 E II P43S: 'And again how can anyone…'.
66 E III P2S (G ii, 142–3).
67 Perhaps an echo of the title of Vesalius's famous treatise on anatomy, *De Humani Corporis Fabrica* (1543).
68 On which see Chapter 11 (pp. 404–7).
69 cf. G.N.A.Vesey, 'Agent and Spectator', in G.N.A.Vesey (ed.), *The Human Agent,* Royal Institute of Philosophy Lectures, vol. 1 (1966–7) (London, Macmillan, 1968), pp. 139–40. Spinoza's theory could also be regarded as belonging to what D.M.Armstrong calls 'attribute' or 'dual-attribute' theories of the mind-body relationship. See Armstrong, 'Mind-Body Problem: Philosophical Theories', in R.L.Gregory (ed.), *The Oxford Companion to the Mind* (Oxford, Oxford University Press, 1987), p. 491.
70 E I P16 and C1.
71 In explaining the immanent causality of God, Spinoza makes use of a distinction that has since achieved some fame. This is the distinction (E I P29S) between 'natura naturans' and 'natura naturata', which may be rendered as 'active nature' and 'passive nature'. By 'active nature' Spinoza means substance or its attributes, that is, God conceived as the ultimate explanation of everything; by 'passive nature' he means the totality of modes, conceived not as so many isolated entities, but as following from, that is, as the effects of, God. By calling both God and his effects types of 'nature', Spinoza makes the point that God is not outside his effects.
72 In E I P11S, Spinoza hints that by 'perfection' he means 'reality'; this is confirmed by the formal definition of perfection in E II D6. In traditional language, Spinoza's God is the *ens realissimum,* that whose being is the most rich. (cf. E I P9*:* the more reality a thing has, the more attributes belong to it.)
73 cf., for example, E III P7.

74 E I P32C1, E I P33 and 33S1.
75 E I A6, E II D4.
76 cf. J.J.McIntosh, 'Spinoza's Epistemological Views', in G.N.A.Vesey (ed.) *Reason and Reality,* Royal Institute of Philosophy Lectures, vol. 5 (1970–1) (London, Macmillan, 1972), p. 38; also G.H.R.Parkinson, '"Truth is its Own Standard". Aspects of Spinoza's Theory of Truth', in Shahan and Biro [8.40], 42–5.
77 In the *Tractatus de Intellectus Emendatione* (G ii, 10–12), Spinoza recognizes four kinds of knowledge, the first two of which correspond to the first of the three kinds recognized in the *Ethics.* The *Short Treatise* recognizes three kinds only, but the account that it offers of these is sketchy.
78 Spinoza also counts as an example of the first kind of knowledge what he calls 'knowledge from signs' (E II P40S2; cf. E II P18S). This raises interesting questions concerning Spinoza's views about language, which I have discussed in my 'Language and Knowledge in Spinoza', reprinted in Grene [8.33], 73–100.
79 It is not clear how Spinoza would have attempted to justify his view that induction is a kind of knowledge.
80 E II P38–9, P40 and S2; cf. E V P36S.
81 This is in fact a literal translation of the Greek term 'koinai ennoai', used by Euclid to refer to the axioms of his system.
82 cf. Aristotle, *Topics,* I 5, 102 a18–19. On 'essence' in Spinoza, cf. p. 282.
83 E I P33S2.
84 E II P41.
85 E V P31 and S.
86 E V P36S.
87 See also TDIE, G ii, 12, and KV II.1, G i, 54–5.
88 For this conversation, see *Descartes' Conversation with Burman,* ed. and trans. J.G.Cottingham (Oxford, Clarendon, 1976), esp. p. 4 (also CSM iii, 333).
89 Burman's record of the conversation remained in manuscript until 1896. In principle, Spinoza could have had access to the manuscript, but there is no evidence that he had any contact with Burman, or with the Cartesian philosopher Clauberg, who also contributed to the manuscript.
90 The reference is probably to E I P15, mentioned in E V P36S. It could perhaps be to E I P25, but this itself involves a reference to E I P15.
91 This doctrine, and the related doctrine of the eternity of the human mind, has been severely criticized. See, for example, Bennett [8.28], 357–63, 369–75; Delahunty [8.30], 279–305; Martha Kneale, 'Eternity and Sempiternity', in Grene [8.33], 227–40. A more sympathetic account is given by Joachim [8.35], 230–3, 298–309.

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CHAPTER 9
The moral and political philosophy of Spinoza

Hans W.Blom

Spinoza as a moral and political philosopher was the proponent of a radical and extremely consistent version of seventeenth-century Dutch naturalism. As a consequence of the burgeoning bourgeois self-confidence during the heyday of their Golden Age, Dutch philosophers, attracted by Ciceronian republican moral ideas prepared the way for a philosophy of man and society in which natural processes and mechanisms had an important role to perform. Although they understood themselves as partisans of widely divergent philosophers like Aristotle or Descartes, they shared the conviction that man's moral predicament should be analysed from a naturalistic point of view, by advocating an almost autonomous position for philosophy separate from religion. They were sure that sufficient attention paid to the natural capabilities of mankind would show the way to overcome human weakness. This philosophical programme, propagated by otherwise conventional Calvinists, was constructed on the basis of a theological notion of means-end relations, but its proponents were unaware that in the end it would turn out to secularize human teleology completely. The most outstanding outcome was to be Adam Smith's theory of the invisible hand, in which individual and societal teleology are interrelated by means of the laws of human nature. In this perspective, Spinoza's philosophy of man and society presents itself as an early and thorough attempt to realize the seventeenth-century Dutch naturalistic programme of secularizing the human condition. We shall follow Spinoza in this attempt and develop his moral and political philosophy against its Dutch background, eventually indicating why the response he met with was so critical and hostile.

So after the introduction there will follow an overview of political philosophy in the Dutch Republic, next the presentation of Spinoza's reaction to the key issues involved therein, especially as far as his moral philosophy is concerned, and then his political philosophy proper. After the conclusion there follows a select bibliography.

INTRODUCTION

Political philosophy may well be seen as one of the most important topics in Spinoza's philosophical system, as far as modern Spinoza research is concerned. This is also evident from Spinoza's own principles as a philosopher. I remind the reader of some of these central convictions. First of all, he proferred the view—in his writings, the *Treatise on the Emendation of the Intellect* and the *Short Treatise on God, Man, and His Well-Being*—that the realization of philosophy's goal is a social activity (TDIE 14; KV XXVI, 10) (for the abbreviated form of titles etc. see the list of abbreviations at the end of Chapter 8). Not only do people need each other in their quest for truth, but also specific conditions have to be fulfilled for this quest to be pursued in a successful way: peace, security and toleration. Not by accident, then, did Spinoza postpone the writing of his *Ethics* in the mid-1660s to complete the *Tractatus Theologico-Politicus,* published in 1670. In this, his first publication on politics, Spinoza opens with a forceful attack on superstition and the belief in signs and all kinds of insincerity that put prejudices ahead of rational analysis. He seems to be confident that the causes of these dogmatic hindrances of philosophical enquiry should be looked for in the political order. As is well known, the *Tractatus Theologico-Politicus* concludes with a dramatic plea for tolerance. But before reaching this peroration, the social and political reality is discussed and central conceptions like 'power', 'right', 'reason', 'belief' and 'passion' have their intermingled relations disentangled and are employed to a further understanding of the meaning and limits of sovereign power.

The central contentions of Spinoza's political philosophy itself point to its relevance in the overall philosophical system. Freedom, being the core concept of the *Ethics,* refers as by logical necessity to the social and political conditions of its realization. How far is the individual's freedom hindered or enhanced by power relations between men? Can man be free in a society that is not free? Can a society be arranged in the interest of the promotion of freedom of its members? The answer to these and related questions necessitates a perspective on individual self-determination and social determination, as well as on their interaction. How do we understand the bonds that tie and relate men? What about laws, ordinances, rights and power? What is their origin, what their legitimacy, what their effect?

These interests led Spinoza to write a second treatise on politics, the *Tractatus Politicus*. In this posthumously published work, he discusses the several forms of government, their principles and most rational practical application. In this book is evident again Spinoza's conviction that philosophy is inherently a social affair. As in his involvement in religion, tolerance and the state in the *Tractatus Theologico-Politicus,* here again Spinoza takes issue with contemporary opinions and debate as he found it in the Dutch Republic. He comes forward as an 'interventionist' who wants to change not only philosophy but political practice

as well. One of our further interests will be to define Spinoza's role as an interventionist in the political debate and strife of his own times.

From a systematic point of view also, political philosophy presents itself as an unavoidable sequel to the *Ethics*. Quite a few propositions of the latter must have invited or even challenged the author to check the consistency of their interhuman consequences. Principles like the parallelism of the attributes of substance, the identity of right and might, and the conception of the individual as a persisting arrangement of individuals of a different order, all seem to have a meaning for groups and organizations of men as well. Spinoza will even argue for his political philosophy by presenting it as a deduction from the *Ethics*. In doing so, he takes issue with rival conceptions of politics in his time, coming forward as a theoretical interventionist as well.

In terms of Hannah Arendt's distinction between political philosophers (Plato, Hobbes, Marx, for example) and political thinkers (Machiavelli, Rousseau), Spinoza must be classified as belonging to both categories. Like the former, he formulates his political conceptions within a philosophical system, and like the latter he engages in verbal political action. His practical and his theoretical interests went hand in hand. His practical involvement in politics is partly evidence here. Possibly connected to his alleged acquaintance with the pensionary Johan de Witt, Spinoza's strong reaction to the murder of the de Witt brothers in 1672 is well documented. It was only the intervention of his landlord that prevented him from nailing a placard saying *ultimi barbarorum* (outrage of barbarism) at the location of the murder. In the *Tractatus Politicus* he alludes to this episode by censuring the Dutch 'regenten' for using the pensionary as a scapegoat for their own shortcomings. His visit to the headquarters of the French occupation army in Utrecht in 1673, for all its possibly purely intellectual purposes, was regarded by the man in the street as an act bordering on treason. His practical involvement in politics is also evident from his appreciation of Machiavelli and Pieter de la Court.

In presenting Spinoza's moral and political philosophy, therefore, we could scarcely pass over the contextual element. We may well draw attention to the anomaly that this context as a matter of fact was. When Spinoza was born, the seven Provinces were still (since 1568) at war with Spain. Only in 1648 did a peace treaty materialize; only then was the Dutch Republic *de jure* accepted in the European system of states. But being a republic, and a very powerful one, it was a double anomaly. The relatively egalitarian society of shopkeepers and traders, governed by brewers and merchants, stood out for a relatively free intellectual climate. This anomaly stood in need of self-definition, as old conceptions had run out of relevance and new ones were yet to be invented. Philosophers and theologians, lawyers and politicians, lay and professional alike, all had their share in this redefinition of their political situation. Spinoza may be depicted by some modern commentators as a savage anomaly in relation to the main traditions of philosophy, but more importantly he was engaged in surmounting the double anomaly the Dutch confronted. It can be no surprise that

the Dutch were keen on new developments in philosophy and reacted to thinkers like Thomas Hobbes and René Descartes. But their main motivation came from what we might call by hindsight their bourgeois understanding of their own society. We shall turn first to some of its elements as a background relevant to Spinoza's moral and political philosophy.

ASPECTS OF MORAL AND POLITICAL CONCERN IN THE DUTCH REPUBLIC

To provide some context to Spinoza's moral and political philosophy we shall present three distinct contributions. In the first place the Stoic-Aristotelian approach of Justus Lipsius (1547–1606) and Franco Burgersdijk (1590–1635) will be discussed. Here we find not only the basic arguments of Orangist political theory, but also the beginnings of naturalistic tendencies. In the second place, we will deal with the innovative contribution of Lambertus van Velthuysen (1622–85). Velthuysen attempted, on the basis of a rather general Cartesian methodology, to define the implications of the new individualism of Grotian-Hobbesian natural law in his peculiarly Aristotelian teleological scheme. In the third place, we must pay attention to the intense, rhetorical intervention in mid-seventeenth-century political debate of Johan and Pieter de la Court.

Stoic-Aristotelian dimensions

When Justus Lipsius published his *Six Books on Politics* in 1589, the Dutch Revolt was raging. Although the Low Countries had proved to be a difficult target for the far superior Spanish forces, there was no expectation of a conclusion of the war being at hand. Lipsius, for whom philosophy was most of all ethics and politics, tried to cope with the turbulence of his times. Taking politics to be the 'order of governing and obeying', he set out to give a highly practical answer, shunning the abstract categories of scholasticism, harking back to Tacitus, Machiavelli, Seneca and Cicero. This Neostoic practical philosophy provided him with a realistic morality: we have to live according to Nature, accepting what is inevitable, but working hard upon what is within our power. Morality of rulers and ruled alike consists in practical morality, of which the central instruments and targets are virtue and prudence. Lipsius preferred to see his philosophical task as different from theology. He did not abstain from using metaphysical concepts of the theological repertoire, especially that of primary and secondary causes, but put them to use in his analysis of human nature as a secular concept. The stability of the state, as far as that can be realized, was the central point of reference for him. The subjects have to accept their hardship if it must be, the rulers have to care for unity and concord. The *conservatio sui,* self-preservation, is an important principle. The influence of Cicero is evident, as when it is stated that nothing preserves a republic better than *fides,* (good) faith. As for religion, Lipsius believed that the power of the state depends on religious

peace, to be had only if there is but one religion and only if that religion is subjected to the jurisdiction of the prince. Nevertheless, he was convinced that consciences could not be forced, only persuaded. He was forcefully attacked by Dirk Coornhert, who believed that Lipsius betrayed their common cause of tolerance. But Lipsius kept to his opinion that the unity and concord of the country should not be placed in jeopardy. As Tacitus said, as a state is a single body, it should be ruled by a single mind. Lipsius concluded from this that monarchy is the superior form of government. A virtuous and prudent prince will further the *potentia,* the power of the state, which he described (referring to Cicero) as 'the faculty regarding useful things to keep one's own and to acquire those of foreigners'. This Ciceronian realism was complemented by a Senecan emphasis on *sapientia,* wisdom as the ultimate goal and moral end.

Lipsius's practical intent shows in the guidelines for warfare he presented in Book V of his *Politics*. Prince Maurice, who was not known for literary interests, was an ardent reader of this text and applied it to practice with a lot of success. However important this last aspect of Lipsius's work may have been, his lasting influence proved to be the introduction of Neostoicism into Dutch intellectual life. In particular, Franco Burgersdijk, who held Lipsius's chair at Leiden, was keen to continue this programme, be it under the disguise of his own brand of Neo-Aristotelianism, much more fashionable in Calvinist circles. We may therefore speak of a Neostoic-Aristotelian programme, which is realistic, practical and, for all its pagan overtones, presented as a complement to Calvinist theology. Practical morality, that is, prudence and virtue, can be studied independently of blessedness. Practical philosophy was studied as part of the propaedeutical curriculum, in the 'lower faculty' in contradistinction to the higher faculties of theology, law and medicine. Politics and ethics are central to practical philosophy. In his *Idea politica,* (1644), Burgersdijk was in complete agreement with Lipsius except for one important point. He tried to accommodate Lipsius's notion of unity and concord and his subsequent emphasis on monarchy with the by then established Dutch practice of aristocracy supplemented with the institution of the *stadhouder,* the military leadership of the Princes of Orange. Central to this accommodation was Burgersdijk's argument that the best form of government may not always concur with the preferences of the people. Indeed, for a people of shopkeepers and tradesmen, liberty is an important asset, which they unwillingly forgo. Therefore, Burgersdijk tried to formulate the principles that may promote unity and concord in a mixed constitution. In doing so, he provided for the adherents of the Orangist party, who sustained the Princes of Orange against the more specifically aristocratic preferences of the States party that consisted of the majority of the *regenten*. We shall see this Burgersdijkian concept of a mixed, Orangist constitution reappear in Spinoza's treatment of monarchy in the *Tractatus Politicus*.

In moral philosophy, too, Burgersdijk continued and improved upon the lines set out by Lipsius. Although Burgersdijk subscribes to the opinion that we aim at good things when we understand them to be good, he is not content to leave this

principle unanalysed. He wants to understand how it is that we are moved to act. To this purpose he introduces the concept of *'affectus',* apparently in a rather innocent way by identifying it as *pathè,* passion pertaining to the irrational part of the soul. But, as we shall see, he makes out of this 'passion' the basic concept of action. 'Affect is a movement of the sensuous desire, when by a non-natural bodily modification directed at a good object or a bad one, suggested and judged by the imagination, this is made to be sought for or that is made to be evaded.' Affects are not natural faculties of the soul, but functions or 'movements' of a natural faculty. Indeed, the seat of the affects is the *facultas appetens,* the desiring faculty. The *principle* of movement is the faculty of knowing, and the *effect* of movement is the modification of heart and body (the faculty of acting). Affects, so to say, represent a conceptual unity between knowing, desiring and acting, thereby suggesting that the three faculties are really aspects, and not parts, of the soul. In a subsequent rebuttal of the Stoic analysis of *'affectus',* Burgersdijk exhibits his fundamental move away from Aristotle's psychology. Indeed, referring to the passage in the *Tusculanae Disputationes* where Cicero suggests the translation of *pathè* by 'disturbances' *(perturbationes)* instead of by 'illness' *(morbi),* Burgersdijk points out that the Stoic notion of *'affectus'* is wrong. That is, Burgersdijk continues one step further on the Ciceronian path of naturalizing *pathè* to a central psychological concept, by transforming it to the one motivational link between desire and action. Although being a Calvinist, Burgersdijk defends free will *(liberum arbitrium).* According to his simplified version of the history of philosophy, the Stoics reduced everything to providence, fate and the unchangeable concatenation of causes; the Peripatetics affirmed free will and denied divine providence. The Christians combine providence and free will, because they believe that 'God rules individual things by secondary causes each according to the mode of their own nature, in such a way that necessary things happen by necessity, and free things freely such that whatever has to follow from their actions is produced freely'. Will itself is defined as the faculty to follow what is good and to shun what is evil; it is a blind capability *(potentia caeca)* because it depends on the direction of the practical intellect.

We shall have ample opportunity to refer to Burgersdijk's moral philosophy when we discuss Spinoza.

Velthuysen's naturalistic programme

In 1651 the young medical doctor Lambertus van Velthuysen published an anonymous book entitled *A Dissertation written as a Letter on the Principles of the Just and the Decent (Epistolica dissertatio de principiis justi ac decori).* One would misunderstand this title if it did not contain the supplement: 'containing a defense of the treatise *De Cive* of the most eminent Hobbes'. But neither is it just a defence of Hobbes. In the book, Velthuysen introduces three separate topics: first a teleological conception of morality, second a description of the rules of

morality on the basis of 'the fundamental law of self-preservation', and third a political philosophy. In the 1680 reprint of the book, Velthuysen repressed his youthful expressions of enthusiasm for Hobbes without, however, changing the substance or even the wording of his own views. He might not have been a Hobbesian at all, but a 'modern' in search of support.

Velthuysen's target is to formulate the principles of morality from a naturalistic point of view. His argument is on a level with Burgersdijk's use of the doctrine of secondary causes. God has created the world and man in particular to some purpose, some end. In doing so He must have willed the means necessary to this end (here God is compared with someone who builds a house). Man's nature, especially his natural appetites and the sparks of reason, are the means he has provided mankind with. Therefore, man is totally justified in using these means, most of all since he is only slowly recovering from the dark times after the Fall, learning by experience the principles that, before the Fall, he followed from the goodness of his nature. Inevitably 'nature incites', where reason fell short. Nature does not provide man in vain *(non frustra)* with his natural inclinations. Pudency or shame is one of Velthuysen's favourite social mechanisms by which decency is inculcated in man. The natural appetites and social mechanisms explain most of the historical development of moral codes in human society. We understand from this perspective why, for example, in our 'more enlightened age' we sustain monogamy against polygamy as was the moral practice in the Old Testament, and still is among the Turks. Justice, however, should be understood from the 'fundamental law of self-preservation'. Man has a right to put things and animals to his own use, but not his fellow creatures. He has a right to defend himself against others' invasion of his goods and person, and to punish them, but not to invade others' rights in turn. This would be unjust, and injustice collides with God's purpose with the world. This Ciceronian-Grotian conception of justice is the basis for Velthuysen's political theory. A sovereign is essential to the proper functioning of the body politic. A sovereign body can perform this function even better than one person, since the accommodation of divergent interests is central to politics. The sovereign is either absolute, or party to a contract. Against an absolute ruler the people have no right at all, although even an absolute ruler has to refrain from doing certain things (i.e. neglecting justice, usurping the citizens' property, violating women or chastity in general) because that would result in the ruin of the state. In religion, Velthuysen argues that the sovereign has to respect the accepted beliefs, and should not follow up claims from religious zealots because religious matters are not decided by a majority. A tyrannical sovereign has to be admonished by the lesser magistrates.

Velthuysen's political philosophy, all in all, falls short of the naturalistic principles of his ethical theory, as the Grotian conception of justice dominates here. In this respect, we find a more radical approach in de la Court.

Political theory of the bourgeois middle classes: Johan and Pieter de la Court (1622–60/1618–85)

The brothers de la Court represent the rapidly increasing category of non-academic, bourgeois philosophers in the Republic. Both studied at Leiden University in the 1640s and made a Grand Tour to France, Italy and England; however, they eventually took over their father's business as cloth manufacturers and traders. So they practised philosophy as dilettanti, in more than one respect along the lines of the 'Rederijkers', the literary circles of the beginning of the century. Their intellectual interest was to understand their society; their practical interest was related to the promotion of the new commercial interest against monopolies of guilds and government alike. The brothers de la Court were curious and investigative. Pieter, in particular, who outlived his brother by twenty-five years, had a lively interest in the new philosophy of Descartes and Hobbes, was well versed in the classical authors of the republican tradition, like Tacitus, Machiavelli and Guicciardini, and practised the Protestant religion in a personal and independent way.

Following the death of his brother, Pieter—possibly profiting by some manuscripts of Johan—proved to be a prolific author. He published five editions of his *Considerations of State, or Political Balance* between 1660 and 1662, *Interest of Holland, or Foundations of the Well-being of Holland* (nine different editions in 1662), *History of the Regime of Counts in Holland* (four editions since 1662), *Political Discourses* (three editions, 1662–3), *Demonstration of the Beneficent Political Foundations and Maxims of the Republic of Holland and West Frisia* (two editions, 1669 and 1671), a collection of emblemata entitled *Meaningful Fables* (1685) and a manuscript on the 'Well-being of Leiden'. So de la Court's career as an amateur philosopher was a political fact of outstanding importance. One may appreciate this even better if one considers the fact that the anonymous book *De jure ecclesiasticorum* (1665) was (falsely) attributed until far into the eighteenth century both to de la Court and Spinoza. De la Court was perceived by the defenders of the House of Orange and orthodox Protestants as a defender of republicanism without a stadholder, but by the governing circle of regenten he must have been seen as a critic of their burgeoning practice of closed shop and monopolistic tendencies.

As de la Court is, next to Machiavelli and Hobbes, one of the political writers that Spinoza refers to explicitly, we briefly sketch the outlines of his ideas. The power and charm of de la Court have to be found in his many figures of speech and his florid way of expressing himself. Here he brings the bourgeois understanding of himself and his group to the fore. We may distinguish two patterns. On the one hand he wants to make clear that man is always striving for independence and self-reliance: 'home, sweet home', 'better a minor lord, than a mayor servant', or the Spanish expression 'en mi hambre mando yo' (for all my hunger I command), and a host of other, similar ones. On the other hand, he expresses the dominant (and praiseworthy) principle of self-interest: 'nobody

suffers from another's pain', 'he who eats the porridge, cooks it the best', 'own always takes precedence', or somewhat more malicious, 'set another's house to fire, to warm oneself by its coals', 'don't trust, so you won't be betrayed'. These figures of speech are more than rhetoric, they are the substrate of the ideas. Their abundant use of Tacitus follows similar lines. Tacitus is used as a common-place book, to provide support for the de la Courts' own ideology.

On a theoretical level, however, de la Court is rather more shallow. He presents us with a scarcely elaborated compilation of Cartesian psychology and Hobbesian politics. His interpretation of Hobbes can prove the point. He starts with the state of nature and men's strife for as many goods as possible to promote their uncertain conservation. But then he argues that, in the state of nature, man is subject to the laws of nature, the principal of which is, 'don't do unto another, that which you don't want to suffer yourself: Grotian moralism instead of Hobbesian rationalism. Remarkable is the statement that 'homo homini lupus in statu naturae' (man is man a wolf in the state of nature), but 'homo homini Deus in statu politico' (man is man a God in the political state). The reference to Hobbes's *De Cive* is maladroit, since it shows that he must have misread its introduction, where Hobbes says that 'homo homini Deus' refers to paradise. It is clearly not a Hobbesian notion to see the state as paradise. That is more in accordance with Machiavelli's Renaissance conception of the state as work of art.

The Machiavellian element is more prominent and more genuine. Man may be born subject to passions, but reasoning and experience permit him to suppress and regulate these in the perspective of enlightened self-interest. The state is necessary to promote order and law, because laws make men morally good. But since everybody is aiming at his self-interest political order should be arranged in such a way that it is in the interest of all to promote the common interest. 'The best government is where the fortune and misfortune of the rulers is connected to the fortune and misfortune of the subjects', a formula Spinoza will repeat in *Tractatus Politicus* VII, 31. De la Court's political theory can be seen as a compendious elaboration of this notion. In the first place, it is central to his attack on absolute monarchy. Princes are driven by their self-interest to promote the misfortune of their subjects.They surround themselves with flatterers, they have an interest in not educating their children for fear of being overthrown, they are war-prone and exacting of the economy. It is quite likely that Algernon Sidney in his 'Court Maxims' was elaborating on de la Court in this respect. In any case, Spinoza did so in his construction of a constitutional monarchy. A republic can more easily be arranged according to the self-interest principle. Rotation of office, open access to offices, measures to prevent (religious) cabals and factions (all of which was *not* the standing Dutch practice), would bring the rulers' self-interest into accordance with that of the citizens.

De la Court's double target is evident. Although he wrote in the preface to the *Considerations* that he 'had no intent to harm any person in the world, let alone an innocent child', the most evident practical implication was that the 'child of

State', the then minor William III, should never become a stadholder in the Republic. But also he was convinced that the regenten were too keen on 'warming themselves at the coals' of the burning houses of others.

SPINOZA'S POSITION

Spinoza elaborates his conception of morality and politics against the background of his predecessors, using their arguments, examples and concepts. The result of this elaboration is both recognizable and totally different. Spinoza aims at conceptual integration and reformulates the convictions of spirits kindred to his own so as to adapt them to his own principles. Notwithstanding the evident ideological preoccupations of these authors, Spinoza believed that in all judgements there is some element of truth. We do not correct false statements by pointing out their falsity, but by improving on their truth, as Spinoza already explained in his *Short Treatise* and postulated in E II P35.

Teleology

We have seen how on the foundations of the Leiden Neostoic-Aristotelian tradition, Velthuysen gave teleology a central place in his moral and political thought. Spinoza reacts at length to this notion. In E I App, he explains that the teleological conception of nature is a projection of man, who takes his own goal-oriented behaviour as a paradigm, unconscious of the fact that in reality everything happens according to causality. This projection leads to awkward consequences: 'But while they sought to show that nature does nothing in vain (i.e. nothing which is not of use to men), they seem to have shown only that nature and the Gods are as mad as men.' Indeed, nature has also provided many inconveniences (storms, earthquakes, diseases etc.) and they are imputed to the Gods being angry with men. Man may see himself as the maker of things (e.g. a house) and even form universal ideas or models to which these things have to conform, but this does not apply to nature.

> The reason, therefore, or cause, why God, or Nature, acts, and the reason why he exists, are one and the same. As he exists for the sake of no end, he also acts for the sake of no end. Rather, as he has no principle or end of existing, so he has also none of acting. What is called a final cause is nothing but a human appetite insofar as it is considered as a principal, or primary cause, of some thing.
>
> (E IV Praef)

This is typically Spinozistic argumentation. An opinion or imagination is reinterpreted in terms of a more general theory. The opinion is not denied, but restricted in its applicability. These opinions cannot be taken as knowledge of nature, because they are a consequence or part of nature.

But this cannot be all there is to teleology. However much we might realize that causality is behind our conviction of goal-oriented behaviour, this does not provide us as such with a better understanding of our own behaviour. Why do we strive to realize certain things, and try to escape others? What should we strive for, and why? To answer these questions we need a more precise understanding of what a causal explanation of human behaviour amounts to. Burgersdijk and his school regarded affects as modifications of sensitive appetite caused by non-natural causes. Affects are in a way the movement of this sensitive appetite, implying that affects are the prerequisite of any actual appetite, as appetite is the prerequisite of actual behaviour. This position entailed furthermore that each affect, being a motivation of behaviour, necessarily contains both bodily and rational elements. And lastly, they asserted affects to be passions, as far as they did not concur with the judgement of practical reason, and to be actions as far as they did concur. The ultimate end of ethics is then to let the affects be in concurrence with practical reason, and thereby directed at beatitude, that is, the good life. Ethics is for them the desire for the good life, or eudaimonia.

With this Neostoic, naturalistic 'theory of behaviour', Spinoza seems to have less difficulty than with teleology. Indeed, we find in Spinoza a theory of affects, of appetite and desire. The Neostoic principle of self-preservation surfaces in the *conatus,* the conscious striving of each thing to persevere in its being (E III P9). We cannot overlook the role of the active-passive distinction in Spinoza, nor the importance of the body for the conception of action. 'A great many things happen from the laws of nature alone', that is, from the nature of the body, Spinoza emphasizes in E III P2S where he explains the relative autonomy of body and mind. Furthermore, Spinoza's conception of the evolution of passion to action shares a conviction with Neostoicism: passive affects are not to be suppressed, but can proceed by natural force to become active. That education should not be practised by force or punishment, but by admonition and example, is a point of view that is a complement to this notion of passion.

But it is precisely against this background of shared ideas that in Spinoza's philosophical system no function is left for teleology. In this, he is drawing the naturalism of his predecessors to its full conclusion. The projection onto Nature of man's self-experienced goal-directedness is not a sign of action but of passion. Activity is living according to one's own nature, i.e. according to one's being as a particle in Nature, instead of (passion driven) believing oneself to be Nature's master.

What was at issue in the debate on teleology was (and is) the formulation of practical rules for actual behaviour in the perspective of an ultimate goal. As it is presumably God's end for mankind to realize X, man has a duty to act so as to further X. Velthuysen amends this: God's end is X, man is provided with means M, so employing M will by God's provident ordering of Nature to further X. In this version M provides in a derivative fashion the criteria for our practical behaviour. One of Velthuysen's main criteria is the 'fundamental law of self-preservation'. However, Velthuysen had to accept that M is necessary but not

sufficient, as where he has to fall back on X in arguing that men cannot use each other as means to their own goal. Spinoza is the more radical thinker of the two. We can know God only in so far as we adequately understand ourselves as part of Nature, or God. Our being a part of Nature is essentially our being caused by Nature to exist and to act in a certain determined way. This excludes teleology. Second, in analysing our being part of Nature in more detail, we should not 'prefer to curse and laugh at the Affects and actions of men, rather than understand them', but to 'consider human actions and appetites just as if they were a question of lines, planes, and bodies' (E III Praef). Indeed, Spinoza wants to judge human actions according to their correspondence with reason, but here we should take 'reason' to be Spinoza's theory of human nature. So by really naturalizing M, Spinoza is driven to eliminate X as irrelevant to his problem. Or, in a slightly different light, if morality is to live according to one's own nature, X is internalized.

We might sum up by saying that those who live by their passions believe or imagine they are free and their own master, whereas one who lives according to reason knows he is determined (by his own nature) and is therefore really free. Isn't thus our imagination of freedom a passion that may lead us in the end to real freedom?

Affects, passions, freedom: censuring the theory of the faculties

Spinoza presents his moral philosophy in the three last parts of the *Ethics,* dealing respectively with the affects, with the passions, and with human freedom. Fundamental propositions of the first two books are applied, such as the thesis of the parallelism of mind and body, and the doctrine of ideas. In this context we should first discuss Spinoza's rebuttal of the doctrine of the three faculties as he found it defended by his Neostoic-Aristotelian predecessors. One step in his argument is formulated at the end of Book II, where it is argued that will and intellect are one and the same (E II P49C). A further step is the integration of both will and intellect with acting, by means of the appetite.

First, Spinoza argues that 'there is in the Mind no absolute faculty of understanding, desiring, loving, etc. From this it follows that these and similar faculties are either complete fictions or nothing but Metaphysical beings, or universals, which we are used to forming from particulars' (E II P48S). From thinking oneself to be free, as we have already seen, we may be apt to conclude that freedom exists, but only wrongly so. Universals are not to be formed by way of generalization. Our so-called faculties are to be investigated as singulars. Spinoza is interested in particular volitions, not in the obscure faculty of willing, and he defines a volition as the affirming or denying of something true or false. Volition is a mental category, and therefore it is to be seen in relation to ideas. Having an idea, and affirming it, or conversely having the idea that something is not the case, and denying it, cannot be different from each other. Spinoza is focusing here exclusively on the affirming/denying part of volition, thereby

permitting himself to repeat his criticism of criteriology in E II P43. Therefore, he can conclude in II P49: 'In the Mind there is no volition, or affirmation and negation, except that which the idea involves insofar as it is an idea.' This proposition is then defended against the Cartesian conception of infinite will and finite knowledge, and against the notion of the indifference of the will. In a way, Spinoza's dealing with volition is rather abstract here, only to become understandable when he moves on to discuss appetite.

Minds and bodies being but modes of attributes and not substances, the activating principle of human behaviour no longer simply to be identified with volition, Spinoza argues for the equivalence of mind and body. 'The very structure of the human Body, which, in the ingenuity of its construction, far surpasses anything made by human skill' (E III P2S) is not to be regarded as an instrument for use of the mind, nor as its temple, but as much part of nature as the mind is. The body could not act if it were not determined to act *qua body*. However, for Spinoza the notion of 'thing' indicates existing objects without special reference to the attributes. Since he is convinced that all things can be analysed according to the two attributes we are acquainted with, and that the order and concatenation of matter is the same as that of ideas, he holds that we can explain things both ways. For sure, Spinoza does not follow up this principle in all details. In particular, since we lack precise knowledge about the workings of the human body, we had better concentrate on human psychology. This is what happens when Spinoza has introduced his central notion of *conatus* in E III P6–P9.

> P6: Each thing, as far as it can by its own power, strives to persevere in its being.
>
> P7: The striving by which each thing strives to persevere in its being is nothing but the actual essence of the thing.
>
> P9: Both insofar as the Mind has clear and distinct ideas, and insofar as it has confused ideas, it strives, for an indefinite duration, to persevere in its being and it is conscious of this striving it has.

The two attributes are introduced in P9S as follows:

> When this striving is related only to the Mind, it is called Will; but when it is related to the Mind and the Body together, it is called Appetite. This Appetite, therefore, is nothing but the very essence of man, from whose nature necessary follow those things that promote his preservation.

Spinoza adds that '*desire* can be defined as *appetite together with consciousness of the appetite*' (emphasis in the original). This is somewhat problematic, since here Spinoza affirms a quality of things that precedes the thing's explanation in terms of the attributes (i.e. conatus or appetite), but at the same time connects it in a rather complicated way to the attributal explanations. With this introduction of 'will' we have no quarrel, nor with appetite as synonymous with conatus; but

can Spinoza consistently introduce the notion of 'consciousness of the appetite'? That is, can ideas, which are ideas of the body, be also of something that is common to mind and body? We may argue that Spinoza has no other option but to introduce a concept (desire) that expresses the fact that man is a mind-body, instead of being a mind related to a body. Man forms ideas of his *own* body, that is, his consciousness of personal identity is precisely the consciousness of being a striving mind-body.

The remainder of Spinoza's moral philosophy is an elaboration of 'desire', in which he shows that being active is living according to the laws of one's own nature, instead of passively behaving from external causes. Central in this is the analysis of the affects or emotions, that is of *laetitia* (joy, pleasure), *tristitia* (sadness, pain) and *cupiditas* (desire), and their numerous derivatives like love, hate, hope or fear. Joy is the emotion that furthers one's capability (potentia)—it is so to say an active emotion; sadness hampers one's capability to act. We should therefore prefer joy and its derivatives to sadness. Here we find the Stoic conception of living according to nature transformed into an active moral principle, without however neglecting contemplation. The intellectual love of God is Spinoza's ultimate joy, since to understand ourselves as particles of Nature is equivalent to being active. To strive for this ultimate goal is what morality is about. But we cannot go along this path unless the mind-body goes this way. An active mind necessarily corresponds to an active body. The emotions as habits of the mind-body have to evolve from merely passive to predominantly active. Only the emotions can do the trick; it is not our will, but our checking emotions by emotions. The final apex of Spinoza's ethics is contained in the programme that man be active or free:

> All our strivings, or Desires, follow from the necessity of our nature in such a way that they can be understood either through it alone, as through their proximate cause, or insofar as we are a part of nature, which cannot be conceived adequately through itself without other individuals. The Desires which follow from our nature in such a way that they can be understood through it alone are those that are related to the Mind insofar as it is conceived to consist of adequate ideas. The remaining Desires are not related to the Mind except insofar as it conceives things inadequately, and their force and growth must be defined not by human power, but by the power of things that are outside us. The former, therefore, are rightly called actions, while the latter are rightly called passions. For the former always indicate our power, whereas the latter indicate our lack of power and mutilated knowledge.
>
> (E IV App)

Thus reason and the power of nature are identified and will lead Spinoza in the fifth part of the *Ethics* to a series of intricate and exciting conclusions concerning, among other things, the immortality of the soul. Here Spinoza is dealing with what

full rationality might mean for man. But man is mostly driven by passions, and thereby dependent on things outside. We shall explore this interdependence in the next section on Spinoza's political theory.

MORAL PHILOSOPHY AND POLITICS

In the same way that man is not his own creator, social institutions are not the result of human creation. Adam Ferguson was to express this towards the end of the eighteenth century by saying that men stumble 'upon establishments, which are indeed the result of human action, but not the execution of any human design'. How radical was Spinoza in this respect? Some commentators have recognized two different answers to this question. They judge that Spinoza provided a contractarian answer in his first book on politics, but an evolutionary one in the second. This has disconcerted others, since the problem of 'design' versus 'action' seems to them to be solved, as far as individual man is concerned, in favour of 'action'. A divergent position in the political realm would smack of inconsistency, a type of judgement on Spinoza most are reluctant to uphold. More specifically, this argument is triggered by statements by Spinoza that indeed do seem to be inconsistent. In the *Tractatus Theologico-Politicus* the founding of the state is described as a decision of a multitude of men to unite and to live guided as it were by one mind. The state seems to be created in a constitutional act. In the *Tractatus Politicus,* however, these contractarian notions are completely absent, and evolutionary explanations are proffered. Here we are instructed to regard the formation of political institutions as the outcome of socio-psychological mechanisms. In presenting Spinoza's political philosophy in this section, we shall deal with this central problem in a somewhat roundabout way. We shall see that, by presenting the complexity of both books, the problem will solve itself. Spinoza is indeed as radical in his political philosophy as he is in his ethics. But political theory has special problems of its own, among them being predominant the question of the audience it is addressed to.

So what was the reason for writing the *Tractatus TheologicoPoliticus*? In fact there was more than one. Working at the *Ethics,* Spinoza must have deepened the theoretical foundation of his criticism of Bible scholarship that had provoked the scorn and indignation of the Jewish authorities, leading to his expulsion from the Jewish community in 1656. Indeed, more than half of the text is about Bible interpretation. Furthermore, the kind of problems he had met with in Jewish circles were far from being restricted to these alone. However tolerant the Dutch Republic may have been in comparison with surrounding nations, a continuing debate was going on about its real nature and limits, possibly even because of this relatively large degree of tolerance. De la Court pointed to the ambition of the ministers of the church who, not satisfied with their duty of spiritual care, were keen to profit from any opportunity to meddle with political affairs that came their way. So quite a few ministers tried to give support to the Orangist faction by giving William III pride of place in their weekly prayer for God's help

for the magistrate, although William was still in his minority. Attempts to suppress this kind of weekly prayer provoked a lot of unrest and even protest. Evidently, this political meddling was contrary to an important ideological tradition, going back to Erasmus and defended heatedly in the seventeenth century by Hugo Grotius and others. According to this Arminian set of beliefs, the church should restrict itself to its purely spiritual duties, and the government was granted the sole authority in mundane matters. Tolerance, according to this view, was founded in the individual's conscientious responsibility to God alone. This so-called 'internal religion' could be a subject for 'brotherly admonition', but the 'external religion' including the church order had to be regarded as a subject of public order and therefore a matter of civil government alone. This party regarded the Dutch Revolt to have been *libertatis ergo,* for the sake of liberty.

But these opinions were far from uncontested. Puritan theologians, for example Paulus Voetius from Utrecht, referred to the Revolt as *religionis causa,* for reason of (true) religion. As they were convinced that each act of a Christian should be under the aegis of faith, they evidently felt compelled to impose religious limits on the civil magistrates. Moreover, they found an interested ear on the part of the Princes of Orange for their claims against the regenten aristocracy. They did have substantial support among the people at large, but found opposition from latitudinarian groups like the Arminians. The authorities, for their part, were keen to present the case as a conflict of doctrines among theologians, and to emphasize their own responsibility for public peace and order. The issue of tolerance was therefore a very complicated matter, used partly by the regenten to argue their indifference in doctrine, partly by the conflicting religious groups and partly by the Orangist faction in its quest for a power base. A whole list of practical topics became related to the concept: apart from traditional ones like freedom of conscience and the persecution of heretics, there were such topics as public peace, sovereignty and lese-majesty, the freedom of the academic and popular press. The dominant policy of the authorities was to balance and mitigate, in all its diverse dealings with (purportedly) religious matters. This resulted in *de facto* toleration, although not without setbacks. The publication of books that aroused public indignation could still be forbidden, although that was not always enforced in a strict way. But in exceptional cases the authorities felt the necessity to persecute authors of 'heretical' works by putting them in jail, and by a prolonged preparation of the trial they waited for better weather. The conditions in jail, however, were often so bad that the indicted authors did not survive.

The situation was strained by developments in the field of academic philosophy. Cartesianism and Hobbism were among the targets in Voetius's circle. The separation of philosophy from theology was much scorned. The situation was aggravated when dilettanti like Lodewijk Meyer started to use the new philosophy in theological debate. His *Philosophy, expounder of the Holy*

Writ (1666) produced much unrest, even among latitudinarians who were worried lest the fragile balance of toleration might be disturbed.

To this complicated situation Spinoza wanted to address himself in the *Tractatus Theologico-Politicus*. His stated purpose was to show 'that freedom to philosophise can not only be granted without injury to Piety and the Peace of the Commonwealth, but that the Peace of the Commonwealth and Piety are endangered by the suppression of this freedom', as the title page ran. His argument proceeded in the following manner.

1 In the Preface and the first six chapters, the character and function of religion in the Jewish state is discussed. Although Spinoza sets out to vehemently criticize superstition, and the slavery of totalitarian theocracies like that of the Turkish empire, the positive effects of religion in the Jewish state of the Old Testament are emphasized. It provided for the legitimacy of the political order, and taught the basic principles of morality. Spinoza explains that the Pentateuch imprinted on the Jewish people the natural light and the natural divine law, by appealing to the imagination of the people. The civil laws and religious ceremonies were strengthened by the special relationship that Moses, the lawgiver, was understood to have to God. The teachings of the Bible concern obedience, but not philosophy.

2 In the next seven chapters, the method of Bible interpretation is discussed. Theologians tend to read their own prejudices into the Holy Writ, by taking it as contrary to reason and nature. This is incorrect. The study of the Bible should be undertaken like the study of nature, that is, only from the Bible itself can one come to the correct interpretation. This interpretation is to be found by means of (a) a study of its language, (b) a careful classification of the text and (c) accounting for the historical circumstances. By applying this new method, Spinoza goes on to prove that the Bible teaches nothing but simple rules of behaviour, that is, obedience. About God's nature he finds only simple statements, relevant to morality alone. God's word is promulgated by testimony, by fraternal admonition and, in argumentation, is free from philosophical speculation. Spinoza is shocked to see the theologians of his time bring abstruse matters into religion, introduce philosophy, and practise theology as a science and as fit for debate.

3 The last seven chapters are devoted to the relationship between theology, philosophy and the state. Theology has to do with *pietas,* morality, philosophy with truth; the former is subject only to moral certainty, the latter to demonstrative certainty. Reason and belief are of a different order: we can never prove that simple obedience is the way to salvation. The concept of civil laws developed along philosophical lines, from the notions of natural right and sovereignty. Spinoza elaborates on this by discussing the interdependence of legitimacy and sovereignty, and the limits of power, by historical and actual examples. In the last chapter, in the context of a eulogy of the Republic, Spinoza puts forward and defends his central tenets.

1. That it is impossible to deprive men of the freedom to say what they think.

2. That this freedom can be granted to everyone without infringing the right and authority of the sovereign, and that the individual citizen can preserve this freedom without infringing that right, provided that he does not presume therefrom to make any innovation in the constitution or to do anything that contravenes the established laws.

3. That every man can possess this freedom without endangering public peace, and any troubles that may arise from this freedom can be easily held in check.

4. Finally, that this freedom can be granted without detriment to the public peace, to piety, and to the right of the sovereign, and indeed it must be granted if these are to be preserved.

(TTP XX)

The *Tractatus Theologico-Politicus,* therefore, really contains three distinctive arguments: one on the role of religion in the state, one on the interpretation of the Bible, and one on the role of reason in the state. In comparison with the doctrines of toleration of his compatriots, Spinoza clearly separates the distinct positions of faith and reason. His attempt at freeing philosophy from theological tutelage is founded in secularizing the state by referring theology to its proper constraints, without falling into the trap of absolutism. Not the absolute rule of the state, but the absolute rule of nature is the point of reference. Let us therefore follow more closely Spinoza's conception of the rule of nature in politics. We do so under three headings: the nature of political order; the constitution of political order; and the development of political order.

The nature of political order

The formation of a society is advantageous, even absolutely essential, not merely for security against enemies but for the efficient organisation of an economy. If men did not afford one another mutual aid, they would lack both the skill and the time to support and preserve themselves to the greatest possible extent. All men are not equally suited to all activities, and no single person would be capable of supplying all his own needs. Each would find strength and time fail him if he alone had to plough, sow, reap, grind, cook, weave, stitch, and perform all the other numerous tasks to support life, not to mention the arts and sciences which are also indispensable for the perfection of human nature and its blessedness. We see that those who live in a barbarous way with no civilising influences lead a wretched and almost brutish existence, and even so their few poor

> and crude resources are not acquired without some degree of mutual help.
>
> (TTP V)

Spinoza is arguing here from 'universally valid principles', and one is tempted to refer to E IV 18S: 'To man, then, nothing is more useful than man'. But if we look into Spinoza's arguments for this notion of mutual utility, we find two statements explained. First, referring back to E II Post4, he states that men can never do without external things in their striving for the preservation of their being. Second, he deduces that no external things are 'more excellent than those that agree entirely with our nature'. Men who agree in all things will therefore seek the common good of all. They will want nothing for themselves that they do not desire for other men. As often in Spinoza, we have here the choice between a minimal and a maximal interpretation. If we take 'agree' in a maximal sense, it seems to indicate the agreement of all living equally according to the dictates of reason, but then we would have difficulty in understanding how, for example, a farmer and a philosopher can completely agree with each other. We would not want this agreement to consist in a shared certainty about the necessity of mutual help, since that is what we are trying to understand. On the minimal interpretation, agreement refers to those things about which persons in fact agree, as, for example, in an exchange of external goods. That is, to man nothing is more useful than man because people find their exchanges profitable as soon as they come to an agreement. On this minimalist interpretation only, agreement (s) explain mutual help. We may understand Spinoza to allude to this last interpretation when he concludes E IV 18S by justifying his argument so as 'to win, if possible, the attention of those who believe that this principle—that everyone is bound to seek his own advantage—is the foundation, not of virtue and morality, but of immorality'. Reading this last remark against the background of de la Court, we easily see Spinoza here defending the morality of mutual aid on the basis of the diversity of human capabilities and preferences and the subsequent possibility of mutual advantage in agreed-upon exchange.

There is one type of agreement, however, that stands out as a prerequisite for mutual aid, that is, good faith, the determination 'to keep appetite in check in so far as it tends to another's hurt, to do to no one what they would not want done to themselves, and to uphold another's right as they would their own' (TTP XVI), or, in the expression of E IV 18S, that men 'want nothing for themselves that they do not desire for other men. Hence, they are just, honest (faithful), and honourable.' Men can only provide each other external goods if they recognize each other as equals in a fundamental respect. That was also the opinion of Velthuysen. He, however, formulated it as a normative principle, whereas Spinoza confines himself to a prerequisite. If men do not keep their agreements, mutual aid is impossible. For Spinoza, unlike in Grotian natural law, for example, it is no self-evident rule that men should keep their promises. It is a fact about

human life, however, that even a 'few poor and crude resources are not acquired without some degree of mutual help'.

A somewhat different argument for human co-operation that surfaces now and again (e.g. TTP XVI, TP II, 13, and E IV 18S) is that the capability power of a group of men is the sum of the capabilities of each of them. This may seem an echo of Burgersdijk's emphasis on concord and unity. However, Spinoza does not really make much use of this principle in explaining the nature of the state. On the one hand, he seems uncertain about the exact law of aggregation involved. If, for example, a hundred chess players unite to play against another player, no one would be willing to regard their combined chance of winning as the sum of the individual chances of each of them. In general, the effect of combining forces will depend on the principles of co-operation that apply. On the other hand, Spinoza uses the notion to emphasize the central function of agreement in a state. As a sovereign is instituted by agreement, and agreement is based on utility, a sovereign loses his power to enforce his rulings as soon as a relevant proportion of the people unite in opposition against him. That is, it is the combining of forces that creates political power, not the legal title to such power. Sometimes Spinoza expresses this by his notorious remark that men's right is co-extensive with their capability power. Social power, we may now say, is the result of combining forces. But combining forces is mutual help, so agreement and good faith. Power and right both express the level of social co-operation. A strong state is strong because it is legitimate, that is, because it expresses the principles of actual co-operation. But by being the form of powerful co-operation it is, it is legitimate.

Now, by way of introducing a limiting case, Spinoza states that, if everyone lived according to reason, a state would be superfluous, because men would be just, faithful and honourable on their own accord. This not being the actual situation, political order is an institutionalized form of power, a pattern of external causes that brings about human co-operation, where reason as internal cause fails. This institutionalized power can also be referred to as law, that is, human law. A human law is 'an enactment from which good or ill consequences would ensue not from the intrinsic nature of the deed performed but only from the will and absolute power of some ruler'. Moreover, a law is ordained by men 'for themselves and for others with a view to making life more secure and more convenient, or for other reasons' (TTP IV). In particular, since the true purpose of the law is usually apparent only to the few and is generally incomprehensible to the great majority in whose lives reason plays little part, laws are enforced by sanctions. We have seen that the capability of man is greater according to the extent to which man is more active, that is, less dependent on external power. As the capability of a society of men is in some way a function of their individual capabilities, ways of enforcing a law that promote the activity of men are more useful than others. In particular, if a ruler can make people comply without the use of sanctions, but by influencing their behaviour by other means, he enhances the capability of the society. Most effective in this respect is making 'the motive

of self-interest' depend on the state or, in other words, 'no more effective means can be devised to influence men's minds…as joy springing from devotion, that is love mingled with awe' (TTP XVII). Although it is not the motive for obedience, but the fact of obedience, that constitutes a subject, the means that contribute to men's willingness to obey are crucial. Convincing others means referring to their conception of things, for example by taking seriously their conviction of free will. This brings Spinoza to his version of the theory of political contract.

The origins of the state

We are now in a position to present Spinoza's 'contractual' explanation of the origins of the state. In TTP XVI Spinoza points out that 'in order to secure a secure and good life, men *had* necessarily to unite in one body', and 'therefore *arranged* that the unrestricted right naturally possessed by each individual should be put into common ownership, and that this right should no longer be determined by the strength and appetite of the individual, but by the power and will of all together' (emphasis added). The argument about mutual assistance is rephrased here in terms of unity, and in this specific political form as well social co-operation is contingent on the existence of a *de facto* willingness in good faith 'to be guided in all matters by the dictates of reason'. But this willingness is far from being a principle of nature. Against Hobbes, however, Spinoza points out that it is just as absurd to demand that a man should live according to reason as to say that a cat has the duty to live according to the laws of a lion's nature. In particular, contracts bind by their utility alone. So the unity that is presupposed by political order should be founded in utility. To show how this is possible is the aim of Spinoza's sixteenth chapter. How do men succeed in living according to the 'will and power of all together'? Had they been guided by appetite alone they would have failed, he writes. Therefore they bound themselves by the most stringent pledges to live according to the dictates of reason. These pledges are effective since 'nobody ventures openly to oppose [these], lest he should appear to be without the capacity to reason': Ulysses is bound to the mast of reason by his appetites. In more detail, we find the same principle reappearing when political obligation and legitimacy are discussed. Since contracts are kept only as long as they are profitable, solemn pledges help people to stick to their contracts for fear of public disrespect. Note that contracts as such were only introduced as a symbolism or ideology to keep the disruptive effects of appetite in check. We may therefore very well say that Spinoza explains the origins of the state by the desire for unity, that is, according to the *Ethics,* the appetite for it together with the consciousness of it. These appetites are founded in utility, and like good faith in co-operation, solemn pledges in politics have the function of enforcing the desire for unity by putting additional utility in the outcome. In a highly significant argument, Spinoza explains why rulers are not bound by international contracts or treaties, 'except through hope of some good or apprehension of some evil': 'For he [the ruler] cannot keep whatever promise he sees likely to be

detrimental to his country without violating his pledge to his subjects, a pledge by which he is most firmly bound, and whose fulfilment usually involves the most solemn promises'! In other words, disrespect among his subjects is more detrimental to a ruler than the possible consequences of breaking a treaty. The well-being of the country is guaranteed by the ruler's care for his own interest, and not by contracts in themselves. We easily recognize de la Court's principle of public interest, cared for by the rulers because it is connected to their own interest. This connection is furthered by conceiving it as a contractual bond, since that threatens disrespect to anyone who would break it. Spinoza's naturalistic theory of the state thus explains the state as an effect of the laws of nature, as well as showing the utility of an ideological conception of the state in terms of contract.

In this respect we can understand why Spinoza believes that a state would be unnecessary if everybody lived according to the dictates of reason. Here Spinoza is more like Proudhon or Kropotkin than like Hobbes. But men being what they are, Spinoza is far from being an anarchist. Men who do not live according to reason are not *'sui iuris',* and therefore are by definition subject to other powers. A stable system of powers is a state, and such a stable pattern is expressed by civil laws. Imagination plays the role that reason cannot perform. This imagination is the more effective the more men believe, or imagine, that they have instituted it by free will, that is, have contracted to abide by the civil laws. As a consequence, Spinoza is anxious to demonstrate that this set of imaginations is a consistent one. Formulating his position on a topic that appears in Hobbes and Locke as well, he says:

> We therefore recognize a great difference between a slave, a son, and a subject, who accordingly may be defined as follows. A slave is one who has to obey his master's commands which look only to the interest of him who commands; a son is one who by his father's commands does what is to his own good; a subject is one who, by command of the sovereign power, acts for the common good, and therefore for his own good also.

Imagination is a consistent and effective mechanism that provides men with what we may call a provisional political morality (cf. E II P49S). Its consistency is explained in the language of imagination itself, since this is of concern to those who live according to the imagination. Its effectiveness can only be explained in terms of the laws of nature. In reading the *Tractatus Theologico-Politicus,* these two different languages should be distinguished carefully, especially where they are implied in one and the same argument. We can illustrate this best in relation to Spinoza's often distorted contention that right is might.

'By the right and established order of Nature I mean simply the rules governing the nature of every individual thing, according to which we conceive it as naturally determined to exist and to act in a definitive way', that is, right equals *potentia:* 'the right of the individual is coextensive with its determinate

power'. This appears to be a stipulative definition, since the concept of right surfaces here for the first time. 'Right', or 'ius', is evidently presented as an explication of the freedom that is permitted individuals by the rules that apply to them, be they natural or civil rules. Inevitably then, civil right equals civil power, whereby an individual is free to do whatever is in his power. Spinoza is aware, however, that men have all kinds of explanations for rights differing from his. They explain rights by divine origins, or as originating from a wise lawgiver, or from contract. So he preferred to explain them from 'proximate causes', that is, from the human will. But in this Chapter XVI, where the effectiveness of civic contracts has to be discussed, he can no longer refrain from giving a full explanation. So let us ask therefore: can one expect that an individual's power increases or decreases according to his redefining his rights? Surely not. In this we might compare Spinoza with Hume, who was to demolish the theory of contract by arguing that people do not obey a sovereign because they have contracted to do so, but embellish their obedience by the fiction of a contract. On the other hand we have seen that a man's power or capability can increase or decrease, that is, man can become more active or more passive. Hope and fear are Spinoza's main examples. Freedom from fear and hope for advantages are indications of increasing capabilities. The imagination that obedience will bring in its wake the promotion of one's own good is the expression of such a hope. So we reach the somewhat paradoxical conclusion that, by granting the sovereign a right to dictate one's actions, man is promoting his capability. By enlarging one's capability, man is enlarging his right (by definition). So Spinoza can only maintain that might equals right by granting that in a political order the powers of both individuals and the collectivity are increased. This increase goes with co-operation. If men were completely rational they would not need the imagery of the transference of rights to sustain such co-operation. Affection-driven man, however, cannot co-operate in this way unless forced by a supposedly self-imposed additional argument to do so. These arguments take the form of rights: rules that are enforced by sanctions some way or other. Each political organization has therefore the system of laws it deserves, be it a contract with God as in the Jewish state or a contract between men as in the Dutch Republic.

The developing state

In the beginning of the next chapter, TTP XVII, Spinoza points out that the authority of rulers in previous ages used to be strengthened by clothing it in the garments of divinity. The Persians looked to their kings as Gods. Indeed, men do not want to be ruled by their equals, but only by outstanding leaders. Moses was attributed this quality, and rightly so. He gave the Jewish people a very wise constitution. Spinoza emphasizes the determination of Moses to put all laws and thereby obedience under the aegis of religion. The Hebrews' love for their country was not a mere case of patriotism but of piety and religious duty. And next to that, the political institutions were arranged according to the *ratio*

utilitatis, the principle of utility. As Lipsius had seen, most patriotism is self-interest in disguise, and so it was highly efficient that in the Jewish state it was made useful to men not to desert their country. These two wise principles that Moses put at the foundation of the Jewish state were a clear promise of the stability and continuity of the Jewish state. But this was not going to be the case.

The worship of the golden calf, this undeniable expression of superstition, made for a change that produced the downfall of the Jewish state in the end. As Spinoza expresses it, God punished his people by giving it laws that were more a kind of vengeance than a contribution to their well-being. He decided that from then on only the Levites, who did not join in the worship of the golden calf, should have care of the law. This was the germ of decay. The ambitions of the successors of Moses as well as the zeal of the scribes resulted in the introduction of kingship and in sectarianism and Pharisaism. From this came civil war and the downfall of the state in the end. From this Spinoza concludes (a) that the original constitution of a state should be kept intact, and especially that if a people does not have a king kingship should not be introduced, (b) that religion should be separated from politics and (c) that in a state where ambition is permitted both (a) and (b) will be difficult to follow. Spinoza points to the history of England where monarchy was supposedly abrogated in 1642, only to be reintroduced under a different name under Cromwell, and reinstituted in its original form in 1660. The Dutch Republic proves the same. There never was a king, and the short experiment with Queen Elizabeth's lieutenant Leicester was bound to fail.

A political system is an intricate mechanism that cannot be changed overnight. The predominant suggestion from the *Tractatus Theologico-Politicus* is that there is a grand secular trend according to which superstition is gradually overcome, and that more rational political systems are more free and more powerful. Spinoza seems more interested to suggest the superiority of the Dutch Republic by rhetorical comparison than to provide his readers with a full theory. Indeed, in the *Tractatus Theologico-Politicus* his aim must have been to make an intervention in Dutch political life. He points out that ambition leads to war for honour's sake (as de la Court had seen) and to curtailing the people's freedom, to the downfall of the state if one makes the same mistakes as the Jewish people, that is, elects kings and admits the zeal of the scribes. Indeed, this was exactly what was threatening to happen around the Synod of Dordt (1618–19), and would have happened if the death of Prince Maurice had not curtailed the process.

Along what lines did the philosopher Spinoza expect his intervention to be effective? What constituted the force of his argument? Was he hoping to contribute to the collective imagery of the state? Or to its explanation? We have seen that intervention was Spinoza's most central concern. He adapted his mode of explanation to his audience, although in Chapters XVI and XVII he could not circumvent references to the order and concatenation of things that is the real explanation. However, his decision to explain in terms of the will was indeed an adaptation to his audience. Spinoza's final chapter of the *Tractatus Theologico-*

Politicus brings the intervention to its final conclusion. Here he shows what the implications are of the Dutch self-understanding of their republic along Spinozan lines. These implications have been presented on pp. 333–5. They do not differ much from run of the mill arguments about the relationship of church and state, except for one point: tolerance is defended as a virtue of a republic, especially as far as philosophy is concerned. This intervention was barely successful among those who were not convinced by the argument in the first place. Even Remonstrant theologians, who had always defended the same position, were made rather uncomfortable about this 'support' from a philosopher who presented God as Nature, and in his determinism denied human freedom, and hence sin and morality. Velthuysen, in his later writings, criticized Spinoza heavily. The Amsterdam Remonstrant and later friend of Locke, Philip van Limborch, scorned Spinoza for his fatalism. Spinoza's influence was in other quarters. Among autodidacts, like himself, among idiosyncratic intellectuals, like the author of the Spinozistic novel *The Life and Times of Philopater,* his appeal was remarkable. But Spinoza must have been disappointed that the *Tractatus Theologico-Politicus* produced so few of the effects he had hoped for. In the *Tractatus Politicus* he came forward with a different style, and with different targets. In that book, he no longer aims at the imagination, but wants to present a political philosophy that is deduced from the *Ethics,* and formulated as a scientific theory.

The theory of the Tractatus Politicus

> I have resolved to demonstrate by a certain and undoubted course of argument, or to deduce from the very condition of human nature, not what is new and unheard of, but only such things as agree best with practice. And that I might investigate the subject-matter of this science with the same freedom of spirit as we generally use in mathematics, I have laboured carefully, not to mock, lament, or execrate, but to understand human actions; and to this end I have looked upon passions such as love, hatred, anger, envy, ambition, pity, and the other perturbations of the mind, not in the light of vices of human nature, but as properties, just as pertinent to it, as are heat, cold, storm, thunder, and the like to the nature of the atmosphere, which phenomena, though inconvenient, are yet necessary, and have fixed causes, by means of which we endeavour to understand their nature, and the mind has just as much pleasure in viewing them aright, as in knowing such things as flatter the senses.
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> (TP I, 4)

This scientific, naturalist approach is put forward against the utopianism of the philosophers. We can learn more from practical politicians for whom experience

is the teacher. This does not imply, however, that Spinoza opts for an empiricist approach to politics. He intends to formulate in a systematic and theoretical way, and to explain what politicians know from practical experience. He is the abstruse thinker of David Hume's essay 'On Commerce', who fits the insights of the shallow thinkers of practical competence within an explanatory whole. And in this programme, he is as critical as Adam Smith of the 'men of systems' who suppose they can adapt human life to their schemes. In the *Tractatus Politicus* the human will as proximate cause has lost the prime position it enjoyed in the *Tractatus Theologico-Politicus*. In doing so, Spinoza elaborates more fully on the concept of *potestas,* or coercive power, as distinct from *potentia,* or capability power. Second, the explanation of the origins of the state is more fully developed. Third, the various forms of government are distinguished and analysed as to their principles and to the organization that best accords with these principles. We shall see Spinoza argue for constitutional monarchy as the only reasonable form of monarchy, and for two types of aristocracy in a reflection of the differences between city-states like Venice and federative republics like the Dutch. Democracy is not discussed fully, since Spinoza died before completing the last chapters of the *Tractatus Politicus*.

We may describe *potentia* as a power *per se,* as the capability that is in a thing, and *potestas* as a power *ad aliud,* as the power over other things. This has several consequences. First, in the case of states, one might expect that the capability of a state relates to its power in relation to other states. A state that acts according to its own nature is less dependent on external causes, that is, on other states. Whether it effectively is more powerful than other states is a different matter, because to answer this question we have to look into the capabilities of these other states. But *ceteris paribus* we must understand the more capable state as more powerful.

In a general sense, a state arranged according to reason is more capable. We can understand this to say that a state that is ordered so as to promote the common good, and thereby the well-being or the capability of its citizens makes for a greater aggregated capability. It is in this sense that we can understand Spinoza's saying that a democracy is the strongest state (TTP XVI; TP XI, 1) since it unites the capabilities of its citizens most fully or most absolutely. This absolute unity requires, however, a rational organization, and therefore citizens are most free when they abide by the laws of a rational political system.

The relationship between citizens and the superior powers (*summae potestates;* in Dutch, Hoogmogende Heren, i.e. Sovereign Lords) is bi-directional, *and* has an aggregative aspect. The rule or dominion *(imperium)* of the sovereign powers is their capability, determined by the capability of the multitude that is guided as by one mind (TP II, 15; III, 2). We may well compare this with Spinoza's analysis of the individual man: just as in that case, he does not want to separate the body (politic) from its director (or ruler). The capability of the sovereign is the organization of the state (in which the sovereign naturally is an element). So, when Spinoza continues in TP III, 2, by remarking that the

right of a subject is the lesser the greater the capability of the collectivity, we understand this in the same way: in a well-organized state neither sovereign nor subject can live according to their appetites alone, but are directed towards the common good, and thereby to their own.

Spinoza distinguished four ways in which this societal direction can take place. By taking away one's arms and means of defence, or by preventing one's escape, the state constrains one in a bodily way. By inspiring someone with fear, or by obliging one by favours, the state rules body and mind alike. These four ways of directing someone's behaviour are forms of power over an individual, and are the ways in which the state is present as an external cause. This presence is inherently dynamic. It can only operate via the emotions of its target, and may lead to such diverse reactions as anger, hatred or hope, and devotion (i.e. love together with awe). These emotions may have an aggregative effect, as when, for example, some policy leads to collective indignation because of a wrong done to a subject. The collectivity may then become directed as by a different mind and endanger the rule of the sovereign, and thereby the stability or even continuity of the state. Naturally, indignation is likely to result when the interests of subjects are infringed upon, or when one who earns praise is declared unjust.

In this respect, Spinoza tries to come to grips with the barbarous and slavish Turkish empire, which he deems despicable although very stable. 'Yet if slavery, barbarism, and desolation are to be called peace, men can have no worse misfortune' (TP VI, 4). His argument is a dissection of the true nature of absolute monarchies, where in fact more often the whims of concubines and minions decide. Repeating the analysis of de la Court, Spinoza demonstrates that in an absolute monarchy the king is always afraid of his subjects, and even of his own children, and 'will look more for his own safety, and not try to consult his subjects' interests, but try to plot against them, especially against those who are renowned for learning, or have influence through wealth' (TP VI, 6). It is clear that Spinoza measures states not according to their stability, but according to their rationality.

In this perspective Spinoza again investigates the origins of the state. Unlike the emphasis on the will and the ensuing contract in the *Tractatus Theologico-Politicus,* now he tries to explain by causal mechanisms.

> Inasmuch as men are led, as we have said, more by passion than reason, it follows, that a multitude comes together, and wishes to be guided, as it were, by one mind, not at the suggestion of reason, but by some common passion—that is (Ch. III, 3), common hope, or fear, or the desire of avenging some common hurt. But since fear of solitude exists in all men, because no one in solitude is strong enough to defend himself, and procure the necessaries of life, it follows that men naturally aspire to the civil state; nor can it happen that men should ever utterly dissolve it.
>
> (TP VI, 1)

In the Latin of Spinoza we find that the multitude 'ex communi aliquo affectu naturaliter convenire', that is, 'from some shared emotion agree by nature'. 'Agreement' being a somewhat more precise translation than Elwes's 'coming together', we find here the principle of co-operation explained that we had been looking for in the *Tractatus Theologico-Politicus*. In the shared or common emotion we see the civil state arise. What kind of emotion is Spinoza thinking of? In TP III, 6, he points to the removal of general fear and the prevention of general sufferings as a natural cause of the state. These 'communes miserias' seem to refer to the emotion of *misericordia,* compassion. We find it again in TP I, 5, together with jealousy or envy, vengeance, and ambition and glory. These passions predominate in an ordinary man, especially since men are led more by passion than by reason. Anyone who thinks otherwise believes in a chimera or in a Utopia, or in the golden age of the poets (TP I, 1). It is clear, however, that we need something more than just these passions. Thomas Hobbes would explain the war of all men against all men from these passions. How can Spinoza come to the explanation of the state? We have to take a close look at the term *'convenire',* agree.

We will then be dealing with the pre-political, state, that is, as long as the condition is not realized 'that all, governing and governed alike, whether they will or no, shall do what makes for the general welfare: that is, that all, whether of their own impulse, or by force or necessity, shall be compelled to live according to the dictate of reason' (TP VI, 3). As long as this condition is not realized, any order that may arise is not stable. People may agree for a moment, but disintegrate in the next. How can such an unstable agreement develop into a stable one? This may happen if such a temporary agreement induces people to agree on further points, leading to patterns of behaviour, habits and preferences that can be redefined as a political order. Spinoza seems to suggest this much when he says that compassion can induce men to alleviate the misery of others, from ambition or love of glory. Such ambitious men may want to continue to attract the praise of others, because they see it as a consequence of their help. Others may want the same, and thereby ambition becomes a motive for political leadership. Now, jealousy could follow if there is not room enough for all ambitious men, and fear and hate might follow as well. In that case, the evolution is thwarted. But if the surrounding world poses enough challenges, the effects may well be positive. Then, 'love of liberty, desire to increase their property, and hope of gaining the honours of dominion' (TP X, 8) will be the sure emotions leading to a stable political order. Interdependence of emotions makes for political order, but this process may equally well degenerate according to the circumstances.

This dual character of emotive interdependence provides a good explanation of Spinoza's use of positive and negative examples of political order. Positive examples (the kingdom of Aragon, the Dutch Republic) are indicative of the necessary conditions for their respective forms of government; negative examples (the Jewish state, Rome, France, Venice) show disturbing factors. On

this reading, Spinoza's statement that states are not to be invented, but do exist, explains to us that the historical process of growth and decline is central in his political theory. By being actual existences, they can be explained.

We may point out that Spinoza in the *Tractatus Politicus* again is intervening in Dutch political debate. Taking issue with the major ideological positions of Orangism, republicanism and radicalism, he aims at objectifying the problems at hand. Orangists used to enforce their position by pointing out the heroic past of the Princes of Orange, but from Spinoza's deduction of a feasible monarchy we learn that not the person of the prince but the quality of the institutions is the decisive factor: 'And so, that a monarchical dominion may be stable, it must be ordered, so that everything be done by the king's decree only, that is, so that every law be an explicit will of the king, but not every will of the king a law' (TP VII, 1). These decrees have to be prepared by councils that embody a form of collective rationality. In the same vein, Spinoza reconstructs the republican argument. Here also passions have to be kept in check by institutional arrangements, linking the citizens' private interest to that of the commonwealth. The radical position of dissenting religious groups is reconstructed in Spinoza's analysis of democracy. Although this was unfinished, it is evident that democracy cannot imply license, but the broadening of the category of citizens to the whole male, adult, economically self-supporting population. That is, only those who have an articulated interest can be institutionally integrated into the pursuit of the common interest. However detached and objective this analysis may be, it is evident that Spinoza takes republicanism (or aristocracy) to correspond most closely to the Dutch situation. He may be saying: here are the feasible possibilities, pick your choice, but the institutional and economic arrangements of the Dutch Republic are closest to that of his model of federalist aristocracy. The Orangists, and William III in particular, who stated that he had rather be a Doge of Venice than a king in the Dutch Republic, would scarcely feel comfortable in Spinoza's monarchy. But the events of the eighteenth century showed that Spinoza had foreseen the weaknesses of the Dutch stadholderate. But even in that century of Christian enlightenment, an atheist like Spinoza was not going to be heard. Spinoza's principled political philosophy was going to inspire philosophers elsewhere, who like him understood the birthpangs of modernity. In France Rousseau and in Great Britain Adam Smith continued the project, just as in our day libertarians, marxists and even postmodern philosophers follow his lead. This radical naturalist of the seventeenth century is a present-day companion in our quest for understanding man and society.

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CHAPTER 10
Occasionalism

Daisie Radner

The seventeenth-century doctrine known as occasionalism arose in response to a perceived problem. Cartesian philosophy generated the problem and provided the context for the answer. In the Cartesian ontology, mind and matter are substances totally different in nature. Souls or minds have modes of thought but not modes of extension; bodies have modes of extension but not of thought. Modes are properties that affect or modify substances. A substance with a particular mode can be conceived as not having this mode, but the mode cannot be conceived apart from the particular substance of which it is the mode. The modes of each substance belong to that substance alone and cannot belong to any other substance.[1] Each mind has its own thoughts, that is, its own perceptions and volitions, and they are numerically distinct from the thoughts of every other mind. Likewise, each body has its own figure, and each moving body has its own motion. Even when two bodies are said to have the same shape, the mode which is the figure of one body is numerically distinct from the mode which is the figure of the other.

In the 1640s, the following question was put to Descartes by Pierre Gassendi and again by Princess Elizabeth of Bohemia: how can the human mind act on the human body, and the body on the mind, if they are two substances totally different in nature? Descartes responds to Gassendi by dismissing the question:

> The whole problem contained in such questions arises simply from a supposition that is false and cannot in any way be proved, namely that, if the soul and the body are two substances whose nature is different, this prevents them from being able to act on each other.[2]

To Elizabeth, he acknowledges that the question is a fair one. He appeals to the notion of the union of soul and body, 'on which depends our notion of the soul's power to move the body, and the body's power to act on the soul and cause sensations and passions'.[3] He considers the notion of the union of soul and body to be a primitive notion and does not attempt to analyse it.

> What belongs to the union of the soul and the body can be known only obscurely by pure intellect or by intellect aided by imagination, but it can be known very clearly by the senses. That is why people who never philosophize and use only their senses have no doubt that the soul moves the body and that the body acts on the soul.[4]

The problem of mind-body interaction stems not from the Cartesian dualism *per se,* but from the dualism together with a certain view of efficient causation. Statements of this view are found in Descartes's *Third Meditation* and *Second Replies*. 'There is nothing in the effect which was not previously present in the cause, either in a similar or in a higher form.'[5] The reason why what is in the effect must preexist in the cause is that the cause communicates reality to the effect. 'For where, I ask, could the effect get its reality from, if not from the cause? And how could the cause give it to the effect unless it possessed it?'[6] How can the body cause sensations and passions in the soul, when it contains no such modes either in a similar or in a higher form? How can the soul move the body? Even if the soul is considered to contain motion in a higher form in so far as it has the idea of motion, how does the soul give reality to the body's motion?

The causation of motion is no less problematic in the action of one body upon another. Consider the instance in which a moving body B comes into contact with a smaller body C, which is at rest. According to Descartes's fifth rule of impact, body B 'transfers' part of its motion to C, as much of it as would permit the two bodies to move at the same speed.[7] In a letter to Henry More, Descartes admits that 'motion, being a mode of a body, cannot pass from one body to another'.[8] If no literal transference of motion occurs, then how does the moving body produce motion in the body moved?

Descartes never explicated the concept of communication of reality. To the philosophers we are about to consider, there seemed to be only two ways in which a cause could give to an effect something that it possessed in itself: either the cause transfers something from itself to the effect, or else it creates something in the effect comparable with what it has in itself. A created substance cannot transfer anything from itself to another substance, since everything in it is a mode of it, and the modes of one substance cannot be modes of another. The only way in which one substance can cause a change in another is by creating a new mode in the other substance. If a mode comes into existence and no created substance has the power to create it, then it must have been produced by God.

Occasionalism may be characterized in general as the view that causal efficacy belongs to God instead of to creatures. A being with causal efficacy is one having the power to produce a substance or a mode of substance. Occasionalism may be either partial or complete in the extent to which causal efficacy is denied to creatures. In partial occasionalism, at least some created substances have the power to modify themselves or other things. Some modes are produced by creatures; the rest are produced directly by God on the occasion of certain creatures being in certain states. A complete occasionalist denies that created

substances have any causal efficacy whatever. In complete occasionalism, no creature has the power to bring any mode into existence, either in itself or in another thing. All modes are produced directly by God on the occasion of certain creatures being in certain states.

Who was the first Cartesian philosopher to advocate occasionalism? Descartes himself sometimes uses the word 'occasion' to describe the body's action on the soul. For example, he writes in the *Treatise on Man* that, when the nerve fibres are pulled with a force great enough to separate them from the parts to which they are attached, they 'cause a movement in the brain which gives occasion for the soul…to have the sensation of *pain*'.[9] Descartes ought not on this account to be taken for an occasionalist, however. He does not assert that God produces the sensation on the occasion of the body's motion, but only that the motion gives occasion for the soul to have the sensation. There is no textual evidence that he tied the notion of giving occasion to a denial of causal efficacy. As Gouhier observes, for Descartes 'occasion' is a word of ordinary language rather than a substitute for the word 'cause'.[10]

There are hints of occasionalism in the work of the German Cartesian philosopher Johannes Clauberg (1622–65). In *De corporis et animae in homine conjunctione,* published in 1664, Clauberg argues that since the effect cannot be nobler than the cause the movements of the body are only *procatarctic* causes, which give occasion to the mind as principal cause to elicit ideas that are potentially in it. He also claims that the soul does not produce movement in the body but only directs it as a coachman directs a carriage. Nevertheless, the key element of occasionalism, the assignment of causal efficacy to God in specific instances, is missing in his writings.[11]

Occasionalism has three originators: Louis de La Forge (1632–66); Géraud de Cordemoy (1626–84); and Arnold Geulincx (1624–69). La Forge was the first Cartesian to use the term 'occasional cause'.[12] His *Traitté de l'esprit de l'homme* appeared at the end of 1665, although it carries the publication date of 1666. According to a contemporary, Jacques Gousset, La Forge disclosed his occasionalist opinion about 1658.[13] Cordemoy's *Discernement du corps et de l'âme* was published in 1666. At the beginning of the Fifth Discourse, on the union of the mind and the body and how they act on each other, he remarks that he told some friends about his ideas seven or eight years earlier. Battail takes this as evidence that Cordemoy's occasionalism was already mature in 1658 or 1659.[14] Thus La Forge and Cordemoy developed and published their occasionalist views at the same time. It is possible that there was communication between these two philosophers.[15] But there is no evidence of any actual meeting.[16] Neither author refers to the other. According to the editor of Clauberg's *Opera,* Clauberg corresponded with La Forge.[17] La Forge refers to Clauberg in the *Traitté,* but not in reference to occasionalism.

Geulincx's occasionalism is in the *Ethica,* the first part of which was published in 1665, and in the *Metaphysica vera,* published posthumously in 1691. There is no evidence of influence in either direction between Geulincx on the

one hand and La Forge and Cordemoy on the other. According to Vleeschauwer, occasionalism was present in Geulincx's work in 1652, and his system was fixed by 1664. Although it is possible that Clauberg could have influenced him in the consolidation of his system, Geulincx could not have known about the ideas of La Forge and Cordemoy before he published his own.[18] Influence in the other direction, from Geulincx to La Forge and Cordemoy, is equally untenable: there is no evidence that either of them was familiar with his work.[19]

While there is some question about the influence of the early occasionalists on one another, it is undeniable that at least some of them were sources for the occasionalist system of Nicolas Malebranche (1638–1715). Malebranche cites Cordemoy's *Discernement* in his own *Search after Truth*.[20] He had a copy of La Forge's *Traitté* in his library.[21] Although his occasionalism has affinities to that of Geulincx, there is no evidence that Malebranche read Geulincx's *Ethica* or *Metaphysica vera*. He never refers to Geulincx, and these books were not in his library, although he did have a copy of Geulincx's *Saturnalia seu questiones quodlibeticae*.

When Malebranche devised his theory of causation, he was very much in tune with the times. His achievement is best understood when viewed against a historical background. Thus, before I turn to Malebranche's occasionalism, I shall sketch the occasionalist positions of La Forge, Cordemoy and Geulincx.

LA FORGE

Louis de La Forge was born in La Flèche and lived in Saumur, where he practised medicine. He collaborated with Clerselier on the 1664 edition of Descartes's *Treatise on Man,* adding his own *Remarques*. He has been called the physiologist of Cartesianism.[22] The full title of his treatise reveals his main concern: *Traitté de l'esprit de l'homme, de ses facultez et fonctions, et de son union avec le corps, suivant les principes de René Descartes*. La Forge saw himself as a disciple of Descartes, but he was dissatisfied with Descartes's cursory treatment of the mind-body problem. He sought to complete Descartes's system by providing an account of the nature of the mind-body union. A union, he says, is a relation by which two things are considered as constituting one in a certain manner. The union of mind and body is a relation of mutual dependence between the actions and passions of one substance and the actions and passions of the other. Motions in the body make the mind perceive, and the mind's volitions make the body move.[23]

How do the passions of the mind depend on the actions of the body and vice versa? La Forge says that it is 'as equivocal cause that the mind by its thought constrains the body to move, and that the body in moving gives occasion to the mind to produce some thought'.[24] The term 'equivocal cause' is not a synonym for 'occasional cause'. Equivocal causes are contrasted with univocal causes: a cause is univocal when its effect resembles it, equivocal when its effect does not resemble it. Unlike the term 'occasional cause', the term 'equivocal cause' is

applicable to God as well as to creatures. 'For God is no less the creator of all things, and artisans creators of their works, though all these things are only the equivocal causes of these effects.'[25]

Occasional causes are contrasted with real (i.e. efficacious) causes. La Forge uses the term 'occasional cause' in discussing the causation of ideas. There are, he says, two causes of ideas, 'the one principal and real, the other remote and merely occasional'.[26] He goes on to say that bodies

> can be at most only the remote and occasional cause of them, which by means of the union of mind and body constrains the faculty we have of thinking, and determines it to the production of those ideas of which it is the principal and real cause.[27]

An occasional cause, then, is something that determines the real cause to produce the effect. From the passage just quoted, it is evident that La Forge is not a complete occasionalist, for he grants that the mind has causal efficacy with respect to its own ideas. A few pages later, he identifies the mind's causal power with its will: 'Thus we must not doubt that there exists in the mind an active power that produces and forms ideas which it perceives voluntarily, and we must be certain that this power is its will.'[28]

The problem of causation extends beyond the interaction of mind and body. It also includes the action of one body upon another.

> If I said that it is no more difficult to conceive how the mind of man, without being extended, can move the body, and how the body, without being a spiritual thing, can act on the mind, than to conceive how a body has the power to move itself and to communicate its motion to another body, I do not think I would find credence in the minds of many people; yet there is nothing more true.[29]

It is evident that bodies communicate motion to one another, but not so evident how this is accomplished.

> Do our senses teach us how motion can pass from one body into another? Why does only part of it pass, and why cannot a body communicate its motion in the same way as a master communicates his knowledge, without losing anything of what he gives?[30]

For his causal analysis of the communication of motion, La Forge follows Descartes in distinguishing motion, or the transport of a body from one vicinity to another, from the force that transports the body. Motion is 'a mode, which is not distinct from the body to which it belongs, and which can no more pass from one subject into another than the other modes of matter, nor befit a spiritual substance'.[31] Moving force is not in moving bodies. 'If a body cannot move

itself, then in my opinion it is evident that it cannot move another. And thus every body in motion must be impelled by a thing entirely distinct from it, which is not body.'[32] Moving force is not in bodies, because the idea of extension is not involved in its concept. 'Thus we have reason to believe that the force which moves is no less really distinct from matter than thought is, and that it pertains as well as it to an incorporeal substance.'[33]

Human minds lack the force to move matter, not because minds are incorporeal, but because matter is already moved by its creator. In creating bodies, God produces them at rest or in motion. No creature, whether spiritual or corporeal, can make a body change its place 'if the creator does not do it himself, for it is he who produces this part of matter in place A'.[34] Not only must God continue to create a body if it is to persevere in being; he must also 'put it himself in place B if he wills that it should be there; for if he put it anywhere else, no force would be capable of dislodging it'.[35]

God is thus 'the first, universal, and total cause' of all motions in the world.[36] Bodies and minds function as 'particular causes of these same motions…by determining and obliging the first cause to apply his moving force upon bodies upon which he would not have exercised it without them'.[37] God's moving force is determined by bodies in accordance with the laws of motion, and by minds according to the extent to which bodily movement is subject to the will; 'the force that bodies and minds have of moving consists in that alone.'[38]

Some commentators claim that La Forge was reluctant to embrace occasionalism.[39] Their main textual evidence is the following statement: 'Nevertheless, you ought not to say that God does everything, and that the body and the mind do not really act upon each other.'[40] This statement need not be taken to mean that the mind and the body are causally efficacious with regard to each other, however. La Forge goes on to explain why it is incorrect to say these things: 'For if the body had not had such a motion, the mind would never have had such a thought, and if the mind had not had such a thought, perhaps also the body would never have had such a motion.'[41] This reason is quite compatible with an occasionalist account of the mind-body relation. In occasionalism, God's productive activity is determined by certain creatures being in certain states. The mind would not have a certain thought if the body did not have a certain motion, because God would not have produced that thought were it not for the body's motion. Likewise, the body would not move in a certain way if the mind lacked a certain thought, because God does not give the body that motion unless the mind has that thought. The mind and the body 'really act upon each other' in the sense that each plays a decisive role in what happens to the other.

CORDEMOY

Géraud de Cordemoy was born in Paris in 1626. Originally a lawyer, he served as *lecteur* to the Grand Dauphin. His philosophical works include *Le Discernement du corps et de l'âme* (1666); *Lettre écrite à un sçavant religieux*

de la Compagnie de Jésus, dated 5 November 1667 and published in 1668; *Discours physique de la parole* (1668); and two small *Traités de métaphysique,* published in 1691, seven years after his death.

Cordemoy had close ties with the Cartesian school. His *Discours de l'action des corps,* which appears as the second discourse in the *Discernement,* was first published in the 1664 edition of Descartes's *Le Monde.* Cordemoy explicitly defends Descartes in the *Lettre écrite à un sçavant religieux,* the aim of which is 'to show that all that Monsieur Descartes has written concerning the system of the world, and concerning the soul of beasts, seems to be drawn from the first chapter of Genesis'.[42]

Although he is generally in agreement with Cartesian principles, Cordemoy diverges from Descartes's teaching on atoms and the void. According to Cordemoy, matter is an aggregate of indivisible extended substances. He bases his atomism on the metaphysical principle that substances, as unities, are indivisible. 'I say that each body is an extended substance, and consequently indivisible; and that matter is an assemblage of bodies, and consequently divisible into as many parts as there are bodies,[43] By his terms, the human body is not really a body but matter. Nevertheless, he follows common usage in referring to it. We call it a *body,* he explains, because the arrangement of its parts leads us to regard it as a single thing.[44]

Like La Forge, Cordemoy sees the problem of mind-body interaction as part of a larger problem of causation, which also includes the action of one body upon another. The following statement in the *Discernement* echoes La Forge's in the *Traitté:* 'Unquestionably, it is no more difficult to conceive the action of minds upon bodies, or that of bodies upon minds, than to conceive the action of bodies upon bodies,[45] A moving body collides with a body at rest. The first body stops moving; the second one starts. That, says Cordemoy, is all we see. The belief that the first body gives motion to the second is a prejudice, which comes from judging things solely by what we see. A moving body cannot communicate its motion to another body, 'for the state of one body does not pass into another'.[46] 'It is evident that the motion of each is only a manner of being of it, which, not being separable from it, cannot in any way whatsoever pass into the other.'[47]

To cause motion is an action. An action can be continued only by the agent that began it. Thus the cause of motion in bodies is the agent that began to move them. This first mover of bodies is not a body; for if it were, it would have motion of itself. But no body has motion of itself, because a body would still be a body if it lost all its motion, and a thing does not have of itself what it can lose without ceasing to be what it is. Since there are just two sorts of substances, mind and body, and the first mover of bodies is not a body, it must be a mind. This mind continues to move bodies.[48] Thus, when body B, in motion, collides with body C, which is at rest, C is moved after the collision by the same cause that moved B before, namely, by the mind that first set bodies in motion. The collision is 'an occasion for the mind that moved the first to move the second'.[49] The true cause of motion is insensible, and we are often content to stop at what

we see. In such cases, we say that the motion of bodies is explained by the fact that other bodies collided with them, 'thus alleging the occasion for the cause'.[50]

The human body is moved by the same mind that moves all other bodies. We observe that when we will to move our body in a certain way, it moves accordingly. But we also know that motions occur in our body in the absence of volitions, and that motions sometimes fail to occur even though we will them. Hence our will is neither necessary nor sufficient for bodily movement. Our weakness shows us that we do not cause motion simply by willing it. This impotence of our will is due to our being dependent on something else for our existence.

> But if we consider that this permanent defect of our mind comes only from its not being through itself, and that if it were through itself, it would lack nothing, so that all that it willed would exist; we would readily apprehend that there is a first Mind, who, being through himself, needs only his will in order to do everything; and that, nothing being lacking to him, as soon as he wills that what is capable of being moved should be in motion, that must necessarily happen.[51]

God exercises his power according to laws he has laid down: laws of collision between bodies; and, between minds and bodies, laws by which certain motions in the body are followed by certain perceptions in the mind, and volitions of the mind are followed by bodily movements.[52] Although bodies do not really cause motion, one body can be said to act upon another, 'when on its occasion, this other body begins to be arranged or moved otherwise than it was previously'.[53] A body can be said to act upon a mind if this body, or a mode of it, is perceived by the mind, 'so that on its occasion, this mind has thoughts that it did not have previously'.[54] A mind can be said to act on a body if, as soon as the mind wills that the body should be moved in a certain direction, the body is so moved. One can say that our mind acts on our body, even though

> it is not really our mind that causes the movement…. And, as one is obliged to acknowledge that the collision of two bodies is an occasion for the power that moves the first to move the second, one should have no difficulty in conceiving that our will is an occasion for the power that already moves a body to direct its movement in a certain direction corresponding to this thought.[55]

In the *Discernement,* Cordemoy deprives bodies of all causal efficacy, and human minds of the power to move bodies. In the *Discours physique de la parole,* he adds that minds do not cause any of their own perceptions: 'It is as impossible for our souls to have new perceptions without God, as it is impossible for bodies to have new motions without him,'[56] Thus Cordemoy is a more

complete occasionalist than La Forge, who allowed the mind the power to produce its own ideas.

Does the mind have any causal efficacy with respect to its volitions? Cordemoy takes up this question in the second *Traité de métaphysique,* 'That God does everything real in our actions, without depriving us of our liberty'. Bodies, he says, are capable of being acted upon, but not of acting. Minds are capable of both passions and actions. Their perceptions are their passions; their volitions are their actions. God causes the actions of minds, just as he causes their passions.

> And, as it cannot be said that the passions of minds are his passions, but only that they are the passions of minds, it cannot be said that the actions of minds are his actions, but only that they are the actions of minds.[57]

When the mind wills, God causes the volition, but it is still the mind that wills.

God has made all things for himself. Bodies do not know this end, but minds do and thus need action to pursue it. God gives minds an unceasing desire for this end, and an inclination to choose a means to it. When presented with several alternatives, minds can resolve not to choose, or they can deliberate and then decide on one. This resolution or this decision 'is an action, which in truth would not be in them without God, but which is their action, and not God's'.[58] Because it is theirs, they can be held responsible for it. God produces all that is real in the willing situation, but 'if the minds have chosen badly, it is a fault of which they alone are guilty. God has made…what suffices to act well, and the minds have not used the power that he put into them.'[59]

GEULINCX

Arnold Geulincx was born in Antwerp. He was a professor of philosophy at the University of Louvain from 1646 until 1658, when he was dismissed for unspecified reasons.[60] He moved from Belgium to the Netherlands and converted to Calvinism. With some difficulty, he obtained a position at the university in Leyden, first as reader, then as *professor extraordinarius*. He died of the plague in 1669, at the age of 45. The first complete edition of the *Ethica* appeared in 1675. Geulincx's occasionalist views are found in this work, as well as in the *Metaphysica vera,* published in 1691.

Geulincx's philosophy is a synthesis of Cartesianism and Jansenism. Cartesian elements include the *cogito,* the dualism and the inertness of matter. From Jansenism comes the theme of human impotence. Occasionalism provides an analysis of human impotence in terms compatible with Cartesian metaphysics. Geulincx's treatment of occasionalism is less systematic than that of either La Forge or Cordemoy. In particular, he pays little attention to the problem of interaction between bodies. As a moral philosopher, he is concerned more with

the ethical implications of occasionalism than with the elaboration of it as a causal theory.

Geulincx argues against the causal efficacy of created things, using a principle which he says is evident in itself: *Quod nescis quomodo fiat, id non facis*—if you do not know how it is done, you do not do it. He applies this principle to bodies as well as to minds. Material objects cannot cause sentiments in minds, because they are *res brutae,* brute things, with no thought of any kind. Lacking knowledge, they cannot know how sentiments are produced. Minds do not cause sentiments in themselves, since they, too, are ignorant of how it is done. Sentiments are produced in the mind by a thinking being, one that has the knowledge needed to make them. This being acts through the mediation of the human body, giving the mind a diversity of sentiments as the body is diversely affected.[61]

The mind cannot cause movement in the body, not even so-called voluntary movement, for the mind does not know how it is accomplished. Most people are entirely ignorant of the nerves and pathways through which motions are communicated from the brain to the limbs. Those who learn anatomy and physiology were able to move their limbs before they gained such knowledge, and they move them no better afterwards. This shows that it is not by one's own knowledge that one's limbs are moved. The author of my bodily movement, then, is a being other than myself.[62] I want my body to move in a certain manner, as in talking or walking; 'thereupon certain parts of my body are moved, not in fact by me, but by the mover'.[63] 'Certainly, it is never done, strictly speaking, because I will, but because the mover wills.'[64]

In the Annotations to the *Ethica,* Geulincx compares the mind and the body to two clocks:

> My will does not move the mover to move my limbs; but the one who has imparted motion to matter and has laid down the laws to it, the same one has formed my will and thus has closely united these very dissimilar things (the motion of matter and the determination of my will), so that, when my will wishes, motion of the desired kind is present, and, on the contrary, when the motion is present, the will has willed it, without any causality or influx from one to the other. Just as with two clocks that agree with each other and with the daily course of the sun: when one sounds and indicates the hours to us, the other sounds in the same way and indicates the same number of hours to us; not because there is any causality from one to the other, but because of the mere dependence, in which both are constructed by the same art and by similar activity.[65]

The analogy of two clocks has an obvious affinity to the analogy later used by Leibniz.[66] Leibniz uses the analogy to differentiate three systems: interactionism, occasionalism and his own system of pre-established harmony. Geulincx, by contrast, has only two alternatives in mind: interactionism and occasionalism. In

Leibniz's version of occasionalism, the craftsman continually adjusts the clocks to keep them in agreement. In Geulincx's version, the clockmaker ensures agreement by the way in which he constructs the clocks. In this respect, the occasionalism of Geulincx is like the pre-established harmony of Leibniz.

Geulincx's occasionalism is unlike Leibniz's system in that God acts directly on the mind and the body, producing changes in one corresponding to the changes he produces in the other. This aspect is not brought out in the analogy of the two clocks. It is illustrated by another analogy, which Geulincx presents just before his clock analogy. A baby in a cradle wants to be rocked. If the cradle rocks, it does so not because the baby wills it, but because his mother or nurse rocks it. Just as the cradle rocks in accordance with the baby's wish, though it is rocked by someone else, so, too, our limbs move in accordance with our will, but the movement is caused by a will other than our own.

Having made the point that God is the one who produces voluntary motion, Geulincx introduces the analogy of the clocks to illustrate a further aspect of occasionalism, namely, the regularity of God's action. The two clocks stay in agreement, even though there is no causal connection between them, because their maker acts according to general laws. Geulincx says in the *Ethica* that God produces his effects 'according to laws most freely established by him and depending solely on his decision'.[67] He adds that if my tongue moves at the command of my will, but the earth does not tremble at my command, the sole difference is that God decided that the first movement should occur when I will it, but not the second. In the annotation to this passage, he evokes the clock metaphor: God has willed and arranged that when the clock of my will sounds, the clock of my tongue sounds also, whereas he has not arranged a similar agreement between the clock of my will and the clock of the earth.[68]

The human condition consists in being an embodied mind, that is, a mind united to a body in such a way that it seems to act on and to be acted on by it.[69] Nevertheless, we have no more causal efficacy with respect to our own bodily movements than we have with respect to the rising and setting of the stars or the ebb and flow of the sea. 'Thus, I am a mere spectator of this machinery. I make nothing in it, I amend nothing in it; I neither construct nor destroy anything. All that is the work of a certain other.'[70] 'I can, in this world, do nothing outside myself…. I merely look on this world.'[71] I am not, however, a mere spectator of my own volitions. To will or not to will is my deed. I have the power to conform my will to Reason or to refuse to do so. The greatest freedom is achieved by willing what Reason prescribes and not willing what it prohibits.[72]

MALEBRANCHE

The occasionalist movement culminates in the work of Nicolas Malebranche, a priest of the congregation of the Oratory. Although he accepted the Cartesian ontology of substance and mode, mind and matter, Malebranche did not hesitate to depart from Descartes's teaching when reason or experience demanded it. His

disagreement with Descartes is most explicit on the questions of the nature of ideas and the laws of motion.

Like La Forge, Malebranche was dissatisfied with Descartes's refusal to explicate the union of mind and body. One cannot dismiss the question simply by saying that experience plainly shows that the body and the mind act on each other. Experience teaches that the mind feels pain when the body is injured, but not that the body has any power to act upon the mind.[73] It is not enough to say that the body and the mind interact by virtue of their union. 'The word "union" explains nothing. It is itself in need of explanation.'[74] Moreover, it cannot be part of the explanation that the mind and the body become capable of the same sorts of modifications.

> Each substance remains what it is, and as the soul is incapable of extension and movement, so the body is incapable of sensation and inclinations. The only alliance of mind and body known to us consists in a natural and mutual correspondence of the soul's thoughts with the brain traces, and of the soul's emotions with the movements of the animal spirits.[75]

Malebranche's arguments for occasionalism are found in a number of his writings, especially *The Search after Truth,* first published in 1674–5 (the Elucidations were added in the third edition of 1677–8); *Méditations chrétiennes et métaphysiques* (1683); and *Dialogues on Metaphysics and on Religion* (1688). He considers all cases of alleged causal action by created things: bodies acting on bodies; bodies acting on minds; minds acting on bodies; minds acting on themselves to produce sentiments, ideas and volitions. He rejects each of them in turn.

Malebranche gives two types of argument against the causal efficacy of bodies. The first proceeds from the premise that material substance is passive by nature. The only kinds of properties that pertain to extension are figure and motion. As extended things, bodies have the passive faculty of receiving such modes, but they lack the active faculty of producing them. 'A mountain, a house, a rock, a grain of sand, in short, the tiniest or largest body conceivable does not have the power to move itself.'[76] Moreover, no body has the power to produce ideas or sentiments in a mind. 'Do you think that a figure can produce an idea, and a local movement an agreeable or disagreeable sentiment?'[77]

The second type of argument has the form of *reductio ad absurdum*. Suppose that bodies had a power to act or to bring about change. The exercise of this power would involve some state of affairs that is incompatible with the Cartesian ontology. Malebranche uses this form of argument against the human body as cause of sensations in the mind, and also against one body as cause of another body's motion. Suppose that the human body acquired a power to act on the mind by virtue of its union with the mind. This power would have to be either a substance or a mode. If it is a substance, then the mind is acted on by this substance and not by the body. If the power is a mode, then there is a mode of

extension which is neither figure nor motion. But this is impossible. Consequently, the body can have no power of acting on the mind.[78] Similarly, suppose that bodies in motion have moving force in themselves and that they communicate this force to bodies they encounter. This would involve the transference of a mode from one substance to another, which is impossible. 'If the moving force belonged to the bodies in motion, it would be a *mode* of their substance; and it is a contradiction that *modes* go from substance to substance.'[79] 'If it is a mode, it is a contradiction that it passes from one body into another, since the mode is only the substance in such and such a manner.'[80]

Malebranche gives a further reason why bodies could not communicate moving force even if they had it: 'For the bodies that collide communicate their motion with a regularity, a promptitude, a proportion worthy of an infinite wisdom.'[81] In some passages, he suggests that bodies would need knowledge in order to exercise their alleged power in a manner appropriate to the circumstances:

> For it is evident that a wisdom, and an infinite wisdom, is necessary in order to regulate the communication of motions with the precision, the proportion, and the uniformity that we see. Since a body cannot know the infinite bodies that it meets at every turn, it is obvious that even if one supposes some knowledge in it, it could not itself have brought about, in the instant of collision, the distribution of the moving force that transports it.[82]
>
> But suppose that this body really had the force to move itself. In what direction will it go? At what degree of speed will it move itself?…I even grant that this body has enough freedom and knowledge to determine its movement and the degree of its speed: I grant that it is master of itself. But take care,…for, supposing that this body finds itself surrounded by an infinity of others, what will become of it when it encounters one of which it knows neither the solidity nor the size?[83]

Any similarity here between Malebranche and Geulincx is only superficial. For Geulincx, the mere fact that bodies lack knowledge is sufficient to deprive them of causal efficacy. Malebranche's point is not that bodies need knowledge in order to produce motion *per se,* but that they need it in order to produce motion with the regularity that it actually exhibits. No explanation of this regularity can be found in the nature of bodies, even if one supposes them to have moving force.

Moving force, the power to move bodies, lies not in bodies but in their creator. Like La Forge, Malebranche defends this position by appeal to the Cartesian doctrine of continuous creation and the principle that to create a body is to create it at rest or in motion.

> Creation does not pass: the conservation of creatures is on the part of God simply a continued creation, simply the same volition which subsists and

> operates unceasingly. Now, God cannot conceive, nor consequently will, that a body be nowhere or that it not have certain relations of distance with other bodies. Hence, God cannot will that this chair exist and, by his volition, create or conserve it without His placing it here or there or elsewhere. Hence, it is a contradiction that one body be able to move another.[84]

When God creates individual substances, he wills that they exist in certain manners, that is, he wills that they have certain modes. Rest consists in an unchanging relation of distance to other bodies; motion, in a changing relation of distance. A body must have one or the other of these modes. So long as God creates a body in motion, nothing can bring that body to rest; so long as he creates it at rest, nothing can set it in motion.

> No power can transport it where God does not transport it, nor fix or stop it where God does not stop it, unless it is because God accommodates the efficacy of His action to the inefficacious action of his creatures.[85]

Finite minds do not have the power to move bodies. Like Cordemoy, Malebranche denies causal efficacy to created minds on the ground that there is no necessary connection between their volitions and the occurrence of what is willed. A true (i.e. efficacious) cause is 'one such that the mind perceives a necessary connection between it and its effect'.[86] There is such a relation between God's will and its effects, for it follows from the idea of God as an omnipotent being that whatever he wills necessarily takes place. It is a contradiction that God wills my arm to be moved and it remains motionless. There is no necessary connection, however, between my will and the movement of my arm; no contradiction is involved in the statement that I will to move my arm but it does not move. Thus I am not the true cause of the movement.[87]

Minds are equally impotent with regard to their own sentiments, and for the same reason: there is no necessary connection between the mind's volition to have a certain sentiment and its having that sentiment. This is shown by the fact that we often feel otherwise than we wish to feel. 'But it is not my soul either that produces in itself the sensation of pain that afflicts it, for it feels the pain in spite of itself.'[88]

Malebranche also denies causal efficacy to minds on the ground that they lack the knowledge required to produce their alleged effects. He argues in this way against the mind as cause of ideas and of bodily movements. In both contexts, the argument is based on the Cartesian principle that the mind can will only what it knows, or, as Descartes puts it, 'we cannot will anything without understanding what we will'.[89] The structure of the argument is as follows. If the mind produces X, then it does so by willing that X exist. In order to will that X exist, the mind must know what X is. But the mind does not know what X is. Hence the mind cannot produce X. With regard to ideas, Malebranche writes: 'I deny

that my will produces my ideas in me, for I do not see even how it could produce them, because my will, which is unable to act or will without knowledge, presupposes my ideas and does not produce them.'[90] This argument figures in the case for the vision in God. When we wish to think of some object, the idea of that object becomes present to the mind. The mind cannot have produced the idea, for in order to form the idea of an object, one must already have an idea of it, an idea which does not depend on the will.[91]

When the knowledge argument is applied against the mind as cause of bodily movement, the premise needs more elaboration. I will to move my arm and my arm moves. I know what I will in the sense that I have the idea of my arm moving. But this idea does not contain sufficient information to enable me to will the movement into existence. My arm moves by a complex physiological process. Animal spirits pass through certain nerve ducts toward muscles in the arm, distending and contracting them, thereby moving the arm in a particular way. In order to produce the motion by an act of will, it is not enough for me to will that the end result occur. I must will the physiological process in all its detail. And in order to will the process, I must know what it is. Yet people who do not know that they have animal spirits, nerves and muscles move their limbs perfectly well, often better than those most learned in anatomy. This observation appears in *The Search after Truth* and in the *Méditations chrétiennes et métaphysiques*. In the latter, the Word goes on to ask: 'Can one do, can one even will, what one does not know how to do?'[92] In the *Search,* Malebranche goes on to conclude:

> Therefore, men will to move their arms, and only God is able and knows how to move them. If a man cannot turn a tower upside down, at least he knows what must be done to do so; but there is no man who knows what must be done to move one of his fingers by means of animal spirits.[93]

Here Malebranche is close to Geulincx. Geulincx's axiom was: 'If you do not know how it is done, you do not do it.' Malebranche, too, speaks of knowing how something is done, and he equates this with knowing how to do it. In Malebranche, however, the principle clearly hinges on the Cartesian principle that knowing is a necessary condition of willing, and as such it applies exclusively to beings having a faculty of will. To be sure, Malebranche applies the principle to bodies, as we saw earlier; but he does so only on the supposition that bodies are endowed with something akin to will.

Does the mind have causal efficacy with respect to its volitions? Like Cordemoy, Malebranche insists that God produces all that is real in the willing situation. Will is the natural impression that carries us toward the good in general.[94] Malebranche compares the mind's inclinations to the motions of bodies. Like corporeal motion, an inclination of the mind requires a force to produce it; and like the moving force of bodies, the 'willing force' of souls is the action of God's will.[95] God creates us with an inclination toward whatever

appears good to us, or with an invincible desire to be happy. He also gives us all our agreeable and disagreeable perceptions. When we perceive a real or apparent good, we have a natural inclination toward it, and God produces this particular inclination in us. As the creator of minds, God is the true cause of all their modes, both perceptions and inclinations. The mind's only power is that of giving or suspending consent to its inclinations. In doing so, it produces no new mode in itself. 'I have always maintained that the soul was active; but that its acts produce nothing material, or bring about by themselves, by their own efficacy, no new modalities, no material change, either in the body or in itself.'[96] In suspending consent, we judge that a particular good will not make us truly happy. Herein lies our freedom.

> The principle of our freedom is that as we are made for God and are joined to Him, we can always think of the true good or of goods other than those of which we are actually thinking —we can always withhold our consent and seriously examine whether the good we are enjoying is or is not the true good.[97]

GENERAL LAWS

Occasionalism has both a positive and a negative side. The negative side is the denial of causal efficacy to created things. The positive side is the attribution of causal efficacy to God. It is tempting to dismiss the positive side as philosophically uninteresting. As true cause, God produces effects by willing them into existence, a process that is at bottom incomprehensible, as Malebranche himself admits:

> The saints, who see the divine essence, apparently know this relation, the efficacious omnipotence of the creator's volitions. For our part, although we believe it by faith, although we are persuaded of it by reason, the necessary connection of the act with its effect is beyond our comprehension; and in this sense we have no clear idea of his power.[98]

The positive side of occasionalism has more to it, however. God produces effects, but he does so according to general laws, on the occasion of certain creatures being in certain states. All of the occasionalists refer to general laws of divine causation, but Malebranche's exposition of the lawlike manner of God's action is by far the most thorough.

God is a general cause as well as a true cause. He is a true cause, in that his will is efficacious by itself: there is a necessary connection between a divine volition and its object. God is a general cause, in that he produces effects by general volitions rather than by particular volitions. Malebranche distinguishes between general and particular volitions as follows:

> I say that God acts by general volitions, when he acts according to the general laws that he has established…. I say, on the contrary, that God acts by particular volitions, when the efficacy of his will is not determined by some general law to produce some effect.[99]

A general volition is a volition that effects of type E occur whenever conditions of type C are present. Examples of general volitions are the volition that minds feel pain whenever the bodies to which they are joined are disturbed in certain ways, and the volition that whenever bodies collide, motion is distributed in certain proportions according to their mass, speed and direction. A particular volition, by contrast, is simply a volition that a particular effect occur, for instance that a certain mind feel pain, or that a body move in a certain way, irrespective of the circumstances.

A true cause can act either by general volitions or by particular volitions. That God is a true cause follows from his omnipotence. That he is a general cause follows from his wisdom and immutability. It shows more wisdom to achieve a variety of effects by following a set of laws selected in advance than to achieve the same variety by introducing a separate volition for each effect. Moreover, the former way of acting bears the character of immutability, since it is uniform and constant, whereas the latter requires changes of conduct at every turn.[100] Aside from the initial creation of the world, God acts by particular volitions only when such conduct expresses his goodness or justice better than action by general volitions expresses his wisdom and immutability. This happens 'only on certain occasions that are entirely unknown to us'.[101]

God's general laws are in principle discoverable, at least in rough outline. They fall into two main categories: laws of nature and laws of grace. The laws of nature are known through reason and experience. They include (1) laws of the communication of motion, according to which motions are produced in animate and inanimate bodies; (2) laws of the union of soul and body, for the production of voluntary movements in human bodies and of sentiments in human minds; and (3) laws of the union of soul with God or universal Reason, by which we perceive ideas in God. The laws of grace are learned from Scripture. They include (4) laws giving angels power over bodies, for the distribution of temporal goods and ills; and (5) laws giving Jesus Christ power over minds and bodies, for the distribution of temporal and eternal goods.[102]

Each of the five sets of laws has a specific type of occasional cause associated with it. An occasional cause is a state of affairs that determines what particular effect will be brought about in a given case. The desires of Jesus and the angels are occasional causes in the realm of grace: God moves bodies as the angels wish, and he gives sentiments of grace to people as Jesus wishes. In the realm of nature, occasional causes are discoverable by examining the circumstances under which the effects take place and noting the regularities.

> God never moves bodies unless they are struck; and when they are struck, he always moves them. The soul never feels the pain of a prick unless the body is pricked, or unless there occurs in the brain the same disturbance as if the body were pricked; and God always makes the soul feel the pain of a prick when the body is pricked, or when there occurs in the brain the same disturbance as if the body were pricked. God never moves my arm, except when I have the volition to move it; and God never fails to move it, when I have the volition that it move.[103]

The impact of bodies is the occasional cause that determines the efficacy of the laws of motion. Motions in the human body and volitions in the mind are the occasional causes determining the efficacy of the laws of the union of soul and body. As for the laws of the union of soul with God, the occasional cause is the soul's desire or attention. 'The soul's desire is a natural prayer that is always fulfilled, for it is a natural law that ideas are all the more present to the mind as the will more fervently desires them.'[104]

There is some overlap in the scope of application of the three sets of natural laws. The mind has both pure and sensible perceptions of ideas in God. It has pure perceptions on the occasion of its attention, according to the laws of the union of soul with God. It has sensible perceptions on the occasion of brain traces of sensible objects, according to the laws of soul-body union.[105] In some situations one set of laws takes precedence; in other situations, another set. For example, when we are distracted from our study of geometry by a loud noise, our minds are modified according to the laws of soul-body union. Were the distraction not present, the desired perceptions would be given to us according to the laws of the union of soul with universal Reason.

Similarly, our bodies have both voluntary and involuntary motions. The former are produced according to the laws of soul-body union; the latter, according to the laws of the communication of motion. God moves my arm when and only when I wish it to move, provided that there is not some countervailing circumstance that determines him to act otherwise according to the laws of motion. For instance, the sight of an impending fall may set off a chain of physiological events leading to the involuntary raising of an arm. Such mechanical actions often cannot be prevented by an act of will, but sometimes they can. Indeed, for Malebranche, one of the strongest indications of the absence of soul in animals is their inability to halt the mechanical operations of their bodies. Dogs cry out when they are injured. This shows, Malebranche says, not that they have souls but that they lack them;

> for a cry is a necessary effect of their machine's construction. When a man in full health fails to cry out when he is injured, it is a sign that his soul is resisting the operation of its machine. If he had no soul and if his body were in the right state, certainly he would always cry when injured. When

> our arm is to be bled, we all feel it withdraw mechanically when it is pricked—unless the soul is there to resist.[106]

Malebranche admits, then, that sometimes my arm moves without my willing it to move. Yet elsewhere he says that God moves my arm whenever I will it, and only when I will it. There is no contradiction between these two claims. One is a statement of observation; the other is a simplified description of a general volition of God. We do not actually observe that our arms move when and only when we will them to move. We do, however, observe that there is an association between our volitions and the movement of our limbs; and on the basis of this association, we infer that this is one of the laws according to which motion is produced in human beings. The fact that my arm sometimes moves in the absence of any volition on my part shows that this law is not the only one by which such motion is produced. Sometimes another type of occasional cause determines the efficacy of another of God's general volitions to produce the same sort of effect.

In addition to the laws of nature, God must also have higher-order general volitions for determining which set of laws is operative when two sets overlap in scope. Malebranche does not explicitly assert that God has such higher-order volitions, but it is implicit in his discussion of the interrelations among the different sets of natural laws. 'Thus,' he writes in the Second Elucidation of the *Search,*

> provided that our capacity for thought or our understanding is not taken up by the confused sensations we receive upon occasion of some bodily event, whenever we desire to think about some object the idea of that object is present to us; and as experience teaches us, this idea is clearer and more immediate as our desire is stronger or our attention more vivid and as the confused sensations we receive through the body are weaker and less perceptible.[107]

When attention and bodily sensations compete as occasions for the production of perceptions in the mind, the winner is the one with greater relative strength. If attention is strong and sensation is weak, then the perceptions are produced according to the laws of the union of soul with universal Reason. If attention is weak and sensation is strong, then God gives the mind perceptions according to the laws of the union of soul and body.

One of the laws of soul-body union is 'that all the soul's inclinations, even those it has for goods that are unrelated to the body, are accompanied by disturbances in the animal spirits that make these inclinations sensible'.[108] The soul can alter the operation of the body 'only when it has the power of vividly imagining another object whose open traces in the brain make the animal spirits take another course'.[109] Thus, when there is competition between physiological conditions and the soul's inclinations as possible occasional causes of certain

classes of bodily motions, the strength of the soul's sentiment of the desired good determines whether the effect happens according to the laws of motion or according to those of soul-body union.

Does occasionalism have any merit as a philosophy of science? So long as one focuses exclusively on the assignment of causal power to God, it seems that occasionalism cuts off any serious attempt at causal explanation. For any particular effect E, the answer to the question 'What produced E?' is always the same, namely God. But there is more to causal explanation than citing the productive cause—even for an occasionalist. A causal explanation of a particular effect must show why this effect occurred rather than some other. Such an explanation has not been provided if the explanans works equally well for anything else that might have happened instead. Suppose one wants to know why linen dries when it is placed near the fire.

> I shall not be a philosopher [Malebranche says] if I answer that God wills it; for one knows well enough that all that happens, happens because God wills it. One does not ask for the general cause, but for the particular cause of a particular effect. I ought therefore to say that the small parts of the fire or of the agitated wood, hitting against the linen, communicate their motion to the parts of water on it, and detach them from the linen; and then I shall have given the particular cause of a particular effect.[110]

Instead of closing the door to scientific investigation of the causes of natural events, occasionalism clarifies the topic of inquiry; one is looking not for causal powers, but for conditions that determine the efficacy of natural laws.

Since all natural effects are produced by general volitions of God, and since the general volitions that constitute the laws of nature are discoverable by reason and experience, every part of the natural world is in principle amenable to scientific inquiry. Malebranche offers little hope for a science of mind; for he insists that we know our own minds only through our inner feeling of what takes place in us, and other minds only by analogy with our own.[111] He does, however, lay the foundation for an empirical science of human behaviour. According to Cartesian doctrine, animal behaviour is ultimately explainable by the laws of motion alone, whereas human behaviour is not. For Malebranche, human behaviour is explainable by a judicious combination of the laws of motion with those of soul-body union.

There are affinities between the mechanisms of animal and human behaviour. In both animals and humans, there is a natural connection between brain traces and the motion of the animal spirits. Different patterns of behaviour are associated with different brain traces. There are two kinds of brain traces: natural and acquired. Natural traces are common to all members of a species and can never be completely destroyed. Acquired traces are gradually lost unless they are reinforced by continual application of the conditions that originally gave rise to them. When acquired traces incline an individual toward behaviour contrary to

that which is characteristic of its species, the individual tends to revert to its natural behaviour. The natural traces

> have, so to speak, secret alliances with other parts of the body, for all the organs of our machine help maintain themselves in their natural state. All parts of our bodies mutually contribute to all the things necessary for this conservation, or for the restoration of natural traces. And so they cannot be completely erased, and they begin to revive just when one believes they have been destroyed.[112]

In addition to the natural connection between brain traces and motions of animal spirits, there are also, in human beings, natural connections between these bodily occurrences and mental states. Malebranche gives the following example. When we see a wounded person, animal spirits flow into the part of our body corresponding to the injured part in the other person. This bodily sympathy is the occasional cause of a feeling of compassion, which excites us to help the other person. The same sort of process gives rise to feelings of compassion towards animals.[113] Although Malebranche wholeheartedly accepts the Cartesian beast-machine doctrine, he considers the human tendency to socialize with animals as part of the institution of nature, and he seeks to explain it in terms of the same laws as other human behaviours. Brain traces in the master, when he sees his dog wagging its tail, lead him to feel that his dog knows and loves him. On the occasion of these traces, animal spirits take their course into his arm to pat his dog and to share food with it.

> Man would not be precisely as he is, the doleful looks and pleasing movements of the dog would not naturally produce any sentiment in the soul of man, or any motion in the course of his animal spirits, if God had not willed to establish a liaison between man and dog.[114]

According to Malebranche, all human behaviour is motivated by pleasure.

> One can love only that which pleases…. It is thus certain that all men, righteous or unrighteous, love pleasure taken in general, or will to be happy; and that it is the sole motive that determines them to do generally all that they do.[115]

All passions, including those springing from the perception of some evil, are accompanied by ‘a certain sensation of joy, or rather of inner delight, that fixes the soul in its passion’.[116] Malebranche defines the passions of the soul as ‘impressions from the Author of nature that incline us toward loving our body and all that might be of use in its preservation’.[117] They are interconnected, by the institution of nature, with bodily states. ‘The passions are movements of the soul that accompany those of the spirits and the blood, and that produce in the

body, by the construction of the machine, all the dispositions necessary to sustain the cause that gave birth to them.'[118] One cannot rise above one's passions simply by resolving not to be affected by the things that occasion them, as the Stoics advise. It is ridiculous to tell people not to be upset at the death of a family member or delighted at success in business, 'for we are tied to our country, our goods, our parents, and so on, by a natural union that does not now depend on our will'.[119] Given the way the mind-body union is set up, the only effective way to counter the passions is to substitute other pleasures for theirs. 'The false delight of our passions, which makes us slaves to sensible goods, must be overcome by joy of mind and the delight of grace.'[120] No love is disinterested, not even the love of God. We love God because he makes us solidly happy. Grace enables us not merely to know but to feel that God is our good. 'For the grace of Jesus Christ, by which one resists disorderly pleasures, is itself a holy pleasure; it is the hope and foretaste of supreme pleasure.'[121]

LEIBNIZ'S OBJECTION

Seventeenth-century works against occasionalism include *Doutes sur le systême physique des causes occasionnelles* (1686) by Bernard le Bovier de Fontenelle; and Antoine Arnauld's *Dissertation sur les miracles de l'ancienne loi,* and his *Réflexions philosophiques et théologiques sur le nouveau système de la nature et de la grace,* both published in 1685. The main objections in these works are that the manner of acting ascribed to God is unworthy of him; that causal efficacy is no less intelligible in created things than in God; and that creatures need causal power in order to determine the efficacy of God's general volitions. The most well-known, though not necessarily the most devastating, objection to occasionalism is that it involves a perpetual miracle. This is Leibniz's objection. I shall pass over the objections of Fontenelle and Arnauld here and consider only Leibniz's.[122]

Leibniz agrees with the occasionalists that interactionism involves the transference of modes from one substance to another and consequently must be rejected as inconceivable. 'Speaking with metaphysical rigor, *no created substance exerts a metaphysical action or influence upon another*. For…it cannot be explained how anything can pass over from one thing into the substance of another.'[123] Occasionalism, too, he finds unsatisfactory.

> But problems are not solved merely by making use of a general cause and calling in what is called the *deus ex machina*. To do this without offering any other explanation drawn from the order of secondary causes is, properly speaking, to have recourse to miracle.[124]

When reminded that the God of the occasionalists produces his effects according to general laws, Leibniz responds that, even so, 'they would not cease being miracles, if we take this term, not in the popular sense of a rare and wonderful

thing, but in the philosophical sense of that which exceeds the powers of created beings'.[125]

> I admit that the authors of occasional causes may be able to give another definition of the term, but it seems that according to usage a miracle differs intrinsically and through the substance of the act from a common action, and not by an external accident of frequent repetition, and that strictly speaking God performs a miracle whenever he does something that exceeds the forces which he has given to creatures and maintains in them.[126]

Leibniz presents occasionalism as though its proponents believed that miracles were rare events, and as though their only defence against the charge of invoking miracles is that the effects occur frequently. This is an oversimplification of the occasionalist position. In the *Réponse aux Réflexions philosophiques et théologiques de Mr. Arnauld sur le Traité de la nature et de la grace* (1686), Malebranche observes that the term 'miracle' is equivocal. In its most common usage, it means 'a *marvel* which surprises us, and which we admire because of its novelty'. In its precise philosophical sense, it means 'all effects which are not *natural,* or which are not results of natural laws'.[127] Natural laws are God's general volitions. 'Thus, whether an effect is common or rare, if God does not produce it according to his general laws, which are the natural laws, it is a true miracle.'[128] In other words, a miracle in the second sense is something produced by a particular rather than a general volition of God. Occasionalism does not invoke miracles in either of these senses to explain ordinary events. God could, Malebranche says, produce the most common effects by particular volitions, in which case they would be miracles in the second sense. But God does not do so. Instead, he produces them according to general laws. Even marvels are produced in this manner, according to laws giving angels power over bodies; they are miracles in the first sense but not in the second.[129]

In Malebranche's second or philosophical sense, the miraculous is opposed to the natural. The same is true of Leibniz's philosophical sense. The two philosophers disagree, however, on what counts as being natural. According to Malebranche, natural effects are those that are produced in accordance with natural laws. Leibniz finds this characterization inadequate: 'It is not enough to say that God has made a general law, for besides the decree there is also necessary a natural means of carrying it out.'[130] Malebranche could reply that there is indeed a natural means of carrying it out: the efficacy of the natural laws is determined by occasional causes. The latter can and should be cited as the natural and particular causes of the effects in question. This answer will not satisfy Leibniz. When he says that there must be a natural means of executing the decree, he means that 'all that happens must also be explained through the nature which God gives to things'.[131] For Leibniz, the natural is that which pertains to the nature of created things, and the nature of created things is identified with their

power to act.[132] For Malebranche, by contrast, natural laws are simply laws according to which events are regularly produced. They can be specified without ascribing natures to individual things and without attributing metaphysical powers to them. In this respect, Malebranche's view of natural laws is closer to the modern conception than Leibniz's is.

Does Leibniz misrepresent the occasionalist hypothesis? In some passages, he characterizes God's action in occasionalism as interference or meddling in the natural course of events. In the Postscript of a Letter to Basnage de Beauval (3/13 January 1696), where he introduces the analogy of two clocks to differentiate interactionism, occasionalism and pre-established harmony, he says that the system of occasional causes is like 'making two clocks, even poor ones, agree' by turning them over to a skilled artisan 'who adjusts them and constantly sets them in agreement'.[133] Similarly, in his response to Bayle's criticisms of the New System (1698), he says that the occasionalists explain the correspondence between soul and body 'as if a man were charged with constantly synchronizing two bad clocks which are in themselves incapable of agreeing'.[134] It seems that the workman's action is needed, not to make the clocks run *per se,* but to keep them running in agreement. Without constant adjustments, the clocks would still run, albeit badly. Analogously, were it not for God's continual meddling, the mind and the body would each follow a different course. In the correspondence with Arnauld, Leibniz presents the system of occasional causes 'as though God on the occasion of occurrences in the body aroused thoughts in the soul, which might change the course that the soul would have taken of itself without that'.[135]

> For it introduces a sort of continual miracle, as though God were constantly changing the laws of bodies, on the occasion of the thoughts of minds, or changing the regular course of the thoughts of the soul by arousing in it other thoughts, on the occasion of the movements of bodies.[136]

In so far as he suggests that creatures would act on their own if God did not intervene, Leibniz misrepresents occasionalism. True, Malebranche does say that the human body would behave in certain ways—for instance, it would cry out whenever it was injured—if the soul did not resist. If the body behaves in one way when the soul resists and in another way when such resistance is absent, this is not because the body moves itself by one set of laws whereas God moves it by another set. God moves the body in both cases: in the one case, according to the laws of motion alone; in the other, by the laws of the union of soul and body.

Leibniz claims that in occasionalism God changes the laws of bodies on the occasion of the thoughts of minds. A more accurate statement of the occasionalist position is this: God acts on the body solely according to the laws of motion, except when the mind has certain kinds of thoughts, in which case he acts by the laws of soulbody union. To Leibniz, the suspension of one set of laws in favour of another set is a miracle. Thus, in addition to the perpetual miracle of God's direct action on creatures, there is a further perpetual miracle, having to do with

the manner of God's action. The decision to act according to one set of laws rather than another set is not grounded in the nature of individual things; therefore, by Leibniz's definition, it is miraculous. By Malebranche's definition, however, it is not miraculous but natural, since there are laws for which set of laws applies in a given situation, and these higher-order laws are in principle discoverable, just as are the laws of motion and those of soul-body union.

NOTES

The following abbreviations are used in the notes:

AT	C.Adam and P.Tannery (eds) *Oeuvres de Descartes* [10.1]
CSM	J.Cottingham, R.Stoothoff and D.Murdoch (trans.) *The Philosophical Writings of Descartes* [10.2]
GP	C.I.Gerhardt (ed.) *Die philosophischen Schriften von Gottfried Wilhelm Leibniz* [10.55]
LO	T.M.Lennon and P.J.Olscamp (trans.) *The Search after Truth and Elucidations of the Search after Truth* [10.36]
OC	A.Robinet (ed.) *Oeuvres complètes de Malebranche* [10.35]

1 Descartes, *Principles of Philosophy*, Pt I, 56, 61. AT 8A: 26, 29–30; CSM 1: 211, 213–14. Descartes to ***, 1645 or 1646. AT 4:348–9; *Philosophical Letters* [10.3], 186–7.
2 Appendix to Fifth Objections and Replies, AT 9A: 213; CSM 2:275.
3 Descartes to Elizabeth, 21 May 1643, AT 3:665; *Philosophical Letters* [10.3], 138.
4 Descartes to Elizabeth, 28 June 1643, AT 3:691–2; *Philosophical Letters* [10.3], 141.
5 Second Replies, AT 7:135; CSM 2:97.
6 Third Meditation, AT 7:40; CSM 2:28.
7 *Principles,* Pt 2, 50, AT 8A: 69.
8 Descartes to More, August 1649, AT 5:404; *Philosophical Letters* [10.3], 258.
9 AT 11:144; CSM 1:103. See also *The World,* AT 11:5–6; CSM 1:82; *Optics,* AT 6: 114; CSM 1:166; *Notae in Programma,* AT 8B: 360.
10 Gouhier, [10.42], 83–7.
11 Hermann Müller argues for this position in Müller [10.11].
12 Gouhier [10.42], 89.
13 Quoted in Prost [10.7], 103n.
14 Battail [10.23], 8.
15 Prost [10.7], 103.
16 Battail [10.23], 145.
17 Quoted in Clair [10.15], 64. In the nineteenth century, it was conjectured that La Forge and Clauberg met during the latter's visit to Saumur (Damiron [10.6], 127; Bouillier, *Histoire de la philosophie cartésienne* [10.5], 1:294). This conjecture was plausible only because of the uncertainty about La Forge's date of birth. Both Damiron (p. 24) and Bouillier (p. 511) put it at the beginning of the seventeenth

century. Clauberg visited Saumur in 1646, when La Forge was 14 years old and living in La Flèche (Clair [10.13], 40).
18 Vleeschauwer [10.34], 396–401.
19 Battail [10.23], 143; cf. Prost [10.7], 154.
20 Malebranche, *The Search after Truth,* Book 1, ch. 10, OC 1:123; LO, 49.
21 Item number 139 in Lelong's catalogue (OC 20:237).
22 Damiron [10.6], 3, 23, 60; Bouillier [10.5], 1:511.
23 La Forge, *Traitté de l'esprit de l'homme* [10.12], ch. 13; *Oeuvres philosophiques* [10.13], 212–13.
24 ibid., p. 213.
25 ibid.
26 *Traitté* [10.12], ch. 10; *Oeuvres philosophiques* [10.13], 175.
27 ibid., p. 176.
28 ibid., p. 179.
29 *Traitté* [10.12], ch. 16; *Oeuvres philosophiques* [10.13], 235.
30 ibid.
31 ibid., p. 238.
32 ibid.
33 ibid.
34 ibid., p. 240.
35 ibid.
36 ibid., p. 241.
37 ibid., p. 242.
38 ibid.
39 Damiron [10.6], 56–7; Gouhier [10.42], 101; Watson [10.18], 174.
40 *Traitté* [10.12], ch. 16; *Oeuvres philosophiques* [10.13], 245.
41 ibid.
42 Cordemoy, *Oeuvres philosophiques* [10.20], 257.
43 Cordemoy, First Discourse, *Le Discernement du corps et de l'âme. Oeuvres philosophiques* [10.20], 99.
44 ibid., p. 101.
45 Fifth Discourse, *Discernement, Oeuvres philosophiques* [10.20], 149.
46 Fourth Discourse, *Discernement, Oeuvres philosophiques* [10.20], 138.
47 Fifth Discourse, *Discernement, Oeuvres philosophiques* [10.20], 150.
48 Fourth Discourse, *Discernement, Oeuvres philosophiques* [10.20], 135–7.
49 ibid., p. 139.
50 ibid.; cf. p. 142.
51 ibid., p. 143.
52 ibid., p. 144.
53 Fifth Discourse, *Discernement, Oeuvres philosophiques* [10.20], 148.
54 ibid., p. 149.
55 ibid., p. 151.
56 Cordemoy, *Discours physique de la parole, Oeuvres philosophiques* [10.20], 255.
57 Cordemoy, *Traité de métaphysique II, Oeuvres philosophiques* [10.20], 283–4.
58 ibid., p. 284.
59 ibid., p. 285.
60 For discussion of possible reasons for the dismissal, see Land [10.30], 227–8; Lattre [10.31], 10–11; Vleeschauwer [10.34], 401.

61 Geulincx, *Metaphysica vera,* Pars 1, sc. 5 and 6, *Sämtliche Schriften* [10.24], 2:150–2.
62 Geulincx, *Ethica,* Tract, 1, cap. 2, s. 2, *Sämtliche Schriften* [10.24], 3:32.
63 *Metaphysica vera,* Pars 1, sc. 9, *Sämtliche Schriften* [10.24], 2:154.
64 *Metaphysica vera,* Pars 1, sc. 11, *Sämtliche Schriften* [10.24], 2:155.
65 *Annotata ad Ethicam,* 19, *Sämtliche Schriften* [10.24], 3:211–12; cf. *Annotata ad Metaphysicam, Sämtliche Schriften* [10.24], 2:307.
66 The analogy appears in Leibniz's 'Second Explanation of the New System' (Postscript of a Letter to Basnage de Beauval, 3/13 January 1696). The first complete edition of Geulincx's *Ethica,* with all the Annotations, was published twenty-one years earlier. Leibniz did not necessarily get the analogy from Geulincx, however. For discussion of this issue, see Haeghen [10.28], 161–3.
67 *Ethica,* Tract, 1, cap. 2, s. 2, *Sämtliche Schriften* [10.24], 3:36.
68 *Annotata ad Ethicam,* 48, *Sämtliche Schriften* [10.24], 3:220.
69 *Metaphysica vera,* Pars 1, sc. 11, *Sämtliche Schriften* [10.24], 2:155; *Annotata ad Metaphysicam, Sämtliche Schriften* [10.24], 2:307.
70 *Ethica,* Tract, 1, cap. 2, s. 2, *Sämtliche Schriften* [10.24], 3:33.
71 ibid., p. 36.
72 *Ethica,* Tract, 1, cap. 2, s. 1, *Sämtliche Schriften* [10.24], 3:23.
73 Malebranche, *Dialogues on Metaphysics and on Religion,* Dialogue 7, sec. 2, OC 12:151; [10.38], 149.
74 *Dialogues* 7, sec. 4; OC 12:153; [10.38], 151. See also *The Search after Truth,* Elucidation 15, OC 3:226; LO, 669–70.
75 *Search,* Book 2, Pt 1, ch. 5, OC 1:215; LO, 102.
76 *Search,* Book 6, Pt 2, ch. 3, OC 2:312–13; LO, 448.
77 *Méditations chrétiennes et métaphysiques,* Med. 1, sec. 8, OC 10:13. See also *Dialogues* 7, sec. 2, OC 12:150; [10.38], 147.
78 *Dialogues* 7, sec. 2, OC 12:150–1; [10.38], 147.
79 *Réponse à une Dissertation de Mr. Arnauld,* ch. 7, OC 7:515.
80 *Réflexions sur les Doutes sur le système des causes occasionnelles,* OC 17–1: 584.
81 *Réponse à une Dissertation,* ch. 7, OC 7:515; *Méditations* 5, sec. 8, OC 10: 50.
82 *Search,* Elucidation 15, 1678 edition. This passage is omitted from the 1712 edition. OC 3:209n.
83 *Méditations* 5, sec. 4, OC 10:47–8; cf. *Dialogues* 7, sec. 5, OC 12:155; [10.38], 151.
84 *Dialogues* 7, sec. 10, OC 12:160; [10.38], 157.
85 ibid. See also *Méditations* 5, sec. 8, OC 10:50.
86 *Search,* Book 6, Pt 2, ch. 3, OC 2:316; LO, 450.
87 ibid., OC 2:313–16; LO, 448–50. See also *Méditations 6,* sec. 12, OC 10:64.
88 *Dialogues* 7, sec. 3, OC 12:151–2; [10.38], 149; cf. *Search,* Elucidation 17, OC 3: 326; LO, 733.
89 Descartes to Regius, May 1641, AT 3:372; *Philosophical Letters* [10.3], 102.
90 *Search,* Elucidation 15, OC 3:226; LO, 669.
91 *Search,* Book 3, Pt 2, ch. 3, OC 1:424–5; LO, 223. See also *Méditations* 1, sec. 7, OC 10:13.
92 *Méditations* 6, sec. 11, OC 10:62.
93 *Search,* Book 6, Pt 2, ch. 3, OC 2:315; LO, 450; cf. Elucidation 15, OC 3: 228; LO, 670–1.

94 *Search,* Book 1, ch. 1, OC 1:46; LO, 5. *Méditations* 6, sec. 16, OC 10:65.
95 *Réflexions sur la prémotion physique* 12, OC 16:46–7.
96 *Prémotion physique* 10, OC 16:41.
97 *Search,* Elucidation 1, OC 3:20; LO, 548–9. For critical discussion of Malebranche's notion of freedom, see Radner [10.46], 119–33.
98 *Prémotion physique* 23, OC 16:132. See also *Entretien d'un philosophe chrétien et d'un philosophe chinois,* OC 15:33.
99 *Traité de la nature et de la grace,* Elucidation 1, OC 5:147–8; *Réponse au Livre des Vraies et des fausses idées,* ch. 4, OC 6:36–7.
100 *Réponse aux VFI,* ch. 4, OC 6:37–8; *Entretien d'un philosophe chrétien et d'un philosophe chinois,* OC 15:28.
101 *Search,* Elucidation 15, OC 3:219–20; LO, 666.
102 *Traité de la nature et de la grace,* Last Elucidation, OC 5:204–5; *Réponse aux Réflexions philosophiques et théologiques de Mr. Arnauld sur le Traité de la nature et de la grace,* Letter 2, ch. 2, OC 8:705–6; *Dialogues* 13, sec. 9, OC 12:319–20; [10.38], 321.
103 *Réponse aux VFI,* ch. 4, OC 6:38.
104 *Search,* Elucidation 2, OC 3:39; LO, 559. See also *Traité de la nature et de la grace,* Second Discourse, sec. 37, OC 5:102; *Méditations* 13, sec. 11, OC 10:144.
105 *Réponse à la troisième lettre de M.Arnauld,* OC 9:959.
106 *Search,* Book 5, ch. 3, OC 2:150; LO, 352.
107 *Search,* Elucidation 2, OC 3:39–40; LO, 559.
108 *Search,* Book 5, ch. 2, OC 2:139; LO, 345.
109 *Search,* Book 5, ch. 3, OC 2:150; LO, 351.
110 *Conversations chrétiennes* 3, OC 4:77. See also *Search,* Elucidation 15, OC 3:213–14; LO, 662.
111 *Search,* Book 3, Pt 2, ch. 7, OC 1:451–5; LO, 237–40.
112 *Search,* Book 2, Pt 1, ch. 7, OC 1:250; LO, 121.
113 ibid., OC 1:236–7; LO, 114.
114 *Prémotion physique* 25, OC 16:146. See also *Search,* Book 5, ch. 3, OC 2: 151–2; LO, 352–3.
115 *Traité de l'amour de Dieu,* OC 14:9–10.
116 *Search,* Book 5, ch. 3, OC 2:145; LO, 349.
117 *Search,* Book 5, ch. 1, OC 2:128; LO, 338.
118 *Traité de morale,* Pt 1, ch. 13, sec. 3, OC 11:147.
119 *Search,* Book 5, ch. 2, OC 2:133–4; LO, 342.
120 *Search,* Book 5, ch. 3, OC 2:146; LO, 349.
121 *Traité de l'amour de Dieu,* OC 14:10.
122 For discussion of the other objections, see Radner [10.46], 36–46.
123 Leibniz, 'First Truths', *Opuscules et fragments inédits de Leibniz* [10.56], 521; *Philosophical Papers and Letters* [10.57], 269.
124 'A New System of the Nature and the Communication of Substances, as well as the Union between the Soul and the Body', *Journal des savants,* 27 June 1695, GP 4: 483; *Philosophical Papers* [10.57], 457. See also 'Discourse on Metaphysics', sec. 33, GP 4:458; *Philosophical Papers* [10.57], 324.
125 'Clarification of the Difficulties which Mr. Bayle has found in the New System of the Union of Soul and Body', *Histoire des ouvrages des savants,* July 1698, GP 4: 520; *Philosophical Papers* [10.57], 494.

126 Leibniz to Arnauld, 30 April 1687, GP 2:93; *The Leibniz-Arnauld Correspondence* [10.58], 116.
127 *Réponse aux Réflexions,* Letter 2, ch. 1, OC 8:695–6. 'Natural laws' here is synonymous with 'general laws', and includes both the so-called laws of nature and those of grace.
128 ibid., OC 8:696.
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130 'Clarification of the Difficulties', GP 4:520; *Philosophical Papers* [10.57], 494.
131 ibid. See also Leibniz's critique of François Lamy's *Connaissance de soy-même,* GP 4:587.
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CHAPTER 11
Leibniz: truth, knowledge and metaphysics

Nicholas Jolley

Leibniz is in important respects the exception among the great philosophers of the seventeenth century. The major thinkers of the period characteristically proclaim the need to reject the philosophical tradition; in their different ways Descartes, Hobbes and Spinoza all insist that new foundations must be laid if philosophy is to achieve any sure and lasting results. Even Malebranche, who seeks to revive the teaching of Augustine, joins in the general chorus of condemnation of Aristotle and his legacy. Leibniz, by contrast, does not share in this revolutionary fervour. Although he is capable of criticizing the Aristotelian tradition, he is also careful to remark that much gold is buried in the dross.[1] Leibniz of course is as enthusiastic as any of his contemporaries about the new mechanistic science; indeed, he is one of its most distinguished advocates and exponents. But by temperament Leibniz is not a revolutionary but a synthesizer; in philosophy, as in politics and religion, he deliberately sets out to mediate between opposing camps. As he himself said, 'the majority of the sects are right in a large part of what they assert but not so much in what they deny'.[2]

The distinctive character of Leibniz's reconciling project needs to be made a little clearer. Other philosophers in the period had of course also tried to show that the new science was compatible with natural theology. Descartes, for example, sought to find a place in his philosophy for such orthodox doctrines as the existence of a personal God and the immortality of the soul. But in contrast with Descartes, Leibniz sought to retain as much as possible of the Aristotelian framework and to combine it with the emerging scientific and philosophical ideas; we shall see, for example, that Leibniz seeks to fuse Aristotelian and Cartesian conceptions of the soul. The synthesizing spirit of Leibniz's philosophy is one of its fascinations, but it is also a source of weakness; Leibniz sometimes seems to be trying to reconcile the irreconcilable.

The structure of the present chapter is as follows. The first three sections are devoted to the analysis of Leibniz's general metaphysics. In the first two sections we shall see how Leibniz formulates an Aristotelian theory of corporeal substance in his first mature work, the *Discourse on Metaphysics* (1686), and how he seemingly attempts to derive a number of metaphysical doctrines from purely logical considerations concerning truth. In the third section we shall see

how in his later writings Leibniz abandons his theory of corporeal substance for a form of idealism; this is the famous doctrine of monads. In the fourth section we shall look at the anti-Newtonian theories of space and time which Leibniz formulated at the very end of his career. In the following section we shall study Leibniz's somewhat ill-conceived attempt to apply his general theory of causality to the problem of the relationship between mind and body which Descartes bequeathed to his successors. Finally, in the last two sections we shall analyse Leibniz's psychology and his theory of knowledge; here we shall see how Leibniz seeks to reinterpret some ideas deriving from Descartes and Spinoza.

THE ARISTOTELIAN BACKGROUND: SUBSTANCE AND AGGREGATE

The synthesizing spirit of Leibniz's philosophy is clearly visible in Leibniz's first mature work, the *Discourse on Metaphysics,* and in the correspondence with Arnauld which it precipitated. One way of looking at these works is to see that Leibniz is trying to revive Aristotelian doctrines about substance and to show that they are in conformity with the new science; indeed, they are largely free of the conceptual difficulties which plague the more recent Cartesian ideas. It is true that Leibniz thinks that Aristotle did not say the last word about substance. But it is still possible to see Leibniz as engaged in extending, rather than replacing, the Aristotelian project.

We must begin by reminding ourselves of two very influential claims that Aristotle made about substance. First, for Aristotle, a substance is what may be termed an 'ultimate subject of predication'. Thus, by this criterion Alexander is a substance because while we can predicate properties of Alexander—we can say, for instance, that he was a Macedonian—he himself is not predicable of anything else; there is nothing of which we can say that it is an Alexander. To put the point another way, the noun 'Alexander' can appear only in the subject position in a sentence and never in the predicate position. By contrast, honesty is a subject of predication but not an ultimate one; for though we can predicate properties of honesty, honesty itself is predicable of other things—for instance, a person who possesses the virtue.[3] Second, in response to the characteristically Greek preoccupation with flux, Aristotle claims that substances are substrata of change: 'The most distinctive mark of substance appears to be that while remaining numerically one and the same, it is capable of admitting contradictory qualities.'[4] Thus, although he never instantiates both properties simultaneously, Alexander as an infant is two feet tall and as an adult, say, six feet tall. To say that Alexander is a substance is a way of drawing our attention to the fact that one and the same individual persists through the change in qualities. The relation between these two claims about substance is not entirely clear, but on the face of it, they do not seem to be equivalent; it seems that there could be items which are ultimate subjects of predication, even though they do not persist through time. A

lightning flash, for example, is instantaneous, but it is a subject of predication which is not itself obviously predicable of anything else.

Although Leibnizian substances characteristically satisfy the condition, in the *Discourse on Metaphysics* Leibniz is silent, at least officially, about the idea that substances are substrata of change. But early on in this work Leibniz approvingly cites Aristotle's claim that substances are ultimate subjects of predication: 'It is of course true that when several predicates are attributed to a single subject, and this subject is not attributed to any other, it is called an individual substance.'[5] It is true that in the next breath Leibniz indicates that this definition is not fully satisfactory: 'But this is not enough, and such an explanation is merely nominal.'[6] Presumably Leibniz's point is, not that the definition fails to capture necessary and sufficient conditions, but that it is somehow shallow compared with the one which, as we shall see, he goes on to propose. But in any case, whatever the grounds for his partial dissatisfaction, Leibniz seems to make fruitful use of the Aristotelian idea that substances are ultimate subjects of predication. In the Arnauld correspondence, in particular, Leibniz deploys this idea in order to reach anti-Cartesian conclusions about the status of bodies and at least to prepare the ground for the very Aristotelian thesis that the paradigm substances are organisms.

In the correspondence with Arnauld Leibniz argues for a remarkable negative thesis; he seeks to show that most of the things which both the man in the street and the Cartesians take to be substances are not really substances at all. In general, Leibniz's thesis is that no non-organic body is a substance. The argument in outline is as follows:

1 No aggregate is an ultimate subject of predication.
2 All non-organic bodies are aggregates.
3 Therefore, no non-organic body is an ultimate subject of predication (and hence not a substance).

The basic idea behind the argument is that if the notion of an ultimate subject of predication is thought through, we shall see that it disqualifies tables, chairs and the like from counting as substances.

Why does Leibniz think that an aggregate, such as an army, is not an ultimate subject of predication? An army of course is at least a subject of predication in the sense that we can ascribe various properties to it; we can say, for example, of a given army that it fought bravely. But it is not an ultimate subject of predication because in Leibniz's words, 'it seems…that what constitutes the essence of an entity through aggregation is only a state of being of its constituent entities; for example, what constitutes the essence of an army is only a state of being of the constituent men'.[7] In the words of one recent commentator,

> an aggregate is a state of being of those entities that compose it in the sense that any truths about the aggregate can be expressed in propositions that

> ascribe modes and states to the composing entities without any need to refer to the aggregate itself.[8]

Thus, a proposition such as 'The army fought bravely' is reducible to propositions which ascribe various properties to the members of the aggregate, namely, the individual soldiers.

Perhaps more controversial is the second premise of the argument. A non-organic body such as a block of marble does not seem to be on a par with clear-cut examples of aggregates such as an army or a flock of sheep. Leibniz must admit that a block of marble is more tightly bonded than these aggregates, but he would claim that this fact is not metaphysically significant; a block of marble is no less an entity by aggregation than a flock of sheep.[9] But in that case what is a block of marble an aggregate of? At first sight it seems that Leibniz would say that a block of marble is an aggregate of physical parts which are themselves aggregates and so on *ad infinitum*. But though he shows some hesitancy on this issue, in the correspondence with Arnauld Leibniz suggests that a marble slab is an aggregate of organisms no less than a flock of sheep: 'perhaps this marble block is merely a heap of an infinite number of living bodies, or is like a lake full of fish, although these animals are ordinarily visible only in half-rotten bodies.'[10] This thesis draws support from the empirical discoveries made possible by the recent invention of the microscope.

Thus Leibniz reaches an important negative conclusion which is in obvious conflict with Cartesian theses; no non-organic bodies are substances.[11] But this conclusion still leaves open the question of Leibniz's positive views on the issue of what items qualify as substances. Recent work has shown that around the time of the *Discourse on Metaphysics* Leibniz was remarkably hesitant on this issue; indeed, he flirted with a number of possible positions.[12] He was perhaps particularly uncertain as to whether anything physical counted as a substance, but as we shall see, he also had doubts about the ontological status of souls. Despite his hesitations, the view to which he seems to have been most attracted is that organisms, and perhaps souls, are the only substances; organisms are what Leibniz calls 'corporeal substances'. With regard to physical objects, then, Leibniz's teaching is that every body is either itself a corporeal substance or an aggregate of corporeal substances.

Leibniz's somewhat tentative positive thesis raises an obvious question: why are organisms better candidates for substantiality than non-organic bodies? Leibniz's short answer to this question is clear: organisms are not just aggregates but true unities, and every entity which is endowed with a true unity is a substance. For Leibniz, an organism is truly one by virtue of possessing a soul or principle of life which confers unity on it; in scholastic terminology the soul is said to inform the body. Indeed, Leibniz even goes so far as to revive the scholastic doctrine that the soul is the substantial form of the body; here he is drawing on the fact that in medieval philosophy it is the presence of a substantial form that makes a body a natural unity.[13]

The thesis that only the presence of a soul can confer unity on a body, and thus make it a genuine substance rather than an aggregate, obviously needs to be justified. Leibniz is not totally forthcoming on this subject, but he does throw out some suggestive hints which make it possible for us to see what he has in mind. In correspondence with Arnauld he explains that the unity of an aggregate is a matter of convention only.[14] The unity of a university department, for example, is conventional in the sense that it depends on certain human interests; for teaching purposes, let us say, it is convenient to group a Leibniz specialist with a philosopher of language rather than with a seventeenth-century historian. But there is no metaphysical fact of the matter which determines this classification. The unity of a human body, however, is not at all like that. The fact that my hand and foot belong together, but not my hand and the table in front of me, is determined not by convention but by nature, or rather by the metaphysical truth that my soul animates my body. I can, for example, feel pain in my hand and foot, but I cannot feel pain in the table in front of me. Thus the presence of a soul provides a wholly non-conventional basis for classifying some physical parts together.

Leibniz's doctrine that organisms are true substances was the target of two shrewd objections from Arnauld. In the first place, Arnauld objected that Leibniz seemed to be smuggling in a merely stipulative definition of substance. As Arnauld sees it, Leibniz redefines substance as that which has a true unity, and on this basis he reaches the anti-Cartesian conclusion that no bodies except organisms are substances. But in that case he has covertly abandoned the traditional definition of substance as that which is neither a mode nor state; using more Aristotelian language, we could restate Arnauld's point by saying that Leibniz has abandoned the definition of substance as an ultimate subject of predication.[15] Leibniz is of course entitled to offer a stipulative definition of substance if he chooses, but he is not entitled to switch back and forth between such a definition and a more traditional one. Leibniz's reply to this objection is important: he answers Arnauld by saying that far from abandoning Aristotle's definition of substance he is simply drawing out a consequence of it: being a true unity is implied by being an ultimate subject of predication. Indeed, the concepts of a true unity and of an ultimate subject of predication are logically equivalent. 'To be brief, I hold as axiomatic the identical proposition, which varies only in emphasis: that what is not truly *one* entity is not truly one *entity* either. It has always been thought that 'one' and 'entity' are interchangeable.'[16]

Arnauld also objected to Leibniz's reintroduction of animal souls or substantial forms. As a good Cartesian, Arnauld made the familiar points against this doctrine; it is superfluous for the purposes of explaining animal behaviour, and it raises embarrassing difficulties concerning the status of animal souls after the destruction of their bodies. Arnauld cited the case of a worm both parts of which, when cut in two, continue to move as before, and challenged Leibniz as to what he would say about it.[17] The serious philosophical point behind Arnauld's raillery is that an animal is no more a genuine unity than a non-organic body such as a table. Thus the chopping up of a worm is in principle no different from

the chopping up of a table; in both cases we are simply left with parts of the original body. In reply Leibniz seeks to reconcile the facts about the case of the worm with his thesis that animals are genuine substances which possess true unity by virtue of the souls which animate them. From the fact that both parts of the worm continue to move, it does not follow that we must postulate either two souls or none. The soul may continue to animate one of the parts, and it is this part which is strictly to be identified with the worm. In this sense the worm survives the division of its body.[18]

LOGIC AND METAPHYSICS

The originally Aristotelian idea of substance as an ultimate subject of predication thus plays a major role in the *Discourse on Metaphysics* and the correspondence with Arnauld; it provides the basis for Leibniz's persistent claim that substances are genuine unities. But as we have seen, Leibniz thinks that the Aristotelian doctrine does not go far enough. In the *Discourse on Metaphysics* Leibniz seeks a deeper understanding of what is involved in being a substance, and he finds it in what we may call the 'complete concept theory': this is the famous claim that 'the nature of an individual substance or a complete being is to have a notion so complete that it is sufficient to contain and to allow us to deduce from it all the predicates of the subject to which the notion is attributed'.[19] In the following sections of the *Discourse* Leibniz develops a train of thought which led Bertrand Russell and the French scholar, Couturat, to claim that Leibniz derived his metaphysics from his logic.[20]

As a general theory about the roots of Leibniz's metaphysics, the Russell-Couturat thesis has come in for a good deal of criticism. For one thing, the thesis does not seem to apply to the writings of Leibniz's later period; there purely logical theories seem to play little or no role in generating metaphysical doctrines. Even at the time of the *Discourse,* Leibniz appeals to non-logical considerations in support of his metaphysics. Leibniz invokes his physical theory that in collisions 'bodies really recede from other bodies through the force of their own elasticity, and not through any alien force'.[21] In this way Leibniz seeks to confirm his metaphysical doctrine that there is no causal interaction between substances. Moreover, at least as formulated by Russell, the so-called 'logicist' thesis suffers from a different kind of difficulty. According to Russell, Leibniz *validly* derived his metaphysics from his logic; against this, it has been remarked that there are in fact serious problems with the purported deduction. Considerations like these have led some writers to argue that Leibniz did not so much derive his metaphysics from his logic as tailor his logic to a metaphysics to which he is attracted for independent reasons.[22] Nonetheless, there does seem to be some truth in the Russell-Couturat thesis. At least in the *Discourse* and other writings of the same period, Leibniz certainly seems to rely on logical premises in arguing for metaphysical conclusions. This is not to say that as it stands the

deduction is watertight; at points Leibniz seems to be smuggling in certain unstated non-logical premises.

The claim that Leibniz derived his metaphysics from his logic is more mysterious than it need be. When Russell and Couturat put forward this thesis, they had something quite specific in mind when they spoke of Leibniz's 'logic': they were referring to his theory of truth. The theory of truth in question is explicitly stated, not in the *Discourse on Metaphysics,* but in the correspondence with Arnauld where it appears almost as an afterthought. However, the theory makes itself felt in the *Discourse,* for it seems to ground the deep analysis of the nature of substance which Leibniz offers as a supplement to Aristotle.

Leibniz's distinctive theory of truth can best be explained by way of contrast. Perhaps the most intuitive doctrine of truth is some version of the correspondence theory; in other words, truth consists in a relation of correspondence between propositions and states of affairs in the world. It is some version of the correspondence theory that Aristotle seems to have had in mind when he defined truth as saying of that which is that it is and of that which is not that it is not.[23] Although he sometimes seems to suggest that he is simply following in Aristotle's footsteps, Leibniz in fact advances a radically different theory. For Leibniz, truth consists not in a correspondence between propositions and states of affairs but in a relation between concepts. Leibniz provides a succinct summary of his theory in a letter to Arnauld: 'In every true affirmative proposition, necessary or contingent, universal or particular, the concept of the predicate is in a sense included in that of the subject: *praedicatum inest subjecto;* or else I do not know what truth is.'[24] Let us call this 'the concept-containment theory of truth'.

Leibniz's theory of truth can be seen as a generalization of a more familiar and more limited claim. Consider the proposition: 'Gold is a metal'. It is plausible to say that the proposition is true because the concept expressed by the predicate term is contained in the concept expressed by the subject term; in other words, an analysis of the concept of gold would reveal that the concept of metal is one of its constituent concepts. (Analysis is conceived of here as a matter of replacing a given term by its definitional equivalent.) As his comment to Arnauld shows, Leibniz wishes to extend this insight to all affirmative propositions, including singular ones such as 'Julius Caesar crossed the Rubicon'. Thus Leibniz holds that the proper name 'Julius Caesar' is not simply an arbitrary label; it expresses a concept no less than the term 'gold' does. The proposition 'Julius Caesar crossed the Rubicon' is true because the concept of crossing the Rubicon is contained in the concept of Julius Caesar. From this general, concept-containment theory of truth Leibniz's distinctive claim about the nature of individual substances follows as a special case; by virtue of the general theory, all the predicates which are true of an individual substance are contained in the concept of that substance.[25]

'From these considerations there follow a number of important paradoxes.'[26] This remark in the *Discourse* is key evidence for the claim that Leibniz derived his

metaphysics from his logic, and it is certainly true that Leibniz goes on to present a number of remarkable doctrines about the basic structure of the world. Commentators tend to come up with slightly different lists of the doctrines that are so derived, but there are five major doctrines which are generally included.

1 The identity of indiscernibles: there cannot be two substances which are exactly alike.
2 The expression thesis: every substance expresses or mirrors the whole universe.
3 The denial of causal interaction between (created) substances.
4 Every substance is the causal source of all its states.
5 The hypothesis of concomitance (or what is later termed by Leibniz 'The pre-established harmony'): the states of substances are harmonized by God so that they give the appearance of causal interaction. (The phrase 'pre-established harmony' is also sometimes used by Leibniz and by commentators to refer to the conjunction of theses 3–5.)

The relation of these doctrines to Leibniz's logic is more problematic in some cases than in others. In the case of (at least one version of) the identity of indiscernibles, the derivation is relatively straightforward. The complete concept of an individual substance is presumably a concept under which no more than one individual can fall. Thus if there were two substances exactly alike there would be two substances with the same complete concept, which is impossible. It should be noted, however, that the complete concept theory seems to provide the basis for only a weak version of the identity of indiscernibles; for all the argument so far shows, this principle would be satisfied by two substances which differed solely in terms of their spatial relationships. However, for reasons which will become clearer, Leibniz in fact subscribes to a stronger version of the identity of indiscernibles to the effect that two substances cannot be exactly alike in terms of their intrinsic (i.e. non-relational) properties.

Leibniz's more popular statements about the identity of indiscernibles can be unhelpful. For example, Leibniz sometimes tries to provide *a posteriori* support for the principle by means of an anecdote; he tells how a courtier was challenged to find two leaves exactly alike, and how after a while he abandoned the search as fruitless.[27] Picturesque as it is, this story is doubly misleading. First, in so far as it follows from the complete concept theory, the identity of indiscernibles is a thesis about substances. Strictly speaking, for Leibniz, dead leaves are not substances but aggregates of substances. Second, and more importantly, the identity of indiscernibles is not an empirical generalization but a necessary truth. The thesis is not that as a matter of contingent fact there are no two substances exactly alike, but that there could not be two such substances.

More serious problems of derivation are presented by the other main metaphysical theses 2–5. Different commentators locate the main difficulties in different places, but they agree in the general diagnosis: Leibniz tends to slide

from what is true at the level of concepts to claims about what is true at the level of substances in the world. Leibniz may have been unwittingly encouraged in this tendency by the imprecision of his terminology; as used by Leibniz, terms such as 'subject' and 'predicate' are dangerously ambiguous. The word 'subject' for example is ambiguous as between subject-concept and the substance in the world which instantiates the concept: *mutatis mutandis,* the term 'predicate' is similarly ambiguous.[28] Bearing this ambiguity in mind, in the remainder of this section we shall, then, examine the problems presented by 2–4.

Despite the unusual terminology, on one level at least the expression thesis is straightforward. Leibniz was pressed by Arnauld as to what he meant by 'expression', and in reply he made clear that it was a technical term which he explained as follows: 'one thing *expresses* another (in my terminology) when there exists a constant and fixed relation between what can be said of one and of the other.'[29] When Leibniz says that every substance expresses the whole universe, at least part of what he wants to say is that, given a complete knowledge of the concept of any individual substance, say Alexander, it is possible in principle to read off the predicates (i.e. predicate-concepts) of every other substance. We can see that Leibniz must hold this by virtue of the fact that there are relational truths linking Alexander to everything else in the universe. It is a fact about Alexander, for example, that he was born so many years before Ronald Reagan became President of the United States. It follows, then, that all such relational predicates must be contained in the complete concept of Alexander, and so on for every other substance. Thus if one really knew the complete concept of Alexander, one would *ipso facto* also know everything there was to be known about the universe.

When Leibniz says that every substance expresses the universe, he also wants to assert a more controversial and more metaphysical thesis. In the *Discourse on Metaphysics* Leibniz claims that 'there are at all times in the soul of Alexander traces of everything that has happened to him and marks of everything that will happen to him, and even traces of everything that happens in the universe, even though God alone could recognize them all'.[30] But of course it is not easy to see how from the fact that the concept of Alexander timelessly includes the predicate of dying in 323 BC, it follows that there must be marks of this event in Alexander's soul even before it happens. It has been suggested that Leibniz is thinking along the following lines.[31] Since it is a timeless fact about Alexander that he dies in 323 BC, throughout his history there must be something about Alexander himself by virtue of which this proposition is true; there must be some persistent structural modification of Alexander corresponding to the fact of his dying. This modification remains quiescent until the event when it bursts into activity; subsequently, it reverts to a state of quiescence.

Commentators have similarly stressed the difficulty of seeing how theses 3 and 4 follow from Leibniz's logic. From the fact that every individual substance has a complete concept Leibniz infers that all the states of a substance are a consequence of that concept; from this he concludes, apparently, that there is no

causal interaction between created substances. But this argument seems fallacious.[32] Consider the proposition: 'Julius Caesar was killed by Brutus and Cassius.' Here a causal relational predicate 'killed by Brutus and Cassius' is truly ascribed to Julius Caesar. This causal predicate must, then, be contained in the concept of Julius Caesar. But then it clearly does not follow from the complete concept theory that there is no causal interaction between created substances. Nor does it help matters to point out that, though in the *Discourse* Leibniz derives 4 from 3, he sometimes reverses the order of the derivation. For if it is difficult to see how 3 follows from the complete concept theory, it is no less difficult to see how 4 follows from that theory.[33]

One way of dealing with these problems is to suppose that the derivation of 3 from Leibniz's logic is mediated by a doctrine that we have not so far discussed; this is the doctrine that 'there are no purely extrinsic denominations', which is itself a consequence of the 'marks and traces' version of the expression thesis.[34] The claim that there are no purely extrinsic denominations is one of Leibniz's more obscure doctrines, but is generally taken to assert the reducibility of relations; in other words, all relational truths about individual substances can be deduced from non-relational truths about those substances. For example, the relational proposition 'Smith is taller than Jones' is reducible in the sense that it can be derived from the non-relational propositions 'Smith is six feet tall', and 'Jones is five feet ten inches tall'. Thus by virtue of his thesis that there are no purely extrinsic denominations, Leibniz would claim that the proposition 'Julius Caesar was killed by Brutus and Cassius' is reducible to propositions which ascribe only non-relational predicates to those individuals.[35] But this approach does not really solve the problem. The thesis that there are no purely extrinsic denominations asserts at most that relational propositions are theoretically dispensable; it does not assert that such propositions are actually false. But it seems that it is the stronger thesis which is required if the claim that there are no purely extrinsic denominations is to provide a basis for 3; for Leibniz is committed by 3 to saying that propositions which assert causal relations between created substances are all of them, strictly speaking, false.

An alternative way of dealing with these problems is to reinterpret Leibniz's notion of a complete concept. One writer, in particular, has been impressed by those passages in which Leibniz tells Arnauld that the complete concept of an individual contains the laws of its world.[36] On this basis it has been suggested that a Leibnizian complete concept is constituted by a combination of basic (i.e. non-relational) predicates and laws—the laws of its universe. These laws are taken to include a law of succession for the states of the substance; such a law would imply that a substance's states causally depend only on itself. On this interpretation, then, there is no danger that the complete concept of Julius Caesar, say, will contain causal predicates such as being killed by Brutus or Cassius; such a predicate must be excluded because it suggests of course that a state of Julius Caesar causally depends on other created substances. We may still wonder, however, whether this interpretation can do justice to the expression

thesis, given that relational predicates are excluded from complete concepts. But here again the crucial point is taken to be that laws are built into complete concepts. The idea is that the concept of an individual substance contains non-causal laws of coexistence with other substances; from this it follows, as the expression thesis requires, that the predicates of all other substances can be deduced from the concept of a given substance. It is in this sense, then, that 'every individual substance involves the whole universe in its perfect concept'.[37] This interpretation is attractive, for it frees Leibniz's argument from its otherwise obvious invalidity. But as its proponent acknowledges, it does so at a heavy price; a complete concept turns out not to be a purely logical notion, for Leibniz has packed some of his metaphysics into it. Thus the difficulty now is not that Leibniz's argument involves a *non sequitur* but that it is effectively question-begging.

Before we conclude this section, it is worth clarifying thesis 4— that every substance is the causal source of all its states. At a minimum Leibniz holds that every state of a substance is caused by an earlier state of that substance.[38] But Leibniz seems to be committed to more than this when he claims, as he often does, that a substance gets all its states 'out of its own depths';[39] this phrase suggests something crucial about the way in which the states of a substance are caused by its earlier states. In fact, Leibniz's view of intra-substantial causality seems to draw on the 'marks and traces' version of the expression thesis. Remember that, according to that thesis, a substance bears within itself the marks of all its future states. Thus Leibniz holds that when an earlier state causes a later state, this later state was in a sense latent or dormant in the substance all along; when the state is caused, it emerges from quiescence and bursts into activity; subsequently, it reverts to a condition of quiescence. The causing of a state thus seems to be the activation of a 'mark' that was pre-existent in the substance throughout its previous history.

THE DOCTRINE OF MONADS

The metaphysical doctrines 1–5 which, in the *Discourse on Metaphysics,* Leibniz deduces from his logic all concern substances, and throughout his subsequent career Leibniz continues to assert these doctrines; they are some of the great constants of his philosophy. None the less, Leibniz's metaphysics underwent a major development between the *Discourse* (1686) and the *Monadology* (1714). Although Leibniz never recants any of the five doctrines, he changes his mind about what sort of items really fall under the concept of substance. In the *Discourse* Leibniz holds, despite some hesitation, that all substances are either organisms or souls; in his later philosophy he comes to hold that, strictly speaking, there are no corporeal substances; rather, all substances are either souls or at least soul-like. The later philosophy is thus a form of idealism inasmuch as it maintains that the basic furniture of the universe is mental or spiritual in nature. This is the famous doctrine of monads.[40] It may of course be questioned just how

sharp this transition was, and it is true that there are times in his later writings when Leibniz speaks as if there really are corporeal substances. But the dominant character of Leibniz's later metaphysics is well represented by his remark to De Volder: 'Considering the matter carefully, it must be said that there is nothing in the world except simple substances and in them, perception and appetite.'[41] Taken strictly, this claim implies that there are no corporeal substances.

The term 'monad' derives from a Greek word for unity. The fact that Leibniz chose this term to denote the fundamental entities in his later metaphysics shows that there is continuity in his thought; as before in the *Discourse* and the correspondence with Arnauld, a substance is a genuine unity. But a monad, unlike a corporeal substance, is a unity in a quite straightforward sense; it has no parts, or, in other words, it is simple. Now the simplicity of monads is a clue to further aspects of their nature. Since they are simple, monads are immaterial —which, for Leibniz, means that they are spiritual, for everything material has parts. The simplicity of monads also entails, for Leibniz, that they are indestructible. Here the underlying idea is that destruction consists in decomposition, and that where there are no parts, there can be no decomposition. Hence, in the case of monads, 'there is no dissolution to fear'.[42]

The fact that monads are immaterial and spiritual imposes a radical restriction on the properties of which they are capable; it rules out all such physical properties as size, shape and even position. As the quotation from the letter to De Volder bears out, the basic properties of monads are perception and appetite, or appetition. The notion of perception, which Leibniz defines as 'the expression of the many in the one',[43] is central not just to Leibniz's metaphysics but also to his psychology, and it will accordingly be discussed in the penultimate section of this chapter. But something may be said here about appetition. Appetition is the dynamic principle in the monad; it is that by virtue of which a monad changes its state. Yet, as one writer has suggested, it is possible that, for Leibniz, appetitions and perceptions are not two kinds of modifications but rather the same modification viewed differently.

> From one point of view every passing state is an expression of the many in the one and as such it is a perception. From the other point of view every passing state is a tendency to a succeeding state and as such it is an appetition.[44]

A possible parallel would be Spinoza's doctrine that every finite mode of substance can be viewed under the attributes of both thought and extension.

The doctrine of monads is not merely idealistic; it is also in a sense monistic. But the term 'monism' is a little misleading and needs clarification. Monadology is certainly not monistic in the sense in which Spinoza's metaphysics is monistic; Leibniz is not asserting, as Spinoza does, that there is only one substance *(Deus seu Natura)*. Rather, monadology is monistic in the sense that,

according to Leibniz, there is only one *kind* of basic entities, namely souls. In this respect the contrast with Spinoza's monism is at a maximum. Far from asserting that there is just one substance, Leibniz holds that there are infinitely many simple substances and that, by virtue of the identity of indiscernibles, no two are exactly alike.

Monads are in fact hierarchically arranged. At the top of the hierarchy is God who seems to be the supreme monad;[45] at the bottom of the hierarchy are what Leibniz calls 'bare monads' which provide the metaphysical foundation for inanimate matter. The basis for this hierarchical classification is quality of perception; borrowing Cartesian terminology, Leibniz says that monads differ in terms of the clarity and distinctness of their perceptions. For example, the minds of human beings are near the top of the hierarchy by virtue of their capacity for a very high grade of perception, namely reason. A striking feature of monadology, however, is that although monads differ enormously in terms of the quality of perception, in a sense they do not differ in terms of the objects they perceive; for giving a new twist to his expression thesis Leibniz holds that every monad perceives the whole universe according to its point of view. The qualification tacked on to this thesis is to be understood in terms of the doctrine that there are qualitative differences among perceptions. To say that two monads differ in their point of view is to say that they do not enjoy exactly the same distribution of clarity and distinctness over their perceptual states. In this way Leibniz can also explain how the identity of indiscernibles applies to monads in spite of the fact that they all perceive the whole universe.

These are remarkable doctrines, and we may well wonder how Leibniz came to arrive at them. In fact, however, the basic argument for the fundamental principles of monadology is quite straightforward; it turns on two main assumptions: the infinite divisibility of matter and the thesis that there must be basic or ultimate entities. For Leibniz, it would be shocking to reason, or at least to divine wisdom, if everything in the universe were composed of compounds whose components were themselves compounds, and so on *ad infinitum*. The infinite divisibility of matter implies that these basic entities cannot be physical, for everything physical is a compound of the sort just described. Thus although physical atoms are a fiction, there can and must be 'spiritual atoms' or monads.

A natural initial reaction to monadology is to wonder at Leibniz's willingness to prefer it to the more down-to-earth metaphysics of the *Discourse*. But in response to the argument outlined above we may wonder why Leibniz was not in a position to advance it earlier. Certainly throughout his career Leibniz holds that the universe must consist of basic or ultimate entities. Moreover, in his earlier philosophy Leibniz also held a version of the thesis of the infinite divisibility of matter; matter, considered in abstraction from souls or substantial forms, is infinitely divisible 'in innumerable possible ways but not actually divided in any'.[46] So at the time of writing the *Discourse* Leibniz believed, as he continued to believe, that nothing purely material could be a basic entity. But the difference between Leibniz's earlier and later views seems to be this. In the *Discourse*

Leibniz held that, though in the abstract, matter is infinitely divisible, taken concretely it is composed of organisms which are material beings endowed with souls, and that these organisms are genuinely basic entities. In his later philosophy Leibniz may have continued to hold that matter is in some sense composed of organisms, but he gave up the thesis that organisms are genuinely basic entities or intrinsic natural unities.

Why, then, did Leibniz give up the view that organisms are basic entities? A plausible answer is that he came to feel that some of the claims about substance which he had deduced from his logic did not clearly apply to organisms. According to the *Discourse* substances are indivisible but, as we saw earlier, in the correspondence with Arnauld Leibniz had difficulty defending the thesis that organisms are indivisible. Possibly Leibniz became dissatisfied with his answer to Arnauld's puzzle about the worm that is cut in two. By contrast, monadology is largely free from these difficulties: as a simple, immaterial being a monad satisfies the indivisibility criterion much more clearly than an organism. Moreover, the earlier, Aristotelian metaphysics fares less well than monadology in accommodating the thesis that there is no causal interaction between substances. In the earlier metaphysics this thesis implies that no two organisms interact, but it has no such implications for other bodies; for instance, it does not entail that no two billiard balls interact. And this may well have come to seem arbitrary to Leibniz. By contrast, monadology suffers from no such problem. For one thing, it is perhaps fairly intuitive to say that souls cannot causally interact. But in any case, by restricting the thesis to souls or soul-like entities, Leibniz is at least able to escape the charge that he is simply drawing an arbitrary line through the physical world.

An obvious problem for an idealist philosopher who holds that reality is ultimately spiritual is to determine the status of bodies. Leibniz's idealism certainly implies that bodies cannot be substances, but beyond that it leaves their status unspecified. For one thing, idealism does not discriminate between eliminativist and reductionist approaches to this issue; in other words, it does not discriminate between the thesis that bodies do not exist and the thesis that, although bodies exist, they are to be reduced to something which is ontologically more basic. Fortunately, on this issue Leibniz leaves us in no doubt about his position: in a letter to De Volder he remarks:

> I do not really eliminate body, but I reduce it to what it is. For I show that corporeal mass, which is thought to have something over and above simple substance, is not a substance, but a phenomenon resulting from simple substances, which alone have unity and absolute reality.[47]

Leibniz is thus in some sense a reductionist about bodies; what is less clear is the nature of the reduction. Some writers have claimed that Leibniz anticipated Berkeley's phenomenalism; they have thought that he came to espouse the thesis

that bodies are sets of harmonized perceptions.[48] Leibniz seems to have flirted with this thesis on occasion; in a very Berkeleian passage he tells Des Bosses:

> It is true that things which happen in the soul must agree with those which happen outside of it. But for this it is enough for the things taking place in one soul to correspond with each other as well as with those happening in any other soul, and it is not necessary to assume anything outside of all souls or monads. According to this hypothesis, we mean nothing else when we say that Socrates is sitting down than that what we understand by 'Socrates' and by 'sitting down' is appearing to us and to others who are concerned.[49]

Leibniz was certainly well placed to defend a version of phenomenalism. Other phenomenalists, such as Berkeley, who hold that the supply of souls or minds is finite are forced to analyse statements about the existence of physical objects in terms of statements about possible perceptions; they are forced to appeal to the perceptions which a mind would have in such and such circumstances. Leibniz, by contrast, does not have to take this line since he holds that the number of souls is infinite and that every possible point of view on the phenomena is actually occupied. Thus Leibniz can analyse all statements about the existence of physical objects in terms of other statements which are exclusively about the actual perceptions of monads.[50]

Phenomenalism, however, does not seem to be Leibniz's considered view. Most characteristically Leibniz states that a physical object is, not a set of perceptions, but an aggregate of monads or simple substances. In saying this Leibniz is careful to point out that he does not mean that monads are parts of bodies; rather, any part of a body is itself physical, and since matter is infinitely divisible, there will be no part of matter which does not have parts which are themselves smaller bodies. Leibniz sometimes explains the relationship between bodies and monads by saying that bodies are 'beings by aggregation' which result from monads or simple substances.[51] Bodies are also said to be 'well-founded phenomena';[52] they are well-founded in the sense that they are appearances which are grounded in monads.

Despite some differences in formulation, Leibniz's main view seems to be that bodies are aggregates of monads. We may well wonder how this can be so; how can an aggregate of simple, unextended substances be identified with a physical object? It would seem that a physical object must have properties which no aggregate of monads could have. Certainly a physical object must have properties which no *individual* monad can have. Perhaps Leibniz would insist on the logical point that, from the fact that individual monads are unextended, it does not follow that an aggregate of monads is unextended; to suppose otherwise is to commit the fallacy of composition. This fits in well with Leibniz's claim that 'aggregates themselves are nothing but phenomena, since things other than the monads making them up are added by perception alone by virtue of the very fact

that they are perceived at the same time'.[53] In other words, to talk of aggregates is to go beyond the reality of the monads themselves and to make essential reference to the contribution of the perceiving mind. Alternatively Leibniz may hold, as he is traditionally interpreted as holding, that a body is not, strictly speaking, identical with an aggregate of monads; rather, an aggregate of monads is misperceived by us as a physical object having the properties of size, shape and position.[54]

According to Leibniz's monadology, there is really nothing in the world but simple substances; strictly speaking, there are no corporeal substances. Leibniz makes only one concession to the privileged status which he had accorded organisms in his earlier philosophy: where organisms are concerned, in the corresponding aggregate of monads there is one monad which is dominant with respect to other members of the aggregate. The dominance relation is to be spelt out in terms of superior clarity and distinctness of perceptions. For example, in the case of human beings the mind is the dominant monad with respect to the aggregate of monads that constitute the body. But towards the end of his life Leibniz seems to have become dissatisfied with this theory; he appears to have felt that the 'hypothesis of mere monads' did not do justice to the unity possessed by organic bodies. In other words, the presence of a dominant monad was not enough to fill this role. Leibniz seems to suggest that, in addition, we must postulate something substantial which unifies the monads; this is what he came to call a 'substantial bond' *(vinculum substantiale)*.

Some scholars have expressed scepticism as to whether Leibniz ever committed himself to the theory of the *vinculum substantiale*.[55] The basis for such scepticism is that Leibniz first proposed the theory in correspondence with the Jesuit Des Bosses who invited him to explain how monadology could accommodate the Catholic dogma of transubstantiation: this is the dogma that in the Eucharist the whole substance of the consecrated bread and wine is changed into the substance of the body and blood of Christ. It has thus been suggested that the doctrine of substantial bonds is merely the concession of a diplomat intent on accommodating Catholic dogma. But there are grounds for doubting this interpretation. In the first place, Des Bosses was not entirely happy with the theory of substantial bonds; he raised theological scruples against it. Second, and more importantly, the philosophical fit between the theory and the dogma of transubstantiation is not a very close one.[56] The theory of substantial bonds is intended to account for the unity of organisms. The consecrated bread and wine, however, are not themselves organisms, but rather aggregates of them.[57] Indeed the indications are that Leibniz was engaged in pursuing an independent train of thought about the unity of organisms which led him to the idea of substantial bonds, and that he then adapted this idea to meet the demands of the dogma of transubstantiation.

SPACE AND TIME

As we have seen, Leibniz speaks of monads as having points of view, but this expression is metaphorical; it must not be taken literally as implying that monads occupy positions in space. This is clearly not Leibniz's view. Unfortunately, Leibniz never offers a detailed account of the relations between his doctrine of monads and his theory of space, but he seems to hold that spatial relations are logical constructions out of the perceptual states of monads. In other words, the claim that a certain body is in such and such a spatial position is to be ultimately analysed in terms of propositions about monads and their properties. Thus from his knowledge of the perceptual states of monads, God could read off all the facts about the spatial relations of bodies in the universe. Leibniz is committed, it seems, to the same view of time *mutatis mutandis*. Strictly speaking, monads are no more in time than they are in space, but the temporal relations of events can in principle be read off from the properties of monads. How consistently or rigorously Leibniz adhered to this view of time is unclear.

At the very end of his life the nature of space and time was the subject of a fierce controversy between Leibniz and Newton's disciple, Samuel Clarke; the exchange thus took place at a point in Leibniz's career when the doctrine of monads was securely in position. Despite this, in the controversy with Clarke Leibniz does not seek to reveal the idealist groundfloor of his metaphysics. Throughout this exchange Leibniz argues at an intermediate level of philosophical rigour;[58] for the sake of argument he assumes that the phenomenal world of bodies in space is ontologically basic. We should also note that while the nature of space and time is the dominant topic in the correspondence with Clarke, it is by no means the only issue that divides Leibniz and Newton; Newton's theory of universal gravitation is also one of Leibniz's chief targets. Indeed, in his later years, Leibniz was engaged in a full-scale assault on the foundations of Newtonian science. According to Leibniz, Newtonian science was not only philosophically inept; it was a direct threat to natural religion.[59]

In the correspondence with Clarke Leibniz puts forward two positive theories about the nature of space and time. In the first place, Leibniz argues that space and time are not substances or attributes but relations. 'Space is the order of co-existences; time is the order of successive existences.'[60] Thus Leibniz directly opposes the Newtonian absolute theory according to which space and time are entities which exist independently of bodies and events. For Leibniz, by contrast, bodies are logically prior to space and events are logically prior to time; in other words, there would be no space if there were no bodies and there would be no time if there were no events.[61] Second, Leibniz argues that space and time are ideal. This thesis follows from the relational theory in conjunction with Leibniz's oft-repeated claim that substances alone are fully real, everything else being a mere *ens rationis* or mental construct. The claim that space and time are ideal might lead one to suppose that it is intimately tied in with the doctrines of the monadology, but in fact it is not; although it is fully consistent with those doctrines,

it does not depend on them. We can see that this is so by reflecting that Leibniz would still subscribe to the ideality thesis if he held, as he earlier did, that there are genuinely corporeal substances. For the ideality thesis, the crucial point is that space and time are relations and are therefore merely mental constructs.

In his letters to Clarke Leibniz offers two main arguments against the Newtonian theory. The first argument is from the principle of sufficient reason. Notoriously, this principle takes many different forms in Leibniz's philosophy, but here it can be understood to mean simply that there must be a reason for God's choice. The argument can be put in the form of a *reductio ad absurdum*. Suppose that the Newtonian theory of absolute space is true. Now the parts of this space are indiscernible, and so if God created a world he could have no reason for creating it at one point in space rather than some other. But we know both that God has created a world and that he never acts without a reason. The argument thus leads to a contradiction: God both does, and does not, act without a reason. It follows, then, that the theory of absolute space is false. *Mutatis mutandis* the argument can also be directed against the theory of absolute time.[62]

Leibniz's second argument has proved to be of greater philosophical interest in our own time. This argument depends on a version of the identity of indiscernibles which, as various writers have noted, is really tantamount to the modern verificationist principle.[63] According to Leibniz, the Newtonians are committed to saying that it makes sense to suppose that God could, for example, move the universe a few miles to the west while keeping its internal structure unchanged. Leibniz has no patience with such suppositions. If God were to do such things, no change would be observable even in principle. In a remarkable passage Leibniz then states the verificationist objection:

> Motion does not indeed depend on being observed; but it does depend on its being possible to be observed. There is no motion when there is no change that can be observed. And when there is change that can be observed, there is no change at all.[64]

The supposition in question can thus be dismissed as meaningless or, as Leibniz sometimes says, an impossible fiction.

Ever since Clarke Leibniz's readers have been bothered by a seeming inconsistency in his position. The first argument seems to assume that, though absolute space and time are contrary to the divine wisdom, they are at least logically possible; the second argument, by contrast, seeks to establish a stronger claim: the theory of absolute space and time is an impossible fiction. Relatedly, there seems to be an inconsistency in Leibniz's claims about the identity of indiscernibles. Sometimes he says that to suppose two indiscernible entities or states of affairs is to suppose two things under the same name;[65] at other times he says that, though logically possible, the existence of two indiscernible entities would be contrary to the divine wisdom.[66] The problem of interpretation, however, is not really a serious one; it can be solved by assuming that Leibniz is

mounting a two-pronged attack on the Newtonian position. Leibniz's main argument turns on the claim that the identity of indiscernibles is a necessary truth: on this argument the supposition of two indiscernible entities is indeed an impossible fiction. But Leibniz is also prepared to argue in a more concessive vein: even if it is granted that two indiscernible entities are logically possible, it can still be shown that they would never obtain because they are contrary to the divine wisdom.

CAUSALITY, PRE-ESTABLISHED HARMONY, AND THE MIND-BODY PROBLEM

The seventeenth and eighteenth centuries were a period of intense interest in the nature of causality. Indeed, in this period the whole concept of causality was going through a process of transformation which was to culminate with Hume. But though early modern philosophers, such as Malebranche and Leibniz, anticipated some of Hume's insights, at least officially they tended to cling to traditional, Aristotelian ideas about the nature of causality which Hume himself was to discard; as a result they often seem to occupy half-way positions on the road to Hume. In general we can say that seventeenth-century philosophers tended to operate with a stronger concept of causality than is current today. This fact is something which needs to be borne in mind when interpreting their metaphysical doctrines about causal relations. Rationalist philosophers, in particular, often seem to be announcing surprising news about the world, but to some extent they can be read as doing something rather different; they are insisting that a certain strong concept of causality is not satisfied by certain events and processes which we might take to be causal.

Malebranche and Leibniz illustrate these points very clearly. In the case of Malebranche his occasionalism arises from his insistence that there must be a logically necessary connection between cause and effect; on this basis he concludes that no creature is a genuine cause.[67] Anticipating Hume he insists that it is not logically necessary, for instance, that the kettle should boil soon after I light a fire under it or that my arm should go up when I will to raise it.[68] Unlike Malebranche, Leibniz is not so wedded to the idea that necessary connection is a requirement for true causality; rather, he accepts the scholastic assumption that genuine causality involves a kind of contagion whereby properties are literally passed on from the cause to the effect. It is true that Leibniz's position is not free from tensions. For instance, he criticizes the scholastic Suarez's definition of 'cause' as 'what flows being into something else' on the grounds that it is barbarous and obscure.[69] Yet Leibniz famously denies that monads causally interact on the ground that they have no windows through which anything could enter or depart.[70] In other words, no properties can be literally transmitted from one simple substance to another. Yet if this is his ground for denying that substances causally interact, then Leibniz must be assuming something like the 'contagion' view of causality. And it is surely this

concept of causality which Suarez was trying to capture, however clumsily, in his definition in terms of influx. Thus, rather than abandon traditional assumptions about causality, both Leibniz and Malebranche choose the heroic course of denying the existence of genuine causal relations between finite substances. In other words, they stop short of Hume's revolutionary rethinking of the nature of causality.

Leibniz's doctrine of pre-established harmony, like Malebranche's occasionalism, has been seriously misunderstood. It has been assumed that both doctrines are merely more or less *ad hoc* solutions to the mind-body problem which Descartes is supposed to have bequeathed to his successors. But this assumption is mistaken. Recall that on pp. 393–5 we saw how Leibniz tried to deduce his doctrine of the preestablished harmony (understood as the package of metaphysical theses 3–5) from purely logical considerations; in particular, he tried to deduce it from his complete concept theory. The doctrine of the pre-established harmony is thus not simply an *ad hoc* solution to the mind-body problem; it is a general theory about the relations between finite, created substances. In this respect it resembles Malebranche's occasionalism. But in another respect there is an important relevant difference between the two theories. Because of his Cartesian assumptions, Malebranche is able to offer an occasionalist solution of the mind-body problem as a special case of a more general theory; it is not clear, however, whether Leibniz is really in a position to do the same. Indeed, at points in his philosophical career it is not even clear whether the mind-body problem really arises in his philosophy. We see, then, that Leibniz pays a price for his attempt to retain Aristotelian ideas while addressing characteristically Cartesian concerns.

To understand the force of these observations it is useful to compare the positions of Descartes and Leibniz. In Descartes's philosophy the mind-body problem is traditionally taken to arise from the fact that he holds that mind and body are both substances and that they are completely heterogeneous; the nature of mind consists wholly in thinking and the nature of body consists wholly in being extended. It has thus seemed difficult to Descartes's readers to see how there could be any union or interaction between two such different substances. By contrast, at no point in his philosophical career did Leibniz accept all the assumptions which generate the mind-body problem in its pure Cartesian form. In the first place, although in his later philosophy Leibniz insists that the soul is a substance, he is much less certain about its status around the time of writing the *Discourse on Metaphysics*. Using scholastic terminology Leibniz notes: 'the soul, properly and accurately speaking, is not a substance, but a substantial form, or the primitive form existing in substance, the first act, the first active faculty.'[71] But if the soul is only an element of substance, then it is not clear that it makes sense to speak of a mind-body problem. Second, throughout his career Leibniz holds that the human body is not a substance but an aggregate of substances. It is true that the nature of the aggregate changes as his metaphysics develops: in the *Discourse* the body is an aggregate of organisms; in the *Monadology* it is an

aggregate of monads. But at no time does Leibniz regard the human body as a substance in its own right. Finally, at least in his later philosophy, mind and body, for Leibniz, are not fundamentally heterogeneous, for the body is an aggregate of entities that are themselves soul-like. Now there may well be a case for saying that monads cannot causally interact, but it clearly has nothing to do with considerations of heterogeneity. As we have seen, it has rather to do with the fact that monads have no windows. In other words, causal interaction requires the literal transmission of properties, and in the case of monads this requirement cannot be met.

In its classical form, then, the mind-body problem is a puzzle about the relations between two heterogeneous substances, and in this form the problem cannot arise in Leibniz's philosophy. At most Leibniz faces a problem concerning the relation between a substance (mind) and an aggregate of substances (body). But in that case a solution to this problem cannot be straightforwardly derived from the general doctrine of pre-established harmony. For from the fact that no two substances can interact it does not follow that a substance cannot interact with an aggregate of substances.

Despite these anomalies, Leibniz often writes as if he were in a position to solve the mind-body problem which Descartes bequeathed to his successors; he boasts, for instance, that his doctrine of preestablished harmony solves 'the great mystery of the union of the soul and the body'.[72] In passages like these Leibniz tends to downplay the extent of his Aristotelian-scholastic commitments; he suggests that he shares the dualist assumptions that generate the mind-body problem, and refuses to follow Descartes only in his commitment to interactionism. Leibniz then exploits his doctrine of the pre-established harmony in the following way. Although mind and body appear to interact, the metaphysical truth of the matter is that each is simply following its own laws: the body is acting in accordance with the laws of mechanism, the mind is acting in accordance with the laws of psychology. In the former case the causality involved is efficient, in the latter it is teleological.[73] Thus, for example, my mind and my body have been so programmed by God that, when I form the volition to raise my hat, my arm is ready to execute the appropriate movement.

PSYCHOLOGY: EXPRESSION, PERCEPTION, AND *PETITES PERCEPTIONS*

Leibniz's solution to the mind-body problem struck many of his contemporaries as remarkably similar to Malebranche's occasionalism—a comparison which Leibniz resisted.[74] In fact, however, Leibniz's position is in some ways more reminiscent of Spinoza's. Like Spinoza, Leibniz insists on the autonomy of the physical and mental realms; every physical event has a physical cause, and every mental event has a mental cause. There are of course also important differences between their views. Unlike Spinoza, Leibniz subscribes to the traditional Christian conception of a personal God and he holds, at least in his later

philosophy, that the mind is a naturally immortal, immaterial substance. But these very differences suggest a way of viewing Leibniz's project, at least with regard to the mind-body problem; he is seeking to do justice to some of Spinoza's key ideas within the framework of traditional Christian theology.

There is indeed much that is Spinozistic in Leibniz's psychology. Consider, for instance, how Leibniz applies his concept of expression to the relationship between mind and body. According to Leibniz, the mind does not interact with the body, but it expresses it in the technical sense of the term which he explained for Arnauld's benefit. Indeed, Leibniz tells Arnauld that the mind expresses its own body better than it expresses anything else in the universe.[75] In response to Arnauld's query Leibniz explains that he does not mean by this that our mind has clearer thoughts of, say, the activity of its lymphatic glands than of the satellites of Jupiter; he means rather that given a complete knowledge of my mental states a supermind would find it easier to read off truths about my physical states than about the celestial bodies.[76] As Spinoza wrote, 'the ideas that we have of external bodies indicate the constitution of our own body more than the nature of external bodies'.[77] Leibniz might have stopped at this point, but in fact he goes further; he claims that the mind expresses its body by perceiving it, perception being a species of expression; indeed the mind perceives everything that happens in its body.[78] Here again Leibniz seems to be following in Spinoza's footsteps, for Spinoza had similarly written that 'whatever happens in the object [i.e. the body] of the idea constituting the human mind is bound to be perceived by the human mind'.[79] But whereas Spinoza does little to dispel the mystery surrounding this claim, Leibniz offers a body of theory which plugs the gaps in Spinoza's account. This is the famous doctrine of unconscious perceptions.

Here it is helpful to recall Leibniz's hierarchical arrangement of monads. All monads perceive, but they differ vastly in terms of the quality of their perceptions. Human minds or spirits are distinguished not only by reason but also by 'apperception' which means consciousness or perhaps even self-consciousness. But though Leibniz holds that human minds are set apart from lower monads by their capacity for (self)-conscious awareness, he further believes that they also have unconscious or little perceptions *(petites perceptions);* such perceptions are little because they are low in intensity. Not merely do large stretches of our mental life consist wholly in little perceptions, but even conscious mental states are composed of such perceptions. The doctrine of unconscious perceptions is perhaps Leibniz's principal innovation in psychology, and it is of course profoundly anti-Cartesian in its implications. For Descartes subscribes to the view that the mind is transparent to itself; he is explicit that there is nothing in the mind of which we are not conscious.[80]

In the *New Essays on Human Understanding,* his reply to Locke, Leibniz remarks that there are 'thousands of indications' in favour of unconscious perceptions.[81] Obviously there is an element of hyperbole in this claim, but even so, Leibniz certainly has a battery of arguments for his doctrine. Some of these arguments are based on *a priori* principles such as the identity of indiscernibles

which requires that any two minds must be qualitatively, not just numerically, different. Although Leibniz is not quite explicit about this, another assumption of the argument seems to be that minds at or before birth have no conscious experiences; thus the individuating characteristics required by the identity of indiscernibles must occur below the threshold of consciousness.[82] Other arguments are less tied to the distinctive principles of Leibniz's metaphysics, but not all of them are more cogent. Leibniz is fond of arguing that, in order to hear the waves breaking on the shore, we must hear the noise of each individual wave.[83] This argument has been criticized as being as dubious as arguing, from the fact that we feel the weight of a stone, that we must have an unconscious perception of each of the molecules that make it up.[84]

Perhaps more interesting is what we may call Leibniz's 'attention argument' which may be illustrated by the following scenario.[85] Suppose that two people, Smith and Jones, are having a conversation and that, throughout, a drill has been operating in the background; Smith has not been conscious of the noise, but he now suddenly has his attention drawn to it by Jones. Leibniz argues that in the act of attention Smith is really remembering a past perception of the noise. But *ex hypothesi* this earlier perception was not a conscious one and must therefore have been 'little' or unconscious. This argument clearly depends on the premise that attention involves memory, and one might wonder why one should accept this. If it is supposed to be true by definition, then the definition seems merely stipulative. Nonetheless, there is something attractive about the suggestion that cases like this force us to recognize the existence of unconscious perceptions, and Leibniz can support his conclusion in other ways. For example, it was implicitly assumed in our description of the case that Smith's sense organs are equally stimulated by the drilling both before and during the act of attention. Now Leibniz cannot of course strictly ascribe any psychological effects to a physical stimulus, but by virtue of his theory of expression he can and does insist that some state of the soul must correspond to any such stimulation;[86] and by hypothesis, as we have seen, the mental state which precedes the act of attention is not a conscious awareness of the noise. Leibniz can also fall back on an appeal to the law of continuity;[87] there would be a flagrant breach of this law if the stimulus which 'produced' a conscious perception of the noise during the act of attention 'produced' no perception at all in the mind before the act.

The doctrine of unconscious perceptions is a key element in Leibniz's attack on the Cartesian view that mentality is all or nothing. For Leibniz, by contrast, mentality is a continuum which extends below the threshold of consciousness. Sometimes, as we should expect, Leibniz's rejection of Descartes's view of the mental life provides the basis for the rejection of other Cartesian doctrines. Leibniz sides with common sense against the notorious Cartesian thesis that animals are mere automata. He argues that the Cartesians were led astray by their failure to distinguish between thought and perception; in other words, the Cartesians have made the mistake of confusing a species with its corresponding genus.[88] Thus even if animals have no thought *(cogitatio),* it does not follow that

they have no perceptions. Leibniz is clear, then, that animals have a mental life, but he is less clear about its precise nature. He seems to have believed that, unlike humans, animals have no capacity for self-consciousness, but whether he believed that they could consciously feel pain is less certain. Unfortunately, the issue is complicated by an obscurity in Leibniz's concept of apperception which, as we have suggested, is ambiguous between consciousness and self-consciousness.[89]

Somewhat curiously, however, at other times Leibniz uses his theory of perception to defend Cartesian theses, although often in a seriously modified form. Here too the doctrine of unconscious perceptions plays a key role. As against Locke, for example, Leibniz exploits the doctrine in order to defend, or rather re-work, the Cartesian thesis that the mind always thinks. For Leibniz, the mind always thinks, not in the sense of being always conscious, but rather in the sense of never being without some perceptions; for example, even in dreamless sleep or a coma the mind has its *petites perceptions*. It is thoroughly characteristic of Leibniz's concerns that his defence of this Cartesian thesis is in the service of a larger goal—the vindication of an immaterialist theory of mind against what he sees as Locke's subversive attack on this doctrine. For Leibniz, the immateriality of the mind entails that it is naturally immortal, and this in turn entails that it always perceives.[90]

KNOWLEDGE AND IDEAS

In contrast with Locke and the other British empiricists, Leibniz has traditionally been classified as a rationalist, and this classification is fundamentally an epistemological one: a rationalist philosopher is one who believes that it is possible to know substantive truths about the world *a priori,* by reason alone. We might expect, then, that in his full-length reply to Locke, the *New Essays,* Leibniz would seize the opportunity to provide a systematic defence of the rationalist position in epistemology. Yet on the whole this expectation is disappointed. On the contrary, as I have already indicated, Leibniz's main purpose in this work is not epistemological at all: it is metaphysical. Leibniz told a correspondent that in writing this work he was above all concerned to defend the immateriality of the soul.[91]

This fact about the work is remarkably suggestive of Leibniz's overall philosophical orientation. Unlike Descartes and the British empiricists, Leibniz was not greatly interested in what have since come to be regarded as the central issues in epistemology; the problem of our knowledge of the external world, for instance, was never at the forefront of his philosophical concerns. As we have seen, Leibniz sometimes toys with phenomenalism, and in the hands of Berkeley phenomenalism serves as an answer to the challenge of scepticism. Leibniz, however, does not seem to have been primarily attracted to phenomenalism for this reason. On occasion, of course, Leibniz can make some shrewd criticisms of the attempts of other philosophers to solve epistemological questions. Leibniz is

rightly suspicious of Descartes's appeal to clear and distinct ideas, and he ruthlessly exposes the weaknesses of Descartes's proof of the existence of the external world; he remarks with some justice that Descartes's proof is so feeble that it would have been better not to try.[92] But some of Leibniz's criticisms of Descartes indicate a lack of deep engagement with the issues. Leibniz states that *Varia a me cogitantur* ('Various things are thought by me') has as strong a claim as the *Cogito, ergo sum* to be regarded as a first principle of knowledge.[93] But this comment suggests a blindness to the peculiarly self-verifying character of the *cogito*.

Perhaps Leibniz's chief interest in the theory of knowledge lies in defending a version of the Cartesian, and ultimately Platonic, doctrine of innate ideas. Not surprisingly, Leibniz's main defence of this doctrine is to be found in the *New Essays;* indeed, it constitutes the single most substantive treatment of epistemological issues in that work. But Leibniz's case for innate ideas does not stand on its own; it is an application of a theory of ideas in general, and it is best to begin by taking a brief look at this theory.

Leibniz's theory of ideas can be understood against the background of a famous controversy between Malebranche and Arnauld.[94] There are a number of issues in this controversy, but for our purposes the central problem is the ontological status of ideas. As an orthodox Cartesian Arnauld argued that ideas or concepts—e.g. the concept of a triangle—are mind-dependent entities; indeed, they are modifications of the mind.[95] Malebranche, by contrast, argued that ideas are not in human minds at all; rather, they are in God.[96] By thus locating ideas in God, Malebranche is self-consciously reviving the Augustinian doctrine of divine illumination; in order to achieve genuine knowledge of the world, our minds must be illuminated by the light of God's ideas. But Malebranche's philosophical point can perhaps be explained by removing the theological trappings; in contrast with Arnauld and orthodox Cartesians, he argues that ideas (concepts) are not psychological but abstract entities.

Leibniz approves of Malebranche's revival of the doctrine of divine illumination, and like Malebranche he speaks of God as the region of ideas.[97] But despite his tendency to echo Malebranche's language, Leibniz does not really follow him in regarding ideas as irreducibly abstract entities. Unlike Malebranche, Leibniz is a nominalist who cannot countenance such entities as basic items of ontology.[98] Certainly Leibniz's official definition of the term 'idea' is uncompromisingly psychological; ideas are 'in the mind' and they are 'faculties'—that is, dispositions to think in certain ways.[99] For Leibniz, then, since it is a psychological disposition, an idea is a persistent property of the mind. Thus, unlike Arnauld, Leibniz does not simply identify ideas with particular mental episodes. This definition of 'idea' does justice to something which Descartes recognized, if less explicitly and only intermittently: a person can have an idea of x even if at that moment he is not actually thinking of x.

On such a theory of ideas it is not hard to see what is involved in a commitment to innate ideas. For if ideas are themselves mental dispositions, then

innate ideas are innate mental dispositions; they are dispositions which we have had at least since birth. This is the form of the doctrine which Leibniz has primarily in mind when he defends the innateness of mathematical and metaphysical concepts against Locke. In his polemic Locke had adopted a two-pronged strategy of attack on innate ideas. According to Locke, the thesis of innate ideas is either empirically false—it ascribes highly abstract concepts to infants — or it is condemned to triviality.[100] In reply Leibniz seeks to show that his own dispositional theory of innate ideas constitutes a third option which is not caught in the mesh of Locke's polemic. To claim that the mind has an innate idea of x is not just to say, as Locke supposes, that it is capable of thinking of x; a distinction must be drawn between dispositions and 'bare faculties'.[101] That Leibniz is right to draw such a distinction can be shown by reference to the case of a physical disposition such as fragility. When we call an object fragile, we are not just saying that it is capable of breaking; otherwise any object which breaks is fragile. Leibniz's theory of innate ideas thus implies at least that the mind is differentially predisposed to form certain thoughts rather than others. Here Leibniz seems to be reviving Descartes's thesis that ideas are innate

> in the same sense as that in which we say that generosity is 'innate' in certain families, or that certain diseases such as gout or stones are innate in others; it is not so much that the babies of such families suffer from these diseases in their mother's womb, but simply that they are born with a certain 'faculty' or tendency to contract them.[102]

In one way, however, Leibniz's dispositional theory of innate ideas seems to differ from Descartes's. Unlike Descartes, Leibniz seems to hold that mental dispositions cannot be basic properties; they need to be grounded in fully actual, non-dispositional properties of the mind. Here Leibniz may be responding to Malebranche's criticism that the Cartesians inconsistently countenanced basic powers in psychology, while rightly banishing them from physics.[103] But while it is obvious how, say, fragility can be grounded in structural properties of the glass, it is less clear what could serve to ground mental dispositions. In order to meet this requirement, it seems that Leibniz once again appeals to his doctrine of unconscious perceptions. My innate disposition to think of a triangle, for example, would be grounded in an unconscious perception which has triangle content. It is this doctrine which Leibniz appears to have in mind when he writes in the *New Essays* that 'ideas and truths are innate in us—as inclinations, dispositions, tendencies, or natural virtualities, and not as actions; although these virtualities are always accompanied by certain actions, often insensible ones, which correspond to them.'[104]

The dispositional theory is Leibniz's main theory of innate ideas, but it is not the only one. Leibniz also advances what we may call the 'reflection account'. According to this account, the idea of substance, for example, is innate in the sense that we can acquire it by turning our mental gaze inward and reflecting on the

fact that our minds are substances. Leibniz seems to have been pleased with this theory, and it inspires some of his best-known remarks about innate ideas; it underlies such claims as 'We are innate to ourselves' and 'There is nothing in the intellect which was not previously in the senses, except the intellect itself'.[105] None the less, for all Leibniz's evident pride in the doctrine, it does not seem very satisfactory. For one thing, on this account ideas turn out to be innate only in the minimal sense that they are not acquired through the senses. Moreover, the theory faces obvious difficulties in explaining our acquisition of mathematical concepts, and these are generally numbered among the *explananda* for any theory of innate ideas. We may perhaps acquire the idea of substance by reflecting on the fact that our minds are substances, but we can hardly acquire the concept of a triangle by reflecting on the fact that our minds are triangular.

So far we have been chiefly concerned with Leibniz's defence of a theory of innate ideas against the Lockean objection that it must reduce to triviality. But what positive arguments does Leibniz offer in favour of the innatist doctrine? In the *New Essays* Leibniz is much more forthcoming on this score in connection with innate propositions than with innate concepts. In part this fact reflects the emphasis of Locke's own discussion, but it also testifies to Leibniz's concern with a problem which has exercised philosophers at least since Plato: this is the problem of explaining how we can have *a priori* knowledge of necessary truths, as we do in the case of mathematics. Leibniz follows the Platonic tradition by arguing that it is impossible to explain such knowledge except on the assumption that it is innate in our minds.[106] Through the senses, for example, we may perhaps come to believe that the Pythagorean theorem is true of all observed right-angled triangles, but we would never come to believe that this theorem expresses a necessary truth about such triangles.

Leibniz's case for innate knowledge has a distinguished ancestry, but it seems to be in danger of running together two separate issues.[107] In the first place, there is a causal question: how do we acquire beliefs to the effect that necessarily p? Second, there is a question of justification: how do we justify our claim to know that necessarily p? Leibniz sometimes seems to say that both questions can be answered in terms of an appeal to innateness, but this claim is distinctly dubious. The hypothesis of innateness may be a plausible answer to the first question, but it is more difficult to see how it helps with the second, normative issue; on the face of it, it seems entirely possible that our innate beliefs should all be false. It is true that the innatist hypothesis would help to answer the second question on the further assumption of divine benevolence; a good God can be trusted not to inscribe a pack of lies on our minds. Unlike Descartes, however, Leibniz is reluctant to appeal to divine benevolence in order to solve epistemological questions.

Leibniz's philosophy, and his metaphysics in particular, is an extraordinarily ambitious work of synthesis. His system seeks, for example, to combine Aristotelian and Cartesian insights within a framework of Christian theology. Sometimes Leibniz's attempts at synthesis seem overambitious and even

misguided; on occasion Leibniz seeks to address issues—such as the mind-body problem—without indicating how far he has departed from the assumptions which initially gave rise to them. Leibniz may well have been aware of such stresses in his system, and it may have been because of this awareness that he never ceased to develop as a philosopher; he continued to seek new ways of assembling the materials of his philosophy into a coherent whole. Indeed, in some ways, despite its strangeness, his later idealism is more coherent than the earlier, Aristotelian metaphysics. But though Leibniz had to struggle to achieve overall coherence, in the process he made major contributions to philosophical thought about the issues he discussed; his theories of substance, identity, causality, space and time, and innate ideas are illuminating and historically influential. For all its internal tensions and unresolved problems, his system in its various forms remains one of the most impressive examples of speculative metaphysics.

ABBREVIATIONS

A	German Academy of Sciences (ed.) *G.W.Leibniz: Sämtliche Schriften und Briefe* (Darmstadt, 1923–). References are to series and volume.
AG	R.Ariew and D.Garber (ed. and trans.), *Leibniz: Philosophical Essays* (Indianapolis, Ind., and Cambridge, Mass., 1989)
AT	C.Adam and P.Tannery (eds) *Oeuvres de Descartes,* 12 vols (Paris, 1897–1913; reprinted Paris, 1964–76)
CSM	J.Cottingham, R.Stoothoff and D.Murdoch (trans.), *The Philosophical Writings of Descartes,* 2 vols (Cambridge, 1985)
F de C	A.Foucher de Careil (ed.) *Nouvelles Lettres et Opuscules Inédits de Leibniz* (Paris, 1857)
G	C.I.Gerhardt (ed.) *Die Philosophischen Schriften von G.W.Leibniz* (Berlin, 1875–90)
Grua	G.Grua (ed.) *G.W.Leibniz: Textes Inédits,* 2 vols (Paris, 1948)
L	L.E.Loemker (ed.) *G.W.Leibniz: Philosophical Papers and Letters* (Dordrecht, 2nd edn, 1969)
MP	H.T.Mason (ed. and trans.) and G.H.R.Parkinson (intro.) *The Leibniz-Arnauld Correspondence* (Manchester, 1967)
NE	*New Essays on Human Understanding (Nouveaux Essais sur l'Entendement Humain).* References are to series VI, volume 6, of the Academy edition and to the Remnant and Bennett translation. The pagination of Remnant and Bennett is identical with that of the Academy text; one page number thus serves for both

RB P.Remnant and J.Bennett (trans. and eds) *G.W.Leibniz: New Essays on Human Understanding* (Cambridge, 1981)

I have generally followed the cited translations; any significant modifications are indicated in the notes.

NOTES

1 See, for example, NE IV.viii, A VI.vi, RB 431.
2 Leibniz to Remond, 10 January 1714, G III 607.
3 See J.Bennett, *A Study of Spinoza's Ethics* (Cambridge, Cambridge University Press, 1984), pp. 55–6.
4 Aristotle, *Categories,* ch. 5, 43.
5 *Discourse on Metaphysics* 8, G IV 432, L 307.
6 ibid., G IV 433, L 307.
7 Leibniz to Arnauld, 30 April 1687, G II 96–7, MP 121.
8 Sleigh [11.27], 123.
9 cf. Bennett, op. cit., p. 58.
10 Leibniz to Arnauld, 30 April 1687, G II 100–1, MP 126.
11 Strictly speaking, for Descartes, there is only one body or extended substance: the entire physical universe.
12 See Sleigh [11.27], 98–101.
13 See Broad [11.29], 49–51.
14 Leibniz to Arnauld, 30 April 1687, G II 101, MP 126.
15 Arnauld to Leibniz, 4 March 1687, G II 86, MP 107.
16 Leibniz to Arnauld, 30 April 1687, G II 97, MP 121.
17 Arnauld to Leibniz, 4 March 1687, G II 87–8, MP 109.
18 Leibniz to Arnauld, 30 April 1687, G II 100, MP 125–6.
19 *Discourse on Metaphysics* 8, G IV 433, L 307.
20 Russell [11.38]; Couturat [11.43]; Couturat [11.44],
21 'First Truths', C 521, L 269. (Translation modified.)
22 See, for example, M.Ayers, 'Analytical Philosophy and the History of Philosophy', in J.Rée, M.Ayers and A.Westoby, *Philosophy and its Past* (Brighton, Harvester, 1978), p. 45. See also B.Brody, 'Leibniz's Metaphysical Logic', in Kulstad [11.34], 43–55.
23 Aristotle, *Metaphysics* 1011 b 27.
24 Leibniz to Arnauld, 14 July 1686, G II 56, MP 63.
25 As Arnauld noted (Arnauld to Leibniz, 13 March 1686, G II 15, MP 9), these remarkable doctrines of Leibniz's logic raise a number of puzzles concerning freedom and contingency. On these see, for example, Sleigh [11.27].
26 *Discourse on Metaphysics* 9, G IV 433, L 308.
27 Leibniz's Fourth Paper to Clarke, G VII 372, L 687.
28 See Parkinson [11.58], 6–8.
29 Leibniz to Arnauld, 9 October 1687, G II 112, MP 144.
30 *Discourse on Metaphysics* 8, G IV 433, L 308. (Translation modified.)
31 See Broad [11.29], 24–5.

32 See Loeb [11.55], 279.
33 It is worth noting here that, strictly speaking, there is a logical gap between 3 and 4 themselves. If 4 is derived from 3, then it is tacitly assumed that every state of a substance must have a cause. If, on the other hand, 3 is derived from 4, then it is tacitly assumed that there is no causal overdetermination. Both these assumptions would be congenial to Leibniz.
34 Parkinson [11.58], 147.
35 ibid., p. 151.
36 Loeb [11.55], 286.
37 'First Truths', C 521, L 269. See Loeb [11.55], 286.
38 See Sleigh [11.27], 11.
39 See, for example, *New System,* G IV 484, L 457.
40 On the development of Leibniz's philosophy, see Broad [11.29], 87; D.Garber, 'Leibniz and the Foundations of Physics: The Middle Years', in K.Okruhlik and J.R.Brown (eds) *The Natural Philosophy of Leibniz* (Dordrecht, Reidel, 1985), pp. 27–130.
41 Leibniz to De Volder, 30 June 1704, G II 270, L 537.
42 *Monadology* 4, G VII 607, L 643.
43 Revision note of 1697–1700 to 'A New Method for Learning and Teaching Jurisprudence', A VI.i p. 286, L 91n.
44 R.McRae [11.69], 60.
45 Whether God is a monad is not entirely clear. However, there are places where Leibniz seems to say that God is a monad—for example, Grua II 558.
46 See Broad [11.29], 75, for a helpful discussion of these issues.
47 Leibniz to De Volder, undated, G II 275, AG 181.
48 M.Furth, 'Monadology', in Frankfurt [11.32], 99–135, esp. p. 122; Loeb [11.55], 304–5.
49 Leibniz to Des Bosses, 16 June 1712, G II 451–2, L 605.
50 Furth, in [11.32], 118–19.
51 See, for example, Leibniz to Des Bosses, 31 July 1709, G II 379; Leibniz to Des Bosses, January 1710, G II 399.
52 See, for example, Leibniz to Arnauld, 9 October 1687, G II 118–19, MP 152.
53 Leibniz to Des Bosses, 29 May 1716, GP II 517, AG 203.
54 See, for example, Broad [11.29], 91. For criticisms of the 'misperception' interpretation, see Rutherford [11.59], 11–28.
55 'Nowhere does Leibniz himself assert that he believes it…. Thus the *vinculum substantiale* is rather the concession of a diplomatist than the creed of a philosopher' (Russell [11.38], 152; cf. Broad [11.29], 124–5).
56 cf. Broad [11.29], 127.
57 Leibniz to Des Bosses, 20 September 1712, G II 459, L 607.
58 C.D.Broad, 'Leibniz's Last Controversy with the Newtonians', in Woolhouse [11.62], 171.
59 Leibniz's First Paper to Clarke, G VII 352, L 675.
60 Leibniz's Third Paper to Clarke, G VII 363, L 682.
61 cf. Broad, in [11.62], 158–9.
62 Leibniz's Third Paper to Clarke, G VII 364, L 682–3.
63 Alexander [11.12], xxiii; Broad, in [11.62], 166.
64 Leibniz's Fifth Paper to Clarke, G VII 403–4, L 705.

65 Leibniz's Fourth Paper to Clarke, G VII 372, L 687.
66 Leibniz's Fifth Paper to Clarke, G VII 395, L 700.
67 N.Malebranche, *The Search After Truth,* 6.2.3.
68 ibid.
69 See the Preface to an edition of Nizolius, G IV 148. For an illuminating discussion of these issues, see H.Ishiguro, 'Pre-established Harmony versus Constant Conjunction', in A.Kenny (ed.) *Rationalism, Empiricism, and Idealism* (Oxford, Oxford University Press, 1986), pp. 61–85.
70 *Monadology* 7, G VII 607; L 643.
71 'Notes on Some Comments by Michel Angelo Fardella', AG 105; F de C 323.
72 *Discourse on Metaphysics* 33, G IV 458, L 324.
73 *Monadology* 33, G VI 620, L 651; *Principles of Nature and of Grace* 3, G VI 599, L 637.
74 See Chapter 10 for a discussion of Leibniz's attitude towards Malebranche's occasionalism. See also Sleigh [11.27], 150–70.
75 See Leibniz to Arnauld, 28 November/8 December 1686, G II 74, MP 92; cf. Leibniz to Arnauld, 30 April 1687, G II 90, MP 113.
76 See Leibniz to Arnauld, 9 October 1687, G II 112, MP 143–4.
77 *Ethics* Part 2, Proposition 16, Corollary 2.
78 Leibniz to Arnauld, 9 October 1687, G II 112, MP 144.
79 *Ethics* Part 2, Proposition 12.
80 First Set of Replies, AT VII 107, CSM II 77.
81 NE Preface, A VI.vi, RB 53. (Translation modified.)
82 ibid., p. 58.
83 ibid., p. 54.
84 J.Cottingham, *The Rationalists* (Oxford, Oxford University Press, 1988), p. 152.
85 NE Preface, A VI.vi, RB 54.
86 ibid.
87 See Leibniz's appeal to the law of continuity, ibid., p. 56.
88 Leibniz to Treuer, 21 May 1708; see Jolley [11.22], 117; cf. *Principles of Nature and of Grace* 4, G VI 600, L 637.
89 McRae argues that Leibniz's position on the issue of whether animals have sensation is contradictory. 'On the one hand what distinguishes animals from lower forms of life is sensation or feeling, but on the other hand apperception is a necessary condition of sensation, and apperception distinguishes human beings from animals' (McRae [11.69], 30). Leibniz certainly holds that self-consciousness distinguishes man from other animals, but whether he consistently equates self-consciousness with apperception is less clear.
90 See Jolley [11.22], 104.
91 Leibniz to Jaquelot, 28 April 1704, G III 473.
92 'Critical Thoughts on the General Part of Descartes's *Principles*', G IV 360, L 391.
93 ibid., G IV 357, L 385.
94 This controversy was initiated by Arnauld's *On True and False Ideas* (1683) which attacked Malebranche's theory of ideas. On this controversy see S. Nadler, *Arnauld and the Cartesian Philosophy of Ideas* (Princeton, N.J., Princeton University Press, 1989); Jolley [11.65].
95 *On True and False Ideas,* ch. 5, Definition 3.
96 *Search After Truth* 3.2.6.

97 'On the Radical Origination of Things', G VII 305, L 488.
98 The case for Leibniz's nominalism is well argued in Mates [11.57], ch. 10.
99 'What is an Idea?', G VII 263, L 207.
100 J.Locke, *Essay Concerning Human Understanding* I.ii.
101 NE I.i., A VI.vi, RB 79–80.
102 *Comments on a Certain Broadsheet,* AT VIII-B 358, CSM I 304.
103 Elucidation Ten, *Search After Truth*.
104 NE Preface, A VI.vi, RB 52.
105 NE Preface, A VI.vi, RB 51; ibid., II.i, III. Strictly speaking, even the reflection account involves a dispositional component, since it is a theory of how we acquire ideas, and ideas are mental dispositions.
106 ibid., Preface, p. 49.
107 For this line of criticism see S.Stich (ed.) *Innate Ideas* (Berkeley and Los Angeles, Calif., University of California Press, 1975), Introduction, pp. 17–18.

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Glossary

affect: a term that renders the Latin noun 'affectus'. Some seventeenth-century Dutch philosophers used the term to mean 'passion': Spinoza, however, took the term in a wider sense, recognizing both active and passive 'affects', in the sense of active and passive emotions and desires.

analysis and synthesis: terms used by sixteenth- and seventeenth-century philosophers in the senses in which they were used in classical Greek mathematics. Analysis is a type of proof in which one starts from the proposition to be proved and works back to the first principles on which the proposition logically depends. Descartes declared that he used the method in his *Meditations*. 'Synthesis' refers to the derivation of theorems from first principles, as in Euclid's geometry, and in Spinoza's *Ethics*.

a posteriori: see *'a priori'*.

a priori: an *a priori* proposition is a proposition such that, in getting to know its truth, one does not have to appeal to sense experience. Kant pointed out in the *Critique of Pure Reason* (1781) that the distinguishing marks of such a proposition are necessity and strict universality, that is, universality such that no exceptions to it are allowed (e.g. 'All bachelors are unmarried'— understanding 'bachelor' to mean 'unmarried male'). Propositions which are not *a priori,* in that knowledge of their truth does rest on sense experience, are termed *a posteriori*.

Arminianism: the Arminians (also known as 'Remonstrants') were members of a religious sect founded by the Dutch Protestant theologian Jacobus Arminius (Hermans or Harmens: 1560–1609). The Arminians opposed the determinism (q.v.) of the Calvinists (see 'Calvinism'). Their views were condemned at the Synod of Dort (1618–19).

ars inveniendi: the 'art of discovery'. In the seventeenth century, philosophers looked for such an art or technique,

which would establish rules for inquiry and do away with the need for individual genius or flair on the part of the inquirer. This 'art' was traditionally distinguished from the *'ars judicandi',* the 'art of judgement'; this was used to test the truth of propositions that were proposed to one, and involved syllogistic (q.v.).

attribute: in its basic sense, an 'attribute' is that which is attributed to, or predicated of, something. Descartes held that each substance (q.v.) has a *principal* attribute—extension in the case of corporeal substance, thought in the case of mental substance—which constitutes the substance's essence (q.v.). This view is related to (though by no means the same as) Spinoza's theory that thought and extension are two attributes of the one substance.

Averroism: the theories of the Islamic philosopher Ibn Rushd (Averroes: 1126–98). A much-cited commentator on Aristotle, Averroes was probably best known for his interpretation of what Aristotle said about the 'active intellect' in *De Anima,* III, 5. Averroes argued that the active intellect is divine, and as such is one. The human being does not enjoy personal immortality; human beings are immortal only in so far as the divine intellect is present in them. Not surprisingly, this view was condemned by many medieval Catholic theologians; however, it survived until the Renaissance.

Calvinism: the theology of the French Protestant theologian John Calvin (1509–64). From a philosophical point of view, Calvinism is interesting as a deterministic system (see 'determinism'), based on the absolute predestination of God, whose eternal decree has predestined some of his creatures to salvation and some to eternal damnation. Calvin also declared that the state was subordinate to the Church, as opposed to Luther (1483–1546) who argued that the state is supreme over religion.

causality, rationalist theory of: a theory about the nature of causal necessity. It is commonly held that if E is the cause of F, then given E, F *must* occur. The rationalist theory of causality argues that causal necessity is *logical* necessity; that is, that to say that E causes F is to say that F is the

logical consequence of E. The most famous exponent of this theory was Spinoza.

cause, efficient: a translation of 'causa efficiens', a term which was used by medieval philosophers and which was still in use in the seventeenth century. The term goes back to Aristotle, who stated that an 'efficient' cause is a source of change or of coming to rest (*Physics,* II, 3). So, for example, a man who gives advice is an efficient cause, and a father is the efficient cause of his child.

cause, final: a term that renders the Latin 'causa finalis'. 'Final' does not mean here last or ultimate, as when one speaks of a 'final curtain'. Rather, a final cause is that *for the sake of which* something is done. The term goes back to Aristotle, who said that a final cause is an *end:* e.g. health is the final cause of taking a walk (*Physics,* II, 3). See also 'teleology'.

cause, primary and secondary: as explained in a seventeenth-century textbook of logic, a 'primary cause' is one which produces an effect by its own power; a 'secondary cause' is one which, in various ways, assists in the production of the effect (Heereboord, *Hermeneia Logica* (1650), pp. 106–9).

cause, procatarctic: a term derived from the Greek 'prokatarktikos', 'antecedent'. A procatarctic cause was regarded as one kind of secondary cause (q.v.); it is external to a primary cause, and excites it to action.

cause, proximate and remote: a proximate cause is one which is immediately prior to the effect. Thus, if a billiard ball B moves because it is struck by billiard ball A, the impact of A on B is the proximate cause of the movement of B. The movement of A is itself the effect of some other cause or causes, say the movement of the cue which strikes A. In such a case, the movement of the cue will be the proximate cause of the movement of A, and the remote cause of the movement of B.

common notions: a translation of the Latin term 'notiones communes', which is in turn a translation of the Greek 'koinai ennoai', by which Euclid referred to the axioms of his geometry. The term is used by both Descartes and Spinoza, who also employ the term 'axioma', a Latin version of a Greek word whose use in mathematics is mentioned by Aristotle (*Metaphysics,* Book Gamma, ch. 3).

compositio: a Latin version of the Greek term 'synthesis'. See 'analysis and synthesis'.

concept: philosophers now regard a concept as the meaning of a word or phrase; so, for example, to speak of 'the concept of mind' is to speak of the meaning of the word 'mind'. In the seventeenth century and before, philosophers (whilst agreeing that a meaningful word must stand for a concept) would not have said that to have a concept is necessarily to be a word-user. A philosopher such as Leibniz would say that God has concepts, but would have denied that God uses words.

constructivism: a theory about the meaning and truth of mathematical propositions. For the constructivist, to understand the meaning of a mathematical proposition is to be able to recognize a proof of it when such a proof is presented to one, and to say that a mathematical proposition is true is to say that we have a proof of it. In effect, the constructivist regards mathematical entities as creations of the human mind, and not as abstract objects with an independent existence.

continuity, law of: regarded by Leibniz as one of the laws of philosophy. Put non-technically, the law states that nature makes no leaps. So, for example, there is no absolute distinction between motion and rest; rest is motion which is of infinite slowness.

contradiction, law of: a law of classical logic (defended by Aristotle in *Metaphysics,* Book Gamma, chs 3–6) which states that a proposition cannot be both true and false. Some philosophers prefer to call this law 'the law of non-contradiction'.

correspondence theory of truth: see 'truth, correspondence theory of.

creation *ex nihilo:* the idea that God created the universe *ex nihilo,* from nothing, appears to have entered Western philosophy by way of the Judaeo-Christian tradition. For the ancient Greeks the question was not 'Why is there anything at all?', but rather, 'Why is what there is a cosmos—that is, why does it display order?'

deduction: a deductive argument is one in which one cannot without self-contradiction assert the premises (q.v.) and deny the conclusion. Some standard dictionaries say that deduction is reasoning from the general to the particular. This is often, but by no means always, the

case: e.g. ‘if p, then q; therefore if not q, then not p’ is a deductive argument.

deductivism: the thesis that the methods of science are deductive, not inductive (see ‘induction’).

definition, stipulative: to be contrasted with a ‘descriptive’ definition, which states how a term is actually used, and as such can be true or false. Such definitions are to be found in dictionaries; hence the alternative term ‘lexical definitions’. A stipulative (or ‘prescriptive’) definition, on the other hand, declares the utterer’s intention to use words in a certain way, as when Humpty Dumpty, in Lewis Carroll’s *Through the Looking Glass,* uses the word ‘glory’ to mean ‘a nice knock-down argument’. Although a stipulative definition cannot be true or false, it can be assessed in other ways: e.g. it can be enlightening, or merely perverse.

deism: the deist, unlike the atheist, believes in the existence of one supreme being, creator of the world. So, too, does the theist; but the deist differs from the theist in that the theist accepts the idea of revelation. Many deists also rejected the idea that God intervenes in the workings of the created universe by means of miracles.

denomination, extrinsic: a term of medieval logic used by Leibniz. Roughly speaking, an extrinsic denomination is a relational property of a thing, as opposed to an intrinsic denomination which is a non-relational property. So, for example, to say that Aristotle is learned is to state an intrinsic denomination of Aristotle; to say that he is more learned than Alexander the Great is to state an extrinsic denomination of Aristotle.

determinism: a term covering a wide variety of views, which have in common the thesis that every event or every state of affairs belonging to a certain class is determined by certain factors, in the sense that given these factors the event must occur or the state of affairs must hold. In the past (and particularly in the seventeenth century) philosophers readily accepted the idea that determinism held in the natural world; but many of them were reluctant to believe that it also held in the sphere of human actions. They believed that (whatever might be the case in the natural world) the will was free, in the sense that, whenever a human

agent chooses to do something, that agent could always have chosen to do otherwise. However, there were also those who argued that human actions are determined, and that the will is not free. Their reasons for this fell into two groups. One group involved theological propositions, such as the assertion that God is omniscient, or that all events are predestined, in that they figure in God's eternal and irresistible plan. The other reason for denying human free will lay in the idea that absolutely all events have a cause, and that a cause necessitates its effect.

disposition: in contemporary philosophy, to speak of a 'disposition' of X is to say what X will do, if…, or of what X would have done, if…. So, for example, brittleness is a disposition, in that to call something brittle is to say what it will do if, or would have done if, something strikes or had struck it.

double aspect theory: a theory of the relations between mind and body. According to it, mind and body are different aspects of, or expressions of, an underlying reality. The most celebrated exposition of a double aspect theory in the seventeenth century is to be found in the writings of Spinoza.

dualism: this term has two senses, (a) 'Substance dualism': this is a theory of the nature of the mind and of the body, and asserts that minds and bodies are substances of radically different kinds, (b) Some modern philosophers also recognize what they call 'property dualism', according to which the properties of things can be sharply differentiated into two groups, mental and physical. Descartes was an upholder of substance dualism; Spinoza rejected this, but accepted property dualism.

emergent properties: it has been argued that, in the course of evolution, there come into existence 'emergent properties', that is, properties which could not have been predicted on the basis of a knowledge of previous properties. This is also put by saying that there come into existence properties which cannot be 'reduced' (see 'reductionism') to other properties. It has been argued that life and reflective thought are emergent properties in this sense.

epistemology: the theory of knowledge (from the Greek word 'epist**ē**m**ē**'). Strictly, this is the branch of philosophy which

considers the nature and criteria of knowledge, together with its sources, kinds and extent. However, books and articles on epistemology often discuss also the relevant topics of meaning and truth.

ergetic: having to do with work (Greek, 'ergon').

essence: the term 'essence' (Latin, 'essentia') goes back to Aristotle's account of 'ousia'. Broadly, if something is of the essence of X, then it belongs *necessarily* to X. But not everything of this sort is of the essence of X: e.g. to be capable of learning grammar is something that belongs necessarily to human beings, but does not, according to Aristotle, belong to their essence. (Traditionally, it would be called a 'property', from the Latin 'proprium'.) What is of the essence of X is more than this: it is also something that is of fundamental importance if we are to understand what X is.

falsificationalism: now usually taken to be the view that any meaningful utterance must be one which can be falsified. (Contrast 'verification, principle of.) However, Karl Popper, who drew attention to the importance of falsification, regarded falsifiability as a criterion by which one could distinguish a genuinely scientific utterance from one which is pseudo-scientific.

fatalism: a form of determinism (q.v.) according to which what will happen, will happen, and there is nothing that humans can do to alter the course of events. Although all fatalists are determinists, not all determinists are fatalists.

first philosophy: a term which translates the Latin 'philosophia prima'. This in turn translates the Greek 'prōtē philosophia', a term which Aristotle used to refer to what was later to be called 'metaphysics'.

form, substantial: a term derived from the philosophy of the scholastics (see 'scholasticism') and ultimately from Aristotle. A substantial form is that which explains changes which arise from a substance's own nature, as opposed to changes which are brought about in it from outside. The substantial form is the fully developed state of the substance, which the substance tries to achieve.

foundationalism: the thesis that everything that is known has an unshakeable foundation, in the sense that every known truth is either one that cannot rationally be denied, or one that can be derived from such a truth

or truths. The task of the philosopher, foundationalists argue, is to discover such foundations; only then can our claims to knowledge be justified. Descartes and Spinoza were foundationalists, but not all foundationalists are rationalists. For example, a philosopher who says that all our knowledge is based on indubitable propositions about the content of our sense experience is a foundationalist.

gnoseology: another term for epistemology (q.v.).

habitus: a Latin translation of Aristotle's term 'hexis' (cf. *Categories* ch. 8), translated into English as either 'habit' or 'state'. A *habitus* is a stable and long-lasting quality of something: e.g. the various kinds of knowledge and virtue, as opposed to (say) sickness and health, or feelings of warmth and coldness.

Hermeticism: doctrines derived from the so-called 'Hermetic books', a collection of Greek and Latin works on a medley of subjects—magic, astrology, theology and philosophy. They were supposed to have been written in the remote past by Hermes Trismegistus ('Hermes the thrice-greatest'), a Greek name for Thoth, the Egyptian god of learning. In fact, the works are not of great antiquity—they were written between the first and third centuries AD—and contain little that is distinctively Egyptian.

humanism: in the sense used in this book, the ideas and attitudes that distinguished the 'humanists' of the Renaissance. These were students and teachers of the *studia humanitatis*—'the humanities'. Their work involved the correct establishment and close study of classical texts that concerned the main five subjects—grammar, rhetoric, poetics, moral philosophy and history.

idea: a term which was introduced into philosophy by Plato. For him, an 'idea' (a term related to the Greek word for 'to see') was related to understanding; e.g. the idea of justice is what one sees with the mind's eye when one understands the true nature of justice. Plato insisted that such ideas (or 'forms': eidē) are not in the human mind but have an existence that is independent of us. Later Platonic philosophers, the so-called 'neo-Platonists' (see 'neo-Platonism') agreed with him about this, but said that ideas existed in the mind of God. It was this neo-Platonic usage to

which Descartes appealed when he gave the word 'idea' a new sense, referring to certain types of thoughts which human beings have and which 'are, as it were, the images of things' (*Meditations,* III). Spinoza and Leibniz agreed with Descartes that human beings have ideas, but offered different views about their nature; Malebranche's view was reminiscent of neo-Platonism.

idea, innate: for Descartes, Leibniz and others, not all ideas come to us through the senses; some are innate, such as the idea of God, or of geometrical figures. In effect, innate idea theorists were drawing attention to the special status of *a priori* (q.v.) concepts and truths.

idealism: there are three main types of philosophical idealism, all of which have in common the thesis that the external world—the world of physical things— is in some way a product of mind, (a) The first historically was Berkeleian idealism. Bishop Berkeley (1685–1753) argued that a material object consists of nothing but ideas, either in the mind of God, or in the mind of conscious beings such as ourselves, (b) 'Transcendental idealism' was a term used by Kant (1724–1804) to refer to his view that the spatial and temporal properties of things have no existence apart from our minds, (c) 'Objective' or 'absolute' idealism, first propounded by Hegel (1770–1831) is distinguished by the fact that it is a kind of monism (q.v.), asserting that everything that exists is a form of the one 'absolute mind'.

indiscernibles, identity of: a term employed by Leibniz, and still used, to refer to the thesis that if x has every property that y has, and y has every property that x has, then x and y are identical.

induction: an inductive argument is an argument in which, from the proposition that all observed members of a certain class have a certain property, one proceeds to the conclusion that all members of the class have this property. Philosophers recognize various types of induction (see below).

induction, ampliative: here, the conclusion as it were amplifies or goes beyond the evidence, in that from the proposition that all observed members of a class C have the property f, one infers that absolutely all members of the class

—unobserved as well as observed—have this property. Contrast 'induction, summative'.

induction, eliminative: in this, one is looking for what Bacon (*Novum Organum,* I, 105) called 'the contradictory instance'. That is, one is looking for a member of the class C which does *not* have the property f.

induction by simple enumeration: here (in contrast with eliminative induction) one tries to establish the truth of the proposition that all members of the class C have the property f by looking for cases in which members of this class have the property f. Notoriously, this procedure is liable to be upset by the discovery of a contradictory instance.

induction, summative: unlike ampliative induction (q.v.), this form of induction merely summarizes the evidence. An example would be: 'Mary is tall, and Joan is tall, and Sally is tall; Mary, Joan and Sally are all the women in this room; therefore all the women in this room are tall.'

instrumentalism: in the philosophy of science, the view that scientific theories are not descriptions of the real world but are simply devices which enable scientists to make successful predictions on the basis of the data they have.

intelligences, planetary: in Aristotle's astronomical theory, the movements of the Sun, Moon, planets and stars involve the rotation of spheres to which they are fixed. Medieval philosophers asserted that each of these spheres is governed by an 'intelligence'.

Jansenism: a system based on the writings of the Dutch theologian Cornelius Otto Jansen (1585–1638). Jansenism is a deterministic system (see 'determinism'), denying human freedom. The reasons for this denial are distinctive, in that they are based on a view about the grace of God—that is, about the assistance that God gives to human beings, with a view to their salvation. The Jansenists argued that, without the grace of God, human beings could not obey his commandments, and that this grace was not something that they could freely accept or reject but was irresistible. Probably the most famous followers of Jansen were the mathematician Blaise Pascal (1623–62) and the philosopher Antoine Arnauld (1612–94).

knowledge, theory of: see 'epistemology'.

logica modernorum: the medievals regarded their logic as having three main periods. The first was the period of the *logica vetus,* the 'old logic', when the only logical works of Aristotle known to the West were the *Categories* and the *De Interpretation*. When the rest of Aristotle's logical works became accessible in about 1150 there began the period of the *logica nova,* the 'new logic'. Both the 'old' and the 'new' logic were concerned primarily to comment; but in about 1250 there began a new period of logic, that of the *logica moderna* or *logica modernorum,* the 'logic of the moderns'. This was directed towards problems rather than towards commentary, and discussed problems not handled by Aristotle. The 'modern logicians' referred to both the *logica vetus* and the *logica nova* as *logica antiqua* —'ancient logic'.

magic: for the Renaissance, magic was a practical technique that was based on theory. In his *De occulta philosophia* (1510; enlarged edition, 1533) Agrippa von Nettesheim divided the universe into three worlds —elemental, celestial and intellectual. The first of these was the province of natural magic; the second, of celestial magic (involving astrology); and the third, of ceremonial magic, which was directed towards the world of angelic spirits. Agrippa was careful to distinguish magic of this sort from demonic magic, which involved the use of evil spirits.

metaphysics: (a) as the term is used in this book, a metaphysical theory is a theory about that which, in the last analysis, really exists; or (and this may come to the same) about that which provides the ultimate explanation of everything, (b) There is another sense of the term 'metaphysics', in which it refers to accounts of the general conceptual schemes which structure our experience. Metaphysics of this kind is called 'descriptive', and may stand in opposition to metaphysics of type (a), which is often called 'revisionary', in that it calls on us to revise some of our commonly held ideas.

mode: a translation of 'modus', a term taken by Descartes from medieval philosophy. For Descartes, a modal distinction holds between a mode and the substance of which it is a mode: e.g. between shape and the corporeal substance which has a shape, or between

affirming and the mind which affirms. Spinoza adapted the modal terminology to his monistic (see 'monism') metaphysics.

modus tollens: 'the mood that denies'. An inference of the form 'If p, then q; but not q; therefore not p'. This is contrasted with 'modus ponens' ('the mood that affirms'), which has the form 'If p, then q; but p; therefore q'.

monad: in classical Greek, 'monas' meant a unit. Leibniz used the term to refer to his simple, non-extended substances, each of which is genuinely one.

monism: a term which usually refers to the doctrine that there is one and only one substance, and that particular things are not substances but are forms of the one substance. However, during the twentieth century the term has been used in such a way as to be compatible with the existence of several substances, provided that these are of the same kind. For example, 'neutral monism' is the theory that minds and bodies are not substances of fundamentally different kinds; to talk of minds and bodies is to group in different ways certain basic entities which are all of the same kind and of which no one is either mental or physical.

naturalism: as a view about what exists and how it is known, naturalism is the thesis that everything that exists or happens is that which is studied by the sciences, whether natural or human; there is no place for supernatural beings such as God. The term is also used in place of 'ethical naturalism' (q.v.).

naturalism, ethical: the thesis that ethical concepts can be defined in terms of statements of fact, such as 'That is morally good which produces the greatest happiness of the greatest number'.

necessity, hypothetical: an Aristotelian concept (see *Physics,* II, 9), used by Leibniz in his attempt to reconcile the freedom of the human will with his thesis that everything has a cause. Something has hypothetical necessity if it is necessary, *given that* such and such is the case. Thus, the present state of the world is hypothetically necessary in that it follows, in accordance with the laws of nature, from any given preceding state. Hypothetical necessity is opposed by Leibniz to 'logical' or 'metaphysical' necessity, which is the necessity possessed by a truth whose denial would involve a contradiction.

neo-Platonism: a philosophy developed in the late classical world, from roughly the middle of the third to the middle of the sixth century AD. The neo-Platonists, of whom the most important was Plotinus (205-*c.* 270 AD), claimed to preserve the philosophy of Plato, but were ready to incorporate the doctrines of other Greek philosophical schools provided that these could be reconciled with what they saw as Platonism. Neo-Platonism is a form of pantheism (q.v.); everything is regarded as flowing timelessly from a supreme principle, 'the One', which is such that it cannot be grasped by mere rational thought.

nominalism: see 'universals'.

non-contradiction, law of: see 'contradiction, law of'.

occasionalism: the thesis that causal activity belongs to God, and to God alone. According to the occasionalist, to say that the movement of a billiard ball is the effect of its being struck by a cue is inaccurate; strictly, one should say that God causes the ball to move *on the occasion of* the cue's making contact with the ball.

occult quality: a concept of the scholastics, traceable back to the medical writings of Galen (129-*c.* 199 AD) and severely criticized in the seventeenth century by rationalist philosophers and others, such as Newton. To explain something by means of an occult quality was to explain the observed behaviour B of a thing by saying that there exists some hidden B-producing quality.

ontological argument: a term used to describe a group of related arguments for the existence of God, which have in common a move from a definition of God to the conclusion that the being defined must exist. The argument was first stated by St Anselm (1033–1109), who defined God as a being than which a greater cannot be thought. Descartes argued along similar lines, defining God as a most perfect being and saying that existence is a perfection. Spinoza's definition of God involved the thesis that God is a necessary being, that is, a being such that it must be thought of as existing.

ontology: (a) a branch of metaphysics (q.v.) which is concerned with the study of pure being, that is, being in its most abstract aspects, (b) The assumptions about what exists that underlie any conceptual scheme. So if we

refer to a certain person's 'ontology' we refer to the views that that person holds about what there is.

Organon: literally, 'instrument' (Greek). A collective name for Aristotle's logical works, as the 'instrument' of all reasoning.

pantheism: the theory that God and the universe are identical, encapsulated by Spinoza in the phrase, *'Deus, seu Natura'*—'God, or in other words, nature'. Pantheism is to be distinguished from 'panentheism', which asserts that God includes the whole universe but is not identical with it.

paradigm: a term given a technical sense by Thomas Kuhn, and used in the philosophy of science. In this sense, a paradigm may be either (a) a whole set of beliefs or methods shared by a group of scientists or (b) concrete solutions of problems which are used as examples, and as such can serve as a basis for the solution of other scientific problems. Kuhn is much concerned with changes of paradigm, or 'paradigm shifts'; these are due to the discovery of an ever-increasing set of anomalies within a reigning paradigm, which lead to the production of a new paradigm.

parallelism, psycho-physical: a theory of the relations between mind and body. It asserts that mental and physical events are quite independent of each other, but that for any mental event there is a corresponding physical event, and conversely.

peripatetic: a term meaning 'Aristotelian'. The 'Peripatetic school' was the Aristotelian school of philosophy in Athens. The term comes from a 'peripatos', or covered walk, in the buildings which the school occupied. The story that the term originated from Aristotle's habit of walking about (peripatein) whilst lecturing is now regarded as a legend.

phenomenalism: when used of the philosophies discussed in this volume, the term refers to the thesis that material things are simply classes of the ideas (q.v.) possessed by conscious beings such as ourselves. In this century, a different sort of phenomenalism has been put forward: this speaks, not of the nature of material things as such and of the entities of which they are composed, but of the nature of propositions about them.

premiss (premise): (plural, 'premisses' or 'premises'). The proposition or propositions from which the conclusion of an argument follows.

procatarctic: see 'cause, procatarctic'.

Pyrrhonism: a form of ancient scepticism (q.v.), revived in the Renaissance when the writings of the Pyrrhonist philosopher Sextus Empiricus (fl. *c.* 200 AD) were published in the 1560s. Unlike some sceptics, the Pyrrhonists did not say that nothing can be known; in their view, such an assertion was as dogmatic as the assertion that something can be known. Rather, they proposed that we should suspend judgement about all claims to knowledge when these go beyond appearances.

qualities, primary and secondary: these terms express a distinction drawn by some philosophers between (a) the qualities which a physical object really has (its 'primary' qualities: e.g. extension and solidity) and (b) the qualities which it does not really have, but is perceived as having, and which can be explained in terms of the primary qualities. These are its 'secondary qualities': e.g. colour and sound.

rationalism: (a) in one sense of the term, rationalism has a relation to religious belief. A rationalist in this sense is someone who tries to eliminate from such beliefs everything that does not satisfy rational standards. This may lead to a total rejection of religion; however, rationalism is compatible with religious belief of a sort, as in the case of deism (q.v.). For example, Voltaire was a deist, but would normally be regarded as a rationalist in sense (a) of the term, (b) The philosophical sense of the term 'rationalism' is different. In this sense, rationalism is the thesis that it is possible to obtain, simply by reasoning from propositions which cannot rationally be denied, the knowledge of necessary truths about what exists. Spinoza combined both sorts of rationalism, but by no means all rationalists in sense (a) are rationalists in the second sense.

reductio ad absurdum: a means of proving a proposition by showing that the assumption of its falsity leads to an absurdity, in the sense of a logical contradiction.

reductionism: a reductionist tries to minimize the number of basic entities that are recognized in our conceptual

schemes. For example, a philosopher might argue that propositions about societies can be 'reduced' to propositions about the individuals who constitute them; that, in other words, a society is *nothing but* a collection of individuals.

Remonstrants: see 'Arminianism'.

resolutio: a Latin term for the Greek word 'analysis'. See 'analysis and synthesis'.

scepticism: if one says of a man that he is sceptical about (say) the existence of Robin Hood, one means that he does not go so far as to assert that there was no such person, but rather that he holds that the evidence brought to support the assertion that Robin Hood existed does not satisfy the required standards. Philosophical scepticism is distinguished by the fact that the philosophical sceptic casts doubt on a whole range of assertions. For example, a philosophical sceptic might say that the evidence brought to support *any* assertion about the past can never be adequate.

scholasticism: a term sometimes used to mean Western medieval Christian philosophy as a whole. In a more precise sense, however, 'scholasticism' refers to only a part of such philosophy, namely the philosophical movement that began in cathedral schools in the eleventh century AD and reached its peak in the universities of Paris and Oxford in the thirteenth and fourteenth centuries. Such philosophy relied heavily on ancient thought, and especially (though by no means exclusively) on the philosophy of Aristotle.

semantics: the study of meaning, often regarded as one part of 'semiotics', the general theory of signs. Other parts of semiotics are syntactics, namely the study of the grammar and syntax of language, and pragmatics, the study of the purposes and effects of language.

sublunary: the Aristotelian universe was a system of concentric spheres, with a spherical earth at rest in the centre. Around the earth there rotated invisible spheres, carrying the Sun, Moon, planets and stars. The region within the sphere of the Moon was known as the 'sublunary' world. It consisted of the four elements (earth, air, water and fire), which constantly pass into each other. It was distinguished from the 'superlunary' world of the heavens, the matter of which is of a distinct type, the so-called

'quintessence' ('fifth essence'), which is free from generation and destruction.

substance: when Renaissance philosophers and the seventeenth-century rationalists discussed problems of substance, they were dealing with concepts which go back to Chapter 2 of Aristotle's *Categories*. A substance, Aristotle said, is (a) that which is not 'in' a subject, that is, it has an independent existence. (b) It is that which is not 'said of a subject, that is, it is an ultimate subject of predication, (c) It is that which remains the same through qualitative change. Much of the controversy about the nature of substance among the seventeenth-century rationalists was about the correct answer to the question of what satisfied one or other of these criteria.

Summa: literally, a 'summary', this was a literary form which was characteristic of scholasticism (q.v.). The *Summa* was a systematic and comprehensive treatise, and it contained both a statement of relevant authorities and rational arguments for the conclusions presented. The greatest of the *Summae* were the *Summa contra Gentiles* and the *Summa Theologiae* of St Thomas Aquinas (*c.* 1225–74).

syllogistic: the theory of the syllogism, which was first stated systematically by Aristotle and which forms a large part of what is termed 'traditional logic'. A syllogism is a form of deductive argument (see 'deduction') in which there are three and only three terms, and in which one proposition, the Conclusion', is inferred from two other propositions, the 'premises' (q.v.). For example: 'All Greeks are rational, all Athenians are Greeks, therefore all Athenians are rational.'

synthesis: see 'analysis and synthesis'.

teleology: having to do with an end or purpose (Greek, 'telos'). See also 'cause, final'.

third world: more exactly, 'world 3'. A term introduced into philosophy by Karl Popper in *Objective Knowledge* (1972). World 1 is the physical world; world 2 is the world of our conscious experience, also termed 'subjective knowledge'; world 3 is objective knowledge, e.g. theories published in journals or books.

truth, correspondence theory of: a theory of the nature of truth, which states that truth consists in the agreement of a proposition with a fact.

There has been much debate about the meaning of the terms 'agreement' and 'fact' in this context.

truth, double: the thesis, associated with Averroism (q.v.) and rejected by many Catholic theologians, that a proposition can be true in philosophy and false in religion, and conversely. The thesis was prompted by the fact that some propositions (e.g. that the world is eternal) drawn from Aristotle conflicted with propositions based on the Bible or the Koran.

truth, necessary: see *'a priori'*.

universals: it has been argued that universal terms, such as 'triangle', can have meaning only if there exist in some way entities which are called 'universals', e.g. the triangle as such, or triangularity. 'Conceptualism' is the thesis that such entities exist only in the way that concepts exist; 'realism' is the thesis that universals have a real existence. 'Nominalism' is the thesis that universal terms are just words which are applied to a number of things.

verification, principle of: also called the 'principle of verifiability'. This term has two senses, (a) It can refer to a criterion of meaning; according to this, a proposition is factually significant if, and only if, it can be verified in principle, (b) The term can also be applied to a theory of the nature of meaning; this states that the meaning of a proposition *is* the method of verifying it.

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British Philosophy and the Age of Enlightenment

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Volume V

European philosophy from the late seventeenth century through most of the eighteenth is broadly conceived as 'the Enlightenment', a period of reaction against the ambitious metaphysical systems of the seventeenth-century Rationalists.

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This survey brings together clear, authoritative chapters from leading experts and provides a scholarly introduction to this period in the history of philosophy. It includes a glossary of technical terms and a chronological table of important political, philosophical, scientific and other cultural events.

S**tuart Brown** is Professor of Philosophy at the Open University. He has written extensively on seventeenth and eighteenth century philosophy and is the author of a book on Leibniz. He has edited several collections, including *Philosophers of the Enlightenment* (1979) and *Nicholas Malebranche: his Philosophical Critics and Successors* (1991).

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General editors' preface

The history of philosophy, as its name implies, represents a union of two very different disciplines, each of which imposes severe constraints upon the other. As an exercise in the history of ideas, it demands that one acquire a 'period eye': a thorough understanding of how the thinkers whom it studies viewed the problems which they sought to resolve, the conceptual frameworks in which they addressed these issues, their assumptions and objectives, their blind spots and miscues. But as an exercise in philosophy, we are engaged in much more than simply a descriptive task. There is a crucial critical aspect to our efforts: we are looking for the cogency as much as the development of an argument, for its bearing on questions which continue to preoccupy us as much as the impact which it may have had on the evolution of philosophical thought.

The history of philosophy thus requires a delicate balancing act from its practitioners. We read these writings with the full benefit of historical hindsight. We can see why the minor contributions remained minor and where the grand systems broke down: sometimes as a result of internal pressures, sometimes because of a failure to overcome an insuperable obstacle, sometimes because of a dramatic technological or sociological change, and, quite often, because of nothing more than a shift in intellectual fashion or interests. Yet, because of our continuing philosophical concern with many of the same problems, we cannot afford to look dispassionately at these works. We want to know what lessons are to be learned from the inconsequential or the glorious failures; many times we want to plead for a contemporary relevance in the overlooked theory or to consider whether the 'glorious failure' was indeed such or simply ahead of its time: perhaps even ahead of its author.

We find ourselves, therefore, much like the mythical 'radical translator' who has so fascinated modern philosophers, trying to understand an author's ideas in their and their culture's eyes, and, at the same time, in our own. It can be a formidable task. Many times we fail in the historical undertaking because our philosophical interests are so strong, or lose sight of the latter because we are so enthralled by the former. But the nature of philosophy is such that we are compelled to master both techniques. For learning about the history of philosophy is not just a challenging and engaging pastime: it is an essential element in learning about the nature of philosophy—in grasping how philosophy is intimately connected with and yet distinct from both history and science.

The *Routledge History of Philosophy* provides a chronological survey of the history of western philosophy, from its beginnings up to the present time. Its aim is to discuss all major philosophical developments in depth, and, with this in mind, most space has been allocated to those individuals who, by common consent, are regarded as great philosophers. But lesser figures have not been neglected, and it is hoped that the reader will be able to find, in the ten volumes of the *History,* at least basic information about any significant philosopher of the past or present.

Philosophical thinking does not occur in isolation from other human activities, and this

History tries to situate philosophers within the cultural, and in particular the scientific, context of their time. Some philosophers, indeed, would regard philosophy as merely ancillary to the natural sciences; but even if this view is rejected, it can hardly be denied that the sciences have had a great influence on what is now regarded as philosophy, and it is important that this influence should be set forth clearly. Not that these volumes are intended to provide a mere record of the factors that influenced philosophical thinking; philosophy is a discipline with its own standards of argument, and the presentation of the ways in which these arguments have developed is the main concern of this *History*.

In speaking of 'what is now regarded as philosophy', we may have given the impression that there now exists a single view of what philosophy is. This is certainly not the case; on the contrary, there exist serious differences of opinion, among those who call themselves philosophers, about the nature of their subject. These differences are reflected in the existence at the present time of two main schools of thought, usually described as 'analytic' and 'continental' philosophy respectively. It is not our intention, as general editors of this *History,* to take sides in this dispute. Our attitude is one of tolerance, and our hope is that these volumes will contribute to an understanding of how philosophers have reached the positions which they now occupy.

One final comment. Philosophy has long been a highly technical subject, with its own specialized vocabulary. This *History* is intended not only for the specialist but also for the general reader. To this end, we have tried to ensure that each chapter is written in an accessible style; and since technicalities are unavoidable, a glossary of technical terms is provided in each volume. In this way these volumes will, we hope, contribute to a wider understanding of a subject which is of the highest importance to all thinking people.

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Notes on contributors

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Chronology

	Politics and religion	The arts
1620	Pilgrim Fathers sail for North America	Monteverdi, *Seventh Book of Madrigals*
1621	Huguenot rebellion against Louis XIII Cardinal Bellarmine d.	Van Dyck, *Rest on the Flight to Egypt*
1622	James I dissolves English parliament	Molière b.
1623	Maffeo Barberini becomes Pope Urban VIII	Byrd d. Bernini sculpture of David
1624	Donne, *Devotions upon Emergent Occasions*	Hals, *The Laughing Cavalier*
1625	James I of England (James VI of Scotland) d. Succeeded by Charles I	Orlando Gibbons d.
1626	Richelieu suppresses Chalais conspiracy	Façade of St Peter's, Rome, finished
1627	Huguenot uprising in France	Rembrandt, *The Money Changers*
1628	Bunyan b. Ignatius Loyola canonized	Velázquez, *Christ on the Cross*
1629	Charles I dissolves parliament (which does not meet again till 1640)	Rubens knighted by Charles I
1630	John Winthrop, English Puritan leader leads an expedition of 1,000 settlers and founds Boston	Beginning of the High Baroque period in Italy
1631		Donne d. Dryden b.
1632	Charles I issues charter for the colony of Maryland	Christopher Wren b.

Unless otherwise specified, the dates assigned to books or articles are the dates of publication, and the dates assigned to musical or stage works are those of first performance. The titles of works not written in English have been translated, unless they are better known in their original form.

Science and technology	Philosophy	
Alsted, *Encyclopaedia*	Bacon, *Novum Organum*	1620
Kepler's Epitome of the Copernican Astronomy banned by Catholic		1621

Church		
	Böhme, *The Signature of All Things*	1622
	Pascal b. Bacon, *Of the Advancement and Proficience of Learning*	1623
Briggs, *Logarithmical Arithmetic*	Bacon, *New Atlantis* Gassendi, *Exercises in the Form of Paradoxes against the Aristotelians* Herbert of Cherbury, *On Truth [De veritate…]*	1624
	Grotius, *On the Law of War and Peace [De Jure Belli ac Pacis]*	1625
Human temperature measured by thermometer	Bacon d.	1626
Boyle b. Kepler compiles Rudolphine Tables	Boyle b.	1627
Harvey, *Anatomical Exercise on the motion of the heart and the blood*	*c.* 1628 Descartes, *Rules for the Direction of the Mind* written Thomas Spencer, *The Art of Logick*	1628
Huygens b.		1629
Kepler d.		1630
		1631
Leeuwenhoek b. Galileo, *Dialogue on the Two Chief World Systems*	Spinoza b. Locke b.	1632

	Politics and religion	**The arts**
1633	First Particular (or Calvinistic) Baptist Church formed at Southwark, London	Van Dyck, *Charles I*
1634	Oberammergau Passion Play given for the first time	Milton, *Comus*
1635	Peace of Prague reduces combatants in Thirty Year's War	Poussin, *Kingdom of Flora*
1636	Dutch settle in Ceylon	1636–7 Mersenne, *Universal Harmony*
1637	Introduction of new liturgy in Scotland causes riots	Buxtehude b. Ben Johnson d.
1638	Scottish Covenant drawn up and signed	Milton, *Lycidas* Hobbema b. Poussin, *Et in Arcadia ego*

1639	First Bishops' War in Scotland	Monteverdi, *Adone* Rubens, *Judgment of Paris*
1640	Short Parliament and Long Parliament (–1653) in England Second Bishops' War in Scotland	Rembrandt, *Self Portrait at the age of 34*
1641	Catholic rebellion in Ireland	Van Dyck d.
1642	English Civil War begins All theatres in England closed by order of Puritans (–1660)	Monteverdi, *L'incoronazione di Poppea* Rembrandt, *Night Watch*
1643	Accession of Louis XIV	Frescobaldi d. Monteverdi d.
1644	Queen Christina begins her reign in Sweden	Rembrandt, *Woman taken in Adultery*
1645	Peace talks between Holy Roman Empire and France	Milton, *L'Allegro, Il Penseroso*
1646	First English Civil War ends	Henry Vaughan, *Poems*
1647–8	Second English Civil War	Henry More, *Philosophical Poems*
1648	Peace of Westphalia ends Thirty Years' War George Fox starts to preach about ' inner light'	Schütz, *Musicalia ad chorum sacrum*
1649	Charles I beheaded. Scots proclaim Charles II as king England declared a Commonwealth, Cromwell invades Ireland	William Drummond of Hawthornden d.
1650	Charles II lands in Scotland	Murillo, *The Holy Family with the Little Bird* Jan van Goyen, *View of Dordrecht*

Science and technology	**Philosophy**	
Galileo forced by Inquisition to abjure the theories of Copernicus		1633
Founding of the University of Utrecht		1634
Richelieu founds Académie Française Robert Hooke b.		1635
Harvard College founded	Joseph Glanvill b.	1636
Descartes, *Geometry* Swammerdam b.	Descartes, *Discourse on Method*	1637
Galileo, *Mathematical Discourses and Demonstrations* or/*Discourses concerning two new sciences*	Malebranche b.	1638

Désargues publishes book on geometry		1639
Coke made from coal for first time	Hobbes, *The Elements of Law Natural and Politic*	1640
Cotton goods begin to be manufactured in Manchester	Descartes, *Meditations*	1641
Newton b. Galileo d.	Hobbes, *De Cive* White, *Three Dialogues on the World*	1642
Torricelli invents barometer		1643
	Descartes, *Principles of Philosophy* Digby, *Of the Immortality of Man's Soul* Gassendi, *Metaphysical Disquisition*	1644
Preliminary meetings of London scientists which leads to formation of Royal Society (1662)	Grotius d. Herbert of Cherbury, *On the causes of errors*	1645
Kircher constructs first projection lantern	Leibniz b.	1646
Torricelli d.	Bayle b.	1647
John Wilkins, *Mathematical Magic* J.B.van Helmont (posth.), *Ortus medicinae*	Mersenne d. Herbert of Cherbury d.	1648
Isbrand de Diemerbrock publishes a study of the plague Harvey, *Two Anatomical Exercises on the Circulation of the Blood*	Descartes, *The Passions of the Soul* Gassendi, *An Introduction [Syntagma] to the Philosophy of Epicurus*	1649
	Descartes d. Hobbes, *The Elements of Law, Moral and Political*	1650

	Politics and religion	**The arts**
1651	Charles II crowned King of Scots: defeated by Cromwell at Worcester and flees to France English Navigation Act	Potter, *Landscape with Cows*
1652	Royalists pardoned English defeat Dutch at Battle of the Downs	Inigo Jones d. First opera house in Vienna
1653	Cromwell becomes Lord Protector Pascal joins Jansenists	Corelli b.
1654	Treaty of Westminster ends Anglo-	Webster (posth.), *Appius and Virginia*

	Dutch War Queen Christina becomes a Catholic and abdicates	
1655	Cromwell dissolves Parliament Cromwell re-admits Jews into England	Cyrano de Bergerac d. Colgrave, *The English Treasury of Literature and Language*
1656	Spinoza excommunicated Harrington, *The Commonwealth of Oceana* Bunyan, *Some Gospel Truths Opened*	Cyrano de Bergerac (posth.), *The Other World Comical History of the States and Empires of the Moon* Opening of the first London opera house
1657	Richard Baxter, *A Call to the Unconverted*	Rembrandt, portrait of his son Titus
1658	Cromwell d. Succeeded as Lord Protector by his son Richard (–1659) Harrington, *The Prerogative of Popular Government*	
1659	Peace of Pyrenees between France and Spain	
1660	Charles II enters London Harrington, *Political Discourses*	Dryden, *Astrea Redux* Velásquez d.
1661	Louis XIV begins personal rule Coronation of Charles II	
1662	Act of Uniformity gives assent to revised English prayer book	Molière, *L'Ecole des femmes*
1663	Writings of Descartes put on Index	Lully, *Le Ballet des arts*
1664	English annex New Netherlands and rename New Amsterdam as New York	Molière, *Le Tartuffe* Wren's Sheldonian Theatre, Oxford, begun Schütz, *Christmas Oratorio*
1665	Bunyan, *The Holy City*	*Journal des Savants* started in Paris

Science and technology	**Philosophy**	
Riccoli's map of the moon Harvey, *Two Anatomical exercises concerning the Generation of Animals*	Hobbes, *Leviathan*	1651
Guericke invents air pump	Culverwell, *An Elegant and Learned Discourse of the Light of Nature*	1652
Johann Schultes' book on surgical instruments and procedures published	More, *An Antidote against Atheisme*	1653

Jacques Bernoulli b. Pascal and Fermat develop theory of probability	Charleton, *Physiologia Epicurogassendo-Charltonia: a Fabrick of Science Natural upon the Hypothesis of Atoms…*	1654
	Hobbes, *De Corpore* Gassendi d. 1655–62 Stanley, *A History of Philosophy*	1655
Edmund Halley b.	White, *Peripatetical Institutions*	1656
Huygens designs first pendulum clocks	1657–9 More's correspondence with Descartes (conducted 1648–9)	1657
Swammerdam observes red corpuscles	Gassendi, *Elements of Logic* Hobbes, *De homine*	1658
	More, *The Immortality of the Soul*	1659
	Pufendorf, *Two Books on the Elements of Universal Jurisprudence* Smith, *Select Discourses*	1660
Boyle, *The Sceptical Chemist*	Glanvill, *The Vanity of Dogmatizing*	1661
Royal Society founded	Arnauld and Nicole, *Logic, or the Art of Thinking*	1662
Boyle, *Concerning the Usefulness of Experimental Philosophy*		1663
	Clauberg, *The Union of Body and Soul in Man*	1664
Newton discovers differential and integral calculus Hooke, *Micrographia*	Glanvill, *Scepsis Scientifica* White, *An Exclusion of Sceptickes from all Title to Dispute*	1665

	Politics and religion	**The arts**
1666	France and Holland declare war on England	Molière, *Le Misanthrope*
1667	Peace of Breda between Holland, France and England	Milton, *Paradise Lost*
1668	Murder of brothers De Witt in the Netherlands	Buxtehude becomes organist of St Mary's, Lübeck
1669	Locke's constitution for Carolina approved, S. Carolina founded	Rembrandt d. Racine, *Britannicus*
1670	William of Orange made Captain-General of United Provinces	Molière, *Le Bourgeois gentilhomme* Racine, *Bérénice*
1671	Bunyan, *A Confession of my Faith*	Aphra Behn, *The Forced Marriage*

		Milton, *Paradise Regained*
1672	France invades Netherlands Declaration of Indulgence issued by Charles II (withdrawn 1673)	Addison b. Dryden, *Marriage à la mode* Molière, *Les femmes savantes*
1673	Test Act excludes Roman Catholics from office in England	Molière d.
1674	Office of Stadholders of the United Provinces becomes hereditary in the House of Orange	Lully, *Alceste* Milton d.
1675		Vermeer d. Wren begins rebuilding St Paul's Cathedral
1676	Nathaniel Bacon, *Declaration of the People of Virginia*	Murillo, *Madonna purissima*
1677	William III of Orange marries Princess Mary of England Webster, *The Displaying of Supposed Witchcraft*	Racine, *Phèdre*
1678	Popish Plot leads to further restrictions on Roman Catholics Simon, *Critical History of the Old Testament*	Bunyan, *The Pilgrim's Progress,* Part I Aphra Behn, *Oroonoko*
1679	Habeas Corpus Amendment Act in England Gilbert Burnet, *History of the Reformation of the Church of England, Vol. I*	Scarlatti's first opera performed in Rome

Science and technology	**Philosophy**	
Newton measures moon's orbit Académie Royale des Sciences founded	De La Forge, *Treatise on the Soul of Man* Cordemoy, *The Distinction between Body and Soul*	1666
Sprat, *The History of the Royal Society of London*	More, *Enchiridion Ethicum* Samuel Parker, *A Free and Impartial Censure of the Platonick Philosophie*	1667
Hooke, *Discourse on Earthquakes* Newton constructs reflecting telescope Van Leeuwenhoek describes red corpuscles	Glanvill, *Plus Ultra* More, *Divine Dialogues*	1668
Swammerdam, *History of the Insects*		1669

Malpighi studies life and activities of silkworms		
Typical symptoms of diabetes first described	Spinoza, *Tractatus Theologico-Politicus*	1670
Rohault, *Treatise on Physics*	Third Earl of Shaftesbury b. Glanvill, *Philosophia Pia* More, *Enchiridion Metaphysicum*	1671
Josselyn, *New England's Rarities Discovered*	Cumberland, *Philosophical Disquisition on the Laws of Nature* Pufendorf, *On the Laws of Nature and of Nations*	1672
French explorers reach headwaters of Mississippi River		1673
	1674–5 Malebranche, *Search after Truth*	1674
Leibniz's independent discovery of the differential and integral calculus Newton begins to write his *Optics*	1675–9 More, Complete Works (in Latin)	1675
Sydenham, *Medical Observations*	Cuperus, *The Secrets of Atheism Revealed …through an Examination of the Tractatus Theologico-Politicus*	1676
Isaac Barrow d.	Spinoza d. Knorr von Rosenroth, *Kabbala denudata*. Vol. I Rust, *A Discourse of Truth* Spinoza, *Ethics* (posth.)	1677
Hugyens writes *Treatise on Light*	Bernier, *Epitome [Abrégé] of the Philosophy of Gassendi* Cudworth, *The True Intellectual System of the Universe*	1678
Halley, *Catalogue of Australian Stars*	Hobbes d. Wolff b.	1679

	Politics and religion	**The arts**
1680	French colonial empire in North America Filmer, *Patriarcha*	Purcell becomes organist of Westminster Abbey
1681	Royal Charter of Pennsylvania	
1682	Revocation of Edict of Nantes: 58,000 French Huguenots forced to conversion	Murillo d. Van Ruisdael d.
1683	Rye House Plot to assassinate Charles II discovered	Purcell made court composer to Charles II

1684	Bermudas become crown colony	Bunyan, *The Pilgrim's Progress* Part II Bayle, *Nouvelles de la République des Lettres* first published in Amsterdam
1685	Charles II d. Succeeded by his brother as James II Monmouth's Rebellion Louis XIV revokes Edict of Nantes Many Protestants flee France	J.S.Bach d. Handel b. Scarlatti b.
1686	League of Augsburg against Louis XIV	Lully, *Armide et Renaud*
1687	James II issues Declaration of Indulgence for liberty of conscience	Fénelon, *Treatise on the Education of Girls* Lully d.
1688	William of Orange invited to accept English throne, lands at Torbay and enters London. James II escapes to France	Bunyan d. Pope b.
1689	Declaration of Rights William and Mary proclaimed King and Queen of England and Scotland Louis XIV declares war on Britain	Aphra Behn d. Richardson b. Purcell, *Dido and Aeneas*
1690	William III defeats James II at the Battle of the Boyne	*Athenian Gazette* founded in London

Science and technology	**Philosophy**	
Swammerdam d.	Malebranche, *Treatise of Nature and of Grace*	1680
Academy of Sciences founded in Moscow Thomas Burnet, *Sacred Theory of the Earth*		1681
Acta eruditorum first published in Leipzig	F.M.Van Helmont, *A Cabbalistical Dialogue in Answer to the Opinion… that the World was made out of Nothing*	1682
Newton explains mathematical theory of tides	Arnauld, *True and False Ideas* Rust, *A Discourse of the Use of Reason in Matters of Religion* Spinoza/Blount? *Miracles no Violation of Laws of Nature*	1683
	Leibniz, 'Meditations on Knowledge, Truth and Ideas' Malebranche, *Treatise on Ethics*	1684
	Berkeley b.	1685
Willughby, *(Historia*	Fontenelle, *Doubts about the Physical System of*	1686

piscium) Fontenelle, *Dialogues on the Plurality of Worlds*	*Occasional Causes* Leibniz writes *Discourse on Metaphysics* (not published till nineteenth century)	
Newton, *Principia*		1687
	Malebranche, *Dialogues on Metaphysics and Religion* Norris, *The Theory and Regulation of Love*	1688
	First English translation of Spinoza's *Tractatus Theologico-Politicus* Norris, *Reason and Religion*	1689
Huygens, *Treatise on Light*	Locke, *Essay concerning Human Understanding* Locke, *Two Treatises of Civil Government* Norris, 'Cursory Reflections upon a Book call'd An Essay concerning Human Understanding', appended to *Christian Blessedness*	1690

	Politics and religion	**The arts**
1691	Treaty of Limerick: William III King of Ireland Ray, *The Wisdom of God in the Works of Creation*	
1692	French fleet destroyed by English at La Hogue First Boyle lectures on natural theology given by Richard Bentley	Purcell,
1693	French defeat English merchant fleet at Battle of Lagos Blount, *Summary Account of the Deist's Religion*	Congrev
1694	Death of Queen Mary, William III accepted as King in his own right	Voltaire
1695	Locke, *The Reasonableness of Christianity* End of government press censorship in England	Henry V Purcell d
1696	Habeas Corpus Act suspended in England Toland, *Christianity not Mysterious*	
1697	French attempt to colonize west Africa Stillingfleet, *A Letter to a Deist* Matthias Earbery, *Deism Examined and Confuted*	Canalettc Hogarth
1698	Blasphemy Act in England Society for Promoting Christian Knowledge founded in London William Sherlock, *The Present State of the Socinian Controversy*	
1699	Gilbert Burnet, *Exposition of the Thirty-nine Articles*	Fénelon, Racine d

Science and technology	Philosophy	
Boyle, d. Leibniz, *Protogaea*	Régis, *Complete Course of Philosophy,* or *General System, according to Descartes' Principle*	1691
Burnet, *Archaeologiae philosophicae* Malebranche, *The Laws of the Communication of Motion*	Joseph Butler b. Conway, *The Principles of the Most Ancient and Modern Philosophy*	1692
	Latin orations by Addison and other Oxford students defending the new philosophy Locke writes his *Examination of P. Malehranche's Opinion of Seeing All Things in God* (published in 1704)	1693
Camerarius, *Letters on the Sex of Plants*	Hutcheson b. Locke writes his *Remarks on Some of Mr Morris's Books* (published 1720) Translations of Malebranche's *Search after Truth* and *Treatise on Nature and Grace* James Lowde, *A Discourse concerning the Nature of Man*	1694
Huygens d. Woodward, *Essay towards a Natural History of the Earth*	Leibniz, *New System* Norris and Mary Astell, *Letters concerning the Love of God*	1695
	Blount, *Anima Mundi* Damaris Masham, *A Discourse Concerning the Love of God* John Sergeant, *The Method to Science* 1696–7 Controversy between Locke and Stillingfleet	1696
	Bayle, *Historical and Critical Dictionary* Burgersdijck, *Monitio Logica, an Abstract of Logic* (trans. of 1626 edition of *Institutionum logicarum)* Sergeant, *Solid Philosophy Asserted, against the Fancies of the I deists…*	1697
	Fardella, *The Nature of the Human Soul as Revealed by Augustine*	1698
Dampier explores north-west coast of Australia	Malebranche, *A Treatise of Morality* (trans. of 1684 book) Lowde, *Moral Essays: Wherein some of Mr Locke's and Monsr Malebrancbe's Opinions are Briefly examined*	1699

	Politics and religion	The arts
1700	Pope Innocent XII d. Gian Francesco Albani becomes Pope Clement XI (–1721)	Congreve, *The Way of the World*
1701	Act of Settlement provides for Protestant succession in England of House of Hanover	Steele, *The Funeral, or Grief à la Mode*
1702	William III d. succeeded by Queen Anne Toland (anon.), *Reasons for Addressing His Majesty to Invite into England Their Highnesses*	
1703	John Wesley b. Jonathan Edwards b.	
1704	British take Gibraltar	Swift, *The Battle of the Books* Handel, *St John Passion* J.S.Bach writes his first cantata
1705	Gildon, *Deist's Manual* Tolard (anon.), *Socinianism Truly Stated*	
1706	Tindal, *Rights of the Christian Church* Marlborough conquers Spanish Netherlands	Johann Pachelbel d.
1707	Union of England and Scotland as Great Britain Collins, *An Essay Concerning the use of Reason*	Henry Fielding b. Dietrich Buxtehude d.
1708	British capture Minorca and Sardinia Charles Leslie, *The Socinian Controversy Discuss'd*	Professorship of Poetry founded at Oxford University
1709	Marlborough and Prince Eugene take Tournai and Mons and defeat French at Malplaquet Collins, *Priestcraft in Perfection*	Samuel Johnson b. Meindert Hobbema d. Invention of the pianoforte First issue of *The Tatler*
1710	Mauritius becomes French	*The Examiner* issued for first time
1711	French capture Rio de Janeiro Swift, *An Argument against Aholishing Christianity*	Pope, *Essay on Criticism* Handel, *Rinaldo* *Spectator* begun by Addison and Steele

Science and technology	Philosophy	
Berlin Academy of Sciences founded		1700
Yale College founded	1701–4 Norris, *An Essay towards the Theory of*	1701

	the Ideal or Intelligible World	
	Henry Lee, *Anti-Scepticism* Catharine Trotter, *A Defence of Mr Locke's Essay on Human Understanding*	1702
Isaac Newton elected President of the Royal Society	1703–5 Leibniz's *New Essays on Human Understanding* written	1703
Newton, *Optics*	Locke d. Clarke, *A Discourse Concerning the Being and Attributes of God* Toland, *Letters to Serena*	1704
Halley predicts return in 1758 of the comet seen in 1682 John Ray d.	Astell, *The Christian Religion as Professed by A Daughter of the Church* 1705–29 Mandeville, *Fable of the Bees* Clarke, *A Discourse Concerning the Unchangeable Obligations of Natural Religion …*	1705
Römer's catalogue of astronomical observations	Boyle d. William Carroll, *A Dissertation upon the Tenth Chapter of the Fourth Book of Mr Locke's Essay Concerning Human Understanding* P.King (ed.) *Posthumous Works of Mr John Locke*	1706
Linnaeus (Carl von Linné) b.	1707–8 Berkeley writes his *Philosophical Commentaries* Leibniz writes comments on Locke's 'Examination' of Malebranche's seeing all things in God	1707
Hermann Boerhaave, *Medical Principles*	Norris, *A Philosophical Discourse concerning the Natural Immortality of the Soul*	1708
	Berkeley, *New Theory of Vision* Shaftesbury, *The Moralists; a philosophical Rhapsody* Vico, *The Ancient Wisdom of the Italians*	1709
Jacob Christoph Le Blon invents three-colour printing	Leibniz, *Theodicy* Berkeley, *Principles of Human Knowledge* Thomas Reid b.	1710
	Shaftesbury, *Characteristics* Hume b. Norris d.	1711

	Politics and religion	**The arts**
1712	Last execution for witchcraft in England Peace congress opens at Utrecht	Swift, *A Proposal for Correcting the English Language*

1713	Peace of Utrecht signed. King Frederick I of Russia d. (succeeded by Frederick William I) Collins, *A Discourse on Freethinking* Bentley, *Remarks upon the Late Discourse on Freethinking*	Addison, *Cato* Laurence Sterne b.
1714	Queen Anne d. succeeded by George Louis, Elector of Hanover, as George I	Gluck b.
1715	Jacobite rebellion Louis XIV d. followed by regency of the Duke of Orleans	Early beginning of rococo
1716	Treaty of Westminster (between Britain and Emperor Charles VI) Christian religious teaching prohibited in China	Lancelot 'Capability' Brown b.
1717	Peter the Great in Paris United (Masonic) Grand Lodge of England founded	Handel's *Water Music* first performed on Thames
1718	Quadruple Alliance signed by France, the Empire, Britain and Holland	Voltaire imprisoned in the Bastille
1719	France declares war on Spain Jesuits expelled from Russia	Defoe, *Robinson Crusoe* Handel, director of Royal Academy of Music
1720	'South Sea Bubble' bursts Prince Charles Edward Stuart, the 'Young Pretender' b.	Old Haymarket Theatre opens in London Canaletto b.
1721	Peter I proclaimed Emperor of All the Russias	J.S. Bach, *The Brandenburg Concerte* Telemann arrives in Hamburg as Director of music
1722		Defoe, *Moll Flanders*
1723	Louis XV attains majority	J.S. Bach, *St John Passion* Wren d. Joshua Reynolds b.
1724	Pope Innocent III d. Pierro Francesco Orsini becomes Pope Benedict XIII	Longman's (publishers) founded

Science and technology	**Philosophy**	
	Rousseau b. Berkeley, *Passive Obedience*	1712
Newton, *Prindpia (2nd edn)*	Berkeley, *Dialogues between Hylas*	1713

	and Philonous Collier, *Clavis universalis* Shaftesbury d. Wolff, *Rational Thoughts on the Powers of the Human Understanding* Derham, *Physico-Theology* Diderot b.	
Fahrenheit constructs mercury thermometer	Baumgarten b. Leibniz writes his *Monadology*	1714
Brooke Taylor invents calculus of finite differences	Malebranche d. Crusius b. Helvétius b. 1715–16 Leibniz engaged in correspondence with Samuel Clarke Collins, *Philosophical Inquiry concerning Liberty*	1715
	Leibniz d.	1716
Innoculation against smallpox introduced in England	d'Alembert b.	1717
First bank notes in England Porcelain manufactured for first time in Vienna		1718
		1719
Charles Bonnet, Swiss entomologist b.	Wolff, *German Metaphysics* Toland, *Pantheisticon*	1720
Regular postal service established between London and New England	Berkeley, *De motu* Montesquieu, *Persian Letters*	1721
R.A. Ferchault de Réaumur writes on steel making	Wollaston, *The Religion of Nature Delineated*	1722
Anthony van Leeuwenhoek d.	Adam Smith b. Richard Price b. d'Holbach b.	1723
Boerhaave, *The Elements of Chemistry*	Kant b.	1724

	Politics and religion	**The arts**
1725	Peter the Great d. succeeded by his wife, Catherine	James Thompson, *The Seasons* Canaletto, *Four Views of Venice* Alessandro Scarlatti d.
1726	St John of the Cross canonized	First circulation library established by Allan Ramsey in Edinburgh Voltaire flees to England Swift,

		Gulliver's Travels
1727	George I d. succeeded by son as George II Catherine I d. succeeded by grandson as Peter II Britain at war with Spain Quakers call for abolition of slavery	Gainsborough b.
1728	William Law, *A Serious Call* Madrid Lodge of Freemasons founded but soon suppressed by the Inquisition	Pope, *The Dunciad* Robert Adam b. John Gay, *Beggar's Opera*
1729	Treaty of Seville between France, Spain and Britain Founding of Baltimore	Congreve d. Steele d. J.S. Bach, *St Matthew Passion* Lessing b.
1730	Peter II d. succeeded by Anne Tindal, *Christianity as Old as. the Creation*	Hogarth, *Before and After*
1731	Treaty of Vienna between Britain, Holland, Spain and the Holy Roman Empire Mass expulsion of Protestants from Salzburg	Defoe d. William Cowper b.
1732	George Washington b. King Frederick William I of Prussia settles 12,000 Salzburg Protestants in east Prussia	Haydn b.
1733	First German Masonic Lodge founded in Hamburg	1733–4 Pope, *An Essay on Man* J.S. Bach, *B Minor Mass* Couperin d.
1734	Swedenborg, *Prodromus philosophiae*	1733–5 Hogarth, *A Rake's Progress* Voltaire, *Letters on the English*

Science and technology	**Philosophy**	
Catherine I founds St Petersburg Academy of Science	Franklin, *Dissertation on Liberty and Necessity* Vico, *The New Science* Hutcheson, *Inquiry into the Original of Our Ideas of Beauty and Virtue*	1725
James Hutton, geologist b.	1726–9 Voltaire banished to England Butler, *Sermons*	1726
American Philosophical Society founded in Philadelphia	Woolston, *A Discourse on the Miracles of our Saviour*	1727

Isaac Newton d.

James Cook, navigator and explorer b. Behring Strait discovered by Vitus Behring	1728–9 Balguy, *The Foundation of Moral Goodness* Hutcheson, *An Essay on the Nature and Conduct of the Passions and Affections* Wolff, *Rational Philosophy, or Logic*	1728
Newton's *Principal* translated into English Academia de buenas letras founded in Barcelona	Wolff, *First Philosophy, or Ontology* Moses Mendelssohn b. Burke b. Collins, *Dissertation on Liberty and Necessity* Mandeville, *The Fable of the Bees,* part 2	1729
Réaumur constructs alcohol thermometer Joseph Wedgwood b.	Collier, *A Specimen of True Philosophy*	1730
Erasmus Darwin b. John Hadley invents quadrant for use at sea	Cud worth (posth.), *A Treatise Concerning Eternal and Immutable Morality* Boulainvilliers, *Refutation of the Errors of Benedict Spinoza*	1731
	Berkeley, *Alciphron* Chubb, *The Sufficiency of Reason in Matters of Religion further considered* Wolff, *Empirical Psychology*	1732
John Kay patents his flying shuttle loom	Balfour, *An Enquiry into the Nature of the Human Soul* Balguy, *The Law of Truth* Campbell, *An Enquiry into the Original of Moral Virtue*	1733
	Balguy, *A Collection of Tracts, Moral and Theological* Wolff, *Rational Psychology* Voltaire, *Letters on the English* Voltaire, *Treatise on Metaphysics*	1734

	Politics and religion	**The arts**
1735	John Wesley writes his *Journals*	
1736	Porteous riots in Edinburgh William Warburton, *The Alliance between Church and State* English statutes against witchcraft repealed	Pergolesi d.
1737	Wesley, *Psalms and Hymns*	Gibbon b. Censorship introduced for

		London stage
1738	Papal bull against Freemasonry Conversion of John Wesley	
1739	Charles VI signs peace treaty as Turks approach Belgrade Mormon Church founded in America	Handel oratorios *Saul* and *Israel in Egypt*
1740	England and Spain at War in West Indies Charles VI d. succeeded by Maria Theresa Frederick the Great succeeds to throne of Prussia	James Boswell b. Richardson, *Pamela* Scarlatti in London and Dublin
1741	Frederick the Great conquers Silesia	Vivaldi d.
1742	Peace of Berlin ends First Silesian War	Handel, *The Messiah* Fielding, *Joseph Andrews* Pope, *The New Dunciad*
1743	Maria Theresa crowned in Prague George II defeats French at Dettingen	Hogarth, *Marriage à la mode* Boccherini b. B. Newmann begins Baroque Vierzehnheiligen church
1744	France declares war on England Second Silesian War begins	Pope d. Gluck, *Iphigénie en Aulide*
1745	Second Jacobite Rebellion begins	Swift d. Rousseau's opera, *Les Muses galantes*
1746	Charles Edward Stuart and his supporters routed at Culloden Annet, *Deism Fairly Stated*	Canaletto in England
1747	William IV of Orange becomes hereditary Stadholder of the seven provinces of the Netherlands	Johnson, *Plan of a Dictionary of the English Language*

Science and technology	**Philosophy**	
Linnaeus, *System of Nature*		1735
First successful operation for appendicitis Manufacture of glass begins in Venice James Watt, inventor, b.	*c.* 1736 Tetens b. 1736–7 Wolff, *Natural Theology* Butler, *Analogy of Religion*	1736
Réaumur, *History of the Insects*		1737
William Herschel b. First spinning machines patented in England	Voltaire, *Elements of the Philosophy of Newton*	1738
John Winthrop publishes his *Notes on Sunspots*	Baumgarten, *Metaphysics* 1739–40 Hume, *Treatise of Human Nature*	1739

University of Pennsylvania founded Frederick the Great founds the Berlin Academy of Sciences Huntsman invents crucible steel process in Sheffield	Chubb, *An Enquiry into the Ground and Foundation of Religion*	1740
Linnaeus founds Botanical Garden, Uppsala	Chubb, *A Discourse on Miracles…* Turnbull, *A Discourse upon the Nature and Origin of Moral and Civil Laws*	1741
Celsius invents centigrade thermometer	1742–7 Brucker, *Critical History of Philosophy* Henry Dodwell, *Christianity Not Founded on Argument*	1742
French explorers reach Rocky Mountains d'Alembert, *Treatise on Dynamics*	Jacobi b. Crusius, *On the Use and Limits of the Principle of Determining Reason* Saint-Hyacinthe, *Philosophical Enquiries…* Voltaire, *Philosophical Letters*	1743
Lamarck b. Sir George Anson returns from voyage around the world	Vico d. Berkeley, Siris	1744
Bonnet, *Treatise on the Study of Insects* Colden, *An Explication of the First Causes of Action in Malts*	Crusius, *A Sketch of the Necessary Truths of Reason* La Mettrie, *Natural History of the Soul*	1745
First geographical map of France	Hutcheson d. Condillac, *Treatise on Systems* Condillac, *Essay on the Origin of Human Knowledge*	1746
Hartley, *Observations on Man*	Crusius, *The Way to the Certainty and Reliability of Human Knowledge* Gerdil, *The Immateriality of the Soul Demonstrated against Locke*	1747

	Politics and religion	**The arts**
1748	Peace of Aix-la-Chappelle ends War of Austrian Succession	Richardson, *Clarissa* Smollett, *Roderick Random* Voltaire, *Zadig*
1749	First settlement of Ohio Company	Fielding, *Tom Jones* J.S.Bach, *The Art of Fugue*

		Goethe b. Gainsborough, *Mr and Mrs Robert Andrews*
1750	Spanish-Portuguese treaty on S. America Frederick the Great, *Works of the Philosophy of Sanssouci*	J.S.Bach d. Neoclassicism spreading over Europe
1751	Britain joins Austro-Russian alliance against Prussia	Thomas Gray, *Elegy written in a Country Churchyard* Fielding, *Amelia*
1752	Gregorian calendar adopted in Britain	Voltaire, *Micromégas*
1753	French troops from Canada seize Ohio Valley Turgot, *Lettres à un grand vicaire sur la tolérance*	British Museum founded Horace Walpole begins Gothic revival building *Strawberry Hill*
1754	British and French troops clash in the Ohio Valley and contest for North America resumed	Hume, *History of England* (1754–62) John Wood begins Circus at Bath Hogarth, *The Election* Fielding d.
1755	Great Lisbon earthquake	Johnson, *Dictionary* Winckelmann, *On the Imitation of Greek Painting and Sculpture*

Science and technology	**Philosophy**	
La Mettrie, *The Man Machine* Invention of wool-carding machine	Bentham b. Hume, *Enquiry Concerning Human Understanding* Maupertuis, *Philosophical Reflections on the Origin of Languages and the Meaning of Words* Montesquieu, *The Spirit of Laws*	1748
Hartley, *Observations on Man* Buffon, *Natural History Vols 1–3* Euler, *Analysis of Infinites*	Diderot, *Letters on the Blind* Maupertuis, *Essay on Moral Philosophy*	1749
J.T.Mayer, *Map of the Moon*	Baumgarten, *Aesthetics* vol. 1 Rousseau, *Discourse on the Arts and Sciences* La Mettrie, *Discourse on Happiness* Maupertuis, *Essay on Cosmology* Turgot, *Philosophical Panorama of the Progress of the Human Mind*	1750
Invention of breech-loading gun	d'Alembert, *Preliminary Discourse to the*	1751

Linnaeus, *Philosophia Botanica* 1751–80 *Encyclopédie* of Diderot	*Encyclopedia of Diderot* Diderot, *Letter on the Deaf and Dumb* Hume, *Essays on the Principles of Morality and Natural Religion* Hume, *Enquiry Concerning the Principles of Morals* Maupertuis, *System of Nature*	
Franklin invents the lightning conductor	Butler d.	1752
Linnaeus, *Species of Plants*	Berkeley d. Dugald Stewart b.	1753
First iron-rolling mill at Fareham in Hampshire	Wolff d. Bonnet, *Essay on Psychology* Condillac, *Treatise on Sensations* Diderot, *On the Interpretation of Nature* 1754–6 Leland, *A View of the Principal Deistical Writers…*	1754
Joseph Black, *Experiments upon Magnesia, Quicklime, and other Alkaline Substances* Kant, *General Natural History and Theory of the Heavens*	Condillac, *Treatise on Animals* Condillac, *Dissertation on the Existence of God* Mendelssohn, *On Feelings* Rousseau, *Discourse on the Origin of Inequality* Reimanus, *The Principal Truths of Natural Religion Defended and Illuminated* (English translation 1766) Hutcheson, *A System of Moral Philosophy*	1755

	Politics and religion	**The arts**
1756	Start of Seven Years' War French drive British from the Great Lakes	Mozart b.
1757	Execution of Admiral Byng Clive wins at Plassey and takes control of Bengal Far East India Company	William Blake b. Fontenelle d. Scarlatti d.
1758	British capture Louisbourg (Cape Breton Island) from the French	Johnson starts the periodical *The Idler* John Carr and Robert Adam, *Harewood House* begun
1759	Jesuits expelled from Portugal British victory at Quebec	Handel d. Voltaire, *Candide* Johnson, *Rasselas*

1760	Accession of George III British capture Montreal	Macpherson's *'Ossian' Fragments* Sterne, *Tristram Shandy* books 1 & 2
1761	British capture Cuba, the French Antilles and Pondicherry	Diderot, *Rameau's Nephew* Rousseau, *The New Héloise* Richardson d.
1762	British capture Martinique, Grenada, Havana and Manila Accession of Catherine the Great Jesuits expelled from France	Gluck, *Orpheus and Euridice* Stuart and Revett, *Classical Antiquities of Athens* Mozart tours Europe as infant musical prodigy
1763	Voltaire, *Treatise on Toleration* Seven Years' War ends	Boswell meets Johnson for first time
1764	Beccaria, *On Crimes and Punishments* Meslier (posth.), 'The Testament of Jean Meslier', in Voltaire, *The Gospel of Reason*	Work begun on Pantheon in Paris Mozart writes his first symphony Hogarth d.
1765	Stamp Act imposed on American colonies	Thomas Percy and William Shenstone, *Reliques of Ancient English Poetry*
1766	Declaratory Act asserts Britain's right to tax American Colonies	Goldsmith, *The Vicar of Wakefield* *Lessingy Laocoön*
1767	First Mysore War Jesuits expelled from Spain and Portugal d'Holbach, *Christianity Unmasked*	Edward Craig's plan for the new town of Edinburgh accepted Rousseau settles in England
1768	France buys Corsica from Genoa Boston citizens refuse to quarter British troops	Sterne, *Sentimental Journey* Founding of Royal Academy of Art

Science and technology	**Philosophy**	
Cotton velvet first made at Bolton, Lancashire	Burke, *Vindication of Natural Society* Godwin b.	1756
Réaumur d.	Burke, *The Origins of Our Ideas of the Sublime and the Beautiful* Hume, *Natural History of Religion*	1757
Quesnay, *Economic Table* Bridgewater Canal between Liverpool and Leeds begun	Baumgarten, *Aesthetics* vol. II Helvétius, *On the Spirit* Price, *Review of the Principal Questions in Morals* Jermyn, *A Free Inquiry into the Nature and Origin of Evil*	1758

Bavarian Academy of Science founded British Museum opened (at Montagu House)	Gerard, *An Essay on Taste* Smith, *Theory of Moral Sentiments*	1759
Botanical Gardens at Kew opened Wedgwood founds pottery works at Etruria (Staffs)	Bonnet, *Analytical Essay on the Faculties of the Mind*	1760
Süssmilch initiates study of statistics		1761
Cast iron converted into malleable iron at Carron, Stirlingshire Bridgewater Canal opened Bonnet, *Reflections on Organised Bodies*	*Rousseau, Social Contract* Rousseau, *Émile* Fichte b.	1762
	Campbell, *A Dissertation on Miracles* Mendelssohn, *Philosophical Conversations*	1763
Hargreaves invents spinning-jenny 1764–5 Bonnet, *Contemplation de la nature*	Mendelssohn, *Essays on Evidence in Metaphysical Science* Reid, *Inquiry into the Human Mind on the Principles of Common Sense* Voltaire, *Philosophical Dictionary*	1764
Turgot, *Reflections on the Formation and Distribution of Wealth*	Leibniz (posth.), *New Essays concerning Human Understanding*	1765
Cavendish discovers hydrogen Bougainville circumnavigates the globe	Ferguson, *Essay on Civil Society*	1766
Priestley, *The History and present State of Electricity*	Mendelssohn, *Phaedon*	1767
Cook embarks on his first voyage of discovery in the South Seas	Naigeon, *The Military Philosopher, or Difficulties concerning Religion, proposed to Father Malebranche* Priestley, *Essays on the First Principles of Government* 1768–77 Tucker, *The Light of Nature Pursued*	1768

	Politics and religion	**The arts**
1769	Napoleon b. Arthur Wellesley, future Duke of Wellington, b.	Adam Brothers, Adelphi, London Diderot writes *The Dream of d'Alembert* (pub 1830)
1770	Dauphin marries Marie-Antoinette	Goldsmith, *The Deserted Village*

	'Boston Massacre' Edmund Burke, *Thoughts on the Cause of the Present Discontents*	Beethoven b. Wordsworth b.
1771	Russia and Prussia agree over partition of Poland	Walter Scott b. Bougainville, *A Voyage round the World*
1772	Inquisition abolished in France Priestley, *Institutes of Natural and Revealed Religion*	Samuel Taylor Coleridge b. Friedrich von Novalis b.
1773	'Boston Tea Party'	Goethe, *Goetz von Berlichingen*
1774	Accession of Louis XVI in France First American Continental Congress	Goldsmith d. Caspar David Friedrich b. Goethe, *Werther*
1775	American Revolution begins Peasants revolt in Bohemia	Jane Austen b. Charles Lamb b. Johnson, *A Journey to the Western Isles of Scotland* Sheridan, *Rivals*
1776	American Declaration of Independence Americans driven out of Canada Price, *Observations on the Nature of Civil Liberty*	Gibbon, *Decline and Fall of the Roman Empire,* vol. 1 John Constable b. Mozart, *Haffner Serenade*
1777	British surrender at Saratoga	Sheridan, *The School for Scandal*
1778	Franco-American Alliance	William Hazlitt b.
1779	Washington defeats British at Monmouth, N.J.	Lessing, *Nathan the Wise* Thomas Chippendale d. Chardin d.

Science and technology	**Philosophy**	
Watt's steam engine patented Alexander von Humboldt b. First lightning conductors on high buildings G.L.Cuvier b.		1769
Euler, *Introduction to Algebra* Cook discovers Botany Bay in Australia	Hegel b. Beattie, *An Essay on the Nature and Immutability of Truth* Bonnet, *Palingénesie philosophique* d'Holbach, *System of Nature* Kant, *Inaugural Dissertation*	1770
Arkwright founds first spinning mill in England		1771

First edition of *Encyclopaedia Britannica*		
Daniel Rutherford discovers nitrogen	Ferguson, *Institutes of Moral Philosophy* Herder, *Treatise on the Origin of Language* Meiners, *Revision of Philosophy* Hemsterhuis, *Letter on Man and his Relationships*	1772
	Helvétius (posth.), *On Man* d'Holbach, *Social System*	1773
Priestley discovers oxygen		1774
Priestley discovers hydrochloric and sulphuric acids James Watt perfects his invention of the steam engine	Herder, *Philosophy of History and Culture* Tetens, *On Universal Speculative Philosophy* Crusius d.	1775
Smith, *Wealth of Nations*	Bentham, *Fragment on Government* Hume d. d'Holbach, *Universal Ethics*	1776
Howard, *Enquiry into the Present State of Prisons*	Priestley, *Disquisitions Relating to Matter and Spirit* Priestley, *The Doctrine of Philosophical Necessity Illustrated* Tetens, *Philosophical Essays*	1777
Cook discovers Hawaii Buffon, *The Epochs of Nature*	Rousseau d. Voltaire d.	1778
Spallanzani proves that semen is necessary for fertilization. First cast-iron bridge, near Coalbrookdale in Shropshire	Hume (posth.), *Dialogues concerning Natural Religion* Schiller, *Philosophy of Physiology*	1779

	Politics and religion	**The arts**
1780	Henry Grattan demands Home Rule for Ireland Serfdom abolished in Bohemia and Hungary Rebellion in Peru against Spanish rule	Sébastien Erard makes first modern pianoforte Lessing, *On the Education of the Human Race*
1781	Warren Hastings deposes Rajah of Benares	Lessing d. Schiller, *The Robbers*
1782	Spanish capture Minorca from Britain Priestley, *A History of the Corruptions*	Fanny Burney, *Cecilia* Cowper, *Poems*

	of Christianity	Laclos, *Les Liaisons dangereuses*
1783	Britain concedes legislative independence to Irish Parliament Peace of Versailles ends war between Britain, France, Spain and America and establishes American independence	Mozart, *Mass in C minor* Beethoven's first works published
1784	Pitt's India Act brings East India Company under government control John Wesley's Deed of Declaration	Johnson d.
1785	Diamond Necklace Affair in Versailles discredits Marie Antoinette	Boswell, *Journal of a Tour of the Hebrides with Samuel Johnson,* D.D. J.L.David, *The Oath of the Horatii*
1786	Frederick the Great d.	Robert Burns, *Poems* Mozart, *The Marriage of Figaro*
1787	Association for the abolition of the slave trade founded in Britain Turkey declares war on Russia	Goethe, *Iphigenia in Tauris* Gluck d. Mozart, *Don Giovanni*
1788	U.S. constitution, ratified by New Hampshire, the ninth state, comes into force New York declared federal capital of the U.S.	Goethe, *Egmont* Gainsborough d.
1789	Fall of Bastille. Beginning of French Revolution Austrian Netherlands declare independence as Belgium	Blake, *Songs of Innocence*

Science and technology	**Philosophy**	
American Academy of Sciences founded	Schiller, *Essay on the Connections between Man's Animal and His Spiritual Nature*	1780
Herschel discovers planet Uranus	Kant, *Critique of Pure Reason* (1st edn)	1781
	Rousseau (posth.), *Confessions* vols 1–6	1782
Herschel, *Motion of the Solar System in Space* Ascent of Montgolfier air-balloon	d'Alembert d. Kant, *Prolegomena to Any Future Metaphysics* Mendelssohn, *Jerusalem, or on Religious Power and Judaism*	1783
First iron-rolling mill Andrew Meikle invents threshing machine	1784–91 Herder, *Ideas towards the Philosophy of the History of Mankind* Kant, 'What is Enlightenment?'	1784

	Reinhold, 'Thoughts on Enlightenment'	
Seismograph for measuring earthquakes invented Hutton, *Theory of the Earth*	Mendelssohn, *Morning Hours, or Lectures on the Existence of God* Kant, *Foundations of the Metaphysics of Morals* Jacobi, *On the Doctrine of Spinoza* Diderot d. Reid, *Essays on the Intellectual Powers of Man* Paley, *Principles of Morals and Political Philosophy*	1785
First gas lighting Buffon, *Natural History of Birds*	Mendelssohn, *To the Friends of Lessing*	1786
Steamboat launched on Delaware River Lavoisier, *Method of Chemical Nomenclature*	Herder, *God: Some Conversations* Jacobi, *David Hume on Belief* Madison and Hamilton, *The Federalist* Kant, *Critique of Pure Reason* (2nd edn)	1787
Hutton, *New Theory of the Earth* Laplace, *Laws of the Planetary System*	Kant, *Critique of Practical Reason* Schopenhauer b. 1788–93 Feder (ed), *Philosophical Library* Reid, *Essays on the Active Powers of Man*	1788
Jussieu, *Species of Plants (Genera plantarum)* Louis Daguerre, pioneer of photography, b.	Bentham, *Introduction to the Principles of Morals and Legislation* Holbach d.	1789

	Politics and religion	**The arts**
1790	Austrians in Brussels, suppress Belgian revolution Burke, *Reflections on the Revolution in France*	Wollstonecraft, *Original Stories from Real Life* Mozart, *Così fan tutte*
I791	Paine, *The Rights of Man* part I Slave revolt in St Dominique (Haiti) Wilberforce's motion for abolition of slave trade carried through Parliament Unitarian Society founded in England	Mozart, *The Magic Flute* Boswell, *Life of Johnson*
1792	Wollstonecraft, *Vindication of the Rights of Women*	Haydn, *Sinfonia Concertante* Rossini b. Robert Adam d.
1793	Execution of Louis XVI and Marie-Antoinette Reign of Terror begins in France	David, *The Murder of Marat*

1794	Habeas Corpus Act suspended in Britain (-1804) Freedom of worship in France Paine, *The Age of Reason* part I	Blake, *Songs of Experience* Godwin, *Caleb Williams*
1795	Kant, *Perpetual Peace*	Boswell d. John Keats b. Thomas Carlyle b. Beethoven, three piano trios Op. 1
1796	Napoleon defeats Austrians at Lodi and enters Milan Freedom of Press in France	Burns d. Goya, *Los Caprichos*
1797	Napoleon defeats Austrians at Rivoli and advances on Vienna Nelson and Jervis defeat Spanish fleet at Cape St Vincent	Coleridge writes *Kubla Khan* Goethe, *Hermann and Dorothea* Turner, *Millbank, Moon Light* Haydn, *Emperor Quartet*
1798	French capture Rome and declare Roman Republic Battle of the Pyramids makes Napoleon master of Egypt Nelson destroys French fleet at Abukir Bay	Wordsworth and Coleridge, *Lyrical Ballads*
1799	Austria declares war on France Kingdom of Mysore divided between Britain and Hyderabad Church Missionary Society founded in London	Godwin, *St Leon* Beethoven, *Symphony No. 1* Haydn, *The Creation*

Science and technology	**Philosophy**	
Lavoisier, *Table of 31 Chemical Elements*	Kant, *Critique of Judgment* Maimon, *Examination of Transcendental Philosophy* Adam Smith d. 1790–93 Beattie, *Elements of Moral Science*	1790
London School of Veterinary Surgery founded Metric system proposed in France	Price d. Reinhold, *On the Foundations of Philosophical Knowledge*	1791
Gas used for lighting in England	Ferguson, *Principles of Moral and Political Science* Fichte, *Attempts at a Critique of all Revelation*	1792

	Stewart, *Elements of the Philosophy of the Human Mind*	
Eli Whitney invents the cotton gin	Crombie, *An Essay on Philosophical Necessity* Godwin, *Enquiry concerning Political Justice* Kant, *Religion within the Limits of Reason Alone* Stewart, *Outlines of Moral Philosophy*	1793
Erasmus Darwin, *Zoonomia, or the Laws of Organic Life*	1 794–9 Fichte, *Foundation of the Complete Theory of Knowledge* Paley, *Evidences of Christianity*	1794
Joseph Bramah invents hydraulic press		1795
Cuvier establishes science of comparative zoology	Reid d.	1796
Thomas Bewick, *British Birds* L.N.Vauquelin discovers chromium	Kant, *Metaphysics of Morals* Schelling, *Ideas for a philosophy of Nature* (1st edn) Burke d.	1797
Malthus, *Essay on the Principle of Population* Laplace, *Exposition of the System of the World*	Comte b. Green, *An Examination of the Leading Principle of the New System of Morals*	1798
Perfectly preserved mammoth discovered in Siberia 1798–1825 Laplace, *Treatise on Celestial Mechanics*		1799

	Politics and religion	**The arts**
1800	Napoleon establishes himself as First Consul in the Tuileries Jefferson wins U.S. presidential election British capture Malta	Goya, *The Two Majas* David, *Napoleon at Grand Saint Bernard* Haydn, *The Seasons* Beethoven, *First Symphony*

Science and technology	**Philosophy**	
Gauss, *Arithmetical Disquisitions* Royal College of Surgeons founded Richard Trevithick constructs light-pressure steam engine	Fichte, *The Vocation of Man* Schelling, *System of Transcendental Idealism*	1800

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Introduction

Stuart Brown

This volume is concerned with European philosophy from the late seventeenth century through most of the eighteenth—the period of 'the Enlightenment' as broadly conceived. Some apology is due for the overall emphasis on what is commonly referred to as 'British philosophy'. But the attention to English early Enlightenment figures, such as Newton and Locke, is easily justified, since they were important influences on the Enlightenment elsewhere. Philosophy flourished in Britain and Ireland in the eighteenth century. Wales produced Richard Price,[1] while Ireland could boast of Berkeley and Burke.[2] Ireland also produced Francis Hutcheson, to whom Hume and the Scottish Enlightenment owed a considerable debt.[3] The Scots in turn had a considerable influence on the Enlightenment or *Aufklärung* in Germany, not least on the thought of Kant.[4]

The opening chapter focusses on the Cambridge Platonists, in whose thought the Enlightenment emphasis on reason and toleration is already prefigured. The concluding chapter deals with the beginnings of the reaction against Enlightenment concepts and values towards the end of the eighteenth century. 'Enlightenment' is thus something of a unifying concept. At the same time it should be acknowledged that histories of philosophy do not always make use of it. Sometimes, rather, they use the term 'empiricism' to characterize the philosophy of the period and to contrast it with the 'rationalism' of the earlier period.

There are indeed other notions that have been or might be put forward as central to understanding the development of philosophy in this period. For instance, the development of the laity or the use of ordinary language as the vehicle for articulating philosophical ideas are possible centres of focus. Alternatively one might attend to the secularization of philosophy or the growth of the demand for rational religion. But, while each of these perspectives can enrich our understanding of the period, serious distortions can result from focussing on a single perspective to the exclusion of others. For this reason there are some scholars who distrust the application of any period and 'school' labels. Descartes, Spinoza, Malebranche and Leibniz, for instance, are often classed as 'rationalists',[5] on the one hand, and Locke, Berkeley and Hume as 'empiricists', on the other. But critics consider that these labels distort historical realities and misrepresent at least some of the individual philosophers concerned.[6] There are also those who think the period of the so-called 'Enlightenment' is too diverse to be accurately presented as if it were a coherent and unified cultural phenomenon.

Though I will address these doubts later in this introduction, my main purpose is not so much to lay them entirely to rest as to set the scene for the individual chapters that comprise the substance of the volume. The reader will find that some of these chapters are devoted to a major figure, as are the chapters on Berkeley and Vico, or even, in the case of Locke and Hume, to part of the thought of an individual philosopher. More

commonly, the chapters deal with two or more figures as a group. Thus there are two chapters on the *philosophes* of the French Enlightenment and a chapter each on the Enlightenment in Scotland and in Germany. Had space permitted there might have been chapters on the Enlightenment in other countries.[7] The various national Enlightenment movements took place at rather different times and in widely different circumstances.

This introduction will concentrate to a large extent on the Enlightenment in England. English intellectual and political culture was much admired by Voltaire and other *philosophes* of the early French Enlightenment. Attention to it can be a way of announcing some of the themes of the volume as a whole and also linking together some of the figures dealt with in later chapters.

THE ENGLISH 'ENLIGHTENMENT'

Defenders of what is called 'the Enlightenment', such as the *philosophe* d'Alembert, commonly used the metaphor of spreading light to refer to the kind of intellectual and cultural progress they believed in. Furthermore there was a debate in Germany as to what *'Aufklärung'* (usually translated 'Enlightenment') was. So enlightenment was a concept wich was establishing itself during the period as one in terms of which the *avant garde* thought of themselves and their projects. But the phrase 'the Enlightenment' itself was not adopted until the nineteenth century, when it began to be used in retrospect of a period as a whole.[8] Historians have challenged the extent to which, as had previously been supposed, the Enlightenment can be represented as a singleEuropean cultural phenomenon. But there is no doubt there were important interconnections, such as the English influence on the *philosophes*.[9] At the same time the Enlightenment in England itself, for instance, followed a quite different course from that in France.

The English Enlightenment was in some respects prefigured by Herbert of Cherbury and the Cambridge Platonists. But it is convenient, customary and defensible to fix 1688—the year of the Whig revolution—as a starting-date. Until then the High Church party had dominated. Books had been subject to censorship and religious diversity had been discouraged. After the 'Revolution', when William and Mary were offered the British crowns, liberals had more influence in politics and the 'latitudinarians', as they wre known, in the Church. Symbolically perhaps, Spinoza's *Tractates Theologico-Politicus,* which argued the case for freedom of expression in religious matters, appeared for the first time in English tradition in 1689. That work was published anonymously and illegally. But, by the middle of the 1690s, controversial works could be published legally. Though anonymity was still usual, it was no secret that Locke was the author of *The Reasonableness of Christianity* or John Toland the author of *Christianity not Mysterious*. These words were denounced as dangerous but they were not suppressed and no action was taken against the authors. Books could still be burned[10] and a Blasphemy Act was passed by the English Parliament in 1698. Yet there was a new tolerance of theological deviation, moderately expressed. For instance, Samuel Clarke—remembered by philosophers for his translations and defences of Newton—had a successful career as an Anglican clergyman notwithstanding the suspicion and even charge of heresy certain of his publications gave rise to.[11]

The early English Enlightenment is marked by vigorous controversy between two extremes—the anti-authoritarian 'deists' and the High Church defenders of hierarchy and othodoxy. The latitudinarians and the moderate Whig intellectuals sought to distance themselves from either extreme but sometimes found themselves accused of 'deism'.[12] Though there had been, in the 1690s, anti-clerical materialists who were inclined to republicanism, by the middle decades of the eighteenth century there were few prominent English intellectuals who defended such extreme positions, The philosophical scene came to be dominated by moderate opinion. The leading figures included moderate Anglican clergy, such as Joseph Butler and William Paley.[13] Deism declined and Thomas Chubb, one of its last representatives, was so moderate that he even retained some Church connections. Radicalism re-emerged later on and is represented, for instance, by the scientist and Unitarian minister, Joseph Priestley (1733–1804). The radical Enlightenment is also reflected later in the writings of William Godwin (1756–1836) and Mary Wollstonecraft (1759–97). But during the peak of the French Enlightenment in the mid-eighteenth century English philosophy generally lacked the anti-clerical, anti-Establishment materialism common amongst the French *philosophes*.

The *philosophes,* as we have noted, developed what they took from Locke and others in a radical way.[14] But the English radicals in the late eighteenth and early nineteenth century were themselves influenced by their French counterparts. For instance, Jeremy Bentham (1748–1832) was indebted to Helvétius, from whom he derived some of his utilitarian ideas. Utilitarianism became a feature of the Enlightenment and Bentham might be regarded as a late Enlightenment figure. In fact he is a transitional figure who, particularly in relation to his later thoughts, can be treated as the beginning of a new phase of British philosophy. He is so treated in this series and is, accordingly, discussed in a later volume. But it is worth noting that the anti -metaphysical character of the 'positivist' movement of the nineteenth century (which Bentham helped to encourage) was also shared by some of the Enlightenment philosophers, such as Condillac and Hume. This anti-metaphysical tendency reflects one point of continuity between the periods covered by this volume and that on *The Nineteenth Century*.

The Enlightenment as it has emerged so far was characterized by more weight being given than formerly to certain values, such as toleration, freedom and reasonableness. It was associated with opposition to authoritarianism. Its rejection of an excessive emphasis on the authority of the clergy was combined with a greater respect for lay opinion. In this way it is also linked, as I have already indicated, with what was known as 'deism' as well as with scepticism. Confidence in the progress being made in the sciences was matched by scepticism about dogmatic ('rationalist') metaphysical systems. Both were associated with a broad empiricism.

By focussing on one or other of these features we may obtain different perspectives on our period and I will attend to each in turn. The perspectives they provide may serve to provide some background to at least the secondary figures of the period. As in other periods, the great thinkers of the Enlightenment are, in one way or another, not entirely typical. But at least sometimes they can be better understood once it is seen where they are deviant or out of step with their times. This is true mostly obviously of Kant, who is certainly an Enlightenment figure (and wrote an essay on *'Was ist Aufklärung?'*), but who is the focus of a separate volume in this series.

LAY INVOLVEMENT IN THE NEW PHILOSOPHY

The growth of Protestantism in parts of northern Europe was accompanied by strong anti-clerical movements amongst the laity. The Catholic tradition had its Latin Bible and a clerical hierarchy who laid down how it was to be understood. But, in the wake of the Protestant Reformation, it was often replaced by a diametrically opposed tradition committed to a vernacular Bible that the common people were supposed to be able to understand just by reading. While most Protestant groups retained clergy and attached importance to their mission as teachers, they encouraged the laity, in varying degree, to learn to read and understand the Bible for themselves.

An authorized English version of the Bible was in use from 1611. A whole spectrum of religious parties and sects offered a variety of encouragements and discouragements to lay people who wished to engage in religious speculation and to that extent in philosophy. At one end of the spectrum was the High Church party of the Church of England, which believed in clerical authority and tended to favour censorship. At the other extreme there were sects like the Seekers and the Ranters, who had no clergy and who came to be associated in various ways with political radicalism. A home-spun metaphysics might serve as a way of integrating theology and politics. Thus, for example, the leader of one of the groups which was active in the aftermath of the Civil War in England—the Diggers—used a pantheistic metaphysics to underpin his rejection of all hierarchy, whether in religion or politics, and to make radical democratic and communist demands.[15] At a more sophisticated level were the metaphysical ideas developed in the Quaker group centred on Ragley Hall, the home of Anne, Viscountess Conway.[16]

Those to whom I have been referring as ‘the laity’ included all those who were not clergymen. They also included ‘lay philosophers’, that is to say, those who were not trained in a university. The training of clergy (as well as doctors and lawyers) was a major part of the business of the universities throughout this period and, for some of them, through much of the nineteenth century as well. Students at Oxford and Cambridge had to subscribe to the doctrines of the Anglican church as expressed in the Thirty Nine Articles. The concept of ‘academic freedom’ was as yet unknown in the seventeenth century and universities were not generally associated with free-thinking. The place for any free exchange of ideas was either in a club, a salon or a private house; or, again, if less respectably, in the coffee-houses or taverns frequented by others of like mind.[17]

The participation of lay people in philosophy was not new in theEnlightenment. For centuries lay men and women, especially those from privileged backgrounds, might occasionally benefit from an education which brought them in touch with scholastic philosophy.[18] But, without learning Latin, they could not hope to progress far, and it was not until humanist education diffused this learning more widely in the fifteenth and sixteenth centuries that it became available to a significant minority. By the beginning of the period covered in this volume, lay participation in philosophy was already noticeable and was set to increase considerably.[19]

Universities were not merely theologically correct but, for the most part, intellectually conservative places in the seventeenth century.[20] New ideas were not likely to take root

quickly in such an environment. The early history of modern philosophy shows how some laypeople were more receptive than most academics were. Philosophy had been written in French before Descartes, whose philosophy is discussed in a previous volume. What was new with Descartes was that he used French as a vehicle, not just for popular works, but to express and argue for a difficult and demanding set of doctrines. By writing in his native language he was able to win for his philosophy the support and patronage of influential lay people—women as well as men—and this helped Cartesianism to survive and even flourish despite being banned from French universities.

As well as writing in a vernacular language, Descartes sometimes adopted a literary style, as in his *Meditations* and *Discourse on Method,* that was more accessible to the laity than formal academic works. Indeed his conception of philosophy was that of a subject in which lay people were already equipped. Good sense was not the prerogative of the learned but, on the contrary, as Descartes announced right at the beginning of his *Discourse,* it 'is the best distributed thing in the world'. Everyone had ideas and Descartes played down any obstacles there were to learning how to distinguish those that are 'clear and distinct' and which could therefore give true knowledge. Scholastic philosophy required a long period of initiation, not only into a technical Latin but into a special way of thinking. Modern philosophy, by contrast, sought to deal in a currency ('ideas') which the whole of humankind was supposed to have in common.

Descartes's approach was taken further by Nicholas Malebranche (see Volume IV in this series), who not only wrote exclusively in French but very largely for a lay readership, especially when he wrote in the dialogue form. Philosophical discussion thus began to look continuous with the social world of conversation between equals, in which there is due consideration for how one's utterances may be received, respect for the judgement of others, and so on. This was not the philosophy of the cloister or the schoolroom but of the salon or country house.

By such means philosophy was becoming available to lay people in an unprecedented way. French replaced Latin as the language of modern philosophy in much of continental Europe. The use of the vernacular became more common in England and, by the end of the seventeenth century, the leading modern philosophers, such as Locke and Norris, were publishing exclusively in their native language.

These changes involved not only a new language but a new style of philosophy, in which liveliness and clarity were regarded as particular virtues. Thus Locke, in his Epistle to the Reader at the beginning of his *Essay,* thought it appropriate to apologize to his reader for the difficulties that remained because of the way the work had been composed. He had *not* written it for academics but for what he called 'polite company'. He hoped it would bring some pleasure to his reader and, most significantly, told his reader that 'this Book must stand or fall with thee, not by any Opinion I have of it, but thy own'.[21]

Locke's writings were not only accessible in the sense that lay people could follow them but also in the sense that they made available to lay people a method of doing philosophy which they could replicate. Thus the reader was invited to refer to his or her own 'observation and experience' as part of a process of clarifying his or her ideas. His friend and pupil, Damaris, Lady Masham, published books in which she used a Lockean method in order to resolve, at least to her own satisfaction, a controversy with Mary

Astell about the meaning of the word ‘love’ in a religious context.

There was a marked increase in the number of books by lay philosophers in the eighteenth century. But no less significant was the potentially large lay readership that had been established for philosophical works. New careers became possible for philosophical writers who wrote for this readership. The most striking success of this kind was Pierre Bayle’s *Historical and Critical Dictionary*.[22] With such writings the world of philosophy became part of the world of letters. Even the more difficult professional or semi-professional philosophers, like Berkeley and Hume, consciously sought to produce more accessible versions of their philosophy.[23] The leading *philosophes* of the French Enlightenment, such as Voltaire and Diderot, were men of letters as much as they were philosophers, concerned to entertain as well as instruct and convince.[24]

One important difference between the contexts of French and English philosophy in the eighteenth century was that the *philosophes* were subject to censorship laws. Such laws dogged the publication of their great collaborative project, the *Encyclopédie*. Moreover, philosophers were discouraged from extending their speculations into areas bordering on religion. In England, on the other hand, the censorship laws lapsed in 1695 and were never renewed. In this relatively freepolitical climate there was, at least initially, a spate of heterodox publications, such as Toland’s *Christianity Not Mysterious*.[25] It was at this point that the deist movement, with its stress on the sufficiency of reason in matters of religion, came to the fore.[26]

DEISM AND ‘THE AGE OF REASON’

There is no consistent usage for the term ‘deism’ in our period nor a complete consensus as to who the deists were. That is hardly surprising, since those who used the term of what they subscribed to often had no more in mind than a reasonable Christianity: whereas those who used it of their enemies had in mind a tendency that was subversive of true religion. The deists commonly dropped several of the core features of church Christianity like revelation, miracles, the means of grace, the Incarnation, the divine inspiration of Scripture and a divinely-ordained ecclesiastical hierarchy. At the same time they clung onto those beliefs they regarded as rationally defensible: for example, in a first cause, an intelligent general providence, immortality and, sometimes, retribution for wrong-doing. When we consider, however, that Spinoza was commonly regarded as the quintessential deist, and yet he did not believe in providence or immortality (as usually understood) or retribution, we see how difficult it is to define deism by doctrines.[27] The best we can do is to note the desire for a wholly rational religion or a rational replacement for Christianity. The deists were characteristically anti-clerical and they usually went well beyond mere heresy by rejecting the Bible or revelation as sources of truth. As to their politics, they rejected the idea that monarchs are divinely appointed—the so-called ‘divine right of kings’—and, if they were not republican, they were often inclined to hold that the authority of the monarch was derived ultimately from the consent of the people.

Some of the ‘rationalist’ philosophers discussed in the previous volume could either readily be identified as deists, as in the case of Spinoza, or showed some tendency in that

direction, as did Leibniz and Malebranche.[28] For all that it was a rationalizing tendency within religion, however, deism was not a necessary accompaniment of 'rationalism' in the special sense used of certain philosophers, especially of the seventeenth century but also later. The rationalists, in the special sense, accepted an ideal of a system of knowledge built up, as geometry was taken to be, by demonstrations from self-evident truths. Moreover, the major rationalists of the seventeenth century believed it was possible to make some headway in building up a system of metaphysics that approximated to this ideal. But not all of them were led to encroach on theology, to depart from orthodoxy or to aspire to a kind ofphilosophical religion. Descartes was careful not to do so. Thus being a rationalist in philosophy did not necessarily mean being a rationalizer in matters of religion and hence being deistical in tendency.[29]

To add to the confusion, the philosophers of the Age of Reason tended to reject the aspiration after metaphysical systems of the kind produced by the seventeenth-century rationalists. Philosophers often continued to espouse such rationalism in other areas. Thus, for instance, Locke and Richard Price are said to have been rationalists about ethics.[30] There were those too, like Samuel Clarke, who were rationalists in natural theology. None the less rationalism in metaphysics (and natural science) was characteristically rejected. The roots of rationalism in the special sense lie in the Aristotelian ideal of *scientia*[31] and therefore in the Latin-based university philosophical tradition. That ideal had been attacked by sceptics as unattainable and the attack was continued in Locke's influential *Essay*. The certainty which sufficed for the purposes of practical life came to be regarded as sufficient also for our understanding of the world. Those who claimed more, especially in metaphysics and natural science, were no longer taken seriously. D'Alembert could write, in 1751, that 'the taste for systems…is today almost entirely banished from works of merit…a writer among us who praised systems would have come too late'.[32]

Leibniz's 'optimism', i.e. his theory that this is the best of all possible worlds, is one example of what d'Alembert took to be a 'system' in an uncomplimentary sense. It resulted from Leibniz's belief—which he thought he could demonstrate—that the world has a perfect creator.[33] Voltaire lampooned such optimism in his enormously successful *Candide* and philosophies like that of Leibniz were largely rejected by the *philosophes*.[34] Again, the Cartesians rejected Newton's theory of gravity because it involved action at a distance. They thought they had a clear and distinct idea of matter on the basis of which action at a distance could be ruled out. The controversy dragged on for some time. But the Newtonian cause, of which Voltaire was one of the champions, prevailed. Systems that prescribed the nature of the world a priori fell into disrepute.

For all that rationalism in the more technical sense used by philosophers was in decline in the eighteenth century, the deists were rationalists in a perfectly clear sense, i.e. rationalizers of religion. Thus Matthew Tindal (1657?–1753), author of what came to be referred to as 'the Bible of Deism', suggested that Christianity was not new but already contained in 'the religion of Nature'.[35] Its truths, such as Tindal could accept, were ones that reason could discover without the need of revelation.

There was a large deist literature in early eighteenth century England and an even greater volume of refutations, especially books from the Anglican clergy. But by the mid-century deism had declined and the controversy it aroused had subsided. It is sometimes

suggested that the deists lost the arguments. More probably, however, Anglican Christianity itself had become less authoritarian or fideistic than it had been a century before and those who might otherwise have been tempted to deism could more readily be accommodated within the church. The liberal or latitudinarian wing of the Church of England became much stronger in the eighteenth century. From the Boyle lecturers on, the philosophical sermon became an established genre.[36] Though sermons were commonly published at that time, they were delivered in the first place to a captive audience. That church-goers should have been offered the arguments of natural religion is some evidence that the demand for a rational religion had taken root amongst the faithful as well as the dissenters. Whatever the extent of this demand, many of the clergy seemed intent on meeting it. Sophisticated arguments became available to support belief in miracles and in a providence.

Perhaps because the demand for a rational religion was in some measure being met by Anglican apologetics, the controversy about deism abated. In 1790 Burke claimed that no one read any of the deists any more and had not done so for some time.[37] Deism moderated and declined in England during a period when it became more radical and conspicuous in France. When it reappeared in England, for instance in Tom Paine's *Age of Reason* (1794–5), it assumed a more revolutionary form, hostile to organized religion, which the author claimed was a means 'to terrify and enslave mankind, and monopolize power and profit'. But, though there was a late flowering of the Enlightenment, in Britain and America, the excesses of the French Revolution provoked a reaction to the mechanistic, materialistic and egalitarian philosophies that had previously predominated.

SCEPTICISM AND THE REJECTION OF METAPHYSICAL SYSTEMS

Deism involves scepticism about tfaditional beliefs and a demand for critical reconstruction. Scepticism, or what was taken to be such, was widespread during the Enlightenment—especially in relation to meta-physics. But there were few philosophers who were tempted by radical doubts about the possibiity of knowledge.

Radical scepticism had been adopted by some of the ancient Greek philosophers and was codified by Sextus Empiricus in the third century AD. It had been revived during the religious turmoil of the sixteenth century, by Montaigne and others.[38] What emerged was a marriage of scepticism with 'fideism' (from the Latin word for 'faith'), in which all reliance on reason was totally demolished and the need for a total dependence on faith proposed instead. Doubts, if pressed far enough, were supposed to lead to a strengthening of faith. Such thinking was, however, subversive of the emerging sciences. And, in any case, the idea that faith might be confirmed by destroying all its rational bases did not sit well with the Catholic intellectual tradition, in which, following Aquinas and others, it was supposed that reason could make a good beginning in establishing the truths of religion. Descartes took upon himself the role of defeating the sceptics on their own terms. But no one seems to have been convinced by his *Meditations* and, ironically, they came to be valued more for the arguments they gave in favour of scepticism than for refuting it. Scepticism not only survived but was stimulated by Descartes's attempt to refute it.

One late seventeenth century French sceptic, Simon Foucher (1644–97) made a point of identifying the assumptions underlying the metaphysical writings of Descartes and his successors and then insisting that they neither had been nor could be demonstrated—hence that the system being offered was inadequately founded.[39] Foucher addressed himself critically to contemporary philosophy but the titles and contents of his books were off-putting. He presented himself unfashionably within a late Renaissance tradition of reviving ancient scepticism and he did not receive the attention he deserved from contemporaries. None the less, he anticipated or influenced the arguments of the best known sceptic of the late seventeenth century—Pierre Bayle.

Bayle (1647–1706) enjoyed a literary success rivalled by only a few other philosophers of his time. He wrote for a wide range of readers and could be witty as well as profound. At a time when being frank or direct was to court trouble he acquired the art of burying his most contentious remarks where his reader might least expect to find them. He could expound the most outrageous views or relate the most licentious stories and yet put an authorial distance between himself and the views and events he wrote about. His *Historical and Critical Dictionary*[40] aimed to be nothing less than a survey of human folly. Of the works first published in the late seventeenth century few had such a marked effect on eighteenth century philosophy. Bayle used his scepticism to defend tolerance towards those with whom one disagreed (still very controversial in religious matters in his time) and to underline the necessity of faith. His stress on faith was understood by the *philosophes* (almost certainly wrongly) as a mere subterfuge. And such a subterfuge of concealing total scepticism about revealed religion under the pretence of defending the necessity of faith became a convention.[41]

Typical of Bayle was the way he seized upon what was perceived as Descartes's failure to demonstrate the existence of a material world and Malebranche's insistence that, since it was taught in the Bible, the existence of such a material world must be received on faith even though it could not be demonstrated by philosophy. Bayle observed:

> it is useful to know that a Father of the Oratory [Malebranche], as illustrious for his piety as for his philosophical knowledge, maintained that faith alone can truly convince us of the existence of bodies. Neither the Sorbonne, nor any other tribunal, gave him the least trouble on that account. The Italian inquisitors did not disturb Fardella, who maintained the same thing in a printed work. This ought to show my readers that they must not find it strange that I sometimes point out that, concerning the most mysterious matters in the Gospel, reason gets us nowhere, and thus we ought to be completely satisfied with the light of faith.[42]

Of the Enlightenment philosophers, none apart from Hume took scepticism as far as Bayle did. And, if Hume had any antidote to scepticism, it was to be found in his belief in natural judgement.[43] The *philosophes,* for the most part, were sceptical about religion and metaphysics but not about science. Theirs was a moderate scepticism which followed more in the path trodden by Locke. Locke's French disciple, Condillac, wrote a critique of metaphysical systems of the kind produced by Malebranche and Leibniz.[44] Such

systems had, as Hume claimed, been dismissed from science and it was time they were dismissed elsewhere:

> Men are now cured of their passion for hypotheses and systems in natural philosophy, and will hearken to no arguments but those which are derived from experience. It is full time they should attempt a like reformation in all moral disquisitions; and reject every system of ethics, however subtle or ingenious, which is not founded on fact and observation.[45]

In these remarks Hume links scepticism about 'systems' and 'hypotheses' with a preference for empirical arguments. And indeed the eighteenth century is sometimes represented as a period when empiricism became prevalent, at any rate amongst those regarded as the most progressive thinkers. It is worth considering, briefly and in conclusion, how far this is true.

EMPIRICISM

The term 'empiricist' is used broadly of anyone who thinks that all knowledge *of the world* is based upon experience—or, slightly more narrowly, of anyone who thinks that all *substantive* knowledge is based upon experience. Those who are empiricists in the broad sense might allow that there is substantive knowledge not based upon experience if, for instance, they believed (as Locke did) that the existence of a God or the truths of ethics could be demonstrated. They might none the less believe the truths about the natural world could only be established by observation and experiment. Hume, in saying that 'men…will hearken to no arguments [in natural philosophy] but those which are derived from experience' might be understood as claiming that, by the middle of the eighteenth century, empiricism had established itself as the methodology for the natural sciences. He also thought, as the same passage makes clear, that people ought to go further, and be empiricists in moral philosophy as well as natural. And indeed he defended empiricism in a narrower, more rigorous sense, rejecting all rationalist metaphysics as well as ethics. For Hume, as for any strict empiricist, no substantive question could be settled except by reference to experience. Thus, in his *Dialogues Concerning Natural Religion,* he is brief and dismissive about the traditional a priori arguments for the existence of God. The argument discussed sympathetically and at length in the *Dialogues* is an argument from experience.

Hume was more thorough-going in his empiricism than Locke, in whom, as we have seen, it is possible to detect rationalist elements. But this is not to say that Locke was inconsistent inasmuch that such elements are compatible with a broad empiricism. Insofar as empiricism was widespread in the eighteenth century, it was of the broader sort. This is the empiricism or 'experimental philosophy' defended by members of the Royal Society.[46] Though it is natural to extend the demand that arguments are only drawn from experience into ethics and natural theology, there is no necessity to do so.

The best known defender of rationalism in ethics and natural theology in eighteenth century England was Samuel Clarke (1675–1729). In the first of his two series of Boyle

lectures,[47] Clarke argued a priori for the existence of God and, in the second, he sought to argue that there were eternal truths of ethics which, like those of mathematics, were grasped by reason. Clarke generated a very considerable controversy which lasted long after his death.[48] Some critics objected, not only to the details of his arguments, but to his use of a priori arguments to demonstrate the existence of God. Their point was that only a posteriori, i.e. empirical arguments, were appropriate to establish the existence of anything. And this view seems to have gained ground during the eighteenth century. The only argument for the existence of God Hume was willing to take seriously was the a posteriori one.[49] That was the argument used by apologists, such as Butler and Paley.[50]

Clarke's rationalism in ethics was criticized by Francis Hutcheson amongst others. Hume regarded him as the leading exponent, after Malebranche and Cudworth, of the Abstract theory of morals' he sought to undermine. Clarke's 'eternal law of righteousness' did not commend itself to the sceptical, secular and empirical thinkers of the mid-eighteenth century. Their temper was suited by one or another form of utilitarianism. The utilitarian ethics of Hume and of certain of the *philosophes* (including Helvétius) was a direct influence on Bentham.

The association of empiricism with utilitarianism in ethics is a natural, though not a necessary one. Historically both are associated with the sceptical Epicurean tradition and so with both hedonism and materialism. Locke was mistaken by many of his critics for an adherent of this tradition. He was attacked by Aristotelians as a 'sceptic'.[51] He was also commonly interpreted as a materialist, partly because of the agnosticism he expressed about whether matter could think, which occasioned a considerable controversy.[52] Though Locke was not a materialist, his thought was taken in that direction, both by his British followers, such as Toland and Collins, and also the *philosophes,* such as Condillac and Helvétius, who developed his ideas in their own ways.[53] The empiricist tradition, as inherited by Bentham later in the century, was hedonistic and materialist. It is only one strand in Enlightenment thinking and was always controversial. But, after Locke, it had an intellectual respectability that it never had before.

One important contribution Locke made to developing empiricism as a philosophical doctrine was in relation to the theory of ideas. Whereas Descartes and others had held that certain ideas were 'innate', Locke held that all our ideas are ultimately derived from experience, either from the senses or from our mind turning 'its view inward upon itself'.[54] Against Descartes and others who held the concept of God to be innate Locke insists that we arrive at a concept of God through reflection. The concept of 'an eternal, most powerful, and most knowing being' is a complex one. Locke agreed with Descartes that the existence of such a being could be demonstrated a priori. His empiricism is not, therefore, straightforwardly to be contrasted with Descartes' rationalism. None the less, his rejection of innate ideas was taken up by many philosophers in the eighteenth century and became one of the hallmarks of the Enlightenment.

In this respect Kant was a typical product of the Enlightenment as well as a philosopher who pointed beyond it. In general Kant accepted as uncontroversial the Lockean view of the origin of our ideas in experience. Though he added the all-important qualification that this was not absolutely true, that there were certain categories that humans bring to experience, he accepted the need to argue for such a priori concepts. To that extent Kant's philosophy starts from a presumptionof empiricism. But Kant and his

philosophy lie beyond the scope of this volume.

NOTES

1 Price is discussed in chapter 8, together with two English moralists, Shaftesbury and Joseph Butler.
2 The Irish context of Berkeley's writings, which is often played down, is brought out by David Berman in chapter 5 below. Burke is discussed in chapter 14.
3 See chapters 7 and n below.
4 See chapter 12 below.
5 The previous volume of the current series—*The Renaissance and Seventeenth Century Rationalism*—so classifies them. See also John Cottingham's *The Rationalists,* paired with R.S.Woolhouse, *The Empiricists* (Oxford, Oxford University Press, 1988) in the History of Western Philosophy series.
6 Louis E.Loeb, for instance, rejects the standard division of the major figures of seventeenth and eighteenth century philosophy into either 'continental rationalists' or 'British empiricists'. See his *From Descartes to Hume: Continental Metaphysics and the Development of Modern Philosophy,* Ithaca, NY, Cornell University Press, 1981. Loeb groups Berkeley with Malebranche and Leibniz (and others) as a 'continental metaphysician'.
7 It is regrettable, for instance, that there was no space for a chapter on the American Enlightenment, which included representative figures such as Thomas Paine and Jefferson.
8 There is a vast literature on the Enlightenment. As an introduction Norman Hanson's *The Enlightenment* (London, Penguin, 1968) can still be recommended, as can Peter Gay's fuller *The Enlightenment: An Interpretation* (2 vols, New York, Knopf, 1966, 1969). See also *The Blackwell Companion to the Enlightenment,* ed. John W.Yolton *et al.,* Oxford, Blackwell, 1991.
9 See chapter 10 below. See also N.L.Torrey, *Voltaire and the English Deists,* New Haven, Yale University Press, 1930.
10 Toland's book was indeed burned by the common hangman in Ireland. This fate befell books by the deist Matthew Tindal in England in 1709.
11 Clarke, in his Boyle Lectures, had established himself as one of the leading defenders of natural religion in the country. It was claimed that his heresy was what prevented him, despite being favoured at Court, from becoming Archbishop of Canterbury. He had, however, secured the comfortable living and fashionable pulpit of St James, Piccadilly. And the protracted campaign by the heresy-hunters within the Church of England failed to dislodge him. See J.P. Ferguson, *Dr. Samuel Clarke: An Eighteenth Century Heretic,* Kineton, The Roundwood Press, 1976.
12 For a fuller account of some of these controversies see my '"Theological politics" and the Reception of Spinoza in the early English Enlightenment', *Stadia Spinozana* 9 (1994).
13 Butler is discussed in chapter 8. William Paley (1743–1805) offered arguments from design in spite of Hume's critique of such arguments in his *Dialogues concerning Natural Religion*. None the less Paley was very influential and his books were set reading at Cambridge when Charles Darwin was there in 1829 and the years following.
14 See chapters 9 and 10.
15 For instance, Gerrard Winstanley's tracts *The Law of Freedom* and *The New Law of Righteousness* (1648), see *The Works of Gerrard Winstanley,* ed. G.H. Sabine, Ithaca, NY

Cornell University Press, 1941. Radical sects seem to have been responsible for disseminated metaphysical ideas (like pantheism) amongst lay people during the early modern period.

16 See chapter 1.

17 Locke was a founder of such a club, the Dry Club, in London and had been a member of a similar club in Rotterdam. When, due to ailing health, he retired to a country house (Oates, in Essex, the home of Lady Damaris Masham), he was visited by a wide range of liberal-minded thinkers. Salons, like country houses, enable women to play a more prominent part in philosophical discussion. They flourished in Paris. The free-thinker John Toland was disapproved of for discussing serious subjects in coffee-houses and taverns.

18 This period shows a marked increase in the participation by English women in philosophical discussion. Some of the debates of the period, particularly between Norris and his critics, were pursued in print by women—notably Mary Astell, Damaris Masham (discussed in chapter 1) and Catharine Trotter. Access for women to the world of learning remained very limited right to the end of the nineteenth century. See Mary E.Waite (ed.), *A History of Women Philosophers,* Dordrecht, Kluwer Academic, 1991, vol. 3 (1600–1900).

19 Herbert of Cherbury, who is discussed in chapter 1, is an early example and Shaftesbury was a later one. Shaftesbury, one of the major English moral philosophers of the period, is discussed in chapter 8 below.

20 Big changes were, however, in motion towards the end of the century. Modern philosophy was being championed in the early 1690s by Oxford students, including the essayist Joseph Addison and the disciple of Malebranche, Thomas Taylor. There were attempts at Oxford to ban Locke's books but he seems to have been widely read by students. He was taught to the young Berkeley at Trinity College, Dublin at the turn of the century. Other universities, such as Edinburgh (attended by Hume), were reformed in the early eighteenth century.

21 *Essay,* ed. P.H.Nidditch, Oxford, Clarendon Press, 1975, p. 7.

22 Bayle's work went into many editions, including English editions, and seems to have been a significant influence on Hume. Some of the philosophically most important and interesting entries are included in *Pierre Bayle: Historical and Critical Dictionary: Selections,* trans. with an introduction by R.H.Popkin, Indianapolis, Hackett, 1991.

23 Berkeley's *Treatise concerning the Principles of Knowledge* (1710) did not have the reception its author had hoped for and he sought to popularize it by writing his *Three Dialogues between Hylas and Philonous* (1713). Hume's formidable *Treatise of Human Nature* (1739) was initially a flop—it 'fell still-born from the press', according to its author—and he produced simplified versions that correspond to two of the three main parts of the original work: *An Enquiry Concerning Human Undestanding* (1748) and *An Enquiry concering the Principles of Morals* (1752).

24 D'Alembert, who sought to act as a spokesman for the *philosophes,* took it for granted that philosophy aims to please, though he also insisted that it was intended principally to instruct. See *Preliminary Discourse to the Encyclopedia,* trans. R.N.Schwab, Indianapolis, Bobbs-Merrill, 1963.

25 John Toland (1670–1722) concocted the word 'pantheism', though his philosophical views derive from, amongst others, Giordano Bruno. See R.E.Sullivan, *John Toland and the Deist Controversy: A Study in Adaptations,* Cambridge, Mass., Harvard University Press, 1982.

26 Herbert of Cherbury (see chapter 1) was reputed to be 'the father of deism' and others, like Voltaire, were also deists. Others, like Berkeley and Burke (see chapter 14), reacted against it.

27 Leslie Stephen, in his *History of English Thought in the Eighteenth Century* (London, 1876), claimed that 'the whole essence of the deist position may be found in Spinoza's Tractatus

Theologico-Politicus' (London, Harbinger, 1962, p. 27). Some of the critics of deism around the turn of the eighteenth century, such as Matthias Earbury and William Carroll, would have agreed. But Hobbist and Lockean doctrines were often more prominent in summaries of deism by English authors.

28 See my 'The Regularization of Providence in Post-Cartesian Philosophy', in R. Crocker (ed.), *Religion, Reason and Nature,* Dordrecht, Kluwer Academic, forthcoming.

29 'Rationalism' is often used as a close synonym of 'deism'. Bernard Williams, in his entry on 'Rationalism' in the *Encyclopedia of Philosophy,* ed. P.Edwards, New York, Macmillan, 1967, acknowledges Enlightenment 'rationalism' and 'rationalism in theology' as 'two other applications' of the term in addition to the philosophically most important one, namely, to refer to 'the philosophical outlook or program which stresses the power of a priori reason to grasp substantial truths about the world' (op. cit., vol. VII, p. 69). Deism, though not essentially connected with rationalism in this sense, connects these two lesser applications of the term.

30 Locke wrote that he was 'bold to think, that Morality is capable of Demonstration, as well as Mathematicks' (Essay III, xi. 16) Ian Tipton, in chapter 3, comments further on the 'strong rationalist streak in Locke'. Price's ethics are discussed in chapter 8.

31 *Scientia* simply means 'knowledge' or 'science'. *Scientia,* according to the Aristotelian view, is arrived at on the basis of correct syllogistic reasoning on the basis of premises which are both necessary and certain. It is both universal and necessary. For a helpful account of *scientia* see R.S.Woolhouse, *Locke,* Brighton, Harvester, 1983, chapter 8.

32 *Preliminary Discourse to the Encyclopedia of Diderot,* ed. R.Schwab, Indianapolis: Bobbs-Merrill, 1963, p. 94. For a further account, see my 'Leibniz and the Fashion for Systems and Hypotheses' in P.Gilmour (ed.), *Philosophers of the Enlightenment,* Edinburgh, Edinburgh University Press, 1989, pp. 8–30.

33 Though Leibniz, in his book on the subject—his *Theodicy* of 1710—was content to show that the existence of evil in the world could be made consistent with belief in a perfect creator, other writings suggest he was not content personally to accept belief in a perfect creator merely as a matter of faith. For instance, in a paper of 1697 'On the Ultimate Origin of Things' argues that it is 'evident *a priori*' from considerations about the necessary origins of things that, contrary to the appearance of a chaotic world in which divine wisdom had no part, 'the highest perfection there could possibly be…is secured' (*Gottfried Wilhelm Leibniz: Philosphical Writings,* ed. and trans. G.H.R. Parkinson, London, Dent (Everyman), 1973, p. 141).

34 Voltaire's reaction to optimism is discussed in chapter 10 below.

35 The title of the book, in the obliging fashion of the period, declares its contents: *Christianity as Old as the Creation: Or, The Gospel A Republication of the Religion of Nature* (1730).

36 Some of the sermons of Joseph Butler became a classic of eighteenth-century moral philosophy. See chapter 8 below.

37 'Who born within the last forty years has read one word of Collins, and Toland, and Tindal, and Chubb, and Morgan, and that whole race that call themselves freethinkers? Who now reads Bolingbroke? Who ever reads him through?' ('Reflections', *Works* V: 172). Burke's attitude to deism is discussed in chapter 14 below.

38 See R.H.Popkin, *The History of Scepticism from Erasmus to Spinoza,* Berkeley, University of California Press, 1979.

39 See, for instance, his *Critique de la recherche de la vérité,* 1675, repr- New York, Johnson Reprint, 1969 and the editorial introduction by R.A.Watson. Watson regards Foucher as an important critic of Cartesianism. See his *The Breakdown of Cartesian Metaphysics,* Atlantic

Highlands, NJ, Humanities Press International, 1987.

40 The *Dictionnaire historique et critique* was first published in 1697 and Bayle made many alterations in the editions that went through during his lifetime.

41 Hume, for instance, seems to have adopted such a conventional subterfuge at the end of his essay 'Of Miracles' when he concluded that 'the *Christian Religion* not only was at first attended with miracles, but even at this day cannot be believed by an reasonable person without one' (*An Enquiry Concerning Human Understanding,* section X).

42 Op. cit., p. 376.

43 The question as to how radical Hume's scepticism was is discussed by Anne Jaap Jacobson in chapter 6 below.

44 His *Traité des Systèmes*. See chapter 9.

45 *An Enquiry Concerning the Principles of Morals,* sect. I.

46 See chapter 2. See also R.S.Woolhouse, *The Empiricists* (History of Western Philosophy series), Oxford, Oxford University Press, 1988, chapter 5.

47 Clarke's two sets of lectures were published as *A Demonstration of the Being and Attributes of God: more particularly, in answer to Mr. Hobbs, Spinoza, and their followers,* London, Knapton, 1705 and *A Discourse concerning the Unchangeable Obligations of Natural Religion,* London, Knapton, 1706.

48 The controversy is described in J.P.Ferguson, *The Philosophy of Dr. Samuel Clarke and its Critics,* New York, Vantage Press, 1974.

49 In his posthumously published *Dialogues concerning Natural Religion,* Hume gave careful consideration to the argument from design but was peremptory in his treatment of the a priori arguments.

50 See Butler's *Analogy of Religion, Natural and Revealed, to the Constitution and Course of Nature,* London, 1736 and Paley's *Natural Theology: or Evidences of the Existence and Attributes of the Deity, Collected from the Appearances of Nature,* London, 1802.

51 For instance by Henry Lee in *Anti-Scepticism,* London, 1702 (repr. New York, Garland, 1978).

52 See Yolton, John, *Thinking Matter: Materialism in Eighteenth Century Britain,* Minneapolis, University of Minnesota Press, 1984 and *Locke and French Materialism,* Oxford, Clarendon Press, 1991.

53 See chapter 9 below.

54 *Essay concerning Human Understanding,* book IV, ch. X, sect. 6.

CHAPTER 1
Lord Herbert of Cherbury and the Cambridge Platonists

Sarah Hutton

The philosophy of Lord Herbert of Cherbury (1582/3–1648) and of the Cambridge Platonists exemplifies the continuities of seventeenth-century thought with Renaissance philosophy. At the same time, they were very much engaged with new developments in philosophy of the seventeenth century. Together they represent the development of philosophy outside the Aristotelian tradition. And each illustrates one aspect of what were to become interconnected features of seventeenth-century philosophy: its lay character and the use of the vernacular as the language of philosophical discourse. Although he wrote in Latin, still the *lingua franca* of intellectual exchange, Lord Herbert was a lay practitioner of philosophy. The Cambridge Platonists were all university men, although they wrote in English.

LORD HERBERT OF CHERBURY

Lord Herbert of Cherbury is normally placed in a category of his own as a philosopher, separate from the philosophical groupings of the seventeenth century. He was neither the successor to, nor the founder of a school. His reputation as a philosopher derives from his epistemological treatise *De veritate* (1624, begun 1617) and his work of religious philosophy, *De religione laici* (published with the third edition of *De veritate* in 1645). His motivation in writing these works was as much religious irenicism as a wish to confront the problem of scepticism. Having travelled in Europe and served as English ambassador to France 1619–24, he undoubtedly benefited from his contact with European intellectuals—Grotius, Tilenus, Casaubon, and especially the Mersenne circle. Indeed Mersenne is credited with the French translation of *De veritate*.[1] Herbert was acquainted with Gassendi and appears to have known Descartes personally (Descartes presented a copy of his *Méditations* to him (1.60) and Herbert commenced an English translation of the *Discours*). Both Descartes and Gassendi wrote comments on the second edition of *De veritate* (1633) at his request or that of Mersenne.[2]

D*e veritate* is a blend of Stoic, Neoplatonic and Aristotelian elements, founded on the Renaissance microcosmic/macrocosmic analogy between man and nature: everything knowable in the world has its corresponding faculty in the mind. Nothing can be known except through those faculties. True knowledge consists in conformity between the faculties of the mind and the objects of knowledge: "Truth is a harmony between objects and their faculties' ([1.34], 148). While he insists that certainty of knowledge is possible,

Herbert recognises the limitations of human knowledge and accepts that not everything can be known. He distinguishes four classes of truth: truth of the thing itself *(veritas rei),* truth of appearance *(veritas apparentiae)* truth of concepts (*veritas conceptus* or subjective truth), and truth of the intellect *(veritas intellectus),* each of which is able to grasp truth according to its own nature. The main faculties of the mind are: natural instinct, internal perception (equivalent to will or conscience), external perception (equivalent to sensation) and discursive thought (reason). Over and above these he posits the presence in the mind of common notions, imprinted in the soul by dictate of nature' ([1.34], 106). These *koinai ennoiai* (to use the Stoic term Herbert adopts) 'are the principles without which we should have no experience at all ([1.34], 132). These common notions are implanted in the mind by Divine Providence. Indeed they constitute an important part of the image of God in man. And their truth is attested by universal consent.

Among the faculties of the mind, Natural Instinct is the highest, able to grasp truth intuitively, with absolute conviction. Reason or discursive thought *(discursus)* is the lowest faculty of all, most liable to error through misapplication, but of enormous value when properly applied in accordance with the common notions. Reason is to be guided by the application of a set of rules or 'zetetica', not dissimilar to Aristotle's categories, which help it to discern the common notions and perform its functions of generalization, analysis, reflection. Along with internal and external perception, reason is part of a cumbersome apparatus for processing subjective classes of truth in order to ascertain the certainty of the thing in itself in accordance with the common notions. Herbert's epistemology is integrally connected to his religious concerns. He does not supply a comprehensive list of the common notions apart from the five pertaining to religious belief. In *De veritate, De religione gentilium* and his argument for religious tolerance in *De religione laid* he proposes a minimum number of fundamental beliefs, arrived at by examining the common elements in all religions. These religious common notions are that there is a god, that god is to be worshipped, that virtue and piety are the chief parts of worship, that we should repent of our sins, and that the afterlife brings reward or punishment. Thus the essentials of religion may be arrived at by reason without the need for revelation.

Herbert's most eminent contemporary critics (Descartes and Gassendi)[3] were quick to point out that the certainty of his method for arriving at truth is fatally dependent on universal consent and therefore inadequate as an answer to scepticism. He is the one philosopher actually named by Locke in his critique of innatist epistemology. But, as R.H.Popkin points out ([1.42], 155), Herbert anticipates many of the objections levelled at him by Locke and he appears to suppose that knowledge is derived from empirical observation of the world outside the mind.

Herbert's standing as a philosopher in the later seventeenth century was occluded by posthumous association with deism and irreligion. His reputation as father of deism derived in large part from his posthumously published *De religione gentilium* (Amsterdam, 1663) which discusses religion in distinctly non-Christian terms and has affinities with the religious views of Bruno and Campanella. Herbert's deism seemed more obvious in the wake of hostile reaction to developments in philosophy in the later seventeenth century, especially to the work of Hobbes and Spinoza's *Tractates*

theologico-politicus. On the one hand, Christian Kortholt in *De tribus impostoribus* (Cologne, 1680)[4] and Michael Berns in *Altar der Atheisten* (Hamburg, 1692) read Herbert, along with Hobbes, as a forerunner of Spinozistic atheism. On the other hand, the deist Charles Blount professed himself to be a disciple of Herbert and plagiarized Herbert's *De religione laid* in his own work of that name (1683). The imputation of deism lead to *De veritate* being regarded as the theoretical underpinning of natural religion, and Herbert as a forerunner of the Enlightenment. This posthumous standing as a kind of *proto-philosophe* should not obscure the fact that, with its eclectic blend of elements of ancient philosophy (Stoic, Neoplatonic and Aristotelian) along with its emphasis on free will and *consensus gentium* arguments, Herbert's philosophy is a product of the humanist tradition of Renaissance philosophy. His concern with the problem of scepticism places it within the new philosophical climate of the seventeenth century. This blend of Renaissance elements with seventeenth-century philosophical concerns, as well as arguments for free will and arguments based on universal consent, are all characteristics of the diffuse group of English thinkers known as the Cambridge Platonists, although none of them were actually followers of Herbert.

THE CAMBRIDGE PLATONISTS

The term 'Cambridge Platonist' is a label of convenience for a cluster of philosophical divines, liberal in their theology and educated at the University of Cambridge in the first half of the seventeenth century. The most prominent members of this group were Henry More (1614–87) and Ralph Cudworth (1617–88). Other contemporaries associated with the group were also Cambridge dons: Nathaniel Culverwell (1619–51), John Smith (1618–52), Peter Sterry (1613–72) and the man traditionally regarded as their forerunner, Benjamin Whichcote (1609–83). Their younger followers include George Rust (d. 1670), John Norris (1657–1711), Anne Conway (*c.* 1630–79) and the group of liberal churchmen now known as the latitudinarians, especially Simon Patrick (1626–1707) and Edward Fowler (1632–1714). Two kindred spirits, that might also be mentioned in this connection are Joseph Glanvill (1636–80) and Jeremy Taylor (1613–67). The Cambridge Platonists are too heterogenous a group to be considered a philosophical school: the common element in their thinking is a liberal theological outlook rather than a consistent set of philosophical doctrines. Indeed their philosophical concerns must be understood in relation to their primary concerns with religious apologetics. In theology, their emphasis on the role of reason in religion and on the freedom of the will, contrasted with the prevailing Calvinist predestinarian orthodoxy of the first half of the century, suggesting that their theological roots lie with Erasmian humanism. Reason was conceived as a safeguard against the excesses of the fanaticism of self-proclaimed prophets, or 'enthusiasts' as such 'private spirits' were then known. This is a reminder that Cambridge Platonism developed in the context of a period of religious strife and uncertainty of belief. The Platonism of their sobriquet was an eclectic Neoplatonism, reminiscent of Florentine Neoplatonism and strikingly receptive to those aspects of seventeenth-century philosophy and science which appeared compatible with their rational theology, though hostile to the materialistic philosophies inconsistent with it. More, Cudworth and Smith

were all attracted by Cartesianism (albeit with differing degrees of reservation). More and Cudworth were implacable in their opposition to Hobbes and Spinoza. Thus their theological stand against voluntarism and predestinarian Calvinism corresponds to their philosophical opposition to the materialism of Hobbes and Spinoza. Behind both their religious and philosophical concerns, the challenge of scepticism is apparent. The same blend of Ficinian Neoplatonism and anti-determinism is to be found in their Oxford predecessor, Thomas Jackson (1579–1640).[5] In Jackson's work, as later in that of the Cambridge Platonists, eclectic Neoplatonism serves as a philosophical alternative to prevailing but increasingly outmoded Aristotelianism. Peter Sterry, on the other hand, combines his visionary Neoplatonism with denial of free will in his *Discourse of the Freedom of the Will* (1675). And Nathaniel Culverwell's *An Elegant and Learned Discourse of the Light of Nature* (Cambridge, 1652) is critical of aspects of Platonism, especially the doctrine of the pre-existence of souls, preferring instead to draw on scholastic sources, especially Thomas Aquinas and Suarez. His use of Aquinas is consistent with his rationalizing theology. (Ficino before him had used Aquinas in his *Theologica platonica*).

In their emphasis on reason, the Cambridge Platonists were careful to acknowledge its limitations in fallen human nature. While affirming the compatibility of faith and reason, they never elevated reason above faith. Reason is the pre-condition of faith (faith without reason is blind), but it is also illuminated by faith. Right reason is affective reason, directed by love towards God. Furthermore, by reason, the Cambridge Platonists do not mean mere abstract speculation (logic too, is blind, according to Smith), but a more elevated capacity of the mind than discursive reason. Reason corresponds to *mens* or *nous,* deriving its power from either reflection of or participation in the divine. Moreover, their concept of reason emphasises practical reason: the mind contains within it the principles of moral conduct. Thus, moral purification is the best way to obtain true knowledge. In advancing the claims of reason in religion, Whichcote, Culverwell and Smith appear to be addressing fellow-believers who deny reason a role in religious matters. Cudworth and More, by contrast, set out to defend religious belief against un-believers, conscious of the need to defend religion in a 'seculum philosophicum'. But they were careful to define its role so that it did not conflict with faith. *The Apology of Henry More* (1664) gives a set of rules for the use of reason in matters of religion, insisting that the apologist should choose 'Philosophick theorems' which are 'solid and rational in themselves, nor really repugnant to the word of God'.[6]

It is a mark of their repudiation of Aristotelianism as the philosophical groundbase of theology that the Cambridge Platonists each adopt some version of innatism. This also, perhaps, explains part of the attraction of Cartesianism for them. For Culverwell, the mind is furnished with 'clear and indelible Principles' through which the mind can recognize the law of nature or *nomos graphos* written in the heart of man. These principles include moral principles. But while he accepts that they are innate, he denies that they are 'connate' (that is, present from the moment of the creation of the soul)—a view which he associates with the Platonic doctrine of pre-existence of souls. These innate ideas or principles are often referred to as common notions, as for example by John Smith who calls the common notions 'praecognita' or 'the Radical Principles of Knowledge' imprinted in the soul ([1.27],13). These *logoi spermatikoi* include the idea of

God and of virtue as well as the principles of mathematical demonstration. The doctrine of common notions is not in itself attributable to Herbert's influence, since it derives from Cicero through whom it became a commonplace of Renaissance humanism.[7] When, in *The Immortality of the Soul* (London, 1657), Walter Charleton proposes, in opposition to Aristotle's conception of the soul as a *tabula rasa,* a set of 'Proleptical and Common Notions' innate to the mind he is echoing the Cambridge Platonists. Charleton's common notions include ideas of "Motions and Figures' and the means whereby the mind can form ideas of things when stimulated by external objects.[8] Later in the same work he links this concept of proleptical and innate ideas with Descartes' demonstration of the existence of God from the idea of God in the mind. It is none the less true that the Cambridge Platonists were aware of Herbert's theory of truth: Whichcote and Rust both draw on his theory of truth. Cudworth and Culverwell are critical of Herbert ([1.25], 31–6; [1.26], 193; [1.10], 160).

In 'The True Way or Method of Attaining to Divine Knowledge' John Smith argues that knowledge of God is possible by inward meditation rather than external ([1.27]). The innate knowledge of the mind is obscured by the body, and is therefore to be attained by closing the eyes of sense and opening the eyes of understanding. While Smith subordinates sense-perception to intellection in this way, he none the less insists that knowledge of the external world is conducive to religious belief. Far from being antithetical to developments in contemporary science, the Cambridge Platonists accommodated them. Culverwell is open in his admiration of Francis Bacon in *The Light of Nature,* while Cudworth and More used contemporary natural philosophy in their construction of a *philosophica perennis* that combined both the Renaissance idea of a *prisca theologia* and a concomitant *prisca scientia*. From a philosophical point of view, the most important of the Cambridge Platonists were Ralph Cudworth and Henry More.

RALPH CUDWORTH

The only major philosophical work which Cudworth published in his lifetime was his *True Intellectual System of the Universe* (1678). The published part constitutes the first book of a treatise originally conceived as a more extensive work which was never completed. None the less, book I stands on its own as a self-contained unit. Of the papers Cudworth left behind on his death, two treatises were published posthumously: his *Treatise Concerning Eternal and Immutable Morality* (1731) and his *Treatise of Free Will* (1838). For all the humanistic antiquarianism of his writings, Cudworth was a modern in natural philosophy, in that he accepted the mechanical philosophy, albeit with important modifications to safeguard dualism and ensure its compatibility with Christian teaching. He maintains that matter is inert, 'Extended bulk' of which the principle attributes are 'Divisibility into Parts, Figures, and Position, together with Motion or Rest, but so as that no part of Body can ever Move it Self; but is alwaies moved by something else' ([1.9], 7). These properties are deducible from the very idea of matter, and hence intelligible without the otiose and untintelligible apparatus of intentional species, and substantial forms of scholasticism. Since the properties of matter by definition exclude mental operations, to posit the existence of matter endowed with these properties and no

others is to imply the existence of incorporeal substance: 'neither can Life and Cogitation, Sense, and Consciousness, Reason and Understanding, Appetite and Will, ever result from Magnitudes, Figures, Sites and Motions, and therefore they are not Corporeally generated and Corrupted'. ([1.9], 36). Hence it is that 'the same Principle of Reason which made the Ancient Physiologers to become Atomists, must needs induce them also to be Incorporealists' ([1.9], 40). Furthermore, since true atomism leads to the recognition of an intellectual faculty able to judge the appearances of things, it is an antidote to scepticism ([1.9] (1845), 3:554–5).

T*rue Intellectual System of the Universe* is a work of immense classical erudition. Most of it is taken up with *consensus gentium* arguments showing the prevalence among ancient philosophers of belief in a supreme deity. Insofar as Cudworth sets out the philosophical schemes of ancient atomists, *The True Intellectual System* can be considered as a history of philosophy. The purpose of this antiquarian exercise is in large measure to vindicate corpuscularean natural philosophy from the charge of atheism. The underlying conception of philosophy is of a *philosophia perennis* deriving ultimately from Moses and transmitted to all nations of the world where it resurfaces in more or less partial or imperfect forms. *The True Intellectual System* thus presupposes the homogeneity of philosophy, its systematic unity and the singleness of truth. True philosophy combined atomistic, mechanistic natural philosophy and a metaphysics positing the existence of spirit and of God. In its pure totality it was taught by Pythagoras, and less perfectly by Empedocles, Anaxagoras, Plato and Aristotle. Degeneracy set in with the separation of the metaphysical and ethical aspects (the 'Theology or Pneumatology') from natural philosophy (the 'Atomical or Mechanical Physiology'), with philosophers like Plato (excusably) opting for the former. Leucippus, Democritus and Epicurus rejected the metaphysical component, thereby promoting dangerous atheistic versions of the original atomic mechanism. Cudworth distin-guishes four distortions of mosaic atomism in four varieties of atheism: as atomical atheism (in which all things came about by chance), hylozoic atheism (initiated by Strato of Lampsacus, which imputes life to matter), hylopathian atheism (deriving from Anaximander, in which all things are derived from matter as the highest *numen*), and cosmo-plastic atheism (which entails a concept of the world soul, but without positing a guilding mind). These have their contemporary proponents: Spinoza by imputing the properties of spirit to matter is a hylozoist; Hobbes, by denying the existence of spirit altogether, but not denying the existence of God is a material atheist of the hylopathian variety. Cartesianism appears to occupy a somewhat ambiguous position in Cudworth's estimation. In many respects Cudworth appears to have adopted Cartesianism implicitly, but regarded its compatibility with the true, spiritualized mechanism propounded by Cudworth as inconsistent, necessitating the modifications Cudworth advances to secure its orthodoxy. In large measure, Cudworth's critique of Cartesianism is grounded in theological objections to Cartesian voluntarism and denial of final causes, with the philosophical consequences attendant upon that. Descartes is in some respects worse than the ancient pagans since he did not recognize the argument from design, and obstinately refused to see the hand of the deity in the orderly universe he described.

The vindication of ancient atomism in *The True Intellectual System* is part of the demonstration of the belief in the existence of God by an appeal to universal consent. To

this end the evidence of pagan polytheism as well as pagan philosophy is mustered and interpreted to prove that belief in a divinity is natural to all human kind, even if it is expressed in corrupt form as polytheism. Cudworth is concerned not simply to prove the existence of God, but to demonstrate the true idea of God. In this respect his project is aimed not just at atheists and philosophers but also at Christian theologians. The idea of God, in Cudworth's conception, is integrally linked to the rational order of the universe, and therefore to the intelligibility of the universe. Just as atheism is characterized by deterministic notions of causality, so misconceptions of the deity, pagan and Christian alike, are characterized by misplaced emphasis on divine will, and elevation of divine omnipotence above other attributes. According to Cudworth, voluntaristic conceptions of God mean that the deity acts in an arbitrary manner. In consequence there is no criterion of truth, no secure grounds of morality, no providential government of the universe, since goodness, right and wrong, truth and falsehood would all depend on the arbitrary whim of the almighty. Voluntarism thus.opens the way to scepticism. Instead, Cudworth stresses God's goodness and knowledge, above His omnipotence, arguing that this follows from the idea of God as 'a being absolutely perfect'. It follows from such an idea of God that divine justice and moral principles are not arbitrary, but founded in the goodness and rationality of God. The laws of morality and God's providential design, being thus evidently rational, it also follows that human beings must bear responsibility for their actions. Cudworth is also at pains to emphasize divine providence, the visible hand of God in His creation being clear demonstration of the wisdom and goodness of God. It is in this connection that he puts forward his distinctive doctrine of 'Plastic Nature'. Derived ultimately from the Platonic *anima mundi,* the 'Plastic Nature' is a spiritual agent of God, the chief instrument of His government of the physical universe. Plastic nature is 'an Inferior and Subordinate Instrument doeth Drudgingly Execute that Part of his providence, which consists in the Regular…and Orderly Motion of Matter' ([1.9], 150). Its existence implies that nature is not the supreme *numen* but is subordinate to a Perfect Mind. It is the means whereby God imprints His presence on His creation, displaying His wisdom and goodness and rendering it intelligible. It is comparable to human art, though superior to it. In positing 'plastic nature' as the intermediary between God and the world, Cudworth was attempting to defend divine providence by steering a course between mechanistic determinism, which explained all physical phenomena as the result of chance, and occasionalism, which required the intervention of God in even the minutest details of day-to-day natural occurrences. Determinism is as irrational as it is impious: its theistic version, which admits the existence of the deity, reduces the role of God to that of an 'idle Spectator', rendering divine wisdom useless and irrelevant. In fact, what the mechanist identifies as the laws of motion, are actually the operations of plastic nature putting divine purposes into effect. Occasionalism dispenses with divine providence, making it 'operose, Sollicitous and Distractious', thereby opening the door to atheism. The occasionalist's god is an undignified god obliged to intervene directly in the most menial minutiae of the day-to-day running of the universe. As a buttress against atheism, Cudworth's doctrine of Plastic Nature failed to satisfy Pierre Bayle (1647–1706) who saw it as a reworking of the peripatetic doctrine of substantial forms and inconsistent with the idea of a providentially ordered universe because it meant that God is ignorant of what He does. Bayle's criticisms were based on the extracts translated into French by

Jean Leclerc and published in the *Bibliothèque choisie* (1703–6).[9]

If Cudworth's Christian Platonism is evident in his making the good the chief attribute of the deity, his debt to Neoplatonism is evident in the fundamentals of his epistemology. His theory of knowledge is scattered through *The True Intellectual System* but is most systematically set out in *A Treatise Concerning Eternal and Immutable Morality*. The ultimate objective is a confutation of the materialistic concept of mind and the ethical relativism of Hobbes. It is also integrally related to his idea of God. The underlying Neoplatonism is apparent in his conception of the relationship of the soul (and hence mind) to God, and of God to the world. The human mind not only mirrors the divine, but its capacity for knowledge comes about through its participation in the divine: 'The first Original Knowledge is that of a Perfect Being. Infinitely Good and Powerful, Comprehending itself. The Divine Word is the Archetypal Pattern of all Truth', and it is 'by a Participation of the Divine Mind' that 'Created Minds' are 'able to know Certainly'. Knowledge is therefore innate to the mind which is like a microcosm of the world: 'The Minde and Understanding is as it were a Diaphanous and Crystalline Globe, or a kind of Notional World, which hath some Reflex Image, and correspondent Ray or Representation in it, to whatsoever is in the True and Real World of Being' ([1.9], 638; cf. [1.9] (1845), 3:581). To comprehend is thus, in a sense, to contain all knowable things as ideas. The common notions are the *noemata* or 'intelligible' of things within the mind, the 'seeds' of certain knowledge derived from God by virtue of the fact that created intellects are 'ectypal models or derivative compendiums of the mind of God' ([1.9] (1845), 3:581). The truth to which we have access in this way is one and eternal.

As the archetype of all things the mind of God precedes both the human mind and the world. Mind is thus antecedent to things, the intellect precedes intellection ([1.9], 733). Hence the common notions are *prolepses* or 'anticipations' of knowledge. Furthermore, the mind is not the passive recipient of knowledge, whether this is derived from God or from the external world. Cudworth conceives of the mind as active in obtaining knowledge: the 'cognoscitive' power of the soul is 'a power of raising intelligible ideas and conceptions of things from within itself ([1.9] (1845), 3:572). Thus knowledge is an inward and active energy of the mind itself. Cudworth rejects the image of the soul as a container to be filled (mere mental capacity) preferring an image of mental activity which also implies that knowledge is present in the mind potentially: knowledge is 'not be poured into the soul like liquor, but rather to be invited and gently drawn forth from it; nor the mind so much to be filled therewith from without like a vessel, as to be kindled and awakened' ([1.9] (1845), 3:582).

Furthermore, the ectypal character of the natural world means that it bears the stamp of the divine ideas from which it derives, in the same way that a building, in its structure and the arrangement of its parts, corresponds to the plan of the architect. The design of the building, which differentiates it from a heap of bricks, displays the mind of the architect.

> …no man that is in his wits will say that a stately and royal palace hath therefore less reality, entity, and substantiality in it, than a heap of rubbish confusedly cast together; because forsooth, the idea of it partly consists of logical notions, which are thought to be mere imaginary things; whereas the

> totum, 'whole' is all solid matter without this notional form. For this logical form which is the passive stamp or print of intellectuality in it, the first archetypes contained in the idea or skill of the architect, and thence introduced into the thing that… distinguishes it from mere dirt and rubbish, and gives it the essence of a house or palace. And it hath therefore the more of entity in it because it partakes of art or intellectuality.
>
> ([1.9] (1845), 2:594)

In like manner, the cosmos bears the stamp of the creator: the order and harmony of the natural world constitute the *scheses* which render the natural world intelligible to the observing mind. The mechanical philosophy 'makes sensible things intelligible' because the properties of matter, 'magnitude, figure, site and motion' are 'intelligible principles' ([1.9] (1845), 3:545).

This 'stamp of intellectuality' in the world is not apparent to the senses. Cudworth denies sense-perception can lead to knowledge, for the senses are passive and unreliable. With mathematics as his model he argues that the more abstract knowledge is, the closer it is to truth and that 'scientifical knowledge is best acquired by the soul's abstracting itself from outward objects of sense and retiring into itself, that so it may better attend to its own inward notions and ideas' ([1.9] (1845), 3:581). Far from being an empirical philosophy atomism is the triumph of reason over sense ([1.9] (1845), 3:555). None the less, he does not deny sense-perception a role. Sense-perception is in fact vital for making us aware of the existence of the external world, without which we could not be sure of the existence of any thing except God ([1.9] (1845), 3:564). Empiricism has its place in his epistemology, but mind is necessary for making sense of sensory input, 'the active power of the mind exerting its own intelligible ideas upon that which is passively perceived'. The *noemata* act upon the *phantasmata* and *aisthemata* (sensations) produced by sense-perception.

HENRY MORE

Henry More was the most prolific of the Cambridge Platonists and the most famous in his own time: his international reputation stemmed in large measure from his correspondence with Descartes (as it does even today) and from the publication in Latin of his *Opera omnia* (1679). *Divine Dialogues* (1668) which present an accessible recension of his philosophical views in dialogue form, ensured him a non-academic contemporary readership at home. The Platonism of Henry More like that of Ralph Cudworth was a version of the eclectic and syncretic Neoplatonism of the Renaissance. He too subscribed to the notion of a *philosophia perennis* deriving from Moses/Moschus which he called a *cabala,* in which he became interested in his later years (1.69 and Katz in 1.72). This concept of philosophy and the transmission of philosophical ideas is given fullest expression in *Conjectura cabbalistica* (1653), which constitutes a three-fold commentary on the first book of Genesis: literal, moral and philosophical. In its main philosophical tenets, the perennial philosophy here described was receptive to certain aspects of seventeenth-century philosophy, notably Cartesianism and hostile to others, in particular

Hobbism and Spinozism.

More's earliest writings, his poems (1642 and 1647) are Neoplatonic allegories of the soul which argue for the immortality, divine origin and pre-existence of the soul and for the infinity of the universe. The poems show not only his repudiation of scholasticism and his preference for Neoplatonism as the philosophical framework for his thought, but his awareness of the new astronomy and of Cartesianism: his notes to *Psychathanasia* and *Democritus platonissans* and *The Philosopher's Devotion* give up-to-date technical glosses on the references to astronomy in the poems. More's first philosophical prose treatise, his *Antidote against Atheism* (1653) sets out the main themes which were to dominate his thought: the existence of spirit and the immortality of the soul. His metaphysical crusade against philosophical materialism, was the equivalent in his philosophy to his crusade against religious enthusiasm in which he advanced the role of reason in religion as a safeguard against sectarian fanaticism. In *An Antidote* he sets out to combat atheism by using arguments 'compiled of no Notions but such as are possible according to the Light of Nature'. *The Immortality of the Soul* develops many of these points adopting an axiomatic mode of argument in imitation of Descartes, proposing some thirty-two axioms which are designed to follow one from another or which are supposedly self-evidently rational. This is a method he adopts again in his *Enchiridion ethicum* (1667). Conceived as the introduction to a larger work of metaphysics which he never completed, *Enchiridion metaphysicum* (1671) is a reiteration rather than a development of arguments, which had been put forward in the *Antidote* and the *Immortality* and in More's letters to Descartes and to 'V.C.'.

From his poems through to his mature metaphysical writings, More develops and elaborates the pneumatology which formed the mainstay of his critique of the mechanical philosophy. He consistentlyproposed the existence of incorporeal substance and a spiritual explanation of causality. In his letters to Descartes (1648–9) and in his apologetic *Epistola…ad V.C.* (1664) he argues that there is immaterial extension as well as material. He tries to persuade Descartes to adopt his own distinction between material and immaterial extension: that the former is divisible and impenetrable, and the latter indivisible and penetrable. In the *Immortality* More defends his contention that the idea of spiritual substance is easy to define, entailing the properties of 'Self-penetration, Self-motion, Self-contraction and Dilatation, and Indivisibility'. More refines his concept of Spirit as extension with properties obverse to those of matter: where matter is divisible ('discerpible') and impenetrable, spirit is indivisible ('indiscerpible') but penetrable. In the *Immortality* he also gives his most developed account of his concept of the Spirit of Nature ('principium hylarchicum') which he had first described in his philosophical poems. The hylarchic spirit is More's answer to purely mechanistic explanations of 'all these Sensible Modifications in Matter'. It is 'a substance incorporeal, but without Sense and Animadversion, pervading the whole Matter of the Universe, and exercising a Plastical power therein according to the sundry predispositions and occasions in the parts it works upon, raising such *Phaenomena* in the World, by directing the parts of the Matter and their Motion, as cannot be resolved into mere mechanical powers' ([1.18], bk. 3, ch. 2, sect. 1). As the immaterial agent of God in the physical world, the spirit of nature is the equivalent in More's philosophy of Plastic Nature in Cudworth's: deriving from the Platonic world soul, it offered a means of explaining natural phenomena without recourse

to the mechanism of the moderns or the substantial forms and occult qualities of the scholastics. In the *Immortality* More reserves its operations to cover the explanatory weaknesses of mechanistic theory, to account for phenomena such as the sympathetic vibration of lute strings 'which cannot be resolved into any *Mechanical* Principle'. In his *Enchiridion metaphysicum* (1671) More extends the operations of the spirit of nature to all phenomena which had hitherto been ascribed to mechanical causes. In the anti-mechanical cause, More marshals a wide array of physical and metaphysical phenomena from tidal motion and magnetic attraction to the operations of the soul and records of apparitions as well as experiments described in Boyle's *An Hydrostatical Discourse*. More criticizes Descartes for over-reliance on the argument for the existence of God from the idea of God, and for failing to take account of God's providence: innatism shorn of final causes is a recipe for misbelief, even disbelief in God, the deity being reduced to a mere philosophical abstraction, or at best the initial impetus that set creation in motion. More dubs Cartesians 'nullibists', as it were 'nowhere-ists', because they argued that God existed but failed to recognize thatspiritual substance (God included) was extended and operative throughout creation.

The finality of More's opposition to mechanism of *Enchiridion metaphysicum* should not obscure the fact that, with important metaphysical qualifications, he accepted tenets of Cartesian mechanism as the best available natural philosophy, concerned as he was to oppose any manifestation of the materialism promoted by atheistical atomists like Epicurus. The worst contemporary manifestations of what he saw as atheistic materialism were the philosophies of Hobbes (which he attacked consistently and especially in *Immortality*) and Spinoza (attacked in two short treatises styled 'Epistolae': *Ad V.C. Epistola altera, quae brevem Tractatus Theologico Politici confutationem complectitur* and *Demonstrationum duarum propositionum…confutatio*) (in 1.32). More was one of the first promoters of Cartesianism in England (1.41; 1.70). He has been credited with the first English translation of the *Discours*[10] though this attribution has not been established with certainty. In the preface to his *Antidote against Atheism* he urges that Cartesianism should be taught in the universities. Initially Cartesianism seemed an ally in the battle against atheism. It appeared to offer a system of natural philosophy to replace discredited Aristotelianism, as well as an invincible innatist argument for the existence of God. In the preface *An Antidote against Atheism* More acknowledges his debt to Descartes, but rejects all his arguments for demonstrating the existence of God except the ontological argument claiming that the others are not such as would persuade atheists. In *Immortality of the Soul* More restates his admiration of Descartes and makes explicit that Hobbesian materialism is his chief target. However, More's Cartesianism was never pure Cartesianism. Much as he admired Descartes' natural philosophy, he consistently sought to enlarge the metaphysical dimension of Cartesianism. (cf. *Immortality of the Soul*). He points to the problem of transmission of motion from one object to another, if motion like shape is merely a mode of body. He argues that motion can only be imparted to matter by divine contagion, that is, if God is literally contiguous to it ('Quo modo enim motum imprimeret materiae…nisi proxime quasi attingeret marteriam universi aut saltem aliquando attigisset?').[11] He contests Descartes' denial of the existence of a vacuum, by advancing his own conception of divinized space: the sides of a vacuum-sealed jar are prevented from collapsing, not because the jar is filled with subtle matter, as in the

Cartesian account, but because it is filled with divine extension ('divinam contendo interiacere extensionem'). He rejects Descartes' mechanical conception of animals, arguing that animals have souls. By no means all of the points that More raises are founded on a dogmatic a priori commitment to existence of a spirit of nature. He points up a number of areas where Descartes is not fully self-consistent, or does not appear to have the courage of his convictions to state his position clearly: for example, he criticizes him for side-stepping Copernicanism and for not admitting the infinity of the universe. On Descartes' own argument, the vortices should be cylindrical in shape and celestial bodies oblong, not round. More's criticisms of Descartes are revealing because they throw into relief key points of his own system. His 'Cartesianism' was less a conversion to the French philosophy, than an attempt to assimilate Descartes to Moreism, an attempt most vividly represented by his incorporation of Descartes in his *philosophia perennis* as a Neo-Pythagorian atomist in *Conjectura cabbalistica*. Underlying the fluctuations in More's assessment of Cartesianism was a consistent philosophy which entailed a natural philosophy dedicated to his religious apologetic.

The doctrine by which More is best remembered today, his conception of infinite space, is first discussed in his correspondence with Descartes. Against Descartes' view of extension, denial of the void and characterization of the extent of the universe as 'indefinite', More argues that space is a *res extensa* distinct from matter. Matter is mobile within space. If all matter were annihilated, space would remain. Furthermore, space, unlike matter, is infinite. As an immaterial *res extensa* space is thus analogous to spirit and to God Himself, whom More conceives as an infinitely extended spirit. The divinization of space is completed in *Enchiridion metaphysicum* where More describes space as 'an obscure shadow' of Divine extension, since the properties of space (immobility, immensity, immateriality etc.) correspond to most of the attributes of God. The conception of space as immaterial extension is important for More's argument for demonstrating the existence of incorporeal substances. His concept of space is thus formulated for primarily theological reasons. None the less, More's infinitization of space constitutes a significant contribution to the conceptual framework of the new philosophy of the seventeenth century, especially the new science. In certain important respects More anticipates Newton's concept of absolute space, though the question of More's direct influence on Newton continues to be disputed (Hall in [1.72]). It has also been argued that the pneumatology which accompanies More's concept of space may have a scientific afterlife, that More's concept of spirit may have contributed to the Newtonian concept of force.[12]

More's own excursions into empirical science were not entirely happy. While his poems bespeak a knowledge of contemporary scientific development, his letters to Samuel Hartlib (Hall in [1.72], and Webster [1.75]) document his antipathy to empirical investigation and a preference for the metaphysico-mathematical method of Descartes. In the 1662 edition of his *Antidote against Atheism* and again in *Enchiridium Metaphysicum,* More cited some of the experiments described in Boyle's *New Experiments Physico-Mechanical* (London, 1660) as proof of the workings of the Spirit of Nature. His insistence on proffering a spiritual explanation for the results of the experiments incurred the public censure of Robert Boyle in his *An Hydrostatical Discourse* (London, 1672) (Henry in [1.72], and Greene [1.71]). A similar well-meaning

attempt to harness empirical investigation to metaphysical enquiry was involved in the project for which he is most easily derided today: his compilation of instances of spiritual phenomena. Both *An Antidote against Atheism* and *The Immortality of the Soul* record the appearance of ghosts and poltergeists and examples of witchcraft. In this enterprise he found a willing ally in Joseph Glanvill whose *Sadducismus triumphatus* (1681) is just such a compendium of spiritual phenomena. While More's experiments in empiricism are wide open to criticism, the project was part of a philosophically-based religious apologetic which may be summed up in the motto which More himself supplied: 'No spirit no God'.[13] To twentieth-century minds to seriously propose the existence of witches, hobgoblins and ghosts savours of an irredeemably irrational occultism. In the seventeenth century such beliefs formed part of a logically coherent system of thought. Belief in evil spirits was not only consistent with belief in good spirits, but integral to the arguments for the existence of God based on the existence of spirit. Furthermore, it was widely accepted that the threat of Hell was necessary to ensure moral and law-abiding conduct. More was not an exception in his beliefs. Even Sir Francis Bacon suggested that cases of witchcraft should be recorded as a contribution to the natural history of marvels, and Lord Brereton proposed that the Royal Society should investigate supernatural effects (Coudert in [1.72]).

ANNE CONWAY AND JOHN NORRIS

The legacy of the Cambridge Platonists is most obvious in theology, especially among the more tolerant Anglicans known as the latitudinarians. Although these discarded the Neoplatonic underpinnings of Cambridge Platonism, their rational apologetic found a major exponent in John Ray whose *Wisdom of God manifested in the Works of Creation* (1691) acknowledges his debt to Cudworth and to More and became a model of its kind for Anglican religious apologetics based on the argument from design. In philosophy, there are echoes of the Cambridge Platonism in George Berkeley and Richard Price. Among their immediate followers in philosophy, particular mention should be made here of John Norris and Anne Conway, in both of whom distinctly Neoplatonic elements found new formulation.

Anne Conway (1630?–79) was a pupil of Henry More. Her induction into philosophy was through his brand of Cartesianism. Later in her life she was influenced by the philosopher-physician, Francis Mercurius van Helmont[14]. In her posthumously published *Principia philosophiae antiquissimae et recentissimae* (1690) she posits a monistic ontology in which matter and spirit are conceived as one substance emanating from the Deity. The particles of this substance she calls monads. She denies the dualistic opposition of matter and spirit, asserting that what we take to be physical objects are composed of congealed particles of this one substance. The further this substance is from the perfection of God, the grosser or more corporeal it is. None the less, every particle is capable of regaining its original spiritual purity: 'even the vilest and most contemptible Creature, yea Dust and Sand, may be capable of all those perfections, sc. through various and succedaneous Transmutations from the one into the other' ([1.5], 225). She distinguishes two types of extension, 'Material and Virtual', the latter being the 'Internal

Motion' or vital force of a body which may be transmitted from one body to another not mechanically but vitally, by a process she likens to propagation. In the course of her argument she attacks both the dualism of Descartes and More and the materialism of Hobbes and Spinoza, proposing a vitalistic explanation of causality more far-reaching than More's Spirit of Nature.

John Norris represents a different kind of development from Cambridge Platonism. He was an admirer of Henry More. Their brief correspondence, *Letters Philosophical and Moral* is appended to his *The Theory and Regulation of Love* (1688). His Cambridge-Platonist leanings predisposed him towards the philosophy of Malebranche,[15] of which he became the foremost English exponent ([1.76], [1.77], [1.78]). Norris himself denied that his encounter with Malebranche's philosophy lead to any great change in his philosophical views. Indeed in his early writings he argues for the existence of an ideal world and that God alone is the proper object of knowledge. The impact of Malebranche is evident in *The Theory and Regulation of Love* in which he defines love as 'a motion of the Soul towards good' and understands God to be the good in general. Norris distinguishes two kinds of love, love of God and love of things. The former is irresistible governing the direction of our will. Love of created things is derivative from the love for God but can be directed in its object by the will. *Reason and Religion* (1689) articulates Malebranche's theory of seeing all things in God. *Reflections on the Conduct of Human Life* (1689) adopts Malebranche's rules for guiding the mind which seeks truth. It is this Platonico-Malebranchean idealism which underlies Norris's critique of Locke's *Essay,* his *Cursory Reflections upon a Book Call'd an Essay Concerning Human Understanding*. Appended to his *Christian Blessedness* (1690) this takes Locke to task for trying 'to make the Idea of God to come in by our Senses, and to be derived from Sensible Objects' (op. cit. p. 30). The influence of Malebranche on Norris is most fully developed in *An Essay towards the Theory of the Ideal or Intelligible World* (1701) which he originally planned as a work of Platonic metaphysics. Here Norris sets out to demonstrate the existence of an ideal world of necessarily existent entities which serves as the intelligible archetype of the natural world. It is 'the World of Truth, the great Type and Mould of external Nature'. ([1.22], p. 9). Material nature is modelled according to the archetypal plan of the ideal, but is contingent and mutable. The ideal world is 'necessary, permanent and immutable, not only Antecedent and Praeexistent to this [world], but also Exemplary and Representative of it, as containing in it Eminently and after an intelligible Manner, all that is in this Natural World, according to which it was made, and in conformity to which all the Truth, Reality, Order, Beauty and Perfection of its Nature does consist and is to be Measured' ([1.22], 8). The material world is an imperfect reflection of god, and cannot be known directly or with certainty. Only the ideal world as the 'omniform Essence' of God can be truly known. Our conceptions of physical nature derive from our seeing all things in God, not from sensory perception of physical bodies. Thus transmuted by Norris, Cambridge Platonism could be said to have enjoyed a kind of eighteenth-century afterlife in English Malebranchism.

NOTES

1 See [1.11]. On the attribution of the translation to Mersenne, [1.65], 529–35.
2 Descartes to Mersenne, 16 October 1639, in *Correspondence du P.Marin Mersenne,* ed. C.de Waard, Paris, 1963, vol. 8, p. 549–52. P.Gassendi, *Ad librum D.Edoardi Herberti angli de veritate epistola,* in Gassendi *Opera,* Lyon, 1658, vol. 3, pp. 411–19.
3 See previous note.
4 This was the first of several attacks on Herbert emanating from Germany. See Bedford, [1.59], 249.
5 S.Hutton, 'Thomas Jackson, Oxford Platonist and William Twisse, Aristotelianism', *Journal of the History of Ideas* 34 (1978): 635–52.
6 More, *Apology* appended to *A Modest Enquiry into the Mystery of Iniquity,* London, 1664.
7 Melancthon is credited with importing the idea of 'communa principia' or 'prolepses' into the arguments for the existence of God in reformation theology. See J.Platt, *Reformed Thought and Scholasticism. Arguments for the Existence of God, 1575–1650,* Leiden, 1982.
8 Walter Charleton, *The Immortality of the Soul,* London, 1657, pp. 92–6.
9 Bayle, *Oeuvres diverses,* 1, pp. 216–7, 368 2, pp. 168–9. See R.Colie, 1.45, chapter 7 and E.Labrousse, *Pierre Bayle,* 1964, vol. 2, pp. 214–6, 243–5 and footnotes.
10 *Discourse of a Method for the Well-guiding of Reason,* London, 1649. Crocker, [1.72], 235.
11 *Oeuvres de Descartes* publiées par Charles Adam et P.Tannery, nouvelle presentation par B.Rochot, Paris, 1964–76) vol. 5, p. 236.
12 J.E.McGuire, 'Neoplatonism and Active Principles', in R.S.Westman andJ. E.McGuire, *Hermeticism and the Scientific Revolution,* Los Angeles, 1977.
13 *An Antidote against Atheism,* [1.3], 142.
14 See vol. IV, ch. 1.
15 See vol. IV, ch. 10.

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CHAPTER 2
Science and British philosophy: Boyle and Newton

G.A.J.Rogers

INTRODUCTION

Achievements in the natural sciences in the period from Nicholas Copernicus (1473–1543) to the death of Isaac Newton (1642–1727) changed our whole understanding of the nature of the universe and of the ways in which we may acquire knowledge of it. These innovations had unprecedented implications for philosophy, and in Britain John Locke, George Berkeley and David Hume, were only the most famous of those philosophers whose work in large part reflected the scientific developments and the issues that they generated.

Copernicus's vision of a moving earth and a heliocentric universe found strong support in the observations of Galileo with the telescope in 1609, but the full intelligibility of the heliocentric view awaited a comprehensive physics to replace that of Aristotle. This new physics gradually took shape during the seventeenth century with Galileo and René Descartes prominent in its formulation. The zenith of this development was the publication in 1687 of Newton's *Mathematical Principles of Natural Philosophy,* the *Printipia,* which provided a comprehensive mechanics that gave physical sense to the idea of a moving earth and provided a deep understanding of central physical concepts. It also generated an accuracy in scientific calculation and prediction scarcely previously conceived.

The birth of the new cosmology and the new physics was accompanied by a revival of ancient atomist theories of matter. Like the new cosmology and physics, the new atomism came to the fore at the expense of Aristotle's plenist theories of matter and space. The new atomism, suitably modified to minimize conflict with standard Christian theology, was most ably advocated in mid-century by Pierre Gassendi as part of a concerted attack on traditional Aristotelian or Scholastic philosophy. Other thinkers, before and after Gassendi, took up the campaign for atomism or some form of corpuscular theory of matter. Amongst these were Galileo, Thomas Hobbes and Descartes, indicative of a fruitful marriage between the new mechanics and corpuscularianism that remained at the heart of scientific achievement for the next two hundred years. In England the great advocate of the new atomism was the leading natural philosopher of the group who came to establish the Royal Society in 1660, Robert Boyle (1627–91). Boyle argued the case for 'the new corpuscular philosophy' in a series of works which were to have a great influence not only within matter theory but also, through the philosophy of John Locke, on epistemology.

An important strength of Gassendi's advocacy of atomism was that his version, whilst closely tied to that of Epicurus, was, nevertheless, argued from within a Christian theology. He was thus able to defuse the atomistic philosophy of what was standardly seen as its major liability, its association with atheism and an unacceptable hedonism. In England something similar was achieved by the Cambridge Platonists, especially Ralph Cudworth and Henry More. The former's *True Intellectual System of the Universe* (1678), which argued a Platonic-Christian atomism, and the latter in many of his writings, provided a basis from within Anglican theology for the acceptability of atomic theories. With a powerful group of like-minded enquirers into nature they helped to foster an atmosphere in which atomist theories of matter became acceptable. Concurrently with these philosophical works Boyle was not only producing argument but, importantly, presenting experiments in favour of the corpuscular theory. His findings were to be published through the 1660s and 1670s and became influential sources for the two most prominent thinkers of the end of the century, John Locke (1632–1704) and Isaac Newton.

Locke was not only a student of Boyle's writings, he was also a junior partner in Boyle's own scientific researches, conducted when they were both in Oxford in the 1660s. From an early point in his intellectual development Locke came to share Boyle's commitment to the corpuscular philosophy. Similarly, we can, through his early notebooks, trace Newton's close study of Walter Charleton's version of Gassendi's philosophy and the works of Boyle, and his early allegiance to a corpuscular account of matter.

The corpuscular theory raised fundamental questions about matter's basic properties which remain at the forefront of debate in the late twentieth century. It also raised in an acute form questions about how we can come to know what those properties are, or even if we have any reason to believe in an independent physical world at all. It was the implications of these accounts of matter that were to feature prominently in philosophy throughout the Enlightenment.

The natural philosophers had themselves often been conscious of these wider implications. Boyle, for example, was well aware that the generally empirically-based method for acquiring knowledge that he strongly favoured was open to various challenges from the sceptic. The most famous response to this scepticism in the seventeenth century was that of Descartes (1596–1650). But Boyle, whilst well aware of Descartes's achievement, was not himself attracted to the Cartesian solutions. Instead he chose to side-step the philosophical debate and pursue his researches in natural philosophy. Nevertheless, his account of matter and its properties both contained within it answers to philosophical questions and raised others that were to remain prominent and contentious issues.

Newton's *Principia* is famous for giving us the laws of motion and the theory of gravitation which provided a unified account of the physics of the heavens and the earth. But Newton also saw his science as exemplifying a method which he believed to be the most fruitful for enquiries into the physical world. Newton was himself influenced by the approach to nature that had emerged in England in the decades surrounding the English Civil War and which was much coloured by the programme for the investigation of nature that Bacon had advocated in the early part of the century. Newton added to that hard-headed empirical approach a mastery of mathematics which few have equalled. The

combination was to produce the most powerful theory about the natural world than had ever been produced. Newton was himself aware of the debates about method that had dominated much seventeenth-century philosophy and he came down publicly very much in favour of an empirical methodology, even though he knew that it could never deliver that absolute certainty that could vanquish the committed sceptic. His final position emerged clearly in his later writings, especially in the second edition of the *Principia* (1713) and the later editions of the *Opticks*. In them he made his opposition to hypotheses, understood as empirically unsupported conjectures, very plain, and encouraged a commitment to the central place of careful observation, combined with minimal theory, a cornerstone of British physical science. Whether he was always quite consistent with his own principles is another, very interesting, question.

One issue that was to raise a great deal of debate was the exact status of Newton's claims for absolute space and time. Newton's account was to be challenged by the great German philosopher and mathematician Leibniz, in a fascinating exchange with Newton's spokesman, Samuel Clarke. Leibniz also challenged the acceptability of a central concept in Newton's system, that of gravitation. It was, Leibniz urged, an occult quality, as unacceptable as the occult qualities of the scholastics that Boyle and Newton were so eager to reject. It was a criticism that found echoes in the philosophy of George Berkeley, also writing in the early eighteenth century. The issues raised remain to this day subject to fruitful dispute in both science and philosophy.

THE NATURE OF MATTER

At the beginning of the seventeenth century the accounts of matter and its properties taught in the universities throughout Europe remained versions of Aristotle and his scholastic commentators. Central to these were a belief in the four elements of earth, water, air and fire, and the rejection both of the possibility of a vacuum ('Nature abhors a vacuum') and of any kind of atomic theory. The properties or qualities of bodies, of which there were supposed to be four *primary ones,* heat, cold, dryness and wet, were linked with the four elements. Thus water was a combination of prime matter plus the qualities of cold and wet. Water itself was regarded as a secondary matter. The qualities that objects may have are either the primary qualities or secondary qualities, and the latter are a function of the combination of the primary matter and the primary qualities. Examples of such secondary qualities would be lightness and heaviness, softness and hardness. It is worth underlining that the terminology of primary and secondary qualities, which was to feature so centrally in Boyle and Locke was not invented by them, but was taken over from their rejected predecessors. But the list of such qualities and the explanations offered for them were to be radically changed.

Another distinction drawn in the scholastic theory which was to be attacked by the corpuscularians was that between manifest and occult qualities. Whilst the scholastic primary and secondary qualities were all regarded as manifest, there were others, such as attraction, that were obscure or occult. Boyle was to see one of the great merits of the corpuscular account that it did away with these occult qualities of matter, explaining them as a function of more overt properties.

Dissatisfaction with the scholastic theory emerged outside the universities and in particular in iatrochemical theory. Thus Paracelsus in Switzerland added to the traditional four elements three 'principles', mercury, sulphur and salt, in his chemical medicine. His alternative account attracted a wide following throughout Europe in the late sixteenth and early seventeenth centuries and had a significant impact onthe development of medical and chemical theory that is only now being fully appreciated.

At about the same time interest in classical atomism was revived with the publication of Lucretius' cosmological poem *De Rerum Natura,* and which itself led to a wider interest and enthusiasm for the philosophy, or such as had survived, of the Greek atomist Epicurus.

Epicurus had not only provided an alternative account of the properties of matter, he also offered a model of change which was radically different from that of Aristotle. For Aristotle changes in the properties of a given object were to be accounted for by the object itself acquiring or losing qualities, hotness, wetness, and the like. For the atomist, however, change in the properties of an object was generally to be accounted for by change in the arrangements of its parts, the atoms of various shapes, and the great source of such change was motion of those parts.[1]

This new conception of matter and its properties received early expression in Galileo's *Il Saggiatore* (1623). In a now famous passage he claimed that whenever he conceived of a material substance he had to think of it as having certain properties, of being bounded with a distinct shape and size and in some specific place, as being in motion or at rest, as touching or not touching other objects and as being one in number or few or many. These properties, he said, he could not separate from an object by any stretch of his imagination. It was, however, different with other properties such as taste, colour, sound and smell. These are not properties that one is compelled to regard an object as having and without our senses we would not have thought of them. So Galileo concluded that the latter qualities were not out there in the world but resided only in our consciousness and without living creatures they would not exist.[2]

Galileo's claims are often taken to be the first modern espousal of the primary-secondary quality distinction that was to be made famous by John Locke. For Galileo it meshed with his atomism and his commitment to the centrality of mathematics to a proper understanding of the world. The book of nature, he said, was written in the language of geometry, and it was for him important that the primary qualities of objects were amenable to quantified analysis.

Whether or not we see Galileo as the modern reviver of the distinction between primary and secondary qualities, the distinction itself must be seen as going together with the revival of Epicurean atomism or its near equivalent that was soon under way. This found particular expression in the writings of Pierre Gassendi, and the corpuscular philosophy of Descartes, where the primary-secondary quality distinction was most fully proposed in the latter's account of perception in the *Dioptrics*. Gassendi found an English spokesman in Walter Char leton, whose *Physiologia Epicuro-Gassendo-Charletoniana* (London, 1654) became a widely read statement in English of the new atomism.

Atomic theories of matter had begun to surface in England before the end of the sixteenth century, and in the works of Thomas Hariot, Walter Warner and Thomas Hobbes the theory received strong supporting argument. That argument, and more

especially experimental evidence, for the corpuscular hypothesis was to reach an even greater level of sophistication in the writings of Robert Boyle. As a young man Boyle had travelled in Italy and was staying in Florence in January 1642, when Galileo died. Boyle was able to read Italian and he tells us that he studied Galileo's books,[3] but whether this included *Il Saggiatore* we do not know. It is, however, remarkable how close to that of the great Italian Boyle's account of matter's properties was later to be.

The most comprehensive treatment of Boyle's theory of matter was *The Origin of Forms and Qualities, According to the Corpuscular Philosophy* (1666, though much of it written many years earlier). In it Boyle expounds his reasons for rejecting the peripatetic explanation of matter's properties and for substituting it with the much richer corpuscular theory. Boyle emphasizes his lack of dogma, and says that he is not concerned to argue finer points of metaphysics. Nor does he wish to confine himself to one particular version of corpuscularian theory such as that there are indivisible particles called atoms, or the physical theory of Descartes, which identified matter with extension and claimed a vaccum to be impossible.[4] And neither does he intend to mix his exposition with matters of religion. Rather, he wishes his experiments and observations to be seen as leading naturally to the conclusions he draws.

Before turning to the experimental evidence, however, Boyle explains what his theory is, the 'hypothesis' that will be confirmed or disproved by the 'historical truths' or experiments that are to follow. It begins from the acceptance of a 'universal matter common to all bodies…a substance extended, divisible, and impenetrable'.[5] Second, the cause of the variety of matter is the motion of its parts, introduced, no doubt, Boyle is happy to allow, by God, for there is nothing necessary about matter having any kind or degree of motion.

With these 'two grand and most catholic principles of bodies, matter and motion' granted, Boyle is able to turn to matter and its properties or qualities. The matter of all natural bodies is, he says, the same, 'namely a substance extended and impenetrable'. Differentiation between bodies depends on differences in their 'accidents' or qualities. Motion, which is not part of the essence of matter, is the most important 'mood or affection' of matter, and it is this motion and the resultant collisions which divides matter into its various fragments, themselves often too minute to be perceivable. Each one of these minute parts (as well as all larger bodies) must have its own determinate size and shape and be either in motion or at rest. And out of the conglomeration of the different minute parts arises the texture of the gross perceivable object of experience.

These collections of particles—what we identify as particular material objects—come to our attention because they cause changes in us by ways which Boyle acknowledges remains problematic. But their affect is to produce in us the perceptions of such qualities as heat, colour, sound and odour. It is commonly imagined, says Boyle, that our perceptions "proceed from certain distinct and peculiar qualities in the external object which have some resemblance to the ideas their action upon the senses excites in the mind.'[6] But this is not so, for all that there is in the body without us are the primary properties already listed. So Boyle is committed to saying that our ideas of such properties as colour and sound, although arising from real qualities of the perceived object, do not resemble their causes at all. They are, he says, 'but the effects of the oft-mentioned catholic affections of matter, and deducible from the size, shape, motion (or

rest), order and the resulting texture, of the insensible parts of bodies'.[7]

Boyle anticipates what he perceives might be a serious difficulty for the corpuscular account of matter's properties. It is that the explication of colours, sounds and such like by reference to our senses is incompatible with something else that we take to be true, namely that the colour, say, of an object is an objective property of the body, and not dependent on our senses: 'snow (for instance) would be white, and a glowing coal would be hot, though there were no man or other animal in the world'.[8] Boyle's answer to this problem is to offer a dispositional account of the secondary qualities. There really is a difference between snow and coal, even in the dark, namely the dispositional property that if light were to shine on both one would cause the familiar experience of white in an observer and the other that of black, just as it is true, or not, that a particular musical instrument is in tune, whether or not it is actually being played.

So far Boyle's case for rejecting the scholastic account of properties in favour of his corpuscular theory is theoretical. But about half the *Origins of Forms and Qualities* consists of observations and experiments which Boyle argues can only be explained satisfactorily on the corpuscular hypothesis. Thus, drawing on his mastery of metallurgy and other chemically-based enquiries, he argues that what we now would see as examples of chemical change cannot be explained on the peripatetics' principles, whereas they are entirely intelligible on the corpuscular account.

In the 1650s Oxford was the scientific centre of England and even of Europe, and Boyle settled there in 1654. By this time he was already a skilled and knowledgeable chemist and wealthy enough to set up a laboratory in his house. He also initiated chemistry classes, and unsurprisingly came to occupy a dominant place in the scientific community. One of the people soon to be working most closely with him was the young John Locke, a professional contact that was to continue when they both moved to London in the late 1660s. It should not therefore come as any surprise to find that Locke was to draw on Boyle's scientific ideas in writing his major work on epistemology, the *Essay Concerning Human Understanding* of 1690.

A problem which arises from Boyle's account of qualities and our perception of them might be expressed like this. If objects in the world cause us to have our experiences of them, and if those objects are only known to us through the effects that they produce on us or in us, and those effects, our experiences of the secondary qualities such as colour and sound, for example, do not exist in the objects in the same way as we experience them, then is there not also a problem about knowing that our experiences of the primary qualities do resemble properties as they actually are in the objects? That, and related questions, have continued to concern philosophers since the seventeenth century, and although Boyle seems never to have considered the issue, we can be sure that it was one that does emerge from his and similar accounts and it was to be one that was to play a large role in philosophical discussion from this point on. It is worth underlining here that the problem arises out of the new corpuscular philosophy and its associated account of perception, and it is to feature strongly in the argument of Locke, Berkeley and Hume in Britain and, on the continent, it is central to the philosophy of Kant.

THE MECHANICAL PHILOSOPHY

Boyle's account of the properties of matter was part of his wider commitment to the mechanical philosophy. Various versions of this were already well known by the time that Boyle began to publish his own works. The two most powerful versions were Descartes's *Principles of Philosophy* (1644) and Hobbes's *Leviathan* (1651). But neither, for somewhat different reasons, was wholly convincing to British readers. The third great exponent of the mechanical philosophy in mid-century, Pierre Gassendi, was well known to the English exiles in Paris in the Civil War and Interregnum, and his philosophy reached a wider British audience with the publication in 1654 of Walter Charleton's *Physiologia Epicuro-Gassendo-Charltoniana*. The full title of the work well explained its content for it continued *Or a Fabrick of Science Natural, Upon the Hypothesis of Atoms, Founded by Epicurus, Repaired by Petrus Gassendus Augmented by Walter Charleton*. Essentially it was a translation of Gassendi's account of Epicurean physics, with supplements supplied by Charleton himself.

According to Charleton the physical world could be understood as a mechanical system governed by the following 'general Laws of Nature': '(1) That every effect must have its cause; (2) That no cause can act but by motion; (3) That nothing can act upon a distant subject…but by contact mediate or immediate'.[9] The last of these ruled out the possibility of 'action at a distance', with its language of sympathies and antipathies beloved of the natural magicians from whom Charleton and the atomists generally wished to distance themselves.

Charleton's work was undoubtedly influential, but it appeared at a time when another, altogether more powerful figure was in the ascendent, namely Boyle himself, and it was to be the account of the mechanical philosophy which he produced that was to become the most widely regarded, not least because Boyle was not only recognized as a leading natural philosopher in his own right, a position that Charleton never achieved, but also because his social standing and religious piety were never in question, matters of great importance to the acceptability of an account of nature which all too easily could be identified as subversive of state, church and morals.

What precisely Boyle understood by the mechanical philosophy has already in part been noticed in his claim that everything in the physical world may be understood in terms of matter in motion, but a fuller understanding of the new mechanical philosophy requires first of all a backward glance at Aristotle's explanation of change.

Fundamental to Aristotle's account of change was the principle that nature always acts for the sake of something. In other words, all natural change is goal directed. Such a teleological view of nature still has its place in some aspects of biological explanation. Thus we can ask of any particular organ of the body what its function is. And we can be told that, for example, the function of the heart is to pump the blood round the body. This characteristically biological explanation was generalized by Aristotle to the whole of the natural world. Thus he explained the falling of a stone towards the ground as manifesting the inclination of the stone to reach the centre of the universe, which was the 'natural place' towards which all objects made of earth matter-one of the four elements—were naturally inclined. Each element—the other three were water, air and fire—had its own natural place and objects would move according to their composition—objects made of liquid towards their natural place above the earth matter and below the air, and so on.

For some time before Boyle this account of the elements had been found wanting by a

variety of natural philosophers. Amongst thesewere the followers of the sixteenth-century Swiss known as Paracelsus, who generated an alternative chemical theory that achieved a wide following in the early seventeenth century. Paracelsus and his followers were primarily interested in producing a new chemical medicine which was linked to their understanding that human beings were a microcosm of the wider universal macrocosm. The great debate about the merits of the Paracelsian theory was a feature of seventeenth-century chemistry that Boyle was party to and his own espousal of the mechanical philosophy was in conscious opposition to both the peripatetics and the Paracelsians, or, as he often calls them, the 'chemists'.

Boyle was happy to use the results obtained by the chemists if they were successful cures for ailments, but he was unpersuaded by their theory, at least for the most part. Instead, he proposed the mechanical philosophy as the best account of chemical change and other natural changes as well.

He abandoned also the Aristotelian commitment to final causes in nature and in one of his works, *A Free Enquiry into the Vulgarly Received Notion of Nature,* which remains a classic analysis of the concept, he comes close to abandoning completely any appeal to the concept of nature to explain anything. Rather, he holds that

> it seems manifest enough that whatever is done in the world, at least wherein the rational soul intervenes not, is really affected by corporeal causes and agents, acting in a world so framed as ours is, according to the laws of motion settled by the omniscient Author of things.[10]

It was this notion of the laws of motion that was central to the mechanical philosophy's account of change. Granted enough variety in the fundamental particles, variety of shapes and sizes, and a settled finite set of laws of motion, then it was possible, Boyle believed, to account purely on the basis of mechanical principles for the wide variety of events that can be observed. He included in this not only the gross movements of the planets and the other large objects but also what we now think of as chemical change and indeed also the way in which propagation of the species is achieved.[11]

The merits of the mechanical hypothesis were seen by Boyle to be many. Thus in contrast to the accounts of the peripatetics, the mechanical principles were very clear. Further, it was the simplest possible hypothesis, because there could not be fewer principles than those of matter and motion—there could not just be matter, for matter alone would be inactive. And, he held, neither matter nor motion can itself be resolved into anything simpler.

But for Boyle the clinching argument in favour of the mechanical hypothesis is its power of explanation, or, as he calls it, its comprehensiveness. With the assumption of a limited number of basic corpuscles of various shapes, moving at variable speeds, we can account for the vast number of varying properties that we discover in the world in rather the same way that the limited number of letters of the alphabet can account for all the works of literature written in various languages. Further, the mechanical hypothesis is not incompatible with many of the claims of other theories, for example the chemical theory of van Helmont, and their accounts can largely be comprehended within it.[12]

Under Boyle's influence especially, the mechanical philosophy became accepted by

the virtuosi associated with the establishment of the Royal Society in Restoration England as the most plausible account of the natural world.

It might seem that the publication of Newton's *Principia* only added massive support to the mechanical hypothesis, for at first sight it seemed to provide an explanation of the motion of objects that was entirely in keeping with the mechanical model. But Newton himself rarely referred to the mechanical philosophy—the most famous occasion being in a letter to Boyle in 1679.[13] But he was very keenly aware that the introduction of the law of universal gravitation, whilst correctly reflecting the observed facts of motion, was not itself explained. Although he held that 'inanimate brute matter' could not affect other matter without mutual contact, thus ruling out action at a distance as a possible power of material objects, he made no claims to know what the cause of gravity might be. 'Gravity', he said, 'must be caused by an agent acting constantly according to certain laws, but whether this agent be material or immaterial I have left to the consideration of my readers.'[14] There is some reason to suppose that Newton actually believed that the direct cause of gravitation was indeed immaterial, and that it was God himself, a view linked to his belief that the Deity was co-present and co-extensive with the infinite universe.[15] There were, then, according to Newton, two kinds of things in the universe. There were particles of matter, which combined into gross material objects, and there were immaterial active agents.

In his *Opticks* Newton characterized matter in this way:

> it seems probable to me that God in the beginning formed matter in solid, massy, hard, impenetrable, movable particles, of such sizes and figures, and with such other properties and in such proportion to space as most conduced to the end for which he formed them; and that these primitive particles being solids are incomparably harder than any porous bodies compounded of them.[16]

These particles are moved, Newton went on, not only by the normal laws of contact dynamics, which flow from their natural inertial motion, but also by 'certain active principles' such as that of gravity and the forces which generate the cohesion of gross objects. With this we may see that Newton held, later in his life at least, a position quite different from that of the mechanical philosophy if this is supposed to suggest some simple allegiance to Epicurean atomism. His position was a long way away from Hobbes's materialist philosophy that the only things that exist are lumps of matter and the only cause of change is motion. Indeed Newton could not have accepted Boyle's view that, God and minds aside, the only principles are those of matter and motion. Rather, for Newton the immaterial principles that the mechanical philosophy thought had been ejected from physics, and even from the whole of creation, were, in his more speculative and secret thoughts, given a central role in his account of things. Why they were not as prominent in Newton's published works as they might have been is a matter that will be touched on later when we consider his attitude towards the possibility of achieving knowledge of the natural world.

Space and time

Newton's commitment to absolute space and time is a famous part of his account of the world and one which was to lead to considerable controversy. He appears to have been led to his absolutist position by a variety of considerations which included his admiration for the absolute theory of the Cambridge-Platonist philosopher, Henry More, who, incidently, like Newton, came from Grantham. More had argued against Descartes's relativist account of space that the existence of a Deity required the two absolutes of space and time in which God's existence could be placed. Indeed More went further, for he believed that everything that exists, whether material or immaterial, must be extended (i.e. must be a space-occupier with dimensions). In this he was very conscious of his disagreement with Descartes, who had identified matter and extension, and who held that all mind-substances, including ourselves and God, were necessarily *unextended* entities. But God, as an infinite being, was for More an infinitely extended being—i.e. He was omnipresent both spatially and temporally.

The extent and nature of More's account of space can only be gestured here, but the relevant points for understanding Newton's position are that More took space to be an absolute the properties of which can be described by geometry (though More was himself no great mathematician), and that it is directly linked with the nature of a Deity. More thus combined natural philosophy with theology in a commitment to absolute space and time. His account was, at the same time, an attack on the mechanical philosophy, and specifically on Robert Boyle, for More was committed to establishing the impossibility of a purely mechanical (i.e. materialist) philosophy explaining all the phenomena of nature.[17]

These features were to reappear in Newton, but now cemented to the incomparably more powerful mathematical physics of the *Principia*. Essentially, he argued that physics required absolute space and time, and the existence of absolute space and time requires the existence of an infinite God. Thus in the scholium to Definition 8 he distinguished between absolute and relative space and time. That there was such a thing as absolute space and time followed, he said, from the existence of absolute motion, and absolute motion was known to exist because any object accelerating as a result of a force acting on it must be in absolute motion, for a force is precisely that thing that causes an object to change its state of rest or uniform motion. Such a state is exhibited, for example, whenever an object in rotation attempts to recede from the centre of rotation. We can only understand this to be an object which is absolutely rotating, i.e. moving in relation to absolute space.

In the General Scholium added to later editions of the *Principia* Newton explicitly linked his physics with his theology. God, Newton says, is the Lord of his creation and

> from his true dominion it follows that the true God is a living, intelligent, and powerful Being; and, from his other perfections, that he is supreme, or most perfect…his duration reaches from eternity to eternity; his presence from infinity to infinity…. He endures forever, and is everywhere present; and, by existing always and everywhere, he constitutes duration and space.[18]

So, in Newton's view, it is the existence of absolute space and time that entails the existence of an infinite deity and it is the new physics, Newton's new physics, that

requires absolute space and time to explicate the central concept of force.

Newton's commitment to absolute space and time was one of the topics of a famous exchange between the English philosopher divine, Samuel Clarke and the German philosopher, Leibniz. Leibniz had several objections to the introduction of absolute space and time, some of which related to his understanding of what kind of universe God might create. But a central claim of his was that space and time were not real things which could exist separately from phenomena. They were essentially relational concepts and did not exist before a world was created, as Newton implied.[19]

A relativist position not too distant from that of Leibniz was also taken by George Berkeley, though for rather different reasons. The fullest expression of that position occurs in his work, *De Motu* (1721) in which Berkeley argues that the concepts of absolute space and time are empty since it is impossible to conceive of absolute motion. Motion can only be recognized or measured, he says, through observation, and since absolute space cannot affect the senses cit must necessarily be quite useless for the distinguishing of motions'.[20] The debate about absolute space and time was to continue through the eighteenth century and well into the nineteenth, but in general the high standing of Newtonian science protected it from rejection until supplanted by the physics of Mach, Poincaré and Einstein at the end of the nineteenth century.

Knowledge and nature

The new science that developed in the sixteenth and seventeenth centuries challenged the understanding of knowledge and how it may be obtained in a variety of ways. Thus, to take but one, though important, example, Copernicus's suggestion that the earth rotates daily on its own axis and that in a year it circles the sun seemed quite at odds with our ordinary experience, where we see the sun rise in the east and set in the west and the earth itself feels stationary. Aristotle had himself stressed the empirical source of knowledge, and experience seemed to tell against Copernicus. Even if one granted that the Copernican system generated more accurate predictions, that in itself did not prove that it was true.

Those who sided with Copernicus, like Copernicus himself, were often strongly impressed with the power of mathematics to make sense of the world, and often went so far as to see mathematics as itself providing a criterion for truth between competing theories. In England this position was well represented in the 1570s by John Dee's Preface to the first English edition of Euclid's *Elements*. Geometry, Dee claimed, provided a bridge between the eternal and the transient, the mind of God and the changing world. Mathematics provided the key to the creation. We have already seen that something of that was later to find expression in Galileo, as it did also in Galileo's contemporary, the great astronomer, Kepler.

This emphasis on the power of mathematics stood in contrast with the general scholastic position which did not emphasize mathematics as a source of knowledge of the natural world. Indeed, for the most part Aristotle's natural philosophy rejected mathematics as irrelevant to understanding the truth about nature. Knowledge, it was held, was primarily a matter of identifying the true essence of natural kinds in terms of their essential properties by careful empirical investigation or, more often, mastering the

truths that had been uncovered by the investigations of earlier thinkers, including, of course, Aristotle himself. According to Aristotle to have knowledge of a natural kind was to have arrived at a correct definition of that kind; to understand what a horse is, say, is to be able correctly to define the species.

The rejection of Aristotle's beliefs about the natural world was generally accompanied by rejection of his philosophy of science. And sometimes this included his understanding of what it was to explain something and his identification of the goal of enquiry with *scientia,* with known certain truth. Although central figures in the new approach to nature, of whom Francis Bacon, Galileo and Descartes are probably the most important examples, aspired to achieving certain knowledge in their enquiries, even Descartes saw that much of his account of the natural world should be regarded as reaching only some kind of high probability or 'moral certainty'.[21]

In England in the period around the establishment of the Royal Society in 1660, there was clear recognition that it was too easy to claim more certainty for one's science than was warranted. Boyle was just the leading figure in this circle, and his writings and practice provided a clear view of where he believed the limits of knowledge lay in matters of natural philosophy.

A central concept in his account was that of *hypothesis*. Part of its force was to suggest something of the notion that the claim made by the hypothesis was to some degree problematic, though the precise amount was open to enormous variation. Its problematic nature was, though, to be seen in sharp contrast with the *scientia* claimed by the Aristotelians. The latter were therefore always liable to be labelled dogmatists, a charge that had for the new thinkers a quite definite pejorative sense nicely captured in the title of Joseph Glanvill's defence of the new learning and its method, *The Vanity of Dogmatising* (1661).

Granted that hypotheses were a part of normal scientific enquiry, it was also very much Boyle's view that it was very easy, too easy, to assume as true something for which there was no substantial evidence. Something of this is to be found in his remarks about the Copernican theory of the universe. In an early letter Boyle complained of the dogmatic stances of the astronomers, 'Ptolemeans, Tychonians and Copernicans…the one taking that…for an undeniable demonstration, which the other will absolutely reject as a paralogism, or at least call in question as no more than a bare probability'.[22] At a later date Boyle made it clear that he regarded the Copernican system as a much superior *hypothesis* to the alternatives, because by it 'divers inconveniences are avoided' such as the assumptions by the Ptolemaic system of a firmament revolving about the earth at enormous speed every twenty-four hours, the need for epicycles to account for apparent retrograde motion, and so on.[23] Similarly the corpuscular philosophy was an 'hypothesis' which was to be 'either confirmed or disproved by, the historical truths [i.e. objective experimental facts] that will be delivered'.[24]

The contrast for hypotheses is with established empirical fact. And the gathering of such empirical data was the task of the natural philosopher. These were the histories of particular phenomena, the gathering of which Boyle, following Bacon, saw as the primary task of the virtuoso. Bacon had warned strongly against leaping to conclusions about the causes and nature of phenomena. In the *Novum Organum* (1620), his great work on scientific method that had such a high standing with the early Fellows of the

Royal Society, he had argued that there are only two ways of searching into and discovering truth. 'The one flies from the senses and particulars to the most general axioms, and from these principles, the truth of which it takes for settled and immovable, proceeds to judgement and to the discovery of middle axioms.' This way, he says, is now in fashion, but the true way, as yet untried, 'derives axioms from the senses and particulars, rising by a gradual and unbroken assent, so that it arrives at the most general axioms last of all'.[25] The 'histories' of particular phenomena that Bacon recommended and Boyle was attempting to construct just were the evidence upon which the axioms might at a later stage be erected.

One such work was *The Experimental History of Colours* (1663) in which Boyle tells us that of all the theories about the nature of light and colours, he is inclined to take colour to be 'a modification of light: and would invite you chiefly to cultivate this hypothesis'. But he tells us that he proposes it only in a general sense and he does not pretend to choose between alternative views (one of which was Descartes's theory of rotating particles). He goes on to say that he does not pretend to know what light is, which is itself required to be known if we are to know what colour is.[26]

In an interesting short note amongst his many manuscript papers now preserved at the Royal Society Boyle sets out 'The Requisites of a *Good Hypothesis*' and 'The Qualities & Conditions of an Excellent Hypothesis'. For the former these include that it is intelligible, that it contains nothing impossible or manifestly false or that it supposes nothing unintelligible or absurd. It must be self-consistent and sufficient to account for the phenomena, and not contradict any other known phenomena.

An 'Excellent Hypothesis' must in addition have sufficient grounds in the nature of things; it must be the simplest of all the good hypotheses we can frame; it must explicate the phenomena better than any other; and it should provide a basis for making predications which can be tested by experiment.[27]

Boyle's requirements are not only of historical interest, but provide criteria which can as well be applied today. But they also reveal an important aspect of his approach to the natural world. Clearly Boyle did not aspire to the kind of science that begins from self-evident axioms and deduces consequences from these to produce a comprehensive account of nature. Equally clearly he did not reject a role for hypothetical explanation. But he did insist that not all hypotheses were equally acceptable, equally worthy of our attention. Very obviously, he wished to insist that there were rational criteria for choice, for theory choice, as philosophers of science might say today. Boyle, then, certainly cannot be accused of following a methodological path in science which some have seen as a fault in his mentor, Bacon, that of rejecting hypotheses as mere speculation and therefore unscientific. Many conjectures he no doubt did and would judge to be absurd. But this was because they failed to satisfy his criteria for good hypotheses and not because constructing hypotheses was itself pointless or worse.

Nor, it need hardly be urged, did Boyle subscribe to any kind of dogmatic empiricism and a rejection of any role for reason in human enquiries. 'Experience', he wrote, 'is but an assistant to reason, since it doth indeed supply information to the understanding; but the understanding remains still the judge.'[28]

Did Boyle believe that such enquiries would or could lead to knowledge? Precisely what epistemic status our judgements might be said to have is not something to which

Boyle appears to have given us a direct answer, but it is fairly clear what his position was. He accepted that some things can be known to be true 'immediately and by intuition'. He would no doubt have included simple arithmetic as an example. But he also saw it to be true of claims made on the basis of experience 'as when by the bare evidence of the perception, [the mind] knows that this colour is red, and that other blue'.[29] But in many cases, he goes on to explain, the intellect judges with the aid of hypotheses 'such as are a great part of the theorems and conclusions in philosophy and divinity'.[30] In other words, the certainty of our conclusions, which cannot exceed the certainty of the premises from which they are derived, can be no more sure than the hypotheses which they assume, and therefore at best only probable. But Boyle was prepared to settle for that state of affairs. He was not just ready to admit, but keen to underline, that there were many truths that were beyond the human mind to grasp. He saw no reason, he said, 'that intelligibility to a human understanding should be necessary to the truth or existence of a thing, any more than that visibility to a human eye should be necessary to the existence of an atom, or of a corpuscle of air'.[31] And although we may rightly smile at the Aristotelians for thinking they have explained the qualities of bodies with their theory of substantial forms, we must recognize that whilst it remains true that we can give no satisfactory account of how it is that sensible objects are perceived or how mind and body are connected, we are in no position to claim superiority.[32] And in summary we may see in the following passage a reassertion of that Baconian position to which we have already referred. Men, he says, should be concerned 'to make experiments and collect observations without being over-forward to establish principles and axioms, believing it to be uneasy to erect such theories, as are capable to explicate all the phenomena of nature, before they have been able to take notice of a tenth part of those phenomena'. He continues with words that were to be echoed in Locke's *Essay Concerning Human Understanding:*

> it is sometimes conducive to the discovery of truth, to permit the understanding to make an hypothesis, in order to the explication of this or that difficulty, that by examining how far the phenomena are, or are not, capable of being solved by that hypothesis, the understanding, even by its own errors, be instructed.[33]

And again Boyle reminds us not to allow any hypotheses or systems that we do make to be regarded as so certain that we are not prepared to amend them in the light of further evidence.

Boyle's general approach to the possibility of knowledge of the natural world was to remain dominant for the remainder of the century and, with the fuller statement it was to receive in Locke's *Essay Concerning Human Understanding* in 1690, the position was consolidated well into the Enlightenment. It also appeared to be endorsed by Newton's methodology and by his pronouncements on method that appeared most overtly in the later editions of his works. Nor is this surprising when we remember that Boyle, Locke and Newton were, in their different areas, the leading intellectual figures of their time, united in their common commitment to the aspirations of the Royal Society. And Locke was a friend to both of them, as junior research partner to Boyle and his literary executor at his death, and as one of the few persons with whom Newton enjoyed a close personal

and intellectual friendship.[34]

Newton's most famous statement of his philosophy of science was set out in the *Regulae Philosophandi* of the second edition of the *Principia* of 1713.[35] They appear to be a clear commitment to the empiricist account of natural science that we would expect from the President of the Royal Society. The first of the four embodies a principle of parsimony but which is qualified in an important way. The Rule reads: "We are to admit no more causes of natural things than such as are both true and sufficient to explain their appearances'.[36] As explication Newton tells us that 'Nature is pleased with simplicity, and affects not the pomp of superfluous causes'.

Taken as a principle of parsimony and nothing more, reinforced by the second Rule which reads, 'Therefore to the same natural effects we must, as far as possible, assign the same causes', Newton's first Rule seems unproblematic enough. But it is important to note, first, that the Rule takes it for granted that the task of natural philosophy is to seek for the causes of phenomena, and therefore takes the concept of causation to be unproblematic. Newton was hardly the first person to do that, but within two decades David Hume was to subject the concept of causation to a critical examination which remains a classic in philosophical analysis.

Second, the Rule sets out two criteria which must be satisfied for the attribution of causes. It is not enough that the supposed causes explain the appearances, they must also be *true*. Newton does not tell us anything further about this, but it is easy enough to see what he had in mind. It was that the cause must not just be assumed to exist, there must be some evidence, and no doubt he had in mind empirical evidence, that the cause actually does exist. Thus, to take a simple example, if a ring disappears from a window sill by an open window, a sufficient explanation for its disappearance would be to assume that a magpie had taken it. But for Newton this would not count as a true explanation, unless we had some reason to believe that there was a magpie in the vicinity at the time. The ring's recovery from a neighbouring magpie's nest at a later stage, would be some (rather good) evidence that the supposed cause was the true one.

It is almost certain that Newton had a particular philosophy of science in mind to which he was opposed when he formulated his Rule in this way, and that was what he took to be the philosophy of Descartes. At the end of his *Principles of Philosophy,* which gave a comprehensive explanation for many of the phenomena of nature and was a work that Newton knew well, Descartes had written in defence of his system that 'if people look at all the many properties…and the fabric of the entire world, which I have deduced in this book from just a few principles, then, even if they think that my assumption of these principles was arbitrary and groundless, they will still perhaps acknowledge that it would hardly have been possible for so many items to fit into a coherent pattern if the original principles had been false'.[37] It was Newton's belief that we can make no such assumption. To do so would have been to accept an unwarranted hypothesis. As he expressed it in an important letter to Roger Cotes, it would be to accept 'a proposition as is not a phenomenon nor deduced from any phenomena, but assumed or supposed—without any experimental proof'.[38] He went on later in the same letter, 'hypotheses of this kind, whether metaphysical or physical, whether of occult qualities or mechanical, have no place in experimental philosophy. In this philosophy, propositions are deduced from phenomena, and afterwards made general by induction'.[39]

This last comment, the reference to induction, takes us to the fourth Rule (we shall return to consider Rule III below). In it Newton says that we should

> look upon propositions inferred by general induction from phenomena as accurately or very nearly true, notwithstanding any contrary hypotheses that may be imagined, till such time as other phenomena occur by which they may either be made more accurate or liable to exceptions.[40]

Newton is claiming that the way to proceed in experimental philosophy, or, as we would now call it, empirical science, is to make observations and then draw general conclusions based on those observations. It is important that the general conclusions are based on observations and not just plucked from the air (the kind of hypotheses that Newton rejected). But for Newton it was equally important to recognize that it was perfectly legitimate to generalize on this basis, even though he realized that there was no absolute certainty guaranteed by the method. He explained this latter point very clearly near the end of the Queries in the *Opticks:*

> And although the arguing from experiments and observations by induction be no demonstration of general conclusions, yet it is the best way of arguing that the nature of things admits of, and may be looked upon as so much the stronger, by how much the induction is more general.[41]

Newton, then, saw inductive generalization as central to proper scientific explanation, and although he clearly recognized that it did not guarantee truth, it was the best way open to us for reaching general claims about the world. Once again it was David Hume who was to give critical attention to this central concept in Newtonian science.

Newton's invocation of the concept of gravitation in the *Principia* had quickly brought his theory under critical scrutiny. And it was Leibniz, and from a different direction, Berkeley, who were again Newton's most important critics. Leibniz accused Newton of reintroducing occult qualities into philosophy because, Leibniz said, he was claiming that gravitation was the cause of the observed effects of bodies in motion, but gravity was only known by its effects and was therefore an unknown cause. In effect Leibniz was accusing Newton of just that intellectual sin that Newton himself so strongly opposed, namely assuming a cause without independent empirical evidence of its existence. The Rules of Reasoning were in part devised to meet such an objection, and it was Rule III in particular that was designed to do this. In it Newton says that the 'qualities of bodies which admit neither intensification nor remission of degree, and which are found to belong to all bodies within the reach of our experiments, are to be esteemed the universal qualities of all bodies whatsoever'.[42]

In his explication of the Rule Newton again underlines his commitment to empirical evidence as the legitimate source for our claims about the properties of bodies, against 'the dreams and vain fictions of our own devising'. And the qualities that we find in all bodies are, he says, those of extension, hardness, impenetrability, mobility and inertia, a list close to those primary qualities that we have already seen identified by Boyle and others. But Newton also points out that all bodies appear to gravitate towards one

another, that is, all the objects that we come across have a tendency to move towards each other with increasing velocity. And this is an empirically identified property of all the bodies that we can investigate. But this property or tendency Newton says, is not claimed by him to be an essential property of matter. For it diminishes with distance, contrary to the first criterion for qualities in Rule III, namely, that it must not admit intensification or remission of degree. Still less was gravitation taken by Newton to be the *cause* of any action. And in many places Newton underlined that he did not have any sure explanation of the effect, the actual observed movement of objects towards each other.

The Rules, then, may be seen as part of Newton's deep commitment to the empirical approach to nature that he had early adopted and which not only found reinforcement in the success of his own enquiries but also in the philosophy of his friend, John Locke. But we also know that Newton sought an answer to that major question his account of motion raised, namely, what is it that causes objects to gravitate towards one another? Newton saw this as an issue related to several others, the nature and strength of chemical bonding, magnetic and electrical phenomena, for example, for which he had no satisfactory answer. But we have already seen that Newton was inclined to suspect that the cause of such observable forces in nature, such active principles, might be none other than the direct intervention of God himself. It was a conjecture, even an hypothesis, that Newton knew he was in no position to prove, and so he largely kept it to himself.

NOTES

1 Cf. Epicurus Tetter to Herodotus' *passim* [2.12].
2 Cf. 'The Assayer' (1623) ([2.14], esp. 274–7).
3 Cf. Boyle's biography of his early years in 'The Life of the Hon. Robert Boyle', [2.2], vol. I, xxiv. Boyle was scarcely 15 at the time.
4 *Origin of Forms and Qualities,* [2.7], 7.
5 *ibid,* 18.
6 [2.7], 51.
7 [2.7], 37.
8 [2.7], 32.
9 [2.17], 343.
10 [2.7], 185.
11 See, for example, [2.7], 198–90 for Boyle's account of the creation and the principles required to maintain the world in being.
12 Cf. especially *About the Excellency and Grounds of the Mechanical Hypothesis* [2.7], 138–54.
13 [2.3], 2:288–95.
14 [2.3], Newton to Richard Bentley, February 25 1692/3, vol. 3, 253–6.
15 Cf. B.J.T.Dobbs, [2.52].
16 *Opticks,* Fourth Edition, 1730, [2.9], 400.
17 For a fuller discussion of More on space and time and his relationship to Boyle see A.Rupert Hall, [2.30], Chs 9 and 10.
18 *Principia,* bk III, [2.8], 545.
19 Cf. *The Leibniz-Clarke Correspondence,* [2.24], especially the Fifth Letter.
20 *De Motu,* sect. 63, [2.25], 4:49.

21 See, for example, Descartes, *Principles of Philosophy,* part 4, sects 204 and 205, [2.16], 289–90.
22 In a letter to Samuel Hartlib, 8 April 1647, [2.2], 1: xxxix.
23 Cf. *The Second part of the Christian Virtuoso,* [2.2], 6:722–3.
24 *Origin of Forms and Qualities,* [2.7], 18.
25 *The New Organon,* Aphorisms—bk I, XIX, [2.15], 261.
26 [2.2], I: 695. Samuel Pepys was a great admirer of this work of Boyle, though he claimed not to be able to understand it.
27 Cf. [2.7], 119.
28 *The Christian Virtuoso* (1690), [2.2], 5:539.
29 *Advices in judging of Things said to transcend Reason,* [2.2], 4:460.
30 [2.2], 4, 461.
31 [2.2], 4, 450.
32 Cf. *The Excellence of Theology Compared with Natural Philosophy,* [2.2], 4:45.
33 *Certain Physiological Essays,* [2.2], vol. 1, 302–3. Cf. Locke, *An Essay Concerning Human Understanding,* bk 4, ch. 12, sect. 13, [2.23], 648.
34 Not only did Newton go to stay with Locke at least twice at Oates in Essex but he invited Locke to visit him in London and in Cambridge. A favourite subject was their shared interest in theology and their secretly shared anti-trinitarian commitments. On their close intellectual position see, for example, Rogers, [2.58]. On Boyle and Locke see Rogers, [2.48].
35 For accounts of the *regulae* and their place in Newton's thought see A.Koyré, 'Newton's "Regulae Philosophandi" ', [2.53], ch. 6, and G.A.J.Rogers, 'Locke's *Essay* and Newton's *Principia*', [2.59].
36 *Mathematical Principles of Natural Philosophy,* [2.8], 2:398.
37 *Principles of Philosophy* IV, 205, [2.16], 1:290.
38 [2.3], 5:397.
39 *Ibid.*
40 [2.8], 400.
41 *Opticks,* [2.9], 404.
42 [2.8], 398.

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CHAPTER 3
Locke: knowledge and its limits

Ian Tipton

I

That John Locke's *Essay concerning Human Understanding* is one of the philosophical classics is something nobody would deny, yet it is not easy to pinpoint precisely what is so special about it. Locke himself has been described as the founder of British empiricism, but labels of this sort are increasingly treated with suspicion, and some affinities to Descartes, usually regarded as the first of the great rationalist philosophers, have also been widely acknowledged. Students studying his philosophy will spend some time pondering on his advocacy of a distinction between primary and secondary qualities, but they will also be told that the doctrine had a long history and that, in Locke's own day, it was central to the theorizing of Robert Boyle and the 'new science' generally. They may dwell too on his talk of a material *substratum* of qualities, but they may also be told that his thinking here was confused, and that at this point anyway he was strongly influenced by the scholastic philosophy he saw himself as trying to break away from. They are likely to be puzzled by his talk of 'ideas' as the Objects' of thought—he tells us at one point that 'the Mind…perceives nothing but its own *Ideas*' (IV.iv.3)[1]—if only because, on the face of it, this poses the obvious problem that, as Berkeley was to stress, it seems to rule out the possibility of the very knowledge of the 'real' world that Locke clearly took it for granted we have. Locke himself confesses that the *Essay* is too long—'the way it has been writ in, by catches, and many long intervals of Interruption, being apt to cause some Repetitions' (Epistle to the Reader)—and his style makes it neither easy nor attractive to read; yet it richly rewards study. That this would be agreed both by those who have thought him guilty of fundamental errors throughout and by those who see him as belonging most decidedly to our age, and as characteristically judicious and sane, merely adds to the fascination of his work and encourages deeper study. This fascination is increased when we realize that in his own time he was often considered a dangerous and subversive thinker.

Locke was born at Wrington, Somerset, in 1632. He attended Westminster School and Christ Church, Oxford, where he retained his Studentship until 1684. After an introduction to the world of diplomacy when he was involved in a mission to Brandenburg he set out to qualify in medicine, working at one stage with Thomas Sydenham, the great physician whom, in the Epistle to the Reader which prefaces the *Essay,* he describes, along with Robert Boyle, Christiaan Huygens, the Dutch astronomer and physicist, and 'the incomparable Mr. Newton', as one of the 'Master-Builders, whose mighty Designs, in advancing the Sciences, will leave lasting Monuments to the Admiration of Posterity'. Locke had worked with Boyle too, and Boyle was clearly one

important influence on the *Essay,* just as Lord Ashley, afterwards Earl of Shaftesbury, to whom he became personal physician in 1667 and also a political adviser, influenced his personal fortunes. Locke was to serve Shaftesbury in various capacities, becoming, eventually, Secretary to the Council of Trade and Plantations, of which Shaftesbury was President. This body was dissolved in 1675. In the same year Locke's deteriorating health led to him departing for France. He stayed first in Montpellier, but in Paris was able to make new contacts, including François Bernier, a leading disciple of Gassendi, a philosopher who had almost certainly influenced the development of his thinking, even before this period.[2] Locke returned to England, and to an increasingly troubled political scene, in 1679. Before long Shaftesbury was forced to flee to Holland, where he died in 1683, and later that year Locke himself left for Holland, returning only after James II had been deposed and William of Orange had secured the English throne. Locke's *Essay* was published not long after, in 1690, and it was regarded at once as both important and controversial. However, apart from engaging in a time-consuming controversy with Edward Stillingfleet, Bishop of Worcester, Locke showed little inclination to get involved in arguments with his critics, not even Leibniz, who attempted repeatedly to engage in correspondence with him, though his *New Essays on Human Understanding* was not published until long after the death of both men. Locke published other works after his return from Holland, including the *Two Treatises of Government,* discussed in the next chapter, but his health continued to fail. He was to spend the last years of his life in the house of Sir Francis Masham and his wife Damaris, daughter of the Cambridge Platonist Ralph Cudworth, and herself a woman of impressive intellect with whom Locke, a lifelong bachelor, had, it seems, once been in love. He died in 1704.

Even this brief sketch of Locke's life will be sufficient to show that it was an eventful one, and each stage had its impact on the development of Locke's intellectual life. He did not publish anything of importance until he was in his fifties, but his *Some Thoughts concerning Education* (1693) reflects his critical attitude to the sort of education he had himself encountered at Westminster School. His dissatisfaction with the sort of philosophy taught at Oxford when he was there, which he described as 'perplexed with obscure terms and useless questions', influenced the development of the *Essay,* as, more positively, did his reading of Descartes who, he was to tell Stillingfleet, offered him 'my first deliverance from the unintelligible way of talking' of the schools. His association with Shaftesbury involved him in practical affairs, and it is no surprise that his publications should include *Some Considerations of the Consequences of the Lowering of Interest, and Raising the Value of Money* (1692), as well as *A Letter concerning Toleration* (1689), which championed religious toleration, of which Shaftesbury had been a proponent. The likely influence of Gassendi, which probably antedated Locke's acquaintance with Bernier, has already been mentioned, and R. I. Aaron is one commentator who has stressed the influence of the Cambridge Platonists, claiming that 'Much of the fourth book of the *Essay* might have been written by one of the Cambridge School'.[3] One could go on, even in a way that might suggest that Locke was hardly an original thinker at all, though that would be grossly unfair. A fairer estimate would be to see him as a child of his time, certainly, but as making a major contribution to the debates and disputes which characterized the period in a way which led to a recognition of his importance at the time, though not always for the reasons that have been most widely

stressed since. In very general terms, he can be seen as a spokesman for his age who also helped mould that age. In addition, he was to come to be seen, somewhat distortedly, as the originator of a school, the British empiricists, diametrically opposed to the rationalism stemming from the philosophy of Descartes. From either point of view his *Essay concerning Human Understanding* will be seen as an important legacy, and to that we now turn.

II

There are two well-known passages in the Epistle to the Reader which help focus our minds on the aims and purposes of the *Essay,* one being that in which Locke praises the 'Master-Builders', scientists such as Boyle, with respect to whom he contrasts himself as 'an UnderLabourer…clearing Ground a little, and removing some of the Rubbish, that lies in the way to Knowledge'. This passage makes his project look modest, but it also suggests that, in so far as he sees himself as having opponents, these are not so much the Cartesians as the Aristotelians, or those proponents of the debased scholasticism which for many still constituted learning, but which was characterized by the 'frivolous use of uncouth, affected, or unintelligible Terms' which Locke goes on to complain of. There is much in the *Essay* that could be described as rubbish-removal, from the attack on innate principles in Book 1, to, for example, criticism of the doctrine of substantial forms. However, this passage does suggest that Locke's project is negative, so it must be added both that, in practice, rubbish-removal usually goes along with positive alternative doctrines, and that in the other passage in the Epistle he gives a rather different account of his aims. Here he tells us how the *Essay* came to be written, referring to a meeting with friends—usually thought to have taken place in the winter of 1670–I—when an issue Very remote' from that discussed in the *Essay* was being debated and they 'found themselves quickly at a stand, by the Difficulties that rose on every side'. Locke's response, he tells us, was to consider whether the question that perplexed them was one they could hope to resolve. More generally, he suggested, 'it was necessary to examine our own Abilities, and see, what Objects our Understandings were, or were not fitted to deal with'. This topic set the agenda for the *Essay*. Locke could indeed have given his work the title 'Human Knowledge: Its Scope and Limits', which was the title which, over two hundred years later, Bertrand Russell gave to one of his books.

Even this, however, can make Locke's project look very negative, but what he goes on to stress in the first chapter of Book I is the positive advantages of this approach which are, first, that an enquiry into the limits of the understanding will enable us to concentrate our minds upon matters we can tackle with some hope of success, and second, and as a consequence, that we will not retreat into a general scepticism because *some* issues are beyond human resolution. The same chapter makes it clear that Locke does not take the thought that there are areas in which we cannot expect to have *knowledge* to imply that in all such areas we must expect to remain *ignorant,* and that he is as interested in cases where certainty is not possible for us but in which we may have reasonable beliefs. Hence his announced programme, which is 'to enquire into the Original, Certainty, and Extent of humane Knowledge; together, with the Grounds and Degrees of Belief, Opinion, and

Assent'. Hence too a feature of the *Essay,* that where others might see their inability to solve some problem arising from their overall position on some topic as at least a prima facie objection to that position, Locke may see such difficulties as simply confirming that our powers of comprehension are limited. Sometimes this may strike the tough-minded critic as simply dodging the issues that matter, but this is certainly not Locke's attitude.

So far, then, we know something of Locke's purpose, but nothing of his strategy for achieving it which he sets out in I.i.3 as being, first, to 'enquire into the *Original* of those *Ideas,* Notions, or whatever else you please to call them, which a Man observes, and is conscious to himself he has in his Mind; and the ways whereby the Understanding comes to be furnished with them'; then 'to shew, what *Knowledge* the Understanding hath by those *Ideas*'; and finally to 'make some Enquiry into the Nature and Grounds of *Faith,* or *Opinion*'. However, while this may seem superficially clear, it in fact gives only an imperfect guide to the overall structuring of the *Essay,* and it leaves certain questions unanswered, one of these being precisely what Locke means by 'idea'. This question has vexed commentators ever since, who have not been greatly helped by the knowledge that Locke inherited the term and some of the obscurities that go with it. Locke offers some sort of explanation in I.i.8, but the overall impression one gets is that it strikes him as just obvious *that* we have 'ideas' in our minds—the ideas of, for example, whiteness, thinking, an elephant or an army—and that he is not concerned with what an idea *is*. Thus the important question becomes simply how we *come by* our ideas. His reply—'To this I answer, in one word, From *Experience*' (II.i.2)—is what has marked him out as an 'empiricist', or as one committed, using a dictionary definition, to 'The theory which regards experience as the only source of knowledge'. One need not quarrel with this ascription—Locke goes on to stress that 'In that, all our Knowledge is founded; and from that it ultimately derives it self—so long as one appreciates that, for Locke, it is experience that is the origin of *ideas,* or what he calls the 'materials' of knowledge, and that when, in book IV, he considers 'what *Knowledge* the Understanding hath by those *Ideas*', it might seem as appropriate to judge him a rationalist. Nor should we assume that because Locke takes it as evident that we have 'ideas', or conceptions, such as those of an elephant, existence or God, there is nothing problematic about his talk of 'ideas'. Locke encourages us to take a relaxed attitude to them, and it would indeed be rash to assume at the outset that they must be *images* as some have thought,[4] but it would be just as rash to assume that questions don't arise concerning them. For the moment, however, we must just be clear that Book II of the *Essay* is not concerned with knowledge and belief as such, but with the 'ideas' that ground these. Locke will consider, for example, how we come by the ideas of God and existence. If we have *knowledge* that God exists, this will emerge in Book IV.

III

Though Locke announces his programme at the beginning of Book I by saying that his first concern will be with how we acquire our ideas, he in fact doesn't address this question directly until Book II. Instead, after the first chapter in Book I, which introduces the *Essay* as a whole, three chapters are devoted to what may strike the modern reader as

a tiresome digression: an attack on innate principles. It is important to realize, then, Both that the attack on innatism was deemed highly controversial at the time, and that these chapters complement the rest of the *Essay*. Putting it simply, Locke's positive claim that all our knowledge derives from experience really amounts to a claim that no knowledge is prior to it, and this would have been seen by his contemporaries as in itself denying that some knowledge is innate. The direct attack on innatism in Book I and the working out of his empiricism in the rest of the *Essay* are thus two sides of one coin, and both were judged subversive, even by those who insisted that he attacked too crude a version of innatism, leaving more sophisticated versions intact. Whatever precisely they *meant* by this, many felt it imperative to hold that certain principles which Locke calls 'practical', including the fundamental principles of morality and religion, were innate if their authority was not to be jeopardised, and many were convinced that certain 'speculative' principles, for example 'Whatever is, is' must equally be 'native' to the mind, and indeed fundamental to knowledge in general. When, much later in the *Essay* Locke attacks the scholastic notion that 'all Reasonings are *ex praecognitis, et praeconcessis*', explaining that this means that certain supposedly innate maxims are 'those Truths that are first known to the Mind' and those upon which 'the other parts of our Knowledge depend' (IV.vii.8), we have an illustration of how Locke could see himself as 'removing some of the Rubbish, that lies in the way to Knowledge'. We can also see that his attack on innatism was not peripheral to his programme.

In the event Locke devotes one chapter to the supposedly innate speculative truths, one to practical truths, and, finally, one largely to innate ideas on the basis that if, for example, the knowledge that God is to be worshipped were innate, the ideas of God and worship would have to be innate too. That the ideas are not innate Locke takes to be evident. As he says,

> If we will attentively consider new born *Children,* we shall have little Reason, to think, that they bring many *Ideas* into the World with them. For, bating, perhaps, some faint *Ideas,* of Hunger, and Thirst, and Warmth, and some Pains, which they may *have* felt in the Womb, there is *not* the least appearance of any settled *Ideas* at all in them.
>
> (I.iv.2)

Infants, then, patently lack them, but so too do some adults, both of which would be impossible were they innate.

To the modern reader, one problem with Locke's polemic is likely to be that what he takes to be obvious here—and he takes much the same line on supposedly innate principles—will seem just that, obvious, so that his attack on innatism is likely to seem unnecessarily prolix, particularly given that it might seem that nobody could seriously have held the view he attacks. Thus Descartes, for example, who we know did hold that the idea of God was innate, surely didn't believe that every infant, or indeed every adult, has the idea consciously formed in his mind. To be fair, Descartes can be found writing in a way that suggests that the idea will be there, fully formed but not attended to—the infant

> has in itself the ideas of God, itself, and all truths which are said to be self-evident; it has these ideas no less than adults have when they are not paying attention to them, and it does not acquire them afterwards when it grows up

but elsewhere he takes the view that what is innate is, rather, a capacity or disposition, comparable to a natural disposition to gout.[5] Both notions are designed to take account of the fact that the infant does not entertain conscious thoughts about God, which might seem to cut the ground from under Locke's objection. In fact, it is clear that neither move would trouble Locke. His tactic throughout the polemic is to take the claim that certain items of knowledge (or ideas) are in the mind from the first quite literally, so that the infant for example should be conscious of them, and then to represent any watering down of the doctrine as a retreat into obscurity or triviality. For example, dealing with the notion that what is innate is a natural capacity, he argues that 'if the Capacity of knowing be the natural Impression contended for, all the Truths a Man ever comes to know, will, by this Account, be, every one of them, innate', for, trivially, we must always have had the capacity to acquire any knowledge we eventually acquire, so that 'this great Point will amount to no more, but only to a very improper way of speaking' (I.ii.5). At this level, indeed, Locke's attack on innatism is quite effective; it was clearly necessary, for in one form or another the doctrine that there was innate knowledge was widely received; and even if it did not once and for all end any talk of innate impressions (Leibniz for one attempted to defend it against Locke) it increasingly lost its hold. It has been claimed that 'there has been no trace of it in recent thought'.[6]

IV

As already stated, Book I complements the rest of the *Essay* in the sense that the denial of innate knowledge is merely the negative face of the positive claim announced at the beginning of Book II. It follows that Locke himself sees the direct attack as in a way superfluous to his programme (see I.ii.i), though, by the same token, he sees that the attack in Book I will be 'more easily admitted' once it has been shown how experience does provide a sufficient basis for our ideas (II.i.1). What follows in the rest of the *Essay* is thus, in part, an account of how experience gives rise to our ideas, and the knowledge based on them, though, and in a way more importantly, it is an exploration of the implications of this account. The fascination of the work as a whole thus lies in large part in what Locke has to say on a variety of issues, ranging from what sorts of achievement we can expect in natural science, to the nature of the human mind and its relation to the body, personal identity, the status of moral truths, and whether God's existence can be proved. The emphasis throughout is of course epistemological—on what we can know and what we can reasonably surmise in this or that area—but firm conclusions are drawn, including that there is a God and that this can be proved. For the moment, however, we must stay with Locke's basic empiricist claim.

This is that all our knowledge derives from 'experience', but the gloss Locke immediately puts on this is important for three reasons. First, he makes it clear that there are *two* sources of experience, sensation and what he calls 'reflection', which provides the

mind with ideas of its own operations, such as perception, thinking and doubting; second because the derivation of an idea from experience is not seen as always a simple matter (on the model of deriving the idea of green from seeing green things), in that it will be necessary to take 'a full survey' of our ideas, including 'their several Modes, Combinations, and Relations', or as they are 'with infinite variety compounded and enlarged by the Understanding' (II.i.5); and, third, because, from the outset, the existence of external objects is apparently taken for granted. Ideas of sensible qualities, such as that of yellow, are thus *introduced* as those conveyed into the mind 'from external Objects' (II.i.3), and it is not until much later (IV.xi) that Locke dwells on the notion, which he even there treats as absurd, that there may be no external objects at all. This may seem surprising given that scepticism on this matter was very much in the air at this time, and indeed that, since Berkeley at least, we have been encouraged to see Locke's own philosophical position as positively inviting scepticism, so it needs stressing that Locke himself shows no such anxieties. It is worth noting too that the examples of ideas derived from sensation given in II.i.3—yellow, white, heat, cold, soft, hard, bitter, sweet—are all what Locke will call 'simple' ideas, and that this is no accident. It is an essential part of what is known as Locke's 'compositipnalism' that 'simple' ideas are as it were the basic data, and that, given these, other, complex ideas can be formed, such as those of gold, a centaur or a lie. It would be possible to spend quite a lot of time on the distinction between simple and complex ideas, for there is no doubt that it is, at best, not as clear and straightforward as Locke seems to suggest and it has even been argued that he tacitly abandoned it when it becomes embarrassing. Here we can only note that chapters ii to viii of Book II are officially devoted to 'simple' ideas, that chapters ix to xi cover various faculties and operations of the mind, and that from chapter xii on Locke turns to 'complex' ideas. That it is not, however, the issue of Locke's basic compositionalism that is of most interest or importance is suggested by the fact that many of the topics that have most engaged readers then and since can be examined without paying special attention to it.[7] There is much in Book II we could linger on, and some things that we shall.

Book II of the *Essay* is in fact a mine of interesting and often important material, though the significance of much of it can only be fully understood in terms of the philosophical concerns of the time, and even then the significance may not be immediately recognizable, at least from the titles of the relevant chapters. Thus, the unpromising title of chapter xiii, for example, is *'Of simple Modes; and first, of the simple Modes of Space',* but it includes Locke's rejection of the Cartesian claim that a vacuum is inconceivable, building on a distinction between the ideas of body and space established in chapter iv, as well as observations on the notion of substance, though this will not be the main focus of interest until chapter xxiii. Similarly, chapter viii has the unexciting title *'Some farther Considerations concerning our Simple Ideas',* but it is here that we find Locke's classic defence of a distinction between primary and secondary qualities. Chapter xxi—*'Of Power'*—includes a long discussion of human freedom; while if we want to know how Locke takes the idea of God to be derived from experience, we must look to four sections (33–6) almost hidden away towards the end of chapter xxiii. One could go on. Suffice it to say that, though the *Essay* as whole can strike one as rambling and diffuse, so that it becomes tempting to focus on the isolated topics which

interest one, the work is better approached as a whole. Certainly, one needs to be alert to various developing *themes*.

V

Just which themes are the most important must be to some extent a matter of opinion, and it is certainly true that what was judged most significant in Locke's own day often differs from what has most exercised commentators more recently. This is hardly surprising, given Locke's successes in removing what he saw as rubbish, which has meant that what seemed to be important issues then have often ceased to exercise our minds since. Indeed this may be the point to reiterate that in his own time Locke was often regarded as subversive,[8] to the extent that some were inclined to suspect a not too well hidden agenda. Stillingfleet or Leibniz could be cited here, but as good an example as any would be another critic, Thomas Burnet, who devoted the first of three sets of published *Remarks* on the *Essay* to polite queries, but who concluded the third set by laying his cards on the table and accusing Locke of not doing the same. The 'key' to deciphering Locke's philosophy, indeed 'the mystery aimed at all along', is he suggests, the supposition 'that God and matter are the whole of the universe'. For Burnet, Locke emerges as a deist, whose system provides for only an inadequate conception of both God and the human soul. Shortly afterwards Berkeley was yet another to be struck by what he saw as dangers implicit in Locke's philosophy, but he was only one of many to be struck by Locke's suggestion that matter might think. In fact, this particular suggestion occurs in just one section (IV.3.6), where Locke presents it only as an illustration of how limited our knowledge is, and it would be rash to assume that there was a hidden agenda. However, the suggestion can be seen as a natural culmination of much that had gone before. It provides one key, though certainly not the only one, to unravelling some of the intricacies of the *Essay*.

Thus the modern reader approaching even the first chapter of Book II may find it odd that, in defending his claim that we are dependent on experience for our ideas, Locke devotes many sections to an attack on the notion that the soul always thinks, either prior to an individual's first sensory experiences, or during the course of his life. For, while there is an obvious connection here with Locke's basic empiricist programme and his rejection of innatism, what we may miss is the significance of the fact that Locke is also undermining the notion that thought is the soul's *essence*. For Descartes at least, this notion was central to a proof that the soul was immaterial, so it is unsurprising that those immersed in this tradition could see Locke's attack on it, and indeed his attack on innatism too, as closely connected with doubts about the soul's immateriality. Indeed, the dangers could only become more apparent when, in II.xxiii, Locke makes it clear that we are ultimately in the dark about what the soul's essence is. Here there is alink between his observations on *corporeal* substance, or the supposed substratum of sensible qualities, which we shall return to, and his comments on the substance underlying mental operations, when he claims that, like the substance of body, 'The substance of Spirit is unknown to us' (sect. 30). Admittedly, chapter xxvii, which was added in the second edition, is for the most part devoted to an account of personal identity which attempts to

disentangle the idea of the continuance of a *person* from that of the persistence of *any* particular sort of substance, and he will hold in IV.iii.6 that our belief in immortality is not threatened whatever the nature of the soul. But the upshot is that Locke can find no *proof* of the natural immortality of the soul. For Locke, of course, this emerges as one illustration of the limits of human knowledge. For many readers, the dangers were clear.[9]

VI

There is, however, a much more dominant theme running through the *Essay,* which connects indeed with the last but underlies much that Locke says in Books II, III and IV, for many of Locke's concerns centre on what might best be described as an exploration of the implications of the corpuscular science associated in particular with Boyle. In Book II, two topics to which this concern is clearly very central are his treatment of primary and secondary qualities in II.viii, and of our idea of substance in II.xxiii. Both have given rise to much discussion, and indeed—with the possible addition of II.xxvii (on personal identity)—these have probably been the most widely discussed chapters in Book II. They are, I think, best treated together, though very often they have been treated separately.

Certainly, that Locke's concern in II.viii is with the implications of the new science can hardly be denied given what he himself says in section 22 where, after noting that "I have in what just goes before, been engaged in Physical Enquiries a little farther than, perhaps, I intended', he adds that this was

> necessary, to make the Nature of Sensation a little understood, and to make the *difference between the Qualities in Bodies, and the* Ideas *produced by them in the Mind,* to be distinctly conceived, without which it were impossible to discourse intelligibly of them.

Nor is it deniable that the natural philosophy Locke has in mind here is the corpuscular system, which, as Locke explicates it, entails that our ideas of colours, odours and tastes for example correspond to secondary qualities, which are but powers in objects depending on 'the Bulk, Figure, Texture, and Motion of their insensible parts' (sect. 10). There is indeed much that is problematic in Iviii—for example the implications of his claim that our ideas of primary qualities, but not of secondary qualities, are 'resemblances' of them, but the centrality of the new science to what Locke says is evident. What this *opposes* is, basically, Aristotelian science, which would account for our perception of colours for example by reference to the *forms* of the colours in the objects, so it seems reasonable to suppose that when Locke complains that

> Men are hardly to be brought to think, that *Sweetness and Whiteness are not really in Manna;* which are but the effects of the operations of *Manna,* by the motion, size, and figure of its Particles on the Eyes and Palate
>
> (sect. 18)

the men he has in mind will include, not just ordinary folk, but supporters of a soon to be defunct metaphysics.

Even if we accept that, however, there is much that could be discussed. It might be asked, for example, what right Locke had to appeal to the new science for the distinction, given that the new science remained controversial; how, if the 'minute parts' which are central to the story are 'insensible', we could know anything at all about them; and how Locke's view that some of our ideas are, and some are not, 'resemblances' of qualities could ever be established, given, what he will say later, that 'the Mind…perceives nothing but its own *Ideas*'. Here, so far as the first of the questions is concerned, it must suffice to say that Locke's general attitude to the corpuscular hypothesis is that it is the best available (IV.iii.16); that, so far as the particles being 'insensible' goes, Locke takes this insensibility to be a merely contingent matter, which would be overcome if our senses were more acute; and that, ultimately it seems, his claims about which ideas are and which are not resemblances of qualities could be justified only in terms of an acceptance of the underlying scientific theory. All we need to add perhaps is that this acceptance was not simply dogmatic. Given this theory, and the distinction between ideas that goes with it, facts such that the same water can feel warm to one hand and cool to the other could be accounted for (II.viii.21).[10] The question of what exactly Locke *means* when he says that 'the Mind…perceives nothing but its own *Ideas*', is perhaps better left for a while. There is more than one way of understanding it.

For the moment it is more important that we note that notions that figure prominently in II.viii do re-emerge in II.xxiii, where the attention of commentators has often been focused more on what Locke says about our idea of substance *in general,* particularly in the earlier sections, than on the topic suggested by the title, which is '*Of our Complex* Ideas *of Substances*'. On the first of these issues Locke talks of our "obscure and relative *Idea* of Substance in general' as 'something… *standing under*', or supporting qualities; but on the second, where his concern is with our ideas of particular *sorts* of substances such as gold, his claim is that we form these 'by collecting such Combinations of simple *Ideas,* as are by Experience and Observation of Men's Senses taken notice of to exist together, and are therefore supposed to flow from the particular internal Constitution, or unknown Essence of that Substance'. As is so often the case with Locke's *Essay,* there has been no clear concensus on precisely what is going on in this chapter,[11] but there is growing agreement that what he is struck by is the unhelpfulness of philosophical theorizing in terms of the abstract categories of *substance* and *accident,* even though he sees our ordinary ways of talking about objects as reflecting an idea of 'something' underlying the *observable* qualities of things. Suggestions such as that if we had 'Senses acute enough' we would 'discern the minute particles of Bodies, and the real Constitution on which their sensible Qualities depend' (sect, 11) give us a very obvious link with II.viii, and underwrite the view that, for Locke, speculations about substance in general bring us to the area of 'obscure terms and useless questions', contrasting with the intelligible theorizing of the new science. It remains the case, however, that we have here an area where, in Locke's reasonable seventeenth-century view, the limits of human understanding are clear. Had we 'Senses acute enough' we would indeed be able to penetrate into the inner natures of things, but the truth is that we don't.

VII

The programme announced in I.i.3 would lead one to expect that, having dealt with the 'materials' of knowledge, Locke would next consider knowledge itself. But, as he says at the very end of Book II, he has been struck by the fact that 'there is so close a connexion between *Ideas* and Words…that it is impossible to speak clearly and distinctly of our Knowledge…without considering, first, the Nature, Use, and Signification of Language'. In Book III, therefore, he gives us his account of language.

The basic picture he offers in the first two chapters in Book III is fairly simple. Words are not necessary for thought itself, but primarily in order for men to communicate their thoughts to others, or 'to record their own Thoughts for the Assistance of their own Memory' (III.ii.2). Words, or significant sounds, are therefore signs of our internal conceptions, and can 'properly and immediately signify nothing but the *Ideas,* that are in the Mind of the Speaker' (sect. 4). Men do, however, give them a secondary or 'secret' reference in that, precisely because language is used to communicate, they assume that the words they use to signify their own ideas mark the same ideas in the minds of those they converse with, while, 'Because *Men* would not be thought to talk *barely* of their own Imaginations, but of Things as they really are' they often take them to stand for *'the reality of Things'* (sect. 5). Locke's cautionary words at this point—'it is a perverting the use of Words, and brings unavoidable Obscurity and Confusion into their Signification, whenever we make them stand for any thing, but those *Ideas* we have in our own Minds'—may strike us as simply perverse—surely if I say 'John is bald' I do mean to refer to John himself, but the implications of the remark become much clearer later. Sticking for the moment with the opening chapters, it is necessary only to add that Locke is very conscious that most words do not signify only particular, individual things. Many stand for general ideas.

There are, however, nine chapters still to come in Book III, and it must be said at once that here, as quite often in the *Essay,* one becomes conscious of a mismatch between what probably most interests Locke himself—the points he most wants to get across—and what has most caught the attention of critics and commentators since. This can indeed be illustrated by the fact that Book III ends with three chapters on the 'abuses' and 'imperfections' of words, and the 'remedies' for these, which are clearly important to Locke, given his overall aims, though they have concerned commentators less. It is, however, also apparent even if one turns to chapter iii, which is certainly the most widely discussed. It is entitled *'Of General Terms'*.

Clearly the topic of general terms, and the general ideas which they signify, is important to Locke, if only because, as will become plain in Book IV, most of our knowledge will be found to consist in general propositions; but, since Berkeley at least, what has most caught the attention of commentators has been his account of what might be termed the mechanics of abstraction, or the process by which Locke takes it we form general ideas. Taking the word 'man' as an example, Locke holds that children will start with the ideas of individuals—Peter, James, Mary and Jane—and then, having noted certain resemblances, frame an idea in which they 'leave out…that which is peculiar to

each, and retain only what is common to them all'. Berkeley was to devote the bulk of the Introduction to the *Principles* to attacking abstraction, insisting, for example, that 'the idea of man that I frame to my self, must be either of a white, or a black, or a tawny, a straight, or a crooked, a tall, or a low, or a middle-sized man' and that 'I cannot by any effort of thought conceive the abstract idea above described', and his criticisms have often focused minds on this aspect of Locke's thought. By contrast, what seems to matter most to Locke is the distinction between real and nominal essences which he spells out later on in the chapter, to which the account of abstraction is a prolegomenon.

Certainly, this distinction brings us right back to a dominant theme which we have already looked at, for 'the real Essences of corporeal Substances' are located in the 'real, but unknown Constitution of their insensible Parts, from which flow those sensible Qualities, which serve us to distinguish them one from another' (sect. 17). And the dominant notion that emerges now is that we rank things into sorts, neither on the basis of these real essences, which we do not know, nor on the basis of the real essences of the scholastics, which they think of as 'a certain number of Forms or Molds, wherein all natural Things, that exist, are cast, and do equally partake' (ibid.), but rather according to what Locke calls 'nominal' essences. These are, indeed, the abstract ideas already covered, but the crucial thought is that we categorize things into sorts on the basis of certain *observed* properties which we choose to associate as constituting one sort. Negatively, then, the dominant concern of the chapter is another piece of rubbish-removal, in this case the 'real essences' or 'forms' of the schools;[12] positively it is an account of classification according to which 'the sorting of Things, is the Workmanship of the Understanding' (sect. 12). More generally, and as we shall see, the account prepares the way for what Locke will say about the science of nature in Book IV.

There is of course much more in Book III, including treatments of the names of simple ideas in chapter iv, of the names of mixed modes and relations ('adultery' and 'gratitude' are among the examples) in chapter v, of the names of substances again in chapter vi, and of particles (words such as 'but' and the 'is' of predication) in chapter vii, but this book concludes with the three chapters on remedying 'abuses' and 'imperfections'. Recalling the concern Locke expressed in his Epistle to the Reader about 'the learned but frivolous use of uncouth, affected, or intelligible Terms', we can understand that these chapters are not peripheral to Locke's purposes, and his reference here to 'gibberish' such as the Epicurean notion of '*endeavour towards Motion* in their Atoms, when at rest' (III.x.14) can serve as just one example of the sort of thing he has in mind. In fact he casts his net wide. His observation that, in common use, 'body' and 'extension' stand for distinct ideas, but that 'there are those who find it necessary to confound their signification' (sect. 6) is an obvious reference to the Cartesians.[13]

VIII

Given that one of the main aims of the *Essay* is to determine the scope of human knowledge, it perhaps comes as something of an anticlimax that, in the event, Locke allows very little that he will count as knowledge. That this will be so is strongly suggested by the very first chapter in Book IV where he defines 'knowledge' as *'the*

perception of the connexion and agreement, or disagreement and repugnancy of any of our Ideas', giving as the first two examples *'White is not Black'* and *'the three Angles of a Triangle are equal to two right ones'*. Locke in fact holds that the first of these involves one of four sorts of agreement or disagreement on which knowledge can be based—'*Identity,* or *Diversity*'—while the second is based on what he calls *'relation'*. The other sorts of perceived agreement are '*Co-existence*, or *necessary connexion*' (one example given is that *'Iron is susceptible of magnetical Impressions',* which, in so far as we know it, will turn out to be construed as what we would now term an analytic proposition), and *'Real Existence',* the one example given in IV.i being *'GOD is'*. When we find that in chapter ii he tells us that the primary ways of knowing are 'intuition' (anyone who has the two ideas will simply see that white is not black) and 'demonstration', of which mathematical proofs are the favoured model, the strong rationalist streak in Locke becomes apparent. Indeed, for him, 'intuition', or self-evidence, lies at the root of nearly all he recognizes as 'knowledge', for demonstration turns out to be based on nothing more than a series of intuitions. A good illustration of how this is supposed to work would be the series of supposed intuitions which he offers in IV.x as constituting a demonstration that God exists.

Locke, then, offers a very restrictive account of 'knowledge', and as the chapters proceed we find as much attention being given to things we cannot hope to know with certainty as to what we can. Examples of things lying beyond the scope of our knowledge thus turn out to include that man cannot be nourished by stones (IV.vi.15)—the explanation here being that our idea of man is that of 'a Body of the ordinary shape, with Sense, voluntary Motion, and Reason join'd to it' and we can neither intuit nor demonstrate by our reason any 'necessary connexion' between that and what will nourish him—and that opium will make a man sleep (IV.iii.25), but these could be multiplied. The proposition that gold is malleable for example *is* indeed certainly known to be true, but only if, as Locke puts it, '*Malleableness* be a part of the complex *Idea* the word *Gold* stands for'. If we happen not to include malleability in the definition of gold, or in the abstract idea, this again is something that cannot certainly be known (IV.vi.9). As he puts it in IV.viii.9,

> the general *Propositions* that are made *about Substances, if they are certain, are for the most part but trifling,* and if they are instructive, are uncertain, and such as we can have no knowledge of their real Truth, how much soever constant Observation and Analogy may assist our Judgments in guessing.

There are indeed *some* areas where Locke's insistence that we lack 'knowledge' is, if not uncontroversial, at least such as to reflect a not unreasonable caution, as for example his denial that we know that matter cannot think, but equally there are many that seem surprising. If I am not now perceiving any men, for example, Locke will deny that I 'know' there are other men in the world (IV.xi.9).

One question that arises here, then, is precisely why Locke tolerates an account of knowledge that is as restrictive as this. And here no doubt at least part of the answer must be that he simply accepts a tradition whereby 'knowledge' does require a very high degree of certainty, and is indeed tied to the notion of necessity. However, this judgement

must be tempered by three further observations. One is that, for all his parsimony when it comes to recognizing 'knowledge', he does allow some items that, to us, may seem less certain than they did to him. The second is that in some cases where he is bound to say we do and perhaps always will lack 'knowledge', he is still guided by a view of what acquiring knowledge in these cases would be like. And the third is that, though he sees that, with the requirements for 'knowledge' set this high, our 'knowledge' will be very limited, he also insists that what we are then bound to call 'probability' may be of a very high order indeed. These three points are essential to an understanding of Locke's overall position, so I shall elaborate on them briefly in turn.

First, then, it is indeed true that Locke denies that we 'know' certain things we would normally suppose we knew, but what we also find is that there are two areas of fundamental importance in which he believes demonstrability is attainable. The obvious example here is his supposed proof of the existence of God which, though flawed, he took to be a sound demonstration, but we should note too his repeated claim that '*Morality is capable of Demonstration,* as well as Mathematicks' (III.xi.16, cf. IV.iii.18, IV.iv.7 and IV.xii.8). To be sure, Locke never claimed to have developed the system he envisaged, but the mere fact that he thought it possible in principle is significant. For if, starting from God's existence, and the supposed self-evidence of a creature's obligations to his creator, man could come by certainty in this area at least, 'knowledge' would certainly transcend the trivial. As he put it as early as I.i.5,

> How short soever [men's] Knowledge may come of an universal, or perfect Comprehension of whatever is, it yet secures their great Concernments, that they have Light enough to lead them to the Knowledge of their Maker, and the sight of their own Duties.

Indeed, the second point connects with this, for if Euclidean geometry is seen as providing the model for a demonstrative morality, it is also the model of what it would be like to have certainty in natural philosophy. For here, Locke's insistence that we don't for example 'know' that hemlock will always kill is combined with thoughts about what would be knowable to one who *could* penetrate into the real essences of substances. Hence his observation in IV.iii.25 that could we but penetrate into the internal structure of things 'we should know without Trial several of their Operations one upon another, as we do now the Properties of a Square, or a Triangle' (IV.iii.25). His assertion that 'Could any one discover a necessary connexion between *Malleableness,* and the *Colour* or *Weight* of *Gold*…he might make a *certain* universal Proposition concerning *Gold* in this respect' thus goes along with pessimism about the possibility of *our* discovering any such a connection, but also with a view about what such a discovery would be like. As he has it, 'That *all Gold is malleable,* would be as *certain* as of this, *The three Angles of all right-lined Triangles, are equal to two right ones*' (IV.vi.10).

The strong rationalist streak in Locke is thus evident here, in his pessimism about *our* acquiring much by way of 'knowledge' in this area, quite as much as it is in his optimism about the possibility of a demonstrative morality, but it also connects with his lack of any deep concern that our 'knowledge' is, on his view, limited. And this brings us to the third point, which concerns the stress he put on the notion that 'probability' is not to be

despised. For, on Locke's account, to deny that I 'know' that man cannot be nourished by stones turns out to be no more than to assert that this truth is not self-evident or demonstrable, not that 'constant Observation and Analogy' don't justify the high degree of assurance we in fact have, let alone that there are reasonable grounds for doubt. The tone here was in fact set back in I.i.5 with his observation that we should 'not peremptorily, or intemperately require Demonstration, and demand Certainty, where Probability only is to be had, and which is sufficient to govern all our Concernments', and the same note is struck later, in IV.xi.10. A truth may be 'plain and clear', though not strictly 'known'.

IX

It would thus be a mistake to describe Locke as a sceptic, at least solely on the basis that he denies us 'knowledge' in certain areas where we would normally suppose we had it.[14] Admittedly there are areas in which he thinks our lack of understanding goes deep—'We have the *Ideas* of *Matter* and *Thinking,* but possibly shall never be able to know, whether any mere material Being thinks, or no' (IV.iii.6), and we simply don't understand for example 'how any *size, figure,* or *motion* of any Particles, can possibly produce in us the *Idea* of any *Colour, Taste,* or *Sound* whatsoever' (IV.iii.13)—but in matters that affect our practice, such as that stones will not nourish us, all we lack is demonstrative *proofs*. The most that can be said is that there may be one particular area where Locke should have been more sceptical than he was. This brings us back to the area of 'real existence', and in particular to sensitive knowledge.

The truth here is that, though when he introduces his account of knowledge in IV.i the only example Locke gives of our knowledge of real existence is our demonstrative knowledge that God exists, he in fact recognizes not only our supposedly intuitive knowledge of our own existence (IV.ix.3), but knowledge of the existence of external objects. Admittedly, the scope of this knowledge turns out to be very limited—broadly I 'know' that an object exists only when I actually sense it—but all the same it has often been questioned whether Locke is entitled to claim even this. There are two difficulties here. One is that Locke defines 'knowledge' as the perception of the agreements and disagreements of *ideas,* and it seems doubtful that this can allow for 'knowledge' of the existence of *anything* which is not itself an idea, whether God, oneself, or any external thing; and the second is whether he is entitled to claim even an assurance of the existence of bodies, given his apparent belief that we never perceive any. This second difficulty is at best tangentially connected with the definition of 'knowledge', and would arise even without it. His notorious comment in IV.iv.3 that 'the Mind…perceives nothing but its own *Ideas*' raises it very forcibly, while bringing us back to the topic of Locke's idea of 'idea'.

On the first of these supposed difficulties, all that can be said here is that it seems that Locke himself did not think that his definition ruled out any knowledge of 'real existence', in that he supposed the existence of God at least could be demonstrated by attending solely to our ideas. What is supposedly established here is, apparently, still a relationship between two ideas, those of God and of real existence. He makes a similar

point to Stillingfleet in defending his position on sensitive knowledge,[15] though in the *Essay* itself there are indications that he does have some misgivings about whether, strictly, this should countas 'knowledge' at all.[16] Even there, however, he certainly claims that in this area 'we are provided with an Evidence, that puts us past doubting', so the real issue is whether he was entitled to claim even that. At this stage it is the second difficulty that becomes acute. Very often, traditionally even, Locke has been seen as adopting a Representative Theory of Perception which positively invites scepticism in this area. If 'the Mind…perceives nothing but its own *Ideas*' it seems we do *not* perceive tables and chairs, and this appears to make their existence genuinely questionable. That Locke himself shows little sign of anxiety about this hardly lessens the difficulty.

Unfortunately we can do little more than note this apparent problem, apart from observing that it is of some historical importance (Berkeley's idealism will have it as its starting-point) and that there has been much controversy on just what view of perception Locke is committed to. Whether those commentators are right who claim that Locke's ideas of sense are 'objects' or 'entities', and indeed the only objects of which we are ever aware, rather than 'perceptions', or states of awareness *of the things themselves,* lies beyond the scope of an introductory essay. What must at least be conceded, however, is that there is undeniably a strong streak of what might be called 'perceptual realism' in Locke; that in many passages he does talk of perceiving the external things, and that even the claim that 'the Mind…perceives nothing but its own *Ideas*' can be interpreted in the light of his talk of ideas as being 'found' in the things themselves.[17] Perhaps, but only perhaps, Locke is simply inconsistent, but claims such as that 'we immediately by our Senses perceive in *Fire* its Heat and Colour' (II.xxiii.7) and suggestions that what we do *not* perceive is the corpuscular structuring on which these qualities depend are significant. A strong case can be made for the view that the key to Locke's thinking lies there.

X

It goes without saying that there is much in Locke's *Essay* that has not been discussed here. That however is inevitable. His interest is perennial and his importance clear, but just what most interests a particular reader will depend on a number of factors. To his contemporaries his attacks on what he saw as 'rubbish' lying in the way to knowledge were of genuine significance, while the perceived implications of his epistemology for theology could and did cause deep concern. The importance he himself attached to, for example, his attack on 'enthusiasm' in religion in IV.xix is, though it was only introduced in the fourth edition, evident from its vigour, but the chapter is omitted from a recent abridgement. We now know that Berkeley was soon to attack the very notion of 'matter', or of bodies existing without the mind, and though he certainly wasn't just addressing Locke, Locke has often been seen as his prime target. Locke's doctrines concerning ideas have thus come to be seen as a stepping-stone to Berkeley's idealism and indeed to Hume's scepticism. His accounts of abstract ideas, primary and secondary qualities, substance and so on have been examined over and over again in the light of Berkeley's criticisms, while others see them as significant in their own right. Again, Locke's account

of personal identity has been no more than touched on here, but he was the first to raise the issue in the form in which it continues to be discussed today, and his contribution is admired and, still, widely discussed. Other features of his position have been warmly praised—one commentator claims that he handles the notion of real essence 'almost flawlessly'[18]—yet often he has been used for target practice, and Gilbert Ryle once suggested, though perhaps not wholly seriously, that 'nearly every youthful student of philosophy both can and does in about his second essay refute Locke's entire Theory of Knowledge'.[19] I imagine that few, certainly few who have delved at all deeply into his thinking, would now second that sort of judgement, but for all that the correct interpretation of his position remains a matter of controversy at almost every point. This is perhaps hardly surprising, for Locke stands at a crucial point in the development of the history of philosophy, epitomizing the shift from ways of thinking that have become largely foreign to us, to ways that seem familiar. University courses entitled 'History of Modern Philosophy' thus customarily have Locke's *Essay* as their first text originally written in English. His problems have become, in a sense, our problems. Yet we find them emerging from a background that has become less familiar. Getting the most out of Locke's philosophy will therefore involve using hindsight, for we know its fruits, but also understanding the world from which it emerged. It is only if we do both that Locke's true genius can be seen.

NOTES

1 References to the *Essay* are to the Clarendon Edition, [3.3], and cite book, chapter and section number. Except in the case of the Epistle to the Reader the italics have been left unchanged.

2 In his *John Locke* ([3.22], 31–5), first published in 1937, R.I.Aaron noted Leibniz's comment that Locke 'writes obviously in the spirit of Gassendi', and argued that the influence of Gassendi's thought on him was considerable. Further discussions include Kroll, [3.52], and Michael, [3.56].

3 Aaron, [3.22], 27. However, both he and Gibson, [3.25], 236–41, also draw attention to important differences of view. For one thing, most of the Cambridge Platonists held that there were innate ideas, and as Gibson notes 'nothing, Cudworth declared, could more directly promote atheism than the Aristotelian maxim, "Nihil est in intellectu quod non fit prius in sensu"'.

4 As will emerge, for Locke we have ideas in sense experience, and also in thinking and reasoning. The question of whether ideas are images can therefore emerge at two levels. Some have held that he takes the immediate object of perception when we see or otherwise perceive an object to be itself an image, or an entity which somehow stands proxy for the object, while others seem more concerned with whether the ideas that we might now call concepts are images. No doubt the relationship between these two issues is important, but it seems fair to say that most often it has been his view of sense perception that has exercised his readers, though it is ideas as concepts that feature most prominently in the *Essay*. When, however, Ayers claims ([3.21], 1:44) that, 'the grounds for holding him an imagist are conclusive', it is clear from the context both that he regards this judgement as controversial, and that his eye is fixed on ideas as they function in thought. Certainly, the nature of Locke's idea of 'idea' continues to be much discussed.

5 For an examination of Descartes's doctrine of innate ideas, which includes the relevant passages, see Anthony Kenny, *Descartes: A Study of His Philsophy,* New York, Random House, 1968, ch. 5.

6 Mabbott, [4.26], 80. Even when this was published, however, a debate was in progress over Noam Chomsky's claim that his work in linguistics vindicated the rationalists on this issue. This claim was controversial, and it was widely criticized. See, for example, D.E.Cooper, 'Innateness: Old and New', *Philosophical Review* 81 (1972): 465–83.

7 Which is not to say that nothing is lost. Aaron, [3.22], 110–14, and Gibson, [3,25], ch. 3, are among commentators who have played down its importance, but for a survey which takes it seriously, see Stewart, [3.58]. Locke's compositionalism and its historical background also looms large in, for example Schouls, [3.38], and Ayers, [3.44].

8 This notion did not rest only on what he wrote in the *Essay,* nor simply on the issue I shall concentrate on here. His publication of a work entitled *The Reasonableness of Christianity* in 1695 fuelled doubts as to his orthodoxy, particularly on doctrines such as those of original sin and the Trinity, while his correspondence with Stillingfleet focused attention on the supposed theological implications of the *Essay*.

9 This is well documented by Yolton, [3.15], 148–66, cf. [3.40], ch. 1 and *passim,* and [3.41]. If, from our standpoint it might seem absurd that Locke's contemporaries made so much of a suggestion that is far from prominent in the *Essay,* we should be clear that things looked very different then, as they did to Leibniz for example. His reaction is examined by Jolley, [3.37], who argues that 'For all its apparent randomness and lack of direction, the *New Essays on Human Understanding* is a book dedicated to defending the idea of a simple, immaterial and naturally immortal soul' (p. 7).

10 This is among a number of phenomena instanced in II.viii. 16–21, which have, since Berkeley at least, often been read as revealing Locke's acceptance of what is called 'the argument from the relativity of perception' to *prove* or *demonstrate* the subjectivity of certain supposed qualities. For a quite different, and more plausible account, see Alexander, [3.35], 124–9.

11 See for example Ayers, [3.43], including the references given on p. 78, n. 2.

12 This is just one of a number of references in the *Essay* to the substantial forms of the schools. For example, in IV.iv.13 Locke again protests the view that 'there were a certain number of these Essences, wherein all Things, as in Molds, were cast and formed'. It is strongly arguable that commentators who fail to attach due importance to Locke 's dissatisfaction with this scholastic notion can only misunderstand many of Locke's better known pronouncements, including not only a problem he raises earlier in IV.iv—that of how we can know that our ideas 'agree with Things themselves'—and his answer to it as it relates to our ideas of substances, but also his insistence that words signify ideas, the account of knowledge given in Book IV, and even the content of II.xxiii. There too, in section 3, we find a significant reference to the suspect 'substantial forms' of the schools. (For a brief account of the doctrine, as understood by Locke and his contemporaries, see Woolhouse, [3.33], sect. 12.)

13 These examples are of 'abuses', but Locke's treatment of the 'imperfections' of words is also important. His initially puzzling insistence that 'Words…can properly and immediately signify nothing but the *Ideas,* that are in the Mind of the Speaker' underlies his analysis of the difficulties we get into with the names of mixed modes (such as 'murder') and substances, and the remedies for these. An illustration is a dispute between physicians he reports on in III.ix.16 over 'whether any Liquor passed through the Filaments of the Nerves'. This was largely resolved when they saw that 'each of them made [the term 'liquor'] a sign

of a different complex *Idea*'.

14 References to Locke as a sceptical philosopher that are found in the literature are, however, not wholly unjustified if they are linked to his observations about the limits of human understanding and, in particular, to his claims about our inability to penetrate into the real essences of things. The one point I want to insist on is that, for Locke, the claim that I don't 'know' for example that stones won't nourish me does not entail suspension of judgement, nor any suggestion that there are reasonable grounds for doubt.

15 Locke, [3.2], 4:360.

16 Thus Locke's account of the 'degrees' of our knowledge in IV.ii dwells on intuition and demonstration, and he observes at the beginning of section 14 that 'These two…are the degrees of our Knowledge; whatever comes short of one of these, with what assurance soever embraced, is but Faith, or Opinion, but not Knowledge'. On the face of it, this *should* rule out knowledge of the existence of things 'without us', for in the same section he admits that this falls short of 'either of the foregoing degrees of certainty'. All the same, it 'passes under the name of Knowledge', and this is something Locke immediately endorses. Similarly, his observation in IV.xi.3 that in this area we have 'an assurance that *deserves the name of Knowledge*' is not unnaturally read as conceding that he is making it 'knowledge' by special dispensation.

17 Locke's only sustained treatment of our knowledge of the existence of things 'without us' is in IV.xi, so it should be noted that here as in other key passages (e.g. II.viii.12) there is no suggestion that we do not perceive such objects. Indeed, it is said at the outset that it is 'when by actual operating upon him, it makes it self perceived by him' that a man knows that an external object exists. This is the sort of thing one has in mind when one talks of a strong streak of perceptual realism in Locke, but it has of course been recognized by those who hold that it cannot be taken at face value. The issue then becomes, I think, whether other things Locke says suggest that, really, all we are aware of is mind-dependent items, or whether the dominant thought is simply that, though we are aware of the things, the way they appear to us will depend in large part on facts about our sensory apparatus. For an analysis of the issues that divide commentators here, see Tipton, [3.59].

18 Bennet, [3.36], 120.

19 Ryle [3.57], 147. The remark, made in conversation with Bertrand Russell, was set in the context of a recognition that 'Locke made a bigger difference to the whole intellectual climate of mankind than anyone had done since Aristotle'. The paper in which he reports it is thus not dismissive, but rather Ryle's attempt to explain what Locke's great contribution was.

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CHAPTER 4
Locke's political theory

Ian Harris

The author of *Two Treatises of Government* also wrote *An Essay concerning Human Understanding*. This is an elementary fact, but one with an important implication for understanding Locke's political theory. For *Two Treatises* is an explanatory work. Its objective is to explain the proper character of political authority (or, in the Latinate usage Locke preferred, political power).[1]

To consider Locke's political theory in this way is to place it within the framework of his other intellectual concerns. This is not the only way of writing about theories of politics, but it has a special relevance to Locke. *Two Treatises* is one of the most studied works in political theory. Yet the design of its argument has not been much considered. The picture which the student may form is one of disorder within the text.[2] This impression is unfortunate, because a modest examination of Locke's political argument in the light of his broader thought will yield a much clearer picture: and a justified clarity, after all, is the best assistance that scholarship can give to the reader.

One word of caution should be added, indicating a way in which *one* philosophical approach to Locke's political theory would give a misleading impression of the author in his time. Locke is often supposed to be a progenitor of modern liberalism. Now liberalism assumes as many guises as an imaginative chameleon, but the sort most prominent in philosophical thinking about politics presently is 'unLockean' in an important way This thinking distinguishes between the right and the good, meaning by the former a basic organization of society according to some canon of justice (though the canon varies) and by the latter a view of how one is to run one's own life. The latter is to be decided by the individual in a manner satisfying to him or her, subject only to the protection or entitlements afforded to others in the name of the right. However the right is understood, there is present a belief that the moral life is determined by and not for the individual: that there is no moral arbiter set over him or her.[3] This view is a complete inversion of Locke's fundamental position. To his mind the human condition was patterned by moral obligations imposed by God, patterned indeed in highly specific ways. This moral patterning has implications for politics, because Locke used the idea of God as a moral legislator to explain the sort of political organization he preferred.

The political doctrine of John Locke, briefly characterised, was founded on the assumption that God had ordered matters in a manner that aligns the force of theology and ethics behind responsible government. The Lockean God is taken to be mankind's superior: this means that He excels people in all salient aspects and, on the basis of these, is fitted to direct and guide them. The content of God's directions is manifold, but its fundamental points are straightforward. That is to say, first, that God wishes mankind to survive, to increase in number and to subdue the earth, and second, that He has

promulgated laws, through both reason and revelation, that prescribe measures conducing to those ends. These laws, understood correctly, would conduct people to a sort of government that was limited to certain defined goals and accountable to its citizens.

We may contrast this doctrine of responsible government, limited and accountable, with absolutism. Absolutism is the doctrine that the ruler bears no responsibility to the ruled, and this because God is supposed to have ordered matters in a manner somewhat different to that which Locke attributed to Him. According to this view God either conferred authority directly upon the ruler (so that he was responsible to God rather than the ruled) or permitted the ruled to transfer whatever rights they had to the ruler, irrevocably and unconditionally.[4] Absolutism is a notion foreign to modern fashion: we are all used to the idea of responsible government. But it was *à la mode* in Locke's day and it is worth our while to see how his mind developed quite another cast.

I

It fell to Locke, as a young don at Christ Church, Oxford, to deliver a series of lectures on natural law. For our purpose the significance of the result, which we know as *Essays on the Law of Nature,*[5] is that it contained a theological and ethical position that would play an important role in Locke's political theory.

The primary supposition of these *Essays* was that God was the author of moral prescriptions to mankind. These prescriptions characteristically assumed two media, namely revelation and reason. Though revelation, essentially God's word in the Bible, was relevant to the whole human race it had been diffused to a section of people that was relatively small. Reason, on the other hand, was a faculty possessed by all humans: a code expounded through it could be said to be available to all. This code, called the law of nature, was obviously convenient to moralists who wished to give an explanation of ethical values by using theology. Thus natural law is found in the works of thinkers as various as Aquinas and Luther or Calvin and Culverwell.[6] Whilst the precise specification of its contents varied from writer to writer, its fundamental lines were clear. These took their rise from one central supposition of fact. This was that man was a creature constructed by God. On the one hand God had implanted in the human race certain natural drives. The chief of these were desires for self-preservation and the perpetuation of the species. But the human agent, considered individually, was unequal to the very task of surviving, so that the satisfaction of these desires implied co-operation with others in order to produce favourable conditions: that is to say, to produce society. Rational reflection on these facts suggested a series of precepts directing people to these ends—to preserve oneself and live in society (and, additionally, further precepts of the same tendency). On the other hand, reflecting on God's work in making mankind meant recognizing that He had conferred an incalculable benefit on it. This implied a debt of gratitude to Him, which was thought to be expressed fitly through worship. Thus to preserve oneself, to live socially and to worship were the basic terms of natural law.[7]

Locke's *Essays* were distinguished not by altering this content—indeed he endorsed it[8]—but by explaining its origin and binding force, and how mankind might know these things. That is to say, he argued that God was the moral legislator and that His precepts

were always and everywhere of binding force. God was entitled to legislate because he was superior to man in the respects required for the proper direction of agents: not least in understanding, for God was understood to be omniscient. The notion of superiority, often conceived in terms of intelligence (and, when considering human superiors, birth, wealth and education) pervaded contemporary thought. Such attributes were supposed by contemporaries to be a title to direct others: as Obadiah Walker suggested, writing of the nobility, some had attributes 'rendring them eminent and conspicuous above other men, [which] sets them also at least as lights and examples to be followed by their Inferiors'.[9] The Lockean God not only provided directions but also complemented them with obligations. Locke understood obligation to imply not only a superior but also that superior's ability to bring sanctions to bear: God certainly qualified as an imposer of obligations, since He was omnipotent. The obligation to God's directions was universal in extent(for God was superior to all people) and perpetual in duration (since He was eternal).[10]

These theological and ethical points had a political relevance. They went most of the distance necessary to disbar the explanation of absolutism given by the notion of a transfer of right. That is to say, if we accept Locke's line of thought about obligation, people were bound to obey God's directions. They could not be entitled to surrender themselves without reservation to another human being's guidance. All Locke needed to add in order to rule such a transfer out of court was the assertion that God's directions would be undercut by those of absolute rulers (and others who threatened freedom), as we shall see.

II

Two Treatises of Government argued that absolutist explanations did not make sense and that the true explanation of political power is quite different. Its discourse was throughout tailored to these ends. Locke applied the word 'demonstration' to his own text and criticized Sir Robert Filmer, one of his principal absolutist targets, for preferring assertion to explanation. He criticized the quality of Filmer's work, terming it *'glib Nonsense'* and describing his reasoning as 'nothing but a Rope of Sand'. But though Locke expressed disdain for its quality, he regarded it as an explanation. Filmer's argument was '*his* Hypothesis' and its refutation provided 'premises' for Locke's conclusions; Locke's first book aimed to refute Filmer's *False Principles* and his second to reveal *The True Original, Extent, and End of Civil-Government*.[11]

Absolutism did not harmonize with the political prepossessions of the circle in which Locke moved. As early as 1675 Shaftesbury, Locke's patron, or an adherent of his had signalled his distaste of it, observing in particular that absolute governments were not entitled to unlimited obedience. *A Letter from a Person of Quality* distinguished 'bounded' from 'absolute' governments. A 'bounded' government was one 'limited by humane laws', denoting a contrast with absolute governments whose rulers were bound only by God's laws. The relevance of the distinction became .dear when *A Letter* asked 'how can there be a distinction…between Absolute, and bounded Monarchys, if *Monarchs* have only the fear of *God* and no fear of humane Resistance to restrain them'.

England, *A Letter* added, was a bounded government.[12]

Explanation is far from being the sole constituent of political discourse. Practical ends can be connected or annexed to theoretical writings. There has been some question about Locke's hypothesized involvement in political affairs and about the possible practical use of his *Treatises*.[13] But whatever the character of these, the work itself has an explanatory character. The work sets out to show how 'political power' is specific in its goals and limited in its authority, the latter being revocable.

We find argument also in two modes. Of course the argument has one primary subject, namely political power, but to this there were not one but two origins. All power was of God,[14] but derived from Him either directly or indirectly. The former source worked when God conveyed power by His command to some individual or group. This in effect meant conveyance through scripture. The latter source suggested that power was mediated through a longer route, as for instance popular consent. This would be discovered most characteristically through reason.

Locke had therefore to deal in the media of both scripture and reason and through these needed to both dispatch absolutism and establish 'bounded' government. This may sound a complicated agenda, but the structure of Locke's argument is straightforward enough. The first of his *Two Treatises* concerns primarily scripture and his second reason, though Locke deployed both media in each. He criticized absolutism and developed his alternative *pari passu*. For in his attack on Filmer throughout the first book Locke laid down several premises from which his own argument about government in the second proceeded, whilst that argument itself offered an alternative to the devices of absolutism by explaining a 'bounded' government. The two books of *Two Treatises of Government* form a continuous treatment of Locke's theme.

III

His *Two Treatises* were complementary, for each considered one of two routes. The first book considered one of the explanations that power is directly of God. This was the one developed in Locke's day by churchmen like Ussher and Sanderson, and found most extendedly in Filmer.[15] Locke set out to destroy Filmer's explanation of absolutism. Locke's second book provided an account of power on the other model by the 'indirect' route.

They were not merely complementary in subject matter, but also in their manner of treating it. For Locke's *First Treatise* provided a description of God's purposes which provides a large part of the basis of the *Second Treatise*. The *First*[16] is usually conceived as a refutation of one explanation of absolutism, and a rather tedious one at that. This judgement of tedium perhaps obscures the fact that the way in which Locke executed his attack on Filmer's view of political superiority involves also the rebuttal of Filmer's view of God's purposes: and brought with it a relocation of His intentions and, conformably, of political superiority.

Locke's method of dealing with superiorities, whether negatively or positively, was demonstrative in the sense that he set out to show the terms in which political superiority was created by tracing out connections amongst ideas. This method harmonized with his

philosophical approach. By demonstration Locke intended 'noe thing else but shewing men how they shall see right'.[17] In his first book Locke was concerned to break the connections Filmer had set up, whilst in his second he aimed to establish connections of his own.

Filmer dealt essentially in one superiority, on the basis of which he attempted to establish a wide range of connections. In his view God had conferred on Adam a universal superiority over the earth and mankind. God's medium of expression was preserved in scripture and His conferral was direct. The contents of the grant comprised a superiority over the world as a whole: a power which was absolute over all Adam's descendants and unlimited in extent, as well as a parallel lordship over the whole earth and its creatures. This authority, Filmer argued, passed by descent to subsequent monarchs so that they enjoyed an absolute and unlimited power over person and property.[18]

Locke was not much amused by these connections. He required for the purposes of his own argument about government that man by nature be free from any superior (excepting God).[19] Filmer asserted that everyone had a superior, and that was one whose authority was complete in every way. Locke's first book was devoted to unpicking Filmer's connections. Sometimes his method was to suggest that these were insecurely grounded in scripture. At other times he argued that Filmer had not connected his ideas properly. These arguments are in their nature *ad hominem*. They are fairly exhaustive, though those who have not been exhausted before reaching section 80 know that Locke went beyond the text that found its way into print to discuss grant, usurpation and election as titles to government.[20] But in the course of breaking Filmer's connections Locke suggested some of his own. There were two points of especial importance here.

First, the absence of power given directly by God to one individual allows us to suppose that the same faculties presume the same moral standing for all, since God had made those faculties and their make reflected His intentions, because (Locke assumed) God acted purposively. That is to say, the similarity of people one to another afforded no grounds for setting one human above another: and so they should have the same status. As Locke put it,

> Creatures of the same species and rank promiscuously born to all the same advantages of Nature and the use of the same faculties, should be equal one amongst another without Subordination…unless the Lord and Master of them all, should by any manifest Declaration of his Will set one above another.[21]

To this equality is correlated freedom from direction by others, for the faculties possessed were adequate to self-direction, and so direction by another was intellectually superfluous: or, in Locke's own words, people were in 'a *State of perfect Freedom* to order their Actions…as they think fit…without asking leave, or depending upon the Will of any other Man'.[22] Self-direction was the product of adequate and equal faculties, subject (of course) to God's superiority and His direction.[23]

This identity of status amongst people 'born to all the same advantages', as we shall see in a moment, was important in explaining the duty of preservation, which in its turn was integral to Locke's view of political organization. But central to many other matters

is our second point.

Locke provided an explanation of a superiority common to the whole human race, a superiority over the world and its creatures, whether as dominion or as right, and suggests duties addressed to all. All these are cast in terms of the very point to which Locke alluded in his statement of equality, namely that the human intellect was a salient aspect of the image of man in God.

These are found in what Locke terms 'the great design of God'.[24] This design, as its name suggests, signified God's purpose for the human race. The direction was straightforward: people were required 'to promote the great Design of God, *Increase* and *Multiply*'. This language alluded to the narrative of God's setting the human race over lower animals recorded in the first chapter of *Genesis*. Indeed Locke adduced just this to emphasize the purpose. The specification in full runs as follows:

> *And God Blessed them, and God said unto them, be Fruitful and Multiply and Replenish the Earth and subdue it, and have Dominion over the Fish of the Sea, and over the Fowl of the Air, and over every living thing that moveth upon the Earth*
>
> [I Gen. 28]

and it is unambiguous. The God of Locke commanded the human race to propagate themselves, subdue the earth and have dominion over creatures. This was the 'great and primary Blessing of God Almighty'.[25]

Though the great design was cast as a command, it implied a right. To be specific, it explained how mankind collectively had a right to dominion and indeed property over the earth and over its creatures. Locke distinguished the concepts of dominion and property. But he was clear that the benediction of *Genesis* ix, 1–3, to Noah and his sons gave to the human race 'the utmost Property Man is capable of, which is to have a right to destroy any thing by using it'.[26] So mankind collectively had a right to property in the earth and its creatures.

How was the presence of a right made clear? We might say, simply, through revelation, but though true this would not be complete. The allusion to *dominion* makes the point clear. Dominion over animals, we may note, derived to mankind from their intellectual superiority. The common assumption of the day was that animals did not think or, if they did, that their thought was so conspicuously beneath man's that they were manifestly his inferiors. Thus he was their superior or, as Locke put it, had '*Dominion,* or Superiority'[27] over them. In the language of the piece known as *Draft B,* one of his early writings on the human mind, 'it is the Understanding that sets man above the rest of sensible beings & gives him all that dominion he hath over them'.[28] This was because mankind was like God, in that it had a superior understanding, 'for wherein soever else the *Image of God* consisted, the intellectual Nature was certainly a part of it'.[29] Thus the possession of the *imago dei* produced the right.

God made the grant, of course, for the sake of a purpose. A phrase common to both *Genesis* texts we have mentioned (1, 28 and 9, 1) specified the same purposes for mankind's performance in the same general terms, namely: be fruitful, and multiply, and replenish the earth. This general formula may be mediated into a number of particular

forms. One of these is worth especial attention. The intention implicit in the grant required people to preserve themselves. Locke, indeed, indicated that there was a duty of self-preservation,[30] a duty which was matched by a desire for survival and whose content pointed towards the perpetuation of God's design.[31] We may infer that the great design gave people a right to the means of self-preservation; for example, to destroy an animal in order to eat it. Locke inferred as much himself, remarking that God would be unlikely to give property to Adam alone because

> it is more reasonable to think, that God who bid Mankind increase and multiply, should rather himself give them all a Right, to make use of the Food and Rayment, and other Conveniences of Life, the Materials whereof he had so plentifully provided for them[32]

In short the great design suggested that God had given the earth to all mankind, having in mind that it should survive and increase. A duty to preserve oneself was implicit in this.

Here we see Locke deploying conceptions gathered from the general thought of the day, not least his own. Self-preservation was a concern of writing about natural law, including his own *Essays*. The notion of the human dominion over animals had appeared in his writings on this understanding. These assumed also that God had equipped people with apprehensions fitting them to survive. We may add, if we care, that the design's prescription for the multiplication of mankind captured Locke's assumption, seen in his early writings on political economy, that large populations were best.[33] More pointedly, we may say that Locke had taken these motifs and formed from them a determinate pattern. That pattern, as we shall see, was central to his political thought.

We should attend to the generic form behind these formulations: that God had signified an intention for mankind. The design presents a teleology—an end or ends marked out by God for mankind to follow. The 'great Design' is an example of the sort of intentionality Locke had quietly attributed to God in constructing Draft B in 1671. The general principle that there was such a divine plan does not imply the content of the example of it Locke adduced in his *Treatises,* of course. But there is a continuity of thought between his early writings on the understanding and his political doctrine. For he assumed in the former that God had equipped mankind with apprehensions adapted to survival and to allow it to dominate the earth and its animals: in the latter the 'great Design' embodied these suppositions. For it was mankind's 'Senses and Reason', as well as his desires, that set it on the path God had indicated.[34] Thus Locke's view of the human understanding informed the bases of his politics. We should now turn to the super-structure.

III

These points were significant for Locke's larger intention. They provided some of the major bases for his argument about political power in his second book and concurrently about society too. The *Essay… of Civil-Government,* like the first book, was concerned with superiorities in society. Locke took care to distinguish these from each other. His prime concern was the superiority of the civil government (or, as he put it, magistrate

over the citizen). This was differentiated carefully from the superiority of lord over slave (or, as Locke called it, absolute power).

To this end Locke distinguished types of power. He was concerned not just with demonstration but also with relations. Space precludes treating all of these here, but it is worth glimpsing the full extent of Locke's project. That is to say Locke wished to distinguish the relation between magistrate and subject from that between father and child or between master and slave, amongst others. In his own words:

> I think it may not be amiss, to set down what I take to be Political Power. That the Power of a *Magistrate* over a Subject, may be distinguished from that of a *Father* over his Children, a *Master* over his Servant, a *Husband* over his Wife, and a *Lord* over his Slave. All which distinct Powers happening sometimes together in the same Man, if he be considered under these different Relations, it may help us to distinguish these Powers one from another, and shew the difference betwixt a Ruler of a Common-wealth, a Father of a Family, and a Captain of a Galley.[35]

To these we might add the control which an owner enjoys over property, for Locke treated this in a manner congruent with his view of political power. Thus the *Essay…of Civil-Government* presented an alternative to Filmer's conflation of these different relations. It did so, of course, in the interests of explaining 'bounded' government.

This argument required that people by nature have no superior. This meant a political superior. Locke was not disposed to deny the superiorities inherent in the society of his day, of parents over children or the owner over his property, for instance.[36] But Filmer had identified freedom by nature from a political superior as the central assumption of limited government.[37] Locke was as good as Filmer's word.

Locke's method of explaining the difference amongst different relations was to outline their source—in his vocabulary, their original. The original, in fact, was one, in that they were all referred to God's intentions. These are best understood by referring to the great design. All the relations important to Locke's argument are explained, wholly or partly, in terms of the great design, except for the relations of master and slave. It is this common explanation which united the terms of Locke's *Essay…concerning Civil-Government*. Viewed as a list of contents, the principal items of the *Essay* might appear somewhat miscellaneous. Duties of self-preservation and preservation, slavery, property and political organization, to name no others, follow each other in a succession which does not seem entirely orderly at first blush. But there is a connection between these items. The laws of self-preservation and preservation explain the terms on which government is instituted, just as Locke's treatment of slavery illustrates how God's purposes limited these terms.

The great design had a major role in all of these arguments. The duty of self-preservation was part of the design. We shall see that the law of preservation follows from it, once set in conjunction with freedom, equality and the golden rule. God's superiority, prescribing self-preservation, excluded slavery (except in some marginal cases) and suggested that men must remain free. Property in general, we know from the *First Treatise,* derives to mankind from the great design. We shall see that property could

be made private through an aspect of freedom; and that privatization was required by the terms of the design. Parental power Locke explained through the function of fitting children to be free and the design will explain the binding character of the function. After all this, it is natural to reflect that rights traditionally associated with Locke's name, all relate to the design. Government, of course, existed to protect them. In short, Locke's account of political power is related to the view of human purpose which he called the great design of God.

IV

If we start with government we soon find ourselves drawn back to the great design. Locke argued that civil government was empowered by two rights—rights belonging to the individual and whose exercise he or she delegated to ensure that they would be applied efficiently. These were the rights to execute the law of nature and to preserve oneself. These rights themselves derive from two duties, to preserve others and to preserve oneself.[38]

We have seen the duty to preserve oneself in book one, but what of duty to preserve others? The idea of a duty to preserve others is quite intelligible in itself. Its explanation is another matter. It does not figure in scripture. Locke argued that because we have a duty to preserve others: that 'Every one as he is *bound to preserve himself*...so by the like reason…ought he, as much as he can, *to preserve the rest of Mankind*'.[39] How can we explain it?

Locke, as often in his *Treatises,* may seem to write elliptically in explaining the law of preservation. But he had no need to be more than allusive because he employed an idea well known to his contemporaries. The law of preservation he explained by combining man's desire for self-preservation with the golden rule. The golden rule was a central item in the thought of the day. The agent's duty, therefore, could be summarized in the form: love God, and thy neighbour as thyself. This thought figured in a variety of Christian sources, from St. Matthew to Hooker (to go no further). So habitual was its use that there was evidently little need to set it out in explicit language. But its role becomes clear as we pursue the reasoning in chapter 2 of his *Essay on…Civil-Government*.[40]

Locke reminded the reader that men were in a state of freedom and equality and went on to say that Hooker had made 'this *equality* of Men by Nature' 'the Foundation of that Obligation to mutual Love amongst Men, on which he Builds the Duties they owe one another'.[41] Hooker had argued that each man should expect no more from his neighbour than he himself performed, for they were equal by nature and so in that respect there was no ground for differentiating between them. He also wrote of taking care to satisfy what one supposed one's neighbour to desire. This follows on the ground of equality. Let us put these considerations more formally.

The conjunction of the golden rule with desire we may describe first in very general terms. It implies the procedure of putting oneself, mentally, in another's place. There one considers how one would like to be treated if really in his or her shoes. One formulates one's conclusion as a rule and one should treat others according to it if one wishes to deserve like conduct from them towards oneself. The procedure could be stated formally

in these terms: it cannot be right for A to treat B in a manner in which it would be wrong for B to treat A, merely on the ground that they are two different individuals, and without there being any difference between the nature or circumstances of the two which can be stated as a proper ground for any difference of treatment.

Locke chose to adduce the 'strong desire of Self-preservation', which we have seen correlated to the great design, 'the desire, strong desire of Preserving his Life and Being…Planted in him, as a Principle of Action by God himself'.[42] This desire, joined with the golden rule, brings us to the law of preservation.

There is a further significance to self-preservation: on Locke's terms it prevented absolutism on the terms preferred by modern thinkers. To trace power directly from God was one route to the absolutist destination. But the same result could be had by an unreserved transfer of right from free men, as we have noted. These arguments presupposed that people were free to transfer their rights.

Locke precluded this by asserting that people answerable to God and that God required of them conduct incompatible with an unreserved transfer of freedom. God required man to preserve himself and self-preservation was ensured by freedom from absolute power. According to Locke the only reason why anyone would attempt to gain absolute power over another was to threaten his life.[43] To subordinate oneself to a superior without reservation was therefore out of the question:

> *Freedom* from Absolute, Arbitrary Power, is so necessary to, and closely joyned with a Man's Preservation, that he cannot part with it…For a Man, not having the Power of his own Life, *cannot,* by Compact, or his own Consent, *enslave himself* to any one, nor put himself under the Absolute, Arbitrary Power of another, to take away his Life, when he pleases. No body can give more Power than he has himself; and he that cannot take away his own Life, cannot give another power over it.[44]

So people could not countenance submission to absolutism in this mode because they were answerable to God and because the content of God's purposes required them to retain their natural freedom. Freedom, that is to say, cannot be utterly alienated. We shall see that it could be transferred in order to execute other purposes, but that only on conditions which admitted recall. Thus the operations Locke attributed to God restricted the range of possible governments.

V

Locke had not only to explain political power but also to explain those values his society prized. Once the ability to direct oneself and so the basis of civil freedom had been established, property was the most important of these. Hence the second of *Two Treatises* passes from freedom (in chapters 2–4) to property (in chapter 5). This ordering had a logic beyond psychological linkage (it has the latter because liberty and property were key values in politics in Locke's day). For having established political power in terms of God's design, including intellect and freedom, it was incumbent upon him to explain

property in a like manner.

Locke placed the retention of freedom significantly, for freedom in his hands would be the instrument of explaining how property could be private. To explain it so was important, for the prevalent style of explanation founded private property on terms that admitted absolutism. To substitute a version that grounded private property in freedom rather than subjection would be a major coup.

What was the task before Locke? The great design of God gave property in the earth and its creatures to mankind collectively. The question, then, was how to move from that to private property. Locke explained this in terms of freedom, for he argued that it was an attribute of a free man that his labour was his own. It was free labour, under the auspices of the great design once more, that produced appropriation and was present in the accumulation of more sophisticated forms of property.

A dictionary of the seventeenth century distinguished an individual's property by its independence from others' control, defining it as 'the highest right that a man hath or can have to any thing, which is no way depending vpon any other mans courtesie'.[45] The writer followed the usage we employ today by applying this definition only to material possessions. Locke is well known for construing the term in a broader way. He embraced not only property as land and goods but also the property each man had in his person. This dual usage is important because it situated 'property' in his wider political explanation.

Locke needed to treat private property in a certain way in order to sustain his own political theory. His *Second Treatise* undertook to explain political power in a way which distinguished it from other sorts of power. He wished to do so in a way incompatible with absolutism. The plausibility of his doctrine to contemporary readers would depend not just on his reasoning about political power itself but also on showing that property could be explained adequately within the terms Locke proposed. His wider argument would not be acceptable if it did not base their cherished property soundly.

Political theory likewise explained property in terms which made it easy to refer it to government. The most powerful explanation was Grotius'. He assumed that mankind originally held property in common and subsequently agreed to partition it amongst themselves, thus producing private property. Pufendorf added the refinement of classifying the original ownership by the whole community in two ways, as negative (which was common because not marked out by any action) and positive (which was common to a given group but not to outsiders), but he did not modify the fundamental theory.[46] Whilst this view of itself implies nothing about government, the two combined easily in the suggestion that only government could produce an enforceable and therefore stable partition. Hobbes asserted that 'there be no Propriety, no Dominion, no *Mine* and *Thine* distinct' without government.[47] Hence private property turned out to be the creation of governmental power.

That the most persuasive criticism of Grotius came from a source radically hostile to natural freedom did not help. Filmer had pointed out an acute difficulty in producing a division of common property because he disliked the implications of the natural freedom it implied.[48] Such a division, he argued, would require a consent of all mankind. Hobbes's view that the state of nature could hardly sustain a viable agreement about property was equally unhelpful to anyone who wished to explain property without relying

on government. Their arguments in effect required a new explanation of private property from one who wished both to uphold natural freedom and to explain property in terms free of governmental attachments. Locke noted the difficulty[49] and proceeded to solve it. The *Second Treatise* set out an explanation of property which is founded on natural freedom and is *incompatible* with absolutism. Locke reasoned from the assumption that man was by nature free of a political superior: he retained his natural freedom. That left open the way to set property in terms of freedom. How was this accomplished?

If a human being were free it followed that 'every Man has a *Property* in his own *Person*'.[50] If a human being enjoyed freedom from another's control it followed that they had authority over themselves. As we have seen the seventeenth century called this exclusive control *dominium*. Sometimes too it was called property or *suum*. This control referred to the qualities inhering in a person and was thought to comprise his life, limbs, liberty and so on. Grotius described it as life, liberty, limbs, honour and reputation. Those who opposed absolutism emphasized that material possessions belonged with these, so that property in the ordinary sense was classified as *suum* rather than explained through government. Hence within the framework of *dominium* property in the sense of control over oneself came to include property in goods and estates. The Lockean trinity of life, liberty and property is only one example of this.[51]

It was one thing to move property in the concrete sense on the conceptual map and another to explain it in terms that would securely locate it there. Writers before Locke had not attempted this. He did so by suggesting that a deployment of the agent's *dominium,* his property in the wider sense, produced property in the narrower one. When Locke emphasized the property each had in his person, he added that the '*Labour* of his Body, and the *Work* of his Hands…are properly his'.[52] That labour Locke used as the means to property. It was easy to describe this as appropriation, since it implied taking something to oneself. The activity had been mentioned by Grotius and Pufendorf, but only marginally.[53] Locke made appropriation the instrument of acquiring property.

But why should this use of the agent's property, his 'labour', produce property in the ordinary sense? It is a mystery why applying one's labour to something, even consuming it, makes the thing taken one's own.[54] After all we call one variety of this activity theft. The solution is that the world already belonged to God, who required mankind to use it for an end which necessitated labour.

Locke had argued for God's superiority in his *Essays* and assumed it in his *Treatises:* and indeed His ownership of the world was a datum common to all writers on the subject of property. They assumed, additionally, that He had given the world to man: Filmer argued one man, Adam, and Grotius and the rest all mankind. His donation was supposed, by Grotius and Filmer amongst others, to take the form declared in *Genesis: be Fruitful and Multiply and Replenish the Earth and subdue it*. Locke, of course, had used this passage to found his God's great design, and here we see its special bearing on property. That lies in a point which is itself quite small, but which has important implications. Most writers treated this instruction of God's merely as a permission—Filmer described it officially as a blessing or benediction and Grotius as a right—which entitled people to live on the earth but did not demand anything of them. Locke by contrast treated it as a direction from God to man. This interpretation was crucial for his argument about property.[55]

The command was conveyed through both revelation and reason. The former, as we have seen, disclosed that God had set up 'the Dominion of the whole Species of Mankind, over the inferior Species of Creatures' and that this was entailed by His command. 'God who bid Mankind increase and multiply' intended to 'give them all a Right to make use of the Food and Rayment, and other Conveniences of Life, the Materials whereof he had so plentifully provided for them'.[56] The latter, we may add, was made as an inference from the nature of man and the world to the effect that God meant man to use the earth to preserve himself: 'God…spoke to him, (that is) directed him by his Senses and Reason…to the use of those things, which were serviceable for his Subsistence, and given him as means of his *Preservation*'.[57]

So God not only gave the world to man but also gave it for a purpose. That purpose, the preservation and increase of the human race, was integral to Locke's account of property.

In the first place it required appropriation as the means of God's design and therefore legitimated that activity. Locke was quick to insist that this required appropriation. 'God, who hath given the World to Men in common, hath also given them reason to make use of it to the best advantage of Life, and convenience', he remarked, and reason pretty soon concluded that 'there must of necessity be a means *to appropriate*' things before they could be used by anyone. The means of appropriation was labour. Hence the man who laboured in order to sustain life acquired property because He did as God willed with God's creation. 'The Law Man was under', in Locke's words, 'was rather for *appropriating*'.[58]

Whilst appropriation of itself suggested consumption or seizure, it could also be the instrument of service to the end attributed to God. His command to subdue the earth could be glossed to legitimate property in land. 'God and his Reason commanded him to subdue the Earth', we read, '*i.e.* improve it for the benefit of Life' which was achieved through appropriating land and farming it. The increase of mankind could be sustained, it seemed, by fencing in ground and more pointedly by improving land. Locke insisted eventually that at least 90 per cent 'of the *Products* of the Earth useful to the Life of Man' were 'the *effects of labour*'.[59]

The institution of money would encourage improvement still more, for it removed the limit to rational labour and acquisition set by the perishable character of natural products: people could exchange their produce for money.[60] Thus both land and money turned out to be terms in God's design, for they both implied an increase in the resources available to sustain the human race.

Locke wrote near the end of his life that 'Propriety, I have no where found more clearly explain'd than in a Book intituled *Two Treatises of Government*'.[61] The outstanding immodesty of the assertion bespeaks the importance of a plausible explanation of property for his purpose. It accommodated the principal varieties of property in a way which relied upon man's natural freedom; it avoided the difficulties which Filmer and Hobbes had seen in the Grotian account; and it was incompatible with absolutism. So property and political power fell into the same pattern of explanation for Locke.

So the great design, because it involved freedom, made possible an explanation of private property in terms congruent with Locke's view of political power.

VI

Locke had indicated that political power resided in each agent. He had explained property in a way which showed that it was prior to civil government and unrelated to the underpinning of polity. Instead he referred both property to his view of God's intentions in the great design. But one great task remained: to treat government itself in the same terms.

For Locke's task was at once to explain government and to limit it. To explain government was necessary, because otherwise the obvious safeguard of liberty and property would be absent. For despite the suspicion of rulers built into the structure of *Two Treatises* both of its books assume the need for government. The explanation would have to be managed in terms of freedom too, in order to show how Locke's argument, which had begun without political superiors, conducted his reader to a secure government. That government had to be limited, in order to fulfil the aim of establishing 'bounded' government. One task, then, was to show how a polity could exist on his terms and the other was to show its limitations.

To show that government could exist legitimately was straightforward enough. The rights of each and everyone to preserve themselves and to execute the law of nature, which we have seen flow from Locke's general views, explained government easily enough. Locke supposed that in order to secure the objectives corresponding to these rights people would consent to creation of a political society, that is to say a society whose governors were entitled to pursue just those objectives.[62] To suppose these rights inhered to each individual presupposed that everyone by nature was free of a political superior. So government was founded on terms compatible with freedom.

More positively he conceived that the agent's natural endowments, reason and will, could be used to establish political power on terms that suited him. First, setting up a government was a rational act. Civil government was a device designed to secure the ends embodied in God's design. It was supposed to secure them better than individual agents considered separately could secure them. For it made sense for people to do collectively what they could not individually.[63] Locke argued, in effect, that the creation of government was an exercise of rationality.

The very act of *setting up* a government implied adding something to nature. In this sense government for Locke was artifice. As such it appeared at an intelligible stage in the text. For having begun the second book of *Two Treatises* with natural matters, such as the endowments of mankind and their duties under natural law, Locke had moved to matters that required action, such as the acquisition of property and the exercise of parenthood. These activities, of course, accorded with God's prescriptions. But they involved people acting to better the nature they had received, whether by improving the earth or educating a child. Making a government, too, meant bettering the state of nature and was a deliberate act of artifice.

Yet it remains to ask, to what, precisely, did people consent? Locke's answer was cast in terms of reason and freedom.

VII

So far examination of political power has suggested that it was an instrument for securing certain ends, those connected with God's intent. His plans for mankind explained and defined its authority. It followed that an authority that was not defined so stood apart from this divinely warranted pattern. Absolutism, Locke felt able to conclude, was not a form of government at all.[64]

Having distinguished political power thus, Locke examined its character. Polity, according to him, had three aspects—executive, legislative and federative. The distinction, as stated in his text, was amongst functions. One agency was to legislate, another to execute the laws and so on, and another still to conduct foreign relations. These were not necessarily distinctions amongst personnel, for in government one agent might have more than one function.[65] It was the distinction of those functions that mattered, for it was integral to the responsible character of government. That is to say, Locke wished to subordinate the executive and federative to the legislative and to show that the latter depended on the consent of the governed.[66]

Locke specified that the purpose for which government existed was to sustain rights. How does this relate to the matters discussed so far? Right in Locke can be understood in relation to authority. In its root sense the latter involved an ability to direct. To say that A had authority over B would imply that A was able to direct B more successfully than B could have managed for himself. This would be partly a matter of intellect and partly of other faculties. Where faculties were in some sense equal, no one was better equipped by nature to guide others, as we have noted. But Locke maintained his general model. Hence, for example, God's authority over people derived from His superior ability to direct and to reward or punish them. This superiority, Locke thought, gave Him a right to deal with mankind as He chose.[67]

On this model, right would be an attribute of a bearer of authority. It would be attributable in respect of a superiority, meaning by that both that it accrued to a superior and referred to the aspect in which he or she excelled the inferior. Since God was superior to all forms of existence, His right held good over all aspects of creation. But we need not assume that the right enjoyed by a mere human agent over another would be so complete.

In particular we might emphasize that God's supereminent superiority gave Him a right over everything. It followed that His inferiors enjoyed a right only on terms of aspect and extent granted by Him. We have seen already that mankind enjoyed a right to the earth and its creatures because God decided it was so. We have seen, too, that God enlarged the extent of that grant (to embrace destroying the animals). It is worth adding the more striking illustration that people enjoyed life only as God chose.[68] On this basis, then, rights would be grants made by God.

This affects how we understand the concept of right. Most importantly, the attribution of right to an agent would relate to God's purposes. After all, God, if understood as wise, would not deal out rights without purpose. Rights would be attributed to those capable of doing His work and, by the same measure, discontinued if the capability were misused.

Thus, for example, all human agents have the same faculties, faculties which were supposed to be adequate for self-direction. Hence each agent was entitled to direct himself or herself. This implies a right to be free from the direction of others, 'the Right of my Freedom'.[69] Again, each agent had a superiority over their persons, described by Locke as their right (and sometimes their property). The language suggests an exclusive possession, beyond the proper role of other human agents: but this self-direction was subject to direction by God. We find Locke's statement of the agent's independence was subject to natural law. By the same measure we find that those who contravened God's purposes decisively lost their rights, most dramatically by forfeiting their lives.[70]

Second, there may be an extension of usage, an extension relating to purpose. It happens several times in Locke's thought that rights are attributed to people by reason of the fact that they correspond to the means necessary to do God's work. Amongst these we can list the right to use the earth and its creatures as a means of self-preservation (without which the duty to preserve oneself would be impossible), and the right to punish aggressors (glossed immediately after its appearance as the right to execute the law of nature); without supposing this, as Locke pointed out, natural law could not be enforced terrestrially.[71]

This brings us to a further sense which right denoted, namely agreement with measures prescribing proper conduct. This was present generally in the seventeenth century, as in Hobbes's view that right existed where the laws were silent.[72] With Locke there is the special assumption that rights would not merely accord with law but would relate to the purpose for which the latter was made. This was true, for example, of the rights protected by government.

What was the subject matter of these? We say traditionally, life, liberty and property. These cohere as parts in God's design. Liberty was a condition of Locke's design, for the liberty it denoted was that of an agent independent of another's direction.[73] Property, as we have seen, was in its simplest form acquired in terms of the great design and in more sophisticated forms authorized by it. The generality of the formulation 'life' accords with the design. 'Life' is certainly general and seems oddly so, till we remember that activities to which it relates are as various as, preserve self and preserve others, charity and bring up children—and all of these in the best way possible.[74] Thus these rights refer to states of being integral to the purpose Locke attributed to God. So we see that the authorities on earth authorized by God—political, familial and so on—are to be explained in terms of His purpose, the great design.

In a like way the rights enjoyed by governors answered to the purpose Locke laid out. These rights issued directly from the rights enjoyed by every agent to preserve himself (and others) and to punish aggressors, which were themselves inferred from the law of preservation.[75] These rights proved difficult to exercise, and the point of government was to execute them where the individual could not do so easily.

Because the creation of a polity was an exercise in rationality, the same purposes for which it was created bounded its activity. This meant, first, that just as the agent had only a limited range of actionsopen to him or her legitimately, so too the government was restricted. The authority of polity came from the power an agent enjoyed over herself under the terms of the great design. That was limited and so polity at the utmost would enjoy no more. Locke put the matter with a clarity edging on pleonasm. 'No Body can

transfer to another more power than he has in himself; he wrote,

> and no Body has an absolute Arbitrary Power over himself or over any other, to destroy his own Life, or take away the Life or Property of another. A Man, as has been proved, cannot subject himself to the Arbitrary Power of another; and having in the State of Nature no Arbitrary Power over the Life, Liberty, or Possession of another, but only so much as the Law of Nature gave him for the preservation of himself, and the rest of Mankind; this is all he doth, or can give up to the Commonwealth.[76]

Where with Marvell the same arts that did a power gain must it maintain, with Locke the same power which did a power create bounded it.

Its boundaries were threefold. They lay with creation and function and forfeiture. Locke's agenda in the creation of a government did not admit of an unreserved contract, unlike Bodin, Grotius or Hobbes. These theorists had conceived that the agent was subject to no constraints on how he disposed of his or her person. For instance, it was permissible to enslave oneself. On these terms a transfer of right to a ruler could be complete and irreversible. But for Locke, because government was an instrument created for a specific end, it ceased to have validity when it ceased to serve that end. Thus polity loses its authority so soon as the purposes for which it was set up were violated.[77] Thus he made out his model of bounded government.

VIII

Locke's political theory took elements from his preceding thought and treated them in a manner that combined them with the devices and the needs of current thought in order to explain his preferred style of government. Locke wished to explain that government must be responsible, rather than absolute. Two items were especially significant in his project. These were his view of God as mankind's legislative superior, drawn from his moral theory, and his assessment of human faculties, based upon his writings on the human understanding, but not developed there in quite this direction. He used these devices, in company with his view of relations, to attribute a divinely-warranted pur-pose to mankind, which comprised an understanding of morality and of human life inconsistent with absolutism and favouring 'bounded' government.

This account suggests that Locke was a more powerful and single-minded theorist than the figure found in our textbooks. This may be a surprise, but should not be. For it should hardly be anticipated that the author of *An Essay concerning Human Understanding* would be less acute in dealing with politics: though this is not to say that his work is flawless.

NOTES

1 In the vocabulary of the seventeenth century 'power' connoted the Latin *potestas,* which

embraces both authority and the ability to enforce one's will. Hence Locke's project of explaining political power has an emphasis on the normative. Note too that the century was reduced to describing power without right as power *de facto*. The author would like to thank Dr. Ian Tipton for commenting on an earlier draft.

2 E.g. [4.49], 537; the example could be matched by many others.
3 The outstanding specimen is now a classic: [4.54].
4 For different derivations of absolutism, cf. [4.20], chs 1–2 in [4.23]; [4.15] esp. 1.8, cf. [4.21] in [4.23], 172–83; [4.25], I.iii.viii.1–2; [4.26] H.xviii.
5 Locke's manuscripts were edited by Wolfgang Von Leyden under this title as [4.1] and re-edited by Robert Horwitz, Jenny Strauss Clay and Diskin Clay as [4.2]. This latter work expresses reservations about Von Leyden's edition: but these, if valid, would not affect the use of the text made here. The older edition (i.e. [4.1]) is cited because more accessible. Since Von Leyden's text is printed with a facing translation I have given the folio numbers printed in his edition in order to give a continuous numeration.
6 See [4.12], Ia, Iae.94 and generally 90–7 and Ia.IIae. 10–12; [4.27], 40^3:612; [4.17], IV: 3–5; [4.19].
7 See e.g. [4.12], Ia.IIae.94.a.2. For an important commentary on the aspect of self-preservation, see [4.51].
8 [4.1], no. 4,ff. 60–1, pp. 156/158.
9 [4.33], I.iv: 31. Cf. II.v: 267: To admonish and reprehend is not an action of an Inferior'.
10 [4.1], no. 4, ff. 52–9, pp. 150–6.
11 [4.6], preface; I.i.i; II.i.i; title page: 153, 155, 159, 285.
12 [4.13], i, 16.
13 See for this especially [4.38]. This fascinating volume has attracted a great deal of comment, much of which is used by [4.39]. Ashcraft replied to this in [4.40].
14 [4–59] xiii:i.
15 See [4.32], with a preface by Robert Sanderson.
16 Strictly there is no work entitled *First Treatise* and the expression *Second Treatise* appears as part of a larger title page. Locke regularly denominated both as books (see the contents page, [4.6], 157 and 159, 285). The usage, however, is convenient.
17 [4.5], sect. 44:153.
18 This is found most fully in the manuscript piece, given to the world after Filmer's death as [4.20].
19 The logic is well illustrated in [4.16], i: 'It is certain, that the *Law of Nature* has put no difference nor subordination among Men…so that…all Men are born free'.
20 [4.6], I.viii.So: 220, a passage that, curiously, Dr Laslett and the other commentators have overlooked in trying to discover the contents of the lost ending of *First Treatise*.
21 [4.6], II.ii.4:287.
22 Ibid.
23 For a fuller examination of this passage, including its intellectual background, see the present writer's [4.46], ch. 6.
24 [4.6], I.iv.41:188.
25 [4.6], I.iv.41:23, 33:188, 174f., 182f.
26 [4.6], I.iv.39:185.
27 Ibid.
28 [4.5], sect 1:101. *Sensible* means accessible to sensation; a contrast is being drawn implicitly with angels and other spirits supposed to be usually beyond detection by human faculties.
29 [4.6], I.iv.30:180.

30 [4.6], I.ix.86:223:

> For the desire, strong desire of Preserving his Life and Being having been Planted in him, as a Principle of Action by God himself, Reason, *which was the Voice of God in him,* could not but teach him and assure him, that pursuing that natural Inclination he had to preserve his Being, he followed the Will of his Maker.

31 [4.6], I. ix. 86:222f.:

> God having made Man, and planted in him…a strong desire of Self-preservation, and furnished the World with things fit for Food and Rayment and other Necessaries of Life, Subservient to his design, that Man should live and abide for some time upon the Face of the Earth, and not that so curious and wonderful a piece of Workmanship by its own Negligence, or want of Necessaries, should perish again, presently after a few moments continuance.

32 [4.6], I.iv.41:187.

33 See [4.5], sect. 39:147,

> For our facultys being suited…to the preservation of us to whome they are given or in whome they are & are accommodated to the uses of life, they serve to our purposes well enough if they will but give us certain notice of those things that either delight or hurt us, are convenient or inconvenient to us.

Also [4.3], 102f.; 'Trade' in [4.4], ii: 485; cf. [4.6], I.iv.33:183 and I.iv.41:188, on depopulation under absolutist regimes.

34 [4.6], I.ix.86:223.

35 [4.6], II.i.2:286.

36 See notably [4.6], II. vi.54:322.

37 [4.20], I.i; [4.23], 2–5.

38 In logical sequence, [4.6], II.ii.8–11:290–2; vii. 87–8:341–3.

39 [4.6], II.ii.6:289.

40 For a fuller explanation of this derivation, see [4.47].

41 [4.6], II.ii.5:288.

42 [4.6], I.ix.86:223.

43 [4.6], II.iii.17:297.

44 [4.6], II.iv.23:302.

45 [4.18], s.n. *Property*.

46 [4.25], II.2.ii, esp. 1,5; [4.29], IV.v.2,4.

47 [4.26], I.xiii: 63, cf. II.xxiv: 127.

48 For Filmer's objections, see [4.22], 234.

49 [4.6], II.v.25:303f.

50 [4.6], II.v.27:305.

51 For an objection to slavery, without Locke 's argument against it, see [4.28], 36f.; for property as a quality inhering in a person, see [4.24], V.xiii: 409; for Grotius on *suum,* see [4.25], I.2.i.5 and II.17.2,1. It is worth remembering that Locke would admit slavery on other terms: see [4.6], II.iii-iv.

52 For instance Hobbes had included material possessions in his catalogue of 'propriety', but had been able to suggest that along with other examples of *suum* they were explained by the

sovereign's actions: see [4.26], II.xxx: 179. [4.6], II.v.27:305f.

53 Pufendorf only discussed appropriation after partition (see [4.29], IV.iv.12) and Grotius used the verb *arripere* to describe prior appropriation, which scarcely suggests a legitimate title to property (see [4.25], II.2.ii.1).

54 For some gaminesque queries, see [4.55], 174–82.

55 [4.22] in [4.20], 217; [4.25], II.2.ii.1.

56 [4.6], I.iv.28:178f.; 41:187.

57 [4.6], I.ix.86:223.

58 [4.6], II.v.26:304; v.35:310; II.v.37:312: 'he who appropriates land to himself by his labour, does not lessen but increase the common stock of mankind'.

59 See *seriatim* [4.6], II.v.28–9 (consumption), 30 (seizure), 32 (improvement), 40 (labour): 306–14.

60 [4.6], II.v.48; 50:319, 320.

61 Locke to the Rev. Richard King, 25 August 1703 in [4.9], viii: 58.

62 See generally [4.6], II.vii-ix; [4–6], II.vii.78–88:336–41.

63 [4.6], II.ix. esp. 131:371.

64 [4.6], II.xv. 169–74:398–402.

65 [4.6], II.xii generally; for personnel see xii.148:384 and xiii.15i: 386.

66 As [4.6], II.xiii esp. 149:384f.

67 [4.1], no. 4.

68 [4.6], I.iv.39:185f.; [4.8], 8 for the fact that human life was understood to be God's: 'if God afford them a Temporary, Mortal Life, 'tis his Gift, they owe it to his Bounty, they could not claim it as their Right, nor does he injure them when he takes it from them'. Cf. [4.1], no. 4, f. 56 (p. 154).

69 [4.6], II.iii.17:297.

70 E.g. [4.6], II.ii.4:287, vi.63. 327; II.ii.11:292.

71 [4.6], I.ix.86:223; II.ii.7:289f.: the supposition of the latter right obviated Hobbes' view that God's law was not enforced *as such* on earth (but only as a terrestrial sovereign's command): but the Lockean God gave people a legitimate title to enforce His commands.

72 E.g. [4.26], I.xiv: 64; [4.31], II.i: 167–8; [4.30], I.xiv.3:194 and the young Locke [4.1], no. 1, f.11: no.

73 See [4.46] for this.

74 For charity see [4.47], sect. 2.

75 See p.106 above.

76 [4.6], II.xi.135:375.

77 See esp. [4.6], II.xix.211–19:424–9.

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CHAPTER 5
George Berkeley

David Berman

BACKGROUND AND EARLY WORK

George Berkeley was born on 12 March 1685 in Co. Kilkenny, where he spent his early years. His father was from England, his mother (very probably) was born in Ireland.[1] After attending Kilkenny College, he entered Trinity College, Dublin, in March 1700, where he became a Scholar in 1702 and received his B.A. in 1704. In 1707 he undertook the examination for a College Fellowship. In the same year he published his minor mathematical works, *Arithmetica* and *Miscellanea Mathematica,* probably in the hope of supporting his canditature for Fellowship, to which he was admitted on 9 June 1707. He then held such College positions as Librarian, Junior Dean, and Junior Greek Lecturer. In 1710 he was ordained into the Church of Ireland.

It was as a young Fellow in his early twenties that Berkeley developed his immaterialist philosophy, which he published in (what are now) three philosophical classics: *An Essay towards a New Theory of Vision* (1709), *The Principles of Human Knowledge* (1710), and *Three Dialogues between Hylas and Philonous* (1713). Much of his philosophy's complex development can be traced in the two philosophical notebooks he kept during this creative period, *c.* 1707–8. The notebooks, first printed in 1871 and now widely known as the *Philosophical Commentaries,* also enable us to see the influences on Berkeley's thinking. This is especially useful in Berkeley's case, since his three early works contain few references to the writings of other philosophers. It is clear from the *Philosophical Commentaries* that he was profoundly inspired by the work of John Locke and the Cartesians, particularly Nicolas Malebranche. Locke's *Essay concerning Human Understanding* (1690) had been put on the course at Trinity College as early as 1692 (see [5.15], 149). That Berkeley read it carefully and appreciatively is evident from numerous references in his notebooks. Berkeley admired Locke's candour and concern for clarity. In the *Essay of Vision,* sect. 125, he describes Locke as 'this celebrated author', who has 'distinguished himself…by the clearness and significancy of what he says'. Berkeley also uses some of Locke's terminology, for example, when talking of 'primary and secondary qualities'. He also derived important theories from Locke, although he almost always modifies these in crucial ways. On certain issues, most notably abstract general ideas, he could be extremely critical of Locke.

The influence of Malebranche is harder to pin down. But since the publication of A.A.Luce's *Berkeley and Malebranche* in 1934, Berkeley's major debt to Malebranche's *Search after Truth* (1674/5) has been generally recognized. 'Ideas' play as central a role in Berkeley's *Principles* as they do in both Locke's *Essay* and Malebranche's *Search*. All three philosophers describe ideas as the immediate objects of the mind, when it

experiences or thinks. But Berkeley is closer to Malebranche in characterizing ideas as having a certain substantial and independent reality. Summing up Berkeley's intellectual debt, Luce wrote: 'Locke taught him, but Malebranche inspired him' ([5.18], 7).

There were other philosophers, however, who exerted a powerful, although less positive influence on Berkeley. Here Luce singled out Pierre Bayle, the great sceptic who 'alarmed and alerted' Berkeley, making him aware of the sceptical dangers inherent in Cartesianism. But the *Philosophical Commentaries* show that Berkeley was also reacting to the irreligious challenge of Hobbes and Spinoza—the two philosophers then most vilified by orthodox thinkers of Berkeley's theological sympathies. Hobbes's materialism and Spinoza's pantheism posed a formidable danger to theistic systems, and Berkeley felt that one great merit of his immaterialism was its effective response to this danger. As he notes in entry 824 of the *Commentaries:* 'My Doctrine rightly understood all that Philosophy of Epicurus, Hobbes, Spinoza &c wch has been a declared enemy of religion comes to ye ground'.[2] Of course, as this entry itself shows, Berkeley's philosophical horizon was not confined to (then) modern writers of the seventeenth and early eighteenth centuries. He was also responding to ancient Greek writers, notably Epicurus and Lucretius, as well as drawing inspiration from Plato, Aristotle, and other classic philosophers. Nor was Berkeley influenced only by philosophers. Like most astute thinkers, he was attentive to the revolutionary scientific and mathematical developments of the time, particularly to the mechanistic corpuscularianism of Isaac Newton, whose 'celebrated' *Principia* is the only book that Berkeley discussed and mentioned by name in the body of the *Principles*.

So far I have tried to situate Berkeley, as most histories of philosophy do, as the foremost philosopher after Locke (and before David Hume), who was responding to the irreligious, sceptical and scientific challenges in seventeenth-century thought. Yet it is also important to see the local, Irish context of Berkeley's writings. It is probably no accident that Ireland's greatest philosopher emerged at the centre of Ireland's one great period of philosophical activity. This is, very briefly, the period that opens in the 1690s with William Molyneux, Robert Molesworth and John Toland; develops in the early eighteenth century with Berkeley, Francis Hutcheson, William King, Peter Browne; and culminates in the late 1750s with Edmund Burke and Robert Clay ton (see [5.15]). Neither before this sixty-year period, nor after it, has Ireland produced such continuous creative philosophy, or a philosopher of Berkeley's stature.

THE *ESSAY OF VISION:* LIMITED IMMATERIALISM

The importance of the Irish context can be seen straightaway in Berkeley's first major work, *An Essay Towards a New Theory of Vision,* published in Dublin in 1709. Here the main influence was Molyneux, the Dublin polymath and friend of Locke, whose celebrated problem pervades much of Berkeley's argument in the *Essay*. Molyneux's problem was whether a man blind from birth would upon gaining his sight be able to distinguish (visually) a sphere and cube that he formerly knew by touch. Berkeley adverts again and again to this problem, which was first published in the second (1694) edition of Locke's *Essay,* II. ix. 8. Berkeley also made considerable use of Molyneux's *Dioprica*

Nova (1692)—from which, for example, his *Essay's* key section 2 is drawn—as well as Molyneux's essay on the moon illusion. Another Irish influence on Berkeley's *Essay* was Archbishop King, a philosopher of European standing, whose criticisms prompted Berkeley to add an Appendix to the second edition, also published in 1709.

Berkeley's main aim in the *Essay* was to establish one part of his immaterialism, namely, that everything we *see* is mind dependent. He assumes here what he will deny in his next work, *The Principles of Human Knowledge* (1710), that there are tangible things independent of the mind. His strategy was to teach or convince his readers by stages. If he could show that the visual world was mind dependent, then that would be a crucial step towards the acceptance of full immaterialism: that the whole physical world—including what we touch—exists in the mind.

Another of Berkeley's objectives in his *Essay* was to explain how the mind judges visual distance, magnitude, and situation, and while doing this to solve three notable problems, associated with these topics, problems that seemed intractible on the (then) accepted theory of vision. One problem, concerned with the judgement of size, is why the moon looks larger on the horizon than in the zenith of the sky. According to the accepted theory, articulated in Descartes's *Dioptrics* (1637), most of our judgements of size are accomplished by a natural geometry. In short, rays coming from objects project onto the eyes angles by means of which the mind judges an object to be large or small, near or far away. Yet why, Berkeley asks, do we mistakenly see a large moon on the horizon? How can geometry lead us to false judgements? The moon illusion, Berkeley concludes, 'is a clear instance of the insufficiency of lines and angles for explaining the way wherein the mind perceives and estimates the magnitude of outward objects' (sect. 78). Berkeley's broader argument against the natural geometry theory is set out earlier in the *Essay* with reference to judgements of distance; but it can be reformulated to refer to size. In short:

(1) We do not immediately see the size of an object (cf. sect. 2).
(2) What we judge size by must itself be perceived (cf. sects 10–12).
(3) But we do not perceive projected lines or angles.
(4) Therefore, we do not judge size by a natural geometry.

In asserting (1) Berkeley was not distinguishing himself significantly from the received theory. Everyone seemed to agree that what we immediately see are variable patterns of visible points that change with the movement of our or other bodies; although for the accepted theory the visible points were immediately seen on the eye, whereas for Berkeley they are in the mind. But the important difference between the two positions is that for Berkeley the judgement of size is an inference based on what we immediately see, whereas for the innategeometry theorist the judgement arises from the (unconscious) calculation of rays and angles.

Estimating the size of an object is, for Berkeley, like seeing that someone is angry or embarrassed. Although some people might say that they can directly see my anger, all they really see, according to Berkeley, are signs or expressions of it: my reddish face, flashing eyes, clenched fist. And if they were not able to see such perceptible signs, or connect them with the appropriate emotions, then they would not be able to infer that I am angry. So the innate geometry theorist is like someone who claims to know that I am angry, although he admits that he has not observed any behaviour expressive of anger.

Berkeley has another way of expressing this thesis which reveals his ultimate metaphysical position in the *Essay:* that what we see constitutes a language by means of which God tells us about the tangible world. This is the kernel of his so-called optic-language proof for the existence of God, a proof that Berkeley first presented in Dialogue Four of *Alciphron, or the Minute Philosopher* (1732), to which he appended a revised (third) edition of the *Essay*. If his conclusion is correct—and I shall be considering his detailed argument below—then to claim that we can judge the size of an object by sight alone would be like asserting that we can be aware of what a sign or utterance signifies on first hearing it, and that there is a necessary or inner connection between, say, the English word 'table' and the table it signifies. This is clearly mistaken in the case of language, and Berkeley tries to show that it is equally wrong in the case of vision. For, according to him, the visual and the tangible are entirely different: it is only by correlating them over time that we learn to judge size, distance or shape by sight.

It is here that we can appreciate the importance of the Molyneux problem, mentioned above. For if the newly-sighted man could see straightaway which was the sphere, then this would show that the visual and tangible sphere have shape in common, that 'It is no more but introducing into his mind by a new inlet [sight] an idea he has been already well acquainted with [by touch]' (sect. 133). Hence a positive answer to the Molyneux problem consistently goes with the theory that there are common ideas underlying sight and touch. But Locke—who agreed with Molyneux's negative answer—also held that the sphere has one shape or figure, whether it is seen or touched; see, for example, Locke's *Essay* II. v. Berkeley's conclusion, then, is: 'We must therefore allow either that visible extension and figures are specifically distinct from tangible extension and figures, or else that the solution of this problem given by those two thoughtful and ingenious men is wrong' (sect. 133). Of course, for Berkeley their negative answer is correct; indeed, if anything, it does not go far enough. For when the newly-sighted man is asked the question—which is the sphere and cube?—he should be utterly perplexed and baffled, even by the question. He would be in a position similar to a person who was asked a question in Chinese, having never before heard that language spoken.

COMPLETE IMMATERIALISM: *THE PRINCIPLES*

The authorative statement of Berkeley's philosophy, generally called Immaterialism, is to be found in *The Principles of Human Knowledge* (1710). It contains his most complete defence of his 'immaterialist hypothesis' and its consequences, although it is supported by his earlier *Essay of Vision* and his later and more popular *Three Dialogues* (1713). Immaterialism has, broadly speaking, a negative and a positive side. It denies that matter or corporeal substance exists; it explains all existence in terms of minds and ideas. Although the *Principles* and *Dialogues* are mainly concerned with the negative side, Berkeley's original plan was to explicate the positive side of Immaterialism in a second part of the *Principles*. Thus in the *Commentaries,* 508, he writes: 'The two great Principles of Morality, the Being of a God & the Freedom of Man: these to be handled in the beginning of the Second Book,' And he had, as he informed his American friend, Samuel Johnson, on 25 November 1729, made considerable progress on Part Two, 'but

the manuscript was lost about fourteen years ago [while travelling in Italy], and I never had leisure since to do so disagreeable a thing as writing twice on the same subject'. Berkeley never did publish Part Two of the *Principles,* although he made important additions in its second edition (1734), which is still described on the title-page as 'Part One'. He also probably introduced material from the projected part (or parts) in his later works, particularly *Alciphron* (1732) and the *Analyst* (1734). Thus in a letter of 1 March 1709/10, he mentions that one of the main topics of the *Principles* was to be the 'reconciliation of God's foreknowledge with the freedom of men'—a subject which is not discussed in the *Principles* (as we have it), but is examined at length in *Alciphron* VII. 16–23.

The negative thrust of the *Principles* begins in the Introduction, where Berkeley hopes 'to clear the first principles of knowledge, from the embarras and delusion of words' (sect. 25). Probably the two main delusions he has in mind are the dogma that (1) all meaningful words stand for ideas, from which it seemed to follow that (2) general words, such as 'extension', 'triangle' and 'motion', must stand for abstract general ideas. This conclusion was also based, according to Berkeley, on the nominalistic proposition, which he accepts, that (3) only particular triangles and specific instances of motion exist in nature, rather than (as Plato thought) triangularity or motion as such. The mistake was to infer from (3) and (1) that the mind must be able to form general ideas by a process of abstraction, that is, by eliminating those features which distinguish particular triangles, say, and retaining that which all triangles have in common. For Berkeley we can only abstract or form an idea of things that can exist separately. Thus we can abstract a lion's head from his body, but not the lion's colour from his (visual) shape.

Berkeley had previously attacked this influential theory of abstraction in the *Essay of Vision,* sections 122–5, as one of the sources of the (erroneous) view that there were ideas of shape, for example, in common between touch and sight. His strategy, both in the *Essay* and the Introduction, was to show the theory's absurdity by criticizing its most distinguished proponent—namely, Locke. Berkeley's 'killing blow' was to quote from Locke's *Essay* IV. vii. 9, a now well-known passage which describes the difficulties of abstraction:

> For example, [writes Locke,] does it not require some pains and skill to form the general *idea* of a *triangle,* (which is yet none of the most abstract, comprehensive, and difficult) for it must be neither…equilateral, equicrural, nor scalene; but all and none of these at once. In effect, it is something imperfect, that cannot exist; an *idea* wherein some parts of several different and inconsistent *ideas* are put together…'

In arguing that no one could have such a contradictory idea, Berkeley does little more than allow Locke's description to speak for itself. For Berkeley a word becomes general 'by being made the sign, not of an abstract general idea but, of several particular ideas, any of which it indifferently suggests to the mind' (sect, 11); and this, Berkeley says, is sufficient for communication as well as demonstration.

Berkeley continues his attack on the dogma that every significant name stands for an idea by showing, more positively, how words can be used meaningfully which do not

satisfy this semantic condition. Thus most of the time we use words like letters in algebra, or counters in a game, not thinking of their particular values or meanings, although we can do so, when—as in a card game—we encash the counters. There are also words which are used meaningfully that never inform or stand for ideas. Berkeley specifies three functions in section 20: non-cognitive words can evoke (1) emotions, (2) attitudes and (3) actions. I shall be saying more about this far-reaching thesis below, particularly when I consider its main deployment in *Alciphron*. Now we need to consider Berkeley's chief claim to fame, his rejection of matter.

Why, then, does Berkeley think that matter does not exist? Because, very briefly, every apparently feasible conception of it can be shown, according to him, to be either meaningless or self-contradictory. This is a very strong claim, which Berkeley tries to justify throughout the body of the *Principles,* but especially in sections 3–24, where he examines various theories of matter. Thus, matter is sometimes understood to be an inert, senseless substance in which subsist the so-called primary or intrinsic qualities, such as extension, solidity, shape, etc. (sect. 9). It is also defined as the substance that supports qualities, such as extension, where (unlike the previous case) the qualities are not part of the conception (sect. 16). Berkeley had many targets, because there were (and probably still are) many theories of matter. His strategy against matter differs radically from that against abstract general ideas. For it is not the case, as many histories of philosophy suppose, that his one target was Locke's theory of matter. Berkeley does not name his specific targets, either in the *Principles* or in the *Dialogues*. He is intentionally unspecific, as in section 9, where he speaks of 'some there are', or in section 16 where he describes the conception of matter considered there as 'the received opinion'. His aim was to refute all (seemingly plausible) theories of matter.

As the concept of matter changes, so does Berkeley's criticism. Thus the conception in section 16 is charged with meaninglessness, since in what sense can matter (which is supposedly different from extension) support extension? How can a non-extended thing or substance literally support anything? In section 9, on the other hand, matter is understood to be an extended substance, i.e. an inert substance in which extension, figure, etc., 'do actually subsist'; so this criticism would be inappropriate. Instead, Berkeley says that the conception is contradictory, since it asserts that qualities like extension inhere in an inert, senseless substance. Why is this contradictory? Berkeley's answer brings us to his fundamental positive insight, summed up in his famous axiom '*esse* is *percipi*' (sect. 3), that the existence of all physical things and qualities—extension, solidity, etc.—consists in being perceived. Berkeley traces the contrary belief—that one can separate the being of a physical thing from its being perceived—to the pernicious doctrine of abstraction, castigated in the Introduction.

For Berkeley the physical world is composed entirely of things perceptible, imprinted on the senses, which he calls variously sensible ideas, sensible objects, sensations, or ideas. As he expresses this in section i:

> By sight I have the ideas of light and colours with their several degrees and variations. By touch I perceive, for example, hard and soft, heat and cold, motion and resistance… Smelling furnishes me with odours; the palate with tastes, and hearing conveys sounds to the mind in all their variety of tone and

composition.

What else, after all, do we directly perceive? The widely-accepted philosophical and scientific answer was: mind-dependent sensory states, resulting from the impinging of external bodies (corpuscles) on the sense organs. Berkeley agreed with the initial part of this answer, but he rejects the sophisticated causal explanation in favour of what he calls the 'vulgar' or common view: that the things immediately perceived are the real things. Putting the two notions together, he says, constitutes the essence of his position, a marriage of philosophy and common sense, according to which the real physical qualities and objects are mind-dependent entities, idea-things (see [5.3], 2:262). Hence it follows that neither extension nor any physical quality can exist in a senseless or mindless substance any more than a thought or emotion can.

However, materialism, as Berkeley well recognized, takes many forms—one of the most important of which he confronts in section 8. This grants that what we immediately perceive are ideas, but it none the less asserts that these ideas are 'copies or resemblances' of the physical qualities that exist externally in unthinking substances. This account, sometimes called the representative theory of matter, involves these components:

(1) mind——(2) ideas——(3) physical objects.

Prima facie, this theory seems to evade the difficulties I mentioned earlier in connection with the theories of matter in sections 9 and 16. Against this theory, Berkeley brings another of his principles: that 'an idea can be like nothing but an idea' (sect. 8). In short, if physical objects are like ideas, then they are mind dependent; and in that case the theory is contradictory, as was that in section 16. If, on the other hand, a physical object is not like an idea, then what is it like? Can the materialist say anything meaningful? Berkeley thinks he cannot, since everything that he can say of physical objects must be drawn from what he perceives. But then the materialist's theory is empty, meaningless—as was that in section 9. And so Berkeley goes from target to target, arguing that every putative materialist theory is either meaningless or contradictory. As he puts it in section 24, 'T'is on this therefore that I chiefly insist, viz. that the absolute existence of things are words without a meaning, or which include a contradiction'. Of course, in saying that the word 'matter' can be meaningless, Berkeley is not saying that it lacks all meaning. For while 'matter' has no cognitive meaning, it does have, as he suggests in section 54, an emotive meaning: it makes people act as if the cause of their sensible ideas was material rather than spiritual. It also 'strengthened the depraved bent of the mind towards *atheism*' ([5.3], 2:261). 'Matter' is, in short, a perniciously emotive word, masquerading as a cognitive one.

Berkeley's positive claim, that there are only two beings in the world—minds and ideas—is in the dualistic tradition of Descartes; although Berkeley's system is more economical in that there is only one substance: mind. Apart from sensible ideas, described above, there are also ideas of memory and imagination, which are formed by 'either compounding, dividing or barely representing' sensible ideas (sect, 1), and are fainter and less orderly than them. But all ideas, according to Berkeley, are entirely passive or inert. It is the other sort of being, spirits or minds, that are active. They cause, will, perceive, or

'act about ideas'; hence Berkeley's more complete formula in *Commentaries,* 429: '*Esse* is *percipi* or *percipere,* or *velle,* i.e. *agere*'. To be is to be perceived or perceive or will, i.e., act. Minds and ideas are 'entirely distinct'. As with ideas, there are two species of spirits: finite and infinite. Section 2 is devoted to finite, human spirits. God, the infinite spirit, is introduced gradually, later in the *Principles*. As matter is vanquished so God comes to the fore, as the being which produces sensible ideas in finite minds.

GOD REPLACES MATTER AND NATURE

Berkeley offers a more or less formal proof for the existence of God in sections 145–9. An even more succinct proof of the immortality of human spirits is presented in section 141. Neither proof should be regarded as an afterthought. For, as is generally accepted, Berkeley's philosophy is directed primarily towards theological ends, particularly proving the existence of a religiously meaningful God and awakening his readers to a vivid sense of His presence. Setting out Berkeley's proof will help us to gain a clearer understanding of the philosophical infra-structure upon which it is based. Briefly then:

1 Physical objects are collections of inert sensible ideas.
2 Sensible ideas cannot produce or cause either themselves or other sensible ideas.
3 Physical objects must have some cause.
4 Matter cannot be that cause, since it cannot exist; and, in any case, matter is defined as an inert thing.
5 We finite spirits know that, although we can produce ideas of memory and imagination, we do not produce the world of physical bodies or collections of sensible ideas.
6 Hence, such a vast orderly world must be produced by an Infinite Spirit, God.

Berkeley's proof may be regarded as an immaterialistic version of the (then) popular argument—used, for example, by Locke in *Essay* IV. x—which combined the cosmological proof with the teleological. However, Berkeley gives his proof a distinctive twist by bringing to the fore, perhaps for the first time in the history of philosophy, the problem of other minds. While Descartes had adverted to the problem in his *Meditations,* Berkeley accords it major importance. That is:

7 We can not directly perceive another human mind, since a mind is an active being which perceives and wills rather than something that can be perceived (sect. 27).
8 I know that there other human spirits by inferring their existence from their orderly physical motions, which are collections of sensible ideas that I recognize to be similar to my own.
9 But these physical motions, which pick out finite spirits, are very slight compared with the orderly motions of the whole physical world.
10 Hence I have greater justification for believing in the existence of the Infinite Other Mind than in any other finite mind.

In effect, Berkeley is placing his reader in a dilemma: he must either accept theism or solipsism. If he demands rigorous proof, then he mustbe solipsist, believing, in other

words, that only he and his ideas exist. However, if he does believe in other minds, then he must also accept that God exists.

God is very much at the centre of Berkeley's philosophy, replacing matter as the cause and orderer of the physical world, which is only a succession of ideas produced by God in finite minds. The orderly and regular appearance of sensible ideas displays God's wisdom and power, not that of matter or the laws of nature. Berkeley opposed the increasingly influential view, developed by Descartes and Newton, among others, that the world was a great machine, created and started by God but then left more or less to its own devices. Whereas this mechanistic world-view tended to marginalize God and spirits, Berkeley's idealistic world-view marginalizes the mechanistic, since for him physical objects are simply collections of inert sensible ideas. We impute activity to them in a way not dissimilar to the way that we seem to see action in a film or moving picture. Just as what we really see at the cinema are many independent, static frames or pictures; so what we really experience, according to Berkeley, are a succession of inert sensible ideas created and ordered in our minds by God.

Hence it is altogether appropriate, Berkeley holds (sect. 107), to speak of purpose behind nature, since the physical world is constantly being created by a Mind, not unlike our own, in accordance with its own wise rules, generally called the laws of nature. On the other hand, it is inappropriate, according to Berkeley, to speak of an autonomous physical world, existing in space and time. Berkeley opposes Newton's theory of absolute space, time and motion (in sects 111–17). Minds do not exist in the great containers, space and time; if anything, it is space and time that exist in minds. For space and time considered as independent beings are fictions thrown up by the pernicious tendency to reify abstractions. So time is only the succession of ideas in minds. Hence (as against Locke, but in accord with Descartes) minds always think. Berkeley outlines his philosophy of science in sections 101–32. Earlier, in sections 34–84, he had examined sixteen objections to his immaterialist philosophy as well as displaying its advantages over materialism. Thus he argues that materialism encourages scepticism, since if we accept matter, we can never be sure whether or to what extent our sensible ideas resemble the external material bodies.

Although the *Principles* is Berkeley's philosophical masterpiece, it was not well received. On the whole, it was either ignored or ridiculed. It was even suggested that its author was mentally unstable. As Berkeley's friend, John Percival, reported from London on 26 August 1710: 'A physician of my acquaintance undertook to describe your person, and argued you must needs be mad, and that you ought to take remedies'.[3] The *New Theory of Vision* had been somewhat more positively received. Believing that the *Principles* had failed mainly for reasons of presentation, Berkeley reformulated his case in the more accessible and elegant *Three Dialogues,* where Philonous defends Berkeley's immaterialism against the many-headed materialist enemy, represented by Hylas. The *Three Dialogues* was published in 1713. A year earlier Berkeley had issued his principal work on political theory, *Passive Obedience,* originally delivered as three sermons in the Trinity College Chapel. Here he tries to show that rebellion against the sovereign power is never morally justified, even if it exposes people to great suffering, hardship and death. Berkeley argues for this absolutist position on theological and utilitarian grounds.[4] He felt obliged to publish the sermons (which he did by combining them into one discourse)

because of rumours that they constituted an insidious Jacobite attack on the Glorious Revolution.

VARYING PERSPECTIVES

In 1713 Berkeley left Ireland for London, where, in May, he published his *Three Dialogues*. The year 1713 brings to a close what may be seen as the first phase of his career. Although Berkeley was to publish other notable works—for example, on philosophical theology, mathematics, and economics—his fame and place in the history of philosophy is largely based on the three classics of this period. Hence it is worth trying to gain a deeper understanding of this work. Perhaps the safest approach here is to survey some of the major views, since, as with most great philosophers, there has been considerable disagreement. Although most commentators recognize that his non-materialist analysis of the physical world is Berkeley's main contribution, they differ in their interpretation and assessment of it. Thus it was held early on by Hume that Berkeley's position was sceptical, because his arguments 'admit of no answer and produce no conviction', but only produce 'momentary amazement and irresolution and confusion'.[5] Of course, Hume recognized that this was not Berkeley's own view, indeed, that he was writing against scepticism, as even his titles show.

Similarly, Thomas Reid maintained that despite Berkeley's intentions the logic of his position was to undermine not just matter, but also spirit, and hence that immaterialism represented an important phase in the disastrous movement towards Hume's scepticism and agnosticism—although, again, Reid realized that Berkeley would have been scandalized by such an accusation (see [5.16], 2:166–7). But it was an accusation shared by later philosophers, some of whom—e.g., J.S.Mill, George Grote and A.J.Ayer—welcomed and applauded what they took to be the irreligious tendency of Berkeley's thought, the tendency towards phenomenalism, which one commentator has neatly characterized as 'Berkeley without God' ([5.29]). Probably the more popular view was (and still is) that immaterialism is essentially untenable, because it undermines the objectivity of the physical world, transforming real things into mere appearances, thereby locking each of us into his or her subjective world. This reading of Berkeley as a subjective idealist, as it came to be called, was influentially supported in the eighteenth century by Kant and, in our own century, by Lenin.[6] Here again it was not supposed that 'the good Berkeley' actually intended or accepted this 'scandalous' position, but that this was where his theory logically led.

However, not all commentators have been so hostile, construing immaterialism as such an extreme form of idealism. Thus Berkeley's most distinguished twentieth-century biographer and editor, A.A. Luce, has argued forcibly that there is no justification for reading Berkeley either as a sceptic or a subjective idealist. Indeed, Luce goes so far as to deny that Berkeley has any significant kinship with the idealist tradition. 'Today [writes Luce] they even call him "the father of modern idealism." What a remarkable accident of birth this is! Berkeley is the putative father of modern idealism, and the child does not take after its father in the slightest degree' ([5.47], 26). Rather, according to Luce, Berkeley was a robust common sense realist, both theoretically and practically. For Luce

not only defended Berkeley's philosophy as commonsensical, but in his masterful biography ([5.13]) also defends Berkeley the man against the charge that he was a visionary or unbalanced dreamer. While Luce's picture of Berkeley, the man, as 'sane, shrewd, efficient', has been almost universally accepted, this is not the case with his common sense reading of Berkeley's philosophy; although there have been some recent sympathizers here.[7] Yet even the critics, notably Geoffrey Warnock ([5.29]) and Ian Tipton ([5.49]), agree with the Luce interpretation in one respect: that Berkeley was deeply concerned to bring his philosophy into line with common sense and realism, and that this concern was perhaps as important to him as his religious aims.

For Luce and Tipton common sense seems to be the main focus. For Harry Bracken, however, the best way of understanding Berkeley is to see him as an Irish Cartesian, rather than as the second figure in the triumvirate of British empiricists (see [5.22]). For C.M. Turbayne, however, it is Berkeley's commitment to the language model and his rejection of the Cartesian-Newtonian machine model that makes most sense of Berkeley's work ([5.57] and [5.36]).

How is one to gain a fair, overall view of Berkeley's philosophy amidst such diverse perspectives? My general approach, following Berkeley's own suggestion, is to present his work chronologically, pointing out its design and connections, and then to criticize it. For as he writes to Johnson on 24 March 1730: 'I could wish that all the things I have published on these philosophical subjects were read in the order wherein I published them; once, to take in the design and connexion of them, and a second time with a critical eye'. Let us continue, therefore, where we left off: with Berkeley's publication at 28 of his *Three Dialogues,* which marks the end of the first and heroic phase of his career.

SECOND PHASE: THE 1732–4 SYNTHESIS

In London in 1713 Berkeley soon became friendly with many of the leading literary and intellectual figures, among them Addison, Steele, Swift, and Arbuthnot. For Steele's periodical, *The Guardian* (1713), Berkeley wrote a number of essays, mostly attacking the freethinkers in the interest of religion and morality. He also (as we now know) collaborated with Steele on the *Ladies Library,* a three-volume educational anthology, published in the following year (see [5.10], 4:4–13). In October 1713, he began his Continental travels, as Chaplain to Lord Peterborough. He visited Paris—where he probably met Malebranche—as well as Lyons and Leghorn. This first continental tour lasted about nine months. A second, more adventurous tour, extending from 1716 to 1720, was spent almost exclusively in Italy. Some of his travel diaries of this tour are still extant.

Returning to London in 1721, Berkeley published his *De Motu,* a short but searching work in the philosophy of science, in which he emphasizes the operational or pragmatic value of terms such as attraction and force. Berkeley had apparently submitted the essay to the Royal Academy of Sciences in Paris, which had offered a prize for the best essay on motion. Although *De Motu* failed to win the prize, it has been commended by Sir Karl Popper and others for anticipating the views of Mach and Einstein (see [5.56] and [5.54]). By late 1721 Berkeley was again in Dublin, teaching at Trinity College. He was not,

however, to remain there long, since it was at this time that he conceived his ambitious plan to establish a missionary College in Bermuda. The College, as he explained in his *Proposal* (1724), was to educate the American colonists and train missionaries to the native Americans, becoming 'a fountain or reservoir of learning and religion' that would 'purify' the ill-manners and irreligion of the colonies ([5.3], vii: 358). He spent most of the period 1723–9 campaigning for his projected college. He received considerable private contributions; obtained a Royal Charter and was promised £20,000 by the British government. His financial position was also helped by his appointment in 1724 asDean of Derry, one of the richest livings in Ireland. In 1729 Berkeley set sail with his newly married wife, Anne, for Rhode Island, which was to be the American base for his College. Purchasing a farm near Newport, he spent nearly three years there, waiting in vain for the promised grant.

In late 1731 he returned to London, having been informed that the government grant would not be paid. During the next three years, he published a variety of works on theology and philosophy, as well as on vision and mathematics. *Alciphron* (1732), in seven dialogues, is the central work of this period. It is also Berkeley's main theological work, directed at what he saw as his principal enemy—irreligious free-thinking. Dialogues Four and Seven are philosophically most important. Dialogue Four sets out a novel proof for the existence of God, which, though similar to that in the *Principles,* does not draw on immaterialism. Instead, it develops the position of the *Theory of Vision*. Having argued that we can only know other thinking persons by inferring them from their bodily effects—'hair, skin…outward form'—Berkeley then states (through his spokesman, Euphranor) that our inference to God is no less sound. Alciphron, the atheistic free-thinker, challenges this parity of reasoning: 'It is my hearing you talk that, in strict and philosophical truth, [says Alciphron,] is to me the best argument for your being' (sect. 6). Euphranor then argues, utilizing the main lines of the appended *Essay on Vision,* that God does indeed talk to us through the language of vision. Since it is accepted that language is 'the arbitrary use of sensible signs, which have no similitude or necessary connexion with the things signified' (sect. 7), Berkeley must prove that visual data and tangible things are entirely heterogeneous, which he tries to do in at least four different ways:

(1) He claims that it is confirmed by experimental evidence, citing, in section 15, the case of a boy made to see, 'who had been blind from his birth', reported in the *Philosophical Transactions* 402 (1728). In the *Theory of Vision Vindicated,* published in 1733, Berkeley quotes from this now famous case, reported by Chesselden, who performed the operation. 'When [the boy] first saw, he was so far from making any judgement about distances that he thought all objects whatever touched his eyes (as he expressed it) as what he felt did his skin…He knew not the shape of anything'. This is quoted in section 71, where, it may be noted, Berkeley is more cautious than in his earlier claim in *Alciphron* IV. 15.

(2) Berkeley argues for the heterogeneity thesis by conceptual argument. Thus if two things cannot be added, then they must be qualitatively different. And while one can add a line of two colours to make one continuous line; one cannot, Berkeley maintains, add a visible and a tangible line together to form a continuous line (see *Essay,* sect. 131).

(3) Berkeley also, as we have seen above, makes use of an *ad hominem* argument,

namely, that those who wish to return a negative answer to Molyneux's question—as did Locke and Molyneux himself—are logically committed to the heterogeneity thesis.

(4) Probably his main argument is that we can become aware that what we immediately perceive by sight are light and colours—a field of minimum visual points—entirely different from what we touch.

Having established his thesis, at least to his own satisfaction, Berkeley then ingeniously points out the correspondences between vision and a language such as English or French, (a) Both languages contain a vast variety of signs that can be combined to inform us about innumerable things, (b) Both languages need to be learned, although we are less aware of learning the visual language, mainly because it is a virtually universal language, (c) As English is ordered and explained by grammar, so there are God's laws of nature which govern the orderly appearance of visual data, (d) And violations are possible in each case. (e) One can also be deceived in both languages: an illusion is like a lie. (f) Context is important in both languages, as Berkeley shows in the case of the moon illusion, (g) Both languages usefully direct our actions, evoke attitudes and emotions, and can be entertaining, (h) In both languages we pay more attention to what the signs mean than to the signs themselves; thus we are scarcely able to hear the sounds as such in language we understand, rather than what the sounds mean. Similarly, it is hard for us to appreciate that what we see is not the same as what we may touch.

Berkeley's conclusion is that he has proven not merely a creator of the world, 'but a provident governor actually and intimately present and attentive to our interests'. For since we know that God speaks the 'optic language', we can know that He has 'knowledge, wisdom, and goodness' (*Alciphron* IV sect. 14). In short, Berkeley's *New Theory of Vision* enabled him to go further than the God of Deism—the distant absentee God whose main function was to create or activate the world. But this was not evident in the first two editions of the *Essay,* where the optic-language theory remains implicit. The crucial theological conclusion only became clear in the revised 1732 edition and, particularly, in its reformulation in *Alciphron* IV. Thus in the early editions of the *Essay,* section 147, Berkeley writes vaguely of 'an universal language of nature', whereas in the 1732 editions this is changed to 'an universal language of the author of nature'; also see section 152. Berkeley probably had a strategic aim here. He thought that his readers would be more likely to accept his theories if he revealed them gradually, saving the more radical conclusions till later. We have already seen how hepresented only part of his immaterialism in the *Essay,* which he then followed in the next year with the full immaterialism of the *Principles*. And the *Principles* itself was written with strategic intent, as we learn from Berkeley's revealing letter to Percival of 6 September 1710: 'whatever doctrine contradicts vulgar and settled opinion had need be introduced with great caution into the world. For this reason I omitted all mention of the non-existence of matter in the title-page [of the *Principles*] dedication, preface and introduction, so that the notion might steal unawares on the reader'. By 1732, then, Berkeley was ready to reveal fully, or more fully, the significance of his *New Theory of Vision*.

Dialogue Four also discusses the status of God's attributes. Here Berkeley shows himself to be a tough-minded rational theologian, opposed not only to the vague Deism of free-thinkers, such as Shaftesbury, but also to the fideism and negative theology of

fellow Christian philosophers, particularly his countrymen Archbishop King and Bishop Browne. In short, Berkeley attacked their position for basically the same reasons that he attacked materialistic representation (see [5.15], 162–3). His acute criticisms call into question the popular accusation, alluded to above, that he was strong-minded about the material world, but weak-minded about the spiritual world.

Dialogue Seven is of considerable importance, as it contains Berkeley's most comprehensive and searching account of language. Here he reiterates (in the 1732 editions) his critique of abstract general ideas. More innovative, however, is the deployment of his theory of emotive meaning—that words and utterances can be meaningful even though they do not stand for ideas or inform, since they can be used to evoke emotions, attitudes and actions. Although we find little application of the theory in the *Principles,* we know from his more elaborate (1708) draft of the Introduction that he was aware of how it could be significantly applied in the areas of religious and (probably) moral discourse (see [5.9]). His recognition that more needed to be published on this subject also comes out in his letter of 24 March 1730 (when he was, no doubt, at work on *Alciphron*) in which, after asking his friend Johnson 'to examine well what I have said about abstraction, and about the true sense and significance of words', he adds: 'though much remains to be said on that subject' (see [5.3], 2:293). Here again we seem to see Berkeley's strategy of publishing his more radical theories by degrees or stages. In *Alciphron* he uses the emotive theory to show how words standing for Christian mysteries, such as 'Holy Trinity' are to be understood. Free-thinkers, like John Toland, had argued that since mysteries do not stand for ideas, they must, according to the received theory of meaning, be meaningless. Hence, Toland maintained, Christianity either contained meaningless doctrines, or it was not mysterious. By showing that the received semantic theory, championed most notably by Locke, was narrowly restrictive, Berkeley was able to argue that doctrines such as the Holy Trinity were both meaningful and mysterious. For although, as he says in *Alciphron* VII. 8, a man can frame no 'distinct ideas of Trinity, substance or personality', the doctrine can 'make proper impressions on his mind, producing herein, love, hope, gratitude, and obedience, and thereby becomes a lively operative principle influencing his life and actions'.

It is perhaps ironic (and not generally recognized) that Berkeley's emotive account of religious utterances anticipates the similar account of religious discourse given by the Logical Posivitists in our own century. The irony is that Logical Posivitists such as A.J.Ayer—in many respects a modern Toland—used emotivism to explain away religion (see [5.58], 229). Berkeley, however, explained only religious mysteries emotively. He was entirely clear that doctrines of natural theology were to be understood cognitively and justified in a rigorous way. This point, as I noted earlier, is emphasized in the latter part of Dialogue Four, where Berkeley attacks the theological representationalism of King and Browne. In the area of natural theology, particularly concerning the proof of God's existence and nature, Berkeley was a hard-headed rationalist.

How, then, does Berkeley connect the cognitive statements of natural theology with the emotive utterances of religious mysteries? His approach is in line with the (at least then) orthodox view that natural religion forms the proper basis for revealed religion. In short, having accepted Berkeley's proof (or proofs) that a just and wise God exists, we should also recognize that it is right to respect Him; because He is good, it is also right to love

Him. And the Christian mysteries, Berkeley believes, are the best ways of evoking these desirable attitudes and feelings. Thus the mystery of the future life is an excellent way of evoking fear of God's justice, and the symbolism of the Trinity of encouraging people to love God.

The Christian mysteries are also justified, according to Berkeley, because they are to be found in the Bible, whose privileged status he defends in Dialogues Five and Six. More important philosophically is the way that Berkeley defends emotive mysteries in Dialogue Seven by trying to show that 'there is nothing absurd or repugnant in our belief of those points' (sect. 33). His method here is to argue by parity of reasoning that while there may appear to be difficulties, even perhaps contradictions, in mysteries such as the Trinity, there are similar difficulties in, for example, the received (Lockean) theory of personal identity, according to which personal identity consists in identity of consciousness. For suppose, Berkeley says in section 8, that we divide a person's conscious life into three parts—A, B, and C. Suppose also that in B only half of A is remembered and in C half of B but none of A is remembered. Then it will follow according to Locke's theory (in *Essay* II. xxvii) that A is the same person as B and B is the same person as C, but A and C are not the same person. Is this any more absurd, Berkeley asks, than the Athanasian doctrine of the Trinity?

Berkeley presses this *ad hominem* defence of religious mysteries most effectively in his *Analyst* (1734), which examines, to quote its subtitle, 'whether the object, the principles, and inferences of the modern analysis are more distinctly conceived, or more evidently deduced, than religious mysteries and points of faith'. Berkeley's point is that mathematicians have no justification for rejecting mysteries, since the Newtonian account of infinitesimals can be shown to be equally obscure and contradictory. As he pointedly asks towards the end of the *Analyst:*

> Whether mathematicians, who are so delicate in religious points, are strictly scrupulous in their own science? Whether they do not submit to authority, take things upon trust, and believe points inconceivable? Whether they have not their mysteries, and what is more, their repugnances and contradictions?

Berkeley had criticized the theory of infinitesimals in the *Principles,* sections 126–32, which he alludes to in the *Analyst,* section 50 as the critical 'hints' which he is now 'deducing' and applying in detail against Newton. His earlier claim was that the infinite division of a finite line, for example, is an absurdity generated by false abstraction, since we cannot perceive infinitely small points. His attack now is directed particularly against the consistency and proof of Newton's account of fluxions.

The synthesis of 1732–4, which rivals that of 1709–13, is also supported by Berkeley's *Theory of Vision Vindicated* (1733), which elucidates the theory of vision that underpins his optic-language demonstration and also goes some way towards bringing the 1732–4 synthesis into line with the full immaterialism of the *Principles* and *Three Dialogues*. Two other works of the period, so far not mentioned, are Berkeley's *Defence of Freethinking in Mathematics* (1735) and his letter to Browne (circa 1733) on divine analogy. The first work responds to critics of the *Analyst* as well as continuing Berkeley's *ad hominem* defence of Christian mysteries. It concludes (as did the *Analyst*) with a series

of ‘ensnaring questions’, which look ahead stylistically to Berkeley’s next work, *The Querist* (1735–7), composed entirely of queries. The letter to Browne develops points in *Alciphron* IV against Browne’s extensive attack in his *Divine Analogy* (1733). Recently identified as by Berkeley—see [5.63]—it shows his unwillingness to tolerate ambiguity in theological descriptions: God is either literally wise or (disastrously) He is not.

FINAL PHASE: THE GOOD BISHOP

In 1733 Berkeley was appointed Bishop of Cloyne, and in the following year he travelled with his family to Cloyne, in Co. Cork, where he was to reside until 1752. His main concerns were now with the spiritual, but also with the economic and physical needs of those under his care as well as with the wider population. Thus his main work on economics, *The Querist,* deals with the nature of wealth, the proper role of banks, credit and fashion. Perhaps its chief theoretical interest is the way Berkeley applies his emotive theory. For in the *Querist* he regards money as a system of operative signs. And just as he rejected the Lockean theory that every meaningful word stands for an idea, so in the *Querist* he rejected the mercantilist theory (also championed by Locke), according to which money had value only if it was made of precious metal or had a necessary connection with it. For Berkeley it is the efficient recording and manipulation of economic transactions, which facilitate prosperity, that gives money its value.

From social and economic matters Berkeley turned finally to medicine. In 1744 he published *Siris,* his last major work, in which he championed the drinking of tar-water, a medicine which he thought would cure or alleviate all physical ills. *Siris* is Berkeley’s most puzzling and allusive book, moving from practical medical advice to pharmacology, then to chemistry, philosophy of science, metaphysics and finally to theology and speculations on the Trinity. The clear and close reasoning of the 1709–13 works has here given way to suggestive hints and allusive appeals to ancient authorities, particularly to Plato. (In this respect, *Alciphron* stands in a middle position between the 1709–13 works and *Siris*.) Some commentators, notably A.C.Fraser ([5.2]) and John Wild ([5.28]), have suggested that in *Siris* Berkeley abandoned his earlier empiricism and nominalism in favour of a more Platonic and pantheistic vision. One piece of evidence Fraser adduces to show that Berkeley relented on abstract ideas is his omission in the 1752 edition of *Alciphron* of the three sections (VII. 5–7) arguing against such ideas. *Siris’s* final section (367) also suggests that Berkeley was reassessing his earlier work. Thus he uses the term ‘revise’ and concludes that ‘He that would make a real progress in knowledge must dedicate his age as well as youth, the later growth as well as first fruits, at the altar of truth’. Yet, typically, Berkeley is not specific here. The claim that Berkeley changed his mind is also vigorously opposed by Luce, who has argued at length for the unity of Berkeley’s work ([5.19]). Probably *Siris’s* main theoretical interest, at least for recent commentators, is its statements on the philosophy of science and corpuscularianism.[8]

In late 1752 Berkeley left Cloyne for Oxford, to supervise his son’s education. His two last publications appeared in this year: *A Miscellany, Containing Several Tracts*—nearly all previously published—and a revised edition of *Alciphron*. Berkeley died in Oxford on 14 January 1753.

CRITICISMS

Having surveyed Berkeley's work chronologically, with the aim of seeing its 'design and order', we must now briefly look at his philosophy 'with a critical eye'. In doing so, we will also be able to appreciate that his immaterialism is deeper and more complex than my account above might suggest. It is also appropriate to see its complexity within a context of criticisms, since that is how Berkeley himself proceeded. Thus his response to the sixteen self-imposed objections or difficulties—in *Principles,* sections 34–84—fill in essential details of his account.

Probably the chief criticism of Berkeley's system has always been that it obliterates the real, objective, public world. If all I can perceive are my ideas, then am I not locked into my own subjective world? Hence—to take the most extreme and absurd possibility—will it not follow that only I (and my ideas) exist? That Berkeley would repudiate this solipsistic position is clear, but it is not so clear that the logic of immaterialism does not draw him towards it. For Berkeley is certainly and primarily anxious to prove that what we perceive is mind-dependent. But what can mind-dependent mean apart from being subjective in the way that emotions and pains are? But if all my sensible ideas are like pains, then am I not living in a world of 'mere illusion', as Kant put it—vivid and orderly, but still subjective? Some of Berkeley's best-known arguments lend weight to this subjective interpretation—for example, his assimilation of the experience of heat and pain in the first of the *Three Dialogues,* and his emphasis there on the relativity of our sensory experiences. His critique (mentioned above) of how matter supports qualities can also be turned against him here. For how can a sensible idea exist in a mind without being in the mind subjectively in the way that a pain is? Berkeley's response is to deny that such ideas exist in mind in this 'gross, literal' sense, by way of mode or attribute, but only as they are perceived (see [5.3], 2:250). But he does not clearly spell this out, or show that such a sense would not either undermine his arguments for the mind-dependence of ideas, or provide the materialist with an equally vague way of explaining how matter supports its properties.

Probably no interpretation is as anti-commonsensical as that of solipsism; but there are a range of less extreme positions with which Berkeley has been identified. Thus Andrew Baxter suggested as early as 1733 that Berkeley was logically committed to a world in which there was only me, my ideas and God as their cause (see [5.41] and [5.17]). Yet even if one allows Berkeley the existence of other finite minds, it does not follow that a common sense world is restored. For such a world seems to require independent, continuous, numerically-identical objects. But that is a far cry from the 'fleeting and variable' sensible ideas which, according to the usual reading of Berkeley, constitute physical objects. Berkeley struggles to bridge the gap, particularly in the *Three Dialogues,* but it is complicated, uphill work. And the more he succeeds in showing himself to side with common sense, the more he seems either to bring his immaterialist thesis into question, or to lose its vaunted advantages over materialism. Thus he is sometimes inclined to preserve the independence and permanence of real physical objects by claiming that they exist archetypally in the mind of God. Thus, to quote the well-

known limerick, the tree in the quad 'will continue to be, since observed by…God' (see [5.6], 16). But this solution only raises other problems, most notably the spectre of scepticism. For if the real, reassuringly permanent objects in God's mind are different from the fleeting ideas that I experience, then do I really perceive or know the real world? Is Berkeley not simply substituting one objectionable form of representationalism for another? To resist this Berkeley needs to show that God's archetypal tree is the same as mine. But how, given *esse* is *percipi,* could God's idea-tree be numerically the same as mine? In the *Dialogues,* Berkeley tries to play down this difficulty by maintaining that it is really verbal ([5.3], 2:247–8). Yet if this problem can be dismissed so easily, then why can't the materialist dismiss *esse* is *percipi* itself as merely verbal? Surely there is something substantive at issue, as Berkeley himself appears to recognize when he advises us 'to think with the learned and speak with the vulgar' (*Principles,* sect. 51). In this mood he does seem to allow (as does his fellow Immaterialist, Arthur Collier) that there is no (numerically) identical tree, but that each mind perceives a different idea-tree. Yet he might still insist that God's archetypal ideas are preferable to material bodies, because the former are meaningfully like human ideas. But are they? That God's idea of fire or salty food, for example, cannot be even qualitatively like mine seems to follow from Berkeley's argument in the *Dialogues,* according to which (i) experiencing the fire's heat cannot be separated from pain, and that (2) God, as a perfect being, does not experience pain ([5.3], 2:240). Hence God cannot perceive what we take to be heat. Furthermore, can we conceive what God's idea-tree could be like, since it must presumably contain all possible perceptions of 'the' tree—large, small, tube-shaped, circular-shaped, hard, soft—which makes it sound as incomprehensible as Locke's (impossible) triangle.

Berkeley's concept of mind or spirit also raises difficulties which, if anything, are even greater than those afflicting his account of bodies. Here, prima facie, Berkeley seems to be his own worst enemy, since he constantly says that we can have no idea or experience of minds, and that they are altogether different from ideas. But if we have no idea of mind, then why believe that it exists? Is it not as indefensible as matter? Berkeley considers this objection at length in the third edition of the *Dialogues,* where he states that his objection to matter is not merely that it is meaningless, but that it is also contradictory. Yet, as I noted earlier, Berkeley does attack some materialist theories as simply meaningless—as, for example, "the idea of being in general, with the relative notion of its supporting accidents' (sect. 17). Yet if our grasp of matter is no more than that of spirit, then are not the two equally plausible or implausible?

Berkeley's main way of arguing for the greater plausibility of mind is by showing that it alone can be the source of activity or causality, (1) A sensible idea cannot cause either itself or other sensible ideas, since ideas are passive. (2) Yet sensible ideas must have some cause. (3) Imaginative ideas are crucial here; for we know that by willing we can produce them. (4) In doing so, we gain some notion of activity, and hence that minds (unlike material bodies) are active. (5) Thus Berkeley concludes that just as our (weak) imaginative ideas are caused by finite minds, so it is reasonable to infer that (vivid) sensible ideas are caused by the Infinite Mind. (3) and (4) are the decisive steps in this argument, and the question we need to ask is: how does Berkeley know that he produces imaginative ideas? There are two possibilities. He knows it by (a) direct experience, or (b) indirect inference. Although Berkeley occasionally seems to accept option (a), it is

hardly tenable since it conflicts with his major principle that we can only directly experience passive ideas. While option (b)—which he generally prefers—is not in conflict with his major principles, it does not go far enough in justifying (4). For if I have no direct experience, then how do I know that my imaginative ideas are produced by my mind, rather than by my brain? Here again Berkeley's position does not seem any more intelligible or tenable than that of his materialist opponent.

NOTES

1 The authoritative biography is by Luce, [5.13]; my references are to the 1992 edition, which contains a new Introduction with *addenda* and *corrigenda*', see pp. vi, x, 22.
2 All quotations from Berkeley are from the standard edition, edited by Luce and Jessop, of his *Works,* [5.3]; for convenience, I refer to entry or section number or (in the case of his letters in vol. 8) date.
3 See B.Rand, *Berkeley and Percival,* Cambridge, Cambridge University Press, 1914, p. 80.
4 For useful discussion of Berkeley's moral and political views, see [5.26], Broad in [5. 31], Warnock in [5.39], and also [5.62].
5 See Hume, *Inquiry concerning Human Under standing,* 1777, ed. C.W.Hendel, Indianapolis, Liberal Arts Press, 1955, p. 163 n.
6 See [5.20] and Lenin, *Materialism and Empirio-Criticism,* 1909, Moscow, 1972), pp. 28 and 38.
7 See, for example, Pappas in [5.48] and [5.38]; also see [5.37] and [5.45].
8 See Garber in [5.36], Wilson in [5.37], and [5.54].

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CHAPTER 6
David Hume on human understanding

Anne Jaap Jacobson

David Hume's *A Treatise of Human Nature*[1] was published before he was 30 years old. It is often said to be the greatest philosophical work written in English. Bold and ambitious, it is designed by its author to be a significant step in the construction of a science of human nature.

In his subtitle for the *Treatise,* Hume tells us that he will use the experimental method to develop this science. We learn elsewhere that he thinks of the experimental method in contrast to another method:

> we can only expect success, by following the experimental method, and deducing general maxims from a comparison of particular instances. The other scientific method, where a general abstract principle is first established, and is afterwards branched out into a variety of inferences and conclusions, may be more perfect in itself, but suits less the imperfection of human nature, and is a common source of illusion and mistake in this as well as in other subjects.[2]

Whether science is indeed best pursued by the experimental method or by starting with 'clear and self-evident principles'[3] was a matter being debated in Great Britain in the eighteenth century. Hume would have been aware of the debate while he was a student at the University of Edinburgh, during which time he appears to have conceived of the project issuing in the *Treatise*. Hume's declared intention to use the experimental method means, in effect, he is siding with Newton, as opposed to, among others, the continental philosophers Descartes and Leibniz, and the English philosopher, Clarke.

From Newton, and discussions of Newton, Hume derived not just a conception of method, but also a conception of success. Hume hopes to advance us towards an understanding of human nature that rivals in its systematicity the systematicity of Newton's mechanics. Locke and Berkeley also had a strong influence on Hume's philosophy. For example, Hume's theory of ideas is explicitly an amendment of Locke's. Hume's exposition of his theory of ideas is somewhat swift, an indication that he saw himself as largely modifying familiar claims. And Berkeley's philosophy shows up in several Humean theses, including Hume's attack on abstract ideas and his account of causation in terms of constant conjunction, as we will see below.[4] In addition, during his study at Edinburgh University, Hume clearly paid serious attention to other philosophers. Outstanding among these were those of the moral sense school of philosophy, particularly Hutcheson. The moral sense school of philosophy challenges the picture of human beings as at their best when functioning rationally, where rational functioning is a matter of arguing from truth to truths. In its place, Hutcheson *et al.* emphasize the role of

the passionate side of human nature in our acquisition of some of our most important attitudes and beliefs.

At the same time, there is a decidedly continental influence on Hume's philosophy. The *Treatise* appeared after Hume had spent several years studying and writing in France; part of his time was spent at La Flèche, the school where Descartes was educated. Hume clearly absorbed work by Descartes and by his followers, most obviously Malebranche. Hume certainly rejects some of what he read in these sources. For example, Hume's conception of method is at times described in explicit opposition to Descartes'.[5] An additional example is Hume's discussion of personal identity which clearly attacks Descartes' account of the self. And Hume singles out some of Malebranche's views for explicit rebuttal.[6] None the less, Malebranche's philosophy also has a constant conjunction view of causality among material objects which is almost certainly the immediate ancestor of Berkeley's and Hume's; this is a matter to which we will return.[7] And Descartes has an account of natural belief, which is picked up by and elaborated by Malebranche and which will have reinforced the Hutchesonian influence on Hume.[8]

Despite the fact that Hume's philosophy is significantly influenced by his cultural context, it presents us with a systematic working out of a radical idea. The radical idea, greatly extending the claims of Hutcheson, is that in the most important aspects of human life—over a vast range of phenomena—we are and must be creatures ruled by the non-rational in our nature.

Our principle source in our following discussion will be Hume's *Treatise*. However, the *Treatise* undeservedly had a very poor reception (see the concluding section below) and Hume reworked and rewrote some of its most important parts. Those directly concerned with the understanding received their final articulation in *An Enquiry Concerning Human Understanding*. The title 'the first *Enquiry*' is often used to distinguish it from his *An Enquiry Concerning the Principles of Morals*. The first *Enquiry* will be our second major source.

THE THEORY OF IDEAS

Hume's science of human nature starts with a theory of the understanding and the theory of the understanding starts with his theory of ideas. The theory of ideas is, to use Hume's terminology, a theory of *perceptions*. Perceptions include sensations, passions and emotions. The shock of cold as one falls into a icy pond is an example of a sensation. A person craving tobacco or someone angry at a rude comment will also have perceptions. Such perceptions, which Hume thinks of as particularly vivid and forceful, are *impressions*.

There is another class of perceptions. In addition to feeling cold, we can think about being cold. We can make plans about the best way to survive in a very cold place. Or we can remember the cold we felt on some occasion before. Or we can imagine being cold in the future. In such cases, Hume maintains, we have faint images of impressions. These faint images are called *ideas*.

Impressions come from either sensation or reflexion, the latter including passions, desires and emotions. Hume singles out two particular sources of ideas: memory and

imagination. The imagination plays a very important role in Hume's philosophy, though its introduction in the theory of ideas does not really prepare us for this. Hume starts simply by remarking that the ideas of the imagination are less lively and strong than those of the memory and that the imagination, unlike the memory, is at liberty to transpose and change its ideas.

Hume's distinction between impressions and ideas is an explicit amendment of Locke 's theory of ideas, which does not attempt a corresponding distinction. Hume does not tell us much at all about how to draw the distinction or decide a problem case, though he thinks that, in a few cases, we can have ideas nearly as vivid as impressions or impressions nearly as faint as ideas. None the less, he thinks the distinction is in general quite obvious and thus it is not Very necessary to employ many words in explaining [it]'.[9]

Having introduced impressions and ideas, Hume gives us a distinction which applies to both categories. Both impressions and ideas can be *simple* or *complex*. Hume tells us that 'simple perceptions or impressions and ideas are such as admit of no distinction nor separation'.[10] As first examples Hume gives the colour, taste and smell of an apple. Colours are prominent in his discussions of simple ideas. For example, the idea of red and the idea of a particular shade of bluefigure in his discussion in the *Treatise*.[11] The simple-complex distinction Hume employs is not actually entirely clear. We will see this below when we discuss abstract ideas.

For now we need to note that his simple-complex distinction allows Hume both to attempt to explain the creative powers of the human mind and to hold at the same time that in some sense all our ideas are derived from impressions. In the formation of our *impressions,* the human mind seems to be entirely passive; on the level of impressions there is no hint in Hume of the later, Kantian account of the mind making nature-as-we-experience-it.[12] But Hume is well aware of at least some of the creative powers of the human mind:

> To form monsters, and join incongruous shapes and appearances, costs the imagination no more trouble than to conceive the most natural and familiar objects…. What never was seen, or heard of, may yet be conceived; nor is anything beyond the power of thought, except what implies an absolute contradiction.[13]

Hume explains our ability to form complex ideas which are not directly derived from impressions as the ability to compound, transpose, augment or diminish the materials of experience.[14] He tells us that we can analyse our thoughts or ideas, however compounded or sublime, into simple ideas; each complex idea is composed of simple ideas which are and must be derived from impressions.[15] Thus, *simple* ideas are basic ingredients for the creations of the imagination, among other things.

We should want to understand, not just the major conclusions of Hume's science of human nature, but also the way he thinks a science should argue. Does Hume follow an experimental method? Hume gives us two arguments for the thesis that ideas depend on impressions. The first argument is a model causal argument. Simple ideas are constantly conjoined with corresponding simple impressions and vice versa. Such constant

conjunctions *prove*[16] a causal dependence; and the direction of dependence is clear from our experience. One gives someone an idea of something by furnishing the opportunities for gathering an impression and not vice versa; hence, it is the impressions that are the causes. The second argument is based on 'the plain and convincing phenomenon' that people who lack a particular impression also lack the corresponding, resembling idea.[17] These arguments reflect a use of the experimental method as Hume conceives of it; they are based on observation and experience, as opposed to supposedly undeniable first principles.

Hume does qualify his thesis that all ideas are derived from impressions. The qualification concerns 'the missing shade of blue'. Suppose that one has had experience of all the shades of blue except one. Suppose further that a chart of all the shades of blue (except for the one not experienced) going from the lightest to the darkest is placed before one. Would it not be possible to spot the lack and have an idea of what is lacking? Interestingly, Hume answers in the affirmative and remarks that it is such a strange case that it should not lead him to alter his general maxim about the dependence of ideas on impressions. Possibly Hume thinks that merely imaginary cases have no bearing on the basic laws governing human cognition.[18]

Whatever the correct adjudication here might be, it remains the case that Hume thinks there are some universal principles and that he can tell us what some of them are. Hume's principles of association play a particularly crucial role. They are the source of much of the mind's creativity and they are the source of much in our ordinary beliefs. It is Hume's thesis that there are regular patterns to our thought and the principles of association give us his formulation of the patterns. There are three such principles: Resemblance, Contiguity and Causation. Given an impression or idea, our imagination naturally 'runs to' ideas resembling it. For example, one sees a horse and thinks of the horse one's neighbour owns. Similarly, the imagination also 'run[s] along the parts of space and time in conceiving its objects'; that is, an impression or idea of some object naturally leads us to ideas of spatially or temporally related objects.[19] For example, someone sees a picture of the Pope and thinks of the Vatican, which does not at all resemble the Pope, but which is usually fairly near him. By far the most important of the principles of association is cause and effect. '[T]here is no relation, which produces a stronger connexion in the fancy, and makes one idea more readily recall another, than the relation of cause and effect betwixt their objects'.[20] Thus, someone sees a vase being pushed off a table and then has an idea of the vase shattered into bits.

Underlying the creativity of the human mind is a systematic ability we have. If one has an idea of a orange circle and an idea of a brown equilateral triangle, one *therewith* becomes able to have the idea of an orange equilateral triangle. It seems Hume wants to explain this ability in terms of, in this case, our combining a simple idea of orange with an idea of an equilateral triangle. But what Hume says in his discussion of abstract ideas makes the use of the notion of 'simple idea' in such a context problematic. We will now turn to Hume's account of abstract ideas and then return to the question of how to understand the 'simple' of 'simple ideas'.

In his discussion of abstract ideas, Hume is attempting to account for the fact that we seem capable of uttering and understanding sentences which have an indefinite or even potentially infinite number of implications.[21] For example, (a) 'All human beings are

mortal' and (b) 'X is a human being' imply 'X is mortal' for every fill-in for 'X'. Thus, 'Socrates is a human being and Elizabeth I is a human being', conjoined with (a), imply 'Socrates is mortal and Elizabeth I is mortal'. And so on for any fill-in for 'X' in 'X is a human being'. How do we manage to have such large thoughts? One answer is that we have abstract ideas; for example, an abstract conception of human being which applies equally to Socrates and Elizabeth I. Hume opposes such an account and instead locates generality in our language.

Hume aims to explain how we can have and use such terms. We only have specific ideas and so ideas attached to each general term are specific. But, Hume notes, we are also able to notice the similarity among, for example, various red objects that are correctly called 'red' or various objects that are correctly called 'globes'. In addition, when we use general terms, our imagination brings to mind lots of specific ideas of resembling objects, ideas of other red objects or ideas of other globes. The imagination here operates 'by custom'. Finally, if we make a mistake when using a general term, we are also so constituted that we are able to correct it. Should one think, 'No persons are snubnosed', a counter-example will occur to one, if there are counter-examples one can be aware of. Note that this explanation of our use of general terms invokes the imagination at important points; below we will see other tasks the imagination performs.

In his arguments, Hume maintains that we cannot separate out features in the way proponents of abstract ideas appear to have thought we can. We cannot literally conceive, Hume thinks, of some abstract triangle which contains or models the triangularity every triangle (equilateral, isosceles, large, small, etc.) somehow is supposed to have. As he says, ''tis impossible to form an idea of an object, that is possest of quantity and quality, and yet is possest of no precise degree of either'.[22] Hume asserts, for example, 'When a globe of white marble is presented, we receive only the impression of a white colour dispos'd in a certain form, nor are we able to separate and distinguish the colour from the form'.[23] But this cannot be Hume's final word; if it were, then he would be denying himself access to the systematic ability underlying creativity which he is clearly aware we do have. To refer to a previous example: If one's idea of orange cannot be separated from an idea of circularity, then it is not a simple idea. This is so because, by definition, simple ideas are the ones that can be so separated. But then one is not going to be able to form an idea of *that* orange in a different shape. And now the theory leaves as highly questionable the thesis that if one has an idea of an orange circle and an idea of a brown equilateral triangle, one *therewith* becomes able to have the idea of an orange equilateral triangle.[24]

Not only do we lose our systematic ability to recombine such ideas, but, further, what Hume is saying *seems* to involve a staggering error, another sign that we may well not be interpreting him correctly. It is false that the colour of a particular circle one sees cannot be separated from that shape and size or that the colour of a particular globe cannot be separated from that globe. One could cut up the circle and rearrange the pieces; one could break off tile-like pieces from the globe and rearrange them. Further, Hume holds a thesis which entails, and could be used to explain, such possibilities.[25] According to Hume, extended surfaces are made up of physical points which are neither divisible nor extended; they are non-extended points. Any other extension, on Hume's account, can be regarded as decomposable into its points or atoms. Such an atomistic view makes it

possible for the points to be rearranged. Further, according to Hume, our visual field is similarly constituted by such points. The thesis that our visual fields are so constituted makes the rearrangement particularly accessible to our imaginations. What this suggests is that when Hume says we cannot separate the colour from the form, he means that we cannot get the colour alone, without any shape. This is quite different from saying that we cannot get the colour without the particular shape it has at some one time.

It may be a mistake to push Hume further on the problem of reconciling a fruitful account of simple ideas with his denial of abstract ideas. For one thing, the area in which he is working is enormously difficult and it is arguable that every extant theory in the area is full of problems. More immediately concerned with our project is the fact that Hume has not pushed himself to a final explanation, as we can see from the fact that his account of abstract ideas simply invokes without explanation our ability to spot similarities.

We have looked at some of the central ingredients of Hume's theory of ideas. But what is the theory a theory *of,* what is it supposed to be explaining?

Of course, one thing the theory is telling us is what sensing and thinking are. The first is the having of impressions; the second the having of ideas. Hence, among other things, the theory is Hume's first move in building a theory of our perception of an external world. Hearing, seeing and feeling just are having impressions, as far as what goes on *inside* of us is concerned. But the theory is to tell us more than this. Thus the theory will deliver an account of belief, as we will shortly see. That is, the theory will tell us the difference between, for example, imagining it is cold outside and believing that it is. In addition, the theory yields quite directly a theory of meaning.[26] 'If you tell me, that any person is in love, I easily understand your meaning, and form a just conception of his situation', where understanding the meaning and forming a just conception consist in, it is clear from the context, having ideas.[27]

A major condition on meaningfulness which Hume proposes, one of his most important critical tools, follows from Hume's theses that all complex ideas are composed of simple ideas, that all simple ideas are derived from impressions and that meanings require ideas:

> When we entertain, therefore, any suspicion that a philosophical term is employed without any meaning or idea (as is but too frequent), we need but enquire, *from what impression is that supposed idea derived*? And if it be impossible to assign any, this will serve to confirm our suspicion.[28]

There are strict limits on the impressions we can have and these limits transfer into conditions on what ideas we can have and so on what we can intelligibly say.

There is a further aspect to the theory of ideas which needs emphasizing. From the start, Hume's examples of impressions give a prominent place to the impressions of reflection, our passions and emotions. This feature reflects the importance in Hume's philosophy of the non-rational aspect of human nature. In what follows we will be looking at Hume's descriptions of the mechanisms underlying many of our most important beliefs. As we will see, the roles of imagination and custom or instinct are very central. At the same time, some of Hume's discussion may make us wonder about

whether, in Hume's philosophy, our ordinary beliefs are really all that likely to be true. Hence, it is very important to realize that Hume does not recommend that we abandon all these beliefs. What he in general is recommending will be discussed principally in the final section below.

We will next look at (i) Knowledge and Causation, (ii) The Existence of the External World and Personal Identity, and (iii) The Question of Humean Scepticism.

KNOWLEDGE AND CAUSATION

In the *Treatise,* Hume distinguishes between knowledge, proofs and probabilities.[29] Hume reserves the title 'knowledge' for those beliefs which cannot be false; for example, the belief that two plus two is four. The thesis that knowledge is restricted to what cannot be false is largely present in Locke and quite clearly derives from Descartes. *Proofs* belong to a species of belief commonly regarded as particularly well grounded and exceeding our merely probable beliefs. We could see 'knowledge' and 'proofs' as technical terms which together cover a significant amount of what we would ordinarily count as knowledge.

The distinction between knowledge and proofs stems from Hume's difficult theory of relations; similar material, in a more accessible form, can be found in the *Enquiry*. In the *Enquiry,* the corresponding material is introduced with a distinction between relations of ideas and matters of fact.[30] Relations of ideas, like knowledge in the *Treatise, cannot* be false; our discovery of them depends, Hume says, merely on the operation of thought. That 3×5=one half of 30, a relation of ideas, is something of which we can be wholly certain, however the course of nature unfolds. Matters of fact, on the other hand, *can* be false in the sense that they are not necessarily true. To use Hume's example, however sure we are that the sun will rise tomorrow, it is possible that our belief is false. We can always imagine what it would be like for such a belief to be false, Hume maintains. Hence, though our evidence for it can be great, it cannot measure up to that we can have for relations of ideas.

Those matter of fact beliefs for which our evidence is great include the 'proofs' of the *Treatise*. While Hume does allow that we do sometimes have proofs and that our evidence for matter of fact beliefs can be very great, he is typically seen as a sceptic about such beliefs. That is, he is typically interpreted as doubting or denying that we have any knowledge in such areas even when we use 'knowledge' in a much weaker sense than Hume uses it. He is so interpreted because he maintains that there cannot be any good arguments for our matter of fact beliefs. More precisely, he maintains this about our matter of fact beliefs which go beyond our beliefs about our present sensory environment, and our memories of such environments. Hume thinks that our matter of fact beliefs which are about things we do not and have not observed cannot be supported by any good arguments.[31]

In both the *Treatise* and the *Enquiry,* Hume's arguments for the claim that a host of our supposedly very probable matter of fact beliefs cannot be founded on argumentation begin with a discussion of necessary connexions and what we can know about them.[32] Hume's central claim in the *Enquiry* is that our matter of fact beliefs about the

unobserved require connexions: 'And here it is constantly supposed that there is a connexion between the present fact and that which is inferred from it. Were there nothing to bind them together, the inference would be entirely precarious'.[33] If As are merely followed by and not connected with Bs, then the occurrence of an A places no restrictions on the occurrence of alternatives to B. If smoking is not connected to lung cancer, then the mere fact that someone is a smoker does not make lung cancer any more probable than not. If, as far as what we observe goes, there are no connections, then, as far as what we observe goes, B is no more probable than any alternative to B. But, Hume adds in, we do not observe any necessary connections. Thus, as far as what we do observe goes, for each cause there are a vast number of possible results each of which is, in an important sense, as possible as any other.

Suppose, then, one has observed an A followed by a B, where as far as anything one observed goes, there was a vast array of alternativesto B each of which was as likely as B. It would certainly be rash—and irrational—to expect a B before one occurs. Suppose, again, that one observes the conjunction repeating, though as far as observation goes, each time a B occurred, it had a host of equally likely alternatives. Let us add in (as Hume does) the fact that even our best reasoning by itself, and in operating on our observations, also failed to reveal any connections. Under such suppositions, can we really have strong reasons for thinking that a B will occur, given that an A has occurred? Remember, if there are no connections, then there are a host of alternatives to a B, each of which is as likely as a B. Just because of this, the prospects of one's getting a good argument securing the conclusion that a B will occur are very dim.

Hume does consider whether we might shore up an argument going from present and past observations to a conclusion about the unobserved by adding in a general belief about uniformity, namely, that the future will resemble the past (or the unobserved resembles the observed). The answer is that we do not really improve the argument. If there are no connections, the claim that the future will resemble the past is at least as doubtful as is the idea that a B will occur when an A next occurs. Hence, an argument for 'The future will resemble the past' has the same sort of problem that is had by an argument for the claim that a B will occur when an A next occurs. If 'The future will resemble the past' is needed to shore up an argument concluding that B will occur, it is every bit as much needed for any argument to show the general conclusion that the future will resemble the past. But, clearly, with the more general conclusion we have reached a position that cannot be shored up by 'The future will resemble the past', because that would make our argument circular.

We may worry that Hume is unnecessarily restricting what he is willing to count as a good argument. Even if we concede that we cannot construct a good argument *directly* from 'As and Bs have been conjoined in the past' to 'If an A occurs tomorrow, then a B will occur', might not there be some sort of legitimate argument from conjunctions to connections which would solve the problem Hume has located?

Hume has an argument against such an objection. The argument is an attack on the legitimacy of the notion of necessary connection. And his conclusion is that in so far as necessary connections are supposed to be more than constant conjunctions, they are in the observer, not the observed. Before we look at this attack, we need to consider Hume's positive account of how we do acquire beliefs about the unobserved.

How, then, does Hume think we manage to have any beliefs about the unobserved? Hume argues that our judgements are founded on our observations of constant conjunctions. Our belief that eating some piece of bread will nourish us depends on our having observed in the past a regular conjunction between eating bread and being nourished. When we have observed a series of conjunctions between two types of objects, we pronounce the one a cause of the other. And given an observation of the cause, we expect the effect. The details of this transition from the experience of a cause to an expectation of the effect are very important.

Such transitions draw on the imagination and custom or instinct. It just is a basic fact about the way our minds operate that our observations of a series of conjunctions among As and Bs will lead us to expect a B when we perceive an A. Further, there will be a transfer of vivacity from our impression of A to our idea of B. When vivacity is transferred to the idea of B, it counts as a belief, for beliefs just are more vivacious ideas in such a relation to a present impression.[34] The difference between merely raising the possibility that it is cold outside and believing it is cold outside is the fact that in the latter case, the idea has much more vivacity. 'Thus', Hume concludes, 'all probable reasoning is nothing but a species of sensation'.[35] It is a matter of how you feel.

How, then, does Hume argue that any connection which is more than constant conjunction is in ourselves, not in the objects we pronounce connected? The argument rests on the theory of ideas. If we have an idea, we must have had the relevant impression (s).[36] The only possible relevant impression sources for an idea of necessary connection are (i) our experience of constant conjunctions and (ii) our inferential reactions to such experiences. Thus, any content to our idea of necessary connection which goes beyond constant conjunctions comes from our inferential reactions. Hume concludes, 'Either we have no idea of necessity, or necessity is nothing but that determination of the thought to pass from causes to effects and from effects to causes, according to their experienc'd union.'[37] Hume accordingly gives two definitions of cause; the first gives us 'cause' in terms of constant conjunction, the second in terms of our inferences.[38]

Just as other philosophers, prominent among them Locke, have argued that colours-as-seen are really in the mind and merely projected onto the world, Hume holds that necessary connections are really just in the mind.

> 'Tis a common observation, that the mind has a great propensity to spread itself on external objects, and to conjoin with them any internal impressions, which they occasion, and which always make their appearance at the same time that these objects discover themselves to the senses… Mean while 'tis sufficient to observe, that the same propensity is the reason, why we suppose necessity and power to lie in the objects we consider, not in our mind, that considers them; notwithstanding it is not possible for us to form the most distant idea of that quality, when it is not taken for the determination of the mind, to pass from the idea of an object to that of its usual attendant.[39]

But, Hume holds, it is literally unintelligible to ascribe our inferential reactions to the things regarding which we are inferring. Hence, it is literally unintelligible to ascribe necessary connections to items we are saying are causally related.

> But when…we make the terms of power and efficacy signify something, of which we have a clear idea, and which is incompatible with those objects, to which we apply it, obscurity and error begin then to take place, and we are led astray by a false philosophy. This is the case, when we transfer the determination of the thought to external objects, and suppose any real intelligible connexion betwixt them.[40]

To think of one thing as necessitating another is to think of one thing as a proof of another; that is, to think of one as a premise and the other as a conclusion.[41] And this is not, strictly speaking, something of which we can make sense.

From what we have just seen, one might well expect Hume to be a thorough sceptic about our beliefs about the unobserved and doubt or deny any statements which go beyond what we have observed. However, Hume's philosophy is full of causal generalizations which go way beyond what Hume could have observed. Hume in fact gives us rules by which we are to distinguish between good and bad causal judgements. Further, he does not take any doubts about our ability to know the unobserved to compel a silence about, for example, how human minds he has not observed do in fact work. Moreover, Hume uses his discussion of causation to propose a solution, in a frankly non-sceptical way, to the problem of freewill. In discussing freewill Hume gives us the first thorough articulation of a compatibilist position; that is, a position which says we can be both causally determined and morally responsible. Hume's arguments for compatibilism draw heavily on his two definitions of causation and Hume presents us as having a vast array of non-problematic beliefs about various constant conjunctions which go way beyond what we could have observed. Accordingly, we cannot simply assert that Hume was sceptical about all such beliefs.

None the less, Hume was acutely aware of the sceptical possibilities in his treatment of causation:

> The sceptic…justly insists…that nothing leads us to this inference [regarding the unobserved] but custom or a certain instinct of our nature; which it is indeed difficult to resist, but which, like other instincts, may be fallacious and deceitful. While the sceptic insists upon these topics, he shows his force, or rather, indeed, his own and our weakness; and seems, for the time at least, to destroy all assurance and conviction.[42]

At the same time, Hume does not conclude this discussion by endorsing the scepticism. Rather, he maintains that the scepticism ought to be rejected, because no durable good can come from it. (Notice, however, that he does not attack the truth of the sceptic's premises or the power of the sceptical arguments.)

As we have found, though Hume raises very serious, sceptical questions about the content and justification of many of our ordinary causal statements, he does make some causal statements himself. We might well be tempted to see this as just inconsistent or, perhaps worse, very sloppy. But Hume is much too good a philosopher for either epithet to explain adequately a wide-spread feature of his thought. Rather, what he is dealing

with is a general and profound philosophical problem. This is a topic we will return to in the final section below.

We have looked principally at the relation between Hume's account of causation and his assessment of our beliefs about the unobserved. This is the emphasis in the *Enquiry*. There is another aspect of Hume's discussion, part of which is placed more in the foreground in the *Treatise,* which has been mentioned briefly and which we should look at in a little more detail. Many seventeenth-and eighteenth-century philosophers had, we might say, a problem about causation. Many had reasons for believing that there are three domains in which causation operates or *appears* to operate: (1) God causes events in the world; (2) we cause our actions and (3) events in the world cause each other. It is not easy to see how these three tasks can all be performed. For example, if God causes physical events and physical events cause each other (which already may look to be too much), there seems to be little or no causation left for us to effect. And if there is nothing left which requires our causing, how can we be responsible for any of our actions? Hume's discussion of causation intersects with this larger problem of causation at several points. As we have seen, Hume uses his account of causation to argue that we can be both causally determined and morally responsible. And Hume attacks the seeming obviousness of some of the principles which create the problem of causation. For example, he argues that the principle that every event has a cause, which underlies many proofs for the existence of God, is not self-evidently true.

We may feel, as some seventeenth- and eighteenth-century philo-sophers did, that causation by both God and worldly events is too much. Malebranche, and Berkeley in part under his influence, both did and both saw themselves as removing or downgrading causation among worldly events. What we think of as causation among worldly events is really just a matter of regularity or constant conjunction which is arranged by God, they each maintained. Genuine causation, which they thought of as embodying a kind of necessity, was reserved for another realm. It looks to be the case that Hume is in part reacting to just this picture. For Hume actively argues for the view that all there is to genuine causation among material objects is constant conjunction; what he adds is the denial that there are special necessitating connections anywhere.

BODIES AND SELVES

Hume tells us at the beginning of his discussion of body in the *Treatise* that 'We may well ask, *What causes induce us to believe in the existence of body?* but 'tis in vain to ask, *Whether there be body or not?* That is a point, which we must take for granted in all our reasonings'.[43] And Hume says that as a consequence he will restrict his attention to the question of what causes us to believe in bodies which are external to and independent of us, and which may continue to exist when we cease to perceive them. Hume's readers of this discussion have reason to wonder whether he is being disingenuous. For it very much looks as though Hume gives us an account which fails to reveal our belief in body as anything we would be willing to describe ourselves as in fact taking for granted. None the less, Hume is serious. And what we will come to see is that what we 'take for granted' may show the efficacy, in Hume's philosophy, of the imagination, even when it

is at odds with reason.

There are strong similarities between Hume's discussion of our belief in body in the *Treatise* and the *Enquiry*. In each of them, Hume considers two accounts of what the belief in body is, what its content amounts to. The first is the belief held by the vulgar ('that is, all of us, at one time or other').[44] Their belief in continued and distinct bodies is really a belief about their perceptions. Hume tells us, '[T]he vulgar confound perceptions and objects, and attribute a distinct continu'd existence to the very things they feel or see'.[45] He maintains, 'The very image, which is present to the senses, is with us the real body'.[46] This is a very striking attribution and we need to ask why Hume thinks we do so confound.

In part the attribution is the result of Hume's general thesis that ideas and so meanings are determined by impressions. But we can alsosee two further components behind Hume's claim that we do so believe. In part he is representing us as direct realists; we believe that what we see—for example, a chair or a table—is immediately[47] present to us. Many philosophers would agree with Hume that the vulgar are such direct realists. Additional to this is Hume's account of how we come to believe this. It is really this last part which has the implication that our direct realism consists in beliefs about perceptions. According to Hume, the belief held by the vulgar is not the product of reasoning or argumentation; the vulgar do not reach the belief by 'reasoning beyond' their perceptions. As a consequence, the vulgar must be understood as having beliefs not based on their perceptions, but instead as in some sense *about* their perceptions. We will later look more at the details of this account.

At the same time, our belief that tables and chairs are directly present to us is unstable, at least for someone constructing a science of the mind.

> [T]he slightest philosophy…teaches us, that nothing can ever be present to the mind but an image or perception, and that the senses are only the inlets, through which these images are conveyed, without being able to produce any immediate intercourse between the mind and the object. The table, which we see, seems to diminish, as we remove farther from it: but the real table, which exists independent of us, suffers no alteration: it was, therefore, nothing but its image, which was present to the mind.[48]

Thus our direct realism does not withstand the slightest scrutiny. It involves a fiction which Hume appears to count as literally false.[49]

Before we look more carefully at the details, we should consider Hume's second account of what the belief in body amounts to. Because the belief of the vulgar is so clearly problematic, philosophers tend to replace direct realism with a theory about two distinct existences. The philosophers' view is that there are internal images, directly present to us, which are caused by and resemble bodies which are external to us. This thesis of "a double existence'[50] is what, on Hume's second account, a belief in bodies involves.

The philosophers' conception of body is hardly unproblematic. The universal opinion of us all—that is, the belief of the vulgar—is the product of primary instincts. It is something we find difficult to resist. But once we see its problems, and attempt to replace

it, we end up unable to support the new view. We cannot simply maintain that, like our beliefs about the unobserved, the thesis of a double existence is merely a matter of custom and instinct. For, as we have seen, custom and instinct do not lead us to the philosophers' view; rather, they lead to the vulgar view. Neither, however, will we be able to produce a convincing argument for the philosophers' view. For we should argue for such a view as we would for any causal thesis. That is, we should start to observe whether the relevant constant conjunctions obtain. 'But here experience is, and must be entirely silent'.[51] All we have present to us, Hume maintains, is one sort of conjunct, the images. We cannot reach around our perceptions to see if they are constantly conjoined with resembling objects. Hence, we have *no* good argument for the causal thesis that our perceptions are caused by resembling objects.

When we take the existence of body for granted, then, we either believe something false or assent to something for which we cannot have a good argument. Further, in addition to the fact that we cannot successfully argue for the philosophers' view, that view seems plausible only because of our original assent to the vulgar view. If we had not started with a natural tendency to think we do perceive something which is independent of us, we never would have been tempted to construct the double existence view.[52]

Consequently, if it is vain to ask whether there is body, if that is something we *must* take for granted, it is not because the belief in body is luminously true. Rather, we must take it for granted the way a ball whose movement is unimpeded must move when struck. That is, our belief in body is causally fixed.

There are some aspects of Hume's description of how vulgar belief in bodies is causally fixed which particularly merit close attention. Hume argues that the belief in an external body which continues to exist even when not observed is not the product of the senses or of reason; instead it is the product of the imagination. What sets the imagination off is the fact that our perceptions have a coherence and constancy. Our perceptions cohere in that they appear according to regular patterns; the sight of a hand knocking on a door is regularly conjoined with the sound of a knock. Further, this coherence is much greater and more uniform if we suppose the directly perceived objects to have also continued existence when not perceived. And 'as the mind is once in the train of observing an uniformity among objects, it naturally continues, till it renders the uniformity as compleat as possible'.[53] Thus we naturally 'read' our experience as experience with continuing objects.

Even more influential is the constancy. Constancy consists in the great similarities among perceptions which leads us to judge that some object is being re-experienced. Hume notes, '[We find] that the perception of the sun or ocean, for instance, returns upon us after an absence or annihilation with like parts and in a like order, as at its first appearance'.[54] In such cases, we tend to think of the perceptions as really the same individual from one time to the next. Hume tells us, '[W]e arenot apt to regard these interrupted perceptions as different, (which they really are) but on the contrary consider them as individually the same, upon account of their resemblance.'[55] We have such a tendency because their similarity means the imagination passes from one to the other with great ease and in such a case, surveying the different perceptions feels very like a surveying of a single object. As a consequence, we confound a succession with an identity and attribute sameness to every succession of such related objects.[56]

The claim that interrupted perceptions amount, none the less, to *the same thing* does ask that we account for how they can be both one thing and interrupted. We respond to this by 'feigning a continu'd being, which may fill those intervals, and preserve a perfect and entire identity to our perceptions'.[57] We in effect create the *fiction* of a continued existence: 'This propension to bestow an identity on our resembling perceptions, produces the fiction of a continu'd existence;…that fiction, as well as the identity, is really false, as is acknowledg'd by all philosophers'.[58]

As we have seen, the philosophers respond to such a view, by attempting to replace it with a thesis of double existence. But the philosophers' view is simply the monstrous offspring of two contrary principles: the imagination's propensity to ascribe an identity to distinct perceptions and reflection's insistence that 'our resembling perceptions are interrupted in their existence and different from each other'.[59]

The imagination's propensity to feign an identity is strong enough that we will succumb to it. However, when we return to Hume's critical perspective we may well want to say, with him, that

> I feel myself *at present* of a quite contrary sentiment, and am more inclin'd to repose no faith at all in my senses, or rather, imagination, than to place in it such an implicit confidence. I cannot conceive how such trivial qualities of the fancy, conducted by such false suppositions, can ever lead to any solid and rational system.[60]

There are several points at which one might object to what Hume is saying. For example, we might insist that he is wrong in describing our starting-point. We might insist that we start, not with our internal impressions, but with our shareable observations of a public world. Or we might question Hume's reasons for maintaining that we have no good reason for believing the philosophers' thesis of a double existence, with impressions on the one hand and resembling objects causing them on the other. His reason here is that we cannot verify this causal thesis the way we need to be able to; we cannot reach around our impressions to check on the existence of the resembling causes. One might object that Hume has placed his standards of proof too high. We often do, as a matter of fact, make inferences about classes of causes which we cannot observe. Such inferences are inferences about the best sort of explanation a phenomenon has. An example of such inferring was the inference to the existence of a gene in advance of our even being able to specify what its chemical composition is.[61]

Whatever the best philosophical position here is, it is important in understanding Hume that we realize that he has other attacks on body, on the coherence of a supposition that there is a publicly accessible world of material objects, which support his view. Hume argues that our thought regarding material objects is subject to further infections by imagination. Thus, Hume maintains, the imagination is apt to feign something unknown and invisible to make sense of our conviction that bodies are more than momentary and unstable clusters of qualities. This is *'substance, or original and first matter'*.[62] Such fictions are formalized in 'the antient philosophy',[63] but their effects are also present in ordinary thought.

In addition, Hume agrees with, and adds to, Berkeley's attack on the

primary/secondary quality distinction. Hume takes learned opinion, 'modern philosophy', to assert that 'colours, sounds, tastes, smells, heat and cold…[are] nothing but impressions in the mind, deriv'd from the operation of external objects'.[64] On this modern view, primary qualities—extension and solidity in their different mixtures and modifications—are the only properties really possessed by external, material objects. But, Hume objects, if secondary qualities are really in the mind, so also must primary qualities be. To suppose otherwise is to suppose the possibility of a kind of separating which, in his discussion of abstract ideas, Hume has argued is impossible.[65] Hume concludes:

> Bereave matter of all its intelligible qualities, both primary and secondary, you in a manner annihilate it, and leave only a certain unknown, inexplicable *something,* as the cause of our perceptions; a notion so imperfect, that no sceptic will think it worth while to contend against it.[66]

At several points in his discussion of bodies, some of which we have not explicitly considered, Hume appeals to the activity of the imagination. In the *Treatise* he contrasts the principles of the imagination which give rise to our reasonings concerning cause and effect with those principles which give us our belief in an external and independent world. The former are the more reputable; the latter are trivial.[67] (This contrast appears to be rejected in the *Enquiry*.)[68] As we will see, the less reputable principles of the imagination are also at work in our construction of our concept of ourselves.

Hume wants to place his discussion of the self in the context of a discussion of bodies. But the perspective in this discussion of bodieswill be quite different from the discussion seen above. In discussing personal identity, Hume takes it for granted that there are planets, mountains, plants and animals. And he examines how we think about the identity of such things in order to extract some general principles to enlighten our discussion of the self.

We do think of plants and animals (and planets and mountains) as continuing to exist through a series of losses, or increments, of parts. Suppose someone removes a thorn from a rose bush. The rose bush is still there, we may feel very inclined to say, even though it now has one less thorn. Hume disagrees. He maintains that, strictly speaking, any mass of matter is the same mass only if there is no addition or subtraction of any matter.[69] Why do we think otherwise? The answer is one we have seen before: as long as the change is small, the passage of thought (the imagination) from the earlier to the later objects is so smooth and easy that we take the case to be one of identity.

Hume maintains that there are other describable general reasons why we disregard change and pronounce identity. For example, we do not take gradual and insensible change to interrupt identity. Another factor: we can even combine identity and a large change if the parts function toward some common end or purpose which is not destroyed by the changes. For example, an extensively repaired ship or remodeled house may be allowed to be the same ship or house. In addition, when the parts interact in promoting the common end, we can tolerate vast changes in matter. Thus, nearly all of the matter of a large tree will be different from that in a sapling planted, let us suppose, thirty years ago. This need not impede a judgement that the older tree *is* the tree planted thirty years ago. Finally, if the nature of the object is to be changeable, we may disregard change.

Thus we speak of the same part of a river even when the river is rapidly flowing.

If Hume is right, then our ordinary talk of material objects is replete with error. None of the seemingly familiar objects in our present environment can have really existed for very long, despite our great inclination to believe otherwise. Given we make these errors, it is going to seem less odd to think we are making a similar error about ourselves. And Hume is going to maintain that we are wrong in the way we think about ourselves. Understanding what errors Hume thinks we make is made difficult by the fact that Hume appears to reject his initial discussion. In an appendix to the *Treatise,*[70] he seems to take it back, apparently telling us his two main principles are not consistent. Thus the account Hume gives us in the body of *Treatise* is presented with a confidence we need to regard as provisional.

Hume's discussion in 'Of personal identity' begins with an attack on Descartes, among others:

> There are some philosophers, who imagine we are every moment intimately conscious of what we call our SELF; that we feel its existence and its continuance in existence; and are certain, beyond the evidence of a demonstration, both of its perfect identity and simplicity…. [N]or is there any thing, of which we can be certain, if we doubt of this.[71]

Hume maintains that this description cannot be the description of a genuine, contentful idea of the self. Such a self is supposed to exist at every moment of our lives, yet we are without any awareness of such a continuant. It is, further, something supposedly additional to our perceptions, something which *has* the perceptions. Not only do we lack any impression of such a continuant, all we do have are our changing impressions. Nothing in our experience gives content to an idea of, or provides evidence for, such a continuant.

Having attacked the idea that Cartesian self-reflection supports a view of the self as that to which all our perceptions are referred, Hume attempts, first, to explain why we have thought the Cartesian view of the self is so plausible, and, second, to tell us what the truth is. We find the Cartesian view plausible because of a tendency we have seen Hume discuss above.[72] As we have seen in the case of body, when the passage of the imagination is very smooth as it surveys a diversity of perceptions or (what is for Hume) a series of trees, we have a tendency to pronounce the case to be one of identity. Similarly in the case of the mind, the easy transition of the imagination in its survey of our perceptions leads us to think of the self in terms of identity, and not diversity. In both such cases we 'substitute the notion of identity, instead of that of related objects'.[73] Nor do we stop with the self at 'boldly asserting] that these different related objects are in effect the same, however interrupted and variable'.[74] Rather,

> In order to justify to ourselves this absurdity, we often feign some new and unintelligible principle, that connects the objects together, and prevents their interruption or variation. Thus we feign the continu'd existence of the perceptions of our senses, to remove the interruption; and run into the notion of a *soul,* and *self,* and *substance,* to disguise the variation.[75]

As what we have just seen suggests, Hume thinks that our tendency to pronounce identity when we really have diversity does not merely result in a verbal flourish. Rather, we take on a commitment to a further kind of being. Thus, our propensity to declare identity when there is really diversity is compounded by a tendency of ours to think there is something more which is really unchanging and identical. We do this with our creation of the fiction of the self or soul. But even when our reaction to diversity is not as extreme as inventing a further thing to be there, we are still apt to 'imagine something unknown and mysterious, connecting the parts, beside their relation'.[76]

In the case of ourselves, as in the case of ordinary material objects, certain relations among the diverse elements leads us to pronounce identity. With ourselves, the diverse elements are perceptions and the relations are similarity and causation.[77] It is largely memory which accounts for the similarity among perceptions; and this similarity does promote an easy passage of the mind from one cluster of perceptions to another. Memory supplies us with copies of earlier perceptions and, as copies, they will be similar. In addition, our perceptions are causally interrelated, as again memory helps us to see. Impressions cause ideas which in turn can cause other impressions and ideas. The self is, then, an evolving cluster of perceptions related by similarity and causality.

In his famous misgivings in an appendix, Hume reviews his conception of the self and shows it to be anchored in two theses which he cannot renounce: '*that all our distinct perceptions are distinct existences,* and *that the mind never perceives any real connexion among distinct existences*'[78]

Hume appears to say that these principles positively block any satisfactory account of the unity of the self, or at least that he cannot find a way to unite these principles with a needed, better account. The implication is that his earlier account of the self is defective and that he cannot do any better. His reaction to the resulting philosophical problem is to declare himself a moderate sceptic, who avoids any dogmatic conclusion and instead pleads the problem is too difficult for him to understand. That Hume declares himself a moderate sceptic is significant, as we will see.

A CONCLUSION REGARDING SCEPTICISM

Hume's work is informed by the radical idea that in the most important aspects of human life—over a vast range of phenomena—we are and *must be* creatures ruled by custom and instinct, where this contrasts to being continuously guided by rational argumentation. To describe a set of beliefs, attitudes and actions as irrational in this way is not necessarily to denigrate them. In fact, one can easily and consistently hold that some patterns in our lives are very beneficial and even efficient in getting us true beliefs without thinking of them as consisting in rational arguments.

Hume's work has, however, often been regarded as negative and destructive. While Hume tells us that the remarkable outpouring of his own youth, *A Treatise of Human Nature,* '*fell dead-born from the Press,* without reaching such distinction as even to excite a Murmur among the Zealots',[79] this comment looks like wishful thinking. The radical and ambitious *Treatise* in fact cost Hume dearly. As Mossner, his biographer, remarks:

> the *Treatise* was sufficiently alive in 1745 to lose for Hume the Professorship of Ethics and Pneumatical Philosophy at Edinburgh…. {And} after a quiescent period of more than a decade, the 'Murmur among the Zealots' began to rise in the 1750s, reaching something like a roar in the 1770s.[80]

The idea that Hume's work is full of perverse errors has persisted down to our own time. The latest such view of Hume is Antony Flew's. Flew refers to what he terms 'the strangeness, the often self-frustrating perversity'[81] of some of Hume's positions. He takes philosophical discussion of Hume to proceed best by reversing the arguments Hume gives for 'outrageous conclusions'[82] and turning them into disproofs of the premises.

Is Hume's work in the end perversely destructive? Or is he, like Kames and Turnbull,[83] other followers of Hutcheson, confident that our ideas unfold in harmony with the world they seem so obviously to represent? One way to decide this might be to see how much in our ordinary beliefs Hume wants us to discard.

The extent to which Hume thinks we do have satisfactory knowledge of the world around us is currently a matter of very considerable debate among Hume scholars. While some scholars view Hume's work as essentially sceptical,[84] others see Hume as principally a constructive philosopher[85] or as sharply limited in his scepticism.[86] Indeed, it is only recently that the philosophical community has begun to see that Hume's philosophy has many constructive features. In addition, the sort of naturalism Hume espouses—his picture of us as continuous with the brutes, acting and believing instinctively—seems to be increasingly confirmed by recent work in cognitive science. Hence, scholars are still in the process of re-examining the rich and subtle arguments Hume has given us. But at the same time, this ferment means that the community of Hume scholars has not reached a consensus on much at all. There is an ongoing, sometimes heated debate about how to understand Hume's arguments.

I am going to suggest a moderate, safe and easy answer to the question of whether Hume is a sceptic; then I am going to complicate things a bit. Before we approach the answer, however, we need to bring together some of what we have seen of Hume's philosophy. We have looked at some areas regarding which we make knowledge claims (in a less restricted sense of 'knowledge' than we saw Hume use in the*Treatise*). That is, we do claim to have some knowledge about some things which we have not observed and about causal relations in which one thing *makes* something else occur. And we do claim to have some knowledge about our external environment. Further, we do think we can often tell quite easily that, for example, the coat we wore yesterday is the same as the one we have on today. Finally, most of us feel quite certain that our selves are substantial things which have mental states and are not just clusters of such states. Taking all these areas together, we should ask whether Hume is a sceptic regarding them.

The safest and easiest answer says that Hume is simply a moderate sceptic. The moderate sceptic eschews excessive or Pyrrhonic scepticism, which, according to Hume,[87] does maintain that we should suspend most or all of our beliefs in the areas we are discussing. A moderate sceptic also urges us to bear in mind our own and others' fallibility, to undertake our investigations cautiously, with the awareness that we are not going to get the answers we want to grand questions about the ultimate truth. In favour of

this moderate-sceptic interpretation is the fact that Hume does clearly reject excessive scepticism and does say that his investigations do reveal limits on our ability to know. Indeed, we might say that Hume has a *healthy* scepticism regarding our claims to knowledge, where this means that he stresses that our knowledge is not boundless and that we are far from infallible. Finally, we might add that Hume assigns positive merit to the beliefs we have because of instinct and custom, to our natural beliefs.

Assigning such merit is not, however, a matter of seeing that the more extreme sceptic's arguments are based on false premises or are argued illicitly. Rather, the moderate sceptic offers us a *practical* solution to a problem we tend to think of as a purely theoretical problem. The moderate sceptic addresses issues about how to form our beliefs without continuing to attempt to defeat the claim that the beliefs may not be true.

There is a complication. One thing that Hume is also arguing is that ordinary thought proceeds on metaphysical assumptions that are philosophically indefensible. Our spreading necessity on nature, our fiction of external, resembling objects, and our fiction of a simple, continuing self are all *metaphysically questionable*. The slightest philosophy reveals that much in the beliefs of the vulgar cannot be justified philosophically. Whatever else one can say about the beliefs, we have no good reason to think them true. In addition, Hume's investigations have shown that the modern philosopher has failed to give us acceptable alternatives to the beliefs of the ordinary person.

Thus, taking Hume to be merely a moderate sceptic does not dispel all the tension in his work. Moreover, if we picture Hume as a moderate sceptic who is prepared to concede that truth may residewith the extreme sceptic, then the confidence with which the *Treatise* opens and the enthusiasm with which Hume continues his investigations in Books II and III become quite puzzling. It is hard to believe that Hume really is prepared to concede that most or all of what he says in Books II and III may be false.

A genuinely adequate model for the place of scepticism in Hume's work may have to put even more thoroughly into question the idea that a great philosopher must attempt to give us the final, true answer on the questions addressed. Such a model could pick out several different personas and perspectives in Hume's work, among them that of the vulgar, the modern philosopher, the extreme sceptic, the moderate sceptic and the scientist of the mind, the last being the persona who continues with Books II and III of the *Treatise*. The scientist of the mind, we could say, turns the moderate sceptic's practical solution of ignoring the excessive sceptic into a theoretical verdict against that sceptic's claim to have the truth.[88]

Somewhat similarly, we might question whether we need or can get the final truth about how best to understand Hume. Late twentieth-century post-modernism has put in question in many areas the insistence that there be one right answer. If we keep such a view in mind as we read Hume, we may see a philosopher who is even more radical than has been thought.

NOTES

1 [6.5]. Page references to the *Treatise* are to this edition.

2 [6.4], 174. Page references to *An Enquiry concerning Human Understanding* and those to *An*

Enquiry concerning the Principles of Morals are to this edition. The second *Enquiry* begins with p. 167.

3 [6.4], 150.
4 I am indebted here to conversations with John Yolton. See [6.32].
5 See [6.4], section XII, part one.
6 [6.5], 159–60.
7 See [6.22], chs V and VI.
8 See [6.31], 221–30.
9 [6.5], 1.
10 [6.5], 2.
11 [6.5], 3, 6.
12 Though as we will see with the principles of association, there is considerable activity in the mind at other junctures.
13 [6.4], 18.
14 [6.4], 19.
15 Ibid.
16 Hume's word, [6.5], 4.
17 [6.5], 5.
18 For a useful discussion of this issue, see [6.29], 33–5.
19 [6.5], 11.
20 Ibid.
21 See [6.5], 24, 'they can become general in their representation, and contain an infinite number of ideas under them'.
22 [6.5], 20.
23 [6.5], 25.
24 One might see Hume as attempting to resurrect the thesis through distinctions of reason as he discusses them in [6.5], 24–5. There are, however, two reasons why this suggestion is faulty. First of all, the rhetoric Hume is employing is all wrong for a discussion of the fundamental ability which underlies all our creative cogitating. Second, the passage does not aim at explaining what is in question; namely, how we manage to recombine ideas of colors and shapes.
25 [6.5], 26–39.
26 As David Pears points out in [6.25], there is some controversy about whether Hume's theory of ideas is principally a theory of meaning or principally a theory of evidence. Like Pears, I think it is concerned with both meaning and evidence.
27 [6.4], 17.
28 [6.4], 22.
29 Hume is not completely consistent in his use of some of the terms central to this discussion, especially the terms 'reason' and 'reasoning' which are sometimes restricted to fairly formal arguments, consisting of premises and conclusions, and sometimes used to encompass a wider class of episodes of thinking. In addition, the distinction between proofs and the merely probable is not made consistently. Thus at points Hume includes proofs under 'probable reasoning'.
30 [6.4], 25–6. This distinction is an immediate ancestor of the now infamous analytic-synthetic distinction which has been the object of much scrutiny in the second half of the twentieth century. In [6.4] the distinction between proofs and probability is relegated to a footnote; see p. 57, n. 1.
31 My ascription to Hume of this negative assessment is a traditional interpretation; see [6.29].

Several commentators have recently argued against the interpretation. See [6.10] for a discussion of this disagreement.

32 The reader should know that the interpretation given below has a serious point of disagreement with the standard interpretation. On both my and the standard interpretation, Hume locates a problem in our beliefs about the unobserved. On the standard interpretation, the problem is that such beliefs rest on an unsupportable belief that the future will resemble the past. On my interpretation, the problem is fundamentally an ontological one about necessary connections. For a very good version of the standard interpretation, see [6.29], 42–67. I have defended my interpretation in [6.21].

33 [6.4] 26–7.

34 [6.5], 103.

35 Ibid.

36 The appeal I am making here to Hume's theory of ideas is controversial, though it is also the conventional reading. It has been challenged recently by, among others, [6.31] and [6.28]. However, it has been ably defended in [6.30].

37 [6.5], 166.

38 See [6.4], 76–7, and [6.5], 169–72.

39 [6.5], 167.

40 [6.5], 168.

41 [6.4], 76. My interpretation here is not the standard interpretation. The standard interpretation maintains that the determination is a kind of feeling. I have discussed the standard interpretation and argued that it is not fully accurate in [6.20].

42 [6.4], 159.

43 [6.5], 187.

44 [6.5], 205. 'Vulgar' here means just 'ordinary folk'.

45 [6.5], 193.

46 [6.5], 205.

47 Hume's word on [6.5], 212. In believing that what we see is directly present, we believe that we know what we are seeing without having to argue from some sort of visual clues,

48 [6.4],152.

49 [6.5], 209. See my discussion below.

50 [6.5], 182 and 205.

51 [6.4], 153.

52 [6.5], 215.

53 [6.5], 198.

54 [6.5], 199.

55 [6.5], 199.

56 [6.5], 204.

57 [6.5], 208.

58 [6.5], 209. Of course, fictions do not have to be false, but Hume says that this one is. A work of fiction might tell a story which happens to be true. What makes something a fiction is, roughly, that there is little or no connection in the creator of the fiction between the existence of the fiction and its truth, if such there be.

59 [6.5], 215.

60 [6.5], 217.

61 It is immaterial to my point whether or not we want to say that we can now observe genes (with electron microscopes, for example); rather, the point is merely that we counted ourselves as knowing such genes existed before anyone was willing to say we observed them.

62 [6.5], 220.
63 [6.5], sect. III of part IV of book I.
64 [6.5], 226.
65 The separating in this sort of case would amount to separating colour from *any* shape.
66 [6.4], 155.
67 [6.5], 197 and 217.
68 [6.4], 159.
69 Hume's reasoning here seems at least in part to be a kind of slippery slope argument: In many or most cases, we would agree that subtracting or adding a large mass would destroy identity. Given this, one might argue, small changes must destroy identity. Otherwise, a series of small changes will add up to a large change and we will have to say both that we do have identity (each small change preserved identity) and that we do not have identity (the large change occurred and, *ex hypothesis,* that destroys identity).
70 [6.5], 633–6.
71 [6.5], 251.
72 Jane McIntyre and Phillip Cummins have suggested to me in conversation that a very careful reading shows that Hume does not genuinely think that the vulgar—we—do have a Cartesian conception of the self. A more focused study would be needed to decide the issue.
73 [6.5] 254.
74 Ibid.
75 Ibid.
76 [6.5], 255.
77 Contiguity, Hume maintains, drops out.
78 [6.5], 636.
79 'Hume's *My Own Life*', quoted in [6.23], 612.
80 [6.23], 117.
81 [6.16], 3.
82 [6.16], 103.
83 See [6.24], 152–238.
84 See, in addition to Flew, [6.19], [6.24], [6.27]. See also [6.12].
85 See especially [6.10]. Both [6.26] and [6.29] are very important as initiating the current revision in our view of Hume.
86 See [6.14], [6.28] and [6.31].
87 Hume's interpretation of Pyrrhonism is questionable; see [6.18].
88 The view of Hume adumbrated here is developed further in my forthcoming 'A New Model of the Place of Scepticism in Hume's Philosophy'. An early version of this paper was presented at the Hume Society Conference in 1993.

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CHAPTER 7
Hume: moral and political philosophy

Rosalind Hursthouse

INTRODUCTION

Hume's moral and political philosophy, like his epistemology and meta-physics, originally appeared in *A Treatise of Human Nature,* (henceforth [7.1]), Book III of which, 'Of Morals', was published in 1740. He developed and recast it in a number of essays and dissertations published between 1741 and 1757, (collected together in Hume [7.3]) and in *Inquiry concerning the Principles of Morals* (henceforth [7.2]), published in 1751.

His moral philosophy borrows much from Hutcheson, and his political philosophy at least some from Hobbes and Mandeville.[1] His blending of these disparate elements is entirely his own, as is the *Treatise* attack on the role of reason in morals. The attack may be seen as a continuation of the scepticism of Book I (see chapter 6 of this volume) or even, despite the order of the Books, as having inspired it.[2] Or it may be played down. There is much debate amongst commentators about the extent to which the attack is mitigated in later stages of the Book III of the *Treatise,* and over whether it has been abandoned by the *Enquiry,* or retained in all essentials. Hence Hume has been interpreted as anything from a complete moral sceptic to at least as much of a moral realist as Aristotle. But its presence in the relevant sections of Book II and early sections of Book III is unmistakable, where it is heralded with the battle cry 'Reason is, and ought only to be the slave of the passions, and can never pretend to any other office than to serve and obey them' ([7.1] 415). Hume has reached this conclusion by a number of arguments, regarded by some commentators as conclusive, and by others as 'dreadful'.

REASON AND PASSION

Passions, according to Hume, following Locke, are 'secondary impressions' ([7.1], 275), or impressions of reflexion ([7.1], 8, 275). We might expect that *qua* impressions, they are all unmistakable ([7.1], 190) and possess, 'force and liveliness' ([7.1], i); but this turns out not to be so (see below 'Moral Sentiments'). *Qua* secondary, they proceed from antecedent impressions or ideas, and 'mostly from ideas' ([7.1], 8). Once again following Locke, Hume takes it that all the familiar passions—love, hatred, joy, fear, anger, pride—arise directly or indirectly from the ideas (or impressions) of good or evil, which (unlike Locke), he does not bother to distinguish from the ideas or impressions of pleasure or pain, (*Treatise,* p. 276). Reason, or the understanding, operates with ideas, all of which are 'copy'd from our impressions' ([7.1], 72); it can never give rise to any new idea ([7.1], 164); reasoning is either *demonstrative,* concerned with abstract relations between

ideas, or *probable,* concerned with matters of fact, i.e. with causes and effects.

This, in brief is the philosophical psychology that grounds Hume's attack on the role of reason in morals.[3] The historical setting of the attack is as follows. Hutcheson, without attempting to deny that reason is *an* essential determinant of correct moral approbation, had argued against the rationalists' claim that it was the *sole* determinant.[4] For Hutcheson, reason is essential for the very reason that Hume gives in the *Enquiry* ([7.2], 285); it is that faculty which enables us to judge, contrary to false appearances, the truly beneficial or pernicious tendencies of actions and qualities (character traits) to society. Hutcheson's point is that such reasoning would not motivate any creature which lacked our 'moral sense', namely our natural tendency to approve of benevolence, to discern 'beauty' in benevolent actions, or would motivate them differently.

But Hutcheson's claim that practical reasoning (reasoning that leads to action) must operate with the ideas of good and evil antecedently provided by our instincts, affections and moral sense is transmuted by Hume in the *Treatise* into the curious claim that reasoning, even about the probable outcome of action, cannot give rise to any action at all.

He begins by attempting to show '*first,* that reason alone can never be a motive to any action of the will' ([7.1], 413) (or produce any action, passion or volition, since he takes all these as equivalent in this context). Demonstrative reasoning alone is easily dismissed. Clearly it is never the cause of any action, since it is concerned with 'abstract relations', with 'the world of ideas' (ibid.), but the will is concerned with realities (ibid.).

He then considers 'the second operation of the understanding' ([7.1], 414). 'When we have the prospect of pain or pleasure from any object, we feel a consequent emotion or aversion or propensity'; we then cast around looking for ways to avoid or attain the object, i.e. for what action(s) will have these effects. This is (probable) reasoning and 'according as our reasoning varies, our actions receive a subsequent variation. But 'tis evident that the impulse arises not from reason, but is only directed by it' (ibid.).

As many commentators have noted, this argument, as it stands, is very weak.[5] He describes the cases in which 'an aversion or propensity' is already present, and then some reasoning takes place. Naturally, those passions or impulses do not arise from that reasoning which follows them. But this does nothing to show that they may not have arisen from some prior reasoning. Indeed, he seems committed to saying that they have. It is 'the prospect of pain or pleasure from some object' which has given rise to the passion or impulse in question, and this surely must, according to Hume, be the belief that the object will or would cause me pleasure or pain if 'embraced' or unless 'avoided'. And what is such a belief but the outcome of probable reasoning concerning causes and effects?

Taking himself to have established that reason 'alone' cannot produce any action (or volition or passion), Hume argues '*secondly,* that it can never oppose passion in the direction of the will' ([7.1,] 413). 'Nothing' he says, 'can oppose or retard the impulse of passion but a contrary impulse' ([7.1], 415). So, if reason could oppose a passion, it would have to do so by producing such a contrary impulse. But he has just shown (supposedly) that it cannot do this (alone). So it cannot oppose a passion.

He is fully aware that there are cases which we describe in terms of reason opposing passion, and indeed, winning out; for example when my passionate impulse to hit

someone is conquered by the consideration that he is much stronger than I am, or that he is my old father and it would be wrong. Following Hutcheson[6] he claims that when we do so 'we speak not strictly and philosophically'. ([7.1], 415, cf. [7.1], 437–8). In truth, what happens in such a case is that a 'calm passion' determines the agent's will ([7.1], 417).

But in order to oppose a violent passion, a calm passion must be actually present, having been 'excited'; and belief, Hume allows, 'is a requisite circumstance to the exciting of all our passions, the calm as well as the violent' ([7.1], 427). Hutcheson, with no axe to grind about the slavishness of reason, is happy to say that 'calm desires' are the product of 'Reason or Reflection'. Of course, such reason employs, or reflects on, ideas of good and evil which are derived from our instincts, affections or moral sense, but it is no less reasoning for that. But Hume gives no account here of what excites the calm passions.

To make what Hume says in these two arguments plausible, we must assume that, unlike Hutcheson, he is using 'reason' in such a way as to exclude its operating with the ideas of *good* (pleasure) or *evil* (pain). That falling in the fire will cause me to feel great pain/evil is not, as we might have supposed, a conclusion of 'reasoning' concerning causes and effects.[7]

His further argument against reason (used at both [7.1], 415 and 458) is also close to one of Hutcheson's and directed against the same targets. The rationalists are taken to maintain that, in some sense, vicious actions (or the desire to do them), are an attempt 'to make (or will) things (to) be what they are not and cannot be', which is as contrary to reason as 'to pretend to alter the certain proportions of numbers' (Clarke) or that such actions declare that what is not so, is so (Wollaston).[8] Against this, Hume argues that a passion is an 'original existence' or 'fact'; as such 'it contains not any representative quality'. Hence it cannot be a *true* or *false* representation. But '(r)eason is the discovery of truth or falsehood' ([7.1], 458); so a passion cannot be 'contradictory to (…) reason', neither 'contrary (n)or conformable to reason.'

His three examples ([7.1], 416)—that it is 'not contrary to reason to prefer the destruction of the whole world to the scratching of my finger', to choose my total ruin to prevent the least uneasiness of a stranger, and to prefer, 'even my own acknowledg'd lesser good to my greater'—all run counter to variations of the principle that the greater good/lesser evil is to be preferred to the lesser good/greater evil, which Clarke regards as being akin to a mathematical axiom, discoverable by pure reason. But it has little bearing on what is supposed to be at issue, namely on whether reason can do anything but 'serve and obey' the passions, and indeed Hume immediately goes on to admit that, in two cases, 'our passions yield to our reason without any opposition' ([7.1],

One case is unproblematic. (I may desire to do certain actions, supposing them to be the means to some desired good; if reason informs me that this supposition is false, the first desires (passions) will immediately cease ([7.1], 416–17). The second is not. Reason 'excites a passion by informing us of the existence of something which is a *proper* object of it' ([7.1], 459, my italics), i.e. something with a tendency to produce (as he says) pain or pleasure or (as he does *not* say here, but to be consistent, should) good or evil. Reason may subsequently discover that this supposition, of the existence of a proper object, is false, whereupon, once again, the passion yields. In this case, as in the former, 'No one can ever regard such errors as a defect in my moral character'. ([7.1], 460).

But this is a muddle. Reason, taking this to exclude any employment of the ideas of pleasure (good) or pain (evil), cannot excite any passion—this was the claim of the first argument. Taking it to include employment of such ideas of course it can—but then false suppositions about the tendencies of 'objects', or actions to produce good or evil, particularly long term good or evil, may well turn out to be 'the sources of all immorality'—as indeed Hutcheson seems to suppose but which Hume here denies ([7.1], 460).

The point of the lengthy discussion of the subservience of reason to passion in general has been to provide the ground for claiming, in Book III, that 'moral distinctions are not deriv'd from reason' ([7.1], 455) but from sentiments (a form of calm passions), so that '(m)orality is more properly felt than judg'd of' ([7.1], 47o).[9] Quite simply, 'morals have an influence' on our passions (and actions), and 'it follows, that they cannot be deriv'd from reason; and that because reason alone, as we have already prov'd, can never have any such influence' ([7.1], 457).

As has just been noted, 'reason alone' here has to be taken as meaning 'reason excluding any employment of the ideas of good or evil', and it was perhaps the extraordinary difficulty of making it mean that which lead Hume to some of the major changes in the *Enquiry*. Nothing is said there about what can, or cannot produce passions and the subservience claim has been dropped in favour of Hutcheson's view that reason must enter for a 'considerable share' in moral decisions ([7.2], 285).

The *Treatise* also contains a passage that is almost invariably quoted, the 'is/ought' passage ([7.1], 469–70), where Hume observes that in all 'systems of morality' he has met with, the authors begin with various *is*- and *is not*- statements, and then 'of a sudden', produce statements whose copula is *ought* or *ought not*. '(T)his *ought,* or *ought not*', he says, 'expresses some new relation or affirmation' which needs to be explained, but 'the authors commonly do not use this precaution.' Hume may be taken to be implying that no such explanation can be forthcoming; then the passage is interpreted as the claim 'No "ought" from an "is"' and described as 'Hume's Law'. Alternatively, he may be interpreted as saying no more than that the authors in question (assumed to be the rationalists, who produce 'speculative systems' of morality) have not explained it, implying that an explanation in terms of human nature, such as he and Hutcheson give, can be given. Whichever interpretation is favoured, it must be acknowledged that the *Enquiry* does not contain any parallel passage.

However, some aspects of the *Treatise* position linger on. In both the *Treatise* and the *Enquiry* we are invited to consider an action agreed to be vicious (wilful murder in the *Treatise* ([7.1], 468), an act of ingratitude in the *Enquiry,* ([7.2], 287) and challenged to find that *matter of fact* wherein its vice or criminality lies. In both cases, it is taken as obvious that we cannot do so. But since, in both cases, we can obviously find a motive indicative of a character which, far from being useful or agreeable to its possessor or to others, has the contrary tendency, finding this cannot count as finding the sort of thing that 'reason' judges of—a *matter of fact*. So 'reason' here has to be *Treatise* reason: not the faculty which, according to Hutcheson and the *Enquiry* 'points out' the beneficial or harmful tendencies of personal qualities.[10]

MORAL SENTIMENTS

Having argued that 'moral distinctions are not deriv'd from reason', Hume claims that we 'mark the difference' between virtue and vice on the basis of a 'feeling or sentiment'. These are sometimes described as feelings of 'satisfaction or uneasiness' ([7.1], 471), sometimes as 'sentiments of approbation (or praise) or disapprobation (or blame)' ([7.1], 469), sometimes simply as 'sentiments of pleasure or pain' ([7.1], 472).

Avowedly 'subjectivist' accounts of moral judgements are faced with two standard problems. Firstly, if 'x is virtuous' just means (something like) 'I like x', and I like wine, why do I not say that wine is virtuous? And secondly, why am I charged with inconsistency or hypocrisy when I say that the truthfulness of my enemy, which prompts her to tell the truth about me or my friends, is vicious, but that our truthfulness is virtuous, if all I mean is that I dislike the former and enjoy the latter? Moral judgements have features which remarks of psychological autobiography lack.

Hume is sensible of these two features of moral judgement, though characteristically he treats them as psychological features of 'that *peculiar* kind (of feeling), which makes us praise or condemn' ([7.1], 472, cf. 517 and [7.2], §222). The sensations of pleasure we get from wine or music resemble each other just sufficiently to 'be express'd by the same abstract term' ([7.1], 472), but we can all recognize that they are very different. Similarly, the pleasure we get from the contemplation of character and actions is simply different from any of the others, so different that we never 'confound' them, that is, mistake one of the others for it ([7.1], 472, cf. [7.2], 213 n.1).[11]

Just as the moral sentiments are caused by characters and actions, never by music and wine, so they are caused 'only when a character (or action) is considered in general, without reference to our particular interest' never when the character or action is not so considered ([7.1], 472, cf. [7.2], §222–3). However, in this case Hume admits that the sentiments can be 'confounded'. The good qualities of my enemy may well give rise to a feeling of antipathy in me, despite the fact that the very same character traits in a person unconnected to me give rise to a feeling of pleasure, and I pronounce them virtuous. But if I think my enemy vicious, on account of my feeling of antipathy, this is because I am under an illusion, the illusion that the sentiment I have in contemplating the qualities of my enemy is indeed the moral sentiment, rather than one of the others.[12] But, though readily mistaken for non-moral sentiments, the moral sentiments are 'in themselves, distinct' and "a man of temper and judgement may preserve himself from these illusions' ([7.1], 472).

How he does so is not entirely clear. To preserve myself from confounding a non-moral with a moral sentiment I place myself in 'a general point of view' and see what sentiment I have then. 'Experience soon teaches us this method of correcting our sentiments' ([7.1], 582) says Hume. However, it seems that this does not always work; the sentiment of aversion I feel towards the good qualities of my enemy may prove 'stubborn and inalterable' ([7.1], 582); for, in general 'the *heart* does not always take part with those general notions, or regulate its love and hatred by them' ([7.1], 603). What then? Well then we 'correct(…) our language' ([7.1], 582).

This may look like a move Hume should not allow himself to make, for what is the language in question, employing the epithets 'virtuous' and Vicious', supposed to be about but the speaker's sentiments? Hume's answer to this is that, although I cannot love a remote historical character as much as I do someone present, I can know that I *would* feel much more strongly in favour of the former if he and the latter were both before me, and on that account I say the former is more virtuous (ibid.). So if, despite our rebellious sentiments, we 'correct our language' and pronounce the hurtful good qualities of our enemies to be virtues, 'the meaning of this is that 'we know from reflexion' that they 'would excite strong sentiments' of pleasure if we found them in someone who was not an enemy (paraphrasing ([7.1], 584). And these sentiments would be the genuinely moral ones; the ones that are caused only when a character is considered 'without reference to our particular interest'.[13]

This is indeed an answer to the question 'what is the language in which we employ such terms as "virtuous" about?' but it is hardly consistent with his other oft-repeated claims that it is about those sentiments I find, *at the time,* in my own breast. Those 'peculiar' sentiments which make us praise or condemn are *not* always present when we do; it is not *only* when we feel them that we pronounce things to be virtuous; when, pronouncing wilful murder to be vicious, I look into my own breast, I may find all sorts of sentiments, but not necessarily the appropriate one, the moral sentiment of disapprobation. And this, although it does not entirely undercut the claim that morality is 'founded', ultimately, on sentiment as opposed to reason, does undercut his claim about the practical nature of morality, that it impels us to action ([7.1], 457).

Hume devotes far too little attention to the question of how people become wicked, and what their beliefs, desires and passions are.[14] Do the callous and ungrateful believe that they are really kind (but firm and not unduly indulgent of deserved misfortune) and grateful (when gratitude is *really* called for)? Or do they believe they are callous and ungrateful and not care? If so, do they not care because they believe these qualities are virtues not vices, or do they believe that they are vices, and the corresponding actions vicious, and still not care? Hume never expresses any views on these questions. But the overwhelmingly natural way to read him is as committed to the standard view that the latter, at least, is impossible. To pronounce (sincerely) that my killing my father is vicious is, *ipso facto,* to feel a strong aversion to killing him; this is precisely the sense in which morals have an influence on actions. But for morals to have this influence, the feeling must be *present.* If I can pronounce any possible action of mine to be vicious, not on account of what I actually feel about it, but on account of what I *would* feel about the same action *if* I saw someone else doing it, or indeed, *if* someone tried to do it to me, then the connection with impulses to action is lost. The 'fact' that I *would* feel an antipathetic sentiment if I saw someone else killing their father is, even if not a 'matter of fact' in Hume's restricted use of the phrase, certainly not a passion, and hence cannot explain what opposes my desire to kill my own when I hate him as my enemy.

So Hume copes with two of the standard objections to 'subjectivist' accounts of moral judgements only at some considerable cost. Further standard objections arise in the context of moral scepticism.

SCEPTICISM AND SELF-LOVE

Hume has been described as a 'moral sceptic', both in his own day and in ours. He himself denied that he was one. It is sometimes supposed that he did so only to avoid strife, and with a view to getting academic posts. It is more plausible to assume that 'moral scepticism' or 'the denial of the reality of moral distinctions' can be taken in a variety of ways, and that, in at least some ways of taking it, Hume was sincere when he claimed not to be a moral sceptic.

Amongst the writers described as moral sceptics by Shaftesbury[15] and Hutcheson were Hobbes, Locke and Mandeville, on the grounds that they all maintained that our sole passion or sentiment is that of self-love, or a concern for our private interest. It appears that there were two distinct ways in which such a claim about human nature was thought to amount to the denial of the 'reality' of moral distinctions and thereby to moral scepticism.

First, the moral distinctions we draw between actions are, strictly speaking, distinctions between the motives of those actions. But if there is only ever one motive, namely self-love, there are no such distinctions to be made; hence no real moral distinctions. Second, no philosopher who has embraced 'the selfish hypothesis' denies that, somehow, human beings are brought to distinguish between their own private interest and that of others, and, at least sometimes, to pursue the latter rather than the former. Given that this is contrary to (their) nature, it must be, in some sense, a convention, or artifice. But if moral distinctions arise from convention rather than nature, they are not real; hence, on 'the selfish hypothesis' they are not real.

Hume has little to say about self-love in the *Treatise* and makes little explicit attempt to dissociate himself from 'moral scepticism' except with regard to justice. Perhaps he did not expect to be charged with moral scepticism, since, after all, he concurred 'with all the ancient Moralists, as well as with Mr. Hutcheson, Professor of Moral Philosophy in the University of Glasgow'.[16]

However he is quite explicit about the rejection of moral scepticism in the *Enquiry,* maintaining at the very outset that 'those who have denied the reality of moral distinctions, may be ranked among the disingenuous disputants' ([7.2], 169) and producing much new material, not to be found in the *Treatise,* directed against 'the selfish hypothesis' ([7.2], 298). In part V he explicitly identifies this as a view of sceptics, who suppose, he says 'that all moral distinctions arise from education, and were, at first, *invented,*…by the art of politicians' ([7.2], 214, my italics) and in §175, he cites a number of 'instances', or experiments which compel us to renounce it ([7.2], 219). He returns to the attack in the *Enquiry*'s second Appendix 'Of Self-Love', where he names Hobbes and Locke as amongst those who maintain 'the selfish system of morals' ([7.2], 296) and produces several more arguments against it.

So if by a 'moral sceptic' we mean—as Shaftesbury and Hutcheson certainly meant—'one who embraces "the selfish hypothesis" and is thereby committed to saying that no two actions have different motives and that moral distinctions are not natural but invented or matters of mere convention', then Hume was not a moral sceptic, and was not being

disingenuous when he repudiated the charge.

SCEPTICISM AND SUBJECTIVITY: THE STANDARD OF 'TASTE'

However, it may well be that there are tendencies to another sort of moral scepticism in Hume. Like Hutcheson, he compares virtue and vice to 'sounds, colours, heat and cold, which, according to modernphilosophy, are not qualities in objects, but perceptions in the mind' ([7.1], 469, cf. [7.2], 294). A pure rationalist in morals may incline to saying that secondary qualities[17] such as sounds and colours are insufficiently real for the analogy to guarantee the reality of moral distinctions (and hence call both Hume and Hutcheson sceptics). But even if we grant that colours, for example, are sufficiently real, we may still wonder whether Hume's view of moral distinctions makes them sufficiently analogous. Regardless of whether or not colours are 'real powers', we can be right or wrong about them. That something looks red to me is not the end of the matter; if my vision is defective it may well *look* red, but *be* (as we say) yellow. Are virtue and vice sufficiently like colours in this respect—sufficiently real—for this to be true of them, according to Hume?

Hume's promise ([7.1], 547 n.) to consider '(i)n what sense we can talk either of a *right* or a *wrong* taste in morals, eloquence, or beauty', is not made good in the *Treatise* but, with respect to beauty at least, it is, in the Essay 'On the Standard of Taste'.

Here Hume explicitly raises, and tries to solve, the sceptical problem that founding aesthetics on sentiment seems to present. 'All determinations of the understanding are not right; because they have a reference to something beyond themselves, to wit, real matter of fact; and are not always conformable to that standard' ([7.3], 1:268). But how can there be a Standard of Taste, according to which some aesthetic taste is right and some wrong, when 'all sentiment is right; because sentiment has a reference to nothing beyond itself, and is always real, wherever a man is conscious of it' (ibid.)?

Hume accepts that 'beauty and deformity (…) are not qualities in objects, but belong entirely to the sentiment'; but maintains that 'it must be allowed that there are certain qualities in objects, which are *fitted by nature* to produce those particular feelings' ([7.3], 273; my italics).[18] Supposing that there are such qualities, some 'calculated to please, and others to displease' ([7.3], 271), we may suppose that 'if they fail of their effect in any particular instance, it is from some apparent defect or imperfection in the organ' (ibid.).

Here we do have the parallel with colour judgements; which indeed, Hume draws.

> If, in the sound state of the organ, there be an entire, or a considerable, uniformity of sentiment among men, we may thence derive an idea of perfect beauty; in like manner as the appearance of objects in daylight, to the eye of a man in health, is denominated their true and real colour, even while colour is allowed to be merely a phantasm of the senses.
>
> ([7.3], 272)

So 'the true standard of taste and beauty' is the verdict of the person whose 'organ(s)' of aesthetic taste are 'sound'—the good critic. And '(S)trong sense, united to delicate

judgement, improved by practice, perfected by comparison, and cleared of all prejudice, can alone entitle critics to this valuable character' ([7.3], 278). Such a standard may, of course, be very difficult to apply, since it requires a prior identification of a good critic; but the original sceptical challenge was not to produce a standard which was easy to apply, but any standard at all. 'It is sufficient for our present purpose, if we have proved, that the taste of all individuals is not upon an equal footing' ([7.3], 279).

A somewhat similar problem in relation to moral 'taste' is discussed in 'A Dialogue',[19] where, once again, Hume seeks to 'fix a standard' ([7.2], 333), this time for moral judgements, and to defend a 'universal standard of morals' ([7.2], 343). His problem here is not directly that 'all sentiment is right', and the wide difference in this respect between sentiment and understanding, but the 'wide difference, (…) in the sentiments of morals' which we find between different cultures, such as the ancient Greeks and contemporary Frenchmen ([7.2], 333).

Hume accounts for such differences by 'tracing matters a little higher' to what he calls 'first principles' (ibid.). Unlike the French, or Hume's contemporaries, the Greeks recommend pederasty. But they do so 'as the source of friendship, sympathy, mutual attachment and fidelity' and concerning these 'qualities' there is no disagreement. On the contrary they are 'esteemed in all nations and all ages' ([7.2], 334). Unlike the ancient Greeks, the French justify duelling, but they do so by appealing to courage, a sense of honour, fidelity and friendship, qualities which, again 'have been esteemed universally, since the foundation of the world' ([7.2], 335). Several other examples are given; the general point that is inferred from them is that 'the principles upon which men reason in morals are always the same' (ibid.); 'the original principles of censure and blame are uniform' ([7.2], 336).

Now this may be seen as a rather neat solution to 'cultural relativism' in morals; the moral disagreements we find between peoples is no proof that 'a universal standard of morals' is lacking, for they are mere surface disagreements concealing underlying agreement. In accordance with 'the original principles' of praise or blame 'erroneous conclusions can be corrected by sounder reasoning and larger experience' (ibid.). In the offing, we seem to have the promise of the 'good critic' in morals; someone whose wide experience, sound reasoning, freedom from parochial prejudice etc. would allow any action to produce 'its *due* effect' on her mind.

But the 'good critic' in morals thus envisaged is looking at *actions* such as duelling, not qualities such as courage. Indeed, to reach his conclusion, Hume has to assume (a) that human beings agree, and always have, on some fairly large list of qualities as virtues; and (b) that they never disagree about the criteria of virtue: 'never was any quality recommended by any one as a virtue (…) but on account of its being *useful,* or *agreeable* to a man *himself,* or to *others*', (ibid.). Has he simply overlooked the problem of disagreements about which qualities are virtues? Or does the 'good critic' determine the standard here too?

He is entitled, on his own terms, to assume (b) in 'A Dialogue', because the *Enquiry* has been devoted to proving it 'by the experimental method' ([7.2], 174). Its avowed intention is to 'collect and arrange' 'particular instances' of 'the estimable or blameable qualities of men', and to 'discover the circumstances on both sides, which are common to these qualities…and thence to reach the foundation of ethics, and find those universal

principles, from which all censure or approbation is ultimately derived' (ibid.). Hume considers an impressively wide range (cf. [7.2], 277) of 'estimable qualities', i.e. virtues, (though fewer blameable ones), and, arranging them as 'qualities useful/agreeable to others/ourselves' etc. might well be taken to have proved to his point.

However, in following this procedure he makes a certain assumption about the content of the predicate 'useful', failing to notice that 'useful' is, quite generally, end-directed. If something is useful, it must be useful insofar as it promotes something or other, some end; and the end itself must be taken as good, or worth promoting, if that which is a means to it is to be counted as useful. And Hume simply assumes that a quality useful to its possessor is one 'which advance(s) a man's fortune in the world' ([7.2], 270); it is this assumption which enables him to dismiss 'celibacy, fasting, penance, mortification, self-denial, humility, silence, solitude, and the whole train of monkish virtues' (ibid.) as not being virtues at all *because* they are neither useful nor agreeable to their possessor or to others.

The 'monkish virtues' that he lists have rarely, if ever, been claimed to be useful because they 'advance a man's fortune in the world', but, given the Christian view of the nature of man, they can still be made out to be useful; this is not because they advance their possessor's fortune in *this* world, but because they preserve her soul for the next.

Hume thought, at least in his *Treatise* days, that he could give an account of morality which was neutral with respect to any view about the end of man;[20] he thought then, and continued to think, that an account of morality cannot bypass, but must be rooted in human nature. But it seems that questions about our end are, as Aristotle thought, inseparable from questions about our nature, and that Hume's account of the latter became much less neutral after the *Treatise* when he came to address the question of right and wrong 'taste' in morals. Anyone who gives a religious or ascetic content to 'useful' and praises the 'monkish virtues' is a 'gloomy, hair-brained enthusiast' (ibid.); such people, under 'the illusions of religious superstition or philosophical enthusiasm' ([7.2], 343) lead 'artificial lives', wherein 'the natural principles of their mind play not with the same regularity, as if left to themselves' (ibid.).

Nor are these the only people who get things wrong. Those who think that avarice and dishonesty are virtues (because they are useful in securing money and thereby pleasure) are themselves 'the greatest dupes' ([7.2], 283) having 'sacrificed the invaluable enjoyment of a character, with themselves at least, for the acquisition of worthless toys and gewgaws' (ibid.).

So it seems that Hume's 'good critics' in morals, the ones whose verdicts (if we follow 'A Standard of Taste') provide the true standard of morals, would have to possess not only wide experience and sound reasoning, and *also* 'judge of things by their natural, unprejudiced reason, without the delusive glosses of superstition and false religion' ([7.2], 270), but further, have the *right* conception of happiness or pleasure, the conception which dismisses 'the feverish empty amusements of luxury and expense' ([7.2], 284) in favour of 'inward peace of mind, consciousness of integrity, (and) a satisfactory review of our own conduct' ([7.2], 283). And there is his problem, for where, in Hume's psychological or epistemological theory, is there room for the notion of right and wrong conceptions of happiness or pleasure? He may declare that the conceptions produced by the metaphysical speculations of religion or philosophy can be

safely ignored, but it is not those that lead human beings to pursue 'luxury and expense', 'toys and gewgaws', instead of virtue. The pleasure we take in these worthless things seems all too natural, and it is not clear how Hume can dismiss it as in some sense 'false' without giving up his naturalism. If he believed in his 'good critic' in morals, he may have repudiated moral scepticism with sincerity, but not with consistency.

POLITICAL PHILOSOPHY

In both the *Treatise* and the *Enquiry* Hume devotes special attention to justice, claiming that in some way, or ways, it is significantly different from most of the other virtues. In the *Treatise* he tries to capture the difference by calling it an 'artificial' virtue, and the others 'natural'. This proved to be an unfortunate choice of words, since it immediately associated him with the most feared moral sceptics, Hobbes and Mandeville, (see above 'Scepticism and Self-love') and he dropped it in the *Enquiry*. The question of whether justice is natural is there relegated to a footnote, and dismissed as merely verbal ([7.2], 307–8). But it is clear that this does not signify any change in his position with regard to justice.

NATURAL MOTIVES

In the *Treatise,* the discussion of what distinguishes justice from (most of) the other virtues begins with a curiously difficult argument concerning *motives*. He begins by noting that 'when we praise any actions, we regard only the motives that produced them' ([7.1], 478); 'all virtuous actions derive their merit only from virtuous motives' ([7.1], 479). He immediately concludes

> that the first virtuous motive, which bestows a merit on any action, can never be a regard to the virtue of that action, but must be some other natural motive or principle. To suppose, that the mere regard to the virtue of the action, may be the first motive…is to reason in a circle.
>
> ([7.1], 478)

It is hard to see why.

What would be examples of virtuous motives? A parent's concern for her child; a concern for the well-being of others (ibid. ([7.2], 303)); these, we may note, are passions that occur in us naturally. But what about a *concern for virtue*? Suppose I want to do a benevolent action because it *is* benevolent. This might happen, but it could not always happen amongst human beings in general. For benevolent actions are so-called because they are taken as signs of benevolence, the (naturally occurring) concern for the well-being of others; if there were no such concern in human beings, but only a 'concern to do benevolent actions', there would not *be* any benevolent actions, and hence the 'concern' to do them would lack an object. So, before there can be a concern to do benevolent actions there must 'first' be a natural concern for the well-being of others.

Whether or not this argument works,[21] Hume is certain that it does, and turns to the question of our motive for just action, taking as his example the question of what motive I have for repaying a loan when my creditor demands it. If the argument works, the motive cannot in general be a 'regard to justice', that is, a concern to do a just action: before there can be such a concern there must 'first' be some other motive.

Hume rapidly rejects some suggestions favoured by other philosophers. It cannot be a concern for myself, i.e. self-interest ([7.1], 481) (since it may well not be in my interest to return the money), not even interest in my own reputation (since I may be able to preserve my reputation despite reneging on my debt). It cannot be a concern for the well-being of others, i.e. benevolence, for that might motivate me not to return the money. What if my debtor 'be a profligate debauchee, and would rather receive harm than benefit from large possessions?' ([7.1], 382). What about a concern for public interest? Hume has several objections to this ([7.1], 480–1), but his most trenchant mirrors his objection to benevolence as the motive. 'A single act of justice is frequently contrary to *public interest*' as in the case when a man disposed to spend his money in ways that benefit society restores 'a great fortune to a miser, or a seditious bigot' ([7.1], 497, cf. [7.2], 304 and 305). His action is just, but his concern for the public interest cannot be his motive, for that would motivate him to keep the fortune and spend it wisely in a way its rightful owners will not.

This seems to exhaust the possibilities of natural motives to justice, so we are driven to the conclusion that in some sense our motive to just acts must be a 'regard to justice'. By the circularity argument, this cannot occur naturally—cannot be 'first'—so it must arise 'artificially, though necessarily from education and human conventions' ([7.1], 483). Hence Hume is led to a consideration of the origin of justice.

THE ORIGIN OF JUSTICE AND PROPERTY

Hume appears to see justice as exclusively concerned with property rights and the obligation to honour a few sorts of promises or 'compacts'.[22] So he does not attempt to account for rules of justice which secure the 'natural rights' such as the right to life, or liberty, but concentrates on those which secure 'external goods'.[23] He begins by considering what the natural explanation is of the undoubted fact that 'man is a social animal', and identifies 'the first and original principle of human society' not as self-love, but as 'that natural appetite betwixt the sexes, which unites them together, and preserves their union, till a new tye takes place in their concern for their common offspring' ([7.1], 486, cf. [7.2], 192). Thus bonded into a little society by familial affections or 'limited generosity', human beings are enabled to become aware of something they could never work out, by pure reason, in isolation ([7.1], 486), namely that society is advantageous. Compared with other animals, we are ill-equipped to satisfy our need for food and shelter on our own, but banded together we may do so ([7.1], 485). So we are prompted to union.

But, advantageous as union is, it brings an attendant disadvantage. Those very external goods I can come to possess more easily when united with many other human beings are still in short supply, and moreover, more easily lost, prey no longer to the occasional wild animal, but to most of those other human beings. The 'tender regard' ([7.1], 494) my

friends and family have for me keeps my possessions safe from them, but this 'generosity' with regard to me is confined to them. No one else has any motive to abstain from gratifying that 'insatiable, perpetual (and) universal' ([7.1], 492) avidity for possessions by taking mine. My possession of them is thus unstable.

So nature puts us in a quandary, from which we extract ourselves, inventive creatures that we are, by agreeing on a convention about abstaining from the possessions of others, a convention which restrains our insatiable avidity and thereby 'bestow(s) stability' ([7.1], 489) on our own, and every one else's possession. 'By this means, every one knows what he may safely possess' (ibid.). As soon as this agreement or convention is entered into 'there immediately arise the ideas of justice and injustice' (ibid.).

Hume nowhere explicitly defines justice or describes what it is an idea *of* and it is not clear how he would do so. However, it is clear that he rejects a number of familiar definitions as empty or circular. Justice cannot be defined as respecting others' property or rights because the ideas of *property* and *right* (as the singular of 'rights') arise *after* the idea of justice and are 'altogether unintelligible without first understanding (it)' ([7.1], 491).

To appreciate the plausibility of Hume's point here we must be particularly careful to give his terms their contemporary interpretation. My property, that which is mine in the *meum tuum* sense of 'mine', was commonly defined as anything I have a right to or in. Nowadays we find this odd, since we say we have a right to life, but do not regard our life as (our) 'property'. But Grotius, Pufendorf and Locke all find it perfectly natural to say that my life is my property—for it is, after all, mine.[24] So the ideas of *property* and *right* arise together, or not at all. But 'what is a man's property? Anything which it is lawful for him and him alone to use' ([7.2], 197), that is anything (and only those things) 'whose constant possession is established by the laws of society; that is, by the laws of *justice*' ([7.1], 491, my italics). So to understand the idea of *property* (and hence of *right*) we must first have understood the idea of justice as a convention according to which we abstain from taking—not another's property—but what they are actually possessed of. Prior to such a convention, actual possession is not even one-tenth of the law, because there is no law.

Hume has now given an explanation of how the motive to just acts can, despite the circularity argument, be 'regard to justice'. We respect the possessions of others because it would be unjust to take them (they are theirs, their property, they have a right to them)—but it would be unjust because it would violate an agreement that self-interest has lead us into.

He must now explain why justice is a virtue and injustice a vice—why, that is, the contemplation of them causes 'those peculiar sentiments'. Here the regard to public interest, (though not a motive to just acts) does come in. A violation of the agreement 'displeases us, because we consider it as prejudicial to human society' and we are concerned about that, not simply because of self-interest, but because 'we partake of (the uneasiness of others) by sympathy' ([7.1], 499). The contemplation of unjust acts we might do ourselves may, of course, cause only pleasure; but they are not thereby excused from being vicious, because the sentiment has not, as is requisite, been caused by taking the general point of view (see above, 'Moral Sentiments').

THE ORIGIN OF GOVERNMENT AND THE SOURCE OF ALLEGIANCE

Hume mostly forgets that he has argued that the motive to performing individual acts of justice (rather than to establishing rules of justice in the first place) is not self-interest, but 'regard to justice' itself, enhanced by 'private education and instruction' ([7.1], 501), by which means 'the sentiments of honour (…) take root' in childrens' minds, 'and acquire such firmness and solidity' that they 'may fall little short' of natural principles (ibid.). Hence he accounts for our tendency to lapse into injustice, not as a motivational failure of our induced desire to be honourable or fulfill our obligations, but as an instance of the general human tendency to act against our long term (remote) personal advantage by seizing the present, or near, short term advantage.[25]

So natural to us is this tendency, that it cannot be changed or corrected; 'the utmost we can do is to change our circumstances and situation, and render the observance of the laws of justice our nearest interest' ([7.1], 537). Hence, having united into society, we go a step further and 'establish *political* society' or government, 'in order to administer justice' ([7.3], I: 113). '(C)ivil magistrates, kings and their ministers, our governors and rulers' ([7.1], 537) are instituted as people with an immediate interest in the observance of justice, and the power to 'inforce the dictates of equity thro' the whole society' (ibid.).

This 'new invention' ([7.1], 543) of government, is also the invention of a new obligation or duty ([7.3], I: 114) namely that of obedience or allegiance to the state; the source of this obligation is thus shown to be a mixture of natural and artificial elements, like the source of the obligation to justice. Having perceived the advantages of society, we invent justice (rules governing possessions) to secure them; now conscious of the advantages of justice, we invent government to secure them. But Hume says very little about this source—the psychological mechanisms by means of which we 'annex the idea of virtue' to civil obedience.[26]

THE ORIGINAL CONTRACT AND THE OBLIGATION OF PROMISES

Many of Hume's predecessors[27] had maintained that the source of the obligation to obedience (or allegiance) to the state, was an 'original contract' or covenant. (The point of this, Hume notes ([7.1], 549, cf. 'Of the Original Contract', [7.3], I: 443) was to justify civil disobedience under 'an egregious tyranny in the rulers' ([7.1], 549),[28] something that could not be justified according to the rival account of the source of allegiance, namely, the divine right of kings.)[29] We all promise, or contract, to obey the state authorities, consenting to their rule, on the understanding that they will secure for us the advantages of being in society, namely the advantages of justice. The contract is conditional—'I promise to obey—*if* you keep your side of the bargain and maintain justice'. Hence, 'as happens in all conditional contracts' ([7.1, 550), one is freed from the obligation to keep to it when the condition lapses; in this case, when the state authorities, instead of maintaining justice, act unjustly themselves, and attempt 'tyranny and oppression'.

When the condition is met, the (moral) obligation to obedience is the (moral) obligation to keep the promise—and herein lies Hume's objection to the account, for what is the source of the obligation to keep promises? Prior to embarking on his discussion of the origin of government, Hume has already, in the *Treatise,* argued that fidelity (to promises, or to one's word), like justice, is not a natural but an artificial virtue. His starting-point, as before, is the circularity argument concerning motives. It is clear that my motive for doing whatever I have promised you to do *is* (usually) my sense of (my) duty (to do so); I do it because I promised to, because I am under an obligation to, because you have a right to demand that I do. But it is clear from the content of this motive, however expressed, that it cannot be a natural one. Just as possessions without a convention governing abstention are not property, so a mere form of words, even a form of words attended by a peculiar act of the mind (such as the thought 'I resolve to do what I have just said I would do'), is not a promise, not something that puts the speaker under an obligation.

But if not natural, how does it arise? Like justice, by convention. We agree on the convention that 'a *certain form of words*' will just count as binding the speaker to the performance of a particular action in the future, and '(t)his form of words constitutes what we call a *promise*' ([7.1], 520). As with our agreement to abstain from others' possessions, we see that such an agreement is, given our limited goodwill towards each other, necessary in order to secure certain advantages that we unite into society to gain. (The advantages here are those of the exchange of both goods and services. I promise to transfer my ten bushels of corn to you, in exchange for your transferring five hogsheads of wine to me; I promise to help you cut your ripe corn today in exchange for your helping me to cut mine tomorrow ([7.1], 519–20)).

So we are prompted by self-interest to invent this convention, 'which create(s) a new motive' ([7.1], 520), and then (as with justice) we 'annex the idea' of virtue to it, through *'(p)ublic interest, education and the artifices of politicians'* ([7.1], 523).

Hence, the obligations to justice and fidelity to promise-keeping arise first, according to Hume, and are quite distinct from the obligation to civil obedience.[30] But if the latter is not simply the obligation to keep one's 'original' conditional promise, can Hume explain the justifiability of civil disobedience under 'egregious tyranny'? 'I flatter myself, he says, 'that I can establish the same conclusion on more reasonable principles' ([7.1], 550), but this may indeed be self-flattery. '(T)he *natural* obligation to allegiance' is, he says, 'interest' (presumably the coincidence of self and common interest) and hence lapses as soon as the tyranny of the rulers ceases to promote it, in accordance with the 'maxim', 'when the cause ceases, the effect must cease also' ([7.1], 551). But this maxim would be false when applied to 'the *moral* obligation of duty'; to some extent Hume 'submit(s)' to the argument 'that men may be bound by *conscience* to submit to a tyrannical government', despite the fact that the cause of the moral obligation (said here to be the natural obligation) has ceased. Hume's point here seems to be that, once the idea of virtue has been annexed to civil obedience, so that the peculiar moral sentiments are firmly associated with it, this is not something that can quickly change. Despite knowing he is under tyranny, and that neither his own nor the common interest is being served, the virtuous man, who has been well brought up, will still find himself viewing obedience with moral approbation. Hume could say that he also finds himself viewing the injustice

of the rulers with moral disapprobation strengthened by self-interest, and thereby account for our ceasing to ascribe viciousness to civil disobedience. But instead he maintains, rather vaguely, that 'in all our notions of morals we never entertain such an absurdity as that of passive obedience, but make allowances for resistance in the more flagrant instances of tyranny' ([7.1], 552).

CONCLUSION

It can be seen, from the foregoing, that the resounding battle cry of Book II of the *Treatise*—'Reason is, and ought only to be, the slave of the passions',—undergoes considerable modification, within the *Treatise* itself, as well as in its recasting in the second *Enquiry* and various essays. By the end of the modifications, neither the passions, nor reason, are quite what we, and Hume, initially took them to be. Many commentators have noted the essential role that reason plays in Hume's account of justice, (passed over in silence in the *Treatise* but explicitly acknowledged in the *Enquiry* ([7.2], 307); fewer have reflected this back in Book II. Here, the only passions discussed in connection with reason and action are the 'natural' ones—anger, fear, pride, hatred, which Hume thinks we basically share with other animals—which reason serves. The moral sentiments, initially introduced as felt passions which prompt us to action as the other 'animal' passions do, appear, eventually, to be transformed into the *correct* reactions of the 'good critic' in morals, with her correct conception of happiness. And, in Hume's discussion of justice, we find that, in virtue of our reason, unlike the other animals, we are able to invent new ideas which arouse passions—ideas such as those of *justice, property, right, promise, obedience*. Hume can indeed continue to maintain that reason serves the natural passion of self-love by coming up with these ideas. But in doing so, reason gains the whip hand. No longer a slave, it dictates what some of our passions will be, and thereby drives some of us to die for justice, to go to the stake rather than break a promise or contract, as no animal other than a rational animal could conceivably do.

NOTES

1 Thomas Hobbes, 1588–1679. His influential work in political philosophy, the *Leviathan,* was published in 1651. Bernard Mandeville (1670–1733) published a cynical satire, *The Fable of the Bees: or Private Vices, Public Benefits,* in 1714. Frances Hutcheson (1694–1746) developed a 'moral sense' theory—see Chapter 11 of this volume.

2 Kemp Smith argues that Book III of the *Treatise* was probably written first ([7.27], chapters 1–111), a view which is explicitly rejected by Norton, [7.20].

3 For discussion of the connections between Hume's discussion of the passions in Book II and of morals in Book III see Ardal, [7.8], and Baier, [7.10].

4 The main rationalists against whom Hutcheson and Hume argued were Ralph Cudworth (1617–1688) (see Chapter 1 of this volume), Samuel Clarke (1675–1729) and William Wollaston (1659–1724). Extracts from their writings are to be found in Raphael, [7.22], Selby-Bigge, [7.24] and Schneewind, [7.23]; their views are briefly discussed in Mackie, [7.19] and Sidgwick, [7.25].

5 See in particular Stroud, [7.29],
6 Cf. Hutcheson in Raphael, [7.22], I: 317, or Selby-Bigge [7.24], I: 413.
7 That he intends such an exclusion is made clear by the only significant change he made when he recast Book II of the *Treatise* as *A Dissertation on the Passions:* 'reason,…can never, of itself, be any motive to the will,…Abstract relations of ideas are the object of curiosity, not of volition. And matters of fact, *Where they are neither good nor evil,...*cannot be regarded as any motive to action' ([7.3], II: 161, my italics).
8 See n.4 above.
9 Those who follow Kemp Smith in seeing Book I as arising from Hume's reflections on morals (cf. n. 2 above) compare this claim with *Treatise,* p. 183—'belief is more properly an act of the sensitive, than of the cogitative part of our natures'.
10 For a particularly challenging discussion of Hume's treatment of 'matters of fact' such as 'I owe you some money', see 'On Brute Facts' in Anscombe, [7.7].
11 This psychological account of the logical restrictions on moral approval or disapproval closely parallels his psychological treatment of the logical restrictions on pride. Cf. Foot, [7.13].
12 The disconcerting feature of all calm passions, including the moral sentiments, is that, despite their being impressions, we may not notice them. They 'are more known by their effects than by the immediate feeling or sensation' (*Treatise,* p. 417, cf. Stroud, [7.29], 163).
13 These are the passages that lead some commentators (cf. [7.11] and [7.14]) to ascribe an 'ideal observer' theory to Hume. The 'ideal observer' theory was developed by Hume's friend, Adam Smith, in *The Theory of Moral Sentiments,* published in 1759.
14 Strangely enough, he ignores Hutcheson's brief, but plausible account, (to be found in Selby-Bigge, [7.24], 1:124, quoted in Mackie, [7.19], 27).
15 The Earl of Shaftesbury (1671–1713) is generally regarded as the founder of the 'moral sense' or 'sentimentalist' school developed by Hutcheson and Hume; see Chapter 8 of this volume.
15a See *Treatise,* pp. 484, 500 and 620.
16 [7.5], 30.
17 For Locke 's discussion of secondary qualities as 'real powers', see Chapter 4 of this volume.
18 It seems that Hume takes this to be established by the fact that '(a)ll the changes of climate, government, religion and language, have not been able to obscure (Homer's) glory' ([7.3], I: 271).
19 'A Dialogue' was originally published with the second *Enquiry* in 1751; page references are to Selby-Bigge, [7.2] which includes it. For an excellent discussion of it, see King, [7.18].
20 'For pray, what is the End of Man? Is he created for Happiness or for Virtue? For this Life or for the next? For himself or his Maker? your Definition of *Natural* depends upon solving these Questions, which are endless and quite wide of my Purpose.' (Letter to Hutcheson, 1739, [7.4], I: 33.)
21 One of the few philosophers to have found it to contain something important is G.E.M.Anscombe, in 'Rules, Rights and Promises' and 'On the Source of the Authority of the State' in Anscombe, [7.7] and The Question of Linguistic Idealism' in [7.6]. See also Snare, [7.28].
22 Thomas Reid (1710–1796) criticized Hume for saying nothing about natural rights in *Essays on the Active Powers of the Human Mind* (1788), Essay V, chapter V, 'Whether Justice be a Natural or an Artificial Virtue'. But it may be argued that Hume's account covers natural rights as well as property rights—see Hursthouse, [7.17].

23 His account of how property rights arise has much in common with the accounts of two earlier writers on natural law, Hugo Grotius (1503–1645), and Samuel Pufendorf (1632–92); Hume indeed acknowledges his similarity to Grotius ([7.2], 307 n.). Nevertheless, he differs from each of them in respects which would make it quite inappropriate to describe him as a 'natural law theorist'.

24 For an illuminating discussion of the terms 'property' and 'right' in seventeenth century natural law theorists, see James Tully, *A Discourse on Property,* Cambridge, Cambridge University Press, 1980.

25 No doubt as a consequence of Hume's neglect of his own original view on the motive to particular just acts, most of Hume's commentators also overlook it, and discuss him as if he were inevitably committed to the 'free-rider problem'. For an unambiguous restatement of his original view on the motive to particular just acts, see 'Of the Original Contract' ([7.3], I: 455).

26 Presumably, he would suppose them to be similar to those by means of which 'we annex the idea of virtue to justice', but, if he had considered the matter, he would surely have said something too about the effects of state-enforced sanctions. He might have claimed, plausibly, that the idea of disobeying the laws will inevitably become associated in my mind with the unpleasant idea of punishment, and thereby lead me feel that disobedience is unattractive.

27 Most famously, Hobbes and Locke, but also Richard Hooker (1554?–1600), Benedict Spinoza (1632–77), Grotius and Pufendorf (see n. 23 above). Their idea of the original (or 'social') contract was subsequently supported by Jean Jacques Rousseau (1712–78).

28 This is not strictly true of Hobbes, whose sovereign is owed obedience however despotic; however Hobbes's covenant does allow for civil disobedience to a sovereign who lacks the power to protect the convenanters.

29 Locke's selected target in *Two Treatises of Civil Government* was the divine right theory of Robert Filmer, put forward in his *Patriarcha* (1680).

30 In 'Of the Original Contract' he even goes so far as to contrast 'the political or civil duty of allegiance' with 'the *natural* duties of justice and fidelity' ([7.3], I: 455).

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CHAPTER 8
British moralists of the eighteenth century: Shaftesbury, Butler and Price

David McNaughton

In this chapter I discuss the moral theories of three influential writers: Anthony Ashley Cooper, Third Earl of Shaftesbury (1671–1713); Joseph Butler (1692–1752) and Richard Price (1723–91). All three wrote extensively on issues in religion (Butler was an Anglican Bishop and Price a Dissenting Minister) but I shall only touch on their religious views where they bear on their ethical doctrines.

LORD SHAFTESBURY

I largely base my account of Shaftesbury's views on his most systematic ethical work, *An Enquiry Concerning Virtue or Merit,* in the version which was included in his *Characteristics*.

Shaftesbury was deeply influenced by Greek and Roman thought. In a letter he distinguishes two strands in Ancient philosophy:

> the one derived from Socrates…the other derived in reality from Democritus… The first…of these two philosophies recommended action, concernment in civil affairs, religion. The second derided all, and advised inaction and retreat, and with good reason. For the first maintained that society, right and wrong was founded in Nature, and that Nature had a meaning, and was herself, that is to say in her wits, well governed and administered by one simple and perfect intelligence. The second again derided this, and made Providence and Dame Nature not so sensible as a doting old woman.[1]

The former strand is the one to which Shaftesbury owes allegiance. It proceeds through Plato, Aristotle and the Stoics, to the Cambridge Platonists of the previous century, especially Cudworth, whose influence on Shaftesbury was considerable.[2] For Shaftesbury the universe is a well-ordered, intelligible system, in which humans have their proper place. By the use of unaided natural reason we can discover what role we are designed to play in that system and thus live virtuous and happy lives. That role is not arbitrary, but dictated by the very nature of things—by the way the world is organized.

This theme is developed in the first half of the *Inquiry,* which explores what it is to be a good or virtuous person, and how virtue is related to religion. The goodness of any creature, whether animal or human, must be judged, Shaftesbury holds, by its

contribution to the good of the system of which it is a part. Just as each organ, if it is sound, is well-fitted to play its role in the functioning of the body, so each animal, if it is a good one of its kind, plays its part in a wider system. Each system is, in turn, part of a larger system, until we eventually reach the universe, which is the complete system comprehending all others. Thus each animal is a member of a species, and has a role to play in the preservation of the species as a whole. Each species, in its turn, makes a contribution to the welfare of other species, and so is a part of a system of animals. That system is itself a sub-system within the broader ecological system of the planet, and so on.

Each creature is ultimately to be judged good or bad by the contribution it makes to the good order of the universe. While a predator may appear bad from the point of view of the hunted, it is not really bad if, as Shaftesbury believes, it plays its proper part in the economy of the whole. It is, however, perfectly proper to judge an individual or a species bad, from the point of view of some sub-system of which it is a part, if it is injurious to the whole of the rest of that sub-system. Thus it is sufficient to show that a human being is bad if he is, by his nature, harmful to his fellow-humans.

In judging someone to be good or bad we are concerned only with his character. We look to see if what Shaftesbury calls his affections—his desires, motives and enjoyments—are good. Thus we do not think ill of someone because he has an infectious disease, though this may cause harm to others. Nor do we think well of someone who has only refrained from crime because she is imprisoned, or because of fear of punishment. This is as true of animals as it is of humans; a dog does not cease to be vicious because it is muzzled or cowed by its keeper. Neither do we think someone good if they act from a motive which, though it usually does harm, on this occasion happens to do good. ‘A good creature is such a one as by the natural temper or bent of his affections is carried primarily and immediately, and not secondarily and accidentally, to good, and against ill.’[3] Shaftesbury is not as clear as he might be about what it is for an affection to carry an agent immediately (or, as he sometimes says, directly) to the good. The most charitable interpretation is that an affection is good if it has a natural tendency to promote the public good, even though particular circumstances may conspire to prevent the normal effects. It is certainly not necessary that what is desired is some good of the system to which one belongs. There are some instincts or desires, such as that for self-preservation, which, though their object is one’s own good, normally and naturally contribute to the good of the species, since a species whose members lacked that instinct would be less likely to survive.

Both humans and other animals can be good, but only humans can be virtuous. What differentiates them from animals is that they are self-conscious. They have the capacity to reflect on their own actions and affections so that these in their turn can become the object of approval or disapproval. Our attitude will, of course, be determined by the contribution the action or affection in question makes to the public good. We cannot help forming these reflective affections. Shaftesbury, in typical eighteenth-century vein, goes so far as to maintain that, provided he has no personal interest in the case, even a morally corrupt person will approve of what is ‘natural and honest’ and disapprove of what is ‘dishonest and corrupt’.[4] While we have no choice in forming these reflective affections their presence does enable humans to make choices about their actions in a way that is

impossible for unreflective animals. Animals, because they lack a capacity for rational reflection, always act on the strongest unreflective desire. But a human being whose unreflective affections are not in the sort of harmony which would lead her naturally to do good can, nevertheless, resist the pull of any desire which reflection tells her is one on which she should not act. Thus rational reflection is capable of overcoming desire, and we can build a capacity for virtue which will withstand the assault of even the most alluring temptation.

Shaftesbury then turns to the relation between morality and religion. Like the Cambridge Platonists before him, he is opposed to theological voluntarism: the view that what is right or wrong depends on the will or decision of God. Voluntarism locates our obligation to obey God, not in any legitimacy which authorizes him to command and requires others to obey, but in His unchallengeable power, which compels our obedience through fear of the consequences of rebellion. It conflicts with both the central tenets of Shaftesbury's world-view because it denies that right and wrong are determined by the nature of the universe, independently of anyone's choice, and it denies that we can discover how we should live by rational reflection on our own nature and that of the world. If what is right or wrong depends on God's will, then we require divine revelation to find out what our obligations are.

The rejection of voluntarism leaves open the question of whether religious belief, or the lack of it, has a good or a bad influence on one's virtue. Shaftesbury argues that false religion or superstition can certainly corrupt one's moral sense by giving one a distorted sense of values. Atheism, by contrast, does better on this account since it does not itself prescribe the adoption of any particular values. Nor is it necessary to believe in God in order to distinguish right from wrong; our capacity to reflect on our own actions is sufficient for that. Belief in God might, nevertheless, strengthen our commitment to virtue. This is not, as the voluntarist supposes, because fear of divine wrath keeps us in check, since Shaftesbury has already argued that one who acts rightly through fear of punishment is not thereby virtuous. The recognition of God's moral perfection can, however, inspire us to develop our character so that it becomes more virtuous. It is easier, Shaftesbury concludes, to love the order or harmony of character in which virtue consists if one is convinced that the world is an orderly and harmonious system in which virtue has its proper place. Hence true theism has advantages, so far as the practice of virtue is concerned, over atheism.

Having defined virtue '[i]t remains to inquire, what obligation there is to virtue; or what reason to embrace it'.[5] Shaftesbury assumes, without argument, that he can only show that there is reason to be virtuous if he can show that it is in our interest to be so. In other words, Shaftesbury is a rational egoist; the justification of any way of life consists in showing how it would benefit the agent. He is not, as we have seen, a psychological egoist for he holds that we can be motivated by a concern, not for our own good, but for the good of the system of which we are a part. Nor is he an ethical egoist, for morality requires us to be motivated by a concern for others.

To be virtuous, as we have seen, an agent's affections must be so ordered as to dispose him to promote the common good. There are, Shaftesbury holds, three kinds of affections: natural affections which lead, to public good; self-affections, which lead only to private good, and unnatural affections, which promote neither public nor private good,

and may even have the opposite effect. Affections of the third type are intrinsically vicious; whether an affection of either of the first two kinds is good or bad depends on its strength; a desire can be bad in being either too strong or too weak for the constitution of that creature.

The distinction between the first two kinds of affection is unclear. His remarks seem most naturally to be taken as implying that a desire is a self-affection if, in the ordinary course of nature, indulging that affection tends to promote only the good of the agent and not the good of the species. But Shaftesbury includes among the self-affections self-preservation which, as we have seen, promotes the public good. Sometimes it seems that this distinction rests not on the causal tendency of the affection, but on whether the object of the affection is a good of the agent or of others.

His discussion of the correct classification of the delight some people take in mathematical and scientific discovery is an illustration of the latter point. He thinks it sufficient to show that this delight is not a self-affection to point out that it is quite disinterested. That is, its object is not some advantage to ourselves. In particular, its object is not the pleasure we gain from the contemplation. It is, he claims, a natural affection, because it is a delight in an admirable feature of the universe, namely its harmony and proportion.

Virtue consists in having no affections of the third kind, and in those of the first two sorts being neither too strong nor too weak. It is possible, though unusual, to have one's self-affections too weak, or one's natural affections too strong. To have an insufficient concern for one's own good or safety is a 'vice and imperfection'.[6] An over-strong natural affection can frustrate its own ends and is also a defect. Thus an excess of pity can simply paralyse, rendering one incapable of giving aid. Vice more usually consists, however, in any or all of the following: an insufficient concern for others, an excessive concern with oneself, or the presence of unnatural desires. To prove that virtue is in one's interest Shaftesbury must therefore show that to be in any of these three states is to be in an unenviable and miserable condition.

He begins with the natural affections. His strategy is to show that mental pleasures are vastly superior to bodily ones; he then argues that the mental pleasures are either identical with the natural affections or are their effects. There are difficulties with this strategy. First, the distinction between mental and bodily pleasures is not a clear one, yet Shaftesbury offers no help in drawing it. As examples of the sensual appetites, from whose satisfaction bodily pleasure arises, he apparently offers us the tired triumvirate of desires for food, drink and sex. Even here there is some unclarity, for he classifies sexual desire as a natural affection, because it has as its end the good of the propagation of the species. Unlike the other natural affections, however, its satisfaction gives rise to a sensual as well as a mental pleasure.

Second, Shaftesbury holds that it is only the natural affections which are, or can give rise to, the higher mental pleasures and thus make their possessor truly happy. But it is by no means clear that every desire or delight of an intellectual kind is to be classed as a natural affection, even if we think that he has successfully made out his case with respect to the joys of mathematics. There remains a suspicion that Shaftesbury cheats by suggesting that the only possible competition to the delights of virtuous living comes from the grubby sensual pleasures.

The pleasures of the virtuous life, Shaftesbury plausibly claims, are considerable. We are conscious of how delightful it is to be moved by such affections as 'love, gratitude, bounty, generosity, pity, succour, or whatever else is of a social or friendly sort'.[7] Not only are these feelings delightful in themselves but they are usually accompanied by equally delightful effects. The virtuous person derives a sympathetic pleasure from the good of others and is pleasantly conscious of the love and merited esteem of others. Finally, the virtuous person will be able to reflect on her own life with pleasure. The vicious person will still, as we have seen, disapprove of his own deeds and character, and will thus feel discomfort whenever he reviews, as he sometimes must, the conduct of his own life. In making this last claim Shaftesbury greatly underestimates the human capacity for self-deception. It is true that self-esteem is an important element in happiness, but those who lack any real worth are often not short of it.

Such are the rewards of virtue. How can we show them to be superior to the pleasures of sensual indulgence? Shaftesbury appeals, in a manner later to be made (in)famous by John Stuart Mill, to the verdict of qualified judges; that is, those who have had a full and proper experience of both kinds of pleasure. It turns out, however, that the verdict is a foregone conclusion, for whereas the temperance of the virtuous person makes him all the more able to savour keenly the delights of the flesh, 'the immoral and profligate man can by no means be allowed a good judge of social pleasure, to which he is so mere a stranger by his nature'.[8] This is too quick. It may be that a just appreciation of the social pleasures, like a taste for olives or opera, takes time and application to achieve. So we can reasonably demand that would-be judges give both kinds of pleasure a fair trial. But we cannot, without begging the question, assume that the sensualist only prefers his way of life because he has so little acquaintance with the alternatives.

Fortunately, Shaftesbury has a better point to make. The mere gratification of bodily appetite does not, in itself, offer any great satisfaction and soon palls. The real pleasures in the life of a bon viveur are social, the conviviality which comes from eating and drinking together. Nor should we assume that it is only the physical pleasures which make sexual relations enjoyable; much greater pleasure comes from the mutual passion and requited love of which sexual intimacy can be an expression. The sensualist misidentifies the source of much of the satisfaction that he obtains. We might add that the social pleasures that enter his life are, partly because of that misidentification, often second-rate; the conviviality forced and shallow and the passion feigned.

If a deficiency in the natural affections is not in one's interest, neither is an excess of self-love. An exaggerated concern for the pro-longation of one's own life would lead one to cling to life even when illness or pain made this undesirable. The life of one who is excessively concerned about her own safety is full of the unpleasant emotions of fear and anxiety. Moreover, such a concern can be self-defeating, by robbing its victim of the capacity, when in peril, for sensible and resolute action which might save her life.

Among the unnatural passions are sadism, malice, envy, misanthropy and sexual perversion. To be prey to any of these is to be miserable. For the vicious person will not only be the object of the hostility and disapproval of others, but will also be aware, since he cannot extinguish his moral sense, that their attitude to him is justified. Nevertheless, we might object, there is surely this to be said for unnatural affections, that their satisfaction is pleasurable. Shaftesbury, however, following Plato, denies that these are

true or genuine pleasures. Some states are only pleasurable in comparison to the unpleasantness of what went before. Thus recovery from an illness, or cessation of a headache, may be experienced as intensely pleasurable. In reality, we might think, there is no positive or real pleasure here, but only the relief of returning to a neutral state. No one would choose to have a migraine in order to experience the joy of its disappearance. Similar remarks can be made about cravings, addictions and even bodily appetites. There is nothing in itself particularly appealing about drinking a glass of water, but when one is parched with thirst it seems delicious, by contrast to the discomfort which preceded it. The trouble with cravings is that they are unpleasant in themselves and drive their possessor to satisfy them to gain that 'pleasure' which is, in effect, only the temporary removal of discomfort. Other pleasures are not preceded by discomfort; the delight of smelling an unexpected scent, or coming across a magnificent view, need not depend for their intensity on the quieting of some craving. Such, on this view, are the true pleasures.

If Shaftesbury were right in claiming that all unnatural desires are cravings, whereas the social affections give genuine pleasure, then he would have made a powerful case for his contention that anyone who encourages her unnatural affections will lead a miserable life. But we might doubt this claim. Contrast the natural affection of benevolence and the unnatural one of malice or ill-will. They seem mere mirror images of each other. The benevolent person is pleased when people flourish, pained when things go badly for them. The malicious person's reactions are the reverse. We need not think of the malicious, any more than the benevolent, as in the grip of some craving, from which he can only obtain occasional and temporary relief.

Despite these flaws in his arguments Shaftesbury has made out a strong case for saying that, in general, it is better to have the kind of sociable character that is sensitive to the rights and welfare of others, and that it is no good thing to be excessively self-absorbed. But is this enough to show that it is on every occasion in our interest to be virtuous? Surely the demands of morality sometimes involve a sacrifice for which there is no adequate compensation. And how can that be compatible with our self-interest?

Shaftesbury could acknowledge that morality may require individual acts which are not in our interest and yet defend his theory. He would have to claim that it is in our interest to develop a character in which the self-affections are not too strong and the natural affections not too weak. If we develop such a character we may sometimes be motivated to do an act which, on balance, damages our interests. But it will still be in our interest to develop such a character if there is no other character we could have developed that would serve those interests better.

Shaftesbury's influence on eighteenth-century thought was enormous. Of British philosophical works of the period only Locke's *Essay* went through more editions than the *Characteristics*. Among those who were most influenced was Hutcheson and, through him, Hume. This has no doubt occasioned the quite common view[9] that Shaftesbury was the founder of the sentimentalist school in ethics and the originator of the view that moral distinctions are known by a moral sense. I am inclined to think that this is mistaken. Shaftesbury's occasional use of the term 'moral sense' is casual and carries no implication that moral discernment is analogous to sensory awareness of secondary qualities. Nor would he side with those who held that morality is based on human sentiment or feeling rather than on reason. Moral distinctions are eternal and immutable,

and the reflective faculty which discovers them is reason itself. Shaftesbury does indeed hold that, once we are capable of rational reflection on our affections, we shall immediately and inevitably develop reflective affections, but that may only be because, as a good Platonist, he holds that to recognise the good is to love it.

JOSEPH BUTLER

Butler's ethical doctrines are to be found in his *Fifteen Sermons* and in the later *Analogy of Religion,* particularly in the 'Dissertation on Virtue' which forms an Appendix to the latter. He is as much a practical as a theoretical thinker; his careful analysis is aimed at dispelling any intellectual confusions in his audience which may give them grounds, or at least excuse, for being less devoted to the cause of virtue than they should be. His central contention is that virtue consists in following human nature and vice in deviating from it, and that this reflection is sufficient to show why we should follow the path of virtue.

Like Shaftesbury, he conceives of the virtuous person as someone in whom the various motivational principles stand in the right relation to each other. For Butler, human nature is hierarchical; there are at least two principles which are by nature superior to the rest and whose verdicts must be respected. These are self-love, which considers what is in our interest, and conscience, which judges what is right or wrong. Butler's use of the term conscience is wider than ours—its verdicts embrace not only my own actions but those of others. Some commentators have contended, mistakenly in my view,[10] that Butler also thought of benevolence as a superior principle. At the bottom of the pecking order are the particular appetites, passions and affections, which can be thought of as desires for particular things—food, shelter, comfort, and so on.

Butler's account of superiority rests on a distinction between the strength and the authority of a principle of action. If there were no superior principles in our nature then we should be acting according to our natures in following the strongest impulse. A superior principle, however, has an authority which is independent of its strength, so that the question of whether we should act on its edicts is settled by appeal to its authority. That authority is a rational one; the verdict of a superior principle provides better reason to act than the promptings of an inferior one. To act deliberately in defiance of one's interest, or of what is right, is thus to violate one's own nature, for it is to follow a lower principle in preference to a higher, to prefer the worse reason to the better. Butler does not attempt to *argue* that moral and prudential requirements provide better reasons for action than those that stem from particular desires, rather he seeks simply to remind his readers of what he takes to be common knowledge. What chiefly seems to distinguish conscience and self-love from the other principles is that they are both reflective; they both survey our actual or proposed actions and pronounce upon their worthiness.

Though similar in their reflective authority, self-love and conscience differ in various ways. Butler classifies self-love, but not conscience, as an affection. It is hard to know what to make of this, but it seems to imply two things, both of which can be questioned. First, self-love, like any of the affections but unlike conscience, can be present in an immoderate degree, in which case it is liable to frustrate its own end. To this it might be objected that conscientiousness, as well as prudence, may perhaps be carried to excess.

Second, Butler thinks of self-love, like any affection or desire, as having a distinctive feeling-tone of which we are aware when it is aroused in us. But in writing, as he sometimes does, of *cool* self-love Butler seems implicitly to acknowledge that a concern for our own good may be present and effective without manifesting itself as a feeling. Nor does it seem correct to deny that the promptings of conscience can have a feeling-tone; the pangs of conscience can be as searing as those of unrequited love.

More importantly, Butler contrasts the judgements of self-love, which require careful calculation of all the consequences of the actions open to us, with the deliverances of conscience, which are immediate, not in the sense that they require no thought, but that they are concerned only with the nature of the action itself, including the intention, and not with its consequences. Conscience 'pronounces determinately some actions to be in themselves just, right, good; others to be in themselves evil, wrong, unjust'.[11] Judgements of conscience, unlike those of self-love, are thus not hostage to fortune; we do not have to wait to see how things turn out in order to determine whether our moral judgement was correct.

In what relation do self-love and conscience stand to each other in Butler's hierarchical account of motivational principles? Are they equal or does one carry more authority than the other? This is a question to which Butler appears to give a variety of answers, and his apparent inconsistencies have much exercised commentators. Since he is generally concerned with theoretical matters only in so far as they bear on practice it might at first appear that he could, and perhaps should, have avoided the question altogether. For Butler is as convinced as Shaftesbury that there can never be a genuine conflict between duty and self-interest, at least if we take into account a future life.

> Conscience and self-love, if we understand our true happiness, always lead us the same way. Duty and interest are perfectly coincident; for the most part in this world, but entirely and in every instance if we take in the future and the whole; this being implied in the notion of a good and perfect administration of things.[12]

The question does not however, as Butler points out, lack practical application. Those who doubt Butler's claim can face a choice between what they believe to be two conflicting sources of obligation, and those who accept it may still find, because of the limitations of our knowledge, that self-love and conscience offer conflicting advice on some occasion.

Butler often writes as if conscience is pre-eminent, but there are places where he seems to rank the two equally and, in one notorious passage, self-love is given the power of veto.

> Let it be allowed, though virtue or moral rectitude does indeed consist in affection to and pursuit of what is right and good, as such; yet, that when we sit down in a cool hour, we can neither justify to ourselves this or any other pursuit, till we are convinced that it will be for our happiness, or at least not contrary to it.[13]

This passage is generally considered not to represent Butler's considered views but to be a concession by him to his sceptical and wordly congregation. Even if Butler does not hold that we are not justified in pursuing some course unless we are convinced that it is not contrary to our interest, we should not however conclude that he holds that we would ever be justified in acting in a way that we were convinced was against our self-interest. For he nowhere states that moral obligations are, by their very nature, superior to prudential ones. What he does offer is an argument for holding that, when in doubt, we are obliged to follow the guidance of conscience rather than self-love. That argument is based, however, not on the superiority of moral to prudential reasons, but on the difference between the calculative nature of prudential reasoning and the immediacy of the verdicts of conscience.

> For the natural authority of the principle of reflection [i.e. conscience] is an obligation the most near and intimate, the most certain and known: whereas the contrary obligation can at the utmost appear no more than probable; since no man can be *certain* in any circumstances that vice is his interest in the present world, much less can he be certain against another: and thus the certain obligation would entirely supersede and destroy the uncertain one.[14]

Thus Butler holds, in conscious opposition to Shaftesbury, that our obligation to virtue remains even if we are completely sceptical about the coincidence of duty and interest. We do not have to appeal to something external to morality as our justification for doing what is right.

On what grounds does conscience determine that some course of action is the morally right one? Butler, in denying that benevolence is the whole of virtue, rejects the utilitarian position (strongly urged, for example, by Hutcheson) that the right action is the one which produces the most happiness. Butler advocates instead a pluralist deontology; that is, a theory in which there are several distinct duties, of which benevolence is merely one, each of which has its own claim on us. We disapprove, for example, of stealing and fraud in and of themselves, quite independently of their generally deleterious effects on the general happiness. Butler thinks that our other duties can be encompassed within three general headings: justice, veracity and, perhaps more con-troversially, prudence. Imprudence is, he holds, a vice because we not only regret our follies but disapprove of them as well.

Although Butler is clear that we are not, and should not be, utilitarians, he does appear at least to entertain the hypothesis that God might be a utilitarian, concerned only with maximizing the happiness of his creatures. If that were so, then He would have implanted a deontological conscience in us because 'He foresaw this constitution of our nature would produce more happiness, than forming us with a temper of more general benevolence'.[15] It is doubtful, however, if Butler would endorse this suggestion, for the following reason. He holds that to judge actions as morally good or evil carries with it the thought that they deserve reward or punishment respectively. God, as a morally righteous judge, must be supposed to reward and punish us according to our deserts. But to say that someone deserves ill is not to say 'that we conceive it for the good of society, that the doer of such actions should be made to suffer'.[16] Questions of desert look back to the

quality of the action, but utilitarianism is essentially forward-looking, concerned only with the future effects of reward and punishment. In treating us according to our deserts God would be motivated not by benevolence but by justice.

Many commentators have criticized Butler for failing to give a more detailed account of the criteria which conscience might apply in determining what we ought to do on any specific occasion. In particular, he does not address a problem which faces anyone who holds that there is more than one duty, namely how we should decide in cases where duties conflict. His silence stems from his conviction that further guidance is not necessary.

> The inquiries which have been made by men of leisure, after some general rule, the conformity to, or disagreement from which, would denominate our actions good or evil, are in many respects of great service. Yet let any plain honest man, before he engages in any course of action, ask himself, Is this I am going about right, or is it wrong? Is it good or is it evil? I do not in the least doubt, but that this question would be answered agreeably to truth and virtue, by almost any fair man in almost any circumstance.[17]

While I share Butler's doubts about the utility of the reflections of the 'men of leisure', it is no longer possible to share Butler's confidence in the (almost complete) inerrancy of the pronouncements of conscience.

While benevolence may not be the whole of virtue it is a large part of it, and a correspondingly large part of Butler's defence of virtue is devoted to defending benevolence against two kinds of attack from those who think that self-love is, or ought to be, our only motive. He seeks to show, first, that benevolence is a genuine motive in human beings and, second, that there is no special antipathy between self-love and benevolence.

Benevolence is real only if people are sometimes directly motivated by a concern for the welfare of others. Two theories deny that this is the case: psychological egoism, which holds that all our actions are, at bottom, motivated by a concern for our own good, and psychological hedonism, which holds that what primarily motivates us is always the prospect of our own pleasure.

Butler's central argument against the psychological egoism of thinkers such as Hobbes and Mandeville draws on his analysis of the differences between self-love and the other, particular, affections. The particular affections are directed towards some specific object or state of affairs which we find attractive, for example, drinking a glass of beer, reading a novel or playing a round of golf. The object of self-love is not, however, any particular desirable state of affairs, but one's own happiness as such. Happiness is defined by Butler as consisting 'only in the enjoyment of those objects, which are by nature suited to our several particular appetites, passions, and affections'.[18] Self-love, the desire for our own happiness, is thus a reflective affection; it is a desire that our other desires attain their objects. But if that is so, then it cannot be the case that we are motivated solely by self-love. Self-love achieves its object through the satisfaction of our other affections; 'take away these affections and you leave self-love absolutely nothing at all to employ itself about'.[19] While we might question Butler's claim that happiness is to be identified with

the satisfaction of our various affections, it cannot be doubted that getting what we want is an important element in happiness, and that is all Butler needs for this argument to be decisive.

The psychological hedonist claims that Butler has misdescribed the object of the particular affections; what motivates us to drink beer, play a round of golf, or relieve the distressed is always the pleasure we shall receive from these activities. Did they not please us we should not engage in them. So our primary object in helping others is not their welfare, but our pleasure. Making them happy is but a means to making ourselves happy. Butler argues in reply that the hedonist's account of the object of our affections is incoherent. We only derive pleasure from engaging in an activity or achieving a goal, Butler claims, if we want to engage in that activity or achieve that goal. I will only get pleasure from playing cricket if I want to play it; if I only wanted the pleasure and cared nothing for cricket my efforts to achieve pleasure that way would be self-stultifying. When I help others I may well get pleasure from doing so, but that does not show that my aim was to experience the pleasures of altruism. On the contrary, I must havewanted to help them in order to be pleased; my primary object must have been their good. Of course, given that I do experience pleasure from acting altruistically, self-love may encourage me to continue in that path in order to get more pleasure. But the pleasure will cease unless I continue to be motivated by a concern for the others' good.

This is a famous rebuttal but not, I think, a decisive one. It crucially depends on the claim that we cannot find pleasure in any activity unless we have a prior desire to engage in it. That claim is, however, false. Some pleasures come unbidden and unsought, as when we suddenly smell a delightful scent, or discover a fascinating programme while idly twiddling the radio tuner. The psychological hedonist can make use of this fact to construct a theory in which all intentional action is motivated by a desire for the associated pleasure. We are born, this theory runs, with some instincts which lead us to explore our environment in the search for food, warmth and so on, and a capacity to take pleasure in certain activities, while finding others distasteful. Our initial behaviour is thus instinctual but not intentional. We soon discover, however, that some activities are pleasant or bring pleasure in their wake. We then repeat the activity in order to experience the pleasure again. It is always the prospect of further pleasure which motivates the intentional repetition of what was not, initially, an intentional action. The correct response to this defence of hedonism is, I believe, to deny the distinction in terms of which the debate takes place; that is, to deny that we can here distinguish between our wanting to do some act and our wanting the pleasure that comes from doing it. But that would take us beyond Butler's argument.

Are benevolence and self-love incompatible? Butler has shown that the exercise of self-love requires us to be motivated by particular affections, and some of these affections, such as ambition and desire for esteem, have some good of our own as their primary end. Between such affections and self-love there would seem to be no essential conflict. Benevolence, however, appears directly opposed to self-love. The former aims at the good of others, the latter at my own good; so the more I am motivated by the one the less, it seems, I can be motivated by the other.

Butler's exposition of the mistake behind this line of thought is masterly. It falsely presupposes that if I am acting in your interests I cannot also be promoting my own.

Butler's analysis has shown that, with respect to any desire of mine, my happiness consists in that desire being gratified. This is as true of a desire for the happiness of others as it is of any other desire. Insofar as I want you to be happy then my happiness depends on your being happy; my happiness is bound up with yours. We must not think of happiness by analogy with property, so that to give happiness to others is necessarily to diminish my own. The truth is that benevolence, while distinct from self-love, is no more opposed to it than to any other particular passion. The gratification of any passion whatever will be seconded by self-love when it promotes my interest and vetoed by it when it conflicts with it.

Butler proceeds, in a Shaftesburian vein, to show both that to have a character in which benevolence is a strong motive is conducive to happiness, and that an excessive concern for one's own happiness is self-defeating. His discussion errs at only one point, and that is easily corrected. Butler equates selfishness with immoderate self-love, i.e. with an excessive calculating concern for one's own interest or advantage. But there is another type of person who is also properly regarded as selfish. As we have seen, some of our particular affections, such as ambition or covetousness, have as their end some good to ourselves; others, such as compassion or love of one's children, aim at the good of another. Someone in whom the former desires are too strong and the latter too weak is rightly seen as selfish, even if the attempt to satisfy his selfish desires leads him to ignore his real interest. Imprudence and selfishness are not incompatible.

Where does Butler fit into the eighteenth-century debate between rationalism and sentimentalism? Given his interest in moral instruction, rather than in metaphysical theory, Butler constructed a moral psychology which was neutral between rationalism and sentimentalism. Throughout his writings, however, there are clear indications that he sides with the rationalists in general and, almost certainly, with the position of Samuel Clarke in particular (with whom he corresponded on moral theory while he was a very young man).

RICHARD PRICE

Richard Price develops a rationalist theory which develops and improves on earlier theories, such as Clarke's. While indebted in many ways to both Shaftesbury and Butler, Price is chiefly distinguished from them by his interest in moral epistemology. The sentimentalists offer us an account of moral awareness which is modelled on what had been, since Locke, the orthodox account of our awareness of secondary qualities, such as colours, tastes, sounds and smells. The story runs like this. Through our sense-organs we are able to receive ideas of objects and events in our immediate environment. Some of these ideas, those of the primary qualities, such as shape, size and solidity, are both caused by and resemble those qualities in the objects of which they are ideas. There is nothing, however, in the objects themselves that resembles our ideas of colour, sound and so on. The story of what is going on in the physical world when someone sees red or smells coffeewould not mention colours or smells at all. Rather, the object is so constituted that, under certain circumstances, it emits either waves or particles which stimulate the sense-organs in certain ways causing us to have the characteristic secondary

quality experience. It follows that creatures whose sense-organs were unlike ours would have a quite different range of secondary quality experience.

When it comes, however, to the question of what colours, smells etc. actually are, we find two accounts current. First, there is the dispositional theory: colours etc. are properties of the object, but now understand as nothing more than a disposition of the object to cause characteristic ideas in normal human observers in standard perceptual conditions. Second, there is the subjective theory: colours, sounds etc. are not in the objects themselves but are identified with the ideas in the perceiving subject caused by those objects. Both accounts exist, in tension, in Locke, though it is now generally agreed that the former represents Locke's 'official' theory. But the latter account gained considerable currency through the work of Berkeley and Hume, who took it to be the one Locke was offering.[20] It is the account which Price accepts, and which he takes the sentimentalists to have used as their model for moral qualities. Thus the sentimentalists, represented for Price by Hutcheson, aided and abetted by Hume, maintain that '[m]oral right and wrong, signify nothing *in the objects themselves* to which they are applied, any more than agreeable and harsh; sweet and bitter; pleasant and painful; but only *certain effects in us*'.[21] We have within us a moral sense which finds certain actions (and characters) pleasing and others displeasing. It approves of the former and disapproves of the latter, and hence we call the former right (or good) and the latter wrong (or bad). It is clearly possible that there should be creatures whose moral sense is differently constituted from our own. Such beings would have different patterns of approval or disapproval from ours, but it would be idle to claim that one set of reactions might be closer to the truth or fit the facts better than another. The moral sense theory denies that there are distinctively moral facts and, if it allows for moral truth at all, can do so only relative to a particular type of moral sense.

In opposition to this view, Price offers us a realist conception of moral properties. An action is either right or wrong quite independently of our responses or choices, or those of any other being, including God. This position commits Price to rejecting not only the moral sense theory but also, like Shaftesbury and Butler before him, theological voluntarism. He sees that the prevailing Lockean epistemology forces one towards a moral sense theory and so sets about demolishing it, drawing extensively on Plato and the Cambridge Platonists, especially Cudworth.

Price agrees with the prevailing orthodoxy that all our ideas are either simple or complex, and that the latter are built out of the former. On the empiricist account, simple ideas, from which all our knowledge is built, are derived either from sense experience or from reflection on what passes in our own mind. Since our ideas of right and wrong are not sensory concepts, in the way in which squareness or redness might be thought to be, they must, on the empiricist story, be ideas of reflection. From what aspect of our inner life might they be derived? The obvious answer is from the feelings of pleasure or displeasure, approval and disapproval we experience when we contemplate action or character. Empiricism thus spawns a theory which offers an account of morality, not in terms of the nature of the object but in terms of our response to it.

Price defends several anti-empiricist theses which he does not always clearly distinguish. His main contention is that there is a third source of simple ideas, in addition to sense and reflection, namely the understanding, and that right and wrong are simple

ideas derived from this third source. Sense and understanding have, on Price's view, quite different roles. Sense deals only with particulars—we are necessarily only aware, on any occasion, of one or more particular things and their properties—whereas understanding can grasp universals or abstract ideas and the relations between them. Sense is passive, while understanding is an active, discerning faculty, which, reflects, compares, judges and seeks to comprehend the nature of things. An idea which has its source in the understanding would be an a priori rather than an empirical concept; that is, a concept which could not be constructed by the standard Lockean method of abstraction from the contents of sense-experience.

Price's defence of the claim that right and wrong are simple a priori concepts is to search, as J.L.Mackie once put it, for companions in guilt. He produces many examples of ideas whose source, he claims, can only be the understanding, and these fall into different groups. They include: ideas applicable to objects of more than one sense, such as equality, resemblance and difference; ideas of what is unobservable, such as substance; ideas that involve modal notions, such as impenetrability and causation. (Modal notions include necessity and possibility. If something is impenetrable then it *cannot* be penetrated; if one thing causes another then, given the first, the second *must* follow. Experience can only tell us what does happen, not what cannot or must happen.)

We might concede, for the sake of argument, that all the items on this rather motley list are a priori concepts, but they are not all, on even the most generous interpretation, simple ideas, for many of them seem capable of further analysis. Price does not seem to be aware of this objection, but his argument may easily be developed to show that the understanding is the source of *simple* ideas. What Price is trying to show is that the complex concepts on his list cannot be built up in the standard empiricist manner, from simple ideas of sense or reflection. But then, given the traditional account of simple and complex within which Price is operating, that can only be because, of the simple ideas out of which they are built, at least one must itself be a priori. Thus, in the cases of concepts like impenetrability and causation, the argument would seem to be this. To hold that something is, say, impenetrable, is to hold that it is impossible for another body to occupy the space which it is occupying. The concept of impossibility is a plausible candidate, however, for being a simple a priori concept. Although there are other ways of saying that something is impossible—such as saying that it cannot happen—these do not provide an analysis of the concept into simpler elements. To understand that something cannot happen presupposes that one understands what it is for something to be impossible, and vice versa. So Price's argument can be construed as supporting the claim that there are simple a priori concepts.

If there are simple a priori concepts, then rightness and wrongness may certainly be among them. Since the consequence of believing they are not is the adoption of the counter-intuitive moral sense theory, we are justified in believing they do have this status. It has to be said, however, that Price makes the case for realism look stronger than he is entitled to by confronting it with a weak and implausible version of the moral sense theory. Because Price holds the subjective theory of secondary qualities he takes it that it is not only false but absurd to ascribe colours, sounds and so on to bodies.

> A *coloured body,* if we speak accurately, is the same absurdity with a *square*

> *sound*. We need no experience to prove that heat, cold, colours, tastes, etc. are not real qualities of bodies; because the ideas of matter and of these qualities are incompatible. But is there indeed any such incompatability between *actions* and *right*? Or any such absurdity in affirming the one of the other? Are the ideas of them as different as the idea of a sensation and its cause? [22]

But a sensible moral sense theorist would opt for the dispositional account of secondary qualities as his model and then argue, by analogy, that it is perfectly proper to speak of actions as right or wrong, just as it is to speak of objects as coloured. He would hope to give an account which did not require Price's kind of realism but which left our normal way of speaking and thinking unaltered.

Another of Price's favourite arguments against the moral sense theorist, which we might dub the indifference argument, is also too quick. It takes a theological turn in Price, but its implications are more general. If no actions are in themselves right and wrong then they are, in themselves, morally indifferent. God, who is not deceived, would recognize this and hence would be unable to approve or disapprove of any action, for He would see that nothing in reality could ground His approval or disapproval. But that would be to suppose that His concern for our happiness had no rational foundation and was the result of 'mere unintelligent inclination'[23] which would greatly detract from His moral perfection. The more general consequence of this line of thought is that, if the moral sense theory were true, it would be irrational to continue to make moral judgements once we had discovered this truth. This conclusion serves, once again, to make the rival theory look unpalatable. But the crucial premise, that the moral sense theory deprives us of any good reasons for approving of one course of action rather than another, is not supported.

The origin of our ideas of right and wrong is not the only issue between Price and the empiricists. For Price claims that we can have a priori knowledge of basic moral principles. The rightness or wrongness of an act springs from its nature. Thus an act may be wrong in virtue of its being, for example, cruel, or dishonest, or a breach of promise. The connection between the moral character of an act and those features on which its moral character depends is, Price maintains, a necessary one. If cruel actions are wrong then they are wrong in all possible circumstances. Empiricism claims, however, that all our knowledge of the world comes from experience and experience can, apparently, reveal only contingent connections between features. It can show only that they are connected, not that they must be. Price asserts, in contradiction to this, that we know of these connections through an intuitive act of reason; not, that is, through a process of reasoning, but by rational reflection on the propositions in question.

Empiricists classically allow that there is one kind of connection which is necessary and can be known a priori, and that is a connection between concepts—a doctrine which finds expression in Hume's account of relations of ideas. We can know a priori, to use a hackneyed example, the necessary truth that all bachelors are unmarried because to be a bachelor just is to be an unmarried man. If it could similarly be shown that the concepts of rightness and wrongness can be analysed into other, less philosophically puzzling, concepts then two contentious features of Price's account would be removed at a stroke. Suppose, to give a concrete example, it was claimed that to call an action right was simply to claim that it was productive of happiness. First, we would have to show that the

word ‘wrong’ signified, not a mysterious a priori concept graspable only by understanding, but the familiar empirical notion of making people happy. Second, we could then accommodate, within an empiricist epistemology, the claim that it is a necessary truth, known a priori, that an action which produces happiness is right.

It is here that Price’s claims that right and wrong are simple ideas comes to the fore. Rightness and wrongness are indefinable, and we can prove this by showing that any such analysis will produce untenable consequences. For if the proposed analysis were correct then it would be ‘palpably absurd’ to ask whether producing happiness is right, for that would be just to ask whether producing happiness produces happiness. But the question is not palpably absurd, and so the definition fails. This tactic was revived by G.E.Moore 150 years later and is now known as the Open Question Argument. Anyone familiar with the history of twentieth-century moral philosophy will be aware of the extent to which the epistemological issues which Price raises here have dominated the subject.

It is a corollary of his position, Price tells us, that morality is eternal and immutable. If lying and ingratitude are wrong they are so in virtue of the kinds of action they are and no one, not even God, can alter this truth. But that seems to raise an obvious difficulty. It seems reasonable to believe that an action that is in itself morally indifferent may become obligatory if commanded by God, or if I have promised to do it. Yet how can this be, if its moral nature is unalterable by the will of any agent? How could, for example, an action be indifferent before I promised to do it and obligatory after? Price’s answer is that we must not suppose that, in promising to do the act, we have left the non-moral nature of the original act unchanged but changed its moral character; that is impossible. What we have done is to change the nature of the act; it is now, in addition to its earlier properties, an instance of promise-keeping and, as such, obligatory.

In the broad outlines of the remainder of his moral theory Price repeats and elaborates points already made by Butler. So I shall merely draw attention to one or two discussions where Price goes beyond anything we find in Butler.

We have seen that moral judgement is the work of reason. Our judgements of right and wrong are often accompanied, however, by feelings of delight or detestation respectively. These feelings are distinct from the judgement, but they are not merely arbitrarily connected with it in virtue of our particular human sensibilities. We feel revulsion *because* we judge the action to be wrong, and any rational agent would feel the same. Price, like Shaftesbury, is a Platonist, and holds that to love virtue it is only necessary to know it. Similarly, we should not suppose that all our desires are the product of instinctive drives which we just happen to have, but which other rational beings might lack. Some desires, such as hunger and thirst, are instinctive, and are properly called appetites. But rational creatures are so constituted that they will necessarily desire happiness and truth, once they understand the nature of these goods. Desires which are in this way the product of reason are best called affections. In imperfectly rational humans this rational desire for the happiness of ourselves and of others is strengthened by an instinctive concern for these ends; when so strengthened the resulting desire is properly called a passion.

Like Butler, Price rejects utilitarianism. We have a number of distinct duties, which he lists under six heads: (1) Duty to God; (2) Duty to self, or prudence; (3) Beneficence; (4)

Gratitude; (5) Veracity; (6) Justice. Unlike Butler, Price does think that we need an account of what happens when duties conflict. In some cases, one duty is clearly weightier than another, and no perplexity arises. But there are many cases where it is not clear, and conscientious people may differ as to which duty should give way in these cases. There is always a determinate answer in such cases to the question What ought I to do? but we may lack penetration and wisdom to discern it. Doubt about what we should do in a particular case should not, however, infect our confidence in the existence of moral truth, for the fundamental principles which we bring to bear on individual cases are self-evident.

Does perfect virtue consist in performing all our duties or are there, as many have supposed, meritorious acts of heroism and saintliness which, while not morally required, are singled out for particular praise? Price maintains that there are no supererogatory acts, acts which go beyond the call of duty. Many of our obligations, such as that of being benevolent, are framed only in general terms; how we fulfil that duty is up to us. Since it is unclear how much is required of us by way of benevolence, truly virtuous persons will err on the side of generosity, but the praise we bestow on them will not be because they went beyond duty but because they showed such a great regard for their duty.

Finally, Price was apparently the first to draw the distinction, much discussed in the first half of the twentieth century, between what he called abstract and practical virtue, or what was later called objective and subjective duty. An agent's objective duty is determined by the actual facts of the case; his subjective duty by what he believes to be the facts of the case. It is for succeeding or failing to do one's subjective duty that one should be praised or blamed, for an imperfect agent cannot be required to avoid all errors of fact.[24]

NOTES

1 Rand [8.7], 359.
2 Although Shaftesbury was Locke's pupil, he rejected his ethics and his empiricism. See his scathing attack in a letter to Michael Ainsworth, 3 June 1709, in Rand [8.7], 403–5.
3 *Inquiry,* Book I, Part 2, sect, ii, p. 250 in [8.5]. All subsequent quotations from the *Inquiry* will appear in this form: I. 2. ii [8.5], 250.
4 *Inquiry,* I. 2. iii [8.5], 252.
5 *Inquiry,* II. 1. i [8.5], 280.
6 *Inquiry,* II. 1. iii [8.5], 288.
7 *Inquiry,* II. 2. i [8.5], 294.
8 *Inquiry,* II. 2. i [8.5], 295.
9 One might almost say, orthodoxy. See for example Selby-Bigge [8.10], xxxii; Hudson [8.12], 1.
10 I give my reasons for thinking this contention mistaken in [8.27].
11 References to Butler will be by Sermon number and paragraph number in Bernard [8.8] (reproduced in many other editions). The *Sermons* will be denoted by an S, the Preface, added in the second edition, by a *P,* and the *Dissertation on Virtue* by *D.* Then will come the page number in Bernard, [8.8]. Thus the present reference is *S* 2.8 [8.8], 45.
12 *S* 3.9 [8.8], I: 57.

13 *S* 11.20 [8.8], I: 151.
14 *P* 26 [8.8], I: 12.
15 *D* 8 [8.8], II: 293.
16 *D* 3 [8.8], II: 288–9.
17 *S* 3.4 [8.8], I: 53.
18 *S* 11.9 [8.8], I: 141.
19 *P* 37 [8.8], I: 17.
20 See Berkeley, *Principles,* sect, x ([8.31], 117), and Hume in Raphael [8.11], 2:18–19.
21 Price [8.9], 15. (All future quotations from Price will just give a page number.).
22 [8.9], 46.
23 [8.9], 49.
24 I am greatly indebted to Jonathan Dancy and Eve Garrard for comments on an earlier draft of this piece.

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CHAPTER 9
The French Enlightenment I: science, materialism and determinism

Peter Jimack

The French Enlightenment is not just a convenient label devised by historians of philosophy, and the thinkers to be discussed in this chapter and the next were for the most part conscious of belonging to a movement. They shared to a remarkable degree, if in varying proportions, the negative and positive features which characterized it: on the one hand criticism, even rejection of traditional authority, especially that of the Church, and on the other a bold and constructive attempt to understand and explain man and the universe, and in particular to define man's place and role in society, both as it was and as it should be. On many topics (such as the origin of life, epistemology, natural law, religious toleration, political freedom), they held broadly similar views and differed only in matters of detail. The very term *'philosophes'* came to be used to designate the thinkers who held these views, and the *philosophes* actually saw themselves as a kind of brotherhood involved in a campaign, a group of 'frères' who shared the same attitudes and aspirations. Many of them were friends, or at least acquaintances, who met frequently, energetically exchanged ideas on such matters as metaphysics, morality, politics and economics—as well as gossip—and even contributed to each other's works in a variety of ways. Quite apart from the *Encyclopédie,* edited by Diderot and d'Alembert, which had over 130 contributors, several works were in a sense collective ventures, embodying the results of discussions within the group—or even, in the case of Raynal's *Histoire des deux Indes,* actual contributions by different individuals.

It has been argued that some of the principal figures of the French Enlightenment were largely gifted vulgarizers, rather than original thinkers. While this is no doubt an exaggeration, it does draw attention to the way in which they picked up and developed ideas that had been expressed by sometimes lone voices in previous centuries. They themselves often emphasized their links with the Ancients as a way of stressing their rejection of Christian tradition, though if their declared hero was Socrates, a more specific inspiration was probably provided by the materialism and evolutionary ideas of Lucretius. As for the modern world, Montaigne had adopted a relativist anthropological approach to morality two centuries before Montesquieu, and Descartes's rationalism had opened the way to the confidence in human reason and the rejection of traditional authority: his mechanistic account of man all but excluded the soul, and his mechanistic account of the universe all but dispensed with God. Pierre Bayle, a follower of Descartes in his use of reason, had ridiculed superstition (and by implication certain religious beliefs) in his *Pensées sur la Comète* (1682), which ended with a chapter envisaging, of all things, the possibility of a society of atheists. In his *Dictionnaire historique et critique*

(1697), which was to become an arsenal of material for use by Voltaire and others in the battle against the Church, he applied Cartesian scepticism to history, and more significantly, to biblical history. In the field of science, Bacon, a contemporary of Montaigne, had spelled out an ambitious programme of enquiry, based on investigation and experiment instead of the acceptance of authority, which would be one of the great inspirations of the *Encyclopédie;* and Newton's huge step forward in explaining the laws governing the universe had made it ever easier to conceive of a world without God, despite his own deep religious convictions. Above all, perhaps, Locke's account in his *Essay concerning human understanding* (1690) of the origin of knowledge and genesis of the human faculties provided a starting-point both in content and in methodology for virtually all Enlightenment thought in this area.

It is in any case difficult to draw a precise dividing line between predecessors of the French Enlightenment and the movement itself. The very concept of an Enlightenment is no doubt a rather nebulous one, referring to a speeding up, an intensification of manifestations of certain currents of thought rather than a new departure. Voltaire (1694–1778), often seen as its most dominant figure, had begun writing long before what is usually thought of as the Enlightenment. Nevertheless his work as a whole could legitimately be said to belong to the movement and some of his early individual works show many of its characteristics: his *Lettres philosophiques* ([9.15]), for example, published in 1734, which introduced Locke and Newton to the French public and praised English religious toleration and political freedom, implicitly contrasting them with the very different situation in France. The same could equally be said of the *Lettres Persanes* by Montesquieu (1689–1755), a satirical account of French life, politics and religion as seen through the eyes of two Persian visitors, which was published as early as 1721. Nevertheless, it was the 1740s that saw the beginning of the great proliferation of works which constitute the French Enlightenment proper, while the movement could be said to have been brought to a natural close by the outbreak of the French Revolution. In many ways, of course, the Revolution was the outcome of this wave of intellectual attacks on authority, though retrospectively, the fact that it occurred has inevitably affected the way the intellectual movement itself is perceived—often as more revolutionary, and particularly more specifically political, than it actually was.

If there was one work which, more than any other, embodied the ideals and attitudes of the Enlightenment, it was the *Encyclopédie*. The origin of this virtual manifesto of the movement lay in a project to produce a French translation of Chambers's *Cyclopedia,* which had appeared in 1728. Denis Diderot (1713–84)—as yet merely a promising young writer, with some repute as a translator—was engaged to do some of the work, but in 1747 he was appointed co-editor, along with the distinguished mathematician Jean le Rond d'Alembert (1717–83). But from the very beginning, it was Diderot who was the dominant partner and the driving force behind the project. His vision and enthusiasm transformed it from being a mere translation into a vastly more ambitious enterprise, whose aims were set out in his own Prospectus and subsequent article 'Encyclopédie', as well as in his co-editor's 'Discours preliminaire': they wanted to make known to the public at large all the huge strides that had recently been made in human knowledge of every conceivable kind, and this comprehensive survey was to be written by appropriate experts in each field. Diderot and d'Alembert together amassed a veritable army of

contributors, many of whom were—or were about to be—among the most eminent thinkers and foremost authorities of their day. The first seven volumes of the *Encyclopédie* appeared from 1751 to 1759, at which point the work was banned; the remaining ten were published clandestinely in 1765, under the sole editorship of Diderot.

Both in its conception and in its execution, the *Encyclopédie* reflected the emphatic anthropocentrism that was characteristic of the Enlightenment, and that was expressed in unambiguous terms in Diderot's article 'Encyclopédie': 'Man is the sole point from which one must start and to which one must bring everything back […] Apart from my existence and the happiness of my fellow men, what does the rest of nature matter to me?'. Diderot and d'Alembert's admiration for the capacities and the achievements of the human race, their confidence in the progress of civilization, went hand in hand with a deeply felt desire to contribute to that progress and to work for the happiness of mankind. So that an important aspect of the knowledge that the Encyclopedists sought to popularize and disseminate was the critical thinking that was increasingly challenging received wisdom and established authority. Human reason was no longer a frail and unreliable prop in a world of mystery, but a sturdy guide in a universe that was gradually being understood and an environment that was gradually being mastered. Diderot and d'Alembert and many of their collaborators saw themselves as engaged in a campaign, fighting a battle against the forces of evil for the intellectual and material liberation of mankind. And this liberation truly involved enlightening men, changing the way they thought, as Diderot made clear in a letter written in 1762: 'In time this work will certainly bring about a revolution in men's minds…we shall have served humanity' ([9.6], 4:172). Inevitably, in its concentration on man, its faith in reason, and its challenge to authority, the *Encyclopédie* was setting itself up as inherently opposed to Christianity, which required human reason to submit to authority. In fact, the Church came to be seen by many *philosophes* as the arch enemy of mankind, and in the articles of the *Encyclopédie* (as well as in many other works of the period), it was often represented not just as an obstacle to progress, but as a powerful agent of repression and restriction, an instrument of the forces of darkness which had for centuries sought to submerge the forces of enlightenment.

If Diderot was the principal inspiration of the *Encyclopédie,* it was d'Alembert who could be described as its theoretician. No doubt d'Alembert was not himself a brilliantly inventive thinker like Diderot; but this very fact helped to make him a representative figure of the movement. Though the admirably structured syntheses of the "Discours preliminaire' of the *Encyclopédie* and of the later *Essai sur les Eléments de Philosophie* (1759) were d'Alembert's own, the ideas he was synthesizing represented for the most part the generally agreed position of the *philosophes*. He described the aims, the rationale and the methods of the work, expounding what one might describe as the philosophical starting point both of the *Encyclopédie* and of the Enlightenment as a whole.

D'Alembert was very conscious of his philosophical inheritance, of belonging to an embattled élite which had struggled towards enlightenment throughout the centuries and was only now coming into its own. He saw the history of human thought and endeavour as a never-ending war against oppressive forces, with the flag carried by a few great men, above all Bacon, Descartes, Newton and Locke. The aims of the Enlightenment reflected in the 'Discours preliminaire' were indeed vast—nothing less than an aspiration to

understand and describe the whole of ‘nature’ and to give an account of every aspect of humanknowledge. One of the most fundamental tenets of Enlightenment thought was the oneness of the universe, a principle which had been forcefully propounded the year before the publication of the first volume of the *Encyclopédie* in an *Essai de Cosmologie* by the gifted mathematician and natural scientist Pierre-Louis Moreau de Maupertuis (1698–1759): ‘There is a universal connection between everything in nature, in the moral as well as in the physical’ (quoted Goyard-Fabre [9.20], 158). D’Alembert argued in much the same way that the universe, if only we could understand it, would appear to be one single fact, and that there was some kind of unity underlying all natural phenomena. But his ambitious aims were accompanied by a characteristic humility, a recognition of the limitations of the human mind: he accepted, for instance, that first causes were almost always unknowable, and postulated as the only fruitful philosophical method the attempt to reduce phenomena to the smallest possible number of underlying principles, which he termed the ‘esprit systématique’. But this method involved first and foremost the meticulous observation of facts, in contrast to the ‘esprit de système’ which had so often led thinkers astray with the creation of ingenious rational constructions not based on empirical evidence. To illustrate the point, he quoted the example of the magnet: it was a laudable philosophical enterprise to seek the single principle from which its various qualities stemmed, but this principle might well remain unknown for a long time. In the meantime, the only way forward lay in the amassing, ordering and cautious analysis of observations.

The best example of d’Alembert’s organized approach to the ordering of data is perhaps his emphasis in the ‘Discours preliminaire’ on the interrelatedness of human knowledge. If all phenomena are linked in some way, then all knowledge must be similarly connected, though if the underlying unity of phenomena remains hidden, the true links between different areas of knowledge must remain at best speculative. While acknowledging therefore the arbitrariness of such theoretical divisions, he adopted, with slight modifications, the schematic tree of knowledge proposed by Bacon, with its three main branches the faculties of memory, reason and imagination, linked by the central stem of the understanding.

It may well be argued that the conviction that there is a unity underlying all natural phenomena and all human knowledge is itself an a priori assumption preceding empirical observation, and d’Alembert’s position seems in fact to be a judicious blending of Cartesian rationalism with the emphasis on observation that derived from Newton and Locke. Be that as it may, his approach to the classification of knowledge can be seen both as pragmatic and, above all, as anthropocentric, in that it is based on human perception of phenomena rather than ontheir ‘true’ nature. Indeed, his whole discussion of knowledge is man-centred. He analyses, speculatively, the way in which all kinds of knowledge, from the elements of morality to the arts and sciences, have arisen organically as a response to human needs. D’Alembert’s approach to philosophical enquiry is similarly based on human needs. Philosophy, he says in his *Eléments de philosophie,* should not be concerned with axiomatic truths like ‘the part is smaller than the whole’, since they are self-evident and thus useless; nor with vain metaphysical enquiry into such matters as the nature of movement. The true philosopher sensibly supposes the existence of movement and tries to discover how it operates in practice: our models should be the scientists who,

from Archimedes to Newton, have discovered the laws according to which the universe functions.

Now it is true that d'Alembert was primarily a mathematician and physicist rather than a philosopher (though the distinction between philosophy and science in the eighteenth century was still rather imprecise), but his mistrust of what he saw as sterile metaphysical speculation about absolute reality and his emphasis on the scientific and the utilitarian were shared by many who were not scientists at all. Thinkers convinced of the ultimate intelligibility of the universe and imbued with confidence in man's capacities to decode it had little patience with the metaphysical theories of Spinoza or Leibniz, for example, about such matters as pre-established harmony. The knowledge that interested the thinkers of the Enlightenment was not metaphysical, but scientific, knowledge of the material world of nature.

Their principal inspiration in this field was undoubtedly Newton. The first writer in France to accept and expound his theory of gravitation was Maupertuis, in his *Discours sur les différentes figures des astres,* published in 1732, but after Maupertuis, Newton was taken up and popularized by Voltaire, particularly in his *Eléments de la philosophie de Newton* (1739) ([9.15]), and by the time the first volume of the *Encyclopédie* was published, the lavish praise bestowed on him by d'Alembert expressed a view which was widely shared in France.

It was above all Newton's methods which were to serve as a model for scientific investigation, the observation of phenomena followed by the attempt to discover the principles or laws underlying them. The most cogent exponent of this approach to science was no doubt the Abbe Etienne Bonnot de Condillac (1715–80), perhaps the most important philosopher—as distinct from *philosophe*—of the French Enlightenment, and certainly the most systematic one. In his *Traité des Systèmes,* published in 1749, supplemented by the 'Art de Raisonner', which formed part of a *Cours d'Etudes* (1769–73), he proposed a methodology of science which closely followed Newton. Like Newton, and like d'Alembert, he conceded that the ultimate reality of things was inaccess-ible to the human mind, though he did believe both that our perception of the universe in some way corresponded to its true reality, and that it was indeed an ordered universe, consisting of a vast unified system. Metaphysicians such as Descartes, Malebranche and Leibniz had gone astray because the systems they had proposed were not based on observation of the natural world: the proper procedure for the scientist was not to construct systems, but to seek to discover as many elements as possible of the true system of the universe. And the proper method, said Condillac, was the analysis of a combination of two types of evidence, the evidence of fact, based on the observation of phenomena, and the evidence of reason, based as far as possible on a mathematical model. Newton's system provided the perfect demonstration of such an approach.

However, while there was general agreement that earlier philosopher-scientists had gone too far in their construction of systems based on a misguided use of hypotheses, it was beginning to be felt that some disciples of Newton tended to go to the opposite extreme in their reluctance to venture beyond the observation of phenomena. Mme du Châtelet (Gabrielle-Emilie, Marquise du Châtelet, 1706–49, unjustly better known to posterity as Voltaire's mistress, but in fact a serious thinker in her own right who was largely responsible for making the philosophy of Leibniz known in France), in her

Institutions de physique (1740), and Condillac, in the *Traité des Systèmes,* both advocated caution in the use of hypotheses, but they recognized their value as a part of good scientific method: used correctly they should serve as a basis for experimentation, suggesting further lines of enquiry in the quest to discover the links between observed phenomena.

But Newton was a mathematician, and rather than the abstract field of mathematics, it was the experimental domain of biological science in which such methods were to be most productively employed. If there was one work which both embodied the principles of the new science and paved the way for the great strides it was to make in the next century, it was surely the *Histoire naturelle* by Georges-Louis Leclerc, Comte de Buff on (1707–88), which has been compared in its importance to Newton's *Principia philosophiae naturalis* (Cassirer [9.16], 104). Buffon's monumental work, the first three volumes of which appeared in 1749, broke new ground both in its methods and in its matter. To begin with, methodologically, while he remained Newtonian in his emphasis on observation and rejection of authority and preconceptions, Buffon helped to liberate science from the over-restrictive requirement for mathematical type proof by envisaging a new approach to scientific evidence: he saw that the repetition of identical events, for instance, can lead one to postulate a theory which may not have the certainty of mathematical proof, but which may legitimately be based on such a degree of probability that it carries, in effect, moral conviction.

When Buffon applies such methods to the study of the natural world, his strikingly secular approach is firmly based on historicity. By considering the evidence of geology (and simply ignoring the Bible), he boldly drew conclusions about the immense age of the world. In his vision of an organically evolving universe, there was no room for final causes, which he rejected as misleading abstractions inhibiting true scientific enquiry. Whereas the great botanist Linnaeus, his exact contemporary, had a static view of nature, in which all plants and animals were created once and for all in permanent form for the glorification of God, Buffon emphasized the boundless creativity of 'nature' (rather than God): nature worked on a kind of trial and error basis, with its failures as well as its successes, producing monsters doomed to extinction as well as species equipped to survive and prosper by adapting to their environment. He stressed too, in volume two of the *Histoire naturelle,* the continuity in nature, pointing out that the categories we use to interpret the world—animal, vegetable, mineral—are merely convenient labels, corresponding only to 'general ideas', and that there are in reality no clear-cut distinctions between them. Thus no actual animal corresponds to the general idea animal, and some are further from it than others: an insect is less of an animal than a dog, an oyster than an insect, and so on through subtle gradations until we come, for example, to the egg, which is neither animal nor mineral. ('Histoire générale des animaux', ch. 8). As for man, if Buffon repeatedly emphasized his distance from the animals, this was in no sense a spiritual superiority based on theological arguments. He expressed a confidence in the capacity of human reason to discover 'the secrets of Nature' which was entirely characteristic of the Enlightenment, and he explained the nobility of man by a sound historico-biological demonstration. Man was originally an animal like the others, but endowed with certain characteristics which enabled him to develop in a spectacular fashion: an unusually long period of physical maturation led to the necessary creation of

the family unit and of society, without which man could never have survived ('Les animaux carnassiers', [9.2], 7:28–9); it was social life which led to the crucial creation of language, enabling man to preserve the intellectual heritage of his society and benefit from the cumulative transmission of knowledge and thought ('Nomenclature des singes', [9.2], 14).

Clearly Buffon's view of the universe was in many ways an evolutionary one. It has been argued that his thought was not really transformist, and that he had no true idea of the evolution of species [9.29], 577); nevertheless, by placing the study of biology in an historical perspective, by his vision of a dynamic, changing, natural world, hecan truly be said to have anticipated Lamarck and Darwin. But such ideas were in the air. At almost exactly the same time as Buffon, Diderot too, first in his *Lettre sur les Aveugles* (1749) and then in the *Pensées sur l'interprétation de la nature* (1753), outlined a similar evolutionary account of the animal world ([9.5]): the apparently wonderful way in which existing forms of life are adapted to their needs and their environment, far from being evidence of final causes, is merely the result of a natural process, in which many created forms turned out to be blind alleys, unable to survive or simply unable to reproduce. It is true that this theory had been expounded by Lucretius in his *De natura rerum,* but its re-emergence in the eighteenth century, in the context of post-Bacon post-Newton science, gave it an entirely new significance.

However, there was one thinker at this time who went even further along the road towards Darwin. Having begun with the same Lucretian theory as Buffon and Diderot, Maupertuis developed it somewhat differently. One of the great scientific controversies of the period was the debate about the origin of life and procreation, which had been given a huge boost by the discoveries of John Needham, who thought he had observed the spontaneous generation of life in a test-tube. In his *Venus physique* (1745), Maupertuis tackled the question of generation by the study of heredity, which, being observable, was a distinctly more feasible approach in the eighteenth century than by anatomical research, which was still very unreliable. The transmission of acquired parental and even ancestral characteristics appeared to confirm the theory that in procreation the seed came from both parents. When he developed these ideas further in his *Système de la nature* (1751), Maupertuis explained this process of transmission by a kind of memory retained by the component parts of the maternal and paternal seed, each of which comes from a different part of the body and is destined to reproduce a similar part in the new being. However, chance deviations can then lead to the transformation and multiplication of species:

> Could one not in this way explain how, starting from two single individuals, the multiplication of the most disparate species could have occurred? They would have owed their origin merely to a few chance productions […]; and as a result of repeated deviations, there would have come about the infinite diversity of animals which we see today.
>
> [(*Système de la nature,* xlv, quoted Roger [9.29], 484)]

Now side by side with these developments in the field of biological science, an even more fundamental debate was being conducted about the nature of knowledge and the

manner of its acquisition, one of the central issues of Enlightenment thought. The *philosophes* attempted earnestly—if not altogether consistently—to apply scientific method to the study of epistemology. To say, as d'Alembert had done, that knowledge is acquired in response to human need does not explain precisely how it was acquired: d'Alembert took it for granted that ideas, the building bricks of knowledge, are derived from the sensations, and his views were representative of French thought in the mid-eighteenth century. Descartes's innate ideas were totally discredited and the sensationalism of Locke was widely accepted. But if there was a general consensus accepting the broad lines of Locke's thought, opinions diverged when it came to the details, and these divergences were to have far-reaching implications.

The doctrine that all our knowledge originates in sense-experience was of course an ancient one, going back at least to Aristotle, but its development and analysis in Locke's *Essay concerning human understanding* went far beyond any previous version of it, and can truly be said to have laid the foundations of modern empirical psychology. There is, though, an inherent ambiguity in the celebrated maxim 'Nihil in intellectu quod non antea fuerit in sensu', which might seem to imply a totally materialist explanation of man. Locke did not go this far, and made a very clear distinction between sensation and reflexion, the capacity to organize the experience of the senses, thus retaining the activity of the mind—and the possibility of a spiritual soul. Even so, he had, as it were, opened a kind of Pandora's box, from which escaped not just the extreme doctrine of complete materialism, but also, curiously, what might seem to be its opposite, idealism.

If, as Locke argued, all our knowledge comes through our senses, how can we ever know with certainty anything at all about the outside world? How can we even know whether it exists, let alone whether it corresponds to our perception of it? In fact, however, this fundamental problem raised by Berkeley seemed to bother the French *philosophes* very little. A typical response was Voltaire's, in his *Traité de métaphysique* (written, though not published, about 1734). To begin with, he says, whether or not the external world really exists makes absolutely no difference to actual life. He then raises a number of common-sense objections to idealism, and concludes by declaring that he cannot help being more convinced by the existence of the material world than by many a geometrical truth. D'Alembert too dismissed Berkeleyan idealism with similar ease: if the external world *did* exist, then we should experience exactly the same sensations as we actually do; therefore, presumably, it does exist. The problem was taken rather more seriously and discussed at some length in the *Encyclopédie* article 'Existence', by Turgot, but the principal argument used boils down to saying that by far the most plausible cause of our sensations is the existence of the external world. This down-to-earth resolution of a complex metaphysical problem was in fact characteristic of the thinkers of the FrenchEnlightenment, whose approach to philosophy was pragmatic and relative, profoundly man-centred. Reliance on the perception of the world by the human senses seemed a perfectly sound starting point for the kind of enquiry that interested them.

Materialism, however, was quite another question, if only because of its implications for morality. At first, most thinkers retained Locke's dualism, invoking some kind of innate, active, non-physical power of the mind which was brought into play by the passive experience of the physical senses. This, for example, was the position adopted by d'Alembert, who maintained in the 'Discours Préliminaire' that the 'substance' in us

which wills and thinks is self-evidently different from matter. But there was an increasing (though still minority) tendency to eliminate Locke's crucial distinction between sensation and reflexion, and to see all the operations of the mind as physiologically determined responses to the experience of the senses.

This shift away from Locke is to some extent epitomized in the thought of his principal heir, Condillac, who was certainly the most important French eighteenth century thinker in the field of epistemology (or 'metaphysics' as his contemporaries tended to call it). In his *Essai sur l'origine des connaissances humaines* (1746), Condillac set out to bring a greater precision to the thought of Locke, and consistently with the methodological aims which were to be enunciated by d'Alembert, to attempt to reduce the explanation of the human understanding 'to a single principle'—though it is debatable whether he succeeded in this. In the beginning was the sensation; but our physical needs cause us to experience pleasure or pain in response to certain sensations, and this creates the important phenomenon of attention. In turn, attention leads to the linking of sensations to form the association of ideas (needs are associated with their objects), and the association of ideas, by enabling a perception to be recalled in the absence of the object which caused it, constitutes the basis of memory. The development of the understanding thus far has been purely passive, an automatic response to outside stimuli, but at this point Condillac envisages the invention of signs (i.e. language) as the crucial step which endows man with the faculty of reflexion, the capacity to direct his attention at will, and it is this faculty which generates all the higher operations of the mind. As for Berkeley's idealism, Condillac virtually ignored it, and if he addressed the question of the unreliability of the information acquired through the senses, it was merely to point out that the errors of perception due to one sense can be corrected by recourse to others—thus apparently assuming the objective reality of the external world.

In the *Essai,* Condillac had already taken a substantial step towards a thoroughly materialist explanation of man. In contrast to Locke's sharp distinction between the static understanding, represented as a kind of *tabula rasa* on which sense impressions were 'written', and the innate active power of reflexion, Condillac's vision of the understanding was a dynamic one, conceived as a series of operations, thus facilitating its conversion to a self-sufficient system. The move towards materialism was taken a stage further in his most celebrated work, the *Traité des sensations* (1754). The *Traité* was rigorously systematic both in substance and in form. Whereas the *Essai* had followed Locke's dual scheme, retaining reflexion as a separate faculty, the *Traité* further simplified the explanation of man by making reflexion merely a product of the sensations. But the process of simplification and systematization was facilitated by the method Condillac used in this work. He imagined a statue which he then endowed successively with the five senses. The idea of a statue being given life as a way of studying the awakening of the human consciousness and understanding was not original—Buffon in particular had used it in the Histoire naturelle de l'homme' (in volume 3 of the *Histoire naturelle*, published in 1749); but Condillac's analysis was more systematic and more acute than Buffon's. He gave his statue one sense at a time, and with each sense he explored the range of ideas and feelings it would be able to acquire, first with that sense alone, and then, after the first sense, by combining that sense with those given to it previously. He began with the most humble, smell. Endowed with a sense of

smell alone, the statue is presented with a variety of odours, causing it different degrees of pleasure or discomfort, and leading it to desire, to compare and to judge. However, Condillac notes, it will only experience desire when, as a result of a succession of sensations, it has realized that 'it can cease to be what it is and become again what it has been' (*Traité des sensations,* 1, 2, 4, [9.3], 1:225); when, in short, it has begun to remember, and it is the birth of memory which is a similar prerequisite for the development of comparison and judgement. After the sense of smell comes the turn of taste, which is dealt with similarly, and so on, through hearing, sight and finally touch. The whole process, from simple sensation to complex, abstract ideas, even to moral and aesthetic judgements, is an automatic one, determined by the interplay of sense impressions and the capacity for experiencing pleasure and pain. Remembering, reflecting, judging are all analyzed as different ways of being attentive. Judgement, for example, is the perception of a relationship, an automatic concomitant of comparison; but to compare 'is nothing other than to give one's attention to two ideas at the same time' (1, 2, 14–15, [9.3], 1:226).

One of the most striking arguments in the *Traité* concerned the way in which man becomes aware of his own existence and of the outside world. Whereas Locke, and more recently Buffon, had appeared to take it for granted that perception was inseparable from self-awareness, Condillac maintained that initially, with only one sen-sation, the statue would have no sense of self at all. Only with a change of sensation, when it becomes aware (through memory, automatic for Condillac) of its own continuity despite the change, will it discover the concept 'I'. Even then, it will still necessarily identify with its sensations: it will seem to *be* the scent of the rose or the carnation, without any consciousness of a self distinct from its modifications. It will not, in other words, be conscious of the existence of a separate outside world which is responsible for causing its sensations. That consciousness will only come with the sense of touch and the experience of movement. There had long been a debate about the precise relationship between the senses of sight and touch and their relative importance. Condillac followed Berkeley, who in his *New Theory of Vision* (1709) had rejected Descartes's explanation of our perception of extension as a kind of intuitive calculation, and demonstrated that it could only result from movement. The other senses cannot by themselves convey the awareness of the outside world; it is only when the statue moves and becomes conscious of an obstacle to its movement that it will deduce the existence of space and otherness.

On the other hand, whether or not the 'real' outside world corresponded to our perception of it, whether even it was extended, was a matter on which Condillac would not commit himself. He shared Berkeley's view that we can know directly only our sensations and could see no evidence for assuming that the qualities we perceive actually exist in objects themselves. But this is not a reason for denying the existence of an outside world: the only sound inference we can draw from the available evidence is that 'bodies are beings which produce sensations in us, and which have properties about which we can make no sure judgement' (IV, 5, 1, [9.3], 1:306n.).

Condillac's response to the problem of idealism highlights the ambiguous status of this kind of epistemological approach to psychology, on the borderline between science and metaphysics. He may have prided himself on his scientific methodology, but whilst it could justifiably be described as Newtonian in its quasi-mathematical rigour, it was

scarcely scientific in the sense of empirical or experimental, and this was of course the case with the sensationalist debate in general. The acute observation and rigorous analysis of the *Traité* focused principally not on live human beings but on an imaginatively conceived ideal model. Condillac and his contemporaries did, however, make use of empirical investigation when it was possible. The ideal model itself, as well as other kinds of sensationalist speculation, must have been based on a good deal of largely unrecorded observation of real life, and sometimes there were opportunities for a more scientific, even experimental approach. A case in point was the actual functioning of the sense of sight. The English philosopher (and friend of Locke), William Molyneux, had posed the following problem: would a person blind from birth who had learnt to distinguish by touch a cube from a sphere, and who had then had sight restored, be able, by sight alone, to recognize the two objects? Initially the debate was largely theoretical, but when the philosophically inclined London surgeon Cheselden pioneered and perfected the operation for the removal of cataracts, the opportunity was created to move it on to a more scientific basis: Cheselden's observation of a person born blind who was then given sight, reported in Voltaire's *Eléments de la philosophie de Newton,* appeared to confirm that the interpretation of visual sensations was not intuitive and had to be learned from experience in conjunction with other sense data.

Despite the fragility of its scientific foundations, sensationalist psychology reflected the spirit of the Enlightenment in being an attempted anatomical (if unproven) explanation of man, which ignored or was positively hostile to the traditional (Christian) explanation—another example of a field of knowledge being removed from the authority of theology towards (if not quite as far as) science. But there was also an indirect and perhaps more important way in which sensationalist psychology came into conflict with Christianity: it made much easier a totally materialist explanation of man, with the dire moral implications that we shall be examining in the next chapter. The most controversial point in sensationalist analyses of the understanding was the degree to which its operations were produced by an innate active element. If absolutely all mental processes are automatic, as they appear to be in the *Traité des Sensations,* resulting from pleasure- and pain-responses to sense impressions, then the mind is merely an extension of the body: not only is reflexion not an act of the will, but the will itself disappears. But Condillac was primarily a seeker after truth rather than a *philosophe,* and sought, if anything, to avoid controversy. Others, however, had distinctly more polemical intentions.

One of the most unambiguous expositions of the passivity of the understanding and of the will appeared in 1756 in the anonymous article 'Evidence', in the sixth volume of the *Encyclopédie*; the article was in fact by the physiocrat François Quesnay (1694–1774), though Rousseau, who profoundly disagreed with its central thesis, suspected it had been written by Buffon or Condillac (interesting indeed for his perception of their position in the matter). Quesnay argued that willing is merely a form of feeling: 'to want or to be willing is nothing other than to feel pleasantly; not to want or to be unwilling is similarly nothing other than to feel unpleasantly'. It was this thesis, developed at considerably greater length, which, two years later, served as the starting point of the scandalous *De l'esprit,* by Claude-Adrien Helvetius (1715–71): not only was the book banned, but the outrage it caused contributed to the definitive banning of the *Encyclopédie* itself.

Helvetius began by arguing that remembering and even judging are merely forms of feeling, though his demonstration is neither very subtle nor very convincing as he deals with various possible objections. The central thesis of *De l'esprit* was that all minds are potentially equal, since all men (it is not entirely clear whether Helvetius intends this to include women or not) are endowed with the same capacity of attention which can enable them to attain to the most elevated ideas.

Helvétius, it may be argued, makes clear the materialism which had been latent in Locke. But sensationalism was not the only road to materialism, and the scientific progress discussed earlier also led a number of thinkers in a similar direction. In particular, despite Newton's own views, gravitation came to be seen as a property of matter, alongside extent and impenetrability, so that matter was no longer passive, as for Descartes, but capable of moving itself, and this was to provide an obvious basis for materialist explanations of the world. But the first thoroughgoing materialist of the French Enlightenment, subsequently much admired by Marx, was not a physicist but a doctor, Julien Offroy de la Mettrie (1709–51). La Mettrie's approach was physiological: he extended the mechanism of Descartes to man, and transposed the determinism of the Newtonian universe to the sphere of human psychology.

His principal thesis, expounded mainly in his *Histoire naturelle de l'âme* (1745), otherwise known as *Traité de l'âme,* and developed further in *L'Homme machine* (1748), was that all man's mental functions are physiological in their origin. The *Traité de l'âme* attempts to destroy the case for the spirituality of the soul, arguing that there is no evidence whatsoever to lead one to suppose that the capacity for feeling belongs to a substance distinct from matter. If movement is an attribute of matter, why should this not also be true of feeling, thought, and will? Observation and experience confirm that the soul is material, says La Mettrie, whereas only metaphysical arguments are offered to support the contrary view. He admits he cannot understand precisely how matter feels and thinks, but points out that it is no easier to understand how it moves by itself, while the notion of an immaterial soul is even more inconceivable. He cites various examples which demonstrate that the memory can be affected by physical conditions and accidents, proving that it must be part of the material body and 'completely mechanical' (*Traité de l'âme,* ch. 10, X, [9.11], 87), and then goes on to argue that the exercise of liberty is similarly determined by sensations, and that the judgement is a passive acquiescence in the truth imposed by 'the evidence of the sensations'.

La Mettrie's principal point, to which he returns in *L'Homme machine,* is that the so-called soul, which falls asleep with the body and needs food to continue functioning, is merely a way of talking about certain functions of the body. Man, then, is just another animal. The instinct of animals is a product of their brain and nervous system; man's more complex behaviour is merely the result of having the most complex brain of all the animals: 'So that everything comes from the force of instinct alone, and the sovereignty of the soul is merely a figment of the imagination' (*Traité,* ch. 11, II, [9.11], 93). The parallel between man and the other animals is the central theme of *L'Homme machine*. Differences of character and mind between men are all physiological in origin, as are differences between men and animals: La Mettrie is convinced (wrongly, as we now know) that the only thing preventing monkeys from learning to speak is their inadequate organs. In *L'Homme plante* (1748), he went one stage further and extended the similarity

of organization to all life forms, pointing out that the characteristics of animals, such as respiration and nutrition, are also to be found in plants.

Now it is clear that writers like Helvetius and La Mettrie were engaged in polemics. The implicit starting-point for both was the rejection not merely of the conventional Christian position, but of any religious or supernatural explanation of man and the universe, and they were consciously replying to the arguments of their adversaries: when La Mettrie attacked the doctrine of final causes, for example, together with the associated argument that the wonders of the universe provide incontrovertible proof of the existence of God, he was attacking the very foundation of the deism propounded by Voltaire and initially by Diderot, who for their part were explicitly refuting the arguments of the materialists. In fact, though atheist-materialists and deists tended to be equally hostile to Christianity, the thought of both has to be understood in the context of the continual debate that opposed them to each other.

It is perhaps in the early works of Diderot that this debate can be seen most clearly. Chiefly, this was because he started out as a deist and rapidly became a materialist. But it was also because most of what he wrote was in the form of a debate, often expressed as dialogue. It is not always easy, as a consequence, to know with certainty what exactly his ideas were. His writings reveal an endlessly inventive thinker, continually indulging in scientific and philosophical speculation, where the author's thought is sometimes to be found in the conflicting voices rather than in any single one: he was, in short, more given to raising and discussing difficult questions than to proposing answers. Yet despite the ambiguities of his thought, Diderot's materialism is historically much more significant than La Mettrie's. Perhaps because of his somewhat confrontational approach (the title 'L'homme machine' was surely intended to be provocative), La Mettrie was generally seen as a rather irresponsible extremist, and remained on the fringe of the philosophic movement. Diderot, in contrast, largely no doubt because of his role as principal editor of the *Encyclopédie,* was, more than anyone else, right at its centre, one of its acknowledged leaders. He was a friend of many of the most important thinkers of his day, meeting them frequently, mainly at Baron d'Holbach's house in Paris or his country estate of Grandval, and his later works in particular reflected the energetic discussions and exchanges of ideas that took place round the atheistic Baron's dinner table.

The debate between deism and atheism is quite explicit in Diderot's first original work, the *Pensées philosophiques* (1746), in which alternating 'Thoughts' present opposing views. The debate is a finely balanced one. In answer to the atheist's denial of God, Diderot proposes the standard deistic recourse to the manifest order and beauty of the physical world; but immediately afterwards, in response to the deist's claim that it is as inconceivable that the universe could have come into existence by the chance combination of atoms as that Homer's *Iliad* could have been produced by a chance combination of letters, he demonstrates that, taking into account the eternal duration of matter and movement, together with the infinity of possible combinations, it would be inconceivable if matter had not, by pure chance, ordered itself into some 'admirable arrangements' ([9.5], 1:136).

By the time he wrote the *Lettre sur les Aveugles,* three years later, he had already begun work on the *Encyclopédie,* which helped to bring him into contact with the most advanced scientific thought of the age. The apparent uncertainty of the *Pensées* now

seemed clearly to have given way to atheism and materialism. Much of the work is devoted to a discussion of sensationalism, in which Diderot anticipates the techniques of modern psychology by using the aberrant (here the blind) to provide clues to understanding the normal. Like La Mettrie, he emphatically dismisses the idea of a spiritual soul, declaring that a philosopher blind and deaf from birth trying like Descartes to locate the soul would surely place it not in the pineal gland, but at the tips of the fingers, the source of all his knowledge. But the most direct affirmation of Diderot's materialism and atheism is to be found in the centre-piece of the work, Saunderson's (fictitious) deathbed confession, which is mainly a refutation of the arguments of the deists. Just as ten years later, in *Candide,* Voltaire was to quote the harsh evidence of the real world against Leibnizian Optimism, so Diderot here cites the real world against Voltaire's wonders of the universe proof of deism: the blind Saunderson is a monster, living evidence of disorder in the universe. But in a materialist evocation of evolution, he then goes on to speculate that in the beginning, there was an abundance of such monsters, destined to disappear because of the inadequacy of their organs, so that only the fit survived. And using this biological process as an analogy, he proceeded to hypothesize about the world we inhabit, no doubt produced by a similar trial and error series of combinations of matter and movement.

After the *Lettre sur les Aveugles,* which led to his imprisonment as the author of an irreligious book, Diderot's materialist theories were elaborated, mostly speculatively, in his correspondence, in a number of *Encyclopédie* articles, and in several individual works, particularly the trilogy known as the *Rêve de d'Alembert*. They do not constitute a complete system, but they do present a corpus of more or less coherent ideas, reflecting consistent attitudes and a steadily growing preoccupation with biology.

The problem of the first cause is resolved once and for all by postulating that movement, a kind of energy, is a necessary and permanent attribute of matter—everything in nature is manifestly always in movement—and that matter is eternal. Like d'Alembert, Diderot emphasized the unity of the universe, which he described in the *Encyclopédie* article 'Animal' as 'a single, unique machine, in which everything is connected'. This article indeed attempted to give a unified account of all matter, organic and inorganic. Drawing principally on the ideas of Buffon, it nevertheless went considerably further in getting rid of the divisions between man and other animals, between animals and plants—Diderot quoted Trembley's recent observations on the fresh-water polyp, which did indeed seem to be neither—and even between animate and inanimate matter.

The conviction that there are no true divisions between the different categories in nature led Diderot to an idea he flirted with for many years but expressed most explicitly in the *Rêve de d'Alembert,* namely the hypothesis that 'sensibilité', the capacity to feel, is a 'general property of matter' ([9.5], 2:116). This is not to say, of course, that all matter actually feels; sensibility is active in animals, and perhaps in plants, but inert, in other words potential, in inanimate matter. The hypothesis is confirmed for Diderot by the ease with which inanimate matter can cross the borderline to become living—the two obvious examples being the development of the egg in the process of generation, and the even more everyday process of eating: The plants feed on earth, and I feed on the plants' ([9.5], 2:108).

The discussion of the active sentience of animate matter, a major issue in the *Rêve,* is in fact firmly based on the most recent developments in contemporary scientific thinking. A group of doctors based in Montpellier, which included not only Théophile de Bordeu (1722–76), one of the interlocutors in the *Rêve,* but also the young J.-J. Menuret de Chambaud (1739–1815), the *Encyclopédie's* principal contributor in the field of medicine, were busy showing that all living matter is inherently sentient, a property which manifests itself in a variety of ways in the animal body, in reflexes, in the spontaneous contraction of muscles and organs, in the digestion—even in the response to stimuli of a muscle actually removed from the body. But if Diderot welcomed such scientific confirmation of his materialist theories, it still left many questions unanswered. In particular, if the formation of living beings can be explained by the successive accumulation of sentient 'molecules', how does the sentience of the component parts become transformed into a corporate consciousness and identity? Diderot suggests as a possible answer—which is more pleasing by its ingenuity than intellectually satisfying—a parallel between an animal and a swarm of bees clustered on a branch: if one imagines them becoming fused together by their legs, they pass from the state of contiguity to that of continuity, and this new state of the swarm is precisely that of the human body.

Passing from physiological sensibility to the more complex operations of the mind, Diderot accepts the standard sensationalist view of man, placing particular importance on the memory as the crucial factor in converting sensations into thought—though he realized that memory too was a result of physical organization, perhaps, he suggested, a kind of vibrating fibre. At the same time, he recognized the inadequacy of the usual accounts of the transition from physical sensations to thought, of the kind provided by Helvetius. Faced with the problem of explaining how the sensations received by individual organs come to be co-ordinated, he could only suggest the existence of some kind of central function, a 'common centre', which registers all the sensations, but which, being endowed with memory, its own special attribute, makes comparisons and provides the sense of continuity and of identity. Once again he resorted to an analogy to illuminate his explanation—though again it is more striking than philosophically enlightening: just as a spider at the centre of its web is immediately aware of the slightest movement in any of its strands, so the 'common centre' is informed of the impressions received in any part of the body by means of a 'network of imperceptible threads' ([9.5], 2:141).

As ever with Diderot, it is difficult to know how literally he means us to take the analogy, but it is clear that he believed in the existence of a 'mind' separate from the sensations. It is equally clear, though, that thought was for him a totally physiological function, an automatically determined result of sense impressions, however complex the process might be. His own view of man was no doubt more subtle than Helvétius's, but it was certainly no less materialist and no less determinist, and if he found Helvétius's demonstration that judgement and will are merely forms of feeling simplistic, he none the less shared his conclusion that freedom was an illusion. The eponymous hero of Diderot's novel *Jacques le fataliste* (written during the 1770s), clearly here the author's mouthpiece, was convinced that all our behaviour is determined by a necessary (if immensely complicated) series of physical causes and effects. So that the will is the result of conditioning, nothing but 'the last result of everything one has been since birth up to the present moment of existence' ([9.5], 2:175). As Diderot had explained in 1756 in a

letter to the author Landois, 'the word "freedom" is devoid of meaning; there are no free beings, nor can there be'. If we acquire the illusion of freedom, it is partly because of the 'prodigious variety of our actions', but mainly because we are in fact conditioned by our experience to believe that we are free ([9.5], 19:435–6).

Because Diderot's materialist and determinist theories are often presented as tentative, and in the context of a debate, they contrive to appear less dogmatic and distinctly more subtle than those of some of his contemporaries. Yet they offer some striking similarities with the thought of d'Holbach, which is so lacking in subtlety that at least one modern historian of ideas has dismissed it as little more than crude anti-religious propaganda (Goyard-Fabre [9.21], 159). The two men were indeed close friends, and Diderot's correspondence bears witness to frequent lively discussions and arguments between them: there seems good reason to suppose both considerable mutual influence, and a greater identity of thought than is usually allowed.

The aggressively atheistic philosophy of Paul Thiry, Baron d'Holbach (1723–89), presented in a number of works but principally in the *Système de la Nature* (1770), is more comprehensive and more overt than that of either La Mettrie or Helvetius. He gives an unambiguous (if wordy and repetitive) account of a totally materialist position, an integrated 'system' in which all things, matter, the universe, man, society and government, form part of a cause-and-effect chain of necessity. D'Holbach's universe is, like Diderot's, an ever-changing one, with suns and planets continually dying and being born. It is composed of matter, which is eternal and eternally and necessarily in movement, behaving according to fixed laws, such as what d'Holbach calls 'conservation' (Newton's inertia), though he recognizes that not all these laws are yet understood. This is something he stresses repeatedly: everything that is and happens, is and happens necessarily, and if we see what appears to be evidence of chance, or still worse, of supernatural forces, it is because we do not understand the true links in the cause-effect chain—d'Holbach invokes the scientific explanations of the miracles and marvels of the past, such as earthquakes and meteors, and looks forward to a time when posterity will unravel still more of the secrets of nature.

Animate beings, since they are composed of matter, necessarily follow the same physical laws as the rest of the universe: plants and animals are made up of an aggregation of parts, held together by'attraction continuelle'. And since the moral is only a different way of considering the physical, man as a moral being, too, is subject to the same rule of necessity and follows the same laws of nature. D'Holbach is careful to point out, however, that when he speaks thus of 'laws of nature', it is no more than a convenient way of referring to the 'essence' of things, by which he means the necessary result of the properties they possess. It is of the essence of a stone to fall, and similarly, of the essence of a sentient being to seek pleasure and to avoid pain. The law of inertia or 'conservation' affecting all matter becomes self-preservation or self-love in man.

Anticipating Diderot's determinist Jacques, d'Holbach thus saw the life of a man as 'a long sequence of necessary and connected movements' ([9.10], 1:71), caused by his physiology and its interaction with his environment. All the intellectual 'faculties' are derived from the faculty of sentience, and d'Holbach's explanation of sentience is reminiscent of La Mettrie's: it is 'a consequence of the essence and properties of animate beings' just as gravity and magnetism are of other bodies, and no more (or less)

inexplicable ([9.10], 1:102). But like Diderot, he points to the ease with which inanimate matter such as milk and bread can become animate through the simple process of ingestion, and discusses the possibility that, as 'some philosophers think', sentience may be a universal quality of all matter, 'live' or 'inert' as the case may be ([9.10], 1:104).

D'Holbach uses the same analogy as Diderot of the spider in its web to explain how the brain acts as the co-ordinator of sense data from different parts of the body, at the same time denying that it has any autonomous activity. Even more than Diderot, and recalling rather Helvetius and La Mettrie, he emphasizes the physicality of the so-called soul, demonstrating that thinking and even willing are only forms of feeling, automatic despite all appearances to the contrary. To will is to be disposed to action: thus, 'the sight of fruit on a tree modifies my brain in such a way that it causes my arm to move to pick the fruit' ([9.10], 1:115).

D'Holbach, however, was just as aware as Diderot of the implications for morality of the denial of human freedom, and it is in truth misleading in both their cases to consider their scientific materialism and determinism separately from their moral and political thought. However great the interest of both these thinkers in science, their principal preoccupations were with man as a moral and social being, and this, rather than on scientific grounds, was why they were hostile to Christianity. Both of them saw Christianity as fundamentally anti-human and therefore as a force for social evil, and their materialist-based atheism was as much a consequence of this hostility as a cause of it. The priorities shared by Diderot and d'Holbach were in fact characteristic of the French Enlightenment in general. The move towards a greater understanding of the universe triggered by the discoveries of Newton, the development of a scientific approach to the understanding of human psychology stemming mainly from Locke, the enormous strides that were being made in the understanding of the animal world due to the work of Buffon and other contemporary naturalists and scientists, all this led to a new and exciting vision of the world, in which authority (especially that of religion) no longer held sway and every territory was available for exploration. But once the old certainties were dethroned, frightening possibilities were laid bare, and to thinkers who were above all anthropocentric in their concerns, it might well seem that there were far more pressing matters to be examined than, for example, the structure of the universe, the differences between animate and inanimate matter, or even the origin of life. It had become essential to re-examine the very fundamentals of human life, the nature of morality and the rules governing human behaviour and social organization, and it is to the discussion of these that the next chapter is principally devoted.

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CHAPTER 10
The French Enlightenment II: deism, morality and politics

Peter Jimack

One of the most striking features of the French Enlightenment was its hostility to Christianity, especially as represented by the Catholic Church, a hostility which went far beyond the mere loss of faith produced by the scientific and philosophical developments discussed in the previous chapter. To some extent it was on social and humanitarian grounds. First and foremost, the principle of religious intolerance and the practice of imprisoning or even burning dissidents were abhorrent to most Enlightenment thinkers. Many, too, condemned the Church for its vast wealth and the financial privileges it enjoyed, at the same time as it damaged the country's economy by removing so many men from the workforce, and even (at a time when population was perceived as a measure of prosperity) by preventing them from having children. There were even those like d'Holbach (1723–89), who, in works such as *La Contagion sacrée* (1768), anticipated the Marxist view of religion in seeing the Church as having always been in league with oppressive rulers to help keep the people in a state of submission. Some of these criticisms were no doubt unfair, and related more to excesses and abuses than to the essence of Christianity. But excesses and abuses aside, it may be argued that the Church stood for everything the Enlightenment was struggling to liberate itself from. The Church represented authority and restriction; it expounded a doctrine that could not be questioned, it told men what to believe and imposed on them a fixed view of the world and of their role in it. Whereas Enlightenment thinkers enthusiastically sought knowledge and gloried in the achievements and capacities of man, Christian morality was based on the original sin of tasting the fruit of the tree of knowledge, condemned the sin of pride and appeared to deplore most of man's natural inclinations.

It must not be forgotten, however, that rejection of Christianity did not necessarily mean rejection of God. While it is true that some of the more daring eighteenth-century thinkers saw atheist-materialism as the inevitable consequence of the new scientific thinking, the two great predecessors of the Enlightenment, Newton and Locke, had been able to reconcile their scientific and philosophical convictions with belief in God, and it was this kind of deism which seemed to most Enlightenment intellectuals to offer an acceptable compromise between the narrow authoritarianism of the Christian Church and the extreme of atheist materialism.

There were of course various deistic positions, ranging from the belief in a remote God who created the universe but is totally unconcerned with man, to a providential and personal God, such as Jean-Jacques Rousseau's, very closely modelled on the God of Christianity. Rousseau (1712–78) indeed claimed he was a Christian. He accepted the

sensationalist view of man, but was very conscious of the dangers of atheism and materialism, and saw himself as defending Christianity against the materialists; in the event, he managed to achieve the unique distinction of incurring the hostility of both Church and *philosophes*. The particular characteristic of his religion—expounded in the 'Profession de foi du vicaire savoyard', part of his work on education, *Emile,*—was the emphasis he placed on 'conscience', a divinely inspired interior voice in every individual which obviated the need for a church and its priests. In fact, Rousseau's religion became immensely popular: his trust in conscience, his scepticism about miracles, his admiration for Christ combined with hesitation about his divinity, such views made it particularly attractive to Christians who had become converts to the anthropocentric rationalism of the Enlightenment.

But the best representative of what one might call standard eighteenth-century deism is Voltaire (1694–1778), who was in many respects the dominant personality of the French Enlightenment, even if he was not a particularly original thinker. Voltaire, as we saw in the last chapter, kept abreast of developments in science, and was largely responsible for the popularizing in France of the thought of Newton and of Locke. But he took from them selectively, and in particular, if he welcomed Newton's defence of the existence of God, at the same time he played down his tendency towards a certain mysticism. For this was Voltaire's own position: despite a number of fluctuations in his thought, he maintained a firmly deistic stance, deeply opposed to atheism and materialism, while at the same time hostile to Christianity and largely impatient with metaphysics and any form of mysticism—so much so that critics have occasionally seen him (wrongly in my view) as a crypto-atheist.

Shortly after he returned from exile in England, in 1734, Voltaire began to set down in one of his few theoretical works, the *Traité de métaphysique,* his views on a range of philosophical topics, starting with the demonstration of the existence of God. The first of his two proofs was the watchmaker argument, which had been used by Newton: if a watch implies the existence of a watchmaker, the manifest order of the universe surely implies an intelligent creator; and if we accept that the hands of the watch have been constructed to show the time, it is reasonable to accept that the eyes, for example, have been designed by the intelligent creator for seeing. Voltaire's second proof was the first cause argument: I exist, therefore something exists, therefore something has always existed; for either what exists is necessary and eternal, in which case it is God, or its being has been communicated to it by something else, to which the same argument applies. Since the material world is manifestly neither eternal nor unchanging, it is not necessary by itself but contingent, and must owe its existence to a being which *is* necessary, i.e. God. Similarly, movement, thought and feeling must all have been communicated to matter by God.

Despite the apparent rigour of this argument, Voltaire was clearly much more attracted by his first proof, based on the marvellous order of the universe and the plausibility of final causes. He was not alone. It might be seen as paradoxical that the great strides that were being made in the natural sciences during the eighteenth century, while they contributed on the one hand to the undermining of theological explanations of the universe, at the same time generated an often mystical awe before the wonders of nature. Even more perhaps than the Newtonian order of the universe, it was the other end of the

scale—the study of maggots, worms, insects—that seemed to reveal the admirable wisdom and ingenuity of God. The distinguished physicist and entomologist Réaumur (1683–1757), for example, especially in his *Mémoires pour servir à l'histoire des insectes* (1734–42), saw the organization and behaviour of insects as nothing short of miraculous, leading inescapably to admiration for their creator. Even Diderot was at first greatly attracted by this kind of argument, suggesting in the *Pensées philosophiques* ([10.3]) that the mere wing of a butterfly, let alone the whole universe, surely offers compelling evidence of an intelligent creator—though, as we saw in the last chapter, he soon abandoned it in favour of the creation by chance theory.

Voltaire was particularly attached to the final cause argument as compelling evidence of the existence of a beneficent God (though it may be that it was a prior conviction that God was beneficent that made final causes seem so plausible). He recognized that the argument was not logically conclusive, it is true, but he saw it as providing a high indication of probability, constituting an appeal to common sense which it was only reasonable to accept—an approach to philosophy which he particularly favoured. To the objection that there is no proof, for instance, that stomachs are made for digesting, he retorted in the *Traité de métaphysique* that there is certainly no proof that they are not, and that common sense would surely suggest that they are.

In short, in the *Traité* and other works of the same period, Voltaire pictured a universe created by a God who was, if not concerned solely for the welfare of the human race, at least benevolently disposed towards it along with the rest of his creation. As a corollary, too, this deist God had endowed all men with both an awareness of moral good and a disposition to act in accordance with it. Concern for morality had in fact been a central feature of Voltaire's deism from the first, and belief in a universal innate moral sense, consisting of an injunction to obey an absolute 'natural law', was an article of faith to which he clung determinedly. In the face of a considerable body of apparent evidence to the contrary, he wriggled uncomfortably and unconvincingly: anthropological evidence of cannibalism, for instance, was explained away, and if in some tribes people ate their parents, it was no doubt to save them from being eaten by their enemies, or just a way (admittedly misguided) of honouring them. As for all the criminals in history, they were all secretly unhappy.

But then, however, Voltaire's faith in a benevolent God concerned with man and in the efficacity of a universal moral sense began to crumble, a development which was revealed particularly in a group of so-called 'philosophic tales' written from 1747 onwards. In *Micromégas* ([10.16]), for example, a gigantic traveller from the star Sirius is used as a vehicle for mocking the pretensions of the tiny inhabitants of this tiny planet, who wildly exaggerate their own importance in the universe. More frequently, however, this detachment was replaced by an expression of what sounds like Voltaire's disappointment at the fact that God was less concerned with man, and man less inclined to be good, than he had previously believed.

The Lisbon earthquake disaster in 1755, in which tens of thousands of people were killed, finally dealt a crucial blow to Voltaire's belief in the perfect order of the universe, or at least confirmed his suspicions that the order that existed was neither relative nor relevant to man; and the outbreak of the Seven Years War the following year undermined still further his faith in a God-given universal moral sense. His most famous work,

Candide (1759) ([10.16]), is the embodiment of this revised philosophical position. Conceived ostensibly as an attack on Leibnizian Optimism (though directed in practice rather at the popularized version of it in Pope's *Essay on Man* (1733–4)), it proceeds by ridicule rather than refutation, continually mocking the doctrine of 'the best of all possible worlds' as it is taught by Candide's tutor Pangloss, who is a disciple of Leibniz, and not only stupid, but too obstinate to admit that he is wrong about the best of all possible worlds, even when the grotesque disasters that befall him make him realize he is. Beneath the savage humour, however, Voltaire is making the serious point, consistent with the ideological approach of the Enlightenment, that experience should take precedence over metaphysics, and that experience of this world soon demonstrates that it is not the best of all possible worlds. We witness earthquake, war, rape, murder, and all kinds of brutality, ample evidence of an uncaring God and of the apparent absence, in many men at least, of any moral sense.

Of course, the fact that everyone is not happy in the real world and that Candide and his friends suffer dreadful misfortunes in no way impinges on Leibniz's principle of Optimism, or even, as Voltaire knew full well, on the notion that the universe as a whole is harmonious and ordered. But again adopting a standpoint characteristic of the Enlightenment, he is protesting that he is concerned with man rather than the universe; the benevolent God who is concerned with the universe rather than man is as irrelevant to man as man is to him. The point is made succinctly in the final chapter of *Candide* when the travellers go to consult a Turkish sage: in answer to their question about the existence of evil in the world, he asks them whether, when the King sends a ship on a voyage, he is worried about the mice in the hold.

But this affirmation of man's insignificance in the eyes of God was by no means Voltaire's last word on the subject. It was difficult to use such a remote God as the foundation for a moral code which would fill the gap created by the rejection of Christianity, and Voltaire was becoming increasingly worried by the spread of atheism and materialism among the *philosophes,* and the dangerous moral consequences that would ensue if the loss of religion became more widespread. It seems likely that it was principally this preoccupation with morality that prompted him after *Candide* to return pragmatically to the God intimately concerned with man he had depicted in his earlier works, and even to the doctrine of final causes, which he had particularly ridiculed in *Candide,* and which amounted to saying that the world was arranged by God specifically for the convenience of man. In works such as *Des Singularités de la Nature* (1768) ([10.16]), totally resisting the current of evolutionary ideas that were beginning to be voiced and staying closer to Linnaeus than to Buffon, he expressed his conviction that there had been a once-and-for-all creation in which all things had been given their allotted place and purpose: just as the organs of the body had obvious functions, so too the mountains and the rivers (providing drinking water) were also evidence of divine providence. In return for this benevolence, God required obedience to the uncomplicated moral law of 'Worship me and be good', and rewarded and punished accordingly. Voltaire seemed to be convinced that without belief in this kind of punitive God, the moral order of society was gravely threatened. In short, 'If God did not exist, he would have to be invented' ([10.16], 10:403). Voltaire's fear of the disastrous moral consequences of atheism was summed up with a wit that should not be mistaken for

levity: ‘I want my lawyer, my tailor, my servants, even my wife to believe in God, and I suspect I shall thus be less robbed and less cuckolded’ (*L’ABC,* [10.16], 27:399–400).

Voltaire’s assumption that atheists were more likely to be wicked than believers may not have had any empirical basis, but it was a deeply-held and widely-shared prejudice—despite Bayle’s demonstration as long ago as 1682 that it was without foundation. And the theoretical moral implications of atheist-materialism did indeed seem to be disturbing. More than anyone else, it was Diderot who, explicitly and repeatedly, spelled out these implications. As we saw in the last chapter, despite his reservations about Helvetius’s view of man, he did not demur from his conclusion that moral freedom is an illusion. And if this is the case, man cannot be held responsible for his actions: ‘if there is no freedom, there are no actions which deserve praise or blame. There is neither vice nor virtue, nothing which calls for reward or punishment’ (letter to Landois, [10.3], 19:436). The wicked man cannot be blamed for his wickedness, which is a determined characteristic like any other, the result of physical organization and environmental conditioning. The point is made with forceful clarity in an unsigned addition to the *Encyclopédie* article ‘Vice’, most probably by Diderot: ‘Can a man help being pusillanimous, voluptuous, or just irascible, any more than squint-eyed, hunch-backed or lame?’.

It was the awareness of this apparent moral abyss which had initially deterred Diderot from wholeheartedly accepting the atheist materialism to which he was intellectually attracted, and which later led him to refrain from publishing his more daring works (such as the *Rêve de d’Alembert*). He illustrated the problem graphically in an incident in the allegorical *Promenade du sceptique* ([10.3]), written in 1747; Athéos, an atheist philosopher, and a man of virtue, convinces the symbolically blindfolded Christian of the error of his beliefs, and as a result the Christian throws off all moral restraint along with his blindfold, burns down Athéos’s house and steals his wife. The anxiety manifested in this little story is not dissimilar from Voltaire’s, and was probably shared by most of the *philosophes*. But the very expression of the anxiety paradoxically revealed their own attitude to virtue: it went without saying that they shared the same moral standpoint, that philosophers were virtuous, and that their atheism and materialism had not made them socially destructive. The problem was, then, other people: what would happen if those who were not philosophers should become converted to atheism?

In fact, the Enlightenment view of man was an ambiguous one. Although Rousseau might be described as a kind of Enlightenment maverick, his philosophy was in this respect a distilled and emphatic version of that of most of his contemporaries: when he said that man was naturally good, he was referring to the essence of man, or to a primitive, pre-social man, long since vanished; as for actual existing men, that was a very different matter, as he felt he had all too good reason to know, and much of his work is devoted to analysing the unhappiness and corruption of the members of a modern society. Whatever other thinkers thought about the essence of man, they mostly seemed to agree that men in practice were inclined to be bad, in the sense of anti-social, or at least that a sufficient proportion of them were to constitute a moral and social problem. On the other hand, if Enlightenment thinkers attached so much importance to the liberation of man from the oppression of Christianity and the doctrine of Original Sin, it was because one of their fundamental principles was the right of man to happiness—Diderot indeed went so far as to say: ‘There is only one duty, and that is to be happy’ ([10.4], 320). Which was

implicitly to approve of the self-interested behaviour identified by the materialist analysis of man. What had to be demonstrated was that self-interest was not necessarily anti-social.

One approach was simply to claim that man was so constituted that he was *naturally* virtuous, in the sense of benevolently disposed towards his fellow men (or 'bienfaisant', as Diderot preferred to call it). In other words that self-interest led men, more or less automatically, to behave virtuously. This was in fact the thesis put forward in *L'Homme machine* (1748) by Julien Offroy de la Mettrie (1709–51): if he saw man as a machine, it was a very sophisticated machine, with a built-in moral sense and capacity for remorse, so that wrong-doers suffer as automatically as they do wrong. Remorse and conscience are, like thought, attributes of matter, and we distinguish good from evil as mechanically as we distinguish blue from yellow. La Mettrie's well-intentioned attempt to resolve the problem was decidedly simplistic—one might have answered him that there seemed to be a great many faulty machines on the market—but rejection of the doctrine of Original Sin and its repressive consequences led most materialists to express views which were not fundamentally very different. Diderot continued throughout his life to reiterate the view he had expressed so baldly at the very beginning of his career, that 'without virtue there is no happiness', even though at the same time he accepted, realistically if regretfully, that he was speaking only for a portion of the human race. Arguing that the terms 'virtuous' and 'wicked', which imply moral responsibility, should be discarded, he classified people into two categories, the 'fortunate by birth' ('heureusement nés') and the 'unfortu-nate by birth' ('malheureusement nés'). Whether one was constitutionally disposed to behave helpfully or harmfully to society was all a matter of chance.

But this was clearly an unsatisfactory position, and Diderot continued to cling to the conviction that the 'heureusement nés' were the norm, even though they might not be in the majority, and that the 'malheureusement nés' were in some way deficient—which was not very different from Rousseau's belief that man was 'naturally good'. In practice, along with most of the other *philosophes,* although he demonstrated that people's moral standards were acquired from experience rather than absolute, Diderot clearly believed in the existence of certain fundamental absolute moral criteria—very much like the universal morality which deists like Voltaire saw as coming from God. In reply to Helvetius, one of the few who steadfastly maintained that absolute justice and injustice do not exist, he asserted that the author of *De l'esprit* would have realized his mistake if he had paid more attention to the nature of man, and reflected that 'anywhere in the world, he who gives something to drink to the man who is thirsty, and something to eat to the man who is hungry, that man is good' ([10.3], 2:270). Such absolute moral criteria were determined by 'the laws of nature'; for, as Diderot wrote in his *Entretien d'un père,* 'nature has made good laws since the beginning of time' ([10.3], 5:297). He and the other *philosophes* were very much given to attributing a will and intentions to nature in this way. To some extent, no doubt, it was no more than a linguistic convention, a convenient way of talking about the evolution of the material world; but it frequently verged on a quasi-mystical divinization of nature, which atheists like Diderot sometimes seemed to seize on as a replacement for the God they had dispensed with.

However, the belief in some kind of absolute and universal code of morality still left unexplained the existence of so many who appeared to remain insensitive to it, the

'malheureusement nés'. Diderot tended to see the attractiveness of virtue as a kind of aesthetic truth, accessible only to those who had appropriate taste. In a letter to Voltaire, he explained that atheists 'could not, if they had good taste, put up with a bad book, nor listen patiently to a bad concert, nor tolerate on their wall a bad picture, nor commit a bad action' ([10.5], 1:78). So that those who were capable of bad actions were lacking in 'normal' aesthetic sensitivity. Just such a one was Rameau, the materialist protagonist in Diderot's brilliant dialogue *Le Neveu de Rameau,* and his interlocutor, the virtuous philosopher T, asks him how it is that despite his great sensitivity to 'the beauties of the art of music', he should be 'so blind to the beauties of morality, so insensitive to the charms of virtue' ([10.3], 5:468). (Rameau replies, of course, that it is all the result of environmental conditioning, heredity and physical constitution.)

D'Holbach too saw it as a question of moral blindness. For him, the virtuous man has the inestimable reward of self-esteem, as he surveys his actions with the same pleasure that others would feel 'if they were not blinded' ([10.8], 1:321). But such explanations seem if anything to make the problem even more irreducible, for how can the morally blind be made to see? Fortunately, Diderot and d'Holbach both believed that virtuous behaviour brought with it advantages that could be perceived even by those who where not naturally inclined to love it—and it must be emphasized that it was behaviour rather than motivation that they were concerned with. In his letter to Landois, the very one in which he described so vividly the moral implications of materialism, Diderot claimed that wicked actions never go unpunished, because they lead inevitably to 'the contempt of one's fellow-men', and that is 'the greatest of all evils' ([10.3], 19:435). The importance of the respect of other people was a point he came back to repeatedly, and he clearly believed that their disapproval was a deterrent to which all men were susceptible. D'Holbach's view was much the same. Because his actions are seen as despicable by his fellow-men, or would be if they were known to them, the wicked man is always in his heart ashamed and unhappy, however great the material advantages of his wickedness ([10.8], 1:235–6). Conversely, the man who habitually behaves virtuously is motivated by the desire for the esteem of others, and for the consequent pleasure of self-esteem; but the force of habit becomes so strong that self-esteem alone will suffice to deter him from wicked actions, even if he could be sure of their remaining hidden, just as the person who has acquired the habit of cleanliness hates getting dirty (the choice of analogy speaks for itself ([10.8], 1:313–14).

So that the wicked man is indeed blind, not just to the beauty of virtue, but to his own true interest; which is why we should pity him rather than blame him: 'You pity a blind man; and what is a wicked man if not someone who has short sight and cannot see beyond the present moment?' (*Encyclopédie* article 'Vice'). But if he remains resolutely blind despite the experience which should have opened his eyes, what is to be done? The answer is obviously that he must be modified. Now this pragmatic solution had a sound philosophical basis. If, as the materialists argued, man's behaviour is no more than the product of his physical organization and environmental conditioning, then it is clearly possible to modify it by modifying the conditioning. In the discussion of the subject in his humorous novel *Jacques le fataliste,* Diderot explains that Jacques 'became angry with the unjust man; and when you objected to him that he was behaving like the dog who bites the stone that has hit him, he would reply: '"Not so, the stone bitten by the dog

will not change its ways; the unjust man will be modified by the stick"' ([10.3], 6:181).

No doubt the stick was the most obvious way of modifying men's behaviour. Although the *philosophes* all criticized the repressive nature of the society they lived in, they nevertheless recognized that even a just society would need punishments for the anti-social citizen. But it was consistent with their humanitarian attitude that they should put far more emphasis on methods other than the stick of modifying men's behaviour. It was the human environment that was crucial. Rameau's nephew, in Diderot's work, suggests that one of the reasons why he is good at music but bad at morality may be that he has 'always lived among good musicians and wicked people' ([10.3], 5:468). The materialists all emphasized that habit was supremely important in human development. 'Nature', said Helvétius (1715–71), 'is nothing other than our first habit', and he reminded his readers that if they are horrified by the Romans' enjoyment of gladiatorial combats, it is only as a result of their different upbringing, and that if they had been born in Rome, 'habit' would no doubt have made them find the same spectacle agreeable ([10.7], 191). It was then upbringing and education that, by inculcating habits, provided the principal means of modifying human behaviour.

But it did not need Helvétius' materialism to convince people of the importance of education and of the need to reform current practice. From the middle of the century onwards, in fact, discussion of the subject was very much in vogue, and it was a few years after *De l'esprit,* in 1762, that there appeared one of the most important works in the history of educational thought, Rousseau's *Emile ou de l'éducation*. In many ways, *Emile* reflected the prevailing currents of Enlightenment thought. Rousseau's enthusiasm for the goodness of nature was in general shared by most of the *philosophes,* despite their many ambiguities on the subject, and although the work was theoretically based on the natural goodness of man, he used this proposition as a way of demonstrating that education should consist above all in protecting the child from the corrupting influences of society—corresponding in practice to the programme suggested by Helvetius and d'Holbach. Rousseau accepted fully a sensationalism very close to Condillac's (though he explicitly refuted the extreme position adopted by Helvetius), and the education of the young child reflected this, with much emphasis being laid on the development of each of the five senses, and especially on the relationship between sight and touch, in a manner very reminiscent of the *Traité des sensations* (see above, Chapter 9, pp. 239–40). In one important respect, however, *Emile* diverged from the thought of the other *philosophes:* much as he admired the virtuous citizens of ancient Greece and Rome, Rousseau declared at the outset that such an ideal was impossible to recreate in a corrupt modern society, and the aim of the work was the formation of an independent, self-sufficient individual rather than a citizen who functioned primarily as a constituent part of a social whole.

But the reform of education, precisely because it accepted the structures of society as it then existed, was necessarily limited. The idea that man in contemporary society was *necessarily* corrupt was frequently expressed by the *philosophes:* Rousseau had demonstrated it in his *Discourse on inequality* in 1755, and when thinkers such as Diderot and d'Holbach attacked social and political injustice, they tended to adopt the same position, though in their case it was probably more of a polemical device than a deeply held conviction. But even if they held less extreme views than Rousseau on the subject, they shared his view about the urgent need for political reform, without which

educational reform might seem to be little more than a palliative; Helvetius for example asserted that the two were so closely linked that it might well be impossible to make major changes in education without making corresponding changes 'in the very structure of states' ([10.7], 492).

Political thought is fundamentally different from what one is tempted to call 'pure philosophy' in that it is rarely if ever concerned principally with the objective quest for truth (even when it purports to be), and is always dominated by a response to actual contemporary conditions. In the case of the *philosophes,* this response was, it is true, determined by certain humanitarian convictions, the right to happiness, usually seen as inseparable from freedom (variously defined, as we shall see), equality before the law, and so on, all arguably following logically from their moral anthropocentrism. At the same time, however, their political thought was first and foremost shaped by the abuses of the *ancien régime,* the manifest injustice of the extremes of wealth and poverty, the existence of privilege, inequality before the law, religious intolerance…, and in some cases, the consciousness of the urgent need for practical reform took precedence over theoretical considerations about the nature of government and the structure of society.

It was above all Voltaire who came into this last category. He made virtually no attempt to systematize his political thought, which consisted largely of a series of pragmatic reactions to specific social problems. He shared the other *philosophes*' humanitarian convictions about human rights, and hated injustice, oppression and intolerance; but his principles were always tempered by a sense of realism, even expediency. Early in his career, largely due to his exile in England following a quarrel with a powerful nobleman, he conceived great enthusiasm for the English system of constitutional monarchy (somewhat idealized). But when it came to the actual situation in France, he firmly supported an absolute monarchy, even though he recognized the risk of absolutism degenerating into despotism. For the only intermediate powers between King and people were the clergy, the aristocracy, and the Parlements (regional high courts with considerable powers, including the right to block legislation), all of which Voltaire saw as defending sectional interests and the abuse of privilege. His ideal was a strong enlightened monarch, but given the actual problems of government, the strength was perhaps more important than the enlightenment. In the conflict between the throne and the Parlements which dominated the latter years of the *ancien régime,* Voltaire was emphatically on the side of the throne, which he continued to see as offering the best chance both of initiating reform and of averting revolution.

It is true that Voltaire's very real sympathy for the sufferings of an oppressed people was always accompanied by the fear of popular disorder, and ultimately revolution, which underlay his desire for strong government as much as did his desire for reform—paralleling his belief in the need for a policeman god to discourage his tailor from robbing him. But behind his anxiety about disorder—shared by practically all the *philosophes*—his works reveal a fundamental desire to preserve existing social institutions, suitably reformed. He advocated religious toleration, freedom of the press, and the reform of criminal law, but the main burden of his political thought was the defence of the freedom and rights of the middle classes, inseparable from the protection of their property. Certainly he believed in kindness to the poor, but if he advocated equality before the law, he was not keen on too much social equality. Society could not

exist, he argued in his *Dictionnaire philosophique* (article 'Egalité'), without 'a vast number of useful men who have no possessions at all' ([10.16], 18:476), for who would till our fields and make our shoes if there were no poor? Fortunately most of the poor are too busy working to notice their plight, though when they do, this just leads to wars which they inevitably lose, ending up in a worse state than before. Nevertheless, one must bear in mind the essentially pragmatic nature of Voltaire's thought and the practical limitations of contemporary society, and it could well be argued that his vigorous protests against oppression, his realism and his concentration on practical issues did more for suffering humanity, even in the long term, than the Utopian schemes of some of his contemporaries.

The most important work on political science in the eighteenth century was surely *De L'esprit des lois,* published in 1748, by Charles de Secondat, Baron de Montesquieu (1689–1755). Although Montesquieu's thought was no doubt triggered by the consciousness of contemporary problems, which he saw as largely the legacy of the arbitrary government of Louis XIV, he went further than anyone else in the century towards establishing a theoretical basis for the subject. Although he dismissed as absurd the notion that the world could have been produced by 'a blind fatality', seeing it as self-evident that intelligent beings must have been created by an intelligent God, his approach was in other respects very similar to that of the scientific materialists who sought to discover the underlying laws governing the behaviour of matter—indeed he also rejects as absurd the possibility of God operating on the world other than through these invariable laws. While recognizing that 'the intelligent world' was much less well governed than the physical world, Montesquieu believed nevertheless that it too had its underlying laws (Diderot's 'laws of nature'), preceding all laws made by men: with rather dubious logic, he argued that just as the radii of a circle were all equal before anyone had ever drawn a circle, so the notions of just and unjust (and by implication the obligation to behave justly) existed independently of any man-made laws.

Rejecting Hobbes's view of a wolf-man in a state of war, Montesquieu argued that primitive man would have been characterized by the consciousness of his weakness rather than by feelings of aggression, and he imagined the origin of society as lying in a natural sociability. But once societies had been formed, positive laws were needed to embody and supplement the fundamental laws, and these positive laws had to vary with the enormous variety of local circumstances. They must be appropriate to differences in climate and soil, in the situation and size of societies, in the way of life of peoples, their religion, their temperament, traditions, and so forth. It was the relationships between laws and all these different factors that Montesquieu proposed to study in the *Esprit des Lois*.

There were, he observed, three forms of government, the republican, subdivided into democratic and aristocratic, the monarchic and the despotic, each with their distinct characteristics and guiding principles. He gave despotism, which he saw as based on fear, very short shrift, whereas, sharing as he did in the general Enlightenment enthusiasm for ancient Greece and Rome, he found much to admire in the republic, particularly in its democratic form. The guiding principle of the republic was virtue, which Montesquieu defined as love of the law, involving a preference for the public interest over private interest.

But his admiration for the democratic republic was very theoretical, and he saw it as

extraordinarily difficult to realize, even in the very small states to which alone it was suited. In practice, his clear preference was for monarchy, which has no need for virtue in the above sense, being based instead solely on 'honour', in other words on the pursuit of personal ambition and the desire for distinction, both natural traits. Love of the 'patrie' and self-sacrifice are simply replaced by laws, so that 'each person works for the common good, believing he works for his individual interests' (III, 7, [10.11], 27). When he visited England in 1729–30, Montesquieu had discovered what he saw as the ideal constitutional monarchy, based on the separation of legislative, executive and judicial powers, and this separation of powers was to become the guiding principle of his own proposed scheme of government. His criterion was political liberty (in contrast to the equality which characterized democracies): but since 'any man who has power is led to abuse it' (XI, 4, [10.11], 155), the only way political liberty can be safeguarded is by a system of checks and balances, based on the separation of powers.

Montesquieu's political thought has been described as a mixture of Cartesianism and empiricism. Certainly it contained a number of a priori elements, and proposed a mechanistic model of society, in which he seemed to have made the mistake of applying to human behaviour the invariability of cause-effect relationships characteristic of the material world, though in this he could be said to be closer to Condillac and Helvetius than to Descartes. Montesquieu's great importance and originality, however did not lie in the model of government he proposed, but rather in his empirical, analytical approach to the subject. No doubt he was given to unwise generalizations and over-simplifications about the effect of climate and soil, etc., but in recognizing the relativity of truths about human nature, and in trying to discover the various laws determining the formation, structure and functioning of different kinds of society by observing and analysing actual societies (despite the inadequacies of his historical and anthropological knowledge), he was putting politics on a modern scientific footing and virtually creating sociology.

It is true that, politically speaking, Montesquieu defended the privileges of the aristocracy and his system of checks and balances seemed to produce an equilibrium which was essentially static, militating against any kind of change. But as far as France was concerned, this model represented for him a vast improvement over the degenerate government of Louis XV, and he certainly shared the humanitarian hostility of the *philosophes* to injustice and oppression. He fiercely attacked despotism and even more slavery, especially of the blacks: how can we believe that 'god, who is a very wise being, should have put a soul, above all a good soul, in a body that was entirely black'?, he asked ironically (XV, 5, [10.11], 250). And he did believe in the possibility of progress and reform, in the ability of a good government to modify its citizens. When he described the effects on men of different climates, for example, his attitude was far from passive: if the effects were bad (when, for instance, an extreme climate led men to be lazy or women immodest!), it was up to the legislator to correct them. 'Bad legislators', he wrote, 'are those who have favoured the vices of the climate and good ones are those who have opposed them' (XIV, 5, [10.11], 236).

The influence of *De l'Esprit des Lois* on Montesquieu's contemporaries seems to have been immediate, widespread and very selective. While the *philosophes* welcomed his scientific approach to politics, they tended to reject precisely the innovative political sociology, based on relativism and the introduction of variables. Human nature for

Condillac, Helvetius and even for the more subtle Diderot, had fixed characteristics (always and everywhere the same needs and desires) and was thus modifiable in an entirely predictable way: a given cause would always produce a given effect. So politics became a simple extrapolation from scientific psychology: all the legislator had to do was construct society in accordance with human nature. Now if Virtue', in the form of a preference for the general good over personal good, is indeed natural, as Diderot, for example, sometimes claimed, this will present no problem. The real difficulty for the organization of society is the existence of the morally blind or defective citizens, and the solution, as with personal morality, is provided by the modifiability of man inherent in sensationalist psychology.

Civic virtue can of course be stimulated by the same means used to encourage virtuous behaviour at the personal level, and especially by the formation of good habits by education. The point was made repeatedly by Helvétius, as well as by d'Holbach, for whom education was the principal way of 'giving to the soul habits which are advantageous for the individual and for society' ([10.8], 1:287). And Morelly, in his utopian *Code de la Nature,* saw moral transformation by education as a prerequisite for the creation of the ideal society.

But even without moral transformation, there are qualities in men condemned by conventional (Christian) morality, which, properly used, can be socially constructive. Instead of trying to suppress human passions such as ambition and the desire for wealth, said d'Holbach, society (as in Montesquieu's ideal monarchy) should make the most of them and turn them to its advantage ([10.8], 1:147); and in the *Supplément au Voyage de Bougainville,* Diderot showed that the sexual drive, far from being anti-social, made an invaluable contribution to society if, as was then generally believed, prosperity was dependent on population size. In any case, people will behave virtuously if they can see that it is in their own interests. So society, by using the carrot rather than the stick, should make it worth people's while to behave virtuously. The trick, as Diderot pointed out in one of his dialogues, is to construct society in such a way that 'the good of individuals is so closely linked to the general good, that it is almost impossible for a citizen to harm society without harming himself ([10.3], 2:517). D'Holbach too stressed that in the well-governed society, each citizen would be convinced that the 'well-being of the parts could result only from the well-being of the body as a whole' ([10.8], 1:319). And Helvétius also had made much the same point. A recurrent theme in *De l'esprit* had been that 'the virtues and vices of a people are always a necessary effect of its legislation' ([10.7], 325): Helvetius quoted many examples to demonstrate that the extraordinary incidences of civic virtue in the history of Ancient Rome and Sparta were the result of 'the skill with which the legislators of these nations had linked individual interest to the public interest' ([10.7], 324). Indeed, it was precisely the absence of such a link in the modern state (in other words France) which caused the alienation of modern man vividly described by d'Holbach, a man who had no feeling of involvement in the society in which he lived, and who, in the words of both Diderot and Rousseau, was 'neither man nor citizen'.

As for the actual political structure of society, the confidently rationalist approach of the *philosophes,* tending to make them see truth as absolute and indivisible, led them to reject Montesquieu's checks and balances and to see an absolute indivisible monarchy as

the only logical ideal; intermediate bodies, they argued, would represent sectional interests, which might well differ considerably from the interest of the community as a whole. The intellectual objectivity of this theoretical analysis might, however, be seen as highly suspect, given that it coincided conveniently with the view that the *philosophes* shared with Voltaire that the principal source of injustice and oppression in France was the abuse of power and privilege on the part of the Church, the aristocracy and the Parlements. Diderot, in the *Encyclopédie,* and d'Holbach both maintained that sovereignty belonged to the people as a whole, and was entrusted by them to a ruler by a kind of contract, explicit or tacit; sovereignty acquired without the consent of the people was merely a usurpation, which would last only as long as the superiority of strength which initiated it. Furthermore, the two *philosophes* argued, the consent could never be unconditional: the object of government could only be the well-being and happiness of the governed, and the use by a sovereign of the powers entrusted to him to make a people unhappy was, in Diderot's words, 'a manifest usurpation' (*Encyclopédie,* article 'Souverains'), or, as d'Holbach put it, 'nothing but banditry' ([10.8], 1:336).

But history convinced the *philosophes* that this, alas, was all too likely to happen, and that, to quote d'Holbach again, this time echoing Montesquieu, 'man is always tempted to abuse power' ([10.8], 1:145). Having rejected Montesquieu's solution of the separation of powers, they opted instead for assemblies representing the people to advise the monarch, since, as the *Encyclopédie* article 'Représentants' (by Diderot or possibly d'Holbach—scholarly opinion is divided) explained, this is the only way the good sovereign can be made aware of the needs of all his subjects. And to avoid the representatives themselves losing sight of their responsibilities, they would have to be regularly elected. But only by those subjects who own property: 'it is property which makes the citizen: every man who owns something in the State is interested in the good of the State'. Diderot, d'Holbach, Helvetius were all agreed that those who did not own property in a state could not possibly have a serious interest in its prosperity, and should not therefore have any say in its government, just as, conversely, one of the first responsibilities of a ruler or ruling body must be the safeguarding of private property. The general interest of a society lay for d'Holbach in the three advantages which just laws should guarantee for the majority of its citizens, liberty, property and security—and even the latter was defined as the right to protection by the laws of a law-abiding citizen's person and property.

Private property was also at the very centre of the system proposed by the physiocrats, a school of thinkers who had come together as a group by about 1760, and who saw economics as the key to politics. Like the *philosophes,* they believed that the organization of society was governed by the same kind of fixed 'natural' laws as the material world, but for them these laws related essentially to trade. The founder of the school, François Quesnay (1694–1774), himself a doctor, saw the circulation of wealth in society performing the same function as the circulation of blood in the body. Their system involved the simplest form of government, an absolute monarchy, and a minimum of laws: starting from the premise that agriculture, and thus ownership of land, constituted the original source of all wealth, their implicit optimism concerning human nature led them to believe that the complete freedom of trade would result in the self-regulating balance of supply and demand as men realized their interdependence, creating prosperity and happiness for all.

Rather than Quesnay, however, it was Anne-Robert-Jacques Turgot (1727–81), a distinguished civil-servant and subsequently statesman, who gave these ideas their most lucid expression, and whose version of them was the most perceptive. In a remarkable anticipation of both Adam Smith and Marx, as well as twentieth-century theories of entrepreneurial capitalism, his *Reflections on the Formation and the Distribution of Wealth* (written 1766–7) developed an economic system firmly based on an historical sociological analysis which showed that societies operated according to predictable laws of cause and effect. The economic cycle begins with the surplus produced by the 'Husband-man' 'over and above his personal needs' ([10.15], 122), and the continued cultivation of land, the industry and the commerce necessary for the health of a society all depend on the circulation of money, which occurs in various ways. And it was an essential feature of Turgot's system that the different uses of capital will tend 'naturally' to achieve the ideal equilibrium necessary for the maximum benefit to society, though this will only occur where trade is untrammeled by restrictive laws, especially in the form of taxes.

Turgot's belief that man is so constituted that society tends naturally to perfect itself was not confined to the sphere of economics. In his *Discourse On Universal History,* he showed how, driven to action and thus to progress by the passions, in other words the urge to satisfy needs, and passing through violent fluctuations in its fortunes, 'the human race as a whole has advanced ceasely towards its perfection' ([10.15], 72). It is true that he had rather more confidence than most of his contemporaries in a natural evolution of society towards something like perfection, though the *philosophes* in general were optimistic about the future of mankind. But the most systematic exponent of the perfectibility of human society was Antoine-Nicolas de Condorcet (1743–94), whose *Esquisse d'un tableau historique des progrès de l'esprit humain,* was written, ironically, while he was in hiding after his proscription by the Revolutionary government consequent on his own involvement in politics. The *Esquisse* divided the history of man into successive ages, revealing a story of continual progress achieved over the centuries despite an unending battle with the forces of reaction, represented mainly by the Church. But now, as scientific knowledge of man and the universe continued to increase, and as men became progressively more enlightened, Condorcet believed, with what now looks like touching simplicity, that the end of the battle was at last in sight. It would be achieved by a mixture of natural development and positive legislation. He accepted to some extent Turgot's vision of a self-regulating economic system based on free trade, but he also believed in the necessity of governmental intervention to protect the weak and the poor. In fact, the removal of social and even natural inequalities was central to his idea of progress: he attacked slavery, argued for the equality of women (very much an exception during the Revolutionary period), and above all advocated universal education, on which his ideas (free elementary education for both sexes, teaching children to think for themselves, the independence of teachers, etc.) were admirably enlightened even by late twentieth-century standards.

Whereas Condorcet thought optimistically that society was already well on the road to perfection, however, there were in the second half of the eighteenth century a number of egalitarian political thinkers whose utopias involved a far greater transformation of society (though not, usually, a violent one) than was to be brought about merely by the

French Revolution. The earliest and most interesting of these was Morelly (about whom virtually nothing is known), who envisaged in his *Code de la Nature* (1755) a gradual return, facilitated principally by a reform of moral education, to the ideal natural state in which men had been motivated solely by the benevolence produced in them by an awareness of mutual need. In modern society, 'natural probity' has become debased by the growth of avarice, man's one fundamental vice from which all others derived; and it was avarice that led to the existence of private property, which was, as Morelly emphasized throughout, the root of all social evil. In the ideal society, all land and all products of the land would remain common, all other goods would be distributed by laws according to need.

These principles were embodied in the 'Modèle de législation conforme aux intentions de la Nature' which concluded the *Code de la Nature*. Nothing would be sold or exchanged, but all produce would be taken to the Market Place, where people would simply take whatever they needed. All citizens would engage in agriculture from twenty to twenty-five; and all would marry as soon as they reached puberty, with celibacy permitted only after forty. There would be a minimum of penal laws, but life imprisonment would be the punishment for serious crimes such as murder, or any attempt to introduce 'la détestable propriété' ([10.12], 323).

The eccentric Benedictine, Dom Léger-Marie Deschamps (1716–74), whose ideas impressed both Diderot and Rousseau, also focussed on property as the source of all moral evils. In *Le Vrai Système,* written about 1770, he contrasted society as it is, which he described as the state of laws, based on property, with the utopian state of 'moeurs', the state of morality. In the absence of private property, all land, all women would belong to all (all men, too, though he makes less of this); even mothers and children would be common, with those women who were able to suckling any babies, or indeed any old men, 'who would grow strong and be rejuvenated from their milk' ([10.2], 171). In the state of 'moeurs', all would be equal and completely united, with the good of society as their only aim. Every factor in society causing differences between individuals would be suppressed: children would not be taught to read or write, all books would be burned, all works of art destroyed. Without desires or passions, through days that were always the same, people would live in total tranquillity, with no personal attachments, indifferent to death, never laughing or crying. The individual would become totally subsumed in the general, existing in a mystical state of harmonious oneness.

Now it was a characteristic of virtually all the political thinkers we have been discussing that they glossed over the conflict between the individual's natural desire for liberty and the political need for the individual to be subordinated to the state, by assuming that it was in some way natural for a naturally sociable man to prefer the general interest to his own, or at least that an enlightened reason would lead him to realize that his own interest was dependent on that of the state. Rousseau, whose political thought is discussed in detail elsewhere in this volume, was the exception in seeing natural man and social man or the citizen as diametrically opposed. In his *Second Discourse* (1755) Rousseau had argued that the origin of inequality among men, and thus of their corruption and unhappiness, had been the introduction of private property, which led to rivalry and the replacement of natural self-love *(amour de soi)* by self-preference *(amour-propre)*. But he always recognized that the state of primitive innocence was

irrecoverable, and postulated two alternative solutions to the woes of alienated modern man: one, the aim of *Emile,* was to attempt to create by education a modern version of natural man, adapted to live in society as it is; the other was a total reorganization of society, to create a democratic republic inspired principally by the city states of the ancient world, which he described in his *Social Contract* (1762). Self-oriented natural man would have no place in such a society; the ideal citizen, said Rousseau, must lose all sense of self and be concerned only with the common weal. There was nothing natural about this abnegation, which must be inculcated by the laws and civic education. Political freedom consisted for Rousseau in willing the general good, so that some people will have to be forced to be free by the laws which embody the general will. Nothing contrary to the general will must be permitted, so there can be no freedom of thought in the usual sense of the term. There will be a state religion and no other, decreeing the sanctity of the laws and outlawing intolerance (!): anyone unwilling to accept its doctrine will be banished, and anyone who, having accepted it, behaves as if he had not, will be executed.

It seems highly probable that this highly theoretical construct represented nothing more for Rousseau than a systematic logical application of a number of speculative principles, and the dichotomy in his thought between a theoretical ideal and the possibilities of the real world was reflected in one way or another in the political ideas of most of the *philosophes*. In considering the ideal society, they could not escape from the realization that the existence of private property, the defence of which was for them a cardinal principle of political freedom, was incompatible with real (and not just political) equality. From time to time, Diderot indulged in utopian egalitarian flights of fancy, clearly influenced by Morelly and Deschamps, as for instance in the idealized Tahitian society of the *Supplément au Voyage de Bougainville*. In reality, though, he recognized that this kind of thinking was pie in the sky, and just like Voltaire, d'Holbach, Helvetius and indeed Rousseau, he continued to see the protection of private property as a *sine qua non* of the just and healthy society. Not only must property be a prerequisite for citizenship, but it was indispensable for the material prosperity, based on commerce and industry, which the Enlightenment thinkers were so enthusiastic about. The ideal of most of the *philosophes* was a materially prosperous property-owning democracy with a minimum of inequalities, and though they talked much about the sovereignty of the 'peuple', it was clear that in the majority of cases what they meant by 'peuple' was the bourgeoisie rather than anything like the Marxist proletariat.

Be that as it may, the *philosophes* were none the less vigorously opposed to injustice and oppression, and more specifically to the political regime they lived in. The Enlightenment was fundamentally a movement of intellectual challenge to authority on every level, and nothing any longer was sacred, especially not religion. But the far-reaching practical implications of the challenge to political authority made it a rather different matter from, say, rejecting the Church's doctrine on free-will or virtue, and at least to begin with, the *philosophes* were opposed to violent revolution. They wanted change, but peaceful, structured change. However, as hope for constitutional change in France seemed to recede and the enlightenment of Frederick the Great and Catherine of Russia looked more and more like a façade, the theme of the legitimacy of revolt against the abuse of power appeared ever more frequently in the works of Diderot and d'Holbach. The notion of the sovereignty of the people, and the associated one of a

contract between people and ruler led directly to the conclusion that when the contract was broken by the ruler, the people were entitled to overthrow him. As d'Holbach wrote in 1767: 'Since the Government draws its power only from the society, and is established only for the latter's good, it is obvious that the society can revoke this power when its interest dictates, and change the form of its government' ([10.8] 1:141). Yet this justification of revolution was always a reluctant one, on Diderot's part at least, and the overriding concern for the rule of law which he and others had expressed in the *Encyclopédie* never left him. In his *Supplément an Voyage de Bougainville,* having demonstrated that the laws governing the structure of society in a country like France were nonsensical, he nevertheless concluded by urging conformity to them, since 'the worst form of society' is the one in which 'the laws, good or bad, are not observed' ([10.3], 2:240).

Most of the major thinkers of the French Enlightenment had died by the outbreak of the Revolution, but it is tempting to wonder what they would have written about it if they had survived. Condorcet, despite ending up its victim, still wrote a work expressing his faith in progress and the perfectibility of man, but one suspects that the humanitarian advocates of freedom and tolerance would for the most part have been somewhat disappointed, at least by the savage later stages of the Revolution. Whether or not their confidence in the progress of science and knowledge would have survived twentieth-century strides in the destruction of the environment and creation of weapons of mass destruction must remain open to conjecture.

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CHAPTER 11
The Scottish Enlightenment

M.A.Stewart

INTRODUCTION

The term ‘Scottish Enlightenment’ is used to characterize a hundred years of intellectual and cultural endeavour that started around the second decade of the eighteenth century. Our knowledge of the period is changing, as scholars investigate more of the manuscript deposits and publishers reissue more of the scarcer printed sources. Although I am here concerned with philosophical developments, the Enlightenment was not narrowly philosophical. Scottish historical, legal and medical writers responded to the influence of philosophical debate; philosophers themselves did pioneering work in social science; and the natural sciences and the arts reached new heights of national and international distinction.[1] The Enlightenment should not, however, be defined solely in terms of innovation. There were significant continuities with the previous century, while the challenge of criticism brought a new quality to the work of the best defenders of orthodox tradition.

The controversy surrounding the replacement of the Catholic King James by the joint monarchy of William and Mary in 1688 had reawakened interest in the nature and basis of civil government, and fuelled a certain amount of idealism about the reform of the institutions of state to re-establish ancient ideals of public and personal virtue.[2] The Scottish universities were caught up in this mood of reform, while constrained by the preparedness of those involved to subscribe the Westminster Confession of Faith. William III, faced with the rival claims of episcopacy and presbytery to the control of the Scottish Church, awarded the contest to the presbyterians on the understanding that they appoint ‘moderate’ persons to positions of influence, persons who would avoid pulpit demagoguery and theological witchhunts. The mandate was more easily fulfilled in the universities, where there was greater influence over appointments than in the Church, though an attempt in the 1690s to steer the universities into a uniform national syllabus failed. One reform, introduced piecemeal over the following century, contributed to a temporary superiority of the Scottish over the English universities: the institution of Dutch-style specialist appointments in the different branches of the curriculum.

Scotland was unusual in the degree to which developments in philosophy occurred within, rather than in opposition to, the universities.[3] The main exception is in the work of David Hume (1711–76), who was twice barred, by clerical opposition, from university appointments, at Edinburgh in 1745 and Glasgow in 1752. But Hume interacted with the intellectual establishment, and it will be convenient to build the following account round some of this interaction.

The curriculum was dominated by the three traditional divisions of philosophy: logic

and metaphysics, moral philosophy, and natural philosophy.[4] Logic in the early part of the century was still substantially Aristotelian, sometimes recast in the language of 'ideas', but half a century later Alexander Gerard, Thomas Reid and George Campbell could write of this formal training as largely discredited. Meanwhile rhetoric, another traditional component, was being transformed into the study of belles lettres.[5] A certain amount of epistemology, Cartesian and later Lockean, whose methodology ran counter to that of syllogistic logic, might be added.[6] Metaphysics, even after the decline of Aristotelianism, remained primarily the study of ontology. This could extend, particularly in later usage and among medical writers, to the nature of mind and its modes of operation.[7] The latter was traditionally called 'pneumatology' and was regarded as the foundation for moral philosophy. Moral philosophy was not confined to ethics, for ethics had to be grounded in a thorough understanding of human nature. A century earlier, this had been the prerogative of the theologians, whose emphasis on humanity's fallen state had encouraged a strictly biblical view of moral teaching. The Enlightenment changed this ethos, but the aim of instruction remained one of instilling principles of virtue and good citizenship within a context of general piety.[8]

As for natural philosophy, Cartesianism and the controversies it brought in its wake had become the staple of most universities by the later seventeenth century, but gave way to the science of the early Royal Society by the turn of the century. This was presented in different ways in different institutions, according to the experimental facilities and mathematical expertise available. Some stressed the experimental or at least data-gathering basis of the new science, some its inherently systematic character in reducing diverse phenomena to a body of laws; while all of them in some degree saw the different branches of philosophy as sharing a common methodology.[9]

THE AGE OF HUTCHESON

The official face of reform appears in the increasing use of classical Stoic sources for teaching purposes.[10] These offered a morality attractive enough to the moderate Calvinist mind to satisfy the pedagogical requirement that secular writings should not endanger the faith. Cicero was frequently studied as a Stoic resource, and Scottish editions of Seneca, Epictetus and Marcus Aurelius were reprinted throughout the eighteenth century. Francis Hutcheson (1694–1746) and James Moor (1712–79) collaborated on an annotated translation of Aurelius which was promoted as an antidote to sectarianism.[11] Along with this went a revived interest in natural law—a field where ethics and epistemology converge. Because these studies traditionally related to natural religion, for which the advances in science appeared to be opening up spectacular new vistas, the arts faculties at last found themselves with an integrated agenda for the post-scholastic era, in which, even if they continued to respond to the religious climate of the day, they could re-establish their independence from dogmatic theology.

The natural religion which was particularly in vogue was that of the Dutch Remonstrant tradition of the previous century, which ran from the jurist Hugo Grotius—on whom Hutcheson used to give public Sunday lectures—to the theologian-journalist Jean LeClerc. It had received expression in English through the work .of Henry More,

John Wilkins, John Tillotson and other English divines close to the early Royal Society; while their defences of the biblical revelation had received additional support in the writing of Locke. Locke had argued that the existence of God could be rationally demonstrated, though his handling of the arguments of natural religion was relatively cursory and dogmatic for someone working in the heyday of the Design argument; and he had developed a defence of revelation from his own historical researches. Believers in revelation appeared to have two lines of recourse. They could appeal to personal experience and claim to have been favoured with individual revelations. This, for Locke, gave carte blanche to the 'enthusiast' or fanatic, hence to sectarianism and social division. A personal faith impervious to rational arbitration was a kind of madness.[12] The alternative appeal was to the public revelation of the written, ultimately spoken, doctrine of the Scriptures, validated by the miraculous events contained within their history. But here the same difficulty recurred: when can a miracle story be believed? A rational test was found in the criteria for 'weighing' historical evidence by reference to the quantity and quality of ancient witnesses.[13] One Scot who was influential in insisting on the rational credentials of revelation was Hutcheson's teacher John Simson (1667–1740), who was prevented by the Church from carrying out his office as professor of divinity at Glasgow after 1729.[14]

Besides these overt trends in the curriculum, there was a more clandestine debate, particularly among the students of divinity and law. We find it in the graduate clubs, some of whose members go on to form the nucleus of the professional literary and scientific societies of the mid-century. Four not entirely separate interests can be documented, almost contemporaneously—a sharpened political consciousness, and a fascination with the imported philosophies of Shaftesbury, the deists, and Berkeley.

Politically, it was the Ulster students at Glasgow who made the running. Their disabilities at home made them sensitive to authoritarian administration. Some came, too, with a hostility to theological regimentation, at a time when other young intellectuals, some of them trainees for the ministry, were questioning the Church's continuing role in the oversight of the universities and arguing that religion could as easily corrupt morals as promote them.[15] If they and their fellow students found Shaftesbury's ironic attitude to religious and educational institutions attractive, they were particularly receptive to his argument that religion presupposes morality rather than the reverse; and if that means there has to be an instinctive moral feeling—particularly if it can be shown that this is also the impetus to all that is best in art and literature—then there must be a brighter side to human nature than either traditional theology or recent philosophy had proposed. Gershom Carmichael (1672–1729), the first designated professor of moral philosophy at Glasgow, was no follower of Shaftesbury, but he nevertheless laid the groundwork for this reception, by emphasizing the social nature of humanity, and putting it on a new philosophical footing, as part of a theory of rights founded in the love of God rather than the fear of man.[16]

More radical free-thinkers were also discussed, such as John Toland (himself a Scottish graduate), Anthony Collins, and Matthew Tindal. George Turnbull (1698–1748), who taught at Aberdeen in the 1720s, had gone through a deist phase when he sought to engage Toland, and Toland's patron, Lord Molesworth, in correspondence. His contemporary in Divinity school, Robert Wallace (1697–1771), who was avowedly

utilitarian in his thinking, subjected religious doctrine to moral tests and questioned the intended universality of some Bible precepts. But both used the deist challenge to test the limits of acceptable belief rather than to go beyond them, and both responded to Tindal with defences of the Christian dispensation.[17] The one committed Scottish deist of the period was William Dudgeon (1706–43), who has no known academic connections. He published tracts in the 1730s defending a natural religion whose content was purely ethical. He accepted an afterlife, but denied the reality of sin. In the divinely ordained order, conduct is fully determined by motive, but no motive is inherently evil: error, which is the by-product of our necessary imperfection, can be corrected by self-discipline.[18]

Dudgeon combined this with a Berkeleyan metaphysic which reduced a causally inoperative 'matter' to 'ideas' caused immediately by God, the only autonomous substance, on whom finite intelligences depend. Turnbull also wrote, in the work which grew out of his Aberdeen lectures, as if matter is reducible to perceptions (the dissolution of bodies in death is the end of certain ideas, and the effects of matter upon matter are no more than perceptions excited in our minds). But what he rejected, like many of his contemporaries, was active matter. Its indestructibility as a *passive* object, operations upon which are linked to our minds by laws, is a prerequisite for his argument for immortality.[19]

Thomas Reid (1710–96), Turnbull's most distinguished pupil, is the only individual for whom we can document an initial attachment to outright immaterialism.[20] For others of the period, what caught their fancy was Berkeley's theory of vision—until it was subjected to influential criticism by the physician William Porterfield[21]—and his theological voluntarism: the laws by which the objects of our experience are related are seen as direct evidence of God's sustaining power. These notions were sufficiently congenial that, when Berkeley attacked their other hero, Shaftesbury, in *Alciphron* in 1732, it provoked one former admirer, William Wishart (1692–1753), to violent satire.[22] By this time, however, Edinburgh students were hearing in their logic class that Colin MacLaurin in his natural philosophy lectures had invalidated Berkeley's metaphysics.[23] Andrew Baxter's (1686–1750) defence of the conventional two-substance view of the creation was also influential: he challenged the assimilation of perception with the object of perception and established the stereotype of Berkeley as a Cartesian doubter who never found the way back to reality.[24]

Turnbull's engagement with all these new trends in a single body of writing—deism, Berkeleyanism, liberty in religion, the reform of education, the moral basis of art, moral law, the restoration of civic virtue—has given him an interest for modern scholars which he could not claim in his lifetime, when most of his books were remaindered. Binding them together is a consistent methodology in which all studies can be reduced to laws by a combination of historical and experimental study. Turnbull was already practising this before Hume conceived his own project of 'introducing the experimental method of reasoning into moral subjects', but, significantly, both were pupils of the same 'professor of natural philosophy and ethics' in Edinburgh, Robert Steuart.[25]

Hutcheson was less flamboyant but more influential, a charismatic teacher whose Ulster background contributed to his strong interest in natural and civil rights. The common good is enjoined by the law of nature, and there is a natural right to engage in

whatever mode of action advances this common good. The conventions of social organization are all subordinate to this purpose. Hutcheson's arguments against undue authority in every form made him a leading campaigner, not only for toleration, but against slavery, hereditary power, and so-called 'rights of conquest'.[26] It was probably Hutcheson's version of the contract theory of civil authority, entitling the governed to resist, and if necessary to separate from, whatever power threatened the common good, that had most influence in the American colonies. But what Hutcheson defended as the rights of colonies he also identified as the rights of 'provinces'.[27]

Our concern for the common good and the rights that it entails both reflects and reinforces an instinctive philanthropy that shows itself when we look self-critically at the happiness and misery brought about by different kinds of behaviour. It excites in us an 'esteem' or 'perception of moral excellence' of any action motivated by benevolence. Not all action is so motivated, nor is all appraisal moral; but Hutcheson was best known in his lifetime for this theory of moral appraisal and its aesthetic analogue. He developed it in the four treatises, in two books, composed while he kept an academy in Dublin in the 17205, before he succeeded Carmichael at Glasgow in 1730.[28]

Moral practice was for Hutcheson a matter as much of the heart as of the head, and his work is concerned with both analysing and cultivating the appropriate 'affections'. We have a sense of beauty, which shows itself not only in our appreciation of the arts and mathematics, but in our response to the whole creation as a manifestation of infinite wisdom. The humane affections are as much part of this creation—as much inherent in human nature and independent of social artifice—as size and shape, and almost as readily detectable; and that they are is evidence in turn of the benevolence and intention of their designer.

Hutcheson's account is built round his theory of a moral sense, which is less well articulated than its place in his system requires. The aesthetic analogy drops out in his later writing. Hume believed he had a similar account, when he argued that virtue is a quality of action or character that promotes in persons of normal sensibility a distinctive 'pleasing sentiment of approbation';[29] its being virtuous lies in its promoting such a sentiment, and he then seeks to analyse the sentiment (a kind of love) and its causes (the benefit of those affected). Both agreed we may feel such sentiments even when the act runs counter to our interests. Hutcheson, however, in a work published after Hume's *Treatise of Human Nature,* insists that 'the good approved is not this tendency to give us a grateful sensation' but is independent of and prior to it: it lies in the *source* of the sentiment, which for him is the benevolent affections of the agent.[30]

The St Andrews theologian Archibald Campbell (1691–1756) agreed with Hutcheson that we have an instinctive tendency to social bonds, but instead of attributing this to benevolent motives, he attributed it to the feature Hutcheson disdained: self-love.[31] To some degree this was a verbal dispute, since self-love for Campbell is not a form of selfishness and is not a consideration of advantage. It includes self-esteem, or respect, but it can be gratified through the esteem of others, because the 'self in question is the 'self of Aristotle's theory of friendship, whereby another person can be 'self' to oneself; indeed self-love on this account motivates God as much as humans. Moral virtue is brought about through the love and respect that self-love prompts us to desire and deserve of others, who desire and deserve it of us, creating an amicable society in which there is

mutual esteem. While the phrasing is not ideal, there is a substantive point at the back of it, picked up later by Hume and Kames: benevolence on its own is not enough to engage an agent to any particular action.

Elsewhere, Campbell threatened to challenge the rational religion of the Enlightenment. In *The Necessity of Revelation* (1739), he adopts a basically Lockean epistemology, but takes issue with the idea that the existence of God, the soul's immortality, and the conduct necessary to eternal happiness, can be proved without revelation. God's existence is provable to those who see the evidence. But this evidence was unavailable until within living memory—the Design arguments of antiquity were naive—whereas the foundations of religion must have been open to persons of ordinary comprehension at all periods. The mass of mankind, surveying nature, ascribe supernatural powers to everything, and it requires a revelation to see, with modern science, that that is a mistake. Neither do ordinary persons understand the essence of matter, or how to abstract from experience to form the idea of another immaterial, indissoluble, substance. In section III of this work, Campbell rejects Plato's arguments for immortality as sophistries, and contends that no other of the ancients suspected the soul was immaterial: 'all the great ends of morality and religion are well enough secured without it'. The data of comparative religion suggest that no one attained a doctrinally sound monotheism and its associated morality by reason alone.

But if we are dependent on revelation, we face Locke's problem afresh: how is a revelation to be identified? We cannot simply assume a Deity, or fall back on the word of a being whose existence is in contention. Campbell's solution, in section VII, is bafflingly brief and unimpressive, though a variant on the argument from testimony: he conjectures that an angel 'led on the human mind by rational proofs and arguments' which were communicated in turn to posterity, the moral probity of the source being the factor that carried conviction. We have the evidence of Mosaic history that such a revelation, once given, was corrupted and lost. Campbell is happy to count Pierre Bayle as one of his authorities.

Campbell's strategy had been anticipated by another Scottish theologian, Thomas Halyburton (1674–1712). The deists, Halyburton claimed, cannot pretend that mankind in general subscribe to natural religion: experience is plainly against it. Some have been steered into it by the authority of a small group of thinkers, but on what principles did they recognize the authority of their evidence? Appended to his *Natural Religion Insufficient* was *An Essay concerning the Nature of Faith,* where Halyburton specifically attacked Locke's argument to found faith in reason. It does not fit the scheme of knowledge as intuitive, demonstrative, or sensitive, and conflicts with Locke's claim to accord revelation the highest degree of assent. The external signs (miracles) to which Locke appealed in confirmation of an original revelation did not serve that function. They might deepen the hearers' faith, but most biblical doctrine was delivered without such signs. To do without them is not to fall back on 'enthusiasm': enthusiasm is irrational and at some point conflicts with the evidence of sense and reason. The prophets did not need external signs to recognize God's hand. They had it by an 'irresistible Evidence', like someone who knows an author's style well enough to recognize it in anonymous instances.[32]

HUME'S CRITIQUE OF RATIONAL RELIGION

While this native sceptical tradition was grist to his mill, Hume's own critique of prevailing trends grew out of a wider background, in British and French thought of the previous hundred years and in the main traditions of antiquity; and it is from that background that we must understand his disagreements with Hutcheson.[33] Hume was introduced to Hutcheson in 1739 between the publication of Books II and III of *A Treatise of Human Nature,* and their ensuing correspondence shows an unsuccessful attempt at a meeting of minds. Hutcheson was probably behind at least one of the cautiously critical reviews of the *Treatise* which appeared in the *Bibliothèque raisonnée* in 1740–1. Hume responded to the reviewer's criticisms of his theories of belief, power and the self through the Appendix to the *Treatise,* while in the body of the text he tried to address problems raised by Hutcheson in correspondence, problems which the later reviewer seized on afresh to scotch any suggestion that Hume was Hutchesonian in his moral philosophy. Hume was seen to derive morality from a strictly secular view of human nature, and to analyse it with the unengaged aloofness of a pure metaphysician. He reduced the moral sense to a limited sympathy, and seemed to turn justice into a Hobbesian conventionalism.[34]

These charges returned to haunt Hume in the mid-1740s, when an alliance of clerical interests helped defeat his attempt to succeed John Pringle (1707–82) as professor of moral philosophy at Edinburgh.[35] Hutcheson and another Glasgow colleague worked to avert Hume's election, as did Wishart, principal of Edinburgh University and a life-long supporter of Hutcheson's philosophy. The sceptical aspect of Hume's thought—his stress on the limitations of reason—attracted most attention. He was seen as rejecting the operation of causes and the reality of moral distinctions, indeed as denying our ability to believe the existence of anything; and this despite the lengths he went to, to explain how we all, including himself, unavoidably come to such beliefs. The main target of attack was the supposed implications of his tenets for religious and moral conviction. Hume complained that his philosophy had been traduced, and denied there were anti-religious implications (meaning implications for personal faith) in the argument of the *Treatise*.[36] In rebuilding his defences in *An Enquiry concerning Human Understanding* (1748), he finally addressed the applications of his philosophy to both revealed and natural religion which had been suppressed in bringing the *Treatise* to publication, and this helped provoke some of the first published responses to his philosophy.[37] A fuller critique of natural religion appeared posthumously.

Hume's target is the Lockean scenario presented above, which claimed a *rational* foundation for revealed and natural religion. Hume, like Locke, has no time for the 'enthusiast', and ignores the attempts to immunize personal revelation against criticism.[38] He builds his critique of revealed religion round the question of the historical credibility of the miracle stories associated with the foundation of the main theistic systems.[39] The key concepts in the debate—probability and testimony—link his discussion to Locke. Locke had distinguished the general evidence we have in experience for specific types of phenomena from the quality of the evidence in the particular case—the number and skill

of the witnesses, the consistency and circumstances of the report, the purpose of the reporter, and the nature and extent of contrary testimony. The importance of the particular evidence is in inverse proportion to the strength of the general evidence. Where testimonies conflict with experience, or with each other, we should 'proportion' our assent after weighing the circumstances, and any signs of passion, interest or confusion in the telling.[40]

This epistemology is taken over by Hume in a way that defeats Locke's attempt to plead a special case for biblical miracles. To believe in a one-time exception to the order of nature, we must be aware of an exceptionless order to constitute the law from which the departure occurred. The type of evidence needed to establish the norm destroys our ability to identify the exception, for which the evidence is at best derivative.[41] And yet Hume is not impugning the *concept* of miracle. A miracle is 'a transgression of a law of nature by a particular volition of the Deity, or by the interposition of some [other] invisible agent'.[42] The laws are what operate (by God's general providence) in the absence of such transgressions (or particular providences). The problem is one of detectability.

Hume presents it as a problem of matching proof against proof. He accepts with Locke that the regular sequence of cause and effect offers the highest degree of empirical proof. So we have proof of tomorrow's sunrise from uniform past experience, though there is no logical absurdity in suggesting it will not rise; and we have comparable proof of any law of nature from comparable natural uniformity. In this sense there is 'proof against any miracle.[43]

The potential counter-proof cannot claim direct evidence of divine intervention. It consists in looking for evidence of the reliability of historical witnesses—witnesses with as much proven reliability as other people's experience of the laws of nature. Hume depicts it as an outweighing in numbers, calculated by subtraction, and illustrates it by the way that witnesses to one side in a legal case can offset those for the other side. It is difficult to make sense of this notion of subtraction for the case in hand, and some of his criteria remain clearly qualitative.[44] Appealing to all the weaknesses that Locke identified in human testimony, Hume argues that there is no case where the quantity and quality of the witnesses have met the required standards. One hypothetical case would give him pause: if people came in sufficient numbers from all corners of the earth testifying to a week's darkness, he would accept that as evidence of something unusual. But he would not leap to a supernatural explanation.[45]

Locke could make that leap, because he accepted the tradition, established by Bacon, that miracles were not intended to convert atheists. The theist has already accepted the arguments of natural religion, and considered that these lead to a being who would wish to communicate with the sentient creation. Miracles are there to establish a particular system, within an existing framework of belief. Hume challenged this strategy on two fronts. First, a miracle can 'never be proved, so as to be the foundation of a system of religion'. No matter how worthy the witnesses, they could not show that an appeal to supernatural power—an appeal necessarily outside our experience—was our only recourse.[46] Secondly, reason is incapable of establishing the kind of Deity whose revelation is being postulated.

This brings us to the second limb of Hume's critique of rational religious belief: the

critique of natural religion. Because his fullest treatment of this is presented as a dialogue sequence, one must be alive to the limitations of the genre.[47] The views that Hume sets up for critical scrutiny are little more than stereotypes. But a number of factors support the verdict of his contemporaries that the character of Philo in the *Dialogues concerning Natural Religion* is more than a 'careless sceptic' and is predominantly Hume's mouthpiece, even sharing his characteristic irony. In the first state of the manuscript, some 60 per cent of the work was assigned to Philo; 85 per cent of the subsequent revision belongs to Philo, including the additions of Hume's last months.[48] He invested his labour overwhelmingly in Philo's side of the case. Furthermore, even at the time of the *Treatise,* he had sketched out a narrative study, in which he developed in his own person an argument similar in structure to Philo's in the *Dialogues,* and identical in substance on the one topic where comparison is still possible—the problem of evil.[49]

All parties to the *Dialogues* accept the existence of a 'first cause', but this does not commit them to a meaningful theism.[50] It opens up the debate over whether anything can be known of the attributes of an entity so removed from experience. The main focus of discussion is the Design argument, espoused by the character Cleanthes, and presented in the form of an analogy. The world is an integrated system of interacting 'machines', in that their essential feature is 'the adaptation of means to ends' through an 'order, proportion, and arrangement of every part' according to regular laws. From a similarity of effects (the adaptation of means to ends both in artefacts and in the works of nature) Cleanthes infers a similarity of causes (reason and intelligence).

'Machines' here does not have narrowly mechanistic associations.[51] The emphasis is on organic nature—the structure of legs and eyes, and biological, psychological and social circumstances that combine to support human reproduction. Cleanthes, under pressure, goes on to try to make a virtue of the logical weaknesses exposed by Philo, by self-consciously emphasizing the 'irregularity' of the argument—that is, its power to carry more conviction than its logic warrants. The 'idea of a contriver' strikes us 'with the force of sensation' when we dissect the eye.[52] It is like hearing or reading a familiar language, where the recognition of intelligence is, or would be, instantaneous even in bizarre conditions. Everyone sees that the recognition in the linguistic case is sound, and this should inspire our confidence in the other. Although the analogies of immediate recognition are offered by Cleanthes, at the beginning of Part III, as so many 'illustrations, examples, and instances' to reinforce the 'analogy between their causes', they are better seen as a commentary on it, and as a rhetorical attempt to circumvent Philo's insistence on case-by-case assessment.

The discussion develops round a distinction between God's natural and moral attributes. The natural attributes relate to intelligence and power, and would pertain to a Deity in any circumstances, whether there had been a creation or not. The moral attributes arise from a freely chosen relationship with sentient creatures. Most of the debate is over the natural attributes, and involves three contentious issues.

First, most fundamental, is whether 'order, arrangement, or the adjustment of final causes' is the 'proof of design' that the argument requires. Philo contends that we cannot see things in cosmic perspective and can only infer design in the kinds of cases we know from experience; order and arrangement are not, themselves, *kinds* of cases. But if it is a condition that the manifestations of design be recognizably analogous to that in human

artefacts, we shall end up ascribing human characteristics to divinity.[53]

Second, we cannot from experience prove the ultimate priority of ordering mind over ordered matter. Perhaps mind needs to be and can be explained in turn through natural causes; while this is contrary to a common assumption of the time, it is a live issue for those who admit that the essence of matter and mind is unknown.[54]

Third, the evidence of experience is that there are many 'springs and principles' in nature, and different kinds of order. There is an absurdity in taking any singly as the model for all nature. If we do, we have no worse reason to see the world as an ordered animal, or vegetable, than to see it as an artefact; while even a disordered world must have its parts so structured that they would in due course shake out into some sustainable pattern.[55]

To these challenges to God's natural attributes, Philo adds a version of the problem of evil. In reasoning from experience we cannot attribute to the cause qualities that are not provable by the effects, and the calamities of human and animal life give no support to belief in the moral attributes of the creator. The committed theist can accommodate this problem, but what is at issue is what we can infer without that commitment. Hume argues through Philo, and in his own person in the early fragment, that the balance between the frequency of pleasures and intensity of pains is such that no determination of whether there is moral purpose in nature is possible.[56]

Thereafter, in the final Part of the *Dialogues,* Philo somewhat relents, and concedes that, whatever the limitations of our understanding, the psychological pressures to believe in *something* are very considerable. But it is a qualified concession, and nowhere more so than in the longest paragraph of the work, the only significant addition from Hume's last weeks of life, and thereby his dying testament to posterity.[57] The dispute between theist and atheist, it is argued, is 'verbal'. The theist grants the nature of God's mind to be incomprehensible; the atheist concedes a remote analogy between the orderings of nature and intelligence—not, however, moral intelligence in the human understanding of the phrase. Each from their opposite position must consider the analogy so attenuated that neither has the means to make it more precise or useful.

The critical arguments of the *Dialogues* have found most of their admirers in the twentieth century, but only after Darwinism changed scientific attitudes to the study of nature. In the short term, Hume's critique stimulated a number of forceful apologists, of whom the most successful was the English theologian William Paley. Modern commentary portrays Paley's *Natural Theology* (1802) as a reactionary work written in ignorance of Hume, but careful study of the language and logic of his opening chapter shows it is a systematic riposte, item by item, to many of Hume's moves. Because Paley builds into his exposition of the Design argument the limitations that Hume's critique imposes, Hume's criticisms have no particular target in his work.

As for Hume himself, where we fail to find adequate reasons for a belief we may still explain its causes. The belief in God is not one of those fundamental to 'common life', where the mechanisms of the mind compensate automatically for the deficiencies of reason. Indeed, the ordinary mind does not have the synoptic view of nature that—unlike Paley—Hume supposes essential to the theistic perspective. Hume explores the roots of religious belief in *The Natural History of Religion,* which presents a logical reconstruction of popular thought in the guise of a series of historical steps.[58]

Hume argues that humanity develops from a state of ignorance motivated by hope and fear. This hope, and more particularly fear, is directed to the unknown causes of human fortune, which come to be personified as unseen rulers. Hence polytheism. From that arises the idea of a chief ruler, to whom virtues are ascribed by way of flattery, while their servants amass exaggerated honours. There is a 'flux and reflux' in the popular mind, between polytheism and monotheism, the former tending towards toleration and social virtues, the latter towards authoritarian control and a moral abasement that runs contrary to human nature.[59] This 'vulgar' superstition is contrasted with the sophisticated insight of the minority—Hume ironically includes Adam in Paradise—who appreciate the connected order of nature and derive from it a more fitting and consistent view of the divine character.

Though written from a contrary perspective, Hume's account of 'vulgar' religion is largely consistent with contemporary Calvinist teaching about human belief since the Fall, where it was a commonplace, as we have seen, that monotheism is not a position that comes naturally to the unaided mind.[60] His writing was a greater challenge to those who favoured the claims of natural religion, because he seemed to show that they could never carry the bulk of mankind with them. But it had a direct influence on William Robertson (1721–93), leader of the Moderate Party in the Scottish Church, whose accounts of primitive religions follow Hume's specification.[61]

One frequent element in religious belief, which commonly links it to moral practice, is the belief in immortality. Hume examines this in a posthumous essay, 'Of the Immortality of the Soul', which first recapitulates the argument on immateriality in the *Treatise*.[62] Philosophers had often contended that thought, as immaterial, must inhere in an immaterial substance, which by its nature lacked the power to disperse. Hume responded that we have no experience of the substance of anything, so cannot show that any given properties are essential to it; while the doctrine of an indivisible soul-stuff seems to carry with it the implication of an undivided substance throughout nature—a thesis beset with paradox. In the essay, he adds further objections. Assuming the orthodoxy that immortality is bound up with reward and punishment (which liberal thinkers already disputed), he focuses on the apparent disproportion between the petty conduct of most human life and the eternal after-effects. Furthermore, all the analogy of nature is against there being something that resists the processes of change; indeed, we have the evidence of experience that the mind declines as well as the body, and in parallel with it.

THE RESPONSE TO HUME

The first significant response to Hume's philosophy within Scotland came with the *Essays* of Henry Home, Lord Kames (1696–1782), in 1751. Its criticism was sufficiently muted that some contemporaries saw little to choose between them, despite Kames's support for natural religion. A flurry of pamphlets in the 1750s, aimed at both thinkers and their circle, repeated the charge that Hume's philosophy, and now Kames's, was a threat to morals and religion, but it failed to advance the debate philosophically. On the periphery of this controversy was another dispute with theological ramifications, between

Kames and John Stewart, natural philosophy professor at Edinburgh, over whether Newton's admission of mechanical forces was tantamount to conceding activity to matter.[63]

Kames's reading of Newtonianism as a necessitarian system seemed to open the way to fatalism and the denial of providence, particularly when he characterized the sense we have of human liberty as a kind of divine 'deceit'.[64] Within this framework, Kames nevertheless offered a balanced picture of human motivation. 'Self-love operates by means of reflection and experience' and belongs to the calculating part of our nature, guided by considerations of pleasure and pain. But our appetites and affections do not directly correlate with pleasure and pain. Grief and compassion move us alike in real life and in the arts, and our ability to be drawn to what is painful, and be stimulated by it to delicate feelings, is a sure sign of our social nature. This nature forms the basis of the laws to which we are subject, and which we discover through the instinctive responses of our moral sense to the beauty or deformity of human character and action.[65] Kames thought, however, that neither Hutcheson nor Hume gave sufficient attention to the sense of duty and justice, which he traced to a distinctive feeling, without which the trust that holds society together could never have arisen.

Kames considered the deceptiveness of moral liberty no different in principle from the 'unreality' of secondary qualities. It is consistent with the great design that God should present things in the way best suited to his purposes for mankind, while still enabling us to discover the underlying reality. Berkeley, who might have contemplated a similar argument, was one of his targets here, and Hume another. For Kames it would be more than divine deceit—it would be a totally pointless assignment of useless faculties—if our senses did not put us in touch with a material world. Our perceiving observable qualities as aspects of a whole is proof that we have a sensory impression of substance, that is, of 'independent and permanent existence'. Equating belief with a simple, unanalysable feeling, he considers there is no appeal against our sense of the externality and power of observed objects; if they are indeed external, and have the power they appear to us to have, no better way of conveying this can be conceived than the way we actually experience them.[66] Our sensitivity to the presence of God in nature is accounted for on similar principles.[67]

Kames's appeal to a 'feeling' which opposes any philosophical scepticism with regard to an objective order—an appeal, in fact, to the concurrent operation of external and what he sometimes calls 'internal' senses—has been seen as an extension into the metaphysics and epistemology of Hutcheson's concept of an inner sense in morals. If so, it is a stage towards the 'common sense' theory developed among the members of the Aberdeen Philosophical Society, in part, again, in reaction to the scepticism of Hume.[68] Because the 'common sense' theory is a theory that accounts for those fundamental convictions which both parties placed outside the province of, reason, and which Hume attributed in certain cases to 'natural instinct', the difference between them has sometimes seemed merely verbal. But natural instinct in Hume —as it relates, for example, to belief in the self and the external world, the identification of purposive behaviour, and the operation of causes—is something brought about by the natural processes of the mind *consequent* to experience, and is not inherent in that experience; and it does not extend to a religious instinct.

The first salvoes against Hume's philosophy to be publicly fired from Aberdeen originated from the pulpit. George Campbells (1719–96) *Dissertation on Miracles* is intended to demonstrate the rational basis of revealed religion. Its two parts match the sections of Hume's critique, assessing first the a priori case, then the a posteriori case, for miracles.

Campbell argues that 'testimony hath a natural and original influence on belief, antecedent to experience', but we learn, by experience, to regulate our confidence in it. The predisposition to accept testimony is a feature of our 'common sense', one of the original 'grounds of belief, beyond which our researches cannot proceed, and of which therefore 'tis vain to attempt a rational account'. Belief in the uniformity of nature, and in the prima facie reliability of memory, is of this kind. 'If we had not previously given an implicit faith to memory, we had never been able to acquire experience', notwithstanding that memory, like testimony, can be corrected by experience.[69]

The unusualness of an event, Campbell concedes, may be a presumption against its authenticity, but cannot always be so. If I have had two thousand experiences of a ferry boat making a safe and regular crossing, then one day meet a stranger who gravely reports he has just seen it lost with all on board, I am likely to give more credence to this than Hume's simple subtraction formula would authorize. This holds until sufficient counter-evidence is found, either from other witnesses about the fact, or from witnesses about the witness. Hume had tried to weigh incommensurables; and whether past experience is a sound guide to a new case depends not only on how far relevant circumstances are the same, but on whether they are known.[70] Hume himself ran into inconsistency in exploiting testimony to help establish the laws of nature while discounting it in cases of alleged violations, and in dismissing untested any reports that he considered religiously motivated.[71] Campbell scores some sound points against Hume's logic, but sometimes misreads his irony, and is less effective on the decisive question of how one would identify divine intervention.[72]

Thomas Reid likewise criticized Hume from common-sense principles, but took as his target Hume's critique of natural rather than revealed religion. He claims to detect 'first principles of necessary truths', principles 'of which we can give no other account but that they necessarily result from the constitution of our faculties', in grammar, logic, mathematics, taste and morals, but he is mostly concerned with metaphysics.[73] Hume properly showed that we cannot derive, either from experience or reason, the belief in material and mental substance, the principle of universal causation, or the certainty 'that design and intelligence in the cause may be inferred from marks or signs of it in the effect'. Any attempt to do so already assumes the principles in question, so, argues Reid, they must be self-evident. In regard to other intelligence, the case for the existence of God is no different from the case for other minds generally.[74] Hume had argued in *Enquiry* XI that we cannot infer an intelligent cause for the universe because we have had no experience of the origin of other universes. Reid retorts that 'according to this reasoning, we can have no evidence of mind or design in any of our fellow-men', either, since we have never been able to match their wisdom against its visible signs. The role of these signs is not, therefore, to form the premises for inductive argument. It is part of the providential design for human life that they are transparent.

Hume got into the sceptical impasse, in Reid's view, because he was obsessed with the

principle that there are no ideas without preceding impressions, and no impressions appropriate to the case. Hume's failing is, however, part of a broader failing of the philosophical tradition since Descartes, which Reid castigates as the 'theory of ideas'. This is the attempt to build up an account of human knowledge entirely through an account of the atomic contents of experience. But these contents in themselves never reach to the world of which we claim the knowledge, so the project is self-defeating. Reid draws a clear distinction between the study of the body and its relations with other bodies, which may give us a natural history of the senses, and the anatomy of the mind, by which we obtain a history of human consciousness;[75] and he sees an obvious absurdity in supposing either that the second is in some way a representation of the first, or—if the absurdity of that is granted—that the first is then beyond our reach. There are limits to our knowledge of the physical world, and to our knowledge of the mind, but there is a kind of philosophical 'madness' in confusing the one with the other.

In place of the theory of ideas, Reid postulates a distinction between sensation and perception. His formulation of this remains obscure, and has been adapted to serve the interests of different modern theorists. Sensation is an affection or feeling of the mind, quite unlike any physical quality: it can exist only in a sentient being. (Thus the sensation we feel from impact with a hard body is merely a sign. It has nothing about it that corresponds literally to the compactedness of the particles of that body.) But it 'suggests', or brings about a 'conception and belief of, an external reality. The notion of suggestion is taken from Berkeley's philosophy of vision, but Reid rejects any idea that it is an acquired association: there is no way such an association could arise if it is not inherent in our make-up, although he does allow that the way we learn to judge specific sizes, shapes and distances by sight takes time. Perception is the awareness we have of the existence of external objects by our senses.

Reid's work is imbued with a pleasant wit. Of the principal items that make up his *Philosophical Works,* his *Inquiry into the Human Mind* (1764), in which he first stresses the distinction between physical and mental enquiry, is a minor classic, while his *Essays on the Intellectual Powers of Man* (1785), completed after his move to, and retirement from, Glasgow, is a comprehensive study on a grand scale. Of the other members of the Aberdeen circle, the moralist and belletrist James Beattie (1735–1802) made most noise in his day by his fast-selling *Essay on the Nature and Immutability of Truth,* which incurred the censure of Kant. This attack on scepticism, largely targeted at Hume, is vaguely concerned more with the criteria than the nature of truth: he vacillates between conceiving truth as something eternal, and as a variable property ('certain truth', 'probable truth') of individual judgements. We attain truth in proportion to the degree to which we believe what the 'constitution of human nature determines' us to believe. Sometimes this comes from reasoning or evidence; sometimes (where those can add nothing to what is already there) 'by an instantaneous, instinctive, and irresistible impulse; derived neither from education nor from habit, but from nature'. This, again, is 'common sense', upon whose axioms all proof is founded and to which all truth is conformable.[76] Beattie does not follow Reid deeply into the theory of perception, and his work is coarser in tone, sniping at the 'irreligion' and 'licentiousness' he sees ensuing, once the defences of common sense are breached by philosophical scepticism.

The common-sense tradition itself, by its apparent preoccupation with the anatomy of

the mind, came to be criticized on similar grounds, by a logic that is now difficult to reconstruct. It was left to Reid's most gifted student, Dugald Stewart (1753–1828), an inspirational teacher who was professor of moral philosophy at Edinburgh from 1785 but ceased to be active after 1810, to redeploy this philosophy just as the infiltration of Kantian ideas (still ill understood) began to have its impact; but Stewart's most original work was in political economy.[77] The 'Dissertation' which he contributed to the fourth and later edition Supplements to the *Encyclopaedia Britannica* from 1816 was a history of metaphysics since the Renaissance, and included research into documents now lost. As a historian Stewart could not shake off the standpoint of the 'Scottish' philosophy, and indeed used the history of philosophy as a means of vindicating that tradition. In doing so he helped perpetuate certain stereotypes that have outlasted his own philosophy. One is the view that Hume subscribed to a 'constant conjunction' analysis of causation which denied any necessitation in nature. Stewart willingly endorsed this, as a death-blow to Spinozism.[78] He also approved Hume's demonstration that there can be no proof of universal causation or of the uniformity of nature, since this gave the common-sense philosophy its needed opening. So when there was opposition to a mathematical appointment at Edinburgh in 1805 because the nominee, John Leslie, had endorsed Hume's supposedly irreligious view of causality in natural philosophy, Stewart was active in his support. (So were the evangelical party in the Church, who accepted Hume's proof that faith was beyond reason.) Stewart contended, indeed, that Hume's analysis was not only commonplace, but had been commonplace before Hume.[79] But this needs qualification. What Stewart favoured was the view of Clarke and Berkeley that the active agents are minds, and what is popularly conceived as agency in nature is no more than constant conjunction according to the laws of a lawgiver. As Reid had already expressed it, 'We perceive no proper causality or efficiency in any natural cause; but only a connection established by the course of nature between it and what is called its effect. Antecedently to all reasoning, we have, by our constitution, an anticipation that there is a fixed and steady course of nature: and we have an eager desire to discover this course of nature'.[80]

Stewart's deputy after 1810, Thomas Brown (1778–1820), had also contributed to the Leslie controversy, with a tract on the 'nature and tendency' of Hume's doctrine. He supports a constant-conjunction account of cause, but also endorses Hume's view that whatever account is given of physical causation applies equally to mental causation. He denies that we have any distinct sense of mental power. However, that the relation of cause and effect is not discoverable a priori, or by reason, but is an object simply of 'belief (that is, a belief with regard to future contingencies), he sees as compatible with the common-sense appeal to an 'instinctive principle of faith'.[81]

Brown's defence of Hume called forth the talents of the principal woman writer to have a place in the philosophy of the Scottish Enlightenment—Lady Mary Shepherd (1777–1847), daughter of the third Earl of Rosebery. After a book on causality she published another primarily on perception, where additionally she addresses the views of Berkeley, Reid and Stewart.[82] She is anxious to obviate any threats to theism, whether from a revisionist view of causation or from doubts about material existence, and she seeks to restore to human reason whatever Hume had attributed to associative instinct and others to common sense. Try to conceive an effect that was not necessarily linked to (in

Shepherd's terms, 'inherent in') its cause. Can it, then, begin its own existence? But such beginning is an action, and an action can only be the action of something already existing. An effect is a difference occurring in an existing situation, but it cannot begin of itself if there is nothing to 'make' a difference: by 'reasoning upon experiment', whether in laboratory study or ordinary life, we establish a difference in the attendant circumstances. Single experiments are often sufficient, except to narrow down the circumstances in which the cause is operative, since it is contradictory to conceive that the course of nature might change.[83] However, the factors we observe are strictly effects or signs of the underlying reality, and it is the latter that is subject to the laws of nature: Hume's mistake in conceiving laws of nature as generalizations from experience undermines his strategy over miracles.[84] Her second book tries to show why we must accept that there are efficacious but unknown causes that do not have the character of mind. Mind, she holds, supplies the conditions for sensation in general, but only when there is something else that acts upon it does sensation actually occur.[85]

The common-sense tradition had also involved itself in moral theory. The intellectual powers were traditionally paired with the active (or 'active and moral') powers in that analysis of human nature which was the propaedeutic to moral instruction; and the textbooks and lecture courses of the day all surveyed the nature of human action, the role of appetite, desire, affection and passion, the nature of the moral faculty, the principles that influence moral conduct, and those that regulate it. This was considered an essentially scientific enterprise. The language of a 'moral sense' is retained, if by some, like Stewart, apologetically. Reid equates it with conscience, and introduces it into the discussion of the sense of duty, rather than, as in Hutcheson, the sense of good. His account echoes his account of 'common sense':

> All reasoning must be grounded on first principles. This holds in moral reasoning as in all other kinds. There must, therefore, be in morals, as in all other sciences, first or self-evident principles, on which all moral reasoning is grounded, and on which it ultimately rests.

Thus there is no reasoning with someone who does not acknowledge the Golden Rule: you can appeal to his sense of interest, but not his sense of duty.

> To reason about justice with a man who sees nothing to be just or unjust, or about benevolence with a man who sees nothing in benevolence preferable to malice, is like reasoning with a blind man about colour, or with a deaf man about sound.[86]

But we may reason about specifics, for example for and against particular family arrangements. By this time, however, the focus of interest in moral psychology had shifted to the analysis of agency, and to theattempt to understand human power as the ability to act in conformity with judgement.[87]

It was outside the common-sense tradition that Scottish moral philosophers in the eighteenth century made their strongest mark. Adam Smith (1723–90) at Glasgow and Adam Ferguson (1723–1816) at Edinburgh—both of whom would become widely

travelled scholars with an international circle of acquaintance—carried the analysis of human nature well beyond its customary applications in the moral sphere.[88] Breaking the taboo on the analysis of self-interest, Smith made a landmark contribution to the study of the workings and place of economic forces in society, albeit with a normative purpose—the defence of freedom of action, including freedom of competition and freedom of trade. However, although he advocated governmental regulation only in matters relating to the protection of society, he did not deny the duty of government to provide basic public services. Where Smith's researches into moral and economic conduct led him into two complementary studies, Ferguson had space to integrate the subjects into a single work, in which he saw the existence of moral sentiment as foundational to society. Ferguson's work is always informed by a strong sense and knowledge of history, whether real or conjectural, and particularly in his conscious rehabilitation of the social ideals of antiquity, which he forcefully distinguished from modern book-learning about them.

In his own moral theory, Smith had laid great weight on the classical notion of sympathy as the source of social ties.[89] Hume had already revived this idea, in seeking a more convincing mechanism than the instinctive philanthropy of Hutcheson. Smith considered that we are endowed by nature with a twofold sympathy which is reflected in moral judgement. We may sympathize with agents who act from a virtuous motive, and thereby approve their conduct. We may also sympathize with the gratitude of the person who benefits from the virtuous conduct (or if it is not virtuous, we may sympathize with their resentment). This is not the same as simply sharing their sentiments, although we naturally seek to do so. It is an exercise of imagination, and can therefore vary in degree from individual to individual.[90] But it can also be trained, in the way that we naturally adapt to the responses of others. (This does not entail blind conformity: we can be out of step with popular sentiment where we have a better, or worse, command of the facts of the case.) But if it were simply a matter of thinking ourselves in other people's shoes this would not explain how we can also assess our *own* actions. We do this by becoming 'impartial spectators', seeing ourselves as others would see us, if they were fully apprised of the facts. Society therefore serves as a mirror through which we come to scrutinize our own conduct. And in the interaction generated by the operation of sympathy we learn to develop two characteristics essential to the moral life—self-command, and compassion or sensibility.

NOTES

The following abbreviations are used in the notes:

D David Hume *Dialogues concerning Natural Religion,* in [11.42].
E David Hume *An Enquiry concerning Human Understanding,* in [11.43].
HHC M.A.Stewart and J.P.Wright (eds) *Hume and Hume's Connexions* [11.122].
PSE V.Hope (ed.) *Philosophers of the Scottish Enlightenment* [11.96].
SPSE M.A.Stewart (ed.) *Studies in the Philosophy of the Scottish Enlightenment* [11.104].

1 Sher [11.103], 329–76, offers an excellent bibliographical guide to this wider field.
2 One form of this idealism is found in the 1690s in the political pamphleteering of Andrew Fletcher (1655–1716), a Scottish correspondent of Locke, whose experience in exile led him to favour a Dutch type of confederacy for Britain. Fletcher's extolling of a mythic 'Gothic' past in which there was sufficient balance of political power to ensure the liberties of the subjects is a forerunner of early Enlightenment attitudes. But he represented an idiosyncratic nationalism that was out of line with the anglicizing stance of most eighteenth-century Scottish intellectuals.
3 There were five universities. St Andrews, Glasgow, and King's College, Aberdeen, were late medieval papal foundations. Edinburgh and Marischal College, Aberdeen, were local political creations of the post-Reformation period. Present information is sparsest on eighteenth-century St Andrews.
4 There were, additionally, foundational studies in classical languages, seen also as a source of moral instruction; and mathematical training became increasingly important as a requisite for natural philosophy. During the eighteenth century, civil history, often considered as an extension of natural history, came to be regarded as a significant source of data for the study of morals.
5 George Campbell [11.22] runs somewhat against this trend. His work is distinctive for founding its discussion of eloquence and the grounds of conviction in the study of 'human nature', and for three chapters on logic, both formal and informal.
6 Duncan's popular tutorial manual [11.27] provides an example of this synthesis.
7 J.P.Wright, 'Metaphysics and Physiology', SPSE, 251–301.
8 R.B.Sher, 'Professors of Virtue', SPSE, 87–126.
9 R.L.Emerson, 'Science and Moral Philosophy in the Scottish Enlightenment', SPSE, 11–36.
10 M.A.Stewart, 'The Stoic Legacy in the Early Scottish Enlightenment', in M. J.Osier (ed.), *Atoms, Pneuma, and Tranquillity* (Cambridge, Cambridge University Press, 1991), pp. 273–96. See also the editors' introduction to Smith [11.72], 5–10. Stoicism had already attracted some seventeenth-century Scots, like the emigré radical Robert Ferguson in his *Sober Enquiry into the Nature, Measure and Principle of Moral Virtue* of 1673 (Allan [11.87], 115–18).
11 Hutcheson [11.49], introduction.
12 John Locke, *An Essay concerning Humane Under standing,* 4th edn, 1700, IV. xix. Hume developed further the associationist psychology on which Locke based his analysis. See C.Bernard, 'Hume and the Madness of Religion', HHC, 224–38.
13 It is significant that as history comes to be established in the Scottish curriculum, it is a synthesis of classical and biblical sources.
14 Simson [11.69], 3–5, 12–13, 20; see also 'Mr. Simson's Answers to Mr. Webster's Libel' in *The Case of Mr. John Simson,* 1715, pp. 254–63. For contemporary criticism see James Hog, *A Letter to a Gentleman concerning the Interest of Reason in Religion,* 1716; John McLaren, *The New Scheme of Doctrine contained in the Answers of Mr. John Simson,* 1717, ch. 12; Alexander Moncrieff, *Remarks on Professor Simson's First Libel and his Censure Considered,* 1729, pp. 43–59.
15 M.A.Stewart, 'Rational Dissent in Early Eighteenth-Century Ireland', in K. Haakonssen (ed.), *Enlightenment and Religion* (Cambridge, Cambridge University Press, forthcoming). Cf. Wishart [11.85], 221–6.
16 J.Moore and M.Silverthorne, 'Natural Sociability and Natural Rights in the Moral Philosophy of Gerschom Carmichael', PSE, 1–12.
17 Turnbull [11.74]; Wallace [11.83]. See M.A.Stewart, 'George Turnbull and Educational

Reform', in Carter [11.90], 95–103; and M.A.Stewart, 'Berkeley and the Rankenian Club', *Hermathena* 139 (1985): 25–45.

18 Dudgeon, *The State of the Moral World Considered,* 1732 and *A Catechism Founded upon Experience and Reason,* 1739, in *Works* [11.25]. Cf. Carabelli [11.112], 197–206. Raphael [11.145], 36, suggests that Adam Smith was also a deist. So, almost certainly, were some of the philosophically minded scientists in the later part of the century, like William Cullen (1710–90) and James Hutton (1726–97).

19 Turnbull [11.80], ch. 9. Turnbull's examples reappear in George Wallace [11.82], 42.

20 Reid [11.62], 162.

21 Porterfield [11.57], 214–33. Rejecting Berkeley's view that our judging of distance by sight is due to 'custom and experience', Porterfield sees as the only alternative an acknowledgement of 'an original connate and immutable Law, to which our Minds have been subjected from the Time they were first united to our Bodies'. Such a law is already implicit in Berkeley's appeal to touch; and if we accept it in relation to one sense, it is more, not less, economical to accept it for a second. So, he supposes, the mind 'traces back its Sensations' through the retina along the 'perpendicular Lines' described in optics—never addressing the difficulties Berkeley found in this suggestion. The language of ideas obscures the fact that Berkeley must hold that vision causes us only to *imagine,* not detect, a tangible distance. Porterfield's analysis of the problem led Reid to his distinction between sensation and perception, discussed below.

22 Wishart [n.86]. Patrick Hardie of Aberdeen, the first Scot to mention Berkeley in print (1719), and perhaps the first to discuss him in the classroom, was an exception to the view of Berkeley as a friend to religion: Wood [11.106], 38.

23 Stewart, 'Berkeley and the Rankenian Club' (above, n. 17).

24 Baxter [11.6], vol. 2, sect. II.

25 On Steuart, see M.Barfoot, 'Hume and the Culture of Science in the Early Eighteenth Century', SPSE, 151–90. On Turnbull, see J.Laird, 'George Turnbull', *Aberdeen University Review* 14 (1926–7): 123–35; Norton [11.120], ch. 4; Stewart, Turnbull and Education' (above, n. 17).

26 Hutcheson, *System* [11.50], Bk. III. He first published these views in a Latin class manual, translated posthumously as *A Short Introduction to Moral Philosophy,* 1748; but the underlying theory of rights was already developed by 1728, in the second edition of the *Inquiry concerning Virtue* [11.48], sect. VII. The political argument against hereditary guilt also challenged the theological doctrine of original sin.

27 C.Robbins,' "When it is that Colonies may Turn Independent" ', *William and Mary Quarterly,* 3rd series, 11 (1954): 214–51. In his *System* (vol. 2, p. 232), Hutcheson even allows release from the obligation to comply with a policy implemented by consent, if its effect is contrary to the one intended.

28 These are reprinted as vols 1–2 of Hutcheson's *Collected Works,* Hildesheim, Olms, 1990.

29 Hume, *Treatise* [11.45], III. i. 2, which he could reasonably consider modelled on Hutcheson's remarks on beauty, *Inquiry* [11.48], sect. I.

30 Hutcheson, *System* [11.50], 1:53. Cf. *Illustrations* [11.46], sect. IV. The difference between Hutcheson and Hume here is a difference over their interpretation of the theory of secondary qualities—whether in the mind or in the object—to which virtue and vice are being assimilated.

31 Archibald Campbell [11.19]. For Hutcheson, benevolence and self-love were conflicting motives, the one moral, the other amoral. It required rational reflection and self-discipline to cultivate the one and counteract the other.

32 The ultimate authority here would have been Calvin's *Institutes of the Christian Religion*. A similar orthodox defence of inspirational religion, seen as distinct from enthusiasm, was developed by Moncrieff (above, n. 14). The Miracles of Christ and his Apostles are to be believed, because contained in the Scriptures, and not the Scriptures because of them' (*Remarks,* p. 56). Otherwise Moncrieff could not be sure why the miracle reports in Josephus were ridiculous, and those in the Gospels not.
33 J.Moore, 'Hume and Hutcheson', HHC, 23–57; L.Turco, 'Hutcheson nel terzo libro del *Trattato sulla natura umana*', in M.Geuna and M.L.Pesante (eds), *Passioni, interessi, convenzioni,* Milano, Angeli, 1992, pp. 77–93. Norton [11.120], 87–92, stresses the 'providential dimension of Hutcheson's thought'; contrast Hume, as presented in the same author's 'Hume, Atheism, and the Autonomy of Morals', in Hester [11.115], 97–144.
34 M.A.Stewart and J.Moore, 'William Smith (1698–1741) and the Dissenters' Book Trade', *Bulletin of the Presbyterian Historical Society of Ireland* 23 (1993): 20–27. For further discussion of Hutcheson's ethics in relation to Hume's, see S.Darwall, 'Hume and the Invention of Utilitarianism', HHC, 58–82.
35 On Pringle see Stewart, 'Stoic Legacy' (above, n. 10).
36 See *A Letter from a Gentleman* [11.40], a pamphlet hastily assembled by Henry Home, adapting material by Hume.
37 English clerics were first off the mark. See Thomas Rutherforth, *The Credibility of Miracles Defended against the Author of Philosophical Essays,* 1751.
38 J.Passmore, 'Enthusiasm, Fanaticism and David Hume', in Jones [11.99], 85–107.
39 For recent scholarship see Gaskin [11.113], ch. 8; Houston [11.116]; Jones [11.118], ch. 2; M.A.Stewart, 'Hume's Historical View of Miracles', HHC, 171–200; D.Wootton, 'Hume's "Of Miracles" ', SPSE, 191–229.
40 Locke, *Essay,* IV, xv–xvi. On 'proportioning assent', cf. E, no.
41 Hume is emulating the strategy adopted against transubstantiation by Tillotson, in a sermon 'The Hazard of being Saved in the Church of Rome'.
42 E, 115n.
43 E, 56n., 115; cf. 127.
44 E, 122. Cf. George Campbell [11.21], 21–30.
45 Hume used similar tests, elsewhere, to appraise the claims to inspiration made on behalf of Joan of Arc and the claims to historical authenticity made on behalf of the Ossian forgeries. Another who felt the need to defeat whatever threatened established regularities was Pringle [11.58], who contested the evidence for meteorites.
46 E, 121, 129.
47 Carabelli [11.112], esp. ch. 3; M.Malherbe, 'Hume and the Art of Dialogue', HHC, 201–23; M.Pakaluk, 'Philosophical Types in Hume's *Dialogues*', PSE, 116–32.
48 I owe these calculations to Ruth Evelyn Savage.
49 M.A.Stewart, 'An Early Fragment on Evil', HHC, 160–70.
50 Hume sometimes calls this minimal belief and the practice of virtue 'true religion'. This is not a body of doctrine, or a practice of worship. The same lip-service to the traditional cosmological argument in *Dialogues* Part II is consistent with the speakers' subsequent disagreement over the 'demonstrative' formulation of such an argument in Part IX. See M.A.Stewart, 'Hume and the "Metaphysical Argument *A Priori*"', in A.J.Holland (ed.), *Philosophy, its History and Historiography,* Dordrecht, Reidel, 1985, pp. 243–70; E.J.Khamara, 'Hume *versus* Clarke on the Cosmological Argument', *Philosophical Quarterly* 42 (1992): 34–55.
51 D, 45. Such associations were expressly repudiated by George Cheyne [11.23], 2, the

Scottish Newtonian from whom Hume drew the description.

52 This formulation (D, 56) draws on another Scottish Newtonian, MacLaurin [11.53], 381, and foreshadows Reid [11.62], 460.

53 D, 47, 50, 52, 58, 68–71. Hurlbutt [11.117] has introduced an influential misunderstanding into Hume's exegesis by suggesting a sense of 'design' in which the detection of design becomes a *premise* of the Design argument. This reduces it to triviality. The argument scrutinized by Hume takes as its premise the existence of a certain kind of *order* in nature, and seeks to show, by analogy, that order of this kind is evidence of design.

54 D, 62–6, 84–5.

55 D, 72–3, 78–9, 85–7. Cf. Hume's account of polytheism, as a response to the diversity of phenomena, *Natural History* [11.42], 139.

56 D, 96–7, 102–3. This was always for Hume the main obstacle to theism; and as his correspondence with Hutcheson shows, he had problems understanding what it could mean, on his own secular analysis of morals, to ascribe virtues to the Deity. An alternative interpretation of the preponderance of pain is found in Baxter [11.6], who used it as evidence for a compensating immortality.

57 D, 119–21.

58 Hume himself disparaged one common application of this technique, the 'contract' theory of society. Dugald Stewart later recommended the practice as offering a truer insight into the nature of human institutions than a correctly documented narrative history. He called it 'conjectural history' and cited Hume's *Natural History* as a paradigm. It is important to see, however, that Hume was speculating not on the first origins of religion, but on its recurrent origin in human nature, wherever it occurs. Cf. S.Evnine, 'Hume, Conjectural History, and the Uniformity of Human Nature', *Journal of the History of Philosophy* 31 (1993): 589–606; R.A.Segal, 'Hume's *Natural History of Religion* and the Beginning of the Social Scientific Study of Religion', *Religion* 24 (1994): 225–34

59 A similar picture of historical religion is found in Hume's *History*. See Bernard (above, n. 12).

60 Hume used the same tactic, ironically, in concluding his discussions of miracles and of immortality.

61 William Robertson, *History of America,* 1777, *Historical Disquisition concerning the Knowledge which the Ancients had of India,* 1791. In the appendix to the latter, Robertson's depiction of the 'Stoicism' of the Brahmins has Humean echoes.

62 Hume, *Essays* [11.44], 590–98; *Treatise* [11.45], I. iv. 5. The essay is partly targeted against Joseph Butler's *Analogy of Religion,* 1736.

63 Wright [11.123], §16.

64 Henry Home, *Essays* [11.39], 1st edn, 207–18.

65 Ibid., Pt I, essays 1–2.

66 He supports this by comparison of the different senses: because some involve contact with the object sensed and others do not, we have intuitive evidence of the distinction between perception and the object perceived.

67 Ibid., Pt II, essays 1–4, 7. For the Hume-Kames relationship, see Norton [11.120], ch. 4; Stewart, 'Hume and the "Metaphysical Argument"' (above, n. 50).

68 On this Society, see Ulman [11.54]. In spite of the occasionally acerbic rhetoric, several of his critics relished the challenges posed for them by Hume's philosophy. For a wider view of Aberdeen philosophical activity, see Wood [11.106]; Wood, 'Science and the Pursuit of Virtue in the Aberdeen Enlightenment', SPSE, 127–49. The Aberdeen philosophers constituted a loosely knit fraternity with varied interests. The herding of them into a

monolithic 'school' derives from later German and French commentary, but has its roots in Joseph Priestley's *Examination of Dr. Reid's Inquiry, etc*. of 1774. Priestley, an advocate of David Hartley's materialism, castigated Reid, Beattie and Oswald as a reaction-ary coterie, cut off from the mainstream. Of these, James Oswald (1703–93), whose interests were predominantly theological, repudiated any association with Kames.

69 George Campbell [11.21], 14–16, 22, 18.
70 Ibid., 26, 33.
71 Ibid., 45, 72–7.
72 A fuller discussion of common sense occurs in Campbell [11.22], I. v. 3, where it is one of three sources of Intuitive evidence' (evidentness). It is the basis upon which we recognize that whatever has a beginning has a cause, that where the parts of something serve a common end there was intelligence in the cause, and that there are other intelligent beings besides oneself. If we have not implicitly recognized these and other principles—the third is perhaps the most striking—we have nothing on which to base other knowledge.
73 Reid, *Intellectual Powers,* VI. vi (*Works* [11.62], 452–61).
74 Cf. Berkeley, *Principles,* §148.
75 P.B.Wood, 'Hume, Reid and the Science of the Mind', HHC, 119–30.
76 Beattie [11.10], 41, 142. Beattie left in manuscript a second, satirical, attack on scepticism. See King [11.107], ch. 5; E.C.Mossner, 'Beattie's "The Castle of Scepticism"', *Texas University Studies in English* 27 (1948): 108–45. For a reassessment of the relation of Reid and Beattie to Hume, see Somerville [11.108].
77 K.Haakonssen, 'From moral philosophy to political economy', PSE, 211–32.
78 Dugald Stewart [11.73], 1:441. For a searching critique of this reading of Hume, see Wright [11.123], ch. 4.
79 Stewart [11.73], 3:417–24. Cf. I.D.L.Clark, 'The Leslie Controversy', *Records of the Scottish Church History Society* 14 (1960–3): 179–97; J.G.Burke, 'Kirk and Causality in Edinburgh, 1805', *Isis* 61 (1970): 340–54; Carabelli [11.112], ch. 12.
80 Reid [11.62], 199.
81 Brown [11.12], 2nd edn (1806): 44–7, 51–5, 80, 94.
82 Another projected treatise on Berkeley has not been traced.
83 Shepherd [11.67], 33–4, 39–43, 28.
84 Shepherd [11.68], essay 8.
85 Ibid., ch. 2.
86 Reid, *Active Powers,* III. iii. 6 (*Works* [11.62], 590–1). A better picture of Reid's substantive ethics is to be obtained from his manuscripts. See *Practical Ethics* [11.63], including Haakonssen's substantial introduction.
87 Rowe [11.138].
88 Smith [11.71]; Ferguson [11.28]. Hume, principally in his *Essays* [11.44], also worked on topics in political economy. See A.S.Skinner, 'David Hume: Principles of Political Economy', in D.F.Norton (ed.), *Cambridge Companion to Hume,* Cambridge, Cambridge University Press, 1993, pp. 222–54.
89 Smith [11.72], I.i.1. For significant new scholarship on Smith the philosopher, see Skinner [11.146] and Jones [11.143],
90 Smith learnt from Hume the constructive role of the imagination in the workings of the mind For his application of this to scientific systems, see A. S.Skinner, 'Adam Smith: Science and the Role of the Imagination', in W.B. Todd (ed.), *Hume and the Enlightenment,* Edinburgh Edinburgh University Press, 1974, pp. 164–88; D.D.Raphael,' "The True Old Humean Philosophy" and its Influence on Adam Smith', in G.P.Morice (ed.), *David Hume.*

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CHAPTER 12
The German Aufklärung and British philosophy

Manfred Kuehn

INTRODUCTION

The German Enlightenment was not an isolated phenomenon.[1] It was closely connected with developments in other European countries and in North America. Like the thinkers in other countries, the Germans were advocating a new ideal of knowledge. They were concerned with a critical examination of previously accepted doctrines and institutions from the point of view of reason. Though the German Enlightenment had its own distinctive voice, it would have been very different without influences from abroad. Two countries were especially important in shaping the German Enlightenment, namely France and Great Britain. It is perhaps not too much of an exaggeration to say that the German Enlightenment would have been impossible without these British influences. The following chapter will investigate the influence of British philosophers on the German Enlightenment.

It would be easy to enter into a dispute as to when the Enlightenment actually began. Some scholars have argued that the family of ideas and attitudes that characterize what we today call 'the Enlightenment' originated in the second half of the seventeenth century, others have argued that it was essentially an eighteenth-century phenomenon.[2] There are even good reasons for the claim that the 'enlightenment' as we understand it today really began to flower only at the middle of the eighteenth century.[3] However, it would be very easy to exaggerate the importance of such periodizations. There is no 'real chasm' between the Enlightenment and the period that preceded it. As Ernst Cassirer has pointed out, the new ideal of rationality developed 'steadily and consistently from the presuppositions which the logic and theory of knowledge of the seventeenth century… had established' ([12.19], 22). There is a change in emphasis, not a radical break. While such seventeenth-century philosophers as Descartes, Leibniz, and Spinoza were rather optimistic in believing that all knowledge could actually be reduced to rational principles and thus be raised to a strict science, the eighteenth-century Enlightenment thinkers were more sceptical about how this could be done. There is a move away from the principles to the phenomena, and from the general to the detail, but no abandonment of the goal of rational explanation. For this reason, we should expect difficulties in determining who did or did not 'belong' to the Enlightenment, but for the very same reason we must say that not much rides on such classifications.[4]

In any case, it is much easier to determine the beginning (and the end) of the Enlightenment in Germany than in most other countries. It clearly has its beginnings in the disputes between the followers of Christian Thomasius (1655–1728) and Christian Wolff (1679–1754) early in the eighteenth century at the University of Halle. The

pietistically influenced Thomasians strongly opposed Wolff's rationalistic philosophy on religious grounds and they ultimately were successful in having Wolff not only expelled from the University, but even from Prussia (in 1724). Wolff's formal address to the University of Halle "On the Practical Philosophy of the Chinese' of 1721 may be taken to be the culmination of this dispute, and it may also be taken as the starting-point for the discussion of the history of the Enlightenment in Germany. Wolff argued in this address that ethics was not dependent on revelation, that Chinese ethics and Christian ethics were not fundamentally different, that happiness need not have a religious basis, and that reason was sufficient.[5]

Wolffian philosophy became the dominant force at German universities after 1720. Its influence began to wane only after the middle of the century. However, when Wolff died in 1754, it was no longer at the centre of the philosophical discussion. From about 1755 on the Germans opened up more to external influences, and the Enlightenment in Germany began to resemble more closely the Enlightenment in France and Great Britain. This lasted until the early 1790ss. With the first successes and transformations of Kantian philosophy Germans turned inwards again. This change also marks the end of the German Enlightenment. Accordingly, it will be convenient to divide the German Enlightenment into two different periods, namely that of the early Enlightenment, or 'The Wolffian Period', which lasted from about 1720 to 1754, and that of the late Enlightenment or of 'popular philosophy', lasting from about 1755 to 1795.

THE EARLY ENLIGHTENMENT

The years between 1720 and 1754 are characterized mainly by the religious dispute between the Wolffians and Thomasians. While the Thomasians, deeply influenced by Pietism, advocated an almost mythical view of nature, the Wolffians were, on the whole, not religiously inclined and motivated by scientific concerns ([12.46]). Though both groups knew the major works of British philosophers, and especially those of John Locke, neither one had any deep affinities for them, and the influence of British philosophy on German thought during the Wolffian period was rather peripheral.

The Thomasians

Thomasius and his followers did not have much to offer by way of original thought addressed to philosophical problems.[6] They regarded most of the classical problems of perception and knowledge as sceptical quibbles of no consequence, believing that ultimately these problems could all be explained as the result of the Fall upon man's faculty of knowledge. Accordingly, they also believed that if the influence of the evil will were to be eliminated, everything would find its proper place and perspective. The Thomasian epistemology was therefore rather meagre. Its most distinctive characteristics are: (i) an extreme sensationalism, and (ii) a correspondence theory of truth, and (iii) the subordination of the faculty of knowledge to that of the will, and thus (iv) the subordination of philosophy to theology. Many of their psychological views exhibit a great resemblance to Locke's theories. And while Locke definitely had an influence on

their theories, these influences are not very interesting. In fact, everything that makes Locke philosophically interesting and important, namely his detailed investigations of particular epistemological problems and their consequences for metaphysics, is almost completely absent from the works of Thomasius and the Thomasians.[7] When they were not engaged in criticizing particular doctrines in Wolff, most of them excelled in general discussions of commonplaces.

Crusius, one of the last adherents of this way of thinking, is usually regarded as the most important of all the Thomasians. Following the earlier Thomasians, Crusius criticized rationalism from a pietistic point of view, objecting strongly to the optimistic faith in the omnipotence of reason. He argued that reason is limited and can be shown to be more dependent upon sense perception than the Wolffians wanted to admit. While he no longer accepted Thomasius's simple-minded sensationalist account of the origin of knowledge, and tended toward some sort of compromise between the rationalist belief in innate ideas and principles and Thomasian sensationalism, he is far from being clear on the details. Thus he did not want to reject entirely the doctrine of innate ideas, and he left the matter undecided. The following passage is perhaps typical:

> At the occasion of external sensation the ideas of certain objects arise. We then say that we sense these objects. There are two possible explanations for this. Either the ideas themselves already lie in the soul, and are made lively by these concurring conditions…or we have only the immediate cause and the power to form them at the moment of the concurrent condition and in accordance with it. We cannot know for certain which of these two possibilities is true. But we assume less, if we assume the latter.
>
> ([12.5], 153)

According to Crusius, rationalism was not necessarily wrong, though it may be presumptuous.

Crusius was at his strongest when he criticized Wolff and at his weakest when he tried to develop his own theory. Indeed, this can be said of all the Thomasians. Though they found in Locke a welcome ally in criticizing Wolff, they hardly ever went beyond him. Furthermore, their strong theological convictions usually got in the way of their philosophical arguments, making it very difficult for them to appreciate Locke's more subtle philosophical analysis. Accordingly, most of the similarities between the German sensationalists and British philosophers were incidental and remained without significant philosophical consequence.

The Wolffians

The Wolffians were philosophically more interesting.[8] However, since their philosophical project was essentially defined by the attempt to work out in a clearer and more systematic fashion the ideas of Leibniz, they had little use for such philosophers as Hobbes and Locke. Believing that the Leibnizian principles of contradiction, of sufficient reason, of the identity of indiscernibles, and of pre-established harmony were essentially correct, they also thought that philosophy was well on its way to becoming an exact

science by following the 'mathematical model'. The British philosophers, who emphasized the role of sensation in all of knowledge, appeared to be of little use in this context.

However, they were not dismissed. Wolff was clearly not a 'rationalist' in the sense of discounting empirical observation altogether. In fact, empirical observation formed for him the very starting-point, even 'foundation', for philosophy because he thought that by 'means of the senses we know things which are and occur in the material world'. Yet philosophy is not so much concerned with establishing and describing things as they exist, or as we may be acquainted with them by the senses. For Wolff, things 'which are or occur possess a reason from which it is understood why they are or occur', and philosophy is the enterprise of finding these reasons and putting them into systematic order by demonstrating how they are connected. Put differently, whatever exists or occurs is by that very fact possible. Philosophy's task is to show how they are possible. Accordingly, 'philosophy is the science of the possibles insofar as they are possible'. It must demonstrate from 'certain and immutable principles' and with 'complete certainty' why 'those things which can occur actually do occur' ([12.13] 3–20). Once this has been done, we have also demonstrated the 'reality' of the concepts of these objects, and we have gone from mere sensible and 'historical' knowledge to true philosophical understanding. In demonstrating why the things that can occur do occur, Wolff follows essentially Leibnizian lines, appealing to the principles of contradiction and sufficient reason. It is obvious that such philosophers as Locke could not be of much help in that enterprise. However, they could be important in determining what things exist or occur. Accordingly, one can find references to Locke in Wolff's discussion of 'empirical psychology'. He also appears to have made use of Locke in his moral philosophy. Some of his comments on Locke are negative, but many were much more positive than one might expect.[9]

Yet it would be easy to exaggerate the importance of Locke for Wolff. Though he could use some of the ideas of this British philosopher to his own end, he was ultimately more interested in developing his own metaphysics, i.e. in demonstrating the possibility of things and the reality of concepts. This was the part of his work that he considered to be most important. In fact, it was only this part that he considered to be truly philosophical. Locke entered really only into the pre-philosophical or 'historical' parts of his system. Even later, when such Wolffians as Baumgarten attempted to develop an aesthetic theory on Wolffian principles, this did not change. Aesthetics remained an attempt to show how beauty only appeared to be sensible, and that it was really also rational or conceptual. Accordingly, British philosophy could be for them, at best, marginally important.[10] It was only with Wolff's death and the end of the conflict between the Wolffians and the Thomasians that the Germans began to open up to British philosophers.[11]

THE LATE ENLIGHTENMENT AND POPULAR PHILOSOPHY

Moses Mendelssohn (1729–86), one of the best-known and most important philosophical talents of the second period, described the philosophical situation during the 1750s as one

of 'general anarchy', in which philosophy, 'the poor matron', who according to Shaftesbury had been

> banished from high society and put into the schools and colleges…had to leave even this dusty corner. Descartes expelled the scholastics, Wolff expelled Descartes, and the contempt for all philosophy finally also expelled Wolff; and it appears that Crusius will soon be the philosopher in fashion.[12]

This crisis was not a special German phenomenon, but one of European thought in general. In fact, it clearly was largely imported. While in Britain empiricism and rejection of ambitious all-inclusive speculative systems could already look back on a long and distinguished tradition, during the early part of the Enlightenment most German philosophers were still engaged in attempting to develop and work out such systems. In France, the mood had already changed under the British influence. Thus Condillac was asking in his *Treatise on Systems* (1749) for a synthesis of the positive or empiricist approach with a more systematic or rationalistic one, differentiating between the 'esprit systématique' and the 'esprit de système', rejecting the latter, while advocating the former. Voltaire had previously published his *Lettres philosophiques* (1743) and his *Elements de la philosophie de Newton* (1738), in which he attacked Cartesianism and argued for Newton's approach. Diderot, in his *On the Interpretation of Nature* (1754), advocated the experimental method and gave expression to his belief that mathematics had run its course and could not develop further. Rousseau's *Discourse on the Arts and Sciences* was published in 1750, and Buffon began to exert great influence when the first volume of his *Natural History* came out in 1749. Given the fact that most educated Germans could speak French and looked to France for literary and cultural models, it was inevitable that these developments would also have profound effects upon these Germans. Furthermore, since this empiricist turn in France was closely connected with a new appreciation of British natural science and British philosophy (indeed with an enthusiasm for anything British), the same also had to happen in Germany.

When Frederick the Great assumed power in 1740, he almost immediately began to work at reorganizing the Berlin Academy of Sciences. His intent was to raise its status, and to make it at the very least a worthy rival of the French Academy. To achieve this goal, he appointed to the Academy two of the leading Newtonians of the time, namely the French natural philosopher Pierre L.M. Maupertuis (1698–1759) and the gifted Swiss mathematician Leonhard Euler (1707–83). The perpetual secretary of the Academy, J.B.Merian, was also a Newtonian and therefore also anti-Wolffian. The King also invited promising Wolffians because he wanted a balance of Wolffians and Newtonians in the Academy.[13] However, between 1744 and 1759, it was clearly the Newtonians who had the upper hand. The questions for the regular prize essays were designed to discredit Leibniz-Wolffian philosophy, and to advance the course of Newton in Germany ([12.48]). This also involved close attention to British philosophy. The anti-Wolffians in the Academy knew and appreciated not only Locke, but also such thinkers as Berkeley and Hume ([12.50]) And Hume appears to have played an especially important role in the dispute between the Wolffians and the Newtonians at the Academy. Though it is not clear that the Newtonians always understood Hume correctly, they did invoke him against

Leibniz and Wolff.[14] Indeed, both the German and the French translations of Hume's *Essays* clearly were occasioned by the interest of the Newtonian members of the Academy.[15]

This clearly had important consequences. As one of the earliest historians of this period put it:

> Around the middle of the century…German scholars familiarized themselves more and more with other languages and especially with the beautiful and philosophical literatures of the French and the English. This…not only made them aware of the deficiencies and imperfections of the German language and the German national taste in the sciences and fine arts; and created not only the most lively passion to educate, to refine the sciences and the arts, and to compete with the foreigners in all kinds of beautiful representations, but it also made the Leibniz-Wolffian method of the school hitherto followed distasteful to the better talents. The strict systematic form, which the Wolffians had accepted, appeared to put oppressing chains upon the free flight of philosophical genius. Moreover, in a number of philosophical works by foreigners they also found thoroughness and systematic spirit, but no pedantry and coercion…even the textbooks of foreign philosophers were much more readable than those of the Germans.[16]

What looked at first like philosophical anarchy gave rise, under the influence of British models, to a new way of philosophizing. In the following I would like to say more about these effects.

Philosophical Style and Method

Hume's first *Enquiry* appeared in German as the second volume of the *Vermischte Schriften* in 1755. Johann Georg Sulzer (1720–79), the editor of the German translation of the first *Enquiry,* gave Hume high praise as a philosophical writer. He found that Hume could write clearly and elegantly about the most profound and difficult problems of metaphysics. Indeed, he claimed that in Hume 'thoroughness and pleasantness seem to fight for priority', and he praises Hume's work as the model for a truly popular philosophy, expressing his hope that the Germans would imitate Hume in this regard.[17] Closely connected with the problem of a popular philosophical style is for Sulzer—as well as most of his contemporaries—the problem of common sense. In fact, popular expression is seen only as the external expression of the principle of common sense ([12.14]). Therefore, Hume's philosophy could also be a model for philosophers who want to combine philosophical reasoning with common sense. However, one of Sulzer's most important reasons for publishing the translation was his belief that philosophers who are uncritically received become lax and superficial, and that the German philosophers are in this situation. They had allowed their weapons to become blunt and rusty 'during the long peace' of the Wolffian period.[18] Hume could be useful as a critic of German philosophers. Sulzer hoped that 'the publication of this work will interrupt their leisurely slumber and give them a new occupation'.[19]

Mendelssohn

One of the philosophers who was most impressed by Hume's style was Mendelssohn. In fact, he openly emulated it in his own works. Thus in his anonymous 'Letter of a Young Scholar in B'. he spoke of

> the beautiful philosophical writers, those who have noticed that the systematic way of representation is not always the best, those like Leibniz, Shaftesbury, Hume or the author of the *Letters on Sensation,* who often digress, but who always get back to the point.[20]

According to most Germans of the period, Mendelssohn succeeded admirably. They praised the elegance and thoroughness of his writings—comparing them explicitly with those of Hume. This shows that Hume provided these Germans with a new model for writing philosophy.

Garve

However, it would be a mistake if it were thought that this was a *merely* stylistic manner. We can see this clearly in another philosopher, who found Hume important for his style of writing, namely in Christian Garve (1742–98). Differentiating between a number of methods of thinking, he called special attention to what he called the method of observation.[21]

> It starts neither from the most general principles nor from common experiences; it is neither a systematic deduction of the appearances from rational concepts, nor a Socratic ascent from facts to the ideas and principles of reason. The philosopher… leads his readers…right into the materials, allowing necessary and preparatory ideas to flow in at certain occasions.

The philosopher who follows this method does not represent himself as a teacher among students. Rather, he presupposes that his readers know what any well-educated person knows about the subject, 'and his only goal is to add to the common stock of knowledge some new discoveries from his experience, and to fill in, or even discover some gaps'. According to Garve it is natural that 'all such new ideas…are only fragments'. He thought that the essays of David Hume were full of such fragmentary ideas. Furthermore, Garve argued that the value of these fragments was enhanced by Hume's sceptical approach. As a sceptic, Hume evaluates both reasons for and against any view under consideration. Since this is done in a masterful fashion by Hume, both in his *History* and in his philosophical writings, Hume could serve as the model for a new way of philosophizing. While his philosophy may have a bad name for some 'ever since its aim has been identified as empirical', it need not be contradictory to systematic philosophy. Indeed, such a philosophy of observation can itself be systematic, and 'an investigation that consists only of observations can possess true philosophical thoroughness as Hume's

and Montesquieu's works which are written in this spirit prove'. Hume's cautious and methodological scepticism became an alternative to the dogmatic way of doing philosophy, and many Germans followed Hume without ever openly referring to him.

Feder and Meiners

Similar methodological considerations also motivated the Göttingen philosophers Johann Georg Heinrich Feder (1740–1821) and Christian Meiners (1747–1810). Though both opposed radical scepticism, they also considered themselves as moderate sceptics. In fact, Feder described himself as having 'wavered between Wolffian dogmatism and scepticism' early in his life, and he further characterized his early scepticism as having been 'unrefined', 'unchecked' and 'without system'. His later thought consists exactly of a refined or checked scepticism, or a scepticism with a system. The same may also be said of Meiners. His *Revision der Philosophie* of 1772 relied mostly on the 'wise Locke' and the 'brave and good-natured Hume'. He also found that for strict or 'esoteric' philosophy 'no other method is as favourable as the sceptical method'. This scepticism towards all philosophical theories brought Feder and Meiners into the proximity of such common-sense philosophers as Thomas Reid. Like Reid, they felt that philosophers aimed too high in their conception of philosophy, attempted to obtain knowledge out of reach for human beings, and believed that 'whatever else man may try, he can only think with *his own* understanding' and not with some superhuman faculty of thought which grants absolute certain knowledge. Our understanding is very limited and not the best we can imagine, but it is all we have: 'to despise it for this reason, or not to be satisfied with it…would be neither philosophy nor wisdom'. According to Göttingers, philosophy had to become more modest. It had to learn from common sense, which is stronger than philosophical speculation. Indeed, the circumstance that common sense and the principles of morals, upon which human happiness depends most, have been conserved in spite of all the many artificial webs of error shows the beneficial frame of nature, which does not allow us to drift too far from these wholesome truths in the course of exaggerated speculation. Obscure feelings indicate them for us and instinct leads us always back to them. Accordingly, for the Göttingers the real task of philosophy could only be to establish these principles of common sense and morality more clearly and to defend them against the exaggerated speculations of certain philosophers.

However, their works had a tendency to become what Kant called a mere 'critique of books and systems'. Rather than concentrating on analyzing philosophical problems and solving them on their own, they collected all the different theories others had advanced with regard to them. While their philosophical approach is therefore usually characterized as 'eclecticism' or 'syncretism', it is perhaps better to call it 'indifferentism' or 'methodical scepticism', for the Göttingers did not set out simply to give a collection of different philosophical opinions, but they tried to develop a consistent philosophical system. Their study of different philosophical theories was no end in itself, but a methodological tool. As Feder put it, for instance: 'In order to protect myself from the delusions of one-sided representations and to reach well-founded insights it is necessary to compare different ways of representation and to study several systems'.

This approach to philosophy became very influential during the latter half of the

eighteenth century. Indeed, most popular philosophers followed this approach.[22] At least partially as a result of this tendency to mere eclecticism, most did not succeed in making interesting contributions to the discussion of philosophical problems, and their works deteriorated into a mere listing of different philosophical opinions.

New Problems in Metaphysics and Ethics

The increased attention to the observations and problems raised by British philosophers also had definite influence on what these Germans viewed to be the philosophical problems that needed to be solved. The early Wolffians had been occupied mainly with the rational side of man, or with logic and metaphysics, and they had neglected almost completely our sensitive side (or, like Baumgarten, simply treated it 'in analogy to reason'). The works of the British philosophers brought the importance of man's sensitive nature most forcefully home to them. Accordingly, the younger German philosophers tried to supplement the Wolffian theory by relying on British observations, or they simply rejected Wolffianism altogether. Psychology and anthropology, aesthetic and educational theories based upon more empirical methods began to replace logic and rationalistic metaphysics as the key disciplines for an understanding of the world and man's place in it. The discipline of metaphysics itself was transformed by this. While the Wolffians had already differentiated between an 'empirical' and a 'rational' or 'pure' discipline within metaphysics, they had also clearly emphasized the work of pure metaphysics as the most distinctive and fundamental occupation of philosophy. During the second part of the German Enlightenment, the empirical part became more and more decisive. Yet only few were willing to give up pure metaphysics altogether. In their heart of hearts, most of these philosophers remained Wolffian.

Mendelssohn

One of the philosophers who most resisted the move in this direction, while at the same time paying a great deal of attention to incorporating British observations into aesthetics and ethics was Mendelssohn.[23] Brought up on Wolffian logic and ontology, *rational* theology and *philosophia practica universalis,* he had early discovered that this way of philosophizing was exhaustive neither of the world nor even philosophical discussion. He found that British philosophers also had something to offer. The works of Locke, Shaftesbury, Hutcheson, Hume, and almost every other British philosopher of note were full of problems that needed solution and observations that needed to be explained, if German philosophy of the traditional sort was to succeed, and most of these problems seemed to have do with the analysis of sensation in theoretical, moral, and aesthetic contexts. Mendelssohn had formulated a new problem or task for himself (and the other Germans). This task was conceived by him—at least at first—as one of incorporating British 'observations' in a comprehensive theory. As he noted at the occasion of a review of Edmund Burke's *A Philosophical Enquiry into the Origin of our Ideas of the Sublime and Beautiful:*

> The theory of human sensations and passions has in more recent times made the

> greatest progress, since the other parts of philosophy no longer seem to advance very much. Our neighbours, and especially the English, precede us with philosophical observations of nature, and we follow them with our rational inferences; and if it were to go on like this, namely that our neighbours observe and we explain, we may hope that we will achieve in time a complete theory of sensation.[24]

What was needed, he thought, was a *Universal Theory of Thinking and Sensation,* and such a theory would explain the relation of sensation and thinking in theoretical, moral and aesthetic contexts.[25] It would use British 'observations' and German (speak: Wolffian) 'explanations'.

Mendelssohn had also definite ideas about the general approach that had to be followed. It had to be shown that the phenomena observed by British philosophers and traced by them to a special sense are really rational. Thus it was wrong, he argued, to follow certain British philosophers in speaking of a special 'moral sense' or 'common sense', for instance. Though they may appear to be independent faculties of the mind, they must be reduced to reason. Though he admitted that this reduction to reason is difficult in the case of moral judgements, since our moral judgements 'as they present themselves in the soul are completely different from the effects of distinct rational principles', he did not think that this means they could not be analysed into rational and distinct principles.[26] Our moral sentiments are 'phenomena which are related to rational principles in the same way as the colours are related to the angles of refraction of light. Apparently they are of completely different nature, yet they are basically one and the same'.[27] Moral phenomena are phenomena in the Leibnizian sense, but they are also *'phenomena bene fundata'* because they are ultimately founded in something rational. In this way Mendelssohn also set for himself and others a most important task, namely the task of explaining how the rational principles are related to what appear to be the completely different moral sentiments, for the colour analogy, though very sugges-tive, does not explain anything about the actual relation between rational principles and moral judgements. It was precisely this task that defined one of the central concerns of German metaphysicians and moral philosophers during the second half of the eighteenth century, namely to show how 'sense' could be reduced to 'rational principles', or how British observations could be incorporated into a framework that remained more or less Wolffian. Most philosophers in Germany between 1755 and 1790 were working on this problem in some way or other. In the following I shall briefly summarize two of the most important and influential attempts, namely those of Johann Nicolaus Tetens and Immanuel Kant.

Tetens

Johann Nicolaus Tetens may well be the German philosopher of this period who learned most from British thinkers. He is sometimes referred to as the 'German Locke', but he might also have been called the 'German Reid', for Tetens always starts his own discussion of philosophical issues at the point where Reid left off, and his epistemological theory is deeply influenced by the Scottish analysis of the problem of perception. Dissatisfied with the state of German speculative philosophy as he found it, Tetens turned

to observational psychology for his method and to common sense for the subject-matter of his philosophy. Thus he declared that the method he has used 'is the method of observation; the one which Locke and our psychologists have employed in their empirical psychology', and that 'the cognitions of common sense are the field which must be worked in philosophy'. Yet even Tetens did not believe that Locke's method could exhaust all of philosophy. Rather, he believed that even if we were to succeed in determining and describing all the principles of the human mind 'in accordance with the analytic method, used by Locke, Hume, Condillac, and others (including some German philosophers)', there would still be much more work to be done; we would have to go on to develop a basic science that has to do with the 'universal reason' of things. Though Tetens spent most of his efforts pushing further along the lines of Locke, Hume, Reid and Condillac, he argued that speculative philosophy is not only possible, but even desirable. Ultimately, his work was meant to show that, once the human mind had been correctly described, and its fundamental concepts and principles had been catalogued, metaphysics could be freed from the contradictions which make up such a large part of it. Metaphysics would then be able to progress without further difficulties. In fact, Tetens believed that a metaphysics is possible even without a complete delineation of the basic features of the human mind. That this is possible is shown by the fact that there 'exist already, at present, many particular speculative theories from general concepts, which our metaphysicians have developed, and which secure for the understanding that knows how to use them great, extensive and fertile vistas just as they are'. We need only to develop further these fragments of metaphysics that exist in order to arrive at the truths that define the fundamental science of metaphysics.

These truths will, according to Tetens, be objective truths, not merely subjective convictions. Since Locke's analytic method can yield at best 'subjective necessity which forces us to think in accordance with universal laws of the understanding', he must show how objective necessity arises, or how it is that we can legitimately ascribe 'what we cannot think otherwise' to properties in the objects themselves. Tetens tries to accomplish this by first showing that this question can only mean 'whether the laws of thought are only subjective laws of our own faculty of thought or whether they are laws of any faculty of thought whatsoever'. After these reformulations, Teten's answer to the question concerning the objectivity of knowledge has become surprisingly simple. Since we cannot think any other faculty of thought than our own—for if there were such a faculty of thought with other laws, it could not be called 'thought' in the same way as our faculty—the truths of reason 'are objective truths, and the fact that they are objective truths is just as certain as the fact that they are truths in the first place. We cannot doubt or deny the former, just as we cannot doubt or deny the latter'.

Kant and the end of the Enlightenment

It was in this philosophical situation that Kant first conceived of the problem of a critical philosophy and began to work towards his *Critique of Pure Reason*. His own work owes just as much to such philosophers as Locke, Hume, Reid, Hutcheson and Smith as it does to the earlier German discussions of their theories. Indeed, Kant's ultimate theory is in one important sense no different from the reactions of his German contemporaries. He is

also concerned with developing a universal theory of thought and sensation. He also wanted to show that the mere subjective necessity of sense that appeared to be sufficient for British philosophers to speak of certainty, can be shown to be objective. Furthermore, he also followed the lead of the other Germans in trying to show that sense-perception presupposes concepts. Though his account of how the senses presuppose concepts is different from those given by his contemporaries, it owes a great deal to them, and it alone does not radically differentiate his position from theirs. His a priori 'categories and principles of understanding' are closer relations of Tetens's 'laws of the understanding'.[28] However, what differentiates him from his contemporaries is that he was willing to take a step they apparently could not make, namely to accept as true Hume's principle of significance, or the claim that we cannot possibly know anything that goes beyond what can be experienced through our senses. Sensations without concepts may be blind, but concepts without sensations are empty. Kant argued that metaphysics in the traditional sense was a dead end and an illusion, while they were all trying to revise or repair it so that it could take into account sense-perception in a better way than traditional Wolffian metaphysics had allowed it.

One might say that Kant finished the task that Mendelssohn had earlier formulated. The (British) observations had been incorporated into a (German) theory. His *Critique of Pure Reason* is, at least by intention, the kind of *Universal Theory of Thought and Sensation* that Mendelssohn was asking for and that most of the Germans of the period were trying to develop. But when the *Critique* appeared it was not seen as the solution of that problem, but rather as a problem itself. Indeed, it was seen to give rise to a great number of problems. During the 1790s, Germans began to concentrate more and more on the problems posed by Kant. Though British philosophers were still mentioned, their views were hardly ever discussed. In this context we find such oddities as a review of a German translation of Hume's *Treatise* that neither says anything about the contents of the work nor about the quality of the translation, but offers just a discussion of Kant's deduction of causality as an a priori principle.[29] British philosophy had become irrelevant for the problems the Germans were discussing now. This turn-away from British sources coincided with the end of the Enlightenment in Germany.

NOTES

1 This chapter should be compared with the fuller treatment of the Enlightenment given by Lewis White Beck in [12.17].

2 Hazard [12.27], suggests such an early beginning. See also [12.28], xvi. Beck, [12.16], 243, suggests '1687–1688, the publication of Newton's *Principia* and the Glorious Revolution' as a convenient date for its beginning and '1790–1793, the publication of Kant's last *Critique* and the Reign of Terror' as the date for its end. I shall follow Beck's suggestion.

3 This is suggested by Cassirer in [12.19].

4 See also [12.21].

5 I agree with Beck that both Thomasius and Wolff are important for the German Enlightenment. However, I am not sure that it is quite correct to refer to the two as the 'two founders of the German Enlightenment', and that besides the rationalistic form of the Enlightenment of Wolff, there was also a Pietistic version of it. (See [12.16], 243ff.) I am

dubious as to whether Thomasius and his followers really should be viewed as belonging to the 'Enlightenment' per se. In many ways they are better characterized as belonging to the enemies of the Enlightenment. It is not insignificant that Wolff gave this address when he had to leave Halle because of pressure from the Thomasians.

6 The most important members of this school are Christian Thomasius, Johann Franciscus Budde (1667–1729), Joachim Lange (1670–1744), Andreas Rüdiger (1673–1731), and very remotely A.F.Hoffmann (1703–41) and Christian August Crusius (1715–75). Johann Jakob Brucker (1696–1770) also deserves to be mentioned. His influential *Historia critica philosophiae* is said to have been the source of Diderot's articles on the history of philosophy in the *Encyclopédie*. See [12.26], 1:346–8.

7 For details (and a more positive account) see [12.45], 33–72.

8 The names of the Wolffians are legion. They are too numerous to mention, since they held positions at almost every institution of higher learning in Germany. Some of the most important are Ludwig Wilhelm Thümmig (1697–1728), Bernhard Bilfinger (1693–1750), Friedrich Christian Baumeister (1709–85), Gottsched (1700–66), Georg Friedrich Meier (1718–77), and especially Alexander Gottlieb Baumgarten (1714–62).

9 Wolff clearly also knew of Berkeley and Collier, and he found it necessary to offer a refutation of idealism that is meant to refute them along Leibnizian lines. It is not clear how well he knew Berkeley.

10 Nationalist historians of philosophy have attempted to show that the Germans never took British philosophy seriously, and that the entire eighteenth century can be explained by German sources alone. Dessoir, for example, tried to show in [12.22], 53, that 'the basic direction of this development [of German thought in the eighteenth century] can be understood even without referring to England' by relating Kant to the later Thomasians and especially Crusius. And Max Wundt argued that Kant's critical problem arose 'from a connection of the subjective and psychological approach of Thomasius with the objective and ontological principles of Wolff, claiming that Kant's 'transcendental logic must be derived from this tension within German philosophy and not from foreign influences' ([12.43], 250 and 254).

11 The following can trace only the rough outline of the German-British relation. It would take several monographs to do it justice. Above all, Shaftesbury, Hutcheson, Lord Kames, Hume, and Reid and Ferguson were found to be extremely important by the Germans. For Shaftesbury, see [12.41]. For Henry Home, Lord of Kames, see [12.42], [12.32] and [12.65]. For a general account of the state of discussion concerning Home's influence in Germany see [12.37]. On Ferguson not very much work has been done. But see [12.24]. See also Pascal [12.65]. For Reid see [12.30] or [12.31] and for Hume see [12.29].

12 Mendelssohn, *Briefe, die neueste Literatur betreffend* 1(1 March 1759): 129–34.

13 See [12.51]. See also [12.49].

14 See, for instance, [12.8]. See also [12.9]. Both are discussed in [12.53], 70ff-Merian's interest in Hume did not decline. Thus on 16 December 1763 Mr. Merian read 'une Piece traduite de Hume "Sur l'Eloquence"' ([12.52], 282). For the 1790s see [12.10].

15 Thus the translator of [12.15] with the first *Enquiry* as volume I, was the perpetual secretary of the Berlin Academy, J.B.Merian. The writer of the Preface was another prominent member of this institution namely J.H.S. Formey, and the entire enterprise is said to go back to a suggestion by Maupertuis, the president of the Berlin Academy. Johann Georg Sulzer, a prominent Wolffian in the Academy thought that Hume was important for precisely the same reasons that Maupertuis, Merian and Formey believed him to be important. He also believed that Hume's scepticism constituted a most significant objection to Leibnizian philosophy,

and it was for that reason he thought that the *refutation* of Hume was most important. Thus he became the editor of the German translation of the first *Enquiry,* and took the occasion to provide this dangerous work with an introduction and a running commentary, designed to refute Hume's theories.

16 See [12.4], 4:503f., see also [12.4], 5: i-x, and [12.6], 1:289.

17 [12.14], Vorrede. That Sulzer is not the translator is clear from the following: 'Es haben mich zwei Gründe zu der Bekanntmachung dieser Übersetzung bewogen, die ich durch einen blossen Zufall in die Hände bekommen habe'.

18 Sulzer obviously did not think that the criticisms put forward by the Thomasians were serious objections to Wolff.

19 Kant later in the *Prolegomena* seems to allude to just this passage when he says that he was awakened by Hume from his Dogmatic slumber', and that this gave his enquiries a 'new direction'. See also [12.72] and [12.74].

20 [12.2], 524f. Since Mendelssohn himself was the author of the *Letters on Sensation,* he explicitly identifies himself as a Humean in so far as writing is concerned. He goes on to wonder whether Shaftesbury and Hume followed 'a single line of inferences', but he declines to answer the question because this exegetical question can only be answered by a closer study of the actual texts. Shaftesbury was also important. The *Philosophische Gespräche,* for instance, are patterned after a dialogue of Shaftesbury (see [12.53], if. and [12.54], 37ff). His 'Briefe über die Empfindungen' are even more indebted to Shaftesbury's style ([12.53], 86–90). Mendelssohn also began a translation of Shaftesbury's essay on the *sensus communis* because he liked that work so much. What he seems to have appreciated the most was Shaftesbury's suggestion that ridicule could serve as a test of truth ([12.54], 109–12). Hume's *Enquiries* also played a large (though mainly negative) role in Mendelssohn's thought. In fact, his essay 'Über die Wahrscheinlichkeit' is, at least in part, an attempt to answer Hume's doubts about experiential judgements and their basis in analogy and induction (see [12.16], 321n. and [12.53], 233).

21 Actually, he differentiates six methods. 'The first is the method of education or the systematic method, the second, the method of invention or the Socratic method, the third the historical, the fourth the method of refutation, the fifth the method of commentary, and the sixth that of observation.' As the best example of the systematic method he mentioned Descartes. It is the method of those who already know what they want, and who want to get to their goal as efficiently as possible. The second method was for him that of the inventors of ideas. He mentioned Franklin and Plato as examples. The third, fourth, fifth and sixth methods are really only subgroups of the second. The third is really the methods of genetic explanation. It is either that of an individual of a species and either true or fictional. The method of refutation might be thought to be the one he assigns to Hume, but he doesn't. It is for him really a German method. Leibniz and Kant are characterized by it. As he puts it:

> Leibniz, whose name honours that of Germany found his way to most of his truths by refuting or correcting the concepts of Locke and Descartes. And even that philosophy by which our age will distinguish itself for posterity and which begins to communicate its form, though not always its spirit to German writings in all different kinds really is the fruit which developed from the germ of an examination and refutation of the skeptical claims of Hume and the dogmatic assertions of Leibniz.

22 The most important philosophers in this group are Dietrich Tiedemann (1748–1803), Christian Lossius (1743–1813), and Ernst Platner (1744–1818). Their theories are in many

ways not much more than the stricter application of the principles of Feder and Meiners. In fact, some of them, like Tiedemann, for instance, actually studied in Göttingen. Others, like Platner, Irwing and Lossius, were more independent. But in general, it may be said that while the Göttingers were content with a careful consideration of various theories and often suspended final judgement, the sensationalists had a strong bias towards physiological explanations. They were convinced that sensation and its basis in human physiology was the key for understanding human nature and thus for putting philosophy on a scientific basis. They all rejected Wolffian rationalism as being fundamentally mistaken and leading to a form of idealism. But they were by no means radical materialists. For they denied neither the existence and immortality of the soul nor the existence of God. Though they tended even further towards empiricism and sensationism than either the Berliners or the Göttingers, their general aim may still be described as the attempt to achieve a synthesis of British and German thought. And no matter how far they go in the direction of empiricism, they still remain deeply influenced by Wolffianism.

23 Mendelssohn is sometimes grouped together with other thinkers as belonging to the 'Berlin Enlightenment'. This group includes such names as Gotthold Ephraim Lessing and Mendelssohn. But there are also such lesser known figures as Sulzer (1720–79), Johann August Eberhard (1739–1809), Johann Heinrich Lambert (1728–77), Thomas Abbt (1738–66), Freidrich Gabriel Resewitz (1728–1806), and a number of even more minor thinkers. Because they all remained to a significant degree Wolffians they have also been called 'neo-Wolffians' by some historians.

24 *Bibliotbek der schönen Wissenschaften und der freyen Künste* II, 2 (1759), I quote from the 2nd edn of 1762, pp. 290f.

25 This is the title of a book by Eberhard (Berlin, 1776). The book was a response to a question by the Prussian Academy, asking for a more precise theory of thinking and sensation. Eberhard reports that the question specifically demanded that '(i) one precisely develop the original conditions of this twofold power of the soul as well as its general laws; thoroughly investigate how these two powers of the soul are dependent on each other, and how they influence each other, and (iii) indicate the principles according to which we can judge how far the intellectual ability (genius) and the moral character of man depends upon the degree of the force and liveliness as well as on the increase of those two mental faculties', (p. 14f).

26 [12.3], 2:183.

27 [12.3], 2:184.

28 Compare [12.17].

29 [12.7], 4 (1791): 155–69. Feder's only reference to the work reads: 'The many merits of this work have without doubt already been decided for most readers. Therefore I do not think it necessary to say anything about it'.

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CHAPTER 13
Giambattista Vico

Antonio Pérez-Ramos

Faire, c'est se faire.
S.Mallarmé

Giambattista Vico's (1688–1744) contribution to the history of western thought is both difficult to identify and still harder to evaluate. So much so that the overall characterization of his philosophy should perhaps be made chiefly by way of negatives: Vico is no empiricist, no experimentalist, no scholastic, no idealist, no positivist, no rationalist and so on. In fact, any philosophical classification would be a misnomer for the purported creator of a New Science, the self-appointed critic of Cartesianism, the passionate vindicator of a 'topical' versus a 'critical' pedagogy, the putative discoverer of a novel criterion of truth etc. This historiographic problem—i.e. the difficulty of classifying such a many-sided figure into a well-established canon—becomes further compounded by at least three complementary considerations: Vico's purported isolation as an eighteenth-century thinker, the not yet corrected imbalance between his reputation in Italy (where he tends to be considered the country's greatest philosopher) and his reputation abroad; and, more generally, the fact of his being perceived as a precursor, which conjures up the whole panoply of unresolved tensions related to that status. Vico himself made much of the first of these factors in his *Autobiography* of 1725–8 and in his private letters, where he grossly exaggerated his loneliness as a thinker in his native Naples; and since that time many critics and scholars have repeated the implied corollary of that book, i.e. the picture of a gigantic figure without direct forerunners or disciples. Thus, nationalistic motivations and the fervour of Neapolitan exiles in the early nineteenth-century began to cement a cult which elevated Vico to the pedestal of a cultural hero in the age of the Risorgimento—a situation which with all due modifications still prevails today.[1] And, finally, the status of a precursor is particularly difficult to assess in this instance, for it sends us back to a much discussed question in the history of ideas and of philosophy proper. Such a question could be formulated in this manner: are influences the result of direct acquaintance whenever we are talking of intellectual affinities, or is there a collective wealth of patterns of thought which the human mind is compelled to resort to whenever confronted with the same or similar type of issue? Vico, for example, has been lyrically hailed as, among other titles of glory, containing the nineteenth century in embryo,[2] of fathering or at least prefiguring the whole of German idealism,[3] and of being the fountain-head of modern anthropology and psycho-analysis.[4] Though most of these claims appear today vastly exaggerated if taken at face value, there is a sense in which the radically atypical traits in Vico's thought are linked to further developments in western speculation, with or without direct acquaintance from author to author. It is for this reason that any historiography worth its

salt should try to asses such purported affinities, or, at least, to outline the tantalizing contours of similarities and incompatibilities.

Vico's starting-point as a philosopher is his criticism of Cartesianism, both as a philosophy and as a philosophically-inspired pedagogy. From the early inaugural orations that Vico had to deliver in his capacity as Professor of Rhetoric at the University of Naples, he emphasized time and again the putative sterilizing result of applying the analytical method of thinking (as epitomized by the Cartesians Arnauld and Nicole in their *Port Royal Logic*) against the old *ars topics* that is, the ancient canon of specific questions and answers that the prospective learner had to ask about any subject whatsoever in order to attain a plausible (though not necessarily true) opinion in the matter in question.[5] This debate ('topical' versus 'critical' philosophy) has led some students to see Vico as a fundamentally old-fashioned figure, propounding a superseded method of thinking in the tradition of rhetoric instead of embracing the novelty of contemporary doctrines in natural philosophy. As it stands, this criticism is unfair, for a reading of Vico's inaugural lessons prefigures his great discovery, i.e. the *verum factum* formula in *De Antiquissima Italorum Sapientia* of 1710, as a key to an understanding of contemporary physical science. So we can read in the oration *De Nostri Temporis Studiorum Ratione* of 1708:

> Modern physicists resemble those who have inherited mansions where no luxury is lacking, so that they only need to move around the many pieces of furniture or embellish the house with some ornaments in accordance with the tastes of their time; and these learned men hold that the physical doctrines are Nature herself… That is why every thing that on the strength of the geometrical method is shown in physics as being true is only probable /ista physicae quae vi geometricae methodi ostenduntur verae, nonnisi verisimilia sunt/ and from geometry has got the method, but not the demonstration. We demonstrate geometrical entities because we make them; if we could demonstrate physical truths, then we would be their authors/ geometrica demonstramus qua fecimus; si physica demonstrare possemus, faceremus/.[6]

Now there are three main components in these compressed lines of the young Vico, lines belonging to a chapter tellingly entitled 'Of the Disadvantages of Introducing the Geometrical Method into Physics'. The first factor we should consider pertains to what in our idiolect is termed 'the philosophy of science'. Vico's radical and at the same time original position amounts to this: he is expressly rejecting the realist understanding of the 'mechanization of the word-picture' (roughly: of Newtonian mechanics) as the true and objective portrait of the physical world. Further yet, this rejection is made extensive to any physical system whatsoever. Instead, Vico proposes to consider the so-called mechanical philosophy as a useful or expedient fiction, whose certainty is solely based on the method deployed (i.e. mathematics), but falls short of the supposed objectification of reality which a widespread realist self-understanding of modern science would claim for itself.[7] Naturally, this approach may strike a conventionalist or fictionalist chord, and resembles Locke's paradoxical dictum in the *Essay* iv. 12.10: 'Natural philosophy is not capable of being made a science'. But Vico's philosophical acumen in reaching that

conclusion is all the more remarkable coming as it does from the rhetorical tradition and being, by and large, alien to the great philosophical debate that the new science had unleashed. The second point to stress in the above passage concerns Vico's view of pure mathematics as precisely the only *true* science conferred on man, because in it author and knower coincide: the mathematician, Vico holds, knows his truths by making, doing or bringing forth the elements with which or upon which he works. This is the first embryo of Vico's celebrated *verum ipsum factum* principle as a criterion for gauging human knowledge, and the cornerstone of his own constructivist theory, to which I shall shortly return. And, finally, the above passage characterizes Vico's own response to the *crise pyrrhonienne* or sceptical challenge, the reaction to which, according to Pierre Bayle, serves to document the rise of modern philosophy and science.[8] Vico's answer to that challenge, moreover, establishes a certain hierarchy in the forms of human knowledge which he is going to develop and modify in his mature work. Let us consider Vico's response to scepticism with some more detail.

Mathematical knowledge, we said, is provenly certain *(verum)* because it is produced, realized, constructed or made *(factum)* by the knowing subject himself: 'We demonstrate geometrical entities because we make them'. Now if mathematics thus typifies human cognition at his best, would it not be the case that it does so because it is precisely embodying the only criterion of truth that man can follow? Here begins Vico's systematic critique of the other great foundationalist movement of the age, namely, Cartesianism, a critique to which he partially devoted the so-called *liber metaphysicus* of 1710, i.e. the *De Antiqmssima Italorum Sapientia*.[9] In this book Vico's quasi-fictionalist or conventionalist understanding of physical science is expressly coupled with a full-fledged constructivist theory of truth whose further implications for the classification of the sciences are clearly delineated. In so doing, however, Vico considerably draws on the Aristotelian doctrine that to know means to know *per causas* as a way of exposing the putative fallacy and incoherence of the Cartesian cogito. Thus, he programmatically asserts that 'science is the knowledge of the genus or the mode by which a thing is made /scientia sit cognitio generis seu modi, quo res fiat/…by means of which the mind, at the same time that it knows the mode because it arranges the elements, makes the thing /dum mens cogitat, rem faciat/'; and consequently: 'Human truths are those of which we ourselves arrange the elements'.[10] So the first adumbration of Vico's great epistemic canon in *De Nostri Temporis Studiorum Ratione* reaches maturity and becomes fully developed in his criticism of Cartesian metaphysics: the true and the made are convertible, and the ego which the cogito is supposed to discover or establish as the firmest truth is not that piece of rock-bottom knowledge from which other verities can be inferred in a deductive chain. According to Vico, the notionally unchallengeable ego has no causal underpinnings whatsoever, that is to say, it is not constructed or fabricated, made by the thinking mind. In fine, the Cartesian cogito 'I think, therefore I am' is therefore a form of *coscienza* (or very vivid mental content, as a Humean 'impression'), but it can never attain to the status of *scienza* or proven knowledge as constructed by the inquiring subject. Again, the anti-sceptical tenor (even as Descartes emphasized in the case of his own cogitation) of Vico's purported discovery is expressly stressed:

> To be sure, there is no other way in which scepticism can indeed be refuted,

> except that the criterion of the true should be to have made the thing itself.… Those truths are human truths, the elements of which we shape /fingamus/ for ourselves, which we contain within ourselves, and which we project ad infinitum (to infinity) through postulates; and, when we combine them, we make the truths that, by thus combining them, we come to know. And because of all this we get hold of the genus and form by which we make these things.[11]

At this point Vico also invokes a theological sanction for this criterion, given that 'Divine Knowledge is the norm of human knowledge' (ibid.). The starting-point of his reflection here, however, seems to be an awkward philological doctrine, namely, the putative synonymity of the words *verum* and *factum* in classical Latin. Indeed, Vico's opening gambit in chapter I of the *De Antiquissima* runs:

> For the Latins *verum* /the true/ and *factum* /what is made/ are interchangeable, or to use the customary language of the Schools, they are convertible /Latinis verum et factum reciprocantur, seu, ut Scholarum vulgus loquitur, convertuntur/ … Hence it is reasonable to believe that the ancient sages of Italy entertained the following belief about the true: 'The true is precisely what is made' /verum ipsum factum/.[12]

Vico's resort to the Latin language in order to bolster up his gnoseological position was soon criticized on linguistic grounds in the review of his book which appeared in the learned publication *Giornale de' Letterati d'Italia*. In his *First Response* to those criticisms, Vico tried to defend his philological thesis by quoting Plautus and Terence, but in his *Second Response* (following a rejoinder in the journal) he wisely retreated from the terrain of pure lexicography and explained that

> etymologies which the grammarians draw largely from the Greek language of the inhabitants of the Ionian coast serve me only as evidence that the ancient Etruscan language was diffused among all the peoples of Italy, as well as in Magna Graecia. *They have no other use for me.* I have tried to figure out the reasons that the concepts of these wise men became obscure and were lost to sight as their learned speech /i loro dotti parlari/ became current and was employed by the vulgar.[13]

So the *verum factum* criterion, stripped of its philological clothing, is now presented as possessing the character of an absolute and self-evident truth—the touchstone of *any* conceivable human truth. To make this position even clearer, Vico condenses much of his constructivist ideal under a theological cloak which recaptures most of the topics we have been considering, that is, the nature of mathematics, the criticism of Descartes's claim about the self-certainty of clear and distinct ideas, the *verum factum* topos as exemplified not only in mathematics qua constructs but in any facet of human cognition, and finally his own hierarchy of knowledge. For this reason, Vico's *Second Response* to the learned journal deserves extensive quotation:

> The criterion for possessing the science of something is to put it into effect /è il mandarla ad effetto/ and proving from causes is making what one proves. And this being is absolutely true because it is convertible with the made and its cognition is identical with its operation. This criterion is guaranteed for me by God's science, which is the source and standard of all truths. This criterion guarantees me that the only human sciences are the mathematical ones, and that they only prove from causes /e ch'esse unicamente pruovano dalle cause/. Beyond that, it gives me the way of classifying the non-scientific disciplines /notizie/ that are either certain on the basis of indubitable signs, or probable on the basis of good argument, or truelike on the basis of powerful hypotheses. Do you wish to teach me a scientific truth? Grant me the cause which is completely contained within me so that I invent a name at my will, and I establish an axiom regarding the relation that I set up between two or more ideas of things which are abstract and which are, consequently, both contained in me…. You could tell me, 'Make a demonstration of the assumed theorem', which is tantamount to 'Make true what you want to know'. And in knowing the truth that you have proposed, I shall make it; so that there will not remain for me any ground to doubt it because I myself have made it. The criterion of the 'clear and distinct perception' does not assure me of scientific knowledge. As used in physics or ethics, it does not yield a truth that has the same force as the one it gives me in mathematics. The criterion of making what is known gives me the /logical/ difference here: for in mathematics I know truth by making it; in physics and the other sciences the situation is different.[14]

This long quotation may help us to approach two *questiones vexatae* that have exercised the mind of a host of philosophers and Vichian scholars. These are: (a) in how far is Vico's thought original, i.e. is his constructivist criterion really new, as he never tires to repeat?; (b) is it philosophically sound to uphold that criterion and what are its historical credentials?

The first question has been dealt with with some acerbity, given Vico's reputation in Italy. Thus the great philosopher and Vichian scholar Benedetto Croce maintained that Vico's originality was beyond dispute, although *formal* precedents of his criterion could be found.[15] More recent research, however, makes it impossible to share Croce's view and tends to regard Vico's *Grundsatz* as one of the various formulations, perhaps the most felicitious one, of a whole family of ideas: the maker's knowledge tradition, or in Amos Funkenstein's phrase, the 'ergetic ideal'.[16] Its barest outline would be roughly as follows.

A tradition which goes back to Antiquity postulates that objects of knowledge are in an essential sense objects of construction, that knowing is a form of making, and that the human knower is such as maker or doer. This gnoseological principle has been advanced not so much as a method but as a mode of thinking or as an archetype of thought, and its polemical rejection is to be found in many significant places of ancient philosophical writing. Both Plato and Aristotle, for example, considered that ideal worth criticizing and consistently saw the human knower as a privileged beholder or enlightened user, never as a maker.[17] But there are some traces of this tradition that classical speculation was unable to erase. Thus in the theological reflections of Philo of Alexandria and in the

mathematical thought of Proclus we encounter the notion that knowing implies making or is a kind of making and vice versa.[18] God's knowledge of the world, for example, is pre-eminently knowledge by doing, i.e. knowledge *qua* Creator, and, as Christian theology gradually asserted itself, the difference between divine and human knowledge began to be perceived more and more as quantitative rather than as qualitative: God possesses infinite knowledge, but man's knowledge of some privileged truths contained in God's mind (i.e. mathematics) approaches that of the Deity. We know about the circle almost in the same way as God does, though we know much less; yet allegedly in the discovery of the pertinent mathematical truths we proceed discursively or step by step, whilst God's mind encompasses all cognitive operations in a single all-embracing intuition. In the same vein, Proclus argued that the mathematician projects his figures out of his own mind into a kind of imaginative space, where he proceeds to arrange his elements. He is therefore knower *qua* maker of mathematical. Now, these ideas gained much favour in the fifteenth century with Nicholas of Cusa (1401–64), who systematically dwelt on mathematics as a form of human and divine creation.[19] Later on, the new scientific movement made its own use of these notions under the guise of a legitimizing or metatheoretical topos—an undercurrent in philosophical thought which has rarely been spotted. Men like Cardan, Vives, Sanchez, Bacon, Galileo, Descartes, Mersenne, Gassendi, Pascal, Kepler, Locke, Boyle and many minor figures embraced the new, yet elusive but immensely powerful ideal that knowledge is achieved through doing or construction and gave to it different emphases and interpretations.[20] Thus, the understanding of this principle and the stress laid on its implication by each individual thinker was sometimes vastly different and even opposite (for instance, as regards the question whether this kind of knowledge by making referred exclusively to mathematics or also to the material fabrication or construction of a model of man and the universe), although the tenor of the ideal is perceptible in the most unlikely sources, sometimes with a sceptical slant. To confine ourselves to English figures, Joseph Glanville (1630–80) wrote that 'the Universe must be known by the same art whereby it was made', obviously meaning thereby that to know physical things amounts to being able to reconstruct them at a minute scale as far as it is humanly feasible.[21] Thomas Browne (1605–82) in *Religio Medici* (1642, written *c.* 1630) expressly calls God Artifex 'wise because he knows all things, and he knows all things because he made them all'.[22] With yet another aim in view, Thomas Hobbes (1588–1679) wrote that

> Of arts, some are demonstrable, others undemonstrable; and the demonstrable are those the construction of the subject whereof is in the power of the artist itself, who, in his demonstration, does no more but deduce the consequences of his own operation. The reason whereof is this, that the science of every subject is derived from a precognition of the causes, generation and construction of the same; and, consequently, where the causes are known, there is a place for demonstration, but not where the causes are to seek for. Geometry therefore is demonstrable, for the lines and figures from which we reason are drawn and described by ourselves. But because of natural bodies we know not the demonstration, but seek it from the effect, there lies no demonstration of what the causes be we seek for, but only of what may be.[23]

This is fairly similar to some of Vico's pronouncements above, especially if we compare it to Vico's hierarchy of knowledge as presented in *De Antiqmssima:*

> Mechanics is less certain than geometry and arithmetics, because it deals with motion, but with the aid of machines; physics is less certain than mechanics, because mechanics, treats the external motion of circumferences, whereas physics treats the internal motions of centres; morality /moralis/ is less certain than physics because the latter deals with those internal motions of bodies which are by Nature certain, whereas morality examines the motions of minds /motus animorum/ which are most deeply hidden /penitissimi/ and arise mostly from desire, which is infinite /et ut plurimum a libidine, quae est infinita, proveniunt/.[24]

Now it is highly unlikely that, with the possible exception of Proclus' *Commentary on the First Book of Euclid's Elements* translated into Latin by Francesco Barozzi (Padua, 1560), Vico had really come across an articulated intimation of the *verum factum* topos. This may be an excellent instance, therefore, of the kind of progress philosophy sometimes has in store, namely, the growth in tension and self-awareness in certain opaque areas, or the making finally explicit of a pattern of thought which philosophers had been utilizing on various occasions without properly identifying the common denominator of much of their thinking. Hence, one of Vico's claims to greatness lies surely here: he abruptly opens *De Antiquissima Italorum Sapientia* with the formulation of the epistemo-logical canon so many thinkers in his age were unwittingly using. According to D.P.Lachterman, that canon stands for nothing else but 'the Mark of the Modern', that is, the idea that the human mind should be compared to a pair of hands instead of to a faithful mirror—a notion which will eventually make a construct of 'reality' itself.[25] Of course, it would be utterly preposterous to claim that the convertibility of the true and the made can be unqualifyingly predicated of all of man's cognitive facets. But, since we do not know whether such an all-embracing formula exists or can exist, we may well greet the Vichian topos as a historically exact identification of one of the leading ideals of man's self-reflecting rationality. So much for the philosophical soundness of his principle.

Let us glance back at Vico's last quotation above. The 'moral science' had been demoted to the lowest rank in his epistemological hierarchy because the 'motions of minds' were supposedly inscrutable. Now it is surprising that what has been called since Croce's studies 'the second form of Vichian gnoseology' should take its starting-point precisely from the reversal of that position, that is, from the contention that it is man *qua* constructor or creator of human institutions ('the motions of minds') that should enjoy pride of place in the architecture of Vico's magnum opus, i.e. the *Scienza Nuova*.[26] Though nowhere termed 'principle' or 'corollary' *(degnità)* in the language that Vico adopts in that work, the *verum factum* topos is expressly expounded in three paragraphs (334, 349, and 374) as though it were a reminder of the epistemological pillar on which the new science is erected. Further yet, any attempt to salvage the cognitive credentials of natural science in the domain of the maker's knowledge tradition (as in *De Antiquissima Italorum Sapientia*) disappears altogether, and to the later Vico the foundation of this

knowledge of human affairs or *cose umane* entails a radical scepticism about the possibility of man's ever achieving a science of Nature. In Vico's own words:

> In the night of thick darkness enveloping the earliest antiquity, so remote from ourselves, there shines the eternal and never failing light of a truth beyond all question */questo lume eterno, che non tramonta, di questa verità/:* that the world of civil society has been made by men, and that its principles are therefore to be found */ritruovare/* within the modifications of our own human mind. Whoever reflects on this cannot but marvel that the philosophers should have bent all their energies to the study of Nature, which, since God made it, he alone knows; and that they should have neglected the study of the world of the nations, or civil world, which, since men have made it, men could come to know.[27]

Now it is important to realize that the Italian *ritruovare* in this paragraph may mean to find *again,* since many misunderstandings have arisen from it being translated as simply 'to find'. This sentence somehow implies that the human mind is posited by Vico as containing in its present and civilized stage all the patterns of thought that it has deployed or projected into the surrounding world, first in the process of humanization and then in the setting-up of the multifarious panoply of human institutions, social structures and political systems. So Vico is not simply asserting that it is men that make their history, but upholding a rather strong thesis as to the rationale of man's capacity to grasp that very history, even when he is not its direct author. Yet, critically considered, here lies one of Vico's most serious weaknesses, for he offers no proof as to the possibility of that *ritruovare* in the required gnoseological sense. In fact, the difficulty can be further pressed, for the 'motions of the mind' are most of the time an act of epistemic self-deception, as Lachterman argues and Vico seems to recognize in several places.[28] How can a rational mind—say, the historian's—run the gamut of all the irrational or non-rational moves that in Vico's own narrative of the origins of mankind have played so decisive a part? Besides, what counts as 'rational' in the mind of a Vichian historian? For example, the invention of what he considers the three master institutions of humanized life (religion, marriage and burial) did not arise from any kind of rational computation that we could understand and exactly reproduce in our own minds with absolute certainty. Simply to attribute them to our feelings of fear and of shame, as Vico does, appears a rather jejune thesis, given the vast plurality of forms that such feelings may take and may have in fact taken in man's psychological make-up:

> [M]an in his ignorance makes himself the ruler of the Universe, for in the examples cited /[i.e. those related to the origin of language and metaphor]/ he has made of himself an entire world. So that, as rational metaphysics teaches that man becomes all things by understanding them /homo intelligendo fit omnia/ this imaginative metaphysics shows /dimostra/ that man becomes all things by *not* understanding them /homo non intelligendo fit omnia/ and perhaps the latter proposition is truer than the former, for when man understands, he extends /spiega/ his mind and takes in /comprende/ the things, but when he does not understand, he makes the things out of himself and becomes them by

> transforming himself into them.
>
> [(*Sc. N.* par. 405)]

If this is really so and the possibilities of error become less and less frequent as we advance towards those stages of humanity which are supposed to resemble ours, then a good case could be made for arguing that Vico had in fact adumbrated the concept of *Verstehen,* that is to say, of cognitive empathy or imaginative understanding which man can use solely when handling the things that belong to man: motivations, fears, feelings and so forth. This is a mode of knowing (sometimes understood as a method of sorts) proper to the human sciences or *Geisteswissenschaften,* a mode or perhaps a method that by definition natural sciences lack.[29] This interpretation is suggested by, amongst others, Isaiah Berlin in his essays on Vico and the *Scienza Nuova*. According to Berlin, Vico discovered a hitherto 'unrecognized sense of knowing basic to all humane studies'. In his own words, this sense of knowing is no other but the sense

> in which I know what it is to be poor, to fight for a cause, to belong to a nation, to join or abandon a church or a party, to feel nostalgia, terror, the presence of a God, to understand a gesture, a work of art, a joke, a man's character or that one is transformed or lying to oneself.

One has to note, however, that in the above examples no time or place provision is made, so that it would appear that the experience of being poor—to quote one of his illustrations—is fundamentally the same in twentieth-century Britain and in tenth-century China: But it is highly unlikely that the notion of 'poverty' has remained unaltered throughout history and geography. Be that as it may, such things are known, Berlin continues,

> in the first place…by personal experience, in the second place because the experience of others is sufficiently woven into our own to be seized quasi-directly…and in the third place by the working (sometimes by a conscious effort) of the imagination. This is the sort of knowing that participants of an activity claim to possess as against mere observers; the knowledge of the actors as against that of the audience, of the 'inside' story as against that obtained from some 'outside' vantage point: knowledge by 'direct acquaintance' with my inner states or by sympathetic insight into those of others.[30]

Berlin's suggestion and description is indeed valid for much of Dilthey's, Weber's or Collingwood's theorization of the method and aim proper to the human sciences or to history. In the initial mist to which Vico's efforts belong, however, that characterization turns out to be far too clear, though undoubtedly Berlin is looking in the right direction. There is something else, in fact, that would make possible the operations of *Verstehen* in Vico's *Scienza Nuova*. Let us see how it might work.

The other key idea which Vico resorts to when attempting to guarantee the exactness of our re-entering into other men's minds or when trying to engage cognitively with the most remote past is the notion of Providence. This, as shall be shown, *semi-secular* idea

would guide the course of nations according to specifical, intellectually graspable patterns (Vico's *corsi* and *ricorsi*), constituting the so-called *storia ideale eterna* of that which 'was, is, and shall be'. Needless to add, in Vico's speculation the 'motions of the human mind' are to follow suit, over and above the personal will of the historical actors themselves. Now, this notion, no less than the *verum factum* topos, enjoys a reputable pedigree from the prophet Isaiah 10:5–8, to Maimonides's 'cunning of God', Mandeville's 'private vices, public benefits', Kant's 'hidden plan of Nature' *(verborgener Plan der Natur)* and, of course, Hegel's 'cunning of Reason' *(List der Vernunft)*—the last ones being wholly secular ways of translating an old theologoumenon. Amos Funkenstein has identified and richly documented this family of ideas. He has dubbed it 'the invisible hand explanations' in history, alluding to Adam Smith's celebrated simile in economics.[31] Now, Vico is quite amenable to this description in his explanation of history and of the manner man is capable of grasping it in the *Scienza Nuova*. Thus, while describing at length the slow process by which man has forged his own civil nature out of an initial brutish existence, Vico rejects all forms of diffusionism in the spreading of civilization and insists on a spontaneous process taking place in each nation and place. Yet, he emphasizes again and again that mankind is willing one thing and invariably achieving another, and that the oblique route that the nations follow (their *corso* and *ricorso*) is, as it were, guaranteed in its intelligible uniformity by a non-conscious effort of the historical subjects:

> For, though men have themselves made this world of nations… it has without doubt been born of a mind often unlike /diversa/, at times quite contrary to /tutta contraria/ and always superior to, the particular ends these men had set themselves…. Thus men would indulge their bestial lust and forsake their children, but they create the purity of marriage, whence arise the families; the fathers would exercise their paternal powers over the clients without moderation, but they subject them to civil power, whence arise the cities; the reigning orders of nobles would abuse their seigneural freedom over the plebeians, but they fall under the servitude of laws which create popular liberty; the free people would break loose from the restraint of their laws, but they fall subject to monarchs…. By their always acting thus, the same things come to be.[32]

Yet, this Providence is hardly a religious, not to say a Catholic, concept, for it is in-built in the very process of humanization (the birth of nations) and does not leave any room for any form of transcendence. Mankind would behave in that way with or without the supervision of an all-powerful Deity and, for this reason, Vico's Providence is, so to speak, a Providence without a God.

In the end, the five books and the 1,112 paragraphs of the final version of the *Scienza Nuova* of 1744 may seem to prove unequal to the gigantic task Vico had glimpsed himself accomplishing. For one thing, it was necessary to command far more philological and anthropological scholarship, and especially to be in possession of a more worked-out methodological thought as regards its organization and presentation.[33] Nevertheless, truncated as it now appears, Vico's accomplishment in the *Scienza Nuova* is admirable in

terms of its originality in the role that he (perhaps unwittingly) attributed to the non-rational in man's protracted search for his own social being: the inquiry into 'truth' in its historical dimension, into the creation of the city and of civilized existence, and into the capacity we possess—or we lack—of grasping other men's expectations and fears. In a word, Vico was trying to formulate the credentials we can legitimately attribute to historical knowledge of any sort. If neither the *verum factum* canon nor the labyrinthine expositions of the *Scienza Nuova* appear to us wholly satisfactory, we should perhaps remember that the theory of truth, like the Greek Argos of old, has a hundred eyes. The merit of having spotted several of them, and not the feeblest ones, is the indisputable basis of Vico's intellectual achievement.

NOTES

1 Cf. Jules Chaix-Ruy, 'La fortune de G.B.Vico', in [13.16], 124–52. The myth of Vico's isolation in Naples has been exposed, among others, by Nicola Badaloni in his two books, [13.26] and [13.27] and in his article 'Vico nell' ambito della filosofia europea', [13.12], 233–66. Badaloni stresses Vico's links with the Accademia degli Investiganti and other local circles of the Neapolitan Enlightenment. Cf. also G.Bedani, *Vico Revisited*. *Orthodoxy, Naturalism and Science in the Scienza Nuova,* Oxford, 1989, pp. 7–32, and A.Battistini, 'Momenti e tendenze degli studi vichiani dal 1978 al 1985', *Giambattista Vico*. *Poesia, Logica, Religione,* ed. G.Santinelli, Brescia, Morcelliana, 1986, pp. 27–102.

2 [13.47], 'Conclusione', 219–26: 'egli fu né più né meno che il secolo decimonono in germe' (p.226).

3 B.Spaventa, *La filosofia italiana nelle sue relazioni con la filosofia europea,* Bari, Berg, 1908, pp. 31,60.

4 Cf. E.Leach, 'Vico and the Future of Anthropology', [13.20], 149–59; J.H. White, 'Developmental Psychology and Vico's Concept of Universal History', [13.20], 1–3; Silvano Arietti, 'Vico and Modern Psychiatry', [13.20], 81–94 (on Vico and Freud).

5 Cf. [13.77], esp. 24–89, and 105–15; Gustavo Costa, 'Vico and Ancient Rhetoric', *Classical Influences on Western Thought,* ed. R.R.Bolgar, Cambridge, Cambridge University Press, 1979, pp. 247–62; E.Grassi, 'Critical Philosophy or Topical Philosophy? Meditations on the *De Nostri Temporis Studiorum Ratione',* [13.18], 39–50 (Italian version in [13.3], 108–21).

6 [13.3], 68–9 (my trans.). Cf. [13.22], 31–45. This is the first recorded formulation of the *verum factum* principle.

7 On the young Vico's scientific background, cf. P.Rossi's historical account, 'Ancora sui contemporanei di Vico', *Rivista di filosofia* 76(1985): 465–74; M. Torrini, 'Il problema del rapporto tra scienza e filosofia nel pensiero del primo Vico', *Physis* 20(1978): 103–21. J.Barnouw has reviewed the different trends of research in [13.29], 609–20. Barnouw's thesis does not refer specifically to the *De Antiquissima Italorum Sapientia,* but the author maintains that 'Vico's development…supports the view that the new sciences of the 17th century, from Galileo on, provided the crucial inspiration and model for the formation of the human sciences' (p.609). This is more or less the route Comte took, but it hardly squares with the methods of Vico in the *Scienza Nuova,* despite his own claim that he is applying Bacon's method (par. 163; cf. also 137, 359). Cf. n. 33 below.

8 Cf. Richard Popkin, *A History of Scepticism from Erasmus to Spinoza,* rev. edn. London, University of California Press, 1979, Preface, p. xvii.

9 *De Antiqmssima Italorum Sapientia* was also called *liber prias metaphysicus;* in Vico's original project, a *liber secundus physicus* and a *liber tertius moralis* were to follow. Some notes prepared for the second book were published fifty years after Vico's death, assembled as a monograph entitled *De Aequilibrio Corporis Animantis,* a book now lost. Vico appears to have begun working on the *Scienza Nuova* fairly soon after the publication of the *De Antiqmssima*. Cf. [13.8], Introduction.

10 Vico stresses that the cogito is a *sign,* but not a *cause* of my being. Vico uses here the Greek term *tekmērion,* a word of Stoic echoes. This is Vico's sceptic reply to Descartes:

> The dogmatist…would allow that the sceptic acquires knowledge of his being from awareness of his thinking, since the unshakable certainty of existence is born from his awareness of thinking. And, of course, no one can be wholly certain that he exists unless he makes up his own being out of something he cannot doubt. Consequently, the sceptic cannot be certain that he is because he does not gather his existence from a wholly undoubted principle. To all this the sceptic will respond by denying that knowledge of being is acquired from consciousness of thinking. For, he argues, to know *(scire)* is to be cognizant *(nosse)* of the causes out of which a thing is born. But I who think am mind and body, and if thought were the cause of my being, thought would be the cause of the body. Yet there are bodies that do not think. Rather, it is because I consist of body and mind that I think; so that body and mind united are the cause of thought. For if I were only body I would not think. If I were only mind, I would have /pure/ intelligence. In fact, thinking is the sign and not the cause of my being mind. But the sure sign *(techmerium)* is not the cause, for the clever sceptic will not deny that certainity of sure /rational/ signs, but just the certainty of causes.
>
> ([13–8], 55–6; [13–6], 72–5)

11 [13.8], 57; *De Antiquissima,* I, iv [13.6], 741. This subchapter is entitled 'God is the comprehension of all causes—Divine Knowledge is the norm of human knowledge'.

12 [13.3], 63–4; [13.8], 4 5f. (italics added). Cf. also the following: 'Amongst human sciences only those are true which…have elements which we coordinate and are contained within ourselves…and when we put together such elements, we are becoming authors of such truths /et cum ea componimus, vera quae… cognoscimus, faciamus/ [13.3], 62f, 68f, 73f.

13 [13.3], 149; [13.8], 157. In [13.3], 155 Vico recognizes that the value of every thing he is proposing does not stem from 'the force and evidence of the reasons advanced', for in lexical questions usage and authority overshadow the innermost meanings of speech.

14 [13.8], 167; [13.3], 156.

15 [13.48], 233–59. Cf. also G.Gentile, *Studi vichiani: Lo svolgimento della filosofia* vichiana (1912–15), *Opère Complete,* vol. xvi, Florence, Sansoni, 1963[3].

16 Amos Funkenstein, *Theology and the Scientific Imagination from the Middle Ages to the Seventeenth Century,* Princeton, NJ, Princeton University Press, 1986, 290–345; esp. 296–9; R.Mondolfo, *Il verum factum prima di Vico,* Bari, Guida, 1969, and the criticisms levelled against this book by Maria Donzelli, 'Studi vichiani e storia delle idee. (A proposito di un saggio di Rodolfo Mondolfo)', *Filosofia* 21(1970): 33–48; and A.Pérez-Ramos, *Francis Bacon's Idea of Science and the Maker's Knowledge Tradition,* Oxford, Clarendon, 1988, pp. 48–62, 167–96.

17 In Aristotle's *Politica* 1282a17ff. we read:

> About some things the man who made them would not be the only nor the best judge, as in the case of professionals whose products come within the knowledge of lay men also (hoi mē echontes tēn technfin): to judge a house, for instance, does not belong only to the man who built it, but in fact the man who uses the house (the householder) will be an even better judge of it, and a steerman judges a rudder better than a carpenter, and the diner judges a banquet better than the cook.
>
> [(Loeb edn, trans. H.Rachman, 227)]

Plato resorted to the same sort of confutation in several places (*Euthydemus* 289A-D, *Cratylns* 390 B, *Meno* 88 E), and especially in *Republic* 601 E-602 A:

> The user of anything is the one who knows most of it by experience, and he reports to the maker the good and bad effects in the use of the thing he uses. As, for example, the flute-player reports to the flute-maker which flutes respond and serve rightly in flute-playing, and will order the kind that must be made and the other will obey him…. The one, then, possessing knowledge (epistēmēn) reports about the goodness or badness of the flutes, and the other, believing, will make them…. Then, in respect to the same implement, the maker will have right belief (pistin orthēn) about its excellent and defects from association with the man who knows,…but the user will have true knowledge.
>
> [(Loeb edn, trans. P.Shorey, 445–7)]

It is tempting to perceive in these statements a dim reflection of social conditions amongst the Greeks.

18 Cf. Philo of Alexandria (*floruit c.* AD 40), *Quod Deus Immutabilis sit, i*n *Complete Works* I, 22–3, (Loeb edn, trans. F.H.Colson and G.H.Whittaker, repr. 1960); cf. also *De Opificio Mundi* I, 20–1. For a treatment of this topic by mediaeval Jewish and Christian philosophers, in the context of God's self-knowledge *qua* Creator, cf. A.Funkenstein, *Theology and the Scientific Imagination,* p. 291f. For mathematics, cf. Proclus' *Commentary on the First Book of Euclid's Elements,* ed. and trans. P.R.Morrow, Princeton, NJ, Princeton University Press, 1970, Prologue 11–12 and 64. The soul is equipped with mathematical patterns *(paradeigmata)* which it brings forth as projections *(probolai)* of its own making. Proclus' Platonism is fairly similar to Vico's in that both purport to find the seeds of truth hidden in man's creative mind.

19 Cf. [13.24], 321ff., Hans Blumenberg, '"Nachahmung der Natur": zur Vorgeschichte des schöpferischen Menschen', *Studium Generale* 10 (1957): 266–83), and *Cusanus und Nolanus,* Frankfurt-on-the-Main, Suhrkamp, 1973.

20 Cf. Vinzenz Rüfner, 'Homo secundus Deus. Eine gestesgeschichtliche Studie zum menschlichen Schöpfertum', *Philosophisches Jahrbuch* 63(1955): 248–91; A. Funkenstein, *Theology and the Scientific Imagination,* pp. 290–345; Jürgen Klüver, *Operationismus. Kritik und Geschichte einer Philosophie der exakten Wissenscbaften,* Stuttgart, Frommann-Holzboog 1971, pp. 38–52; and A.Perez-Ramos, *Francis Bacon's Idea of Science,* pp. 135–98.

21 Joseph Glanvill, *Plus Ultra, or the Progress and Advancement of Learning,* London, 1668, p. 35.

22 *Religio Medici* I, 13 (1642/43, written in the mid-1630s), ed. with Introduction and notes by C.A.Patrides (Harmondsworth, Penguin, 1977, repr. 1984), p. 74.

23 'Six Lessons to the Savillian Professors of Mathematics', *English Works,* ed. W. Molesworth, London, 1838–45, VI, pp. 183–4; repr. Scientia Verlag, Aalen 1961–6. Cf. Arthur Child, *Making and Knowing in Hobbes, Vico and Dewey,* Los Angeles, University of California Press, 1953, pp. 271–83, and W.Sacksteder, 'Hobbes: the Art of the Geometricians', *Journal of the History of Ideas* 18(1980): 131–46, and his 'Hobbes: Geometrical Objects', *Philosophy of Science* 48(1981): 573–90. Mathematics was not, however, the sole direction in which Hobbes developed his constructivist stance. As with the later Vico, there is a second interpretation of this topos, once it is realized that the State, no less than mathematicals, is a man-made product:

> To men is granted knowledge only of those things whose generation depends upon their own judgement. Hence the theories concerning quantity, knowledge of which is called geometry, are demonstrable. There is a geometry and it is demonstrable because we ourselves make the figures. In addition, politics and ethics, namely, knowledge of the just and the unjust, of the equitable and the unequitable, can be demonstrated a priori: in fact its principles, the conception of the just and the equitable and their opposites, are known to us because we ourselves create the causes of justice, that is, laws and conventions.
> *De Homine* II, 10, *Opera Philosophica quae latine scripsit* (same edn) II, pp. 92–4; cf. also *De Cive* XVII and *De Corpore* XXV

24 [13.3], 68–9; [13.8], 52. Vico, however, tries to provide a rationale for successful explanation in physics:

> Those theories /ea meditata/ are approved in physics which have some similarity with what we do /simile quid operemus/. For this reason, hypotheses about the natural order are considered most illuminating and are accepted with the fullest consent of everyone, if we can base experiments on them, in which we make something similar to Nature.
> (ibid.)

25 Cf. D.P.Lachterman, *The Ethics of Geometry. A Genealogy of Modernity,* London, Routledge, 1989, pp. 1–24. For other expositions of the *verum factum* topos, cf. W.Vossenkuhl, *Wahrheit des Handels. Untersuchungen zum Verhältnis von Wahrheit und Handeln,* Bonn, Bouvier, 1974, pp. 1–43; Stephen Otto, 'Vico als Transzendentalphilosoph', *Archiv für Geschichte der Philosophie* 62(1980): 67–80, and 'Interprétation transcendentale de Paxiome "verum et factum convertuntur" ', *Archives de Philosophie* 40(1977): 13–39. Against this interpretation, cf. F.Fellmann, '1st Vicos "Neue Wissenschaft" Transzendentalphilosophie?', *Archiv für Geschichte der Philosophie* 61(1979): 68–76. Many points of this debate are summarized in J.C.Morrison, 'Three Interpretations of Vico', *Journal of the History of Ideas* 39 (1978): 511–18.

26 The *Scienza Nuova* is a rather ambitious work. It purports to contain: (a) a 'civil and rational theory of Providence', i.e. a demonstration of the way Providence supposedly acts in social life; (2) a 'philosophy of authority', or on the origins of property *(auctores);* (3) a 'history of human ideas', especially the oldest ones in the religious field; (4) a 'philosophical critique' of the most remote religious traditions; (5) an 'eternal ideal history', showing the always-repeated route the nations run; (6) a 'system of natural law of the nations', based on primitive necessity and usefulness; and (7) a science of the oldest and darkest beginnings or principles of 'universal human history', where Vico tries to interpret the hidden truth of mythological

fables. All in all, Vico aims at what we might call an exploration of the 'savage mind' in the age of gods and heroes. In this sense the *Scienza Nuova* purports to advance a rational theory of the *mondo civile*. Cf. K.Löwith, *Meaning in History,* Chicago, University of Chicago Press, 1949, ch. vi.

27 Par. 331. [13.3], 461; [13.5], 96. Vico, however, does not forget the theological sanction of the *verum factum* topos in par. 349:

> For the first indubitable principle posited above /par. 331/ is that this world of nations has certainly been made by men, and its guise /la guisa/ must therefore be found within the modifications of our own human mind /le modificazioni della nostra mente umana/. And history cannot be more certain than when he who creates the things also narrates them. Now, as geometry, when it constructs the world of quantity out of its elements, or contemplates that world, is creating it of itself, just so does our science/ create for itself/ the world of nations/, but with a reality greater by just so much as the institutions having to do with human affairs /gli ordini d'intorno alle faccende degli uomini/ are more real than points, lines, surfaces and figures are. And this very fact is an argument, O reader, that these proofs are of a kind divine and should give thee a divine pleasure, since in God knowledge and creation are one and the same thing.
>
> Cf. [13.3], 467; [13.5], 104f.

28 'Vico and Marx: Notes on a Precursory Reading', [13.21], 38–61, esp. 51.

29 Cf. Karl-Otto Apel, *Die Erklären-Verstehen Kontroverse in transzendeltalpragmatischer Sicht,* Frankfurt-on-the-Main, Suhrkamp, 1979; J.R.Martin, 'Another Look at the Doctrine of Verstehen', *British Journal for the Philosophy of Science* 20 (1969): 53–67; W.Bourgedis, 'Verstehen in the Social Sciences', *Zeitschrift für allgemeine Wissenschaftstheorie* 7 (1976):26–38.

30 I.Berlin, 'Vico's Concept of Knowledge', in [13.18], 375f. For a criticism of Berlin's views cf. [13.84], 159ff.

31 A.Funkenstein, *Theology and the Scientific Imagination,* pp. 202–89, esp. pp. 279–89. Vico's secularized Providence and the autonomy he attributes to the course of human history bears a strong resemblance with some of Spinoza's doctrines, despite Vico's claims about man's free will. Cf. A.Pons, 'L' idee de développement chez Vico', in *Entre Forme et Histoire,* ed. O.Bloch, B.Balan and P.Carrive, Paris, Meridiens Klincksieck, 1988, pp. 181–94; [13.77], 49–68; J.Samuel Preus, 'Spinoza, Vico and the Imagination of Religion', *Journal of the History of Ideas* 49 (1988): 71–93.

32 *Sc. N.* par. 1108; [13.5], pp. 700f. Cf. also par. 341:

> But men, because of their corrupted nature, are under the tyranny of self-love, which compels them to make private utility their chief guide. Seeking everything useful for themselves and nothing for their companions, they cannot bring their passion under control /porre in conato/ to direct them towards justice. We thereby establish that man in the bestial state desires only his own welfare /la sua salvezza/; having taken wife and begotten children, he desires his own welfare along with that of the nation; when the nations are united by wars, treaties of peace, alliances, and commerce, he desires his own welfare along with that of his family; having entered upon civil life, he desires his own welfare along with that of his city; when its rule is extended over several peoples, he desires his own welfare along with that of the

> whole human race. In all these circumstances man desires principally his own utility. Therefore, it is only by divine providence that he can be held within these institutions /dentro tali ordini/ to practice justice as a member of the society of the family, the city, and finally of mankind. Unable to attain all the utilities he wishes, he is constrained by these institutions to seek those which are his due: and this is called just. That which regulates all human justice is therefore divine justice, which is administered /ministrata/ by divine providence to preserve human society.
>
> (*Scienza Nuova,* par. 341, [13.5], pp. 101f.)

Because of that, Vico adds in the next paragraph (342) that his science must be a rational civil theology of divine providence (cf. also par. 385). On this question, see S.R.Luft, 'A Genetic Interpretation of Divine Providence in Vico's *New Science', Journal of the History of Philosophy* 30 (1982): 151–69. On the method of the *Scienza Nuova* Vico is impenetrably opaque. He claims (n. 7 above) that he is deploying Bacon's method in human affairs (par. 163), but Vico mentions the somewhat atypical *Cogitata et Visa* insted of, as expected, the *Novum Organum*. E.McMullin has studied this question in 'Vico's Theory of Science', in [13.20], 60–89. He terms Vico's method 'hypothetico-suggestive' (p. 83).

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CHAPTER 14
Rousseau and Burke

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Those who thought about the social and political order directed their attention to a new centre of interest towards the end of the seventeenth century. It was not that speculation about political authority was forgotten, but rather that it came to be complemented with a concern for the social order. This concern was primarily political, in the sense that it focused on how people might live well in groups. Sometimes this addressed their morals (the french term *moeurs*[1] captures this meaning) and sometimes their prosperity. To put the matter generally, where the political theorists of the preceding century had looked at politics with an eye chiefly to preserving the citizen and his interests, their successors in the eighteenth century looked much more at how people might live well. Public morals, civic culture, social justice, education (including aesthetic education), 'improvement' in its manifold forms and political economy were their preoccupations.

The change may be read not least in theorists' use of reason. Reason was supposed more versatile then than some think it is now. It was supposed to disclose ethical truths and to be instrumental in governing conduct. It is easy to see how the former doctrine took hold: those who thought about morals in terms of natural faculties (as opposed to the information provided by revelation) tended to make use of natural law thinking. Natural law, being concerned in part with the benefits of acting in certain ways, focused on the correlation of means and ends. Hence good and evil would tend to be conceived in terms of reason. By the same measure it was easy to think of reason selecting courses of action, which the will then executed. Of course, not all thinkers were ethical rationalists: but it was true, too, that sentimentalists (not least Hutcheson) supposed that reason, if not the source, was a central element in moral thought and practice.[2] The point appeared clearly in Locke, who indicated that God 'having given Man an Understanding to direct his Actions, has allowed him a freedom of Will, and liberty of Acting, as properly belonging thereunto'.[3]

This implies that the understanding was a means of virtue. Where reason in politics had been directed primarily towards matters of preservation it was now directed also towards virtue. Robert Wallace illustrated this when he remarked that

> the more clear and extensive Views Men have of the exact Regularity…that obtains in all the Works of Nature, they must be more sensible of the Excellency, Beauty and Advantages of that Order, that reigns…they must admire it in general more highly, and be less disposed to transgress the Laws of Order in any particular Case.

It was not only nature that would stand approved, but the human world too, for 'the Order

of the natural will lead them to love and admire the Order of the moral World, and the Laws which regulate Society and human Commerce'.[4] Thus knowledge and virtue were taken to be correlated.

Burke began as a representative of this cast of mind. If that had been his destination as well as his beginning, he would not have been a very remarkable thinker. But even initially there was more to him than that and, in the course of his speculations he encountered a thinker who held diametrically opposed views. That was Rousseau. It was the way in which Burke developed his special views, including his response to Rousseau, and the way in which Rousseau developed his own line of speculation that marked them as important thinkers.

I

Edmund Burke was born in 1729 or 1730, the a son of an Irish attorney. After education at Trinity College, Dublin he crossed St George's Channel and thereafter rose rapidly in English society, first obtaining a considerable reputation as a writer and then as a politician, becoming a member of the House of Commons, a privy counsellor and, on two occasions, a minister just below cabinet level. He is best known to posterity for his *Reflections on the Revolution in France* (1790), but this work was the product not least of his thought over the preceding forty years, especially that of the 1740s and 1750s. What sort of thinker was he? His mind was equal to a wide range of concerns—theology, aesthetics, moral philosophy, history and political theory. These interests were intimately connected. Burke's theoretical writings suggested that the world was patterned unequally.

When Burke was an undergraduate at Trinity, he and his friends founded a society devoted to improving themselves and the world. We discover from the club's minute book and from the writings which Burke published at the same period that he concerned himself especially about three matters: the revealed word and its effectiveness; aesthetics and virtue; and the possibilities of power and wealth for the good of society.

The first concern was expressed in 'an extempore commonplace of the Sermon of Our Saviour on the Mount' and was amplified when Burke asserted 'the superior Power of Religion towards a Moral Life'.[5] For the second Burke assumed that the arts and virtue went together, as 'the morals of a Nation have so great Dependence on their taste… that the fixing the latter, seems the first and surest Method of establishing the former'.[6] In January, 1748 he asked, 'who…is so audacious as to affirm Knowledge begets Vice?'. Wealth and power entered into a debate on the merits of the lord lieutenant of Ireland, in which Burke observed that 'the opportunity a man can have of promoting ye good of his Fellow creatures, is proportionate to his wisdom, his wealth, or his power'. He dwelt later on the necessity of property—'a man's property's his life'—and on how the gentry of Ireland could improve their estates and so benefit the whole community. In March 1748 he descanted on the example of 'a Gentleman of Fortune' who had used his wealth for the good of his dependants through improvement. He had introduced manufacturing onto his estate, so that 'his Tenants grew rich, and his Estate increased daily in Beauty and Value'. Burke looked to the propertied order for the good of his country, moral and economic (though lamenting on occasion that they usually did not provide it).[7] These concerns,

diverse as they seem, came to be related in one theory.

Burke embraced these three into a single understanding through the idea of inequality. Let us start with the revealed word. How could revelation—of all things, one might ask—fit this description? The answer lies in deism.

Deism may be defined as the view that the information mankind requires as a condition of salvation is obtained from natural means alone. By natural was meant what could be collected through human faculties, especially reason, as distinct from revelation. It was revelation, in fact, about which the deists had qualms. For they assumed that God willed that everyone in principle could be saved. This implied that each person had the minimum means needed for salvation. This could not include revelation, for the Bible had not been available to all people at all times. It followed that the revealed word was at the very least superfluous to salvation and at worst not actually of divine authorship. The deists considered that mankind's own faculties, especially his reason, could supply him with the information he needed.

Burke found deism obnoxious. His observations on the Sermon on the Mount[8] declared a preference for revelation, arguing that it was superior to reason as a means of salvation. Shortly afterwards he suggested that Dublin's deists were really enemies to morality.[9] For if revelation was integral to God's design of saving man, to deny its authenticity was a denial of His plan.[10] To deny God's providence might in itself be held to signify atheism, or scepticism about revelation might be felt to reflect a complete unbelief. At any rate whilst Burke could later distinguish deists from atheists,[11] he was not ultimately much concerned about the difference.[12]

To uphold revelation in the face of deism implicitly was to prefer a pattern of divine conduct involving inequality. To make revelation necessary to salvation is to found it on a form of inequality, for historically revelation was diffused over only a limited part of the globe: God's favour was not extended equally to all. As such, revelation implies the concession that at least one part of God's government was conducted on unequal lines. Since that part, the business of salvation, was obviously the most important to man and God was held to work in a constant fashion, we might expect that others would conform to the same pattern. So we find in Burke's views on the social order.

Before turning to them, it is as well to turn to what Burke rejected. Again deism figures, this time not merely for itself but in the logic Burke read into it. Deism, in his view, opened up unpleasant implications for society. One deist in particular might be read in this way. The posthumous publication of Bolingbroke's works was a literary event and one especially interesting to Burke. For to provide deism with a conceptual guarantee one had to reject God's particular Providence—His concern with individual destinies—for that obviously embraced revelation. Most deists were not so thorough: but Bolingbroke was.[13] His view was objectionable on wider grounds. Besides discounting revelation it implied that God exercised no direction over specific cases. Individual events and institutions would not reflect His intentions. The social order, on this reading, need not answer to any beneficial purpose. Such a view would be unlikely to appeal to Burke, who at Trinity had sensed benevolent possibilities in the unequal order of his day.

Yet to understand the form taken by Burke's argument about the social order, we need to consider another thinker. For shortly after Bolingbroke's *Works* were issued there appeared a work which attributed a range of miseries to just the form of social order that

Burke approved. This was Rousseau's *Discourse on the Origin and Foundations of Inequality amongst Men,* a work of cardinal importance for understanding both Burke and Rousseau.

II

Jean-Jacques Rousseau had been born at Geneva in 1712. His early life was marked not least by dependence and by the practice of the fine arts. Dependence appeared first in his being apprenticed to an engraver, Rousseau's father having come down in the world; next, in a more agreeable but ultimately unsatisfactory manner, in the bounty of Madame de Warens; and then in a role as secretary to the Comte de Montaigu, France's ambassador to Venice, who ultimately dismissed Rousseau and refused to pay his salary. Thereafter he enjoyed success as a man of letters, writing musical criticism and composing operas. If it were necessary to seek a biographical reference for his doctrines, we could say that his dislike of dependence outweighed his desire to be applauded for his artistic and intellectual prowess.

For the central assumption of Rousseau's thought in the earlier 1750s was that the supposed correlation between knowledge and virtue was mistaken. Accordingly the view of things that followed from it was mistaken too.

Rousseau's *Discourse…on…the Arts and Sciences* studied the moral effect of knowledge and was submitted in a competition for an essay prize sponsored by the Academy of Dijon in 1750.[14] Rousseau argued that virtue and ignorance were correlated and so were vice and knowledge: that 'our minds have been corrupted in proportion as the arts and sciences have been improved'. He considered that knowledge had been deployed to make people behave pleasingly rather than virtuously. He assumed that the disposition of a human being, as it came from the hand of nature, would be read in its behaviour. Here he assumed that a condition of an action's being good was that it manifested the disposition of the agent, preferably a disposition to do good. But knowledge, Rousseau continued, showed us how to mould our actions in order to hide our dispositions. Thus knowledge concealed the truth. In effect natural people were truthful and sophisticated ones were deceivers. Rousseau went on to suggest that knowledge was encouraged by vice. It was not merely that knowledge concerned vice (legal science was parasitic on crime, for instance), but more especially that those forms of knowledge that pandered to vice (or were unconnected with virtue at any rate) were favoured and those that encouraged virtue were discountenanced. The accomplishments for which people were rewarded were not devoted to any good end, so the 'question is no longer whether a man is honest, but whether he is clever'. The Academy awarded the prize to Rousseau, perhaps intimidated by his asservation that 'there are a thousand prizes for fancy discourses and none for virtuous conduct'.[15]

Rousseau's inverse correlation between virtue and knowledge, however, lacked something. It lacked an explanation of how this situation had arisen. In order to produce one, Rousseau took himself to the resources of natural law thinking and transformed them.

Natural law thinking had emphasized not only reason but interdependence, whether in

the form of sociability or weakness. That is to say it had considered the human agent in abstraction from society and government and made two sorts of judgement. One of these was that man was a rational creature, capable of deciding what conduced to certain ends, what was right and how to act. The end that the agent had in mind, primarily, was self-preservation. The other judgement was that reason adverted to the dependent character of the species. This might take the form of suggesting that people were dependent on God, as in Locke. More generally it suggested that they were not constituted to subsist independently of each other, for instance because they were too weak to subsist individually in the face of their physical environment.[16] An instinct for the company of other human beings produced a similar inference: that if each agent was to obtain the ends he required other people were necessary. Hence the dependent nature of man suggested society.

The same line of reasoning suggested that government was needed, in order to secure the benefits of society. For despite their needs for others, people tended to conflict, largely over the possession of resources. They were sociable but not peaceable: and this was part of what Kant intended by describing the human condition as a social sociability.[17] Hence government was required to restrain human aggression.

Rousseau proceeded to stand these judgements on their head in the interest of explaining his inverse correlation of virtue and knowledge. He asserted that by nature mankind was neither sociable nor weak, but rather asocial and strong; not dependent but independent. Neither was man given to aggression, but rather peace,[18] If these assertions were made out it followed that society and government did not arise as the products of rational reflection on the human condition. They might be the outcome of something rather more unacceptable.

To make out his case, Rousseau evolved a dramatic sequence of history, running from mankind's natural condition to civil society. Rousseau needed to conduct two stories to achieve his ends. He wished to link virtue with ignorance and vice with knowledge. So he had to explain both the transition from virtue to vice and the growth of knowledge. To achieve these goals he needed to posit a figure of virtue and ignorance, to show the loss of virtue and to explain how knowledge accompanied that loss.

The first requisite was achieved in the exemplary figure of the savage, who also provided a way of pointing to the effects of knowledge. The savage embodied at once virtue and ignorance. He was virtuous in that he gave full rein to his natural sentiments and 'all' that comes from nature 'will be true'[19] Rousseau said. These comprised powerful instincts for self-preservation and for compassion. We should note in particular that from compassion flowed the 'social virtues' and that the savage's compassion was very strong. So he had the seeds of virtue. On the other hand he lacked the characteristics which would lead him to develop a knowledge that would encourage vice. The savage did not reason. Why? The savage, who was strong, had no need of others to assist him in self-preservation. Besides, he had no instinct for the society of other humans. He was therefore solitary.

But if a man was weaker he would need others. Needing them he would have to combine with them; and being constantly exposed to their company he could not but compare himself with them. This, of course, was an act of reason. Reasoning thus cultivated in each individual a sense of his distinctness from others. Under these

conditions, if a man prospered, he would have little regard for others, whom he would see as significantly different from himself. So reasoning was a condition of the weakening of compassion. To compare one's situation with that of the pitiable, Rousseau thought, dried up mercy and led a man to say 'Perish if you will, for I am secure'.[20] So where there was ignorance there was virtue: and knowledge was a condition of the reverse of virtue, a regard only for oneself.[21]

How did Rousseau fill out the condition under which the latter would flourish, namely the prosperity of one and the inferiority of another? Obviously he required people to enter society, which made comparison possible. He also needed to make one person inferior or, more exactly, dependent on another. The first was a condition of the second, for 'it is impossible to make any man a slave', he noted, 'unless he be first reduced to a state in which he cannot do without the help of others'.[22] The transition was accompanied through a loophole in the savage's independent isolation.

Rousseau supposed that the species faced difficulties that encouraged thought and with thought co-operation and enmity. The savage was soporific and unreflective by nature, living off the fruits of the earth. But competition for those resources from other animals or from other people (for Rousseau mysteriously assumed an increase in population) encouraged reflection on how to overcome his circumstances. In part this meant inventing tools and in part associating with other humans to gain benefits unobtainable individually. But, at any rate, human society became established. Now Rousseau did not suggest that society as such was reprehensible or that the acquisition of knowledge was itself vicious. He did indicate, however, that society soon assumed an unequal, indeed hierarchical form in which knowledge became the instrument of vice and misery.

Once in society, comparison made one person eager to excel another. Soon human intelligence devised instruments by which a man could outstrip others in accumulating property. This was achieved through the discovery of agriculture and iron, for the art of iron working facilitated extensive cultivation. This required many hands: and it precipitated a state of inequality and, thereby, dependence. 'From the moment one man began to stand in need of the help of another', Rousseau wrote,

> from that moment if appeared advantageous to any one man to have enough provisions for two, equality disappeared, property was introduced, work became indispensable, and vast forests became smiling fields, which man had to water with the sweat of his brow and where slavery and misery were soon to germinate and grow up with the crops.[23]

Slavery and misery grew up because there were, on the one hand, those who had acquired property, and on the other those who had not and, of course, here was the condition under which a knowledge of one's own prosperity dried up one's compassion for others: 'the privileged few…gorge themselves with superfluities, while the starving multitude are in want of the bare necessities of life'. So the poor, in the face of a lack of compassion, lacked the necessities of life.

The rich, however, were also miserable. The withering of compassion and the triumph of self-regard made a man ask, not what it was right for him to do, but what should he do to impress others with his importance. Thus he became dependent on the opinion of

others and was only happy when he captured their attention; in which, since they were as much absorbed by their self-regard as he was by his, was a search for happiness in vain. Meanwhile, in order to show their magnificence, the rich multiplied their trinkets, contrivances and all the apparatus of living far beyond their real needs. It was to satisfy these superfluous wants, of course, that the arts and sciences laboured.[24] We need hardly insist that the bad effects of the arts and sciences were now obvious, for 'from society and the luxury to which it gives birth arise the liberal and mechanical arts, commerce, letters, and all those superfluities which make industry flourish, and enrich and ruin nations'.[25] The essential point was that man ran sharply away from his natural sentiments and moral conduct to unnatural affections and that these unnatural feelings fed on social inequality, particularly in property.

Thus we have Rousseau's *Discourse on the Origin and Foundations of Inequality amongst Mankind* (1755). This piece, like its predecessor, was occasioned by the Dijon Academy. The subject prescribed was whether natural law authorized inequality. Rousseau took over self-preservation from established thinking about natural law: but hadaltered much else in order to show that society had developed as the violation rather than the product of human nature. This time he did not win the prize.

III

Rousseau did not impress Burke during his visit to England in 1766. Burke, who 'had good opportunity of knowing his proceedings almost from day to day', was sure that 'he entertained no principle either to influence his heart, or to guide his understanding but *vanity*', and in fact described him as 'the great professor and founder of *the philosophy of vanity*'.[26] This was a distaste conditioned by an intellectual origin. For the references to vanity suggest that Burke thought Rousseau knew that what he was saying was wrong, as in the declaration of Burke's friend Dr Johnson that 'a man who talks nonsense so well, must know that he is talking nonsense'.[27]

Burke had good reason to remark upon Rousseau. The Genevan's arguments inverted his own assumptions. With Rousseau knowledge accompanied vice and the growth of property produced neither 'Beauty' nor 'Improvements'. When Burke had asked who would affirm knowledge begot vice he could hardly have guessed that someone would be 'senseless' enough to assert 'its Opposite Quality' that 'Ignorance should be the Parent of Virtue'.[28] No doubt he attributed vanity to Rousseau because this seemed the only explanation for the paradoxical denial of what he took to be unexceptional truths.

Certainly Burke attributed views of the 'Opposite Quality' to Rousseau. *A Vindication of Natural Society* illustrated the logic of Bolingbroke's deism, which had asserted the sufficiency for salvation of the truths which man could learn from his natural faculties, by pushing its position to the Rousseauvian extreme. If man's natural endowments sufficed for that purpose, why not every other? If revelation was needed, why was civilized learning necessary? And if it were superfluous perhaps it was positively evil? Burke's parody takes Rousseau's course: man's great error in association, the establishment of inequality by the ambitious, and the miseries it brought on everyone are all present. The pseudo-Bolingbroke was made to observe that 'the original Children of Earth lived with

their Brethren…in much Equality' and that the 'evils' of society were 'not accidental' for 'whoever will take pains to consider the Nature of Society, will find that they result directly from its Constitution' because 'as *Subordination*…is requisite to support these Societies', there result 'the worst and blackest Purposes'.[29] Whilst Burke was mistaken in thinking that Rousseau decried all society, as opposed merely to the course which modern society had taken, he was right in seeing that Rousseau's views were radically incompatible with his own. An answer was obviously required.

Rousseau's *Discourse* in effect embodied two claims about modern European society. One was that its hierarchical form implied a perversion of man's moral feeling. That feeling, which by nature took the form of compassion, the regard for those less fortunate than ourselves, would be stifled by the regard for those above us engendered in the social order. The compassion which man had by nature would be lost in the emulation he assumed in society. Rousseau's second claim was that a society so constituted, because unnatural, produced a range of economic and social miseries. Both claims condemned social inequality in the name of nature.

A mere denial of all this would not do. Burke could not be unimpressed by Rousseau's case, disagreeable though it was. After all his own view that the rich ought to work for the common benefit sprang from the common assumption that property existed for that end. With Locke, for instance, property existed to increase the fruits of the earth so that it could support people, just as political authority did not exist for the benefit of kings alone. 'Our modern Systems hold, that the Riches and Power of Kings are by no means their Property, but a Depositum in their Hands, for the Use of the People', Burke wrote, adding, 'And if we consider the natural Equality of Mankind, we shall believe the same of the Estates of Gentlemen, bestowed on them at the first distribution of Properties, for prompting the Public Good'. But that, in fact, was just what 'Gentlemen' in Ireland had omitted. Despite Burke's hopes, instead of making the people happy they seemed rather to have impoverished them. So much was this so that civilization wore a strange countenance, for 'it is no uncommon Sight [Burke wrote] to see half a dozen Children run quite naked out of a Cabin, scarcely distinguishable from a Dunghill, to the great Disgrace of our Country with Foreigners, who', Burke thought, 'would doubtless report them Savages'. Here, at the least, was a disturbing resonance in Rousseau's paradox of the misery of civil society. Indeed the indifference of the gentry seemed to bear out his psychological analysis. Burke asked,

> Is it not natural for a Man, who rides in his Coach on a bitter Day, or lies on his Velvet Couch, secured from all the Inclemencies of the Weather, to reflect with Pity on those who suffer Calamities equal to his Enjoyments?

but their indifference seemed to say it was natural no longer.[30]

A *Philosophical Enquiry* showed how nature gave rise to inequality. Burke did not dispute the standard view that men were by nature equal, though he did little to illuminate it. He indicated instead how passions that were entirely natural would give rise to a graduated social order. For Burke divided the passions which 'served the great chain of society' under three heads—sympathy, imitation and ambition. These linked men in society and linked them so as to make inequality natural. Sympathy was a 'bond' which

made men never 'indifferent spectators of almost anything which men can do or suffer'. Sympathy by itself did not make for inequality, but it concurred with the passions which did. 'For as sympathy makes us take a concern in whatever men feel', Burke wrote, so imitation 'prompts us to copy whatever they do'; and imitation was complemented by ambition, which gave 'a satisfaction arising from the contemplation of excelling his fellows' to a person.[31] So it was natural for the ambitious to lead and for the imitative to follow. Hence inequality in society would be established. The bonds of civil society were the causes of inequality: and inequality arose from nature.

An unequal society in Burke's view was not only natural but also progressive. If men were devoted to imitation alone, 'it is easy to see that there never could be any improvement amongst them' and it was 'to prevent this' that God instilled ambition into man.[32] 'Improvement' implies human artifice, and Burke was quick to show how human invention lay in the pattern of nature. Nature could extend to artifice and to a specific form of artifice. For 'nature' in Burke's hands included the best adaptation of the artificial to the ends that man's nature suggested. The content of 'nature' would be presented to best advantage not in a primitive condition, as Rousseau had seemed to suggest, but in the perfection of artifice. 'Art is man's nature', Burke wrote, because 'man is by nature reasonable; and he is never perfectly in his natural state, but when he is placed where reason may be best cultivated'.[34] At one level this view enlarged upon the view that man required society to flourish, for 'without which civil society man could not by any possibility arrive at the perfection of which his nature is capable, nor even make a remote and faint approach to it'.[33] At another, it authorized the distinct version of civil society Burke intended. For the author of *A Philosophical Enquiry* believed that society could produce 'a true natural aristocracy'. Nature culminated in artifice. In Burke's own words, 'the state of civil society, which necessarily generates this aristocracy, is a state of nature'.[34]

Thus, Burke found no reason to think that modern society necessarily involved moral perversion. He wrote of humanity, without deliberation, that 'we love these beings and have a Sympathy with them'.[35] But did society involve the misery of man? We may assume that social inequality could involve an unequal distribution of benefits. But the point is less a state of affairs than how it is considered. We have seen that Burke could be scarcely more restrained about contemporary conditions than Rousseau: but he viewed society in a different light. He would argue that society depended for its prosperity on inequality: so that to undermine the latter was to strike at whatever benefits the poor might receive.[36]

We have seen that for Burke the divine worked through inequality. Revelation was an unequal mode of distributing information. It involved a further inequality, because God issued it, who was man's superior: and this superior directed man through his passions. 'Religion' showed that God was also the author of a morality discoverable by reason, just as *A Philosophical Enquiry* had emphasized the passions which tended to establish a social inequality.

We need not suppose that Burke's general stance implies an indiscriminate approval of all graduated dispensations. He could say that 'all who administer in the government of men…stand in the person of God himself':[37] but this scarcely implies that those who were like God in power were like Him also in goodness. To put the matter another way,

some modes on inequality might be better than others. In order to distinguish which, Burke's focus had to move from the general to the particular. Most of his writings after *A Philosophical Enquiry* assess individual regimes. He turned first from his native Ireland in his *Abridgement of English History*.

When the undergraduate Burke discussed the possibilities of wealth for good, he had not forgotten power. In fact he thought that power might be more important for good than wealth. Power too required vindication, for among the inversions Burke attributed to the pseudo-Bolingbroke was the claim that any government, in its nature, was an instrument of evil. For just as Rousseau had told a story in which man was corrupted by society, Bolingbroke's account of history suggested that the liberty found amongst the Saxons in England was subsequently under threat from government and that one of its other enemies was the church.

The accounts of Rousseau and Bolingbroke in their different ways suggested that the motif of European and English history was decline, whether in the loss of virtue through society or in the problems of liberty after the Saxons. A writer offering an antidote might prefer to place his accent on progress. Where Bolingbroke's account questioned whether English liberties had grown since the Saxons and implied with a deistic sneer that the church was against political liberty,[38] an alternative would suggest that liberty had grown, not diminished, and that the church had assisted it. Since Bolingbroke argued that the early Middle Ages had seen a virtual extinction of political liberty, it would also be fitting to suggest that it was then that it was established.

Burke's *Abridgement* did not suggest the direct intervention of God, save at one point, but showed how desirable results occurred gradually without any human having insight into His plans. By the same token the results did not reflect deliberate human activity. Burke emphasized the themes of inequality, improvement and liberty. Fundamentally, he thought, the structure of Saxon and Norman society was sound in that it reflected nature by instancing inequality. Further, whether under the indistinct forms of Saxon society or under the feudalism of the Normans, the subordination of one man to another, reaching to the king, was uncoerced. Therefore kings felt sufficiently secure, on the whole, to govern through laws rather than by force.

These monarchs, too, favoured Christianity, which secured the benefits of improvement. Literacy and good manners were nurtured. So Burke could see the Middle Ages as the period in which the bearers of religious and social inequality secured blessings to England. These reflections formed the basis of Burke's view of how government by opinion arose. Government by force ceased to be necessary when the ruler and the ruled could trust each other. This happened under the feudal system, which embodied the loyalty of subject to sovereign and which Burke would describe eventually as 'the old feudal and chivalrous spirit of *Fealty,* which by freeing kings from fear, freed both kings and subjects from the precautions of tyranny'.[39] Under this condition force would be replaced by opinion as a mode of government. This feudalism both necessitated and provided. It was necessary because leaders were followed freely (the sovereign 'was only a greater lord among great lords')[40] and supplied by the code of honour feudalism embodied ('the soft collar of social esteem').[41]

Improvement flourished under the same conditions. Burke thought that 'the rudeness of the world was very favourable for the establishment of an empire of opinion' and the

body most fitted to form opinion was the Church. As 'the asylum of what learning had escaped the general desolation'[42] she imparted knowledge to the world. Hence the 'ground-work' of intellectual improvement was a 'Gothic and monkish education', because the Church had been the agent 'preserving the accessions of science and literature, as the order of Providence should successively produce them'.[43] Thus the agents of revelation complemented the beneficiaries of social hierarchy in God's design.

This story was common to Europe and England, for both had been feudal, but there was one feature peculiar to England. Political liberty arose through the coincidence of the growth of order, the church, and the precise structure of Norman society. Executive government extended its power. But it was balanced when the aristocracy was encouraged by the church to resist. Since the aristocracy was not sufficiently strong on its own to prevail, it sought to enlist popular support by claiming liberty for all. In this fashion it was ensured that liberty was not merely won but won on a general basis.[44] We could perhaps say that because Burke's story gives out at *Magna Carta* it is that unclear what would happen next; and that his story concerned chiefly England. But a passage in *Reflections* made it clear that to his mind the civilization and manners of modern Europe as a whole were the children of church and hierarchy:

> Nothing is more certain, than that our manners, our civilization, and all the good things which are connected with manners, and with civilization, have… depended for ages upon two principles; and were indeed the result of both combined; I mean the spirit of a gentleman, and the spirit of religion.[45]

Inequality in society, in short, was the bearer of the fruits of civilization.

Thus Burke's view of the social order began not merely from a position opposed to Rousseau's, but also developed in a diametrically different direction. Where for Rousseau inequality in society was unnatural, it was natural for Burke; where history showed a declension for one, for the other it showed a providential improvement. Rousseau was not the only piece of grit in the Burkean oyster: but neither was he insignificant. At any rate, whatever the causation, the result was two irreconcilable theories of the social order.

IV

It would be wrong to present Burke as an uncritical admirer of contemporary institutions. His middle life (let us say 1760 to 1789) was preoccupied with the abuses of English government and politics, whether at home or in the colonies. Neither did he suppose that the European order was without serious defects.[46] But essentially these were criticisms of policy and a recognition of problems rather than a call for wholesale reconstruction. Burke's view that inequality was the pattern of nature suggested that the hierarchical social order he contemplated had within it the fundamental ingredients of rightness.

Rousseau's attitude, of course, was quite different. To insist that inequality was a moral perversion in the context of an hierarchically constructed society was a radical criticism. Rousseau proposed quite a different standard.[47] It has come down to us as *The Social Contract*.[48] This embraced two central items, the general will and the means

establishing it institutionally. Both of these transcended inequality. The general will implied an equality of treatment for all citizens *ceteris paribus* and Rousseau's means of instantiating it excluded the dependence of one person on another.

The concept of the general will has a transparent meaning and an unusual institutional form. By 'general will' Rousseau meant a measure which 'tends always to the preservation and welfare of the whole and of every part'.[49] More specifically he had in mind a measure implying the same treatment for all members of a community. In his own words, each person 'submits…to the conditions he imposes on others'.[50] This, no doubt, explains why Rousseau referred to it as justice,[51] for justice implies that each person be treated in the same manner as the next, unless there is some reason in their nature or circumstances that requires a difference should be made. In the words of his *Letters from the Mountain* under the general will 'all want conditions to be equal for all, and justice is only this equality'.[52]

The general will stood in contrast with the particular will. Where the general will prescribed an identical treatment for all persons under consideration, the particular preferred the interests of one agent alone. Rousseau assumed that each agent would seek his or her own advantage, writing of 'the individual's own will, which tends only to his particular advantage'.[53] To illustrate the difference very simply, suppose one were faced with the task of distributing 200 sweets amongst 100 persons (including oneself). The solution fitting the particular will would be to allot all 200 to oneself and none to the others, whilst that matching the general will would distribute two sweets to each person in the group.

Rousseau, in effect, proposed that each individual should regard himself or herself in precisely the same manner as others, other things being equal. This principle that one should pay a significant regard to others is embodied deeply in almost all European moral thinking. Those who hold a different view, such as Nietzsche, are in defiant isolation. It appears as a form close to Rousseau's in the Christian precept to 'love they neighbour as thyself'.[54] Whilst in Rousseau's time this principle would have found general acceptance, most would have restricted its application. No one would have doubted that some principle of this kind applied to moral conduct. Rousseau, in a like mood, conceived that acting according to the general will was virtuous:[55] but it was his application of the concept to politics that was striking.

For Rousseau meant to transpose his attitude to inequality from a critical to a constructive key. He had diagnosed inequality as a central constituent in the malaise of modern society. He meant to show how a rather better society could be constructed, one which avoided what he took to be the core of inequality, namely undue distinctions between persons and the dependence of one person upon another. That is to say, Rousseau sought a situation in which people would be treated in an identical manner and one in which personal dependence was not possible. Let us look first at identity of treatment.

Beginning with matters of institutional form, we find that the political body that Rousseau conceived to bear the general will had an unusual character. To understand that character we should adduce the requirements for fulfilling the general will. If we take it that each person should be treated in the same manner as the next, *ceteris paribus,* and wish to move to Rousseau's position that people *are* to be treated in the same manner, we

must fill out the *ceteris paribus* clause in a way that admits of no difference amongst the people under consideration. This implies, amongst other things, that they must be juridically equal. How as Rousseau to satisfy this condition? He thought that people were not equal in terms of strength and other natural endowments, and was painfully aware that they did not all have the same status in modern society. Neither of these could provide the means of satisfying Rousseau's requirements. Hence people would have to *acquire* equality of standing.

This acquisition was provided for through Rousseau's conception of the political body. Rousseau supposed that people would *place* themselves upon a footing of equality. This was achieved by each agent totally alienating his person and his rights. A *total* renunciation was necessary, for prior to it people were unequal in various ways and to reserve something might perpetuate that condition. Hence the foundation of a body capable of bearing the general will was 'the total alienation of each associate and all his rights', 'for…each giving himself entirely, the condition is the same for all'.[56] That is to say, people set themselves all on the same footing.

But to what did they alienate themselves and their rights? It may sound as if people created a body, rather like Hobbes's, which was endowed with all of their attributes. So it was, but the crucial question was the composition of this body. With Hobbes the sovereign was juridically distinct from the agents that created it: they transferred rights to it. With Rousseau the sovereign body was composed of those who created it.[57] They alienated their persons and rights to a body whose members they became. Indeed it is in precisely this act that we can locate their equal standing: people placed themselves on the same footing *as* members of the body, as citizens. To put the matter another way, Rousseau conceived people as equal because he identified sovereignty with citizenship. This may seem an excessively simple move, but great intellectual innovation is often distinguished by a masterly simplicity.

Thus people obtained an equal status. But we may ask how they were able to do so? Rousseau assumed that nature did not imply the subordination of one to another. His account here, as in his second discourse, transformed the resources of preceding speculation, this time those of absolutism. Neither parentage nor force provided a title to direct others, he thought, thus bypassing Filmer and Hobbes respectively.[58] On the contrary, the make of nature suggested that each agent was concerned for self-preservation and therefore that it was appropriate to exercise his or her capacity for self-direction, including free will. Of course, the quest for self-protection might be supposed to lead to subordinating oneself to another person without reservation. Grotius (amongst others) had -conceived this. Rousseau rejected the suggestion, like Locke before him, but for a different reason. Where Locke had supposed that people were bound to do God's will, Rousseau argued that to be free was integral to being a moral agent and therefore freedom could not be surrendered.[59] At any rate, it is evident that people would be free to create a body politic.

Rousseau's suggestion that freedom could not be surrendered raises questions about the advantages of his political exercise. Did not setting up a sovereign involve a total surrender of person and rights? It did, but the process produced corresponding advantages, including a freedom more extensive than the one enjoyed previously.

Rousseau continued to argue through self-preservation. He supposed that people's

chief means to this goal lay with their force and their freedom. Agreeing with preceding thought for once, Rousseau saw co-operation as a means of increasing the force on which each individual could call. But what of liberty? Rousseau indicated that the question was how to reconcile the advantages of co-operation with the continuance of self-direction. His answer was that in his political body the latter would continue through what he termed conventional liberty, notwithstanding that natural liberty would be surrendered.[60]

This requires some explanation. Had each agent not surrendered his or her means of independence to the sovereign? They had; and freedom in the sense of independence, therefore, was gone. But in a body answering to the general will there arose conventional or civil liberty. This was a condition in which no agent was dependent on another. For the direction of such a community came from rules that accorded with the general will: that is to say from rules treating each person's interests with the same consideration as the next's. It follows that under this scheme of justice or equal dealing no agent's liberty would be defined in a way that conflicted with another's or with another's interests. But why should liberty on this model be an advantageous exchange for the independence given to people by their natural powers? The answer is that Rousseau supposed that people by nature were entitled to whatever they could get. This neo-Hobbesian supposition, it scarcely needs saying, rather suggests that in this condition life would not be very tolerable and it was rational to institute political order—a point Rousseau himself made.[61] Hence it was worthwhile to exchange an insecure independence for a protected liberty. Rousseau suggested in his *Letters from the Mountain* that it was misleading to 'confuse independence and liberty. These two things are so different that they exclude each other', he continued: that was to say that, 'liberty consists less in doing one's own will than in not being subject to another's' and that 'in the shared liberty no one has a right to do what the liberty of another forbids him to do'. Hence liberty implied the presence of the general will, 'liberty without justice is a veritable contradiction'.[62] Civil liberty meant a liberty prescribed by the measure of justice contained in the general will.

In Rousseau's political body the possibility of personal dependence was removed. For man became more fully master of himself in a political condition. In the first place he was released from direction by his appetites. For though not directed by another people, natural man was dependent on nature, being moved by appetites and instincts. Another direction succeeded, for, in the second place, though no longer independent, he was dependent on laws prescribed by the general will. Third, to depend on such laws was preferable to depending on other people. Rousseau believed that dependence on persons was dangerous. For it was not regulated by any moral norm and so admitted vagaries of conduct. As he put the matter in *Emile:*

> There are two kinds of dependence: dependence on things, which belongs to nature; dependence of men, which belongs to society. Dependence on things, having no morality, is not harmful to freedom and does not engender vices; dependence on men, being uncontrolled, engenders them all, and it is through this dependence that master and slave become mutually depraved. If there is some means of curing this evil in society, it is through substituting law for men,

and more precisely by substituting laws founded on the general will.[63] Fourth, direction

by the general will to Rousseau's mind meant direction by self-legislated measures. Thus, guided by the general will the agent was directed by morality and by himself, rather than by nature and by other people. As master of himself in this way, he was genuinely free.

Much else could be said about *The Social Contract* which only considerations of space prevent. But one matter requires attention. That is Rousseau's civil religion. This cult would propound a doctrine which, without prejudicing other beliefs consistent with it, was meant to reinforce the political body by teaching congruent with the activity and the regard for others implied in the general will. This was to be contrasted with Christian doctrine, which for Rousseau preached patience and indifference to the world, as well as drawing people's allegiance away from their proper loyalty to the state.[64] If Rousseau had studied Burke as Burke had studied him he would have discovered that Christian belief might match the sort of unequal order that *The Social Contract* was meant to supersede.

V

Burke's views had dwelt on inequality in manifold forms. He had begun by emphasizing the importance of revelation, which was a message distributed unevenly. He had developed a view of man which stated that the inequality between leaders and followers was natural. Social hierarchy, property and government too stood on an unequal basis. The bearers of social and religious inequality, aristocracy and church, had achieved liberty and improvement for England in the Middle Ages. After nearly twenty-five years in Parliament Burke held that good government was still secured by some of the bearers of inequality. So when the French Revolution came it touched a live nerve. For Burke a movement which made *égalité* its watchword implied the destruction of the conditions on which society existed and prospered. To his mind it would involve not merely the destruction of legal privilege but the destruction of inequality in society and everything which went with it.

Burke believed that 'the true actuating spirit' of 'the whole' of the initial policies of the Revolution belonged to 'a cabal'. The character of the cabal, that it had the pretension of 'calling itself philosophic',[65] is a hint to what he thought he saw was the spirit of the revolutionaries, namely that they were deists or, as Burke preferred to insinuate, atheists:

> It is not with you composed of those men, is it? whom the vulgar, in their blunt, homely style, commonly call Atheists and Infidels? If it be, I admit that we too have had writers of that description, who made some noise in their day. At present they repose in lasting oblivion. Who, born within the last forty years, has read one word of Colins, and Toland, and Tindal, and Chubb, and Morgan, and that whole race who called themselves Freethinkers? Who now reads Bolingbroke? Who ever read him through?

The destruction of inequality would be a congenial task for the enemies of revelation to Burke's way of thinking.

To whom did Burke suppose the revolutionaries looked for inspiration, apart from

deism? They were alleged to have taken for their 'canon of holy writ', 'standard figure of perfection' and 'pattern' Rousseau.[65] In Rousseau Burke had early found a great challenge to social inequality and to society itself.

The forces Burke had conceived early in life as the enemies of revealed religion and civil society respectively were now combined. Deism had no use for revealed theology. The civil society which Burke recognized revealed theology to need in order to perfect man's condition was the object of Rousseau's enmity. So Rousseau and the deists appeared to him as alike parts of a pattern of rejection of God's will. With God's will went the order of modern Europe which embodied the conditions on which progressive civilization was to be had. In other words revealed theology and social inequality or, as Burke said, 'the spirit of religion' and 'the spirit of a gentleman', stood or fell together.

R*eflections on the Revolution in France* divides into two parts, arranged in dramatic contrast with one another. The first contains an account of a properly regulated society, interwoven with a description of the attack upon it. It displays a providential order. The succeeding part provides a sharp contrast, dwelling on the results of working by human foresight alone—inadequacy. The inadequate nature of the revolutionary institutions is underlined by an appreciation of British recognition of mankind's limitations and proper reliance on God. The divine order and its opposite stand in pointed contrast.

The French Revolution was the worst of nightmares for Burke. The programme he attributed to it implied the destruction of everything he thought valuable in society. Yet by the same token it was the greatest opportunity to expound his views. It had never before fallen to him to deploy his political opinions in concentrated form. Are those views eccentric? All interesting political theory makes connections others have overlooked. This prize is likely to fall to one whose stance is out of the ordinary. Burke's point of view, formed, we have seen, out of an amalgam of inequalities, was the fruit of a particular origin and experience. No doubt Burke's perspective is unusual, as is Rousseau's in a different way, but one of the objects of historical study is to explain how unusual doctrines are natural enough to their creators.

NOTES

1 Convenient but hard to translate into English. Whilst the latin *mores* is a good equivalent it has become a term of sociological art; *manners* has connotations of politeness; *morals* connotes ethical distinctions. *Moeurs* suggests something that is embodied in conduct and in institutions.
2 See [14.55] for a closely observed account of Hutcheson's ethics and the place of reason in them.
3 [4.6], II.vi.58:324.
4 [4–36], 9.
5 See Burke's 'Extempore Commonplace on our Saviour's Sermon on the Mount' in [14.27], 3; *The Reformer* no. 11 (7 April 1748) in [14.26] p. 324. (Dates for British and Irish events before Lord Chesterfield's Act are given according to the old style, but with the year beginning on 1 January).
6 *The Reformer* no.1 (28.1.1748), in [14.26], 297.
7 *Minute Book* (26.5.1747) of Trinity College debating society, [14.26], 248; *Minute Book*

(2.6.1747), *ibid.* (3.7.1747), *The Reformer* no. 7 (10.3.1748) in [14.26], 263, 289, 317.
8 [14.27], 3.
9 *The Reformer* no. n (7.4.1748), [14.26], 323.
10 Cf. *Speech on Toleration Bill, 17th March 1773,* [14.18], ii: 387f
11 [14.18], ii: 389.
12 [14–25], 185f.
13 Bolingbroke, [14.31], v: 414, 'The truth is that we have not in philosophical speculation, in any history except that of the Bible, nor in our own experience, sufficient grounds to establish the doctrine of particular providences'.
14 For the Dijon Academy and the circumstances of the 1750 competition, see [14–37].
15 [14.2], pt i in [14.1], iii: 9. I have not relied implicitly on any particular translation of Rousseau and have made my own renderings where it seemed needful, but the reader will recognize an extensive debt to those listed in the bibliography (see [14.9–15]).
15 [14.2], pt i in [14.1], iii: 17, 25.
16 See for the whole line of thought the concise statement of [14.34], in [14.35]:

> the end for which men enter into society, is not barely to live… but to live happily; and a Life answerable to the dignity and excellency of their kind. Out of society, this happiness is not to be had, for singly we are impotent, and defective, unable to procure those things that are either of necessity, or Ornament for our lives, and so unable to defend and keep them when they are acquired. To remedy these defects, we Associate together that what we can neither joy nor keep, singly, by mutual benefits and assistances one of another, We may be able to do both… That…by which we accomplish the ends of a Sociable life, is our subjection, and submission to Laws, these are the Nerves and Sinews of every Society or Common-wealth.

17 Immanuel Kant, *Ideas for a Universal History with Cosmopolitan Purpose,* 4th proposition in [14.33], 44f.
18 [14.3], pt i in [14.1], iii: esp. 135–40.
19 [14–3], preamble to pt i, [14.1], iii: 132f.
20 [14.3], preface and pt i, [14.1], iii: 126, 155f.
21 *amour propre* in Rousseau's vocabulary.
22 [14.3] dedication, pt i, pt ii; [14.1], iii: 111, 162, 171.
23 [14.3], pt ii, in [14.1],iii: 192f.
24 Ibid.
25 [14.3], i: ix n., [14.1], iii: 206.
26 [14.21] in [14.19], iv: 298.
27 For Johnson, see [14.32], 405, 30 September 1769.
28 *The Reformer,* [14.26], 298.
29 [14.20], [14.19], i: 8, 22. For a convincing array of parallels see [14.56], 97–114.
30 *The Reformer,* [14.26], 315, 316.
31 [14.24] (since the text is the same in both editions of [14.24], it is cited here only by book and chapter number), I.xii, xiii, xvi, xvii.
32 [14.24], I.xvii.
33 [14.25], 196f.
34 [14.22] in [14.19], v:101.
35 'Religion', [14.27], p.82.
36 *The Reformer* (10 March 1748) in [14.26], 314–17; 'Thoughts and Details on Scarcity' (written 1795), [14.19], vi:4, 9, 11; [14.25], 372.

37 [14.25], 189.
38 [14.31], especially *A Dissertation on Parties,* letter xvi; *Remarks on the History of England,* letter iv; *Letters on the Study and Use of History,* nos v and vi.
39 [14.23] esp. I.ii, II.i–ii, vii; III.iii, viii, [14.25], 172.
40 [14.23], III.i.
41 [14.25], 170.
42 [14.23], III.i.
43 [14.25], 199.
44 [14.23], III.viii.
45 [14.25], 173.
46 [14.25], 193, on the 'defects, redundancies and errors' of existing jurisprudence; p. 141 on 'hereditary wealth, and the rank which goes with it, are too much idolized by creeping sycophants'; p. 197 on 'the wealth and pride of individuals at every moment makes the man of humble rank and fortune sensible of his inferiority, and degrades and vilifies his condition'; p. 372 on the 'body of the people' who 'must respect that property of which they cannot partake'.
47 That is a standard, see [14.6] in [14.1], iv:836f.
48 For Rousseau's larger design, see [14.7], ch. x ([14.1], i:516) and [14.6], ch. v ([14.1], iv:836–49).
49 [14.4] [14.1], iii:245; cf. [14.5], II.iii ([14.1], iii:371); [14.5], IV.i ([14.1], iii: 437).
50 [14.5], II.iv, [14.1], iii:374.
51 [14.4], [14.1], iii:251.
52 [14.8], no. 9, [14.1], iii:891.
53 [14.5], III.ii, [14.1], iii:400. cf. [14.5], I.vii, [14.1], iii:383 and [14.6], ch. v, [14.1], iv:843.
54 For Rousseau's views on ethics, note his view that 'La grande Société, la Société humaine en général, est fondée sur l'humanité,é, sur la bienfaisance universelle', letter to Leonhard Usteri, 18 June 1763 no. 2825 in [14.16], xvii:63, and for a qualification see [14.8], no. 1, [14.1], iii:706.
55 [14.4], [14.1], iii:252.
56 [14.5], I.vi, [14.1], iii:361. The distinction of private and public will be found in [14.6], II.xiii.151:386.
57 [14.5], OC, iii:36if.
58 [14.5], I.ii-iii, 14.1 iii 352–5; for Hobbes and Filmer, see 'Locke's Political Theory' ch. 4, supra, pp. 97, 117; [14.5], I.iv, [14.1], iii:352.
59 [14.5], I.iv, cf. [4.6], II.ii–iv; for all this see 'Locke's Political Theory', pp. 106–8.
60 [14.5], I.vi, [14–1], iii:360.
61 [14.5], I.vi, [14.1], iii:360f.
62 [14.8], no. 8, [14.1], iii:841–2.
63 [14.6], ii, [14.1], iv:311.
64 [14.5], IV.viii, [14.1], iii:460–9; for Rousseau's view of religion more generally, see the texts assembled in [14.13] and for commentaries see [14.34] and [14.37]'
65 [14.25], 185, [14.21], in [14.19], iv:297. Cf. [14.25], 181.

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14.3 *Discours sur…l'inégalité*

14.4 *Discours sur l'économie politique*

14.5 *Du contrat social*

14.6 *Emile*

14.7 *Confessions*

14.8 *Lettres écrites de la montagne.* Helpful translations include.

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Glossary

absolutism: (a) In political philosophy, an ‘ absolute’ government is one whose rule is subject to no (human) restraint, for instance by a parliament or a constitution, and answerable (if at all) only to God. Contrasted with ‘bounded’ government (q.v.). (b) Elsewhere ‘absolutism’ is contrasted with some form of ‘relativism’. For instance an absolutist about space will hold that it exists independently of matter.

a posteriori: what is knowable, if at all, through experience. Contrasted with ‘a priori’ (q.v.).

a priori: what is known, if at all, independently of experience. Contrasted with ‘a posteriori’ (q.v.).

bounded government: bounded government is government that is limited by human laws. Belief in bounded government is contrasted with ‘absolutism’ (q.v.).

Cabala: literally ‘tradition’, specifically an esoteric tradition of interpreting Scripture supposed to have been handed down in secret by Moses to certain select disciples and by them in turn. There was considerable Christian interest in the Cabala during the Renaissance and, though it was discouraged by the Catholic Reformation, this continued to be expressed by Neoplatonists in Protestant countries into the eighteenth century.

Calvinism: the theology of the French Protestant theologian John Calvin (1509–64) which was influential in England in the seventeenth century and in Scotland throughout the period covered by this volume. Calvin subscribed to an austere doctrine of predestination according to which the future salvation or damnation of any individual soul has been predetermined for all time. The Calvinistic emphasis on the corruption of human nature led to a stress on faith rather than fallible human reason. It was opposed by those who believed in natural theology or rational religion.

Cartesianism: the doctrines associated with the philosophy of René Descartes: especially, in the context of this volume, the belief that events in the natural world are determined by invariant mechanical laws. Descartes claimed to know a priori that the essence of matter consisted in extension and Cartesianism was associated with a physics that was partly a priori. Descartes’s radical separation of the material world from that of the mind and his endorsement of innate ideas encouraged some to interpret him as sympathetic to Christian Platonism.

cause: a cause has often been understood to mean that, in the presence of which some event *must* occur. If, however, this means that there would be a contradiction in supposing that the cause occurred but not its effect, it seems there are few causes in this sense. As the occasionalists (q.v.) recognized it was only in the case of God willing something to happen that there would be a contradiction (since God is by definition omnipotent) in supposing it not to happen. From this it seems as if a natural cause is nothing more than a phenomenon that is regularly found to be followed by

events of the kind in question. Empiricist (q.v.) accounts of causation stress this regularity or, in Hume's phrase, 'constant conjunction'.

certainty, moral: what is morally certain had the highest degree of probability and is certain for the purposes of practical life. It is distinguished from theoretical certainty or *scientia*. (q.v.)

common notions: these are notions that are universally imprinted on humans and make possible a universal consent to certain propositions. The existence of such notions was a matter of controversy during the period covered by this volume. See 'innate ideas'.

consensus gentium: a mode of argument for the truth of a proposition from the existence of universal consent to it. This mode of argument was attractive to those who believed in common notions (q.v.).

constructivism: opposed, for example to realism in mathematics, those who hold this view argue that truths are not so much discovered as constructed. This view was advocated by Vico. See Chapter 13.

contract, original: the obligation to obey the ruler was supposed by some theorists to be based upon a contract made at the founding of political society. In return for the promise of the people to obey the sovereign, the ruler undertook for his part to protect the people and their rights.

contradiction, principle of: every self-contradictory statement must be false and its denial must be true.

corpuscular philosophy: the view, associated with Gassendi, Boyle and Locke, that the world is made up of tiny particles of matter.

correspondence theory of truth: the theory that a proposition is true if, and only if, there is some (corresponding) state of affairs or set of facts in the objective world in virtue of which it is so.

deism: a point of view embracing belief in a Creator but hostile to revealed religion. Deists characteristically disbelieved in miracles and tended to be anti-clerical. Though they sometimes believed in a general Providence and even in a deity who punishes the wicked and rewards the virtuous, they did not regard the sacraments as necessary to salvation.

demonstration: a logical term for an argument whose conclusion follows from its premisses, i.e. where it would be inconsistent to accept the premisses and reject the conclusion. Demonstrations, so defined, have been admired as the strongest possible form of argument. Deductive logic is concerned with valid forms of demonstrative or deductive inference.

deontology: the science of duty, usually associated with the view that we are bound by certain absolute duties, which we can know, and which are not affected by circumstances.

design, argument from: an argument based upon the orderliness observed in nature which is intended to establish the existence of an intelligent and purposive cause of the natural world. This argument became very popular in the eighteenth century, though it was severely criticized in Hume's *Dialogues Concerning Natural Religion*.

determinism: the view that every event (including every human action) has a cause and that there is no chance in the universe. Determinists usually interpret the existence of a cause as meaning the event could not fail to occur and that human actions, when

caused, are not 'free'. Some determinists, however, have claimed not to deny free will and have maintained, on the contrary, that the absence of a cause of a human action would bring free will into question in a way that the presence of a cause does not.

divine right (of kings): an absolutist (q.v.) doctrine according to which kings are appointed by God and are not answerable to their people for their actions.

eclecticism: a term used of the tendency of some philosophers to take elements from several different sects or schools rather than adhere consistently to a single one. Eclectics are usually liberal and anti-sectarian.

egoism, ethical: the view that what I morally ought to do is to promote my own interests.

egoism, psychological: a theory according to which individuals are motivated to action only by concern for their own interests.

egoism, rational: the view that I only have good reason to do those actions which promote my own interests.

emanation: a characteristically Neoplatonic (q.v.) doctrine in which the world is conceived as a kind of over-flowing of the divine nature. Everything that is of the spirit, comes from the divine light, thus emanates from God. Evil is simply the privation of this and so is present in anything which is not pure divinity. Evil and good, darkness and light, matter and spirit, passivity and activity, are all treated in analogous ways. So the material world, though it is fundamentally spirit-like, was conceived as having fallen into a torpid state from which, according to some, it will eventually be restored to its true nature.

empiricism: the view that all our knowledge about the nature of things is derived from experience. Usually contrasted with rationalism (q.v.).

Enlightenment: the name given to a period in European history which was marked by an emphasis on reason and a distrust of mystery and authority. Though there were many connections across national boundaries, the circumstances of the intellectual élite in each country were different and so what may be true of the Enlightenment in one country may not be in another.

epistemology: theory of knowledge. Concern with the nature of human knowledge and its limitations became, as a result of Locke's *Essay,* a major concern of eighteenth-century philosophy.

fideism: from the Latin word for 'faith', this term is used to refer to the view that there is no basis in reason for religion and that its basis can only be that of faith.

final cause: that for the sake of which something is done. In that sense the final cause or 'end' of taking exercise may be health. The term goes back to Aristotle. According to the mechanical philosophy final causes were not to be used in physics.

form, substantial: a scholastic (q.v.) term deriving ultimately from Aristotle. The substantial form of a thing is what makes it the kind of thing it is. Anychange in the state of a thing which is not caused externally is referred to its substantial form.

general will: a term of French social thought, signifying the collective will of society or the will of an individual insofar as that person is public-spirited. The term is probably theological in origin, deriving from a contrast between God's general will (which results, for example in the laws of nature) and His particular wills (on specified occasions, for example in performing a miracle). As applied to individual humans a general will contrasts with a self-regarding 'particular will'.

gnoseology: another term for epistemology (q.v.).

hedonism: the view that pleasure is the greatest good.

hedonism, psychological: a theory according to which human beings are primarily motivated by the prospect of their own pleasure.

humanism (Renaissance): the movement is associated with the *stadia humanitatis* and with promoting the 'humanities' through the recovery and establishment of the classical texts—particularly of ancient Roman but also of Greek authors. The humanities, so understood, included grammar, rhetoric, poetics, moral philosophy and history. Humanists were opposed to the scholastic curricula which predominated in universities until the end of the seventeenth century. But their ideas influenced the education of the aristocratic laity and remained influential throughout our period.

humanism (Erasmian): usually associated with the project of applying humanistic disciplines to the texts of the Bible. This was opposed, on the one hand, to the authoritarian view that the Bible meant what the Church determined that it meant and, on the other hand, to the subjective interpretations of 'enthusiasts'. Erasmian humanism may be seen as paving the way for the more rational approaches to religion that emerged in the seventeenth century.

idea: the term originates with Plato for whom the ideas or forms constituted a transcendent realm of archetypes. Christian Platonists located these ideas in the mind of God. Descartes extended this use to allow that the human mind is also furnished with 'ideas' and the use of the term to refer to what is before our minds when we think, imagine, dream, etc., became established in the writings of later philosophers, such as Locke and Berkeley.

idealist: originally contrasted with 'materialist' and used of philosophers such as Plato, the term is readily applicable to philosophers like Berkeley who denied the existence of 'matter' and who affirmed that the sensible world was dependent on (the divine) mind. It was not until after Kant that 'idealist' came to be contrasted with 'realist' and to be associated with the view that the physical world is in some way the product of (the human) mind.

indiscernibles, identity of: a principle of Leibniz's, that there are no two things in the universe that differ only numerically, hence if A and B are exactly alike then A is identical with B.Leibniz inferred this principle from the principle of sufficient reason (q.v.) since God could have no reason to create A and B as separate individuals.

induction: a process of arguing from particulars to an a posteriori (q.v.) conclusion, characteristically a statement about the future, a generalization or a claim about an unobserved member of a class.

innate ideas: these are ideas (such as the idea of God) with which human beings were supposed to have been born and in virtue of which they are able to have a priori knowledge of how things are. Locke's *Essay* played an important part in bringing innate ideas into disfavour during the eighteenth century and in encouraging explanations of ideas in terms of origins in sense experience.

intuition/intuitive knowledge: commonly regarded as the highest form of knowledge by seventeenth-century philosophers, intuitive knowledge involves a total understanding of why something that is so, has to be so. This kind of knowledge, rare in humans, was thought to be characteristic of God's knowledge of the world. See also under *scientia*.

materialism: the view that, the basic metaphysical entities of the universe are material and that there is no independent world of mind or spirit. Hobbes and Spinoza were read as materialists, Locke was suspected of it and a number of the French *philosophes* openly advocated materialism.

mechanical philosophy: the view that all the interactions in the physical universe are to be understood as like the interactions of parts of a mechanism such as a clock. Advocates of the mechanical philosophy rejected explanations in terms of 'occult qualities' (q.v.) or unintelligible 'influences'. Their rejection of action 'at a distance' led the mechanical philosophers to develop their own theories of gravitation, magnetic attraction, etc. They also rejected the use of final causes in physics.

metaphysics: as used in this volume, the supposed a priori (q.v.) science of what really exists. Metaphysics goes beyond what can be discovered by the empirical sciences. It purports to demonstrate, for instance, the immortality of the soul or the existence of God and perhaps even the nature of a 'hidden' world beyond the world of phenomena. What is generally called 'rationalism' (q.v.) by philosophers is favourable to metaphysics, whereas empiricism (q.v.) is generally ami-metaphysical.

microcosm/macrocosm: the view that Man is a microcosm of the Cosmos (the macrocosm) was quite widely held in the sixteenth century and persisted through the seventeenth. It is associated with Renaissance Neoplatonism (q.v.) and had a range of applications from design to medicine. In a scientific context it assumed interactions that were excluded by the mechanical philosophy (q.v.).

monad: Neoplatonic term for 'one'. In the seventeenth century some Neoplatonists used the term 'monad' to describe the equivalent in their system of atoms in materialistic systems. Their monads were, however, never merely material and were sometimes conceived of (for example by Leibniz) as essentially non-extended, albeit always having some connection to matter.

moral sense (theory): the view that the ability of human beings to distinguish right from wrong depends, not on their reason, but on the fact that they are disposed to find certain actions (and characters) pleasing and others displeasing.

naturalism: a word with a wide range of variously related meanings but used in this volume (in connection with Hume) to refer to the view that our beliefs are arrived at by natural processes rather than by the operation of abstract Reason.

natural law: a moral code, laid down by God but based on created human nature, for instance on the urge for self preservation and the need to live in society. Natural law was supposed to be known through human reason.

Neoplatonism: this term is used in the first place of the revival of an eclectic Platonism between the third and sixth centuries AD. The most important figure of this movement was Plotinus. During the Renaissance there was a revival of this Neoplatonism when Ficino produced Latin editions from Plato, Plotinus and others. See Vol. IV in this series, pp. 25–36.

occasionalism: a theory according to which God is the only true cause, hence that the apparent causes of the changes in the world should be regarded as no more than 'occasions' for God's acting to bring the changes about. On this view we should not say, strictly speaking, that striking a match is the cause of its lighting but that it is the 'occasion' on which God causes the match to light. See Vol. IV in this series, Ch. 10.

occult qualities: scholastic philosophers regarded certain qualities such as attraction as 'occult'. Adherents of the mechanical philosophy sought to do away with such 'occult qualities' and the phrase became, for them, a term of abuse.

ontological argument: one kind of argument for the existence of God, according to a classification that derives from Kant. Such arguments begin with a premiss about the nature or essence of God or definition of 'God' and seek to demonstrate that such a being must exist. Some of these arguments are still found impressive, as they were by Descartes, Spinoza and Leibniz. Such a priori arguments were not in favour in the eighteenth century, however, when the argument from design (q.v.) became the main argument used to support belief in God.

parsimony, principle of: the principle that, other things being equal, simpler hypotheses should be preferred to more complex ones.

peripatetics: Aristotle was reputed to have walked around whilst lecturing and the term 'peripatetics' (literally, 'those who walk round and round') came to be used in an uncomplimentary way of his followers, eventually of the scholastics (q.v.).

philosophe: French word for 'philosopher' but used especially of the intellectual figures of the French Enlightenment.

philosophia perennis: literally 'perennial philosophy'. It is a reference to that body of ancient wisdom in which Renaissance philosophers believed and which they sought to revive. See also under *prisca theologia*.

pietism: a devotional movement within the Lutheran Church in Germany. Founded by P.J.Spener (1635–1705), pietism encouraged Bible Study and advocated love rather than argument in dealing with dissenters and unbelievers.

positivism: the view that there is no knowledge to be obtained of the nature of things except by following the methods of the natural sciences.

predestinarianism: the theological theory that each individual's capacity for good or ill (and destiny of salvation or damnation) is totally dependent upon a divine grace whose distribution has been determined for all eternity. This theory is part and parcel of the Calvinist (q.v.) view of human nature as wholly 'fallen' and corrupt. It was opposed by those who thought human nature was basically good, as for instance did the Cambridge Platonists.

pre-established harmony: Leibniz, like the occasionalists, rejected the idea of an external causal action by one substance on another. He proposed instead that each substance had been so designed from the Creation that everything that would happen to it would emerge spontaneously from its own 'nature' but in perfect harmony with what was taking place in other substances. Leibniz himself referred to his proposal as a 'hypothesis' or, more commonly, as his 'system' of 'pre-established harmony'.

premiss: a logical term for a proposition put forward at the beginning of an argument, particularly in a formal demonstration (q.v.).

prisca theologia: literally 'ancient theology'. Renaissance Neoplatonists such as Ficino sought to recover the wisdom of ancient sages such as Hermes Trismegistus (a legendary Egyptian priest), Zoroaster and Orpheus. They assumed that the thoughts of the ancient theologians were harmonious with one another and with both Platonism and Christianity.

qualities, primary and secondary: an old distinction certain seventeenth-century

philosophers took over in order to separate those qualities of bodies that were essential from those that were not. The exact formulation of the distinction varied and was controversial. Locke, for instance, characterized primary qualities (like shape) as ones which produced ideas in us that resembled their causes as they are in bodies. In the case of secondary qualities (like colour), on the other hand, there is no resemblance between the ideas they produce in us and their causes in bodies. For Locke these qualities are all powers in bodies, whereas Berkeley offered a radically different account of qualities which rejected such powers and material bodies (so understood).

rationalism: a term used in a number of senses, for instance to signify opposition to any reliance on mystery or the arbitrary will of God in religion. Its main use in this volume is for the view, as opposed to empiricism (q.v.), that true certainty is grounded in reason ('intuition', q.v.) and that we can have a priori knowledge of the nature of things, of our duties, etc. See Introduction.

realism, moral: a theory in ethics according to which there are distinctively moral facts.

relativism: (a) in ethics, the view that there are no absolute moral standards but that these vary from one society to another, (b) about space and time, that they are nothing ('absolute') in themselves, but ways in which phenomena and events are ordered.

scepticism: most generally the view that knowledge of any sort is unobtainable. Commonly used for the view that knowledge of an objective world is unobtainable.

scepticism (moral): strictly the view that we have no knowledge of objective moral truth but often also for the view that there is no objective moral truth, in the sense of moral realism (q.v.), and that moral distinctions are conventional or subjective.

scholasticism: the style of philosophy associated with the Church schools and universities of the medieval period. The status according to Aristotle by the scholastics is indicated by their referring to him simply as 'the philosopher'. But, although they operated within a broadly Aristotelian framework, the scholastics elaborated a technical vocabulary of their own. The humanists attacked the 'barbarity' and the Moderns the 'obscurity' of this language. Scholasticism lost its dominance in universities around the end of the seventeenth century.

scientia: the term means 'knowledge' but is used to refer to an Aristotelian ideal of knowledge widely shared by philosophers in the seventeenth century. According to this view *scientia* is of 'that which is necessary' and 'cannot be otherwise'. Ultimately knowledge depends upon 'intuition' (q.v.), on this view, but demonstration (q.v.) was seen as the key process for arriving at new knowledge.

sensationalism: the view that all human knowledge derives from the senses.

sentimentalism: an ethical theory according to which moral distinctions are discerned not by reason but by feeling or sentiment.

Stoicism: one of the ancient Greek Schools of philosophy which spread to Rome, where it was adopted by Cicero and other figures who were widely admired during the seventeenth and eighteenth centuries. Stoics tended to pantheism, believing that events in the natural world are part of an interconnected whole. Though it was sometimes liberally interpreted as a Christian philosophy the Stoic virtue of steadfastness in the face of necessity did not sit easily with belief in a personal providence or in a God who acts freely. At the same time philosophers with a tendency to deism (q.v.) were not necessarily deterred from accepting Stoic ideas by such a consideration.

subjectivism: in ethics, the view that a moral judgement does no more than express the speaker's feelings, for example of approval.

sufficient reason, principle of: a favourite principle of Leibniz's, admitting of many formulations, including: for every statement that is true there is a sufficient reason (though not always know to us) why it is true. Leibniz denied that there could be any two things in the universe that were exactly alike since God would not have a sufficient reason to create both of them.

system: a theory such as the Copernican theory but also a speculative a priori metaphysical theory. It is in the latter sense that the term 'system' was often used during the Enlightenment in a disparaging way, especially by Condillac.

utilitarianism: a view according to which the rightness or wrongness of an action was to be decided by reference to question whether its consequences were beneficial or harmful. The term was first adopted by J.S.Mill in the nineteenth century but utilitarian thinking had become more common during the eighteenth century. Earlier theological utilitarians had credited God with a commitment to securing the greatest amount of human happiness possible in the long term. But utilitarian thinking in Hume, Helvétius, Bentham and others was distinctly secular and often anti-religious.

verstehen: a cognitive empathy or imaginative understanding peculiar to human understanding of personal activities, for example of motives, etc. This view is associated with the rejection of attempts to model the human on the natural sciences.

voluntarism (theological): any of several views that stress the will of God, among them (a) the view (endorsed, for instance by Descartes) that the so-called 'eternal truths' depend for their truth upon the will of God, who could have willed that they are false. On this view the natural order is good simply because God created it. God did not create the world the way He did in conformity with some standard of goodness that is independent of His will: (b) the view (held by Berkeley among others) that the continuing existence of the sensible world depends on God's continuing causation and that the constancy of the laws of nature are dependent on the constancy of the divine will.

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The turn of the nineteenth century marked a rich and exciting explosion of philosophical energy and talent. The enormity of the revolution set off in philosophy by Immanuel Kant was comparable, by Kant's own estimation, with the Copernican Revolution that ended the middle ages. The movement he set in motion, the fast-moving and often cantankerous dialectic of "German Idealism," inspired some of the most creative philosophers in modern times: including G.W.F.Hegel and Arthur Schopenhauer as well as those who reacted against them—Marx and Kierkegaard, for example.

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The Age of German Idealism provides a broad, scholarly introduction to the period for students of philosophy and related disciplines, as well as some original interpretations of these authors. It includes a glossary of technical terms and a chronological table of philosophical, scientific and other important cultural events.

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General editors' preface

The history of philosophy, as its name implies, represents a union of two very different disciplines, each of which imposes severe constraints upon the other. As an exercise in the history of ideas, it demands that one acquire a "period eye": a thorough understanding of how the thinkers whom it studies viewed the problems which they sought to resolve, the conceptual frameworks in which they addressed these issues, their assumptions and objectives, their blind spots and miscues. But as an exercise in philosophy, we are engaged in much more than simply a descriptive task. There is a crucial critical aspect to our efforts: we are looking for the cogency as much as the development of an argument, for its bearing on questions which continue to preoccupy us as much as the impact which it may have had on the evolution of philosophical thought.

The history of philosophy thus requires a delicate balancing act from its practitioners. We read these writings with the full benefit of historical hindsight. We can see why the minor contributions remained minor and where the grand systems broke down: sometimes as a result of internal pressures, sometimes because of a failure to overcome an insuperable obstacle, sometimes because of a dramatic technological or sociological change, and, quite often, because of nothing more than a shift in intellectual fashion or interests. Yet, because of our continuing philosophical concern with many of the same problems, we cannot afford to look dispassionately at these works. We want to know what lessons are to be learned from the inconsequential or the glorious failures; many times we want to plead for a contemporary relevance in the overlooked theory or to reconsider whether the "glorious failure" was indeed such or simply ahead of its time: perhaps even ahead of its author.

We find ourselves, therefore, much like the mythical "radical translator" who has so fascinated modern philosophers, trying to

understand an author's ideas in his and his culture's eyes, and, at the same time, in our own. It can be a formidable task. Many times we fail in the historical undertaking because our philosophical interests are so strong, or lose sight of the latter because we are so enthralled by the former. But the nature of philosophy is such that we are compelled to master both techniques. For learning about the history of philosophy is not just a challenging and engaging pastime: it is an essential element in learning about the nature of philosophy—in grasping how philosophy is intimately connected with and yet distinct from both history and science.

The *Routledge History of Philosophy* provides a chronological survey of the history of Western philosophy, from its beginnings up to the present time. Its aim is to discuss all major philosophical developments in depth, and, with this in mind, most space has been allocated to those individuals who, by common consent, are regarded as great philosophers. But lesser figures have not been neglected, and it is hoped that the reader will be able to find, in the ten volumes of the *History*, at least basic information about any significant philosopher of the past or present.

Philosophical thinking does not occur in isolation from other human activities, and this *History* tries to situate philosophers within the cultural, and in particular the scientific, context of their time. Some philosophers, indeed, would regard philosophy as merely ancillary to the natural sciences; but even if this view is rejected, it can hardly be denied that the sciences have had a great influence on what is now regarded as philosophy, and it is important that this influence should be set forth clearly. Not that these volumes are intended to provide a mere record of the factors that influenced philosophical thinking; philosophy is a discipline with its own standards of argument, and the presentation of the ways in which these arguments have developed is the main concern of this *History*.

In speaking of "what is now regarded as philosophy", we may have given the impression that there now exists a single view of what philosophy is. This is certainly not the case; on the contrary, there exist serious differences of opinion, among those who call themselves philosophers, about the nature of their subject. These differences are reflected in the existence at the present time of two main schools of thought, usually described as "analytic" and "continental" philosophy. It is not our intention, as general editors of this *History*, to take sides in this dispute. Our attitude is one of tolerance, and our hope is that these volumes will contribute to an understanding of how philosophers have reached the positions which they now occupy.

One final comment. Philosophy has long been a highly technical subject, with its own specialized vocabulary. This *History* is intended not only for the specialist but also for the general reader. To this end, we have

tried to ensure that each chapter is written in an accessible style; and since technicalities are unavoidable, a glossary of technical terms is provided in each volume. In this way these volumes will, we hope, contribute to a wider understanding of a subject which is of the highest importance to all thinking people.

G.H.R.Parkinson
S.G.Shanker

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Chronology

Unless otherwise specified, the dates assigned to books or articles are the dates of publication, and the dates assigned to musical or stage works are those of first performance. The titles of works not written in English have been translated, unless they are better known in their original form.

	Politics and religion	The arts
1712		
1713		
1714		
1715	Louis XIV d.	
1716		
1717		Watteau, *Embarquement pour Cythè*
1719		Defoe, *Robinson Crusoe*
1720		
1723		Bach, *St John Passion*
1724		
1725	Peter the Great d.	
1726		Swift, *Gulliver's Travels*
1727		
1728	William Law, *A Serious Call*	Gay, *The Beggar's Opera*
1729		Bach, *St Matthew Passion* Lessing b.
1732		
1733		1733–4 Pope, *An Essay on Man* 1733–5 Hogarth, *A Rake's Progress*
1734		
1735		
1736	Butler, *The Analogy of Religion*	
1738	Conversion of John Wesley	
1739		
1740	Frederick the Great becomes King of Prussia	
1742		Handel, *The Messiah*
1743		
1744		
1745		
1747		

Science and technology	Philosophy	
	Rousseau b.	1712
Newton, *Principia* (revised edn)	Wolff, *Rational Thoughts on the Powers of the Human Understanding*	1713
	Baumgarten b. Leibniz, *Monadology*	1714
	Crusius b.	1715
	Leibniz d.	1716
		1717
		1719
	Wolff, *German Metaphysics*	1720
Wren d.		1723
Foundation of the Academy of Sciences, St Petersburg	Kant b.	1724
	Vico, *The New Science*	1725
		1726
Newton d. Hales, *Vegetable Staticks* (on plant physiology)		1727
	Wolff, *Philosophia rationalis sive Logica*	1728
	Wolff, *Philosophia prima sive Ontologia* Moses Mendelssohn b.	1729
	Wolff, *Psychologia empirica*	1732
Saccheri attempts to prove Euclid's parallel postulate		1733
	Wolff, *Psychologia rationalis*	1734
Linnaeus, *System of Nature*		1735
	c. 1736 Tetens b. 1736–7 Wolff, *Theologica naturalis* (2 vols)	1736
		1738
	Baumgarten, *Metaphysica*	1739
		1740
		1742
	Crusius, *On the Use and Limits of the Principle of Determining Reason* Jacobi b.	1743
	Vico d.	1744
	Crusius, *A Sketch of the Necessary Truths of Reason*	1745
	Crusius, *The Way to the Certainty and Reliability of Human Knowledge*	1747

	Politics and religion	The arts
1748		Smollett, *Roderick Random*
1749		Fielding, *Tom Jones*
1750		Bach d.
1751		
1753		
1754		
1755		
1757		
1758		
1759		Voltaire, *Candide* Handel d.
1760		Sterne, *Tristram Shandy*, Books I and II
1761		
1762		
1763		
1764		
1765	Stamp Act begins quarrel between Britain and American colonies	
1766		Lessing, *Laocoon*
1767		Sterne, *Tristram Shandy* completed
1768	Schleiermacher b.	
1769	Napoleon b.	
1770		Beethoven b. Hölderlin b. Wordsworth b.
1771		Smollett, *Humphrey Clinker*
1772		
1774		Goethe, *The Sorrows of Young Werther*
1775	War of American Independence begins	
1776	American Declaration of Independence	
1777		

Science and technology	Philosophy	
La Mettrie, *L'Homme machine*	Montesquieu, *L'Esprit des lois*	1748
Hartley, *Observations on Man* First volume of Buffon's *Natural History* (44 vols)		1749
	Baumgarten, *Aesthetica*, Vol. I	1750
1751–80 *L'Encyclopédie*		1751
Linnaeus, *Species of Plants*		1753
	Wolff d. Condillac, *Traité des sensations*	1754
Kant, *General Natural History and Theory of the Heavens*	Rousseau, *Discourse on the Origin of Inequality* Mendelssohn, *On Feelings*	1755
	Burke, *The Sublime and the Beautiful*	1757
Boscovich, *Theoria Philosophiae Naturalis*	Baumgarten, *Aesthetica*, Vol. II Helvetius, *De l'éspri*t	1758
		1759
		1760
Lambert, *Cosmological Letters*		1761
	Rousseau, *Social Contract* Rousseau, *Emile* Fichte b.	1762
	Mendelssohn, *Philosophical Conversations*	1763
James Hargreaves introduces the spinning jenny	Kant, *Only Possible Premise for a Demonstration of the Existence of God* Lambert, *Neues Organon*	1764
Lambert, *Theory of Parallel Lines*	Leibniz, *New Essays*	1765
Cavendish, *On Factitious Airs*		1766
		1767
Lambert proves the irrationality of π		1768
Watt's steam engine patented		1769
	Kant, Inaugural Dissertation Holbach, *Système de la nature* Hegel b.	1770
		1771
	Herder, *Treatise on the Origin of Language*	1772
		1774
	Tetens, *On Universal Speculative Philosophy* Crusius d.	1775
Adam Smith, *The Wealth of Nations*		1776
	Tetens, *Philosophical Essays*	1777

	Politics and religion	The arts
1778		Voltaire d.
1779		Lessing, *Nathan der Weise*
1781		Lessing d.
1783	War of American Independence ends	
1784		
1785		
1786		Mozart, *The Marriage of Figa*
1787		Mozart, *Don Giovanni*
1788		
1789	French Revolution begins George Washington first President of the USA	
1790	Burke, *Reflections on the Revolution in France*	
1791		Mozart, *The Magic Flute*
1792		
1793	Louis XVI guillotined Reign of Terror begins	
1794	Lavoisier guillotined Robespierre guillotined Reign of Terror ends	
1795	Kant, *Perpetual Peace*	1795–6 Goethe, *Wilhelm Meist Apprenticeship*
1796		

Science and technology	Philosophy	
	Rousseau d.	1778
First cast-iron bridge built, Coalbrookdale, England		1779
	Kant, *Critique of Pure Reason* (1st edn)	1781
Ascent of Montgolfier balloon, Annonay	Kant, *Prolegomena to Any Future Metaphysics*	1783
	Kant, "Idea for a universal history" 1784–91 Herder, *Ideas toward the Philosophy of the History of Mankind* (4 vols)	1784
James Hutton, *Theory of the Earth*	Kant, *Foundations of the Metaphysics of Morals* Jacobi, *On the Doctrine of Spinoza* Mendelssohn, *Morning Lessons*	1785
	Mendelssohn, *To the Friends of Lessing* Jacobi, *Against Mendelssohn's Accusations* 1786–7 Reinhold, *Letters on the Kantian Philosophy*	1786
	Kant, *Critique of Pure Reason* (2nd edn) Jacobi, *David Hume on Belief* Herder, *God: Some Conversations*	1787
	Kant, *Critique of Practical Reason* Schopenhauer b.	1788
Lavoisier, *Traité élémentaire de chimie*		1789
	Kant, *Critique of Judgment* Maimon, *Examination of Transcendental Philosophy*	1790
Metric system proposed in France		1791
	Fichte, *Attempt at a Critique of All Revelation* Schulze, *Aenesidemus* Mary Wollstonecraft, *Vindication of the Rights of Woman*	1792
	Kant, *Religion within the Limits of Reason Alone*	1793
1794–6 Erasmus Darwin, *Zoonomia*	1794–9 Fichte, Jena *Wissenschaftslehre*	1794
	Schiller, *On the Aesthetic Education of Mankind* Schelling, *Philosophical Letters on Dogmatism and Criticism*	1795
Laplace, *Système du monde*		1796

	Politics and religion	The arts
1797		
1798		Wordsworth and Coleridge, *Lyrical Ballads* Haydn, *The Creation*
1799	French Revolution ended by Napoleon's coup d'état of 18 Brumaire (9 Nov.)	
1800		Beethoven, First Symphony
1803		
1804	Napoleon proclaimed Emperor	Beethoven, *Eroica* Symphony
1805		Diderot, *Le Neveu de Rameau*
1807		Beethoven, Fourth Symphony
1808	Fichte, *Addresses to the German Nation*	Goethe, *Faust*, Part I
1809		Goethe, *Elective Affinities*
1810		
1811		
1812	Napoleon retreats from Moscow	
1813		
1814	Napoleon abdicates	Scott, *Waverley*
1815	Return and final defeat of Napoleon	
1817		
1818		
1819		
1820		
1821	Napoleon d.	Constable, *The Haywain*
1824		
1825		

Science and technology	Philosophy	
	Kant, *Metaphysics of Morals* Schelling, *Ideas for a Philosophy of Nature* (1st edn)	1797
Rumford, *Enquiry concerning the Source of Heat* Malthus, *Essay on the Principle of Population* (1st edn)	Comte b.	1798
Volta constructs first electric battery		1799
	Fichte, *The Vocation of Man* Schelling, *System of Transcendental Idealism*	1800
Malthus, *Essay on the Principle of Population* (2nd edn)	Schelling, *On University Studies* Schelling, *Ideas for a Philosophy of Nature* (2nd edn)	1803
	Kant d.	1804
		1805
Robert Fulton constructs first practicable steamboat	Hegel, *Phenomenology of Spirit* Tetens d.	1807
Dalton, *A New System of Chemical Philosophy*		1808
	Schelling, *Philosophical Inquiries into the Nature of Human Freedom*	1809
Goethe, *Farbenlehre*		1810
Avogadro's hypothesis about the molecular composition of gases		1811
	1812–16 Hegel, *Science of Logic* (3 vols)	1812
	Schopenhauer, *On the Fourfold Root of the Principle of Sufficient Reason* Kierkegaard b.	1813
Laplace, *A Philosophical Essay on Probabilities* Stephenson's first steam locomotive	Fichte d.	1814
	Schopenhauer, *On Vision and Colors*	1815
	Hegel, *Encyclopedia of the Philosophical Sciences* (1st edn)	1817
	Schopenhauer, *The World as Will and Representation*	1818
	Jacobi d.	1819
Oersted announces discovery of electromagnetism		1820
	Hegel, *Philosophy of Right*	1821
Carnot, *Puissance motrice du feu*		1824
Opening of Stockton–Darlington railway		1825

	Politics and religion	The arts
1827		Heine, *Das Buch der Lieder* Beethoven d.
1829		
1830		Stendhal, *Le Rouge et le noir*
1831		Hugo, *Notre Dame de Paris*
1832	Great Reform Bill, Britain	Goethe, *Faust*, Part II
1833		
1834	Schleiermacher d.	
1835	1835–6 D.F. Strauss, *The Life of Jesus Critically Examined*	
1836		1836–7 Dickens, *Pickwick Papers*
1837	Victoria becomes Queen of Britain	1837–43 Balzac, *Les Illusions perdues* (3 parts)
1838	People's Charter, Britain	
1839		
1841	Feuerbach, *The Essence of Christianity*	
1842		
1843		Hölderlin d.
1844		Turner, *Rain, Steam and Speed*
1845		
1846		

Science and technology	Philosophy	
		1827
Lobachevski, *On the Foundations of Geometry*		1829
1830–3 Lyell, *Principles of Geology* (3 vols)	Feuerbach, *Thoughts concerning Death and Immortality* 1830–42 Comte, *Philosophie positive* (6 vols)	1830
Independent discovery of electromagnetic induction by Faraday and Henry	Hegel d.	1831
		1832
	Dilthey b.	1833
		1834
		1835
		1836
	Bolzano, *Wissenschaftslehre*	1837
		1838
	Feuerbach, *Towards a Critique of Hegelian Philosophy*	1839
	Schopenhauer, *The Two Fundamental Problems of Ethics* Bruno Bauer, *The Trumpet of the Last Judgment over Hegel* Kierkegaard, *The Concept of Irony*	1841
"Doppler effect" discovered	Ruge, "Hegel's *Philosophy of Right* and the Politics of our Times"	1842
	Feuerbach, *Provisional Theses* Feuerbach, *Principles of the Philosophy of the Future* Marx writes his *Critique of Hegel's "Philosophy of Right"* Kierkegaard, *Fear and Trembling* Kierkegaard, *Either/Or* Kierkegaard, *Repetition*	1843
Robert Chambers, *Vestiges of Creation*	Marx writes his *Economic and Philosophic Manuscripts* Stirner, *The Ego and its Own* Kierkegaard, *Philosophical Fragments* Nietzsche b.	1844
	Marx and Engels, *The Holy Family* Marx writes his *Theses on Feuerbach* 1845–6 Marx and Engels write *The German Ideology*	1845
Planet Neptune discovered close to predicted position	Kierkegaard, *Concluding Unscientific Postscript*	1846

	Politics and religion	The arts
1847		
1848	Revolutions in France, Germany, Italy, and Austria Marx and Engels, *The Communist Manifesto*	Pre-Rapaelite Brotherhood founded
1849	Revolution in Hungary	
1850		Wordsworth d.
1851	Coup d'état of Louis Napoleon	
1854		
1855		
1856		Flaubert, *Madame Bovary*
1857		
1859		
1860		

Science and technology	Philosophy	
Boole, *The Mathematical Analysis of Logic* Helmholtz, *On the Conservation of Energy*		1847
		1848
	Kierkegaard, *Sickness unto Death*	1849
Clausius states second law of thermodynamics		1850
Great Exhibition, London	Schopenhauer, *Parerga and Paralipomena*	1851
Boole, *The Laws of Thought*		1854
	Kierkegaard d.	1855
Bessemer invents process for making steel		1856
	Comte d. 1857–8 Marx's *Grundrisse* (a draft of *Capital*) written	1857
Darwin, *The Origin of Species*		1859
	Schopenhauer d.	1860

Introduction

Robert C.Solomon and Kathleen M.Higgins

The turn of the nineteenth century marked one of the richest and most exciting explosions of philosophical energy and talent, perhaps even comparable to the generation that gave birth to Socrates, Plato, and Aristotle. The enormity of the revolution set off in philosophy by Immanuel Kant was comparable, by Kant's own estimation, to the Coperaican revolution that ended the Middle Ages. The movement he set in motion, the fast-moving and often cantankerous dialectic of "German Idealism," inspired some of the most creative philosophers in modern times, including G.W.F.Hegel and Arthur Schopenhauer, not to mention the philosophers he inspired in opposition to him (Kierkegaard and Marx, for example) and virtually every major movement in the twentieth century, including analytic philosophy and idealism in Britain and America, phenomenology and existentialism in France and Germany, and much of the recent philosophy in Japan. Kant is often depicted as appearing virtually out of nowhere (in the far East Prussian town of Kønigsberg) to resolve several long-standing disputes in French and British philosophy, embracing the competing traditions of rationalism and empiricism. But the philosophical climate in German-speaking Europe was as vibrant with conversation and controversy as the more cosmopolitan centers of London and Paris, and one can fully understand the excitement and the brilliance of the birth of German Idealism by first appreciating the intellectual fervor surrounding and preceding Kant. The chapter that opens this volume, by the distinguished Kant scholar Lewis White Beck, explains that fervor and the philosophers who were part of it. It is in that context, too, that one can appreciate the continuing debates and battles that follow Kant.

Indeed, much of the history of nineteenth-century philosophy in Germany can be summarized as the attempt to continue,improve on, defend, or demolish the philosophical rationalism established by Kant.

Kant's first appearance in philosophy was a professional but not particularly distinguished dissertation published in 1770, when the philosophy professor was already nearing 50. It caused some local controversy, but it is remembered and of interest today only in the reflected light of the great works that were to follow. Among these were three remarkable and remarkably difficult *Critiques,* the *Critique of Pure Reason* (1781), the *Critique of Practical Reason* (1788), and the *Critique of Judgment* (1790). The first *Critique* examined the capacities and limitations of reason and the necessary conditions for knowledge. The second explored and defended the concept of morality and autonomy in human action. The third, intended to be a synthesis of the first two and bring "the entire critical undertaking to a close," included wide-ranging discussions of aesthetic taste, and the concept of teleology in the biological sciences. Together, the three *Critiques* established philosophy as a new profession, and it is often said that Kant was its first true professor. The difficulty of the *Critiques* was more than compensated for by their brilliance and their importance. The *Critique of Pure Reason* in particular has often been called the most important philosophical text of modern times. Daniel Bonevac, in his essay on the first *Critique,* suggests that no one can call him-or herself a philosopher today without first mastering, or at least coming to terms with, that book.

Kant was an unabashed rationalist, a designation that will be explored in some depth in the chapters to follow. Although his first *Critique* announces itself as a "criticism" that is intended to show the limits of reason, he leaves no doubt that he is, first and foremost, a defender of reason, the essentially human faculty. But Kant's rationalism and the various conceptions of reason and rationality explored by the various German Idealists must be viewed against a background of religious piety and, in some instances, anti-rationalism. Kant himself was a pious Lutheran and sought to bring reason and faith together, defending faith itself as a rational attitude. But surrounding Kant were several philosophers who denied both the supremacy of reason and the rationality of faith, among them Jacobi and Hamann, who was one of Kant's best friends in Kønigsberg. So, too, that movement called "the Enlightenment," which took reason as its guide and found in Kant its most eloquent German defender, encountered stiff resistance and opposition in Germany. Herder attacked the Enlightenment in the name of what we would now call "multiculturalism," defending the distinctive features of German culture. Many of the German Idealists following Kant nevertheless turned a skeptical eye on the Enlightenment, which many of them considered

overly utilitarian and insufficiently attentive to spiritual matters. Early in the nineteenth century, Fichte and Hegel would defend their concepts of reason against a growing school of romantic philosophers, incorporating many of their ideas and images in their philosophy. Their colleague Friedrich Schelling would actually join and lead the romantics in their critique of the Enlightenment, and by the end of the first decade or so of the new century the concepts of both reason and Enlightenment had been hopelessly muddied. By the middle of the century, Kant's celebrated faculty of reason had been attacked from all sides, by his self-proclaimed followers who altered it beyond recognition, by the young materialists Feuerbach and Marx who insisted that reason was secondary to the necessities of life even in the realm of thought, by the German Idealist Arthur Schopenhauer who demonstrated at great length the primacy and the irrationality of the Will, by the Danish philosopher Kierkegaard who rejected the very idea of a rational explanation of human life or a rational defense of Christianity. Indeed, if there is a single concern that ties together all of the figures and the chapters of this volume, it is the nature and place of reason in human affairs.

In the chapters to follow, we have allowed each author their own voice. As the themes, the philosophers, and their books vary, so do the approaches and styles that seem appropriate. Thus the chapter on German philosophy before Kant by Lewis White Beck is historically oriented, while Daniel Bonevac's chapter on Kant's first *Critique* is an unusually clear exposition and explanation of the strategy and difficulties of that text. Don Becker interprets Kant's well-known moral philosophy in the context of his less familiar political philosophy, while Patrick Gardiner explains how Kant attempts to bridge the "two jurisdictions" of the first two *Critiques* with his aesthetic conception of universal subjective judgments and teleological explanations in the *Critique of Judgment*. Daniel Breazeale introduces the complex philosophy of Fichte and Schelling, emphasizing the early works in Jena, the site of many of the new century's most dramatic philosophical innovations, and Robert Solomon traces a path through Hegel's notoriously labyrinthine *Phenomenology of Spirit*. Willem deVries describes Hegel's attempt to derive metaphysics from logic, traces the development of that logic, and evaluates its success. Leo Rauch explores Hegel's "philosophy of objective spirit" and the emergence of freedom and reason through history, especially in his *Philosophy of Right*. Robert Nola describes the philosophical turmoil following Hegel's death in 1831 and the emergence of "the young Hegelians," especially Marx and Feuerbach. Kathleen Higgins sympathetically discusses the pessimism of the crankiest Kantian, Arthur Schopenhauer, and, finally, Judith Butler discusses the despair of the Danish "existentialist" Søren Kierkegaard.

While the chapters were prepared separately, there are many points of

contact and contrast—for instance, between the logical analysis of concepts in Kant, Fichte, and Hegel, the aesthetics of Kant, Schopenhauer, and Kierkegaard, and the political philosophies of Kant, Hegel, and Marx. We are deeply indebted to all of our contributors and grateful both for their good scholarship and for their respect for our deadlines. The volume is, we think, a feast of interpretation and commentary, and we hope that the reader enjoys reading it as much as we have enjoyed putting it together.

CHAPTER 1

From Leibniz to Kant

Lewis White Beck

INTRODUCTION

Had Kant not lived, German philosophy between the death of Leibniz in 1716 and the end of the eighteenth century would have little interest for us, and would remain largely unknown. In Germany between Leibniz and Kant there was no world-class philosopher of the stature of Berkeley, Hume, Reid, Rousseau, Vico, or Condillac. The life and philosophy of Kant, however, raised some not-quite-first-class philosophers to historical importance. The fame of these men is parasitic upon Kant's greater fame. There were philosophers who did not achieve even this derivative fame, for not all roads led from Leibniz to Kant. I think, nevertheless, that we can best orient ourselves in a brief account of eighteenth-century German philosophy by seeing it as a preparation for Kant.

Leibniz was the last great philosophical system-builder of the seventeenth century, and his bold speculations and systematic wholeness were more characteristic of the seventeenth- than of the eighteenth-century philosophers. His peers were Descartes, Malebranche, Arnauld, Hobbes, Locke, and Spinoza, and in comprehensiveness and variety of genius he surpassed each of them. His system had an answer to almost every question put to it; he was said to be "an academy of science all by himself," and the principal objection to his grand baroque philosophical system was that it was—simply unbelievable. To accept it all would have required a speculative faith and a blind confidence in the metaphysical powers of the human mind that few philosophers of the eighteenth century could muster.

Christian Wolff, his most important disciple, did not make a *summa* of

Leibniz's philosophy, but both his followers and opponents saw Wolff as doing precisely that. They accordingly called his philosophy the "Leibniz-Wolffian philosophy," a name which has become fixed in spite of both Leibniz and Wolff 's renunciation of it. Modern scholarship shows the degree to which this tide is inappropriate,[1] yet the Leibniz-Wolffian philosophy was the dominant intellectual system and movement in Germany from about 1720 to about 1754, the death of Wolff, and it provided the main opposition to Kant's philosophy until near the end of the century. The rise and fall of the Leibniz-Wolffian philosophy in its controversies with its opponents is the subject matter of this chapter. I deal almost exclusively with topics now important chiefly for an understanding of Kant and German Idealism.

But before we turn to these topics, something must be said about the general climate of opinion in Germany at this time. In all Protestant countries of western Europe, there was an intellectual awakening called the Enlightenment. "Enlightenment," Kant wrote, "is man's release from his self-incurred tutelage." Tutelage is allowing or requiring someone else to do one's thinking, and it is self-incurred because most human beings do not develop the skill and the courage to use their own reason. They surrender their freedom to those who will think for them in matters political, religious, and moral. Kant did not believe he lived in "an enlightened age," but did say he lived in an "age of enlightenment" when progress was being made to independent thought. But the specific forms that Enlightenment took varied from country to country; it depended upon the particular form of tutelage in each country, from which thinkers strove to emancipate themselves.

The German Enlightenment took place in a feudal environment of scores of small absolute monarchies in which Lutheran passive obedience and the eye of the local monarch ensured that the established order of things was regarded with sacred awe by the *Bürger*.[2] While the *philosophes* of France were not merely anti-clerical but also antireligious (materialists, atheists, freethinkers, skeptics), what was unique to the German Enlightenment was that it originally had a profoundly religious motive.

Pietism was a religious awakening at the end of the seventeenth century which had much in common with the persecuted Jansenist sect in France and the Methodist movement still to come in England. Pietism meant a return to a simpler form of Lutheranism, emphasizing the emotional and moral rather than the ritual and dogmatic aspects of the established churches. Instead of churches, there were evening gatherings in the homes of individual Pietists for communal devotion; every man was a priest, drawing inspiration from his own reading of scripture and applying its lessons to everyday life. Though the movement was not free of irrational elements, it was enlightened in encourag-ing its members not to defer to

someone else who would do their thinking for them. Naturally all this produced plurality of opinion and diversity of faith, but its emphasis upon good works (establishing schools and orphanages, for instance) brought it in line with the Enlightenment movement in other countries where the motivation was perhaps more intellectual and political.

There were, in fact, two Enlightenments in Germany. Besides the intellectual Enlightenment pursued by the Leibniz-Wolffian philosophers, there was also a Pietistic Enlightenment. Surprisingly they both originated in the same place, the University of Halle, a Pietistic institution founded by the Elector of Brandenburg primarily for the training of the bureaucracy required by this largest and most important German state.

The father of the Pietistic Enlightenment was Christian Thomasius (1655–1728), who had been banished from Saxony on religious grounds. Thomasius was an active reformer but not a deep philosopher. His ideal of education was that it raise not the cloistered scholar but the *honnête homme,* imitating France in "polite learning, beauty of mind, good taste, and gallantry." In order to reach a larger audience, he lectured and wrote most of his books in German, not Latin. He claimed academic freedom, taught religious toleration, and attempted to reform legal practices by outlawing torture and removing heresy and witchcraft from the reach of the law. As a Pietist he did not doubt the authority and authenticity of revelation, but he established the basis of law in ethics, ultimately in reason and experience. Pietism is almost always associated with an occult and quasi-mystical philosophy of nature, and this kept the German Enlightenment Pietists from participating in the great scientific revolution at the end of the seventeenth century.

Unfortunately Wolff and Thomasius were on a collision course. Intellectually they were not in serious disagreement on most substantive questions (though their interests were widely divergent). Personally their relations were correct, though not close. Thomasius apparently took no part in the ignoble campaign which drove Wolff from Halle just as he had himself been driven from Leipzig. But their disciples carried on a running controversy for the next forty years, and it was marked by *odium theologicum* and general nastiness on both sides.

WOLFF

Life and works

Christian Wolff was born in Breslau in 1679. With support from Leibniz he was appointed lecturer in mathematics at the University of Leipzig in

1702 and, four years later, professor of mathematics at the University of Halle. Wolff was no creative mathematician, but he found in mathematics the model for rigorous thinking in other fields. In this he simply followed the lead of Descartes and Leibniz.

Soon Wolff was teaching and writing philosophy, philosophy then meaning both the natural sciences and the subject which is today called philosophy. He published copiously on the experimental sciences and also on logic, metaphysics, cosmology, psychology, political theory, and natural theology in a series of large German books, most of which were entitled *Vernünftige Gedanken* ("Rational Thoughts") on the different areas of knowledge.[3] The contents and expository skill of these books led to their widespread acceptance as textbooks. His successes in publishing extensively used books, and his victories in the annual competition for paying students, incited intense rivalry between Wolff and the less successful Thomasian Pietist professors. They seized the opportunity to charge Wolff with heresy when he held, in a public lecture as rector of the university, that the resemblances between Chinese and Western ethics showed that ethics was based on universal human reason and human nature, not on divine revelation vouchsafed only to Western civilization. They represented to the King of Prussia, Frederick William I, that Wolff 's determinism and fatalism meant that he should not punish deserters from his army because, being determined, they could not have helped doing what they had in fact done.

Enraged by this *lèse-majesté,* the choleric King dismissed Wolff and threatened to hang him in forty-eight hours if he was still on Prussian soil. Wolff had already received a call from the Calvinist University of Marburg, which he now accepted. He taught in Marburg for seventeen years. Heard by an international student body, more of whom could understand Latin than German, he repeated and expanded his series of *Vernünftige Gedanken* into large volumes of scholastic Latin addressed to an international readership. So great was his fame, and so scandalous had been the behavior of Frederick William I and his "Tobacco Cabinet," that efforts were repeatedly made to recall him to Prussia. He returned only in 1740 when the new King, Frederick the Great, made him chancellor of the University of Halle and granted him a patent of nobility and a large stipend. At the time of his death in 1754 he was certainly the best-known thinker in Germany, fully deserving the honorific title of Praeceptor Germaniae.

The mathematical ideal in philosophy[4]

Hobbes, Descartes, Spinoza, and Leibniz all shared a common ideal for

philosophy, that it should attain the clarity and certainty hitherto available only in mathematics. Wolff is quite explicit about the relation of mathematics to philosophy. "The rules of mathematical method," he says,[5]

> are the same as the rules of philosophical method.... The identity of philosophical and mathematical method will be a surprise only to one who does not know the common source from which the rules of both mathematics and philosophy are derived.

This common source is "true logic" or "natural logic" of the workings of the human mind, not a finished logic which is itself a science.

Lest the identity of philosophy and mathematics appear to be wholly quixotic, it is essential to remember that "philosophy" and "mathematics" did not then mean exactly what they mean now. Philosophy, well into the eighteenth century, included the sciences; and though work of the highest kind in pure mathematics was being performed by Leibniz and Lambert and others, the mathematics that was the cultural model for the Enlightenment was applied (or, as it was then called, "mixed") mathematics. Wolff's mathematical works contain far more information about astronomy, meteorology, geodesies, and even architecture than they do topics in pure mathematics. The root idea of the mathematical model is that computation and measurement are essential to any body of advanced scientific knowledge.

In the true method, formulated by Descartes and followed with little change by Wolff, everything certain in our thoughts depends upon the order of our thoughts, a step-wise procedure of moving from the simplest and most indubitable to the less certain and more problematical. Mathematics begins with définitions, proceeds to fundamental principles (axioms), and thence to theorems and problems (constructions). The product of a définition is a clear and distinct idea, evident to attention and communicable to others. Mathematical theorems are demonstrated by analysis of the contents of definitions and axioms, demonstration taking the form of showing that an alternative to a true theorem is self-contradictory or contradictory to another established truth.

In the syllabus for his mathematics lectures in 1731[6] Wolff tried to show both the importance and the inadequacy of mathematical knowledge. Mathematics deals only with the observable phenomena in space and time (which are subjective), and it operates with images; ontology, on the other hand, deals with being *qua* being and replaces images with exact concepts.

How well did the mathematical ideal stand? In 1762 the Royal Academy of Sciences in Berlin offered a prize for the best essay on the question: 'Whether metaphysical judgments generally, and in particular

the fundamental principles of natural theology and morals, are capable of proofs as evident as those of geometry?" A disciple of Wolff, Moses Mendelssohn, took the prize with an essay giving an affirmative answer, with which Wolff would have agreed. The runner-up, with a negative answer, was the unknown Immanuel Kant. In this respect history has followed Kant, not Wolff and Mendelssohn.

The marriage of reason and experience

One of the perennial problems of philosophy is to determine the roles of reason and experience in knowing. In the seventeenth and eighteenth centuries it was the subject of controversy between philosophers we now call rationalists and those we call empiricists. Among the empiricists we count Locke, Berkeley, Hume, Reid, and Condillac; among the rationalists, Descartes, Malebranche, Spinoza, and Leibniz.

Wolff is sometimes considered the arch-rationalist, but we must enquire into the *kind* of rationalist he was.[7] A rationalist like those just listed believes that *reason alone,* or rational intuition, is able to discover truths that are independent of experience and that could not be learned *from* experience, but that necessarily apply *to* experience. Such truths have been called, especially since Kant, *a priori,* in contrast to truths *a posteriori,* i.e. truths learned only from experience.

Wolff frequently insists that there are no *a priori* truths in *this* sense; he says that there is no human *pure* reason devoid of sense content; he agrees with the Scholastic teaching, "There is nothing in the intellect that was not first in sense." He rejects the theory of innate ideas, which has always been one of the principal tenets of the rationalist school. Hence Wolff may seem to be no rationalist at all; he is not a rationalist in the strictly defined sense of the preceding paragraph, but his style and vocabulary give a rationalistic veneer to his thoughts because he seems to generate *a priori* knowledge by improving upon empirical knowledge.

He attempted (successfully, in his own judgment) to derive the principle of sufficient reason from the law of contradiction.[8] Leibniz had attempted to keep these two principles separate and independent of each other, and had ascribed each to a very different metaphysical source (respectively the will and the intellect of God). Wolff, on the contrary, contends that it is a logical truth that every true judgment has a sufficient reason for being true. Though Wolff does not claim to derive empirical truths from the principle of sufficient reason (and, ultimately, from the law of contradiction), he does claim (and makes good his claim) to be able to give a rational account of what was originally perceived empirically.

He does so by drawing a distinction between two kinds of knowledge, which he calls historical and philosophical knowledge.[9] He does so in parallel with Aristotle's distinction (*Posterior Analytics,* Book I, ch. 13) between *knowledge of fact* and *knowledge of reasoned fact*. Historical knowledge is knowledge based on the perception of a raw fact, something existing or happening. But by memory, classification, measurement, hypothesis-formation, and perhaps simple experiments we clarify our knowledge of a fact by seeing it as a "certain kind" of fact. The ideas of sense become ideas of reason (the *vernünftige Gedanken* of Wolff's book titles), reason being the capacity for "seeing with the mind's eye" the connections of ideas and their sufficient conditions. All the knowledge that reason has or produces comes from experience - historical knowledge is the basis of philosophical knowledge—but it is so processed by reason into definitions, principles, axioms, probable hypotheses, and well-tested laws of nature that a subtle change is introduced into our historical knowledge of fact: knowledge of fact becomes knowledge of reasoned fact. Going beyond what has been actually observed, knowledge of reasoned fact extends to facts not yet experienced. Wolff likes to say that there is a marriage of reason and experience *(connttbium rationis et experientiae)* which he does not wish to disturb.

There are two movements in knowledge. The ascent from knowledge of fact to principles and reasons is the analytical method of Descartes (Kant's regressive method); the descent from reason to experience is Descartes's synthetic (Kant's progressive) method. The knowledge of reasoned fact was commonly in Wolff's day called *a priori* knowledge[10] (knowledge from reason, not experience), even though for Wolff its ultimate and irreplaceable source is experience.

We can now summarize Wolff's kind of rationalism. He *is not a rationalist* in the sense of the belief that pure reason without need of experience can produce *a priori* knowledge (in mathematics and metaphysics, for example). He *is a rationalist* in a loose sense in that he emphasizes the function of reason in converting raw data of the senses into reasonable knowledge. With his armies of syllogisms in valiant array, Wolff demonstrated everything from the existence of God to theories in astronomy; he proves that German coffee houses should be modeled after those of England. No wonder Wolff is generally thought of as a rationalist!

Ontology and special metaphysics

The keystone of Wolff's stupendous edifice is his *First Philosophy, or Ontology,* published in Latin in 1729. In 1720 he had published a volume

sometimes known as the *German Metaphysics* whose accurate and instructive title is *Rational Thoughts on God, the World, the Soul of Man, and All Things in General.*

The subject matter of ontology is being in general, demonstrative knowledge of what it is that makes something possible if it is possible and actual if it is actual. It is like Aristotle's "First Philosophy" which deals with being *qua* being (*Metaphysics,* Book IV, ch.1). Ontology deals with questions and concepts common to all branches of knowledge.

Questions about the various kinds of being are reserved for the several volumes on special metaphysics, viz., the being of God, the existence of whom follows only from his possibility (the ontological argument), the being of the soul, and the being of the world. The actual world and the actual soul are made actual by "a complement of possibility"[11] which renders possible things actual. Kant destroyed this connection of possibility and actuality by asking the question: Is the complement possible? If it is not, it is impossible and cannot serve the purpose. If it is, it is just another possibility and contributes nothing toward actuality. There is no valid inference from possibility to actuality. The converse inference, from existence to possibility, is explored by Lambert, Crusius, and Kant.

Many of the 964 articles in the *Ontology* give definitions of metaphysical terms such as being, existence, possibility, essence, condition, thing, attribute, simplicity, substance, space, time, cause, quality, etc. These concepts are shuffled, combined and separated, contrasted, and compared in an almost mechanical procedure.

One of the most important concepts is that of substance, defined as follows: "What contains in itself a *principium* [roughly: a cause] of changes is a substance."[12] Each substance contains in itself a sufficient condition for a change in itself or in other substances. If the change is motion, the monad is a physical substance; if the change is mental, the monad is a spiritual substance. Only one substance contains the cause of its own being, and that substance is God. Thus arise the three divisions of special metaphysics: rational theology, rational psychology, and rational cosmology. It will be noticed that Wolff is closer to Descartes than to Leibniz, who had asserted that all substances are spiritual and had denied that one substance could cause a change in another. Wolff, very tentatively, holds the doctrine of pre-established harmony only for the case of relations between mind and body monads.

Wolff follows Leibniz in denying absolute Newtonian space, and agrees with Leibniz that space is a subjective order of appearances of substances. He holds a mechanical view of nature, which consists of simple unextended physical monads interacting by contact with each other, the whole showing intelligent design and especially purposiveness for human benefit.[13] The soul is a simple substance with a *vis repraesentativa* or a

power of being conscious; the soul is immortal and the will free. Like Leibniz in his *Theodicy,* Wolff strove to reconcile freedom and necessity, but with equal ill-success.

Moral philosophy

Wolff wrote more on practical philosophy (ethics and law) than on any other subject. There is little new in Wolff's theory, but it is superbly organized and undoubtedly influenced Kant's articulation of ethical theory in his *Metaphysics of Morals*. Kant cites Wolff as the exemplary representative of the best of the four types of heteronomous ethics, the ethics of perfection.[14]

The intellect conceives of a perfection, which is the value aspect of truth as the perfect harmony and interconnection of the essential attributes of a thing following from its intrinsic essence. True being (as object of knowledge) and true good (as object of desire) are identified. The will necessarily strives for a perfection which the intellect has discerned. Rational willing is definitive of morality. The achievement of a perfection is attended with pleasure, but the test for an action is not its consequent pleasure, but its rational motivation and justification.

Natural law requires that each person strive to achieve their own perfection and also that of others. Revelation is not required to teach men their duties, nor is the promise of divine reward needful to move people to do the good.

The completion of Wolff's system in aesthetics

A great gap in Wolff's system was the lack of a theory of beauty and fine art. The last decade of Wolff's life was a time of extensive literary dispute concerning matters of taste. There were controversies between defenders of the classical forms and harbingers of the romanticism that was yet to come. There was great competition between those who would emulate French drama and those in favor of English models, and still others (e.g. Lessing) who wanted to develop a native drama with German themes.

It is easy to see why a comprehensive philosophical movement like Wolffianism should be concerned to develop a theory of art, in spite of the fact that there certainly are few philosophical theories less likely than Wolff's to be fruitful concerning beauty and art. Wolffian theories of art

were produced by two disciples, Alexander Baumgarten of Halle (later Frankfurt on the Oder) and Moses Mendelssohn of Berlin. .

Baumgarten[15]

In Leibniz-Wolffian philosophy the perfection of sense would be achieved when a sensuous idea was so clarified and rendered so distinct that it would become an abstract intellectual idea. Indeed the entire Wolffian program may be summed up in Wolff's efforts to replace facts given in sense with reasoned facts from which the unique, ineffable content of sense had been evaporated. The perfection of sense is reason, and there is only a difference of degree between the clarity of reason and obscurity of sense. To raise the perfection of sense means: to replace percepts with concepts.

This feature of Wolffian rationalism made it indifferent to the arts, for the artist is one whose skill makes it possible to achieve a perfection of sense which is the object of a perfect, direct intuition, not object of abstract thought got at by omitting the specificities of a singular perception. According to Baumgarten sensation can be perfected by so enhancing its vividness and clarity that there will be pleasure in its mere contemplation.

The irreducible sensory component in such a perception is called the aesthetic and the intuitive by Baumgarten. Sense, which is the lower cognitive faculty, is the higher faculty in the contemplation of beauty. A perfection (of form, color, sound) apprehended by sense instead of by reason is beauty. Aesthetics is the "science of the beautiful."

Mendelssohn

In 1755 Moses Mendelssohn published *On Feelings (Empfindungen),* a modification of Baumgarten's views which marks a sharp advance in the direction of Kant's mature aesthetic theory and the aesthetic theory of the later idealists and romantics.

The human mind, he holds, is too limited to be able to sensuously observe the variety-in-unity of ontological perfections, which is discernible only by reason. Thus far Mendelssohn stands with Wolff and Baumgarten, but he now adds: we can sensuously contemplate the variety in unity of the mind's own acts and passions, sensations, thoughts, and emotions. He calls this the "harmony of the powers of the soul." The directly felt perfection of perceiving, not the perception of an antecedent perfection in the perceived object, gives rise to disinterested aesthetic pleasure in the harmonious play of our faculties. Mendelssohn here makes an important and permanent contribution to the history of art and aesthetic theory. He

teaches that beauty is not predicated upon an objective perfection (of color, design, morals, or whatever is found in the work of art); it is a perfection of perception, not a perception of perfection.

Pleasure usually accompanies the satisfaction of some previously existing desire, but art and beauty are not normally enjoyed because of the pleasure they afford by satisfying some antecedent desire. In addition to perception and will, each with its own attendant pleasure, there is another faculty of the mind which has its own peculiar pleasure. This faculty Mendelssohn calls *feeling* or approval *(Billigungsvermögen)* by which we experience "disinterested pleasure," a pleasure different from that of satisfied desire or curiosity.

Mendelssohn explains this pleasure by our satisfaction in the harmonious function of all the *Seelenkräfte,* when feeling and willing and perceiving go together to produce a delectable state of mind. Each person's taste will be affected by their physical and even physiological make-up, but with the advance of education and general culture more pervasive satisfactions will replace the doctrine of *à chacun son gout*. This harmony of the powers of the soul is involved in both the enjoyment of art and its creation by genius. Genius is an "imitator of divinity," a "second creator."

CRUSIUS

The Pietist campaign against Wolff was fought on two levels. Motivated by *odium theologicum,* envy, and nepotism as well as by genuine concern incited by Wolff 's apparent affinity with Spinozistic pantheism and fatalism, the Halle Thomasians Budde, Lange, and Walch conducted a dirty campaign that continued even after Wolff had been banished. But these Thomasians, like Thomasius himself, were not systematic philosophers of Wolff's caliber; they found fault with Wolff, but offered no interesting alternative. The most important alternative was that of Crusius.

Christian August Crusius was born in Leuna near Merseburg (Saxony) in 1715 and died in Leipzig in 1775. Almost all the men in his family were Lutheran clergymen, and he held professorships in both philosophy and theology and was a pastor holding important posts in the Lutheran hierarchy. About 1750 he gave up philosophical work altogether and devoted himself to theological and biblical studies and the care of souls.

In place of mathematics,[16] Crusius thought of theology as the science whose relations to philosophy must be understood. Philosophy, according to him, is not a sufficient ground for religious faith and human virtue; it is not even essential to the conceptualization of theological truth, since the

truths established in philosophy may be overturned by the greater authority of theology. "We cannot think something" was the mark for the impossible among most Enlightenment philosophers, but for Crusius there were conditions under which the inference from inconceivability to impossibility may be suspended: if the thing inconceivable by us may be conceivable by a more perfect mind, or if "We recognize an obligation to regard something inconceivable as possible or actual in order not to act contrary to the most important rules of human perfection" (which include, of course, revelations of the commands of God).[17]

From all this it is easily seen how opposed Crusius was to Wolff. Wolff as a leader of the intellectual Enlightenment was bent upon extending the scope and power of human reason and denying any constraints upon it; Crusius as a leader of Pietistic thought was more concerned to restrain the ambition to explain everything; he tried to determine and fix the boundaries of human intellect when dealing with the brute facticity of the contingent world and the mysteries of religion. That he did so without the obscurantism of the early Thomasians, by developing a sophisticated epistemology as an alternative to Wolff, is a mark of near greatness in this almost forgotten man.

Ontology and theory of knowledge

For Crusius existence, not possibility, is the fundamental concept. In this he differs markedly from Wolff, who asks what is the ground of the possibility of something prior to asking what it is that makes it actual if it is actual. Wolff's answer to this question concerns logical possibility, i.e. non-self-contradictoriness. Crusius's ontology is to challenge Wolff's account of the role of logical possibility in the explanation of existence. We reach the concept of possibility by first finding existent things and then, by "an abstraction from existence" (the reverse of the "complement of possibility"), we find that whatever exists is also possible, but not the converse. If nothing existed, nothing would be even possible. The concept of possibility requires the concept of existence, but not the converse.[18]

Crusius is here speaking, obviously, of what he calls real possibility, not ideal possibility (i.e. possibility of being thought, because noncontradictory). Real possibility is the possibility inhering in things that might exist outside and beyond our thought of something merely noncontradictory. There can be this real possibility only if there are in the world existing things with forces adequate to bring about the actualization of this possibility.

Understanding has the inexplicable faculty of being conscious of ideas.

Reason is the perfection of understanding, consciously recognizing truth as truth. Two activities of reason are to be distinguished; reason *in concreto,* which is the capacity functioning in a single individual with their various quirks and dispositions; and reason *in abstracto,* which is the "complex" of the essential forces of human understanding in general. Only reason *in abstracto* is capable of objective knowledge.[19]

By a kind of denudation we find simplicity and clarity in sensations and other representations. We remove in thought all accidental properties of things, and we are left only with the essential relations that things necessarily bear to one another. Besides noncontradiction and identity there are relations that show the ultimate unanalyzable real forces of things. There is intuitive knowledge of simple, clear, and necessary relations of ideas stated by Crusius as basic laws of thought. Instead of Wolff's single supreme condition (law of contradiction) and its corollary (law of sufficient reason), Crusius states five laws:

(a) The law of inseparables: Whatever cannot be conceived without something else cannot exist without that other (*Metaphysics,* § 15); (b) The law of incompatibles: Whatever cannot be thought in connection with another thing cannot exist with that thing (§ 15); (c) The law of space: Everything that is is somewhere in space (§ 48); (d) The law of time: Everything that is is somewhen or at some time (§ 48); (e) The law of contingence: That whose nonbeing may be conceived may at some time have not existed (§ 33).[20]

These laws are based upon "the nature of human " which is "the supreme criterion of possible and actual things."[21] Kant thinks that Crusius's epistemological principles can correspond to ontological truths only if there is a pre-established harmony between the knower and the known.[22] Crusius, of course, will not accept this Leibnizian theory, but he states repeatedly that God has "placed the marks of truth in the human understanding."[23]

Freedom and the principle of sufficient reason

The principle of sufficient reason is not listed among the basic laws of thought. Though a valid principle it is not an independent principle; it is, rather, a corollary deduced from the law of the inseparable. Crusius, who certainly had not read Hume, states that we cannot think of a happening or a coming-to-be without associating it, in intuition, with some other precedent event. (Hume, of course, about the same time flatly denied this impossibility.)[24] But Crusius says: "Anyone who observes himself clearly sees that nothing that comes to be may be thought except when one at the

same time admits that there is another thing that has power sufficient to produce it."[25] He concludes, like Hume, that causation is neither analytically necessary nor an empirical generalization, but he does not draw Hume's skeptical conclusion.

For any coming-to-be we search for a substance or thing that has the force or power (otherwise inscrutable) to bring this about. Reason must accept the forces and powers it empirically discovers in nature without thinking that they are logically necessary.[26]

The law of efficient causation shown in the previous paragraphs to be a corollary of the law of the inseparable has several corollaries of its own, and they may be collectively called the law of sufficient reason. Crusius's Latin *Dissertation on the Use and Limits of the Principle of Determining Reason, Commonly Called Sufficient Reason* (1743) is based on his unwavering adherence to the freedom of the will, but uncompromising rejection of any theory of freedom of the will compatible with the Wolffian principle of sufficient reason. He distinguishes between *determining* reason and *sufficient* reason. The former is a reason which makes its consequence uniquely necessary, and that principle underlies determinism and fatalism. But that principle, he holds, is not demonstrable by the principle of contradiction, and therefore is not universally valid. A sufficient reason,[27] on the contrary, may have diverse consequences, and is compatible with freedom of the will.

Crusius's "solution" to the problem of free will is one of the standard ones: nature is the realm of strict determinism, but man is an exception to this rule of the law of determining reason. He believed that the will is free and therefore believed he had to relax the strict principle of determinant reason and accept the looser condition of sufficient reason. Then the same conditions may be "sufficient" for me to do A or to do B, and whichever I do I freely do because these reasons for A or B are supplemented by a free human decision. But it is patently wrong to call the conditions "sufficient" when they must be supplemented by a free act of will.

Here we have a fine example of Crusius's modifying epistemological conclusions when they conflict with faith and morals. This was not the first time, nor will it be the last, when moral conviction takes precedence over logical analysis.

Virtue is the agreement of human actions with the commands of God.[28] Hence Kant correctly lists Crusius as the exemplary representative of "theological moralists" who hold (correctly) that there is an objective standard of morality but also (incorrectly) that the standard lies in the will of God instead of in the rational will of man.[29]

Having established (to his satisfaction) the freedom of the will as the capacity for absolute spontaneity of action, Crusius believed that he had established the only possible foundation for imputing responsibility and

for justifying reward and punishment. The duty of man is to obey God, not directly to seek perfection and pleasure.[30] The love of God is the pure moral motive, like respect for the moral law in Kant. For guidance in morality man has an inborn conscience and a will to virtue. Since mankind and its moral perfection are the final end of God, we human beings can believe that obedience to and love of God will in fact lead to blessedness, even if only in another world.

With these views and his Pietist *habitus* it is not hard to see why the young Crusius gave up his philosophical career after only twelve years. Theology's gain was philosophy's loss.

LAMBERT

Johann Heinrich Lambert was born in Mühlhausen, Alsace, in 1728. Unlike Wolff he was a creative mathematician; he was the first to demonstrate that *e* and π *(pi)* are irrational numbers, and he was a pioneer in non-Euclidian geometry. He is generally regarded as the father of the science of photometry, and his name is commemorated in the "Lambert-Beer law" of the absorption of light, and in the name of a fundamental unit of illumination, the "lambert."

Mathematics and simple ideas

Lambert speaks as an almost fanatical mathematician when he says: "What cannot be weighed and calculated doesn't concern me. I understand nothing of it." "One will not give the name of 'perfect scientific knowledge' to philosophy when it is not at the same time completely mathematical."[31] "Wolff brought about half of mathematics into philosophy; now it is a matter of bringing the other half."[32] The half Wolff had brought in was the method of definition and proof, but he did not bring to philosophy the part of mathematics which concerns intuition, postulation, hypothesis, and construction; by taking arbitrary definitions "as it were, gratis," "without noticing it he hid all the difficulties in them."[33]

When Lambert first read Euclid, long after he had studied Wolff's theory of geometry, he was astonished, he says,[34] to find that Euclid had begun with simple, clear, and distinct intuitions of lines, points, and angles, and not (as Wolff had done) with nominal definitions, the applicability of which to figures in space was at least questionable. He thought that Wolff had done nothing to establish die truth of his premises

and correspondence between theorems and the actual structure of figures in space. Still, "The honor of bringing the right method into philosophy was reserved for Wolff," he says. "Whoever wants to profit most from Wolff's writings should begin with them, and then survey writings which more or less diverge from his. I do not hesitate to include here [the works of] Darjes[35] and Crusius." But the most Wolff could establish was the possibility, not the necessity and objective reference, of mathematical knowledge. There was a gap between logical truth and experience, between possibility and existence.

How is a priori knowledge possible?

To fill this gap Lambert, like Wolff, distinguished between ordinary and scientific knowledge of things.[36] Scientific knowledge establishes clear and distinct ideas of experience and supplements them with hypothetical *Lehrbegriffe*. Lambert then asks: to what extent can scientific knowledge be *a priori*?, using the term *a priori* in a stricter sense than Wolff, and approximating Kant's usage to refer to concepts that could not have arisen out of experience.[37] Experience is only the occasion of our having *a priori* knowledge,[38] but it is experience that gives existential reference to *a priori* knowledge which, without experience, is limited to the possible and the necessary. Though we suppose that it applies to the actual, the specificities of the actual - i.e. which possibilities are actual in this world—are not known *a priori*. But we have *a priori* knowledge of the contents (objects) of simple ideas and not just of their formal relations to each other.

In giving the "mechanism," so to speak, of *a priori* knowledge, that is, in explaining *how* we know anything *a priori,* Lambert turns to the "anatomist of ideas," Locke, for the theory of simple ideas of which, and by means of which, Lambert believes we have *a priori* knowledge.

Simple ideas are said to have only one (atomic) predicate; they are equivalent to their *Merkmal* (sign or criterion) with no hidden predicates, and they have insufficient complexity to be liable to self-contradiction (and for that reason they are possible). Simple ideas are clear even in the mind of a solipsist, and so are not dependent on the real existence of their objects. What is most important about simple ideas is not their identities but their necessary and possible connections such as "what is solid is extended" and "cogito ergo sum." It is by virtue of these relations that we escape from an endless series of mere tautologies and, through combining them, formulate the sets of simple ideas which underlie, *a priori,* the various sciences. In true Leibnizian spirit of the *ars characteristica,* the more we can analyze empirical concepts into simple ones and empirical

judgments into tautologies or possible combinations, the more our knowledge is *a priori*. The relations of simple ideas through comparison and combination are submitted to the criterion of thinkability (*Gedenkbarkeit,* like Crusius's inseparability—which Lambert calls combinability—and incompatibility), and each combination can be the *a priori* foundation of some science; each actual science can be submitted to the analytical discovery of what its simple, *a priori* ideas are. These simple ideas are called *Grundbegriffe*. Geometry is the science of simple ideas of extension in space; chronometry the science of simple ideas in duration; phoronomy the science of simple ideas in both space and duration; etc. The *Vernunftlehre*—science of the operations of the mind—depends on simple ideas of a thinking being and Locke's ideas of reflection. This gives rise to metaphysical knowledge which in point of certainty is on a par with geometry.[39]

Lambert and Crusius were the first among our philosophers to see the problematic aspect, yet also the extreme importance, of understanding necessary relations between simple ideas. No longer can the Wolffians equate impossibility with logical contradictoriness. Not all opposition is opposition of contradictories.[40] The necessity dependent upon the principle of contradiction is confined to the components of complex ideas, established by arbitrary definitions. It was the Wolffians' goal to show that all necessity was logical necessity, and all impossibility was logical incompatibility; but they failed to achieve it. To have seen the problem, which arises in trying to account for all necessities by means of identities, was the eminent contribution of Crusius and Lambert. Lambert confesses "that the *fons possibilitatis duos ideas combinandi* (the origin of the possibility of combining two [simple] ideas) has not been fully discovered."[41] It had hardly even been noticed, and it will not have been "fully discovered" until Kant will have generalized the problem into the question: How are synthetic judgments *a priori* possible?

Lambert himself attempted to find the *fons* of the necessary connections among simple ideas. There is in our minds, he held, an *actus reflexus,* a comparing of simple ideas which, in some unexplained way, gives rise to knowledge of their possible and/or necessary connections and combinations. Comparison is the fundamental *actus reflexus* of mind which is involved in analysis and synthesis of ideas.[42] In ways Lambert does not explain, out of the similarity and difference of simple ideas there issue necessary relational ideas, which indicate which simple ideas are validly synthesizable with others. This is not logical inference (where "synthesizable with" means "not contradictory to"); it involves an intuition, and in so concluding Lambert makes little or no progress beyond Crusius.

Nor were Lambert's efforts to avoid phenomenalism (and indeed solipsism) any more successful. Holding that possibility presupposes the

actual existence of something, Lambert fallaciously thinks that it must be existence *extra mentem*.[43] He eventually follows Malebranche in calling upon God to give metaphysical status to some of our ideas.[44] In spite of the influence of Locke and his proximity to Kant, Lambert is a metaphysician in the grand style, and his epistemological acuteness does not restrain his speculative passions.

Lambert's correspondence with Kant

Lambert published his *Cosmological Letters* in 1761. It has a rather curious history. It was a product of a sudden *aperçu* which Lambert had into the structure of the heavens. He saw analogies between planetary systems and galaxies. Kant had presented somewhat the same plan in his *Universal Natural History and Theory of the Heavens* (1755) but had introduced a cyclical evolutionary dimension on the origin and dissolution of astronomical structures. This theory is now known as the Kant-LaPlace hypothesis on the origin of the solar system. This classic in the history of astronomy was almost unknown at the time because of the bankruptcy of Kant's publisher. When Lambert read Kant's *Only Possible Premise for a Demonstration of the Existence of God* (1764), which contained a brief account of Kant's astronomical views, he wrote to Kant exculpating himself for the apparent plagiary, expressed contempt for the belletrist philosophers in Berlin, and invited Kant to enter a philosophical correspondence with him. Lambert really does philosophy in his letters and is anxious to involve Kant in his plans; Kant, always a reluctant letter writer, fills his letters with *politesse* but does not engage with Lambert in any serious philosophical rumination.

In September 1770, Kant sent Lambert a copy of his Inaugural Dissertation, *On the Form and Principles of the Sensible and Intelligible World*. In his covering letter (2 September 1770) he spoke of having "arrived at a position that, I flatter myself, I shall never have to change." Little did he know!

Lambert replied on 13 October in a long, somewhat repetitious letter which shows that he had a good understanding of Kant's Inaugural Dissertation. In it he disagreed with Kant on the nature of time and on the method to be followed in metaphysics.

The Kantian position to which Lambert objected was very briefly this. We have sensible representations of things as they appear to us (phenomena) and intellectual representations of things as they are in themselves (noumena). It is an error in philosophy to apply predicates of sensible knowledge to objects of intellectual representation; there is (in

Lambert's terminology) an absolute gap between ontology and phenomenology. Time and space are *a priori* forms of both pure and empirical sensible knowledge; therefore neither space nor time nor any predicates presupposing space or time may be applied to the reality of things as they are in themselves.

Lambert's most explicit objection was to the "unreal" state to which time was condemned in the Dissertation.[45] He tells Kant: "If time is unreal, then no change can be real…. Till now I have not been able to deny all reality to time and space, or to consider them mere images and *Schein*."[46]

To his regret, Kant did not answer Lambert's letter, but after Lambert's death in 1777[47]. he replied, in § 7 of the *Critique of Pure Reason,* saying: "I grant the whole argument. Certainly time is something real, namely die real form of inner intuition." If, on the other hand, we take time and space to be transcendentally real, the status of bodies in time and space is "degraded to mere illusion *(Schein)*" and "the good Berkeley cannot be blamed" for so degrading diem.[48] Kant's response to lambert in the *Critique* is to show that the transcendental reality of time, which lambert desiderated, leads to subjective idealism (illusionism) which lambert rejected.

Lambert's second major objection to the Inaugural Dissertation anticipated a major shift of view between the Dissertation and the first *Critique*. Anticipated, yes; occasioned, perhaps not, though we do not know. Lambert's assertion of continuity between phenomenology and ontology conflicted with what Kant called "the all-important rule" in metaphysical thinking: "Carefully prevent the principles proper to sensitive cognition from passing their boundaries and affecting intellectual cognition."[49]

This rule was rescinded in the *Critique of Pure Reason* in the famous sentence: "Thoughts without content are empty, intuitions without concepts are blind."[50] Here "content" means sensible intuitions, and Kant is here saying that no exertion of thought can produce knowledge if there is no sensible intuition. The most decisive factor in this reversal was Kant's discovery (aided no doubt by his reading of Tetens) that without sensible intuition there can be no synthesis of concepts and hence no judgments. The Inaugural Dissertation had kept separated what the first *Critique* would tightly bind together. So much, then, for Kant's thinking that he would never have to change what he thought in 1770!

Whether Lambert's *obiter dicta* had anything to do with this turnabout in Kant's thinking is doubtful, yet the weighty remark of a man Kant so much admired *may* have had an influence on him. Lambert says:

> It is also useful in ontology to take up concepts borrowed from appearance *(Schein)*, since the theory must finally be applied to

> phenomena again. For that is how the astronomer begins, with the phenomenon: deriving his theory of the construction of the world from phenomena, he applies it again to phenomena and their predictions in his ephemerides. In metaphysics, where the problem of appearance *(Schein)* is so essential, the method of the astronomer will surely be the safest.[51]

Could there here lie the seed of Kant's Copernican analogy?

TETENS

Johann Nicolaus Tetens was born in Schleswig in 1736 or 1738. His teacher at the University of Kiel, Johann Christian Eschenbach, was the German translator of Berkeley, and from him must have come much of the extensive knowledge of, and sympathy for, British philosophy which Tetens so obviously shows. Tetens was professor at Kiel from 1776 to 1789, when he entered the service of the King of Denmark. He had a distinguished career as a minister of finance until his death in 1807.

Tetens's empiridstic orientation

Tetens was sometimes alluded to as "the German Locke." He repeatedly says that "We must go back to the path trodden by Locke" and build on his "physiology *(Physic)* of the human understanding."[52] He thought that Locke's "plain, historical method" must be practiced, deriving all our ideas from experience. But he also thought that the British (especially Bacon, Locke, and Hume) had interpreted empirical knowledge as a mere collection of observations, had minimized the role of theory and logical form in their theories of knowledge, and had never been able to develop a systematic speculative philosophy or ontology. Reid, Oswald, and Beattie likewise had failed to develop an ontology which would enable them to systematize their common-sense philosophy, and this had kept them from penetrating very deeply into explanations of the mental process underlying common-sense knowledge and everyday practice. Tetens does not oppose the common-sense philosophers as he does Hume, but sees his own task rather to be that of securing and clarifying the philosophy of common sense. He is so committed to Locke, however, that he never concerns himself with Reid's opposition to "the new way of ideas," which is Reid's preeminent claim to historical importance. Tetens writes contentedly of

impressions and ideas just as if Reid had never thrown doubt on the entire movement from Descartes to its denouement in Berkeley, Hume, and unnamed "solipsists" in France.[53]

The possibility of metaphysics

In his *Universal Speculative Philosophy* Tetens asked the fundamental Kantian question: Is metaphysics possible? He asked: "Are the times right for systems of philosophy? Can one be more than an observing philosophical *raisonneur*?"[54]

Since Wolff, special metaphysics had been about either spiritual substances (God and the soul) or material substance. Rational theology, rational psychology, and rational cosmology each has its own fundamental concepts and principles, but they share some in common. Tetens calls the study of these common elements *transcendent philosophy* because it transcends the three divisions of special metaphysics.[55] It is first philosophy, ontology, *Grundwissenschaft*. Transcendent philosophy, however, is no longer to be the abstract, formal, almost lexicographical ontology of Wolff. It is, rather, epistemology (though the word did not exist in Tetens's lifetime). It is an empirical science, even though practiced in the armchair. What begins in the empirical sciences may end up in the *a priori* science of ontology.

When Tetens says, for instance, that "Nothing comes from nothing," he is formulating an *objectively necessary* principle of transcendent philosophy. But he sees the same judgment as an assertion of his reason, and he interprets it as an empirical proposition asserting only that his reason cannot think that something comes from nothing.[56]

How can this empirical, contingent judgment (even if true) serve (as it did for Crusius and Lambert as well as for Tetens) as a warrant for the objective principle expressed in the same words? For Tetens, the determination of the conditions of knowledge of the objective principle is itself an explicitly empirical task. Tetens believed that necessities of our mental operations, though discovered empirically, became necessities of transcendent philosophy. He asks us to consider whether "Nothing comes from nothing" is just a quirk of his individual mind; do others agree with him in asserting that nothing comes from nothing? These are all empirical questions that can be answered; but it is not obvious how a true and favorable answer to these questions has any standing when it is a question of ontology: *Can* something come from nothing?

Neither Crusius, Lambert, nor Tetens seems to have seen the problematical character of efforts to base the *a priori* claims of our

cognitions upon contingent facts of psychology. Kant characterizes such efforts as "getting water from a pumice stone." Let us see how Tetens proceeds.

The cognitive faculties

Tetens draws a line between the active and the receptive powers of the soul. The active power is the will and the faculty of thought; the receptive faculty is feeling or sense. Cognition occurs only when the former works upon the latter. The first product of this working is the capacity to form representations and concepts; there are already impressions of sense and feeling, but these are brought to consciousness as representations only by the basic power of making representations and concepts; a representation is the first object of consciousness, but it is not an impression or a copy of an impression. Thought is necessary to form a representation as a *sign* of sensation; the sensations must be "run through" and "held together" in a certain way[57] by thought before they become representations of an object. The power of imagination *(Dichtkraft)* creates generic images of sensible *abstracta* such as space and time. When representations refer to things in space and time which resumably give rise to them, we are said to perceive objects, and we il to notice that we have only representations of objects, not objects themselves. We identify and reidentify objects, associate them with one another, make abstractions from and classify them. In short, we obtain or form a concept of an object that can function in knowing in a way that a mere image cannot.

When representations become distinct concepts and their original felt association is replaced by a connection which is thought, there arises a concept of relation *(Verhältnissbegriff)* between concepts. Relational concepts are not confined to specific pairs of representations but may remain the same even when the specific content of the representations is different. Such concepts are the fundamental concepts of transcendent philosophy. Among them are sameness and difference, coexistence and succession (space and time), inherence of a property in a substance, and dependence of one thing on another (echoes of Hume's list of "philosophical relations," anticipations of Kant's categories). The relations among these concepts are *a priori,* because they are not restricted as to the empirical content of the representations related to each other. Since they are relations implicit in the formal structure of judgments and inferences, they are found in and apply to all knowledge.

We have seen repeatedly how Crusius and Lambert recognized a class of necessary judgments which are not based on logical necessity according

to the laws of identity and contradiction. They tried to establish the objectivity of such judgments. Generally, they tried to do so by appealing to the fact (if it is a fact) that these judgments express a necessity of thought, not a logical necessity: one *just must* see that some things cannot be thought to coexist. That, however, is a fallible, contingent truth if it is true at all. What they needed was a proposition with the apodeictic certainty of the law of contradiction yet one that could not be proved by the law of contradiction. (In a word, they needed to recognize what Kant will later call synthetic *a priori* judgments.)

Tetens was keenly aware of the problem in 1776. The truths of geometry are necessarily true, but not because they depend on identity and contradiction; they are necessarily true of space as we constitute the *abstracta* of space by the functioning of our cognitive faculties. The laws of identity and contradiction are "mere ways of thinking without reference to what is peculiar to the ideas related,"[58] but the laws of mathematics deal with what is peculiar to space and time. Where the necessity of a judgment does not depend on the merely formal relationship between subject and predicate or the particular empirical content of the two concepts, it must depend upon "what is, in respect to certain general classes of representations (or objects), necessary and natural to the understanding."[59] What the features are that are necessary and natural to the understanding must be discovered, according to Tetens, empirically, though the relations themselves are *a priori* necessary.

The objective reference of perception

It is a quite different thing to show that a judgment is an expression of thought natural to our understanding, and to show that the judgment is objectively true. Tetens made an original and significant change in the mode of examining this question of subjectivity and objectivity.

Sensations and impressions are not normally objects of consciousness. They lack referentiality or intentionality. They get intentionality from being ingredient in representations, representations in our consciousness being representations *of something*. Tetens claims that this is a better account of the origin of our belief in external, independent objects than the different ones offered by Hume and Reid. But he also confesses,[60] however, that it does not touch the question: *Is objective reference veridical?*

Tetens does not have an answer to the demand for justification of objective knowledge-claims, regarded as a question of metaphysics. Epistemologically, however, he gives a criterion of objectivity which is independent of the ontological status of minds and objects.

Tetens examines the way some ideas are endowed with objective reference without presupposing an answer to the question of the ontology of subject and object. He empirically distinguishes the *unchangeable subjective* and the *changeable subjective*,[61] and sees that the former captures the empirical and methodological, if not the ontological, meaning of "objective." Similarly there is the distinction between the *intersubjective* and the *subjective,* where the former is *ordinarily* called the objective.

This is as close as a writer of an empirical theory of knowledge can come to the Kantian divisons between judgments of perception and judgments of experience and between unattainable knowledge of transcendent objects and attainable knowledge of objects immanent in experience.

Kant's friend Hamann said that Kant had Tetens open upon his desk while writing the *Critique of Pure Reason*. Kant regretted that this powerful and original thinker did not review his *Critique of Pure Reason* when it was published in 1781. We can be sure that the second edition (1787) would have been improved if Kant had had the benefit of Tetens's criticisms. There is a certain melancholy in some of Kant's remarks about Tetens—how close he had come to what Kant saw as truth, and yet how far short of it he had fallen. He wrote:

> Tetens investigated the concepts of reason subjectively, I objectively. His analysis is empirical, mine transcendental. No one considered the possibility of such *a priori* knowledge [ingredient in and presupposed by empirical knowledge] although Herr Tetens could have given rise to it.[62]

THE MENDELSSOHN-JACOBI CONTROVERSY[63]

The philosophers we have been studying raised objections to Wolff's philosophy, but with the possible exception of Crusius they did not bring much against his *Weltanschauung*. They were all men of the Enlightenment. They all were quite "safe" on the big issues of philosophy—God, freedom, and immortality—while they disputed technical points such as the logical status of the principle of sufficient reason.

A little after 1780 the *pax philosophica* was shattered by a controversy that left its mark on Kant, Herder, Goethe, and the early German Idealists such as Schelling. It was a turning point in German philosophy and

cultural life. If one decides that Jacobi was the "victor," one can say that the Enlightenment in Germany was finished.

Moses Mendelssohn was a faithful disciple of Wolff and won the prize essay contest of the Berlin Academy by defending the Wolffian mathematical ideal, defeating Immanuel Kant. Kant praised the elegance of his literary style, and in fact he is the best stylist among German philosophers before Schopenhauer. He was an intimate friend of Lessing's and was the model of the wise man in Lessing's drama, *Nathan der Weise*.

Friedrich Heinrich Jacobi was born into a rich Pietistic family in Düsseldorf in 1743. He reacted against the naturalistic, empiricistic education he received in Switzerland and became a religious enthusiast *(Schwärmer)*. Faith and feeling were the watchwords of his philosophy.

The conception of Spinoza as an atheist or pantheist, a blind fatalist, a destructive critic of Scripture who denied its authority, and a revolutionary political thinker was almost universally accepted in Germany. Wolff wrote extensively in criticism of Spinoza,[64] but nonetheless he was accused of Spinozism by his Pietist colleagues at Halle. Mendelssohn in his *Philosophical Conversations* (1763) pleaded for a better and more fair-minded appraisal of "the accursed atheist of Amsterdam," without, of course, taking any step that committed him to Spinozism and without effecting any change in the almost unanimous condemnation of Spinozism.

Imagine the shock, then, when it became known shortly after his death in 1781 that *Lessing had been a Spinozist*. Lessing—Germany's greatest man of letters, Germany's greatest thinker between Leibniz and Kant, a man whose character after more than two centuries still awakens feelings of affection and respect—a *Spinozist*? In conversations with Jacobi, Lessing had made this confession. Through mutual friends Jacobi imparted this information to Mendelssohn, ostensibly to contribute to a biography of Lessing that Mendelssohn was working on. Naturally the secret could not be kept; party lines were drawn.

There was a complicated exchange of letters through intermediaries, some of whom egged on one or the other of the protagonists. Finally there were publications in which spleen was hardly covered by civility: Jacobi's *On the Doctrine of Spinoza, in Letters to Moses Mendelssohn* (1785), Mendelssohn's *Morning Lessons or Lectures on the Existence of God* (1785), Mendelssohn's *To the Friends of Lessing* (posthumous, 1786), and Jacobi's *Against Mendelssohn's Accusations in his "To the Friends of Lessing"* (1786). To these should be added *David Hume on Belief* (1787) since it develops Jacobi's "philosophy of faith and feeling" which underlies the conversations with Lessing and the correspondence with Mendelssohn.

Nothing shows better the ill-nature of this controversy than the accusations that Jacobi was responsible for Mendelssohn's death in 1786 at the climax of the debate.

For three reasons what might have been a quiet *Auseinandersetzung* between two scholars was raised to the level of a public scandal. The first was the eminence of the recently deceased Lessing. Any surprising secrets about that good and famous man were bound to be objects of public curiosity. Second, there were many who hoped it was true that Lessing had been a Spinozist. These crypto-Spinozists were more numerous than anyone had reckoned, and with Lessing's Spinozism established they could come out of the closet.

Then there were the personal motives and traits of the principals. Fritz Jacobi was a name-dropper and a tuft-hunter. He prided himself on knowing everybody. (Goethe told Eckermann that Jacobi lacked something necessary for a poet or philosopher, but that he would have made a good ambassador.) Pride and snobbery were mixed in him with a genuine religious concern.

Mendelssohn was not shocked by Spinozism, as we have already seen. But it was a personal wound to him that Lessing, his intimate friend of thirty years, should have concealed his Spinozism from him and revealed it to some young man he hardly knew. At first he doubted the truth of what Jacobi said about Lessing; then he doubted the truth of what Lessing may have said about himself, citing as explanation Lessing's love of paradox, irony, and persiflage.

Much has been written about the strategy and tactics of the contestants, detailing how Jacobi laid traps for Mendelssohn, how these were dodged by Mendelssohn who was laying traps of his own, etc. Neither of the principals came out with clean hands. The stakes were too high for either man to be punctilious about the ethics of publication of personal documents. The stakes were the validity of the whole philosophical enterprise.

Jacobi saw the issue as a choice between the nihilistic Spinoza-Leibniz-Wolffian Enlightenment and the absolute but irrationalistic claims of faith and feeling. Jacobi's target was something even bigger and grander than Lessing and Spinoza: he aimed to overthrow the Enlightenment's rationalism and intellectualism and ideal of demonstrable metaphysical and theological truth. He tried to show that any system of demonstrations had to go in the direction of Spinozism; minor criticisms of Wolff had to give way to a frontal assault on the entire enterprise of philosophy as an intellectual discipline. Mendelssohn's strategy was to construct a form of Spinozism which Lessing *might* have held and which did not have the fatal consequences that Jacobi had found in his interpretation of Spinoza. In this way he could free the Leibniz-Wolffian philosophy of the atheism, pantheism, nihilism, and fatalism that Jacobi said it shared with Spinoza.

When Lessing remarked of Spinoza's substance "that we can think nothing about it doesn't imply its impossibility," Jacobi replied: "You go

even farther than Spinoza. For him understanding is worth more than anything." Lessing replied: "For men only. Spinoza was far from thinking our miserable human acting for purposes was the best method, and far from making thought supreme."[65]

After an *excursus* in which Jacobi tries to show that Leibniz and hence the Leibniz-Wolffians were in essential agreement with Spinoza, Jacobi returns to his theme of the impotence and inferiority of abstract thought:

> In my judgment the greatest service of the enquirer is to uncover and reveal being *(Daseyn)*. Explanation is only the means and the way to the goal; it is neither the next nor the ultimate goal. The final goal is what does not let itself be explained: the irresolvable, the immediate, the simple…. Since we only put together and hang together what is explainable in things, there is a certain illusion *(Schein)* in the soul which blinds more than it reveals…. [When we enquire] we close the eye of the soul with which the soul sees itself and God, so that by greater concentration it can see with the eye of the body.[66]

We do not, therefore, approach truth by rational thinking; rather, we embrace it in spite of rational thinking. A *mortal leap (salto mortale)* is needed. (An almost exactly parallel move can be found in Kierkegaard's distinction between approximation to the truth and appropriation of the truth.) But Jacobi was unable to persuade Lessing with his "tired head and old legs" to take the plunge; Lessing remained a Spinozist. Others who professed adherence to Spinozism, however, embraced a very different Spinozism from that of rationalism and geometrical rigor. For men like Herder,[67] Schelling, and Goethe, an organic, holistic, romantic conception of oneness replaced the quasi-mathematical perfection of Spinoza's substance. Spinoza came into his own, paradoxically, when rationalism was on the wain.

Having held Spinozistic nihilism (Jacobi's own word) to be the natural and inevitable last stage in the evolution of Enlightenment, it was to be expected that Kant's *Critique of Pure Reason*, published the year of Lessing's death, should come under criticism from Jacobi. But instead of appealing directly to religious "faith and feeling," he allied himself with David Hume. He appealed to Hume and to Hume's critic, Thomas Reid, to justify his doctrine of the impotence of reason even in the simplest actions of everyday life. Hume substituted belief for unattainable knowledge, and Reid found belief essential in establishing the existence of external objects when all that analytical reason could show was only impressions and ideas.

In his *Morning Lessons (Morgenstunden)* (1785) Mendelssohn does two things. First, he reasserts the correctness of Wolff 's deism and its superiority over Spinoza's pantheism. He points out what seems to him to

be a myriad of errors in Spinoza's philosophy. He shows, to his own satisfaction, that the demonstrative method does not necessarily produce the Spinozistic conclusions of pantheism and fatalism.[68]

Second, he formulates, in the name of his friend Lessing, a system of "purified pantheism" which Lessing might have held and which would not have the evil consequences that Jacobi thought were indigenous in Spinozism. Specifically, in the fourteenth Lesson he makes of substance a spiritual being endowed with intellect and will but not extension. Then the question whether God is the world (pantheism) or the world stands outside God (deism) does not have the portentous consequences which follow from identifying the human mind with a mode of substance whose essence is necessity, extension, and oneness.

In his *To the Friends of Lessing* (1786) Mendelssohn tries a new gambit. He commends "sound human understanding" (common sense in the Scottish philosophy) when high speculations like Spinozism or purified pantheism, formulated by fallible human reason, conflict or do not carry conviction. He says:

> When I speak of rational conviction... I am not speaking of metaphysical argumentation...or of scholastic demonstrations which have stood the test of the most subtle skepticism; rather, I speak of the expressions and judgments of simple and sound human understanding which directly grasps and contemplates things. I certainly respect demonstrations in metaphysics... but *my* conviction of religious truths does not depend so completely upon metaphysical argumentations that it would have to stand or fall with them. One can raise doubts about my arguments and show fallacies in them, and yet my conviction remains unshaken.... For the true and genuine conviction of natural religion...these artificial methods [of metaphysical speculation] are of no use. The man whose reason is not debauched by sophistry needs only to follow his own good sense.[69]

This was the state of things at the end of the Mendelssohn-Jacobi dispute: the proponent of faith and feeling sees his rationalist enemy take refuge in common sense. On both sides, reason has taken a beating. That is how it appeared to one man, Immanuel Kant, in an apostrophe to Jacobi and Mendelssohn:

> Men of intellectual power and broad minds! I honor your talents and love your feeling for humanity. But have you considered what you do, and where you will end, with your attacks on human reason?...Friends of the human race and of that which is holiest to it!...do not wrest from reason that which makes it the highest good

> on earth, the prerogative of being the ultimate touchstone of truth.[70]

German Idealism proper may be said to have begun when leading philosophers heeded Kant's words and made reason "the highest good on earth" and "the ultimate touchstone of truth."

NOTES

1 See, for instance, C.A.Corr, "Christian Wolff and Leibniz," *Journal of the History of Ideas,* 36 (1975): 241–62.
2 W.H.Bruford, *Germany in the Eighteenth Century* (Cambridge: Cambridge University Press, 1965), p. 222.
3 Wolff's *Gesammelte Werke,* ed. J.Ecole, J.E.Hofmann, *et al.* (Hildesheim: Olms, 1962–), are currently being published, but there is little Wolff in English. There is *Preliminary Discourse on Philosophy in General,* trans. R.G.Blackwell (Indianapolis: Bobbs-Merrill, 1963); selections from *Vernünftige Gedanken von Gott, der Welt, der Seele des Menschen, auch allen Dingen überhaupt* in *Eighteenth Century Philosophy,* trans. L.W.Beck (New York: Free Press, 1966); selections from *Vernünftige Gedanken von der Menschen Thun und Lassen* in *Moral Philosophy from Montaigne to Kant,* trans. J.B.Schneewind (Cambridge: Cambridge University Press, 1990).
4 See T.Frangsmyr, "Christian Wolff's Mathematical Method and its Impact on the Eighteenth Century," *Journal of the History of Ideas,* 36 (1975): 653–68.
5 Wolff, *Preliminary Discourse on Philosophy in General,* op. cit., §139.
6 Wolff, *Von dem Unterschiede metaphysischer und mathematischer Begriffe…,* in *Gesammelte Werke,* op. cit., Series I, Vol. 22, pp. 286–343, esp. § 14.
7 J.Ecole, "En quel sens peut-on dire que Wolff est rationalist?" *Studia Leibnitiana,* XI (1979): 45–61.
8 Wolff, *Prima Philosophic sive Ontologia,* in *Gesammelte Werke,* op. cit., Series I, Vol. 2, §§ 70, 288–319; *Vernünftige Gedanken von Gott…,* op. cit., § 30. Wolff's "deductions" are so patently question-begging that it is not worthwhile repeating them.
9 Wolff, *Preliminary Discourse on Philosophy in General,* op. cit., §§ 7 ff.
10 Wolff defines *a priori* as follows: "Whatever is known *a priori* is elicited by the power of the intellect." "Whatever becomes known to us by ratiocination is said to be known *a priori.*" *Psychologia Empirica,* in *Gesammelte Werke,* op. cit., §§ 438, 434.
11 Wolff, *Ontologia,* op. cit., § 174; *Vernünftige Gedanken von Gott…,* op. cit., §14. Kant's rejection of the complement of possibility is in *Critique of Pure Reason,* A 231, B 284. On this difficult point, see C.A.van Peursen, "Wolff's Philosophy of Contingent Reality," *Journal of the History of Philosophy,* 25 (1987): esp. 75–6.
12 Wolff, *Ontologia,* op. cit., § 872.
13 Wolff tediously recites the benefits that earth-dwellers enjoy by virtue of the sun's existence, e.g. without the sun there could be no sundials and we could not detect compass deviations. What about suns (i.e. stars) that do not benefit

earth-dwellers? There must be inhabitants of their planets, who do benefit from their suns. See also the exciting chapter on the benefits we have from the existence of air. *Vemünftige Gedanken von der Absicht der natürlichen Dingen,* in *Gesammelte Werke,* op. cit., §§ 28, 44, 46, 60, 85, 91, *et passim.*

14 Kant, *Critique of Practical Reason,* trans. L.W.Beck (New York: Macmillan, 1993), P. 41.s

15 Baumgarten's Latin Wolffian textbooks were used by Kant in his lectures. One book has been translated into English under the name *Reflections on Poetry,* trans. K.Aschenbrenner and W.B.Holtker (Berkeley: University of California Press, 1954).

16 Crusius, *Weg zur Gewissheit und Zuverlässigkeit der menschlichen Erkenntnis* (1747), §§ 5, 9, 10 (hereafter referred to as *Logic*); *Entwurf der notwendigen Vernunftwahrheiten* (1745), § 234 (hereafter referred to as *Metaphysics*). All citations are to *C.A.Crusius, Die philosophischen Hauptwerke,* ed. G.Tonelli, 4 vols (Hildesheim: Olms, 1987).

17 Crusius, *Metaphysics,* op. cit., § 14.

18 Ibid., §§ 56, 57. This startling thesis was accepted by Lambert and by the precritical Kant in his *Only Possible Premise for a Demonstration of the Existence of God,* trans. G.Treash, Part I, Observation 2 (New York: Abaris, 1979), p. 69; also *New Exposition of the First Principles of Metaphysical Knowledge,* in *Kant's Latin Writings,* 3rd edn (New York: P.Lang, 1993), p. 52.

19 Crusius, *Logic,* op. cit., § 62. Kant does not believe that the Crusian distinction permits an escape from psychological subjectivity.

20 All of these laws except the first two are rejected as "subreptitious axioms" in Kant's Inaugural Dissertation. They result from the application of sensible concepts to intelligible objects and are therefore invalid.

21 Crusius, *Metaphysics,* op. cit., §15.

22 Kant's letter to Herz, 21 February 1772, in *Kant's Philosophical Correspondence,* ed. A.Zweig (Chicago: University of Chicago Press, 1967), pp. 72–3. Crusius may have been the target of Kant's attack on "preformationism" in *Critique of Pure Reason,* B 167–8; see G.Treash, "Kant and Crusius: epigenesis and preformation," *Proceedings of the Sixth International Kant Congress,* II (1989): 95–108.

23 Crusius, *Logic,* op. cit., § 185.

24 Crusius is closer to Hume when he speaks of "feeling a compulsion to grant another thing from which one thing comes" (*Metaphysics,* op. cit., § 63) but does not draw Hume's skeptical conclusion.

25 Crusius, *Metaphysics,* op. cit., § 31.

26 This is the principal theme of Kant's *Essay towards Introducing Negative Magnitudes into Philosophy* (1764), the work that shows more than any other the Crusian influence on Kant.

27 Crusius, *Dissertatio philosophica de usu et limitibus principii rationis determinantis, vulgo sufficientis,* §§ II, III.

28 Crusius, *Anweisung vernünftig zu Leben* (1744), § 175.

29 Kant, *Critique of Practical Reason,* op. cit., p. 41.

30 Crusius, *Anweisung vernünftig zu Lehen,* § 176.

31 Lambert, *Anlage zur Architektonic,* § 683. This work, published with Kant's aid in 1765, aimed to be an ontology for all the sciences, but it lacks the architectonic, systematic order which might have come from the successful

application of Lambert's adaptation of Leibniz's *ars characteristica*. It is to be found in Lambert's *Philosophische Schriften,* ed. H.W.Arndt (Hildeshcim: Olms, 1965), Vols 3 and 4.

32 Lambert, "On the Improvement of Method of Proof in Metaphysics, Theology, and Morals," p. 5. This was an uncompleted draft of a paper Lambert apparently intended to submit to the Berlin Academy in the prize competition of 1762. It was first published as the *Kant-Studien Ergänzungsheft* (1918). It shows some remarkable kinship with Kant's prize essay.

33 Lambert to Kant, 3 February 1766, in *Kant's Philosophical Correspondence,* op. cit., p. 51.

34 Lambert, *Abhandlung von Criterium veritatis* (1761), § 79, first published in *Kant-Studien Ergänzungsheft,* 36 (1915).

35 Joachim Georg Darjes (1714–63), professor in Jena and later in Frankfurt/Oder; originally a disciple of Wolff, he was influenced by Crusius. The quotation is from Lambert, *Anlage zur Architektonic,* op. cit., § 11.

36 Lambert, *Neues Organon,* Dianoiologie, §§ 601–5. This work was published in two volumes in 1764 and is reprinted as Lambert's *Philosophische Schriften,* op. cit., Vols 1 and 2.

37 Ibid., § 639.

38 Ibid., §§ 656–7.

39 Ibid., Dianoiologie, § 662.

40 This is the subject matter of Kant's *Essay towards the Introduction of Negative Magnitudes in Philosophy,* written under the Crusian influence before Kant had read Lambert.

41 Lambert, *On the Improvement of the Method…*, op. cit., § 19 *μ;* see Lambert, *Abhandlung von Criterium veritatis,* op. cit., § 92.

42 Ibid., *notanda* 4.

43 Lambert, *Anlage zur Architektonic,* op. cit., § 297.

44 Lambert, *Neues Organon,* op. cit., Alethiologie, § 234a.

45 See L.Falkenstein, "Kant, Mendelssohn, Lambert, and the Subjectivity of Time," *Journal of the History of Philosophy,* 29 (1991): 227–52.

46 *Kant's Philosophical Correspondence,* op. cit., pp. 63, 66.

47 Until Lambert's death it had been Kant's intention to dedicate the *Critique of Pure Reason* to him.

48 Quotations from Kant, *Critique of Pure Reason,* A 37, B 53, B 71.

49 Kant, *On the Form and Principles of the Sensible and the Intelligible World,* § 24, in *Kant's Latin Writings,* op. cit., p. 148.

50 Kant, *Critique of Pure Reason,* A 51=B 75.

51 *Kant's Philosophical Correspondence,* op. cit., p. 65.

52 Tetens, *On Universal Speculative Philosophy* (1775), pp. 57, 66–7, in Tetens, *Philosophische Versuche über die menschliche Natur und ihre Entwickelung* (Berlin: Kant Gesellschaft, 1913). Both of Tetens's works cited are included in this volume.

53 The pervasive influence of the Scots on Tetens has been studied by M.Kuehn in his comprehensive *Scottish Common Sense in Germany, 1768–1800* (Montreal: McGill-Queen's University Press, 1987), ch. 7.

54 Tetens, *On Universal Speculative Philosophy,* op. cit., p. 66.

55 Ibid., p. 40. A like use of "transcendent" is found in Lambert (*Neues Organon,* op. cit., Alethiologie, § 48; *Anlage zur Architektonic,* op. cit., § 301). "Transcendent" is not to be confused with Kant's "transcendental."

56 Tetens, *On Universal Speculative Philosophy,* op. cit., p. 27. There is a marked resemblance to Crusius here.
57 Kant, *Critique of Pure Reason,* A 99.
58 Tetens, *On Universal Speculative Philosophy,* op. cit., pp. 33–4.
59 Ibid., p. 28. Tetens accepts Kant's distinction between the necessity inherent in intuition and that belonging to "the transcendent principles of reason." Thus he is at one with Kant in asserting the discontinuity of mathematical and metaphysical reasoning, citing Kant's Inaugural Dissertation. See ibid., pp. 21–2 n.
60 Tetens, *Philosophical Essays* (1777), in *Philosophische Versuche*..., op. cit., p. 393.
61 Ibid., p. 527
62 *Kants gesammelte Schriften,* 29 vols, ed. Deutsche (formerly Königliche Preussische) Akademie der Wissenschaften (Berlin: de Gruyter [and predecessors], 1902–), Reflexion 4901, and Vol. 23, pp. 23, 57.
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64 Wolff, *B.von S.Sittenlehre widerleget von...Christian Wolff* (Leipzig, 1744); *Theologia naturalis* (1749), Vol. II, §§ 671–716.
65 *The Teaching of Spinoza in Letters to Moses Mendelssohn,* in Scholz, op. cit., pp. 82–3.
66 Ibid., p. 91.
67 See, for example, Herder's *God, Some Conversations* (1787) (New York: Hafner, 1940).
68 Mendelssohn, *Morgenstunden,* Lesson XIV; Scholz, op. cit., p. 15.
69 Scholz, op. cit., p. 307.
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CHAPTER 2

Kant's Copernican revolution

Daniel Bonevac

Immanuel Kant's *Critique of Pure Reason* was to transform the philosophical world, at once bringing the Enlightenment to its highest intellectual development and establishing a new set of problems that would dominate philosophy in the nineteenth century and beyond. As Richard Rorty has observed, Kant would turn philosophy into a profession, if for no other reason than that, after 1781, one could not be called a philosopher without having mastered Kant's first *Critique*—which, in the words of Kant's famous commentator, Norman Kemp Smith, "is more obscure and difficult than even a metaphysical treatise has any right to be."[1]

The *Critique's* central character is "Human reason," which, Kant begins his first edition's preface by noting,

> has this peculiar fate that in one species of its knowledge it is burdened by questions which, as prescribed by the very nature of reason itself, it is not able to ignore, but which, as transcending all its powers, it is also not able to answer.
>
> (A vii)[2]

Reason develops principles to deal with experience; within the realm of experience, those principles are well justified. Reason finds itself driven, however, to ask questions extending beyond that realm. The very principles it has developed and upon which it properly continues to rely in dealing with experience there lead it "into darkness and contradictions" (A viii). Metaphysics, once Queen of the Sciences, now surveys the battlefield on which these principles clash and mourns. Kant's aim in the *Critique* is to rescue metaphysics, "to secure for human reason complete satisfaction" (A 856, B 884) by defining its proper sphere of application.

Kant's means for achieving this end is the critical method. The title of the work is ambiguous in both English and German: Pure reason may be the agent or the object of the critique.[3] In fact, it is surely both. The critical method requires reason to critique itself, to determine its own limits, and then to devise rules for staying within them. This, Kant thinks, is the key to reason's "complete satisfaction": "there is not a single metaphysical problem which has not been solved, or for the solution of which the key at least has not been supplied" (A xiii).

Understood in this way, Kant's critical method hardly seems revolutionary. It had been exemplified already in Locke's *Essay concerning Human Understanding* and Hume's *Treatise of Human Nature*. Both were attempts to define the limits of human knowledge by employing reason in a reflective act of self-criticism. Kant's most important contribution is not the general idea of the critical method, but the specific form that method takes, for which he often uses the adjective *transcendental* rather than *critical*. Kant claims that he uses the transcendental method and establishes the truth of transcendental idealism.

What, then, is the transcendental method? To understand it, we need to focus on what, in the preface to the second edition of 1787, Kant considers the key to his advance: his Copernican revolution in philosophy. "[T]he procedure of metaphysics," Kant writes, "has hitherto been a merely random groping, and, what is worst of all, a groping among mere concepts" (B xv). Kant finds himself capable of setting metaphysics upon the secure path of a science by advancing a hypothesis analogous to that of Copernicus.

> Hitherto it has been assumed that all our knowledge must conform to objects. But all attempts to extend our knowledge of objects by establishing something in regard to them *a priori,* by means of concepts, have, on this assumption, ended in failure. We must therefore make trial whether we may not have more success in the tasks of metaphysics, if we suppose that objects must conform to our knowledge.
>
> (B xvi)

Copernicus explained the motions of the heavenly bodies as resulting, not just from their own motion, but also from the motion of the observers on earth. Just as he sought "the observed movements, not in the heavenly bodies, but in the spectator" (B xxii n.), so Kant seeks the laws governing the realm of experience not in the objects themselves but in us: "we can know *a priori* of things only what we ourselves put into them" (B xviii).

THE PLATONIC HERITAGE

Kant is a rationalist. We might define a *concept rationalist* as one who believes in innate concepts—that is, that we have first-order cognitive abilities that we do not derive from experience—and a *judgment rationalist* as one who believes that we can know some synthetic truths *a priori* that is, that we can know independently of experience some truths that are not merely linguistic or verbal, that are not automatically true or false because of the meanings of the words that constitute them. Kant is plainly a rationalist in both senses. He argues that we can deduce pure concepts of the understanding *a priori,* independently of experience, from the mere possibility of experience, and moreover that there are synthetic *a priori* truths—that is, truths that we can know independently of experience but that are not merely verbal. Indeed, the establishment of rationalism in both senses seems to be a major goal of the *Critique.*

Like many rationalists, Kant understands himself as working within the Platonic tradition. The central problems he attacks and his solutions to them stem directly from that tradition. To understand Kant's Copernican revolution, therefore, we must consider the framework in which his thought is embedded.

Consider a judgment of perception, for example, (said pointing to a figure drawn on a blackboard) 'This is a triangle.' According to Plato, at one very influential stage of his thought, at least, the mind so judging is Janus-faced. It is turned toward a perceptual object, a triangle, if it judges correctly. It is also turned toward the abstract form of a triangle. Both the object and the form have real causal or explanatory power. The object is causally responsible for our perception of it. But we are able to perceive it as a triangle because we apprehend the general form of triangularity. The form of a triangle is exemplified in the triangle itself, which in turn is an instance of, or, in Plato's technical language, *participates* in, the form.

The forms constitute the most distinctive feature of Plato's philosophy of mind. They explain our ability to think general thoughts; they account for regularities as well as changes in experience; they explain how different people (or the same person at different times) can think the same thought; and they explain how thoughts can be veridical. We may think general thoughts, for example, by thinking about the forms and how they relate. Regularities in experience involve constant relations of forms; changes occur when an object of sense stops participating in one form and begins participating in another. Two different people can think the same thought by attending to the same forms. Finally, thoughts can depict reality accurately by involving the forms that are actually instantiated.

But the forms also generate a serious epistemological puzzle. By

definition, the forms are not themselves objects of experience; we do not perceive triangularity as we perceive individual triangles. How, then, do we know anything about them? How is the realm of forms, which Philo of Alexandria later termed "the intelligible world," intelligible? In an Aristotelian philosophy of mind, we generate our own general concepts from experience through a process of abstraction. A Platonist may borrow this account for certain general concepts, but cannot use it for all, because it is central to Platonism that some forms are ultimately responsible for our abilities to think the corresponding thoughts. On Plato's view, we do not abstract the idea of a pure triangle from triangular objects we perceive; indeed, we never encounter a pure triangle in experience. Instead, we recognize objects as triangular because we apprehend the form of pure triangularity and recognize that the objects approximate that pure form. In this sense, the forms have causal power; we are able to think of things as triangular by virtue of our apprehension of the form.

Unfortunately, Plato has no theory that explains our interaction with the forms. He relies on two metaphors. In the *Meno,* he speaks of recollection; we apprehend the forms by recalling a time before birth when our souls were united with them. In the *Republic,* he speaks of the form of the Good as analogous to the sun, shedding light on the realm of forms and making possible our apprehension of them. Neither metaphor yields a satisfactory theory within the limits of Platonic metaphysics. Neither, moreover, seems to explain our apprehension of forms without begging the question. The *Meno* metaphor explains the causal efficacy of the forms now by appealing to their efficacy at some earlier time; the *Republic* metaphor, by appealing to the efficacy of the form of the Good. The Neoplatonic theory of emanation, according to which the entire realm of forms is ordered, with the causal efficacy of higher levels making lower levels possible and intelligible, does little to change the central epistemological difficulty.

Augustine, however, solves Platonism's epistemological problem by going beyond the resources of the original theory. To put it crudely, he adopts the *Republic's* solution, but replaces the form of the Good with God. It is not clear why the form of the Good should be more causally efficacious than any other form. Causal efficacy, in contrast, is not a problem for God, who can do anything. Augustine thus follows Philo in identifying the forms with ideas in the mind of God, and describes the process by which we apprehend the forms as illumination, an act of revelation by which God allows us to make use of a portion of divine mental resources and by which, therefore, God makes our minds resemble the divine mind. We have innate cognitive capacities that reflect the principles according to which God created the world.

Platonism remained Augustinian throughout the medieval debates

concerning realism and nominalism arising from the conflict between Platonic and Aristotelian theories of substance and knowledge. Descartes, however, advanced a new kind of skeptical argument that forced a change in Platonism and that brought the theory of knowledge to center stage in modern philosophy. He added to the traditional arguments of Sextus and Cicero the possibility of an evil deceiver, who systematically misaligns our minds to reality. This extends farther than traditional skeptical arguments, for it raises the possibility that not only sensible knowledge but even logic and mathematics might be mistaken. It thus challenges the Augustinian solution to Platonism's epistemological problem. Why should illumination produce veridical knowledge? Why should we believe that God reveals the portion of the divine mind relevant to the construction of the world, and not some counterfeit of it? Why should our innate ideas, and the *a priori* knowledge arising from them, have anything to do with the world?

Kant sees the force of this difficulty, and thinks that, within the Platonic framework, it is insoluble. He divides previous philosophers into dogmatists and skeptics (A ix; A 856, B 884). Dogmatists like Descartes and Leibniz assume that human reason can comprehend ultimate reality. Their dogmatism involves three factors:

1 *Realism*. Human thought can discover the nature of objective reality.
2 *Transcendence*. Real knowledge is capable of extending beyond experience to the supersensible. (See A 295–6, B 352.)
3 *Rationalism*.[4]

Descartes, for example, tries to demonstrate that God guarantees the veridicality of our *a priori* judgments by arguing that God exists and is entirely good. A good God, surely, would not be a deceiver. Granting Cartesian rationalism, we may see the problem generated by the possibility of the evil deceiver as precisely that of realism: Why should we believe that our thinking can discover the nature of objective reality? Descartes's solution relies on transcendence. We may take the form of thought implicit in the *cogito,* namely, the method of clear and distinct ideas, and apply it beyond the realm of our own thinking to reality—indeed, to reality that transcends all possible experience. But this, Kant sees, is just what is at issue. If realism is false—if our minds cannot discover the nature of objective reality—then why should we expect our modes of thinking, applied to the nature of that reality, to be reliable? It will not do to appeal to transcendence to justify realism, for the only argument for transcendence presupposes realism. For example, Descartes's third *Meditation,* arguing for the existence and moral excellence of God, appeals to the premise that there is at least as much reality in the cause as in the effect.[5] Why, given only the certain knowledge that I think and I exist, should I accept this principle as

certain? Descartes derives it by applying the method of clear and distinct ideas beyond the mental realm of the *cogito,* which first justified it, to the realm of external, objective reality. Kant, for this reason, among others, rejects Descartes's proof. But his reasoning is broader. Any argument for realism within the dogmatist's framework will rely on transcendence and make a similarly illegitimate move.

Skepticism, as Kant conceives it, also involves three factors:

1 *Subjectivism*. Knowledge of objects reduces to knowledge of sense.
2 *Immanence*. Real knowledge is limited to the sphere of sense experience.
3 *Empiricism*. (The denial of rationalism in either of its forms.)

Skepticism, too, encounters difficulties. If dogmatism extends our knowledge too far and too uncritically, skepticism seems unable to account for the knowledge we do have. Hume's scandal of induction, for example, illustrates that we cannot justify any causal knowledge we claim to have. It would have to reduce to a knowledge of items directly presented in sensation, but, as Hume shows, it does not.

Kant's critical philosophy shares the immanence of skepticism, but also the rationalism of dogmatism. It transcends the distinction between realism and subjectivism, holding that in a sense each is correct. Kant's synthesis of dogmatism and skepticism comes at the cost of distinguishing between the world of appearance—the *phenomenal* world—and the world of things-in-themselves—the *noumenal* world. The former is essentially sensible, and human thought can discover its nature. Things-in-themselves, in contrast, lie beyond our cognitive capacities. The dogmatist is right about the possibility of knowledge of objects, even *a priori* knowledge of them; the skeptic is right about the limitation of knowledge to the realm of experience.

Both, however, misunderstand the status of objects of experience, thinking that they are in themselves as they appear to us. The phenomenal world is both sensible and knowable; the noumenal world is neither. With respect to phenomena, therefore, the skeptic is vanquished; we can have *a priori* knowledge of objects of experience. With respect to noumena, however, the skeptic triumphs, for we can have no knowledge of things-in-themselves.

Kant's solution to the epistemological problem of Platonism goes beyond the distinction between phenomena and noumena. It would be easy to build that distinction into Descartes's metaphysics, for example, without thereby making any headway on the skeptical problem. The key to Kant's solution resides in two additional changes to the traditional framework. First, Kant explains the causal efficacy of the forms by

transforming them into *categories,* pure concepts of the understanding. They are innate cognitive capacities of a very general kind, but they are wholly mental; the question of their correspondence to abstract, mind-independent forms cannot arise. Without such forms there remains, of course, the possibility that the categories do not correspond to objective and concrete reality. So, second, Kant reverses the traditional conception of the relation between thought and its object, or, as he puts it, between object and concept. The Platonist traditionally sees the object as causally responsible for the veridical, perceptual thought of it. Kant's Copernican revolution is precisely to reverse this understanding, maintaining instead that thought is causally responsible for constituting the object. The result is not anarchy, a circumstance of "thinking making it so," for the constitution of objects proceeds according to the categories in a rule-governed way. The rule-governed character of the construction makes knowledge of objects possible. More, it makes *a priori* knowledge of them possible, for we can understand what we put into them—we can discover the rules according to which we constitute them. In this way Kant justifies his realism with respect to the phenomenal world without any appeal to transcendence—indeed, in the face of its outright denial.

THE CATEGORIES

Kant's first change to the traditional Piatonistic framework is to substitute for the forms the categories, pure concepts of the understanding. These are innate ideas of the kind smiled upon by every concept rationalist. But there is no abstract realm of forms to which they must correspond. Their independence dissolves the epistemological difficulty arising for the aspect of the mind turned toward the forms in Platonic theories of mind.

All knowledge, Kant observes, involves concepts; all concepts, in turn, "rest on functions," "bringing various representations under one common representation" (A 68, B 93). The representations united in a concept may be sensible intuitions or other concepts. Kant here makes an important concession to empiricists such as Hume: the content of concepts traces ultimately to sensation. Kant makes much of this in the Transcendental Dialectic to refute the transcendence thesis. In deriving the categories, however, he focuses on the mediate character of concepts. Concepts of objects always relate to those objects indirectly:

> Since no representation, save when it is an intuition, is in immediate relation to an object, no concept is ever related to a concept immediately, but to some other representation of it, be that other

> representation an intuition, or itself a concept. Judgment is therefore the mediate knowledge of an object, that is, a representation of a representation of it.
>
> (A 68, B 93)

This has the consequence, critical to the Copernican revolution Kant means to effect, that both judgments and objects are products of synthesis.

Knowledge, Kant contends, always takes the form of judgments. (This is true at least for discursive knowledge, that is, knowing *that,* as opposed to knowing *how* or knowing *to*.) Judgments are combinations of concepts, which, in turn, are rules for synthesis, bringing together various sensations or concepts. Concepts relate to objects because they are such functions of synthesis. To discover the pure concepts of the understanding, therefore, we must find the functions of synthesis with *a priori* rather than empirical origins.

The content of judgments, we might say, always has an empirical source, for the content of the concepts that comprise them arises ultimately from sensation. A concept unites sensible intuitions or other concepts that themselves unite sensible intuitions or other concepts. The chain cannot proceed to infinity; at some point, it terminates in intuition. This may suggest that there are no pure concepts. But not all functions of synthesis operating in a judgment comprise part of its content. A judgment has both a content and a form. The content stems from experience, but the form does not. We can identify the pure concepts of the understanding, then, by examining the forms of judgment. Fortunately, there is already a science that abstracts from the content of judgments and examines only their forms—logic.[6]

Kant, using Aristotelian logic, derives the following table of judgments (A 70, B 95):

I	II	III	IV
Quantity	*Quality*	*Relation*	*Modality*
Universal	Affirmative	Categorical	Problematic
Particular	Negative	Hypothetical	Assertoric
Singular	Infinite	Disjunctive	Apodeictic

Every judgment, Kant contends, has a quantity, a quality, a relation, and a modality. In quantity, it is either universal ('every metal is a body,' for example), particular ('some metals are yellow'), or singular ('Socrates is a philosopher'). In quality, it is either affirmative ('Socrates is mortal'), negative ('Socrates is not mortal'), or infinite ('Socrates is immortal'). In relation, judgments may be categorical ('gold is a metal'), hypothetical ('if every metal is a body, gold is a body'), or disjunctive ('gold is a metal or a rare earth'). And, in modality, judgments are problematic ('gold may be a metal'), assertoric ('gold is a metal'), or apodeictic ('gold must be a metal'). The table of judgments thus gives what Kant takes to be an exhaustive account of the forms of judgment.

From the perspective of modern logic, the table seems incomplete. It does not include the quantity of 'most metals are heavy' or 'many metals oxidize'; it omits the modality of 'Socrates ought to avoid hemlock.' It has no place for judgments with complement clauses, such as 'Socrates knew that the hemlock would kill him,' and makes no provision for the abstraction relating 'kind' and 'kindness,' 'friend' and 'friendship.' It is silent about verb tense and aspect. (Kant considers time a form of sensibility, not of judgment, and so considers it beyond the province of logic.) It omits identity. Kant's table is not only incomplete from a modern point of view; it is redundant. Many entries can be derived from others with the help of forms recognized by contemporary logicians. There is no consensus on exactly what such a table would need to reflect all the forms of possible judgment. Kant is surely correct, however, that what we now call quantifiers, connectives, and modalities are required.

The functions of judgment are not themselves the pure concepts of the understanding, but they correspond to them one-to-one. Kant lists the pure concepts of the understanding in his table of categories (A 80, B 106):

I
Of quantity
Unity
Plurality
Totality

II
Of quality
Reality
Negation
Limitation

III
Of relation
Of inherence and subsistence
Of causality and dependence
Of community

IV
Of modality
Possibility–impossibility
Existence–nonexistence
Necessity–contingency

Some of these relate directly to a corresponding entry in the table of judgments—'Negative' and 'Negation,' for example, or 'Problematic' and 'Possibility—Impossibility.' Other connections—'Disjunctive' and 'Of community,' for instance—seem tenuous. How does Kant derive the table of categories? His detailed arguments are not terribly important, for, as we have seen, the entries on the table of judgments reflect an outdated logic. But it is important to understand what the categories are.

Roughly speaking, what the table of judgments is to judgments, the table of categories is to objects. Just as the table of judgments outlines the possible logical forms of judgment, so the table of categories outlines the possible logical forms of objects. This explains, for example, why, corresponding to the assertoric modality, we find 'Existence-nonexistence' rather than Truth-falsehood.' Synthesis of the manifold of intuition is essential to concepts. But synthesis alone does not suffice for knowledge. Knowledge of objects requires a unification of the pure synthesis of the sensible manifold. That is, the concept of an object is special: It is the concept of a unified thing. In different terminology, concepts of objects not only tell us when a certain predicable or general term applies, but also when it is being applied to one and the same thing.[7] The pure concepts of the understanding "apply *a priori* to objects of intuition in general" (A 79, B 105); they spell out the possible forms of such objects by indicating the possible kinds of unity.

Kant's key assumption in deriving the categories in this way is that "The same function which gives unity to the various representations *in a judgment* also gives unity to the mere synthesis of various representations *in an intuition*" (A 79, B 105). Each such unity is a pure concept of the understanding. Why are the unifying functions in judgments and objects the same? We have seen above that judgments and objects are both products of synthesis. Moreover, knowledge is always knowledge of objects through judgments. This suggests that judgments, at least of the sort appropriate to knowledge, are possible only by virtue of the unifying activity of the categories. Still, this does not suffice to establish the identity of function. It shows that the unifying activity in a judgment presupposes the unifying activity in an intuition, not that they have the same form.

Kant's argument turns on his notion of a concept. The unity of judgments and objects alike is a unity in a concept. This not only explains the link between the table of judgments and the table of categories; it also explains why the pure concepts of the understanding have *a priori* validity, avoiding the challenges of the skeptics.

> Concepts of objects in general thus underlie all empirical knowledge as its *a priori* conditions. The objective validity of the categories as *a priori* concepts rests, therefore, on the fact that, so far as the form of

> thought is concerned, through them alone does experience become possible. They relate of necessity and *a priori* to objects of experience, for the reason that only by means of them can any object whatsoever of experience be thought.
>
> (A 93, B 126)

To understand the role that concepts play in Kant's theory of mind, however, we must examine his account of the kinds of synthesis.

THE SUBJECTIVE DEDUCTION

Kant's argument for the first key to his solution to the problems arising from the Platonic framework—the pure concepts of the understanding—also defends and develops the second key, the Copernican revolution. The argument occupies the portion of the *Critique* he entitles "The transcendental deduction of the pure concepts of the understanding." There are, however, two very different versions of this argument in the first and second editions of the *Critique*. The first edition version presents a model of how the mind constructs objects from the data of sense, arguing that the pure concepts of the understanding are essential to the process. The second version presents no model, but analyzes the implications of the "I think." The general strategy, however, remains the same. The categories are "concepts of an object in general" (B 129); they are "*a priori* conditions of the possibility of experience" (A 94, B 126). We are able to experience objects, that is, only because we have the concept of an object. We do not derive this concept from experience, for we could not experience anything as an object without already having the general concept of an object.

The transcendental deduction of the first edition is notoriously difficult; Kant apparently pieced it together from four manuscripts composed at different times and reflecting four different stages of his thinking.[8] It moreover includes two arguments: an "objective" deduction seeking to establish "the objective validity of *a priori* concepts," and a "subjective" deduction investigating "the faculty of thought" (A x–xi).

The subjective deduction outlines a three-part model of mental activity—specifically, of the generation of a judgment of experience such as 'This is a triangle.' This model shows, in Kant's view, how judgments of experience require the categories. Kant defines a pure concept of the understanding as a concept without any empirical content, that is, as one that "universally and adequately expresses…a formal and objective condition of experience" (A 96). His strategy is to "prove that by their

means alone an object can be thought" (A 97). This, he says, "will justify their objective validity," for, if the categories are necessary conditions of experience, nothing could be an object of experience without complying with the categories.

Sensation, Kant holds, is a manifold. It bombards us with a plethora of possible sources of information. Out of this multiplicity we synthesize representations, concepts, and judgments. The first act of synthesis is that of apprehension in intuition. All sensations occur in time.[9] We bind the multiplicity sensation offers into unified items of sense. A sensation of a triangle, for example, may consist of various visual and tactile impressions received over a short interval of time. We experience it as a single sensation, usually without being aware of its complex nature. In short, we organize the data of sense into discrete sensations. This organization is the synthesis of apprehension in intuition.

The second act is the synthesis of reproduction in imagination. Kant argues that "experience as such necessarily presupposes the reproducibility of appearances" (A 101–2). His premises concern pure intuitions of space and time—drawing a line in thought, for example, or thinking of a number—which, he maintains, are possible *a priori*. Kant's theory of pure intuitions is controversial and somewhat obscure. But we can argue the point on other grounds. Sensations, considered individually, are not full-blown objects of experience. We can have many sensations of the same object. We might view a triangle, for example, from many different perspectives. To make any judgment about such an object of experience, we must relate sensations to each other, being capable of recognizing them as sensations of the same object. How we do this is of course an empirical question. But do it we must if we are ever to form concepts of objects of experience.

That brings us to the third act, the synthesis of recognition in a concept. Throughout this discussion, Kant seems to operate with two ideas of what concepts are. The awareness of the unity of various sensations, Kant says, is a concept—etymologically, a "thinking together." Having related sensations in the synthesis of reproduction in imagination, we form a concept through our consciousness of their unity as an object. But Kant also speaks of a concept as a rule: "a concept is always, as regards its form, something universal which serves as a rule" (A 106). Specifically, a concept is a rule for the synthesis of the manifold of intuition. These two notions of concepts are intimately connected:

> the unity which the object makes necessary can be nothing else than the formal unity of consciousness in the synthesis of the manifold of representations. It is only when we have thus produced synthetic unity in the manifold of intuition that we are in a position to say that

> we know the object. But this unity is impossible if the intuition cannot be generated in accordance with a rule by means of such a function of synthesis as makes the reproduction of the manifold *a priori* necessary, and renders possible a concept in which it is united. Thus we think of a triangle as an object, in that we are conscious of the combination of three straight lines according to a rule by which such an intuition can always be represented. This *unity of rule* determines all the manifold, and limits it to conditions which make unity of apperception possible.
>
> (A 105)

Essential to recognizing something as an object, then, is a consciousness of its unity. But this consciousness is possible only if the object is constructed according to a rule. We can recognize a collection of intuitions as constituting a single object only by having a rule for uniting them into that object. We take a triangle as a single object rather than three distinct line segments that happen to intersect because we have a rule for uniting those segments. Without such a rule, we would be left with a manifold. The two notions of concept are connected, then, in that we are aware of unity (concept in sense one) according to a rule (concept in sense two).

The rule-governed character of object construction brings with it a kind of necessity. To count as a triangle, for example, something must be a plane figure with three sides and three angles. So, it is a necessary truth that triangles have three sides and three angles. This, it might seem, is not the sort of necessity that interests Kant; 'triangles have three angles' is analytic. But when we ask what necessary truths stem, not from the rule for constructing triangles or any other kind of object, but from the rule-governed constructions of objects in general, we obtain a more interesting answer. All objects must be unified, for example; the concept of an object is the concept of a single thing.

Necessity, in turn, implies transcendental conclusions about our contributions to objects.

> All necessity, without exception, is grounded in a transcendental condition. There must, therefore, be a transcendental ground of the unity of consciousness in the synthesis of the manifold of all our intuitions, and consequently also of the concepts of objects in general, and so of all objects of experience, a ground without which it would be impossible to think any objects for our intuitions.
>
> (A 106)

Kant's argument begins with the premise that necessity is grounded in a transcendental condition. He does not argue for it because he takes it as

evident from Hume's writings. Necessary connections, Hume observes, cannot be found in experience. We are directly aware of a succession of things but not of the connections between items of the sequence. (In Frank O'Malley's words, "Life is just one damned thing after another.") Our concept of necessity, Hume concludes, must come from us, not from what we experience. So far, Kant agrees. But Hume goes on to attribute the source of our concept of necessity to the passionate side of our nature, to a feeling of expectation. Kant, in contrast, finds necessity's source in the unity of objects. We experience objects, not just a whirling mass of sensations. And, as we have seen, it is a necessary truth that all objects are unified. Kant concludes that there is a transcendental ground of that unity. The source of the unity of objects, moreover, is also the source of the concept of an object in general; it thus underlies our experience of any object.

The transcendental ground of the unity Kant terms *transcendental apperception*. When we reflect on the contents of our own consciousness, as Hume stresses, we are aware only of a succession of mental states; we do not confront a unified self. The contents of consciousness are always changing: "No fixed and abiding self can present itself in this flux of inner appearances" (A 107). Thus, we find no unity in what Kant calls empirical apperception or inner sense. But there must be a ground of unity in us. This brings us to Kant's key contention: The ground of the consciousness of unity is the unity of consciousness. The source of our consciousness of the unity of objects is the underlying unity of our consciousness itself. This unity of apperception is "the *a priori* ground of all concepts" (A 107), for all concepts unify the manifold of sensibility into objects. The most general concepts, relating to the form of an object in general, are the categories. The unity of apperception and with it the categories underlie the lawlike connections we find among objects of experience and the synthetic *a priori* knowledge we have of them.

The subjective deduction, then, means to spell out Kant's Copernican revolution in subjective detail. We can know certain truths about objects independently of experience, for we can uncover the pure concepts of the understanding relating to the form of an object in general. These concepts do not arise from experience; they underlie the possibility of experience. So, we can know *a priori* that any experience will conform to them. This establishes realism, the view that we can attain knowledge of objective reality, within the realm of objects of experience. It also establishes concept rationalism. Most importantly, it solves the traditional Platonic problem of the conformity of the world to our innate ideas without invoking God, *ex caelo* or *ex machina*.

THE OBJECTIVE DEDUCTION

Kant nevertheless views the subjective deduction as inessential to the success of the critical enterprise. He needs to establish the objective validity of the categories; he does not need to spell out the subjective details of the faculty of thought. Kant is trying to show that the categories underlie our judgments about objects. Judgments, however, are the products of the three-stage model of mental activity outlined in the subjective deduction, and the categories enter the model only in the third stage. The first two stages are thus inessential to the argument. The subjective deduction, moreover, treats the crucial third stage cursorily, leaving the role of the categories unclear. So, Kant begins another argument, the objective deduction, to treat only the relation between judgments and the categories. In the second edition, Kant omits the subjective deduction entirely and elaborates the objective deduction of the first edition.

Kant begins, not by considering the process of transforming the data of sense into judgments, but by reflecting on the form of sensibility itself. "We must begin with pure apperception," he says. "Intuitions are nothing to us, and do not in the least concern us if they cannot be taken up into consciousness" (A 116). That is, the model of mental activity presented in the subjective deduction presupposes, even at its earliest stage, the unity of consciousness. It relates the data of sense to a single consciousness or mind in which reside the faculties of sensibility, imagination, and understanding.

> For the manifold representations, which are given in an intuition, would not be one and all *my* representations, if they did not all belong to one self-consciousness. As *my* representations (even if I am not conscious of them as such) they must conform to the condition under which alone they *can* stand together in one universal self-consciousness, because otherwise they would not all without exception belong to me.
>
> (B 132–3)

The unity of consciousness thus underlies the possibility of sensation and thought. Kant obtains "the transcendental principle of the *unity* of all that is manifold in our representations, and consequently also in intuition" (A 116), which he terms "the highest principle in the whole sphere of human knowledge" (B 135). All representations are representations precisely because they can be represented in empirical consciousness. But an empirical consciousness requires a transcendental consciousness, for it is unified without containing its unity as an element. All representations therefore presuppose the transcendental unity of apperception.

To put Kant's argument differently: Empirical consciousness, as far as its contents are concerned, is a mixed bag. We cannot discover its unity from its contents. Nor can we determine that a given succession of mental states is unified into a single empirical consciousness by examining the contents of those states: "the combination *(conjunctio)* of a manifold in general can never come to us through the senses, and cannot, therefore, be already contained in the pure form of sensible intuition" (B 129). That a given representation is Jones's representation, therefore, we cannot analyze by appeal to monadic properties of that representation. We cannot analyze it by appeal to relations among representations. We must instead analyze it by appeal to a relation between the representation and something else. Whatever is responsible for the unity of consciousness is not to be found in empirical consciousness but in the relation between its contents and something else, outside and underlying empirical consciousness. That is the transcendental unity, "that which itself contains the ground of the unity of diverse concepts in judgment, and therefore of the possibility of the understanding, even as regards its logical employment" (B 131). At one point Kant even identifies the transcendental unity with the understanding (B 134 n.). The transcendental unity of apperception manifests itself in the 'I think' that we can append to all our judgments and representations:

> It must be possible for the 'I think' to accompany all my representations; for otherwise something would be represented in me which could not be thought at all, and that is equivalent to saying that the representation would be impossible, or at least would be nothing to me.
>
> (B 132)

This argument for the transcendental unity of consciousness allows Kant to speak of a transcendental *principle:* "a principle of the synthetic unity of the manifold in all possible intuition" (A 117). The principle of the unity of consciousness itself is analytic, roughly of the form 'I am I' (B 135). But the transcendental principle Kant obtains from it is nonetheless synthetic. We have seen that a sensation is part of Jones's empirical consciousness if and only if it stands in the appropriate relation to Jones's transcendental unity of apperception. This, Kant insists, is a necessary truth about our kind of consciousness, one which permits *a priori* knowledge of the unity of consciousness without manifesting that unity explicitly in its contents. It follows that Jones can receive a sensation only if it stands in relation to Jones's transcendental unity. We can know *a priori,* then, that any sensation must relate to the transcendental unity: "all the manifold of intuition should be subject to conditions of the

original synthetic unity of apperception" (B 136). This proposition, furthermore, is synthetic. We derive it, not by analyzing the concept of sensation or even the concept of the transcendental unity, but by connecting the two by way of the transcendental argument just reviewed. As we might expect concerning the argument for any synthetic truth, it rests on experience. But it permits *a priori* knowledge, knowledge that can be derived independently of experience and that holds necessarily, because it concerns the form of any possible experience.

Kant is driving toward the conclusion that "appearances have *a necessary relation to the understanding*" (A 119). Appearances, he says, are "data for a possible experience"; they therefore have to relate to the understanding. The transcendental unity of apperception is responsible for what Kant calls the *affinity* of our representation—that is, their being *our* representations, their constituting a single empirical consciousness—and also the rule-governed character of the synthesis of the manifold of intuition. If that synthesis were not rule-governed, the combination of the data of sense would not yield knowledge but random and "accidental collocations" (A 121) such as the products of imagination in the usual sense. We may freely combine concepts, to form the notion of a three-headed dragon or a golden mountain, but we gain no knowledge of what is actual from exercising that freedom. We attain knowledge of objects because the construction of objects actually presented in experience is rule-governed.

Sensibility presents us with the data of experience, giving it the form of space and time; the understanding formulates judgments. The rule-governed synthesis linking the two is a product of the imagination and is unified by pure apperception. Our perception of a triangle, for example, is rule-governed; we cannot connect any sensations we like, label them a triangle, and obtain knowledge. The rule, in this case, is quite specific about geometrical form. Underlying such specific rules, Kant points out, is a general set of rules for generating concepts of objects. We can call something a triangle only if it has three sides and three angles. More broadly, we can call something an object only if it meets certain conditions, that is, satisfies certain rules. Those rules are specified by the categories. Kant therefore characterizes the understanding as the faculty of rules.

The objective deduction, Kant maintains, shows that we can know objects because we construct them: "Thus the order and regularity in the appearances, which we entitle *nature,* we ourselves introduce. We could never find them in appearances, had not we ourselves, or the nature of our mind, originally set them there" (A 125). The understanding, consequently, is nothing less than "the lawgiver of nature" (A 126). This follows from Kant's argument, for it has shown that the transcendental

unity is "an objective condition of all knowledge. It is not merely a condition that I myself require in knowing an object, but is a condition under which every intuition must stand in order *to become an object for me*" (B 138).

THE DIALECTIC

The Transcendental Analytic and related portions of the *Critique* attempt to justify Kant's rationalism. The Transcendental Dialectic, which comprises most of the second half of the book, tries to justify Kant's thesis of immanence. As Kant puts it, the topic of the Dialectic is illusion. Certainly, he means to show that the hope of extending knowledge beyond the realm of sense experience is illusory. But he uses the term 'illusion' in a more specific sense: "an *illusion* may be said to consist in treating the *subjective* condition of thinking as being knowledge of the *object*" (A 396; see A 297, B 353–4). The key to the Analytic is the Copernican revolution, the idea that the faculty of thinking constitutes objects. This should not tempt us to conclude, however, that subjectivity and objectivity—thinking and knowing—match effortlessly. Clearly we may think of things that are not objectively real through imagination. We may also make mistakes. Most seriously, our thinking extends easily beyond the realm of sense experience. We may engage in metaphysical contemplation, arguing about the freedom of the will, the existence of God, and the mortality or immortality of the soul. But Kant denies that we can attain any real knowledge of these matters.

Kant differentiates thinking and knowing, subjectivity and objectivity, by distinguishing the transcendental unity of apperception from the subjective unity of consciousness. To understand the distinction, we must return to the argument of the Transcendental Deduction, which uses the subjective unity to argue for the transcendental unity. The subjective unity of consciousness is a determination of inner sense. The manifold of intuition is given to us in experience, and our experience constitutes a single experience; this is the subjective unity. The manifold of intuition is united in the concept of an object through the transcendental unity. The subjective unity of consciousness is a condition of all thinking; the transcendental unity is a condition of all knowing.

This distinction is extremely important for Kant; transcendent metaphysics results from its confusion. We may think whatever we like in imagination. We may connect concepts and intuitions freely without concern for their presence in experience. The transcendental unity, however, directs our thought toward an object and toward reality. We can know a synthetic judgment only by some connection with experience. This

is why we cannot have knowledge that transcends experience: "The *possibility of experience* is, then, what gives objective reality to all our *a priori* modes of knowledge" (A 156, B 195). Indeed, it explains Kant's first example of a synthetic *a priori* principle: "every object stands under the necessary conditions of synthetic unity of the manifold of intuition in a possible experience" (A 158, B 197).

Kant's distinction between the transcendental and subjective unities has two important consequences. First, a rational psychology—a discipline taking the 'I think' as its sole text (A 343, B 401) and amounting to a theory of the soul—is impossible. One might suppose, given the account of the transcendental unity, that the "I," or, to use Kant's term, the soul, is a simple, unified substance, and that we can discover this *a priori*. This, however, is a confusion. One can argue that the representation of the "I" is a representation of a substance, of something simple and unified. But to deduce that the "I" *is* a substance, simple and unified, is to commit a fallacy.[10] In fact, it is to invite the skeptic's objections all over again. Nothing here guarantees the veridicality of our representations. From the perspective of transcendental (rather than rational, that is, rationalist and transcendent) psychology, the "I" is "completely empty": "it is a bare consciousness which accompanies all concepts. Through this I or he or it (the thing) which thinks, nothing further is represented than a transcendental subject of the thoughts=X" (A 346, B 404).

As with the self, so with things-in-themselves. The second consequence of Kant's distinction is thus that knowledge of things-in-them-selves is impossible; knowledge is limited to the sphere of experience. The limits of knowledge become clear in thinking about the role of the categories. The pure concepts of the understanding are conditions of the possibility of experience. They have *a priori* validity, against the claims of the skeptic, because "all empirical knowledge of objects would necessarily conform to such concepts, because only as thus presupposing them is anything possible as an *object of experience*" (A 93, B 126). Objects of experience must conform to the categories. Objects beyond the realm of experience, however, face no such constraint. In fact, we have no reason to believe that the categories apply to them at all. The categories conform to objects of possible experience because we synthesize those objects from the data of sensibility. What lies beyond sensibility lies beyond the categories, for we have no reason to believe that it results from such a process of synthesis.

This means that transcendent metaphysics is impossible. Metaphysical knowledge, to be interesting, must be knowledge of the world; it cannot be merely verbal. So, it must consist of synthetic propositions. Moreover, it cannot rely on experience; to be necessary and nonempirical, it must be *a priori*. Kant, as a rationalist, is committed to the possibility of synthetic *a*

priori knowledge. But such knowledge is possible only transcendentally, that is, through the contemplation of what makes experience possible. We secure the possibility of synthetic *a priori* knowledge by arguing for the categories. They apply, however, only to objects of possible experience. Kant derives rationalism, therefore, only by undercutting transcendence.

> No other objects, besides those of the senses, can, as a matter of fact, be given to us, and nowhere save in the context of a possible experience; and consequently nothing is an object *for us,* unless it presupposes the sum of all empirical reality as the condition of its possibility.
>
> (A 582, B 610)

We can witness Kant's application of his principle of immanence in his refutation of the cosmological argument for the existence of God. That argument appears in Aquinas, for example, as follows:

> In the observable world causes are to be found ordered in series; we never observe, or even could observe, something causing itself, for this would mean that it preceded itself, and this is impossible. Such a series of causes, however, must stop somewhere. For in all series of causes, an earlier member causes an intermediate, and the intermediate a last (whether the intermediate be one or many). If you eliminate a cause, you also eliminate its effects. Therefore, there can be neither a last nor an intermediate cause unless there is a first. But if the series of causes goes on to infinity, and there is no first cause, there would be neither intermediate causes nor a final effect, which is patently false. It is therefore necessary to posit a first cause, which all call "God."[11]

Kant's transcendental critique of this argument alleges "a whole nest of dialectical assumptions," of which he points out several: (a) The argument assumes that each event in the observable world has a cause. Kant agrees; he regards it as a synthetic *a priori* truth. But, as such, "This principle is applicable only in the sensible world; outside that world it has no meaning whatsoever" (A 609, B 637). (b) Why can't a series of causes go on to infinity? Kant finds nothing to justify this assumption even in the sensible world, (c) Is it true that, if you eliminate a cause, you eliminate its effects? Even if this holds in experience, we have no justification for extending it beyond experience, (d) Finally, why should we identify the first cause as God? Philosophers have understood God as the perfect being, "that, the greater than which cannot be conceived," the being more real than any other, and the necessarily existent being. To conclude that the first cause is

God, we must show at least that the first cause is perfect and necessary. Nothing in the proof accomplishes this. Consequently, Kant maintains that "the so-called cosmological proof really owes any cogency which it may have to the ontological proof from mere concepts" (A 607, B 635), for it assumes that perfection, necessity, and being the first cause all hold of the same thing.

The ontological proof appears in Anselm in the following form:

> Certainly, this being exists so truly that one cannot even think that it does not exist. For whatever must be thought to exist is greater than whatever can be thought not to exist. Hence, if that greatest conceivable being can be thought not to exist, then it is not the greatest conceivable being, which is absurd. Therefore, something so great that a greater cannot be conceived exists so truly that it cannot even be thought not to exist.[12]

The argument means to show that perfection entails necessity. That God is perfect Anselm takes as an analytic truth, as following from a definition of 'God.' He concludes that God exists necessarily.

Kant's assault on this argument is more complicated than his attack on the cosmological proof, but also more illuminating. This proof is a paradigm example of illusion, the mistaking of the subjective for the objective. It tries to establish the necessary existence of God from the mere concept of God. Kant is willing to grant that the argument shows that the concept of God, so defined, includes the concept of existence. But he denies that this implies anything at all about the existence of God in reality.

The key to Kant's attack on the ontological argument is his contention that 'being' is not a real predicate. Kant defines a determining predicate as "a predicate which is added to the concept of the subject and enlarges it" (A 598, B 626). It follows that a judgment with a determining predicate must be synthetic, for the predicate must enlarge the subject; it cannot already be contained in it. "'Being'," Kant insists, "is obviously not a real predicate; that is, it is not a concept of something which could be added to the concept of a thing" (A 598, B 626). A real predicate is capable of serving as a determining predicate. 'Being,' evidently, is not.

We might be tempted to conclude that existential judgments such as 'God is' or 'God exists' are analytic, for 'being' cannot serve as a determining predicate. But Kant clearly maintains that all existential judgments are synthetic. He argues specifically that 'God exists' is not analytic, and concludes, "as every reasonable person must, that all existential propositions are synthetic" (A 598, B 626). It follows that

'being' cannot be contained in the concept of a thing. But how can existential judgments be synthetic if they lack determining predicates?[13]

A synthetic judgment is not merely verbal; its predicate, according to Kant, must add something not already included in its subject. 'Being,' then, must add something to every subject concept. Yet it is not determining; it does not add to and enlarge the subject concept. 'Being' adds something that does not enlarge the concept of the subject.

To understand how this is possible, we must return to Kant's theory of concepts. Concepts are functions of synthesis that organize and unify the material of sense. They mold the data of sense into perceptions of objects (A 68, B 93, B 95). Consequently, their content relates essentially to the manifold of sense. In language and in thought, we can manipulate items however we like. Only through links to intuition, actual or possible, can we move from thinking to knowledge, activating the transcendental unity and giving our thoughts objective validity. (See A 155, B 194–5, B 146, B 165–6.) In short, concepts have content by virtue of the patterns of possible intuitions falling under them. This entails that 'being' is not a real predicate, for it lacks this sort of content. It cannot enlarge a subject concept; any intuition falling under the concept of a dollar falls under the concept of an existing dollar, and vice versa (A 599–600, B 627–8). It follows, moreover, that existential judgments are synthetic, for existence cannot be part of the content of a subject concept (A 225, B 272).

If 'being' lacks content definable in terms of the manifold of sense, what does it contribute to a judgment? Existential judgments do not enlarge or alter a rule for the synthesis of the manifold of intuition, but express the relation of the rule to the understanding. For Kant, then, 'being' is relational. The same holds of possibility and necessity, which share the fourth, "Modality" portion of the table of categories.[14] Kant maintains that the modality of a judgment adds nothing to the judgment's content. Instead, it determines the judgment's relation to the understanding: "The principles of modality thus predicate of a concept nothing but the action of the faculty of knowledge through which it is generated" (A 234, B 286–7). Existence and the other modalities contribute "a relation to my understanding" (A 231, B 284), determining "only how the object, together with all its determinations, is related to understanding and its empirical employment, to empirical judgment, and to reason in its application to experience" (A 219, B 266).

Kant compares the 'being' at stake in existential judgments to the 'being' of the copula (A 74, B 100; A 598–9, B 626–7). Both "distinguish the objective unity of given representations from the subjective" (B 141–2). Only by relating the terms of a judgment to the transcendental unity of apperception

> does there arise from this relation a *judgment,* that is, a relation which is objectively valid, and so can be adequately distinguished from a relation of the same representations that would have only subjective validity—as when they are connected according to the laws of association.
>
> (B 142)

'Being' in both roles distinguishes the subjective from the objective.

This is why the ontological proof is Kant's paradigm case of dialectical illusion. The advocate of the proof mistakes the subjective for the objective, failing to recognize that God's existence or necessity cannot be established analytically, from the definition of 'God' alone. In saying that something exists, we assert a relation to the understanding; we assert that we may experience the object, or stand in relation to it by way of empirical laws (A 219, B 266–7; A. 234 n., B 287 n.; A 616, B 644). And this cannot be derived from concepts alone. It follows that nothing exists with analytic or logical necessity:

> If I take the concept of anything, no matter what, I find the existence of this thing can never be represented by me as absolutely necessary, and that, whatever it may be that exists, nothing prevents me from thinking its nonexistence.
>
> (A 615, B 643)

We can now see how Kant can practice the transcendental method while rejecting transcendent metaphysics. The latter confuses the subjective and the objective, failing to recognize that concepts have content only in relation to experience. The transcendental method, however, focuses directly on the relation to the understanding at stake in questions of modality. Kant deduces the categories by reflecting on the sort of relation that must hold if experience of objects is to be possible.

HUMANISM

Kant carefully distinguishes his view from the idealism of Berkeley, which assails the notion of a reality beyond the realm of ideas. Kant's solution to Platonism's problems relies on distinguishing phenomena from noumena. Kant thus insists on the need to recognize nonmental objects, things-in-themselves, of which our appearances are appearances.

Kant nevertheless realizes that his theory is a form of idealism—transcendental idealism, he calls it—for truth, objectivity, and existence,

within the theory, become fundamentally epistemic notions. The same holds of all the modalities—possibility, truth or existence, and necessity — for all have the same function of relating a judgment to the understanding. Metaphysics is inseparable from epistemology; the root notions of metaphysics are all, in the end, epistemological notions.

Kant's epistemic conception of modality underlies his identification of *a priori* and necessary judgments. Saul Kripke has attacked this identification, pointing out that *a prioricity* is a matter of epistemology—can something be known independently of experience?—while necessity is a matter of metaphysics. Kripke has alleged, against Kant, that there can be contingent *a priori* and necessary *a posteriori* truths.[15] This seems plausible on the metaphysical view of necessity that Leibniz and Kripke share, namely, that necessity is truth in all possible worlds. But Kant rejects that view. A judgment is *a priori* if it can be known independently of all experience; if, that is, it holds no matter what experience might yield, or, to put it differently, if it holds no matter what the world *looks* like. A judgment is necessary, on the Leibniz-Kripke view, if it holds no matter what the world *is* like. Kant does not confuse these notions; he rejects the latter precisely because it is metaphysical in a transcendent sense. The truth of skepticism is that we cannot know what the world is like. The only notion of modality we can use is epistemic, in which we consider possible experiences rather than possible worlds. On this conception, of course, the *a priori* and the necessary are not only equivalent, but obviously so.

Moreover, it becomes possible to attain knowledge of necessary truths about objects of experience. Reason gets itself into trouble when it tries to leave the realm of possible experience. Kant is able to defend our knowledge of necessary truths against skeptics such as Hume because, for him, the *a priori* and necessary extend to the immanent sphere only, not to the transcendent. They are limited to the realm of possible experience. If *a priori* judgments were necessary in a strong metaphysical sense, then Kant's immanence thesis would be hard to understand.

The epistemic character of the basic notions of metaphysics—when these notions and, correspondingly, metaphysics are properly construed—is the central consequence of Kant's Copernican revolution. It would become fundamental to virtually all nineteenth-century approaches to philosophy. Skepticism, perhaps the chief philosophical puzzle since Descartes, would give way to puzzles arising from Kant's uniquely humanistic idealism. For Kant, as for the ancient Sophist Protagoras, man is the measure of all things. Kant, of course, takes the definite article here seriously. There is one and only one measure: the categories underlie all possible experience. Not everyone would agree. The nature and especially the uniqueness of the measure would define the chief battleground for philosophers during the next two centuries.

NOTES

1 R.Rorty, *Philosophy and the Mirror of Nature* (Princeton: Princeton University Press, 1979), p. 149; N.Kemp Smith, *A Commentary to Kant's Critique of Pure Reason* (Atlantic Highlands, NJ: Humanities Press, 1962), p. vii.

2 This and other citations from the *Critique of Pure Reason* are from the translation of N.Kemp Smith (London: Macmillan, 1929; New York: St Martin's Press, 1965). Throughout, any emphasis in the quotations is Kant's; the pagination is that of the original first (A) and second (B) editions.

3 H.Vaihinger, *Commentar zu Kant's Kritik der Reinen Vernunft,* Vol. I (Stuttgart: Spemann, 1881), pp. 117–20.

4 The analysis is Vaihinger's. See ibid., p. 50; Kemp Smith, op. cit., pp. 13–14.

5 Descartes, *Meditations,* III.

6 Kant often speaks of the content and form of judgments in just this way. Introducing the table of judgments, he writes, "If we abstract from all content of a judgment, and consider only the mere form of understanding," we derive the table (A 70, B 95). At other times, however, he treats the form and content very differently. Modality, for example, differs from the other aspects of judgment in the table in that "it contributes nothing to the content of a judgment (for, besides quantity, quality, and relation, there is nothing that constitutes the content of a judgment)" (A 74, B 100). These are plainly inconsistent. In the former passage, Kant speaks of empirical content or, more precisely, the content of the impure concepts in a judgment; in the latter, he speaks of logical content. It is tempting to identify the form of a judgment with its logical content, but Kant's theory of the modalities makes that impossible. See my "Kant on Existence and Modality," *Archiv für Geschichte der Philosophie,* 64, 3 (1982): 289–300.

7 That is, concepts of objects are rules of individuation as well as application. For a sophisticated modern treatment of this distinction, see A.Gupta, *The Logic of Common Nouns* (New Haven: Yale University Press, 1984).

8 See H.Vaihinger, "Die transcendentale Deduktion der Kategorien," *Gedenkschrift für Rudolf Haym* (1902); Kemp Smith, op. cit., pp. 202ff.

9 Kant's theory of time occupies part of the Transcendental Aesthetic. In brief, time is the form of inner sense, the progression of sensations, thoughts, and, in general, representations that constitutes empirical consciousness. Space and time, Kant argues, are *a priori* forms of intuition, for they are necessary conditions of sensation. We cannot sense anything without sensing it in space and time, that is, as spatially and temporally located. Time is moreover the form of inner sense because we cannot think anything without thinking it in time, that is, without our thought being part of a temporal sequence.

10 See W.Sellars, "Some Remarks on Kant's Theory of Experience" and "…this I or he or it (the thing) which thinks…," in his *Essays on Philosophy and its History* (Dordrecht: Reidel, 1974), pp. 44–61, 62–92.

11 St Thomas Aquinas, *Summa Theologiae,* Ia. 2; my translation.

12 St Anselm of Canterbury, *Proslogion,* III; my translation.

13 For more on this apparent contradiction, see J.Shaffer, "Existence, Predication, and the Ontological Argument," *Mind,* 71 (1962): 307–25; W.H.Walsh, *Kant's Criticism of Metaphysics* (Edinburgh: Edinburgh University Press, 1975), p. 7; G.Vick, "Existence was a Predicate for Kant," *Kant-Studien,* 61 (1970): 357–71, esp. 363–4; R.Coburn, "Animadversions

on Plantinga's Kant," *Ratio,* 13 (1971): 19–29, esp. 21–2; R.Campbell, "Real Predicates and 'Exists'," *Mind,* 83 (1974): 96ff.; and my "Kant on Existence and Modality," op. cit., pp. 291–5.

14 One of the few commentators to observe this is H.Heimsoeth, *Transzendentale Dialektik* (Berlin: de Gruyter, 1969), Vol. III, p. 480.

15 See S.Kripke, *Naming and Necessity* (Cambridge, Mass.: Harvard University Press, 1972, 1980), pp. 34–9.

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CHAPTER 3
Kant's moral and political philosophy

Don Becker

Practical philosophy, for Kant, is concerned with how one ought to act. His first important work in practical philosophy, *Foundations of the Metaphysics of Morals,* provides Kant's argument for the fundamental principle of how one ought to act, called the "categorical imperative," which basically requires one to act only according to principles that are themselves fit to be universal law. In Part I of this chapter we will focus on Kant's argument for the categorical imperative, and see how it functions as the fundamental principle of his moral philosophy. In Part II we will look at Kant's political philosophy, seeing both that it is grounded in this fundamental principle of how one ought to act, and that it gains support from other aspects of Kant's philosophical thinking.

PART I: KANT'S MORAL PHILOSOPHY

Inasmuch as Kant thinks that the fundamental principle of how one ought to act must be capable of grounding a definitive answer in all circumstances, he recognizes that no empirical study, which is dependent on the contingent nature of the world as we experience it, can provide the sort of principle that he seeks. Instead, Kant will proceed with an *a priori* study of how one ought to act, which, insofar as it is independent of the contingent nature of the world as we experience it, can provide a definitive principle. Two forms of *a priori* study that Kant employs are the analysis of concepts and

transcendental arguments. According to the former, insofar as some concept applies, whatever is entailed in that concept is true. According to the latter, insofar as some concept applies, whatever is a necessary condition of its application is true. Thus, Kant begins with the two concepts that are fundamental to his intended study, "morality" and "rational being," and determines that they reveal the truth of the categorical imperative. (Although the concept "rational being" is really the fundamental concept employed by Kant, the concept "morality," which he could have derived from the concept "rational being," plays a central role in his presentation.) Kant's presentation includes two basic steps. First, he asks what is meant by the concept "morality," and argues that it entails rational beings acting in accord with the categorical imperative. This, however, only answers the question of what morality is on the assumption that morality exists. Kant then considers the concept "rational being," and argues that a necessary condition of a being thinking that this concept applies to itself is that it think of itself as free. Furthermore, since Kant equates freedom in this sense (i.e. "positive freedom") with what he calls autonomy, and autonomy with subjection to the categorical imperative, it follows that beings who think of themselves as rational must consider themselves to be subject to the categorical imperative that he has described.[1]

"Morality" and "rational beings"

Kant engages in the *a priori* study of ethics, or metaphysics of morals, because this is the only way to gain definitive knowledge of how one ought to act. He proceeds by first considering what is meant by "morality," and determining that it means neither more nor less than acting according to the categorical imperative (*FMM,* 58).[2] Although more must be said before it is possible to explain the categorical imperative fully, and the exact nature of the moral principle that it designates, nevertheless, if one merely considers the two words that make up the term, an important aspect of its nature is revealed. "Categorical" means absolute, without qualification or exception, and "imperative" refers to a type of command. Thus, a categorical imperative is an absolute command.

According to Kant, "Everyone must admit that a law, if it is to hold morally (i.e. as a ground of obligation), must imply absolute necessity" (*FMM,* 5). Thus, Kant treats it as obvious to everyone that morality ultimately entails an absolute command or categorical imperative. Furthermore, since nothing absolute can be derived from something contingent, he argues that the only way to determine the exact nature of this absolute command is to engage in the *a priori* study of practical reason (i.e. reason related to acting):

> unless we wish to deny all truth to the concept of morality and renounce its application to any possible object, we cannot refuse to admit that the law is of such broad significance that it holds not merely for men but for all rational beings as such; we must grant that it must be valid with absolute necessity and not merely under contingent conditions and with exceptions. For with what right could we bring into unlimited respect something that might be valid only under contingent human conditions? And how could laws of the determination of our will be held to be laws of the determination of the will of any rational being whatever and of ourselves in so far as we are rational beings, if they were merely empirical and did not have their origin completely *a priori* in pure, but practical reason?
>
> (*FMM,* 24)

Kant holds that morality entails absolute laws; that, insofar as they are absolute, these laws must hold not only for human beings but for all similar, i.e. rational, beings; and that to have such general applicability these laws cannot be learned through experience or any empirical study, but must be derived through a purely *a priori* study.

Kant thinks that people, insofar as they are rational, are subject to an absolute moral law. Kant thinks that the fact that rational beings are subject to an absolute moral law is what fundamentally distinguishes them from all of the other material things in the world, which he recognizes to be subject to the laws of nature. Thus, Kant distinguishes physics, which is concerned with those objects that are subject to the "laws of nature," from ethics, which is concerned with those objects that are subject to the "laws of freedom" (*FMM,* 3). As will become clear, these laws of freedom constitute the absolute moral law.

This distinction between physics and ethics can be somewhat confusing; after all, isn't everything subject to the laws of nature? Maybe not. Think for a moment of a world in which *everything* were subject to the laws of nature. This would be a world of strict causal determinism; everything that happened would have followed inexorably from what preceded it. Among other things, all human behavior would be completely determined by these laws. But if all human behavior is causally determined according to laws of nature, then in what sense could people be considered morally responsible for their acts? Thus, if the concept "morality" is to make sense, then it must be possible to think of people not only as common physical entities subject to the laws of nature, but also, in another sense, as rational beings, subject to the laws of freedom (see *FMM,* 68–73).

Kant thinks of people in just this dual way, as sensible or physical beings, causally determined according to the laws of nature, and as intelligible or purely rational beings, independent of causal determinism and capable of

acting in accord with the laws of freedom. Accordingly, Kant suggests that the human will is subjected to two influences (see e.g. *FMM,* 16, 42). As sensible or physical beings, human beings have desires that arise from their physical nature and corresponding physical needs, which Kant broadly characterizes as the desire to be happy. This universal desire, as well as other indiosyncratic particular desires, is the source of inclinations, which exert a potentially controlling influence on the will. However, insofar as human beings are intelligible or purely rational beings, they recognize the laws of freedom, resist the force of inclination, and determine their will for themselves, independently of external influences and inclinations. Furthermore, and recognition of this is crucial for a correct understanding of Kant's moral philosophy, Kant thinks that *all* rational beings, insofar as they determine their will for themselves independently of their inclinations, will recognize the very same principle, the categorical imperative, as expressing the law of freedom in accord with which they ought to act (*FMM,* 71).

Thus far we have seen that the concept of "morality" entails the notion of an absolute law or "categorical imperative," and that it can only apply to (rational) beings who can resist their inclinations and choose to follow such a law of freedom. Let us now look more closely at exactly what Kant means by a "categorical imperative."

Kant's concept of a categorical imperative

Imagine that the human will were influenced only by pure reason. Whatever pure reason recognized as right would necessarily be willed, and whoever was possessed of pure reason would never do wrong. But Kant has said that the human will is influenced by both reason and inclination. Therefore, human beings don't necessarily will (and consequently act) as pure reason reveals is right, because they can be led astray by their inclinations. Thus, if a human will is to be determined in accordance with the objective moral law, it must be constrained. Kant calls the formula that expresses the command that constrains this will an imperative. Kant holds that there are two types of imperatives:

> All imperatives command either *hypothetically* or *categorically.* The former present the practical necessity of a possible action as a means to achieving something else which one desires (or which one may possibly desire). The categorical imperative would be one which presented an action as of itself objectively necessarily, without regard to any other end.
>
> (*FMM,* 30)

Two points that are rather important to Kant are expressed in this passage.

First, Kant reveals the basic difference between hypothetical and categorical imperatives. All imperatives determine the will to some good, but hypothetical imperatives say only that some action is good given that one has a particular purpose. Hypothetical imperatives reveal the means to given ends. Since these ends are contingent, however, as are all the ends that one commonly imagines (including the desire for happiness) inasmuch as there is no necessity for human beings to be so constituted that they have any of the particular desires that they experience, these ends cannot give rise to a categorical imperative. A categorical imperative, as Kant says, cannot depend on any contingent end, but "would be one which presented an action as of itself objectively necessary."

Second, by saying of a categorical imperative that it "*would* be one…,' Kant is making it clear that there may be no categorical imperative. Kant is only talking about what a categorical imperative *would* be like if one existed. This is very important, and is consistent with a point made earlier. Human beings can only be subject to a moral law if they are capable of resisting the influences of their inclinations, and determining their wills through reason in accord with a principle or law that is known *a priori*. There can be no moral responsibility for beings whose actions are all causally determined. Thus, before Kant can actually assert that there is a categorical imperative, he must first show that human beings have reason to believe themselves capable of determining their wills through reason. Nevertheless, Kant's argumentative strategy is to hold off on the question of whether human beings are actually subject to the categorical imperative, and to first pursue the question of what a categorical imperative would be, assuming that one exists.

The first formulation of the categorical imperative

Kant argues that there can be only one categorical imperative, and that, from the very idea of *a* categorical imperative, one can deduce a formula of *the* categorical imperative. Kant's argument can be expressed as follows (see *FMM,* 37–8). A categorical imperative is an absolute law. Although it is obvious that a categorical imperative entails an absolute law, it is not at all clear what this law will command. Imagine any possible content of this law, say, to maximize human happiness. Insofar as what constitutes human happiness is contingent (human beings could be constituted differently), all that one can construct is a hypothetical imperative directed

to a particular contingent end. Thus, a categorical imperative cannot be directed to any particular contingent end.

But if the imperative cannot be directed toward any particular contingent ends, then what is left? Although later a formulation of the categorical imperative that is based on an end that is not contingent will be considered, for now it seems that the imperative can require nothing more than conformity to absolute law. But since there is nothing in particular to which this absolute law can be directed, it can command only that one act in a way that is at least consistent with the possibility of absolute law. Kant expresses this categorical imperative as follows: "Act only according to that maxim by which you can at the same time will that it should become a universal law" (*FMM,* 38). This imperative does not rely on any specific content, but states the formal requirement that one always act in a way that one could will to be required to act by an absolute law.

The application of the categorical imperative and the distinction between perfect and imperfect duties

What does it mean to act only according to that maxim by which you can at the same time will that it should become a universal law? First, what is a maxim? A maxim is a general principle according to which an individual acts. Thus, one might hold the maxim "I will watch television when bored," or "I will steal things when I desire more goods." Kant is saying that it is morally permissible to act according to one's maxim only if it is possible at the same time to will that it should become a universal law.

One of the most famous examples that Kant uses to help make his point clear is that of the maxim to make a false promise to honor one's debt when seeking a loan that one does not intend to pay back (see e.g. *FMM,* 18–19, 39). Can one hold this maxim and, at the same time, will that it should be a universal law? Well, imagine that there were a universal law to make false promises. In such circumstances, inasmuch as no one could be trusted, the institution of promising itself could not exist. Now, since it is logically impossible for one at the same time to will both to make a false promise and that the institution of promising not exist, it is immoral to act on the maxim to make a false promise when desirous of another's money. Thus, the categorical imperative, as well as stating a restriction on permissible behavior, also provides a test of whether the restriction applies. If one cannot conceive of acting on the maxim while, at the same time, the maxim holds as a universal law, as is the case in the example

of the false promise, then the maxim fails the test and may not be acted upon.

Immediately after introducing the categorical imperative, Kant provides four examples of its application, which are designed to represent a common division of duties into four basic categories. Kant provides examples of perfect duties and imperfect duties both to oneself and to others, which can be classified as shown below.

	Duty to oneself	*Duty to others*
Perfect duty	Do not commit suicide	Do not falsely promise
Imperfect duty	Develop talents	Be beneficent

While the distinction between duties to oneself and duties to others requires no explanation, this is not the case with the distinction between perfect and imperfect duties. Kant was not the first to distinguish between perfect and imperfect duties, but his distinction does not correspond exactly with that of his predecessors (*FMM,* 38 n.). As Kant employs the concepts, perfect duties are those with which one's every action must conform. Thus, in all but one special case (i.e. the duty to join the state), perfect duties actually entail prohibitions against actions that should never be performed under any circumstances, e.g. stealing and murder. Imperfect duties, for Kant, entail principles that one must adopt, but that one need not (and, in fact, cannot) act upon in every instance. One would not think of another as moral who did not hold, and in some appropriate circumstances act upon, the principle "Be beneficent." However, it is also clear that it is not possible for one's every act to be the fulfillment of an imperfect duty. For one thing, one's every act cannot be, say, beneficent, since one also must tend to one's own physical needs. Even more obviously, one's every act cannot be one of beneficence, and also one of developing talents, and also one that furthers every other imperfect duty. Thus, Kant distinguishes between those duties with which one's every act must accord, and those duties that require one to adopt a principle, but leave one leeway in deciding when to act upon it.

With this distinction between perfect and imperfect duties in mind, it is important to look back to the categorical imperative, and to the test of the permissibility of actions. There are two ways that a maxim can fail the test of the categorical imperative. There are maxims for which it is logically impossible, and thus inconceivable, for one to will the maxim and its universalization at the same time, as in the false promise example discussed above, and there are maxims for which there is merely a contradiction in the will of an individual who wills both the maxim and its universalization at the same time, as in the example discussed below. Kant

recognizes that there is an exact correspondence both between the duties generated by maxims failing the test of the categorical imperative in the former manner and perfect duties, and between the duties generated by maxims failing the test of the categorical imperative in the latter manner and imperfect duties (*FMM,* 40–1).[3] Both Kant's test of duties entailed in the categorical imperative and his reformulation of the distinction between perfect and imperfect duties gain support from this correspondence.

Having already seen in the example of a false promise how perfect duties are related to maxims for which it is inconceivable to will both the maxim and its universalization at the same time, let us turn to an example of an imperfect duty. Consider the maxim "I will not develop my talents when I seem to be doing fine without bothering." There is no logical contradiction that results from holding this maxim and, at the same time, willing that it should become a universal law. After all, one can very well imagine a rather easy life on a tropical island where one need do nothing more than pick fruit when hungry. Thus, adopting this maxim does not violate a perfect duty.

Remember, however, that the categorical imperative says to "act only according to that maxim by which you can at the same time will that it should become a universal law." While the test of perfect duties focuses on whether one *can* will that the maxim should become a universal law, thereby focusing on the logical possibility of holding the maxim and its universalization at the same time, the test of imperfect duties focuses on the question of whether one can *will* that the maxim should become a universal law. It may be logically possible to live a human life without developing one's talents, and yet it may be impossible, without contradiction, to *will* to live such a life. Although Kant's treatment of the examples of imperfect duties is very unclear, I think that one can make the best sense of his discussion if one reads him as saying that the human will is essentially unlimited in that it can hold anything imaginable as its object, and that a contradiction therefore results if one wills to place a limitation on one's own will. Thus, it is not logically impossible for people to will not to develop their talents (it doesn't violate a perfect duty) but it entails a contradiction in their will, since, on the one hand, their wills are essentially unlimited, but, on the other hand, willing the nondevelopment of one's talents yields a limitation on what one can effectively will. According to this analysis, it follows that there is an imperfect duty to develop one's talents.

The second formulation of the categorical imperative

Although Kant thinks that there is only one categorical imperative, he thinks that it can be formulated in more than one way. Of course, any

other formulation of the categorical imperative, if it is to be a formulation of the *same* imperative, must require and prohibit exactly the same actions as the first formulation. Although Kant maintains that the first formulation discussed above is the most fundamental and precise, he develops alternative formulations of the categorical imperative because they make the demands of morality more intuitively plausible (*FMM,* 53).

The derivation of the first formulation of the categorical imperative can be thought of as based on a consideration of the necessary form of a categorical imperative. The idea is that the imperative must express an absolute law, but, since the law cannot command any contingent particular and still be absolute, all that can be commanded is that any particular maxim to be acted upon must be of such a *form* that it could be universal law. The second formulation of the categorical imperative, in contrast, focuses on the proper *content* of one's maxims (*FMM,* 48, 53). Kant bases the second formulation of the categorical imperative on his view that rational beings have absolute value as ends in themselves (*FMM,* 45–6).

Although Kant's argument in support of this view of rational beings is not very clear, it appears to rely on two fundamental claims. Kant has elsewhere said that the only thing that is good without qualification is a good will (since anything else can be put to a bad end, but not good willing itself) (*FMM,* 9–10), and seems to allude to this position during the argument. He also begins the discussion of which this argument is a part by reminding his readers that only rational beings have a will (*FMM,* 44). From these two claims it is reasonable to conclude that rational beings are of absolute value because they are the only possible source of that which is good without qualification. An imperative with content can therefore be a categorical imperative, provided that the end of that imperative is for rational beings to be treated as ends. Thus, the second formulation of the categorical imperative is: "Act so that you treat humanity, whether in your own person or in that of another, always as an end and never as a means only"[4] (*FMM,* 46). This imperative includes an absolute prohibition against treating others as means only, and to do so would violate a perfect duty. It also requires one actively to treat others as ends, and this requirement is an imperfect duty. A reconsideration of the examples introduced earlier will help make this clear.

Consider what happens when Mary makes a false promise to John, say to pay back a loan when, in fact, she intends to flee to Brazil. Mary has used John as a means for gaining the money she needs to go to Brazil. It is true that virtually any time two people make an agreement they are treating one another as means, but the important thing is that when the agreement is honest they are not treating one another as a means *only*. When making an honest agreement, people know more or less how they are furthering the interests of another, and this furthering of the other's

interests is an explicit part of their own act. Thus, in honest agreements people treat one another as means, but they also respect one another as ends, insofar as the other has been able to make a free and informed decision as to whether to participate in the agreement. However, when Mary exploited John's trust by making a false promise, she treated him as a means only, in that he was not given the relevant information with which to decide whether he wanted to provide the benefit to Mary that she actually received. He was not treated as an end at all, in that he was not provided the opportunity to embrace the results of their interaction as an end of his own. Thus, Mary violated a perfect duty by treating another rational being, not as an end, but as a means only.

Now imagine that Mary is a botanist fascinated by, and extremely talented at, studying tropical deforestation, and she asks John, who won $50 million in the lottery, to help fund a research trip to Brazil. Here there is no question of perfect duties. Neither Mary's request for support, nor John's either providing it or refusing to do so, entails treating a rational being as a means only. But should John provide the support? Were John to provide the funding, he would be treating Mary as an end, insofar as he would be acting to facilitate her realization of her own ends. Of course, as was pointed out in the previous discussion of imperfect duties, it is not humanly possible for one's every action to be one of actively treating (in the sense of furthering) others as ends. Nevertheless, there is an imperfect duty to hold the principle of actively treating or furthering others as ends, and to act on this principle in appropriate circumstances. John may not be specifically required to provide funding for Mary, but he does have an imperfect duty, in a range of circumstances that seem appropriate to him, to use his personal resources to actively treat or further other rational beings as ends. Thus, it is a perfect duty never to treat oneself or another rational being as a means only, and an imperfect duty to actively treat or further all rational beings as ends in themselves.

The third formulation of the categorical imperative, the principle of autonomy, and duty

Although Kant expresses his third formulation of the categorical imperative in a number of ways, its clearest statement may be in the "principle of autonomy." According to this principle one is only subject to the moral law that one has legislated for oneself: "Never choose except in such a way that the maxims of the choice are comprehended as universal law in the same volition" (*FMM,* 57). Although this principle seems quite similar to the first formulation of the categorical imperative, the important

difference is that this principle requires one to think of the universal laws as issuing from one's own volitions, and thus that the constraints to which one is subject come from one's own will. Kant's point is that rational beings are not merely subject to the moral law, but subject to the law because they created it themselves, i.e. because the law comes from their own will.

To understand the importance of autonomy for morality one must consider Kant's views on "good will" and "duty." While other things might be good toward one end or another, or when employed in one way or another, Kant says that the only thing that is good without qualification is the good will (see *FMM,* 9–10). Kant then reveals the nature of the good will in a discussion of duty (see *FMM,* 12–15). Kant argues that acts do not have moral worth merely because they accord with duty, but only if they are done from (the motive of) duty. For example, if a shopkeeper gives a young child the correct change because they know that it is good for business, or even if someone helps another in need because they like to be helpful, although the acts accord with duty, they have no true moral worth. Kant is not saying that it is bad for people to behave in these ways, but only that they do not warrant *moral* esteem. In all the cases in which people behave in accord with duty, but for reasons other than just the requirements of duty, the person is moved by some particular interest, even if it is only the good feeling that they get inside. In all of these cases the person is acting out of some particular interest, and not merely manifesting a good will. The good will is only manifest when one does one's duty, not from any particular interest, but precisely because it is one's duty.

Now the importance of the principle of autonomy can be clear. Imagine that rational beings were subject to a moral law that they had not created for themselves. If the moral law did not come from the rational being's own will, then there would have to be some influence external to this being that moved it to act in conformity to the law. Obedience to the moral law would then be conditional on rational beings responding in a certain way to this external influence. For Kant, however, this would be antithetical to morality. Obedience might accord with duty, but it would not be from duty, it would not manifest a good will, and it would have no true moral worth.

Kant concludes that the principle of autonomy expresses the fundamental claim of his moral theory:

> That the principle of autonomy, which is now in question, is the sole principle of morals can be readily shown by mere analysis of concepts of morality; for by this analysis we find that its principle must be a categorical imperative and that the imperative commands neither more nor less than this very autonomy.
>
> (*FMM,* 58)

The concept of morality entails the idea of an absolute law, and, therefore, the fundamental moral principle must be a categorical imperative. But when one thinks about this imperative one recognizes that, since the imperative must be absolute, it cannot be based on anything of contingent interest. This requirement eliminates all principles that have their source outside of the individual, and leaves only the principle of autonomy.

Why people are subject to the categorical imperative

So far it has been shown that if there is such a thing as morality, then its rule is expressed by the categorical imperative (in all of its alternative formulations) that Kant has provided. What has not been shown is that beings like ourselves are subject to this morality. Kant has shown that it is essential to the concept of the categorical imperative, through the principle of autonomy to which it leads, that, if there is to truly be a categorical imperative, then it must be adopted by rational beings for themselves. But why would rational beings adopt the categorical imperative? Kant's answer is that, insofar as rational beings take themselves to be rational, they necessarily recognize the categorical imperative as a constraint upon themselves. Kant is saying that a necessary component of the self-image of rational beings is their recognition of the fact that they must constrain themselves in accord with the categorical imperative. Here again one can see that Kant is using an *a priori* argument based on the concept "rational being" to support his moral theory.

Kant's transcendental argument for his moral theory takes the following form. First he argues that there is a relationship between freedom and autonomy such that all beings who consider themselves free must accept the principle of autonomy, which, as was previously discussed, entails the categorical imperative (*FMM,* 64). Then he shows that rational beings, because of how they experience the world, and, specifically, their own activity in the world, must consider themselves free (*FMM,* 65). Thus, it follows that rational beings must think of themselves as constrained by the categorical imperative. An explanation of this transcendental argument for the categorical imperative best begins with an account of his view of freedom.

Rational beings have wills, and they cause things to happen in the world through their wills. Kant says of the will of rational beings that

> freedom would be that property of this causality by which it can be

> effective independently of foreign causes determining it, just as natural necessity is the property of the causality of all irrational beings by which they are determined to activity by the influence of foreign causes.
>
> (*FMM,* 63)

This is Kant's view of negative freedom, i.e. freedom from determination by something external to the will. The idea is that if one's will is free in this negative sense, then, as opposed to existing merely as a sensible or physical being, subject to strict causal determinism, one must also exist as an intelligible or purely rational being that can have effects on the world independently of any foreign influences one experiences.

Kant claims that this negative conception of freedom opens the door to a positive one. Kant has said that the will is a kind of causality that, free in the negative sense, is not determined by foreign influences. One must recognize, however, that "the concept of a causality entails that of laws according to which something (i.e. the effect) must be established through something else which we call cause" (*FMM,* 63).

So how is a will that is free in the negative sense determined? It is clear from the concept of "causality" that a free will must be determined in accord with some law. This is also confirmed by common sense. To imagine a will that is not determined in accord with some law, is to imagine a will that is random. But a being whose will appears to be random is not thought of as free, but is ushered away by people in white coats. Such a will does not accord with the concept of "freedom."

To be free, therefore, a will must be determined in accord with some law. It cannot be determined by the laws of nature, for determination by the laws of nature is exactly what accounts for the lack of negative freedom in sensible or physical beings. Thus, a will that is free in the positive sense must determine itself, it must act in accord with a law that it adopts for itself, a law of freedom. This, however, is exactly what it is to be autonomous, and therefore to recognize oneself as subject to the categorical imperative. After all, the categorical imperative is the only principle of the will that beings can adopt for themselves, since all other imperatives are based on ends that are of contingent value, and, thus, entail rational beings' determination by things external to themselves. Kant concludes this discussion by stating that "a free will and a will under moral laws are identical" (*FMM,* 64).

Kant still hasn't shown either that rational beings have free wills, or that there are any beings in the world that are subject to the morality that he has described. What has been shown is that only free beings can be subject to morality, and, more importantly, that all beings that think of themselves as free must think of themselves as subject to morality. Thus, if

Kant demonstrates that rational beings necessarily think of themselves as free, then he will have shown that rational beings must think of themselves as subject to the categorical imperative. And if this demonstration is based on the way that rational beings necessarily experience themselves in the world, then Kant will have provided a transcendental argument that rational beings are subject to the categorical imperative. So the question is: Do rational beings experience themselves in the world in a way that requires them to think of themselves as having a free will?[5]

What is it to think of oneself as a rational being? To think of oneself as rational is to think that one applies reason (competently) when making judgments. The following is an example of applying reason when making a judgment: If a rational being knows that if statement P is true then statement Q is true, and also knows that P is, in fact, true, then, if it actually manifests its rationality, it will conclude that Q is true, through the application of a certain, in this case obvious, principle of logic. A being that came to hold that Q is true without having applied the principle of logic, say because Q just popped into its mind, would not be thought of as having made a rational judgment (regardless of the truth of its belief). Furthermore, even a being who applied the principle of logic, if it did so out of instinct, or because it was forced to by some external power, would not be thought of as having (itself) made a rational judgment. Calling a judgment rational, and, by extension, a being rational insofar as it makes rational judgments, is only appropriate when the being has itself adopted and correctly applied the relevant principle of logic. If the being does not do this for itself then it is like a simple computer (one for which there is no question of artificial intelligence). It never deserves credit for the conclusions that it draws because its application of logical principles is solely the result of forces external to itself, e.g. the skill of its programmer.

Thus, with respect to logical judgments, a being can only think of itself as rational if it thinks that it has adopted and applied the principles of logic for itself. Of course, one can adopt and apply these principles for oneself only if one is free in Kant's positive sense. Thus, to think of oneself as rational, at least in one's logical judgments, one must think of oneself as free, and as having freely adopted the laws of logic. Nevertheless, although one must *freely* adopt these laws if one is to think of oneself as rational, that does not necessarily mean that one could adopt some other laws of logic and still think of oneself as rational. It is quite possible (though there are some who would question this claim) that there is only one set of fundamental logical laws that one can adopt without belying one's rationality. One's freedom is still manifest, however, by the fact that one has adopted the laws of logic for oneself, even though there is only one set of logical laws that one can adopt as a rational being.

The situation with regard to morality is analogous. To consider oneself possessed of practical reason, i.e. to think that one applies reason in determining one's will and consequently one's actions, one must think of oneself as freely adopting one's principles of action. In other words, one must think of oneself as having a free will. However, the fact that one must be free in adopting one's principles of action does not mean that there must be some range of options for one to select from among. As appears to be the case with logic, in the case of morality, there is exactly one fundamental principle of action that can be freely adopted, and that is the categorical imperative.

These considerations lead to a common confusion with respect to Kant's views on freedom, which can be expressed in the following question: How is it possible for one both to be free and to *have* to adopt the categorical imperative? This question manifests a misunderstanding of what Kant means by freedom. By freedom Kant does not mean the option of choosing one thing or another (which one might also call liberty), but rather, the power of self-determination (which can also be called autonomy).

Kant's point is that if the moral law is truly to be freely adopted, then it cannot get its force from any contingent conditions external to the individual. However, the only principle of action that is independent of determination by any contingent external influences is the categorical imperative. Therefore, insofar as one thinks of oneself as a rational being, possessed of practical reason, one must think of oneself as subject to the categorical imperative.

A second common confusion with respect to Kant's views on freedom is that he thinks that people are free only when they act in accord with the categorical imperative. The concern is that Kant is claiming that people are not acting freely on those occasions when they succumb to the influence of their inclinations and act contrary to the categorical imperative. If this were true it would raise quite a problem, because it entails the claim that people who act immorally are not free, and therefore cannot be held responsible for their actions. Kant, however, thinks of all rational beings as free insofar as they recognize the categorical imperative as a constraint upon their actions. Those who violate this constraint, insofar as they are rational, recognize that they have done wrong exactly because they recognize the categorical imperative as a proper constraint upon their wills (*FMM,* 41). A being who violates the categorical imperative, and does not recognize that it has done wrong, must not have adopted the categorical imperative as a constraint upon its will. Such a being cannot think of itself as rational. Thus, the categorical imperative expresses the definitive principle of how rational beings ought to act.

PART II: KANT'S POLITICAL PHILOSOPHY

In his political writings Kant builds upon the foundations he established principally in his moral philosophy to provide a rather strong argument supporting the necessity and the legitimacy of the state. In particular, he argues that there must be a single institution among a people, which he calls the state, that has the authority to use coercion to force people to leave others free to formulate and pursue the ends of their choice, provided that they are not violating the similar freedom of another. Kant argues both that morality requires people to exist within a state that secures their freedom to formulate and pursue the ends of their choice, provided that they do not violate the similar freedom of others, and that morality permits people to use coercion to force others to be members of such a state.

Kant suggests that his argument for the state grows out of the consideration of how human beings are actually to apply the categorical imperative (*MM,* 16).[6] Nevertheless, this approach does not reveal all of Kant's concerns in his argument for the state. Accordingly, I will also discuss Kant's argument that people necessarily view themselves as having a certain role to fulfill in the world, and that they can only perform this role successfully if their freedom to formulate and pursue the ends of their choice is secured within a state.

The domain of jurisprudence, the ends of nature, and the value of external freedom

Kant's *Metaphysics of Morals* addresses the issue of how the categorical imperative is to be applied by human beings. This work is divided into two parts: the "Doctrine of Right," in which Kant expresses much of his political philosophy, and the "Doctrine of Virtue," which is concerned exclusively with other aspects of his moral philosophy. Ostensively, the basis for Kant's division of the work is the difference between duties of justice, juridical (legal) duties, and duties of virtue, ethical duties (*MM,* 18–21). Kant says that all legislation (juridical and ethical) consists of two elements: the law, and the incentive to obey the law.

Although two different types of legislation may agree about the law, e.g. both juridical and ethical legislation may prohibit murder, they can at the same time differ with respect to their incentives:

> If legislation makes an action a duty and at the same time makes this duty the incentive, it is *ethical*. If it does not include the latter

> condition in the law and therefore admits an incentive other than the Idea of duty itself, it is *juridical*.
>
> (*MM,* 19)

Kant is distinguishing ethics, according to which one must always do one's duty exactly because it is one's duty, and never for any other reason, from jurisprudence, according to which one can have some other incentive for one's actions that fulfill one's duties. In fact, Kant begins the "Doctrine of Right" by defining jurisprudence as "the body of those laws that are susceptible of being made into external laws, that is, externally legislated" (*MM,* 33)[7] Thus, one must determine exactly what laws can be externally legislated.

First we should consider the difference between perfect and imperfect duties, and whether the laws that correspond with each of these can be externally legislated. Perfect duties require the performance or nonperformance of specific actions. It is easy to imagine how laws corresponding to these duties could be externally legislated, as it is easy to imagine how external incentives could be employed to coerce people either to perform or to refrain from performing specifie actions.

It seems impossible, however, for external incentives to be employed to coerce people to perform imperfect duties (*MM,* 45). After all, imperfect duties require people to adopt certain principles (e.g. beneficence), and to act on those principles in circumstances that they deem appropriate. But people cannot be coerced either to adopt principles or to act on them. Since people's wills are always free, and adopting a principle is an act of will, people cannot be forced to adopt principles. Furthermore, although people can be coerced to perform acts that follow from specified principles, since the act is merely a response to the coercion, it cannot be construed as an attempt to act in accord with the specified principle. Thus, people cannot be forced to act on a principle. Therefore, only imperfect duties can be the subject matter of jurisprudence, imperfect duties cannot.

It might appear, then, that all perfect duties can be addressed by jurisprudence. Actually, however, there is good reason to believe that Kant means to exclude perfect duties to oneself from the domain of jurisprudence.[8] One clear statement to this effect follows: "The concept of justice…applies only to the external and—what is more—practical relationship of one person to another" (*MM,* 34). One can best understand Kant's political philosophy, and specifically his exclusion of perfect duties to oneself from the domain of jurisprudence, by considering the broadest concerns that motivate him to write about the state.

In a number of his writings, including some essays on history and, more importantly, the *Critique of Judgment,* Kant reveals a great concern for the development of humanity. In the *Critique of Judgment,* Kant's interest in the development of humanity is revealed in the context of an extended discussion of teleology or purpose. He argues that people can

only make sense of a thing insofar as they understand it in terms of its purpose (*CJ,* 280).[9] The notion of a thing having a purpose, however, is ambiguous, raising two issues, each of which is relevant (*CJ,* 312–13). Something can be organized in a way that manifests a purpose internal to the entity, as a tree is organized to grow and reproduce, or the manifest purpose can be external to the entity, as a tree is organized to help maintain the proper oxygen level in the atmosphere for animals to survive.

When the question of purpose is asked of nature itself, the answer is quite revealing about humanity. Kant thinks that the ultimate internal purpose of nature is human culture, by which he means the ability of human beings, as sensible or physical beings constrained by the laws of nature, to formulate and pursue whatever ends they may set for themselves (*CJ,* 317–21). But human culture in this sense can only develop if people are secure from others interfering with their ability to formulate and pursue the ends of their choice. Thus, the greatest development of human culture, the ultimate end of nature, can only be realized if people do not violate their perfect duties to others ("UH," 45–6).[10] However, since the violation of perfect duties to oneself would also inhibit the development of human culture, it is not yet clear why Kant restricts the role of the state to include the enforcement of only perfect duties to others.

Kant's reason for excluding perfect duties to oneself from the domain of jurisprudence is revealed through the consideration of his views on the final external purpose of nature (*CJ,* 322–3). The final external purpose of nature can only be manifest in something that makes use of nature, but is not itself a part of nature, i.e. is not subject to the laws of nature, otherwise it would merely be one more internal purpose of nature. It is human beings, insofar as they are intelligible, or purely rational, beings subject to the moral law, who provide the final purpose for all that exists within nature. However, to the extent that people are not acting on the moral law, but are responding to their inclinations, nature is not being used toward any ends that themselves come from outside of nature. Thus, the final end of nature is only realized to the extent that humanity has developed toward moral perfection.

Kant, however, thinks that the final end of nature cannot be realized so long as people remain in the state of nature because morality is necessarily inefficacious when people remain in this condition. Among people who choose to remain in the natural condition, without a state that enforces the fulfillment of perfect duties to others, it is as if they have agreed with one another that anything goes:

> If men deliberately and intentionally resolve to be in and to remain in this state of external lawless freedom, then they cannot wrong each other by fighting among themselves; for whatever goes for one

> of them goes reciprocally for the other as though they had made an agreement to that effect.
>
> (*MM*, 72)

In such circumstances, there is reason to believe that none of the duties that people have to one another will be fulfilled. Thus, only if there is a state that enforces the fulfillment of perfect duties to others is it possible that morality will develop to the point that all duties to others can regularly be fulfilled. Therefore, the existence of the state is viewed by Kant as a necessary condition for the development of morality.

It is now clear that Kant requires a state that enforces at least the fulfillment of perfect duties to others, but why should it not also enforce the fulfillment of perfect duties to oneself? The problem is that the enforcement of perfect duties to oneself would undermine the development of the moral character necessary among people who are to fulfill all of their ethical duties. Although the argument is too involved to pursue fully here, the basic point is that one's perfect duties to oneself are fundamental, and only one who truly fulfills these duties, i.e. fulfills them precisely because they are duties, can develop the character necessary for the fulfillment of all of their duties. But if one is coerced to fulfill these duties to oneself, instead of fulfilling them solely because they are one's duties, this will undermine the development of one's character as one who fulfills all one's duties.[11] Thus, although the external legislation of perfect duties to oneself may facilitate the realization of the ultimate end of nature, it would actually undermine the development of humanity toward moral perfection, the final end of nature. Kant's greatest interest, the development of humanity toward both the ultimate and final ends of nature, can be realized only within a state that enforces the fulfillment of perfect duties to others, thereby securing people's external freedom and permitting them to formulate and pursue the ends of their choice, provided that they leave a similar freedom for others.

External freedom and the concept of justice

Having, at least briefly, explained Kant's non-political reasons for being concerned with securing people's external freedom, the foundation has been laid for showing how Kant argues within his political philosophy from the presumed value of external freedom to the necessity and legitimacy of a state that uses coercion to force people to fulfill their perfect duties to others. The outline of Kant's argument is as follows:

1 People have an innate right to external freedom.

2 The only legitimate limitation on this right to external freedom is the right of others to a similar freedom.
3 The condition of the universal realization of this right to external freedom is the condition of justice.
4 Justice entails the authorization to use coercion, as necessary, to support the condition of justice.
5 The innate right to external freedom entails both
   a the right to security in oneself, and
   b the right to possess things external to oneself.
6 Someone who remains in proximity, and in the natural condition relative to others, i.e. not in a state, interferes with their external freedom by not providing them a guarantee of security with respect to both
   a their right in themselves, and
   b their rightful possession of objects external to themselves.
7 Existing within a state, subject to juridical law, is the only way to guarantee this security to others.
8 It is just to use coercion to force anyone in proximity into a state, subject to juridical law.

Kant claims that there are two types of rights: innate rights and acquired rights (*MM,* 43). Innate rights belong to people by nature, independently of any act of law. Acquired rights, on the other hand, only come to exist through an act of law. Since acquired rights are dependent on acts of law, they cannot themselves provide the basis for considering people obligated to accept the lawful authority of a state. Any right that is to provide a legitimate basis for considering people obligated to accept the authority of a state must be an innate right. The innate right of external freedom plays this crucial role in Kant's argument for the necessity and the legitimacy of the state. Kant begins the section entitled "There is only one innate right" as follows:

> Freedom (independence from the constraint of another's will), insofar as it is compatible with the freedom of everyone else in accordance with a universal law, is the one sole and original right that belongs to every human being by virtue of his humanity.
>
> (*MM,* 43–4)

The innate right to external freedom, therefore, is the only right that can provide the justification for imposing a system of juridical law on others.

This innate right to external freedom provides the basis for Kant's conception of "justice," which he defines as "the aggregate of those conditions under which the will of one person can be conjoined with the

will of another in accordance with a universal law of freedom" (*MM,* 34). What are the conditions under which people's wills can be conjoined in accordance with a universal law of freedom? Kant thinks that two wills can be conjoined if they include no incompatibility. But what does this mean? Following Kant's description of willing as "the summoning of all the means in our power" (*FMM,* 10), two wills can be conjoined if each will, while summoning all of the means in its power applicable toward its end, does nothing incompatible with the activity of the other.

Suppose that two people will to hold the same political office. They will both summon all of the means that are in their power to gain this office, which, taken to its literal extreme, will undoubtedly include the violent elimination of their rival. In this case their wills cannot be united since each of them, by seeking to eliminate the other, is acting in a manner that is incompatible with the other's pursuit of the goal. It is not possible for them jointly to will that they act in the manner described, since it entails both of them willing their own death, and also willing to survive after the death of the other.

The question of justice, however, is not merely whether their wills can be conjoined, but whether they can be conjoined in accordance with a universal law of freedom. This restricts the range of maxims upon which they can will to act to those that are in accord with the universal law of freedom, which, for human beings, is expressed in the categorical imperative. If the rivals restrict their wills to maxims that meet this requirement, then they each will act on no maxim (employ no means) the universalization of which would be incompatible or inconsistent with the freedom of the other to act on similarly acceptable maxims. If the politicians so restrict themselves, then all of their acts, e.g. distributing buttons, or advertising their virtues on television, will be compatible with the like freedom of others. Their wills can be conjoined since there is no incompatibility or inconsistency between their willing to act in this restricted manner, and others willing to act similarly.

Although it was made to seem above, during the discussion of the universal law of freedom and its relationship to the categorical imperative, that justice requires one to act fully in accord with the categorical imperative, it is clear from Kant's definition of justice that it is limited to perfect duties to others. The exclusion of duties to oneself is clear from the reference to conjoining the will of one person with the "will of another." The exclusion of imperfect duties is entailed by the reference to the conditions in which one person's will "*can* be conjoined" with that of another. When asking if the wills *can* be conjoined, one is asking only whether it is logically possible for the maxims to hold at the same time, the test for perfect duties, not whether one could will them to hold at the same time, the test for imperfect duties.

With this understanding of Kant's conception of justice, it is easy to see that it amounts to nothing more than the condition of the universal realization of the innate right to external freedom. For all people to be independent of the constraint of others' wills, to the extent that this is compatible with the freedom of everyone else in accordance with a universal law, i.e. for the innate right to external freedom to be universally realized, requires neither more nor less than that people be in a condition in which their wills can be conjoined in accordance with a universal law of freedom, i.e. that people be in a just condition. Thus, if Kant can argue that the concept of justice logically entails the right to use coercion in support of the condition of justice, then he will have shown that there is no inconsistency in using coercion to support and maintain external freedom.

Kant wants to show that such coercion as is truly employed in opposition to injustice is itself consistent with justice (*MM,* 35–6). It follows from Kant's definition of justice that injustice would be *any condition* in which one person's will could not be conjoined with the will of another in accordance with a universal law of freedom. This condition cannot be eliminated, but can only be furthered, by an act that is itself unjust. Since every unjust act entails a will that cannot be conjoined with at least one other will in accordance with a universal law of freedom, every unjust act itself necessarily furthers the existence of the condition in which one person's will cannot be conjoined with the will of another in accordance with a universal law of freedom, i.e. the condition of injustice. Thus, any coercion that actually opposes the condition of injustice must, by definition, itself be just.

Kant goes on to argue that it is not merely just, but required by justice, to use coercion against anyone who acts unjustly (*MM,* 36–7). Of course, there are conditions on how that coercion is to be justly applied, but, assuming that these conditions are met, the application of coercion in support of the innate right to external freedom is itself a requirement of justice. It is particularly important to Kant, in light of the broadest concerns of his political philosophy, that external freedom can be supported by coercion. He is concerned with external freedom because it is a necessary condition for the development of humanity toward the final end of nature, moral perfection. But if people have to be moral to respect one another's external freedom, then Kant would have a circular argument in which the conditions for the development of morality were themselves dependent on morality. Kant needs the condition in which people respect one another's external freedom to be established entirely independently of the morality of the people. Thus, it is essential for Kant's argument that external freedom can be supported entirely by external legislation (independent of people's internal moral motivations).

The components of external freedom

Having shown that coercion can and ought to be used in support of the innate right to external freedom, the question of exactly what is entailed in this right must now be addressed. Based on his definition of the innate right to external freedom it is clear that Kant wants people to be independent of constraints that come from the will of others, when they are formulating and pursuing the ends of their choice in a manner consistent with others having a like freedom. It would seem then that Kant thinks that the innate right to external freedom entails independence from others *willfully acting* in a way that interferes with one's right to formulate and pursue the ends of one's choice. A right to this son of freedom may be commonly recognized, and may provide an adequate basis for a derivation of the necessity and legitimacy of the state. However, it is clear from Kant's argument for the state that he has a significantly stronger sense of "freedom" in mind. This freedom includes independence from others willfully acting in a way that interferes with one's right to formulate and pursue the ends of one's choice in a manner consistent with the similar freedom of others, but it also includes independence from otherseven *willfully maintaining a condition* that interferes with this right (see *MM*,35).

If he is to provide an *a priori* argument for the necessity of the state, Kant has to be concerned with the possibility of one's external freedom being interfered with by the conditions that others maintain, and not only by their actions. Kant's argument is dependent on the fact that someone who is in proximity, and in the natural condition relative to others, necessarily interferes with their external freedom. If Kant based his argument for the state on the fact that people will commit acts that interfere with the external freedom of others, then his argument for the state would be contingent on people actually committing such acts. Thus, Kant says:

> I am injured by the condition of other people who are in the natural state. For [when others remain in the natural condition] I have no security and my property is always in danger. I am not obligated to remain in this fear.[12]

Kant's point is that people who remain in proximity, and in the state of nature relative to others, interfere with others' freedom by interfering with both their security in themselves and their right to things external to themselves. Furthermore, one need not tolerate this situation of insecurity that undermines freedom, because people can be forced to join the state, the only condition in which freedom is guaranteed, without violating their freedom.

The last two sentences constitute, in effect, a restatement of steps 5–8 of Kant's argument as outlined above. According to the innate right to external freedom, people have the right to formulate and pursue the ends of their choice, provided that they leave a similar freedom for others. Kant thinks that this right entails both the right to security in oneself and the right to possess things external to oneself.

Any violation of one's right in oneself, which would seem necessarily to involve some son of assault, clearly entails the victim's being constrained by the will of another (the perpetrator). Furthermore, Kant thinks that even the threat of a violation of one's right in oneself interferes with one's external freedom, as Hobbesian reasoning reveals. If people are in fear for their personal security, they will have to focus a great portion of their efforts on securing themselves, and will not be able to formulate and pursue those ends that truly interest them. Thus, the innate right to external freedom entails the right to security in oneself.

The explanation of why the innate right to external freedom entails the right to possess things external to oneself is much more complicated. One simple explanation that Kant alludes to at times is that human culture is advanced through people engaging in complex projects, but people will only engage in such projects if they have a fixed expectation of their efforts being undisturbed, and of being able to work from the results of earlier efforts in subsequent, more involved projects. Thus, the right to possess things external to oneself is necessary for the development of human culture, the ultimate end of nature. Kant's more complicated explanation of the right to property is basically that freedom can only be restricted to preserve the like freedom of others, owning property does not restrict the like freedom of others, and, therefore, freedom includes the right to own property. Thus, to restrict the possibility of the rightful possession of things external to oneself is to restrict freedom for something other than freedom, which is necessarily inconsistent with the final end of nature (*MM,* 52–3).

The necessary conditions of external freedom

What remains to be shown is that anyone who remains in proximity, and in the natural condition relative to others, interferes with both of the rights that are entailed in the innate right to external freedom. First we shall look at Kant's argument that such an individual interferes with others' right to possess things external to themselves. Kant maintains that the right to possess anything, although land is the most important example, depends on a relationship of the wills of all those who are in

proximity (*MM*, 65). There are no material conditions, which could be verified empirically, that constitute having a right to a thing. Although Locke argued that one can make something one's property by mixing one's labor with it, Kant would respond that this begs the question, since it can now be asked: By what right does one mix one's labor with something?

Kant thinks that a person can rightfully possess something only if everyone in proximity relinquishes their right to will the use of that thing. Thus, one cannot take rightful possession of something through one's own will alone; there must be a union of wills manifesting the agreement of all to respect the property of each:

> Now, with respect to an external and contingent possession, a unilateral Will cannot serve as a coercive law for everyone, since that would be a violation of freedom in accordance with universal laws. Therefore, only a Will binding everyone else—that is, a collective, universal (common), and powerful Will—is the kind of Will that can provide the guarantee required. The condition of being subject to general external (that is, public) legislation that is backed by power is the civil society. Accordingly, a thing can be externally yours or mine only in a civil society.
>
> (*MM*, 65)

For Kant, existing within a state is the form in which the people express their mutual respect for one another's rightful possession of things external to themselves. What happens, however, if there are people in proximity, and in the state of nature relative to the others? These people are not parties to the union of wills by which each person's rightful possessions are guaranteed. These people are in a position to will the use of things that would otherwise be rightfully possessed by others. But since rightful possession depends on the agreement of the wills of all those in proximity, the presence of these people who are outside the union of wills makes rightful possession impossible, thereby interfering with the freedom of those within the union. Thus, Kant concludes this discussion by saying that if rightful possession must be possible (and it is entailed in the innate right to external freedom), "then the subject must also be allowed to compel everyone else with whom he comes into conflict over the question of whether such an object is his to enter, together with him, a society under a civil constitution" (*MM*, 65). In summary, Kant argues that the innate right to external freedom includes the right to possess things external to oneself; that this right can only be realized within a state; that anyone in proximity and outside of the state interferes with this right; and, therefore, that it is just to use coercion to force such people to enter the state.

Kant also argues for the necessity and the legitimacy of the state from the fact that the innate right to external freedom entails a right to security in oneself that can only be realized within a state. While it is true that everyone has an ethical duty to respect everyone else's rights in themselves, nevertheless, since people have no way of knowing the intentions of others, they are not secure in their rights in themselves until such time as they guarantee to one another that they will respect these rights:

> The necessity of public lawful coercion does not rest on a fact, but on an a priori Idea of reason, for, even if we imagine men to be ever so good natured and righteous before a public lawful state of society is established, individual men, nations, and states can never be certain that they are secure against violence from one another.
>
> (*MM,* 76)

Kant's point is that, despite the requirements of morality, people's rights in themselves are insecure outside of a state. Paralleling his argument for the state from the right to possess things external to oneself, Kant argues here that the only way that the rights entailed in the innate right to external freedom can be realized is if people make their will not to violate these rights publicly known, and that the form of this mutual guarantee is the state.

Kant's argument that the necessity and the legitimacy of the state can be derived from the fact that people have the right to security in themselves is well summarized in the following:

> It is usually assumed that one cannot take hostile action against anyone unless one has already been actively *injured* by them. This is perfectly correct if both partics are living in a *legal civil state*. For the fact that one has entered such a state gives the required guarantee to the other, since both are subject to the same authority. But man (or an individual people) in a mere state of nature robs me of any such security and injures me by virtue of this very state in which he coexists with me. He may not have injured me actively *(facto),* but he does injure me by the very lawlessness of his state *(statu iniusto),* for he is a permanent threat to me, and I can require him either to enter into a common lawful state along with me or to move away from my vicinity.
>
> ("PP," 98 n.)[13]

The innate right to external freedom can be universally realized only within a state, in which each person guarantees this right of everyone else by participating in a union of wills resolved to use coercion in support of

this right. Furthermore, since it is just to use coercion in support of the innate right to external freedom, it is just to use coercion to force into the state those people who would otherwise maintain a condition that interferes with the external freedom of others (e.g. by remaining in proximity and outside of civil society).

Kant on international relations

Before discussing Kant's views on how one is forced to join a state, and the version of hypothetical social contract theory toward which these concerns lead Kant, it is interesting to consider the relationship between Kant's argument for the necessity of the state and his views on international relations. Kant has argued that people who remain in proximity, and in the natural condition relative to others, because they necessarily interfere with the freedom of those others, may therefore justly be forced to join together with them in a state that secures their freedom. However, what if these people are already members of a state, but a different neighboring state? Two related problems arise: First, the members of each state interfere with the freedom of the members of the other state just as they would if they were not members of a state at all: if there is no formal relationship between the states, there is no guarantee that the members of each state will respect the rights of the members of the other state. Second, the two states, which can each be thought of as a "moral person," are in the state of nature relative to one another, and suffer all the difficulties that led Kant to argue for the need for civil society.

Kant recognizes that these are serious difficulties which, unchecked, would very much undermine the possibility of the sort of human development that he thinks should be facilitated. His solution to the problem is to suggest that the same forces that lead individuals into a state should lead states into a federation of states ("PP," 102–5; "UH," 47; "TP," 90).[14] This federation of states would then fulfill the same role among states that a state fulfills for its citizens, and would also provide the necessary guarantee of external freedom among the citizens of different states.

Although it is clear what Kant provides through his suggestion of a federation of states, there is also a significant problem raised by this suggestion: Who is ultimately sovereign? Since Kant argues that for a state effectively to fulfill its role it must be ruled by an absolute sovereign, it would seem to follow that the federation of states can effectively fulfill its role only if it is ruled by an absolute sovereign. Thus,

it appears to be a clear implication of Kant's argument that there should be a single world nation, without lesser sovereign states. However, Kant never supports the notion of a single world state, and at one point discusses the concern that such a world state "may lead to the most fearful despotism" ("TP," 90). Thus, while Kant was right to recognize that his argument for the necessity and the legitimacy of the state has important implications for international relations, he was never able to give a clear and satisfactory account of how those international relations should be organized.

Kant's hypothetical social contract theory

Kant has shown that people who remain in proximity, and in the natural condition relative to others, can be forced to join together with others in a state. Before one can understand what Kant thinks is entailed in forcing someone to join a state, one must understand what Kant thinks is entailed in being a member of a state, and how this membership is manifest. These issues are all addressed by what might best be described as a hypothetical social contract theorist.

Kant's hypothetical social contract theory follows from his *a priori* reasoning about human beings, and his recognition of both the rights of human beings, and the impossibility of realizing those rights outside of a state:

> A state *(civitas)* is a union of a multitude of men under laws of justice. Insofar as these laws are necessary a priori and follow from the concepts of external justice in general (that is, are not established by statute), the form of the state is that of the state in general, that is the Idea of the state as it ought to be according to pure principles of justice. This Idea provides an internal guide and standard *(norma)* for every actual union of men in a commonwealth.
>
> (*MM*, 77)

Kant is concerned with the Idea of the state, which is based on *a priori* necessary laws of justice, and thus ought to serve as the blueprint for all actual states. It is the possibility of deriving the state *a priori* that grounds the possibility of a hypothetical social contract theory.

Kant is a social contract theorist, maintaining that one's political obligations can only result from one's having consented, along with others, to be subject to the authority of the state. Kant, however, departs from the more traditional social contract theorists in that he does not

think that this consent is actual, either explicit or tacit. Thus, Kant's social contract theory is best described as hypothetical, to distinguish it from those theories according to which people must actually manifest their consent through their behavior. Under Kant's hypothetical social contract, human beings can be treated *as if* they have consented to the social contract, because their consent is a necessary manifestation of their humanity, i.e. it is known *a priori* that, inasmuch as a being is rational, and one to whom the concept "human" applies, this being necessarily consents to the social contract. Thus, Kant says that being a member of a state is a "requirement of pure reason, which legislates *a priori*" ("TP," 73).

It is in accord with this pure reason that people are parties to the social contract, and organize themselves into a state. Being organized into a state, however, does not require that individuals actually apply their own reason and recognize the necessity and the legitimacy of the state; rather, the state is legitimate because *a priori* reason reveals it to be so: "The act by means of which the people constitute themselves a state is the original contract. More precisely, it is the Idea of that act that alone enables us to conceive of the legitimacy of the state" (*MM,* 80).

Kant places himself in the contract tradition through his reference to the "original contract." However, he then avoids any reliance on the actuality of this contract, and introduces what I have called a hypothetical social contract theory. It is not any actual social contract, to which people have actually consented either explicitly or tacitly, that lies at the foundation of the state and accounts for its legitimacy. Rather, it is the "Idea" of the original contract, a necessary idea of *a priori* pure practical reason that must, therefore, necessarily be assented to by all human beings inasmuch as they manifest their rationality, that provides the foundation of the state, and accounts for its legitimacy.

All that is required for one to be a member of a state, remembering that it requires no actual consent, is to exist in a condition in which each individual has the rights and obligations that are necessary for the maintenance of a just condition, and which are enforced by the state through coercion. In fact, Kant argues that even if the state does not enforce exactly those rights and obligations that are necessary for the maintenance of a just condition, people must still accept its authority (for reasons that will be revealed shortly). In any case, membership in the state amounts to nothing more than the fact that citizens have an obligation to obey the law, and will be punished if they do not. There is nothing that manifests citizens' membership in the state save the fact that *a priori* pure practical reason requires people, as intelligible beings, to subject themselves to this system of laws, and that people, as sensible or physical beings, are actually subjected to the authority of the state.

What about those people existing either within the borders of the state, or otherwise in proximity, who, as intelligible beings, do not recognize the *a priori* practical necessity of subjecting themselves to the authority of the state, and, therefore, as sensible or physical beings, do not necessarily obey the authority of the state? Kant has said that such people can be forced to join the state. But, since there is no particular behavior by which people actually manifest their consent to the social contract, there is no act that people can be forced to perfom that will manifest their joining the state.

In the end, what it is to force such people to join the state can be seen by considering why it is necessary to do so. The fact that such people, as intelligible beings, do not recognize the *a priori* practical necessity of the state is irrelevant, since justice is concerned with only the external relations among persons. The fact that such people, as sensible or physical beings, do not obey the authority of the state, however, means that, were they members of the state they would have been subjected to coercion, as necessary, to maintain the condition of justice. Membership in the state amounts to nothing more than being subject to the threat of coercion in response to violations of the law. Kant's claim, that people who do not accept the authority of the state should be forced to join the state, really amounts to the claim that, in accord with the hypothetical social contract that they necessarily accept insofar as they are rational beings, they should be treated as members of the state.

Kant on rebellion and resistance

Kant has argued from the fact that people have an innate right to external freedom, and the fact that this freedom is not violated by the use of coercion against someone who is violating the freedom of another, to the fact that people can be treated as if they were parties to an original contract by which they agreed to accept the authority of the state. The idea of an original contract, however, not only explains the political obligations of the members of a state, but also accounts for the limitations that exist on the authority of the state:

> [The original contract] is in fact only an *idea* of reason, which nonetheless has undoubted practical reality; for it can oblige every legislator to frame his laws in such a way that they could have been produced by the united will of a whole nation…. This is the test of the rightfulness of every public law. For if a law is such that a whole people could not *possibly* agree to it…it is unjust; but if it is at least

> *possible* that a people could agree to it, it is our duty to consider the law as just, even if the people is at present in such a position or attitude of mind that it would probably refuse its consent if it were consulted.
>
> ("TP," 79)

The idea of the original contract, to which all human beings, insofar as they are rational, necessarily consent, includes restrictions on the possible legislation of a legitimate state. Basically, legislation is legitimate if it would be possible for the people to consent to it. The fact that the people would be likely to choose not to consent to a given piece of legislation is not relevant to its legitimacy, provided that it does not require the violation of a perfect duty, and, thus, could at least possibly receive the people's consent.

Accordingly, it would not be surprising if Kant went on to argue that rebellion and resistance against a state whose laws are legitimate is absolutely prohibited, but that it is permissible to rebel against a state that passes unjust legislation, or at least to resist the specific unjust laws. Such a position would be consistent with the fact that Kant, on certain grounds, applauded the French Revolution. This line of reasoning is also supported by a passage in which Kant implies that resistance to illegitimate legislation, which requires the violation of a perfect duty, is permissible, or even required: "When men command anything which is itself evil (directly opposed to the law of morality) we dare not, and ought not, obey them."[15] Despite this apparent endorsement of resistance to unjust legislation, however, Kant repeatedly states that rebellion against states that enact unjust legislation, and resistance to illegitimate legislation, are both absolutely prohibited. At first blush this is rather surprising. After all, Kant's interest in the state is grounded in his concern for the development of morality, which fundamentally entails the autonomy of the individual, and, yet, submission to an unjust state seems undeniably to entail the violation of morality and the denial of individual autonomy. Nevertheless, Kant's arguments for the absolute prohibition against rebellion and resistance are well grounded in his most fundamental concerns.

Kant's absolute prohibition against rebellion and resistance, while holding a theory of illegitimate legislation, is evident. He says that "the people too have inalienable rights against the head of state, even if these cannot be rights of coercion" ("TP," 84). Kant both recognizes that there are things beyond the legitimate authority of the state, and asserts that the people cannot use coercion in response to such transgressions. The absolute nature of this prohibition is stated unequivocally: "it is the people's duty to endure even the most intolerable abuse of supreme authority" (*MM,* 86). Another passage both expresses this absolute prohibition, and begins to reveal Kant's justification for it:

> It thus follows that all resistance against the supreme legislative power, all incitements of the subjects to violent expressions of

> discontent, all defiance which breaks out into rebellion, is the greatest and most punishable crime in a commonwealth, for it destroys its very foundations. This prohibition is *absolute*.
>
> ("TP," 81)

Kant not only thinks that the prohibition against rebellion and resistance is absolute, but that it must be absolute, because rebellion and resistance destroy the very foundations of a state. Even a state that is unjust must be supported because the state is necessary for the realization of the innate right to external freedom, and to rebel or resist any state is to act on a maxim that makes all states insecure:

> For such resistance would be dictated by a maxim which, if it became general, would destroy the whole civil constitution and put an end to the only state in which men can possess rights.
>
> ("TP," 81)

> For such procedures, if made into a maxim, make all lawful constitutions insecure and produce a state of complete lawlessness *(status naturalis)* where all rights cease at least to be effectual.
>
> ("TP," 82)

In his political philosophy, Kant argues for the necessity and the legitimacy of the state because, without a state, the rights that people have under the innate right to external freedom cannot be secured, and humanity will not progress toward the ultimate and final ends of nature. Rebellion and resistance, however, entail the adoption of maxims that make the state impossible, rights ineffectual, and the hope for human progress vain. Thus, it is only if people live within secure states, that are themselves members of a healthy federation of states, that humanity can possibly progress toward the ultimate and final ends of nature, the complete development of human culture and the attainment of moral perfection.

NOTES

1 For Kant these identities are necessary, thus obviating the claim that he is substituting into an intentional context.
2 *FMM* stands for Kant, *Foundations of the Metaphysics of Morals,* 2nd edn, revised, trans. L.W.Beck (New York: Macmillan, 1959).
3 Kant wouldn't consider this correspondence mere coincidence, but space does not permit a discussion of its grounds.

4 It is clear that by "humanity" here Kant is referring to rational beings generally.
5 Kant argues only that insofar as we think of rational beings as actors in the world, i.e. from the point of view of practical philosophy, can we argue that these beings are free. This argument does not constitute a theoretical proof of the freedom of rational beings.
6 *MM* stands for Kant, *The Metaphysics of Morals,* the Preface, Introduction, and most of Part I ("Doctrine of Right") of which constitute *The Metaphysical Elements of Justice,* trans. J.Ladd (New York: Macmillan, 1965).
7 The word that is here translated as "jurisprudence" is the same word as is translated "doctrine of right," but the former corresponds to colloquial English. Furthermore, the root of this word, *"Recht,"* can be translated as either "right" or "justice" depending on the context. Thus, the "Doctrine of Right," Kant's theory of jurisprudence, is concerned with those duties that are duties of justice.
8 There is rather good evidence both for and against this claim; however, I think that much better sense can be made of Kant's political philosophy on the assumption that it is correct.
9 *CJ* stands for Kant, *Critique of Judgment,* trans. W.S.Pluhar (Indianapolis: Hackett, 1987).
10 "UH" stands for Kant, "Idea for a Universal History with a Cosmopolitan Purpose," in *Kant's Political Writings,* 2nd edn, ed. H.Reiss, trans. H.B.Nisbet (Cambridge: Cambridge University Press, 1991).
11 Kant, *Lectures on Ethics,* trans. L.Infield (Indianapolis: Hackett, 1963), pp. 117–18.
12 Kant, Reflection 7647 (my translation), in *Kant's gesammelte Schriften,* 29 vols, ed. Deutschen (formerly Königlich Preussische) Akademie der Wissenschaften (Berlin: de Gruyter [and predecessors], 1902–), Vol. 19, pp. 476–7.
13 "PP" stands for Kant, "Perpetual Peace: A Philosophical Sketch," in *Kant's Political Writings,* op. cit.
14 "TP" stands for Kant, "On the Common Saying: 'This May be True in Theory, but it does not Apply in Practice'," in *Kant's Political Writings,* op. cit.
15 Kant, *Religion within the Limits of Reason Alone,* trans. T.M.Greene and H. H.Hudson (New York: Harper & Row, 1960), p. 90 n.

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CHAPTER 4

Kant: *Critique of Judgement*

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Kant's third *Critique,* the *Critique of Judgement,* was published in 1790 and was intended—as he himself put it—to bring his "entire critical undertaking to a close." So conceived, it was certainly in part designed to build upon and develop ideas that had already been introduced in its two predecessors but which he had come to regard as requiring further elaboration and supplementation. Thus Kant included in its ambitious scope wide-ranging discussions impinging upon the spheres of scientific enquiry, ethics, and religion, his aim being to approach these apparently diverse realms within a perspective distinguishable in significant ways from any he had hitherto adopted. At the same time, however, it should be recognized that the book was composed not only in the light of theses he had advanced in his own previous writings. For it may also be seen as involving responses or allusions to positions that had been put forward by other thinkers and which had attracted considerable attention among his contemporaries. This was especially true in the case of aesthetics, an area he had not so far subjected to systematic critical scrutiny; but they arose as well both from developments in the emergent biological sciences and from theoretical studies relating to history and to the nature of social change. Further, and at a more general level, Kant was sharply aware of recent contributions to the existing climate of opinion that had been made by philosophers who wished to challenge many of the rationalistic assumptions associated with the eighteenth-century *Aufklärung,* particularly those felt to threaten or undermine cherished dogmas of religious orthodoxy. All in all, German thought in the 1780s can be said to have been the focus of a variety of competing intellectual preoccupations and trends. Hence it is hardly surprising that his own treatise, appearing at the end of an ideologically turbulent decade, bore the imprint of current

controversies, some of which had indeed been sparked off by the publication nine years earlier of the *Critique of Pure Reason* itself.

The outcome of these disparate concerns and influences was a complex and seminal work. It was also, at least in certain respects, an elusive one. The sections into which the *Critique of Judgement* is divided fall into four main groups, each centering round a dominant topic or theme. But although the individual subjects treated are of great intrinsic interest, they are apt to strike the reader as belonging to markedly different categories; moreover, the actual manner in which some of the constituent sections are suppose to fit together is not always easy to discern. It may therefore be tempting to regard the book from one point of view as amounting to a series of somewhat loosely related essays rather than as representing a unified enquiry controlled by a single overarching objective. Nonetheless, Kant makes it pretty clear at the outset that this was not how he himself envisaged the project on which he was engaged. Instead, he presents it as following a course determined by, and closely integrated with, the overall plan informing his earlier investigations, the assumed connection deriving from the theory of mental powers or faculties in terms of which he tended to articulate the basic principles governing human thought and conduct. The functions of two of those faculties—namely, understanding and reason—had already been examined and their respective provinces charted. Thus in the Preface he writes that his first *Critique* was largely devoted to analyzing the role of the understanding in supplying the *a priori* principles essential to our cognitive experience; while in the second he demonstrated how reason—here identified in its practical employment as the source of moral prescriptions—performed a comparable *a priori* role in legislating at the level of human action and desire. He now maintains that a third faculty remains for consideration which forms "a middle term" between the other two and whose claims as a possible source of independent *a priori* principles have still to be assessed. The faculty in question is the power of judgment *(Urteilskraft),* the important issues its mediating position raises indicating that a further *Critique* is called for. Accordingly, and with the completion of his system in mind, it is this that Kant sets out to provide. Let us see how he proceeds, beginning with the contents of the formidable Introduction which in effect constitutes the first major division of his new work.

REFLECTIVE JUDGMENT AND THE CONCEPT OF PURPOSE

Kant wrote two Introductions to the *Critique of Judgement,* discarding the first as being "disproportionately extensive" and replacing it with the shorter version he decided to publish in its stead. Even in its abbreviated

form, however, it amounts to an involved and demanding piece of work, containing retrospective references to conclusions so far reached in his philosophy as well as anticipations of matters he intends to cover in the main body of the text that is to follow. Since it is in terms of the former conclusions that he offers a preliminary clue to what he conceives to be a guiding concern of the present *Critique,* it will be best to start with his somewhat condensed remarks in that connection. For they indicate that his conception of judgment as playing a mediating role between understanding and reason was intimately linked to a distinction which was fundamental to the doctrine of transcendental idealism propounded in his previous writings.

This was the radical contrast he had drawn between the realm of empirical phenomena, comprising reality as it appears to us as cognitive subjects endowed with a certain sensory and intellectual apparatus, and a postulated non-empirical realm of noumena or "things in themselves." So far as the phenomenal sphere was concerned, Kant had argued that our familiar awareness of a spatio-temporal and causally governed world of perceivable entities and events presupposed a framework of universal forms and categories which was imposed upon the data or raw material of sensation by the human mind. Such an *a priori* framework determined the basic structure of the empirical consciousness, constituting the conditions upon which all everyday and scientific knowledge depended for its possibility. At the same time, it must clearly be understood that any knowledge we might legitimately claim to possess of reality was confined to the sphere of observable nature, i.e. to what fell within the scope of sensory experience: it did not extend to the noumenal realm, the latter being a supersensible field that was necessarily inaccessible to theoretical cognition or investigation. However, it did not follow that the notion of the supersensible had no substantive part to play in our thought. On the contrary, Kant regarded it as being crucial to the conception we were obliged to have of ourselves when considered from a practical and, more specifically, a moral point of view. For here it was essential that we should think of ourselves as possessing free will and as being thereby able to act in compliance with practical imperatives prescribed by reason as opposed to following the natural promptings of sensuous impulse or inclination. Such a capacity for rational self-determination appeared to be excluded on the supposition that we belonged solely to the phenomenal domain, since on Kant's own principles everything occurring within that sphere was subject without exception to the laws of natural causality. On the other hand, the requirements of morality could be preserved if it were accepted that there were two aspects under which people might be viewed, the first of which involved treating them as items in "the world of sense" and the second of which involved regarding them as belonging to the "intelligible"

or supersensible sphere which necessarily lay outside the range of the causal categories that were universally applicable within the empirical realm. Thus, while from a theoretical standpoint we were indeed bound to consider ourselves as governed by natural laws, from the standpoint of practical motivation and choice we could at the same time consistently conceive of ourselves as exercising freedom and rational autonomy of the kind presupposed by the moral consciousness. Kant was careful to point out that the latter conception, depending as it did for its possibility upon our membership of the supersensible as well as the natural world, was not capable of being cognitively established; for nothing whatsoever could be *known* by us at the level of noumenai reality. Nonetheless, the "two-world" doctrine invoked might be said to leave room for the idea of human free will in a way that rendered it compatible with the acceptance of a fully deterministic account of nature, thereby resolving an antinomy commonly believed to arise between the claims of scientific enquiry and the presuppositions of ethical thought.

Problematic though it has often been felt to be, the above solution to this apparent conflict was certainly the one that Kant had adopted in his two preceding *Critiques*. And it recurs in the Introduction to his third inasmuch as he speaks there of theoretical understanding and practical reason as having "two distinct jurisdictions," neither of which need be thought of as interfering with the other—"it is possible for us at least to think without contradiction of both these jurisdictions, and their appropriate faculties, as coexisting in the same Subject" (Introduction, p. 13). However, although in the present context he briefly refers to this thesis as having been established in the *Critique of Pure Reason,* at the same time he indicates here that it leaves in its wake a further issue whose significance has still to be faced. For it raises the question of what connection, if any, may be presumed to exist between the spheres of natural necessity and practical freedom, given their supposed independence. Kant certainly writes of there being "a great gulf fixed" between the provinces to which the concepts of nature "as the sensible" and of freedom "as the supersensible" respectively apply, the first of these being "powerless" to exercise an influence upon the second. The fact remains nonetheless that the two realms cannot be thought of as totally insulated from each other, for it is a condition of moral agency that the principles and objectives which reason prescribes should be understood to be realizable in the phenomenal world, achieving expression within the empirical course of events. As he himself goes on to say: "the concept of freedom is meant to actualize in the sensible world the end proposed by its laws," and he holds it to follow that nature must be "capable of being regarded in such a way that in the conformity to law of its form it at least harmonizes with the possibility of the ends to be effectuated in it

according to the laws of freedom" (ibid., p. 14). In other words, we should be able, though without violating the principle of natural causality, to consider the phenomenal domain under an aspect that would allow us to view it as amenable to the behests and aims of morality; at the very minimum, it would not present itself as being wholly allen to the fulfillment of the latter. Such an aspect is specifically connected by Kant with the notion of a purposiveness or "finality" in nature which is supplied by the faculty of judgment; and it is in these terms that he envisages the possibility of judgment's providing a "mediating concept" or requisite link between the two modes of thinking—theoretical and practical—whose spheres of application he has found it essential to distinguish.

The implications of this suggestion, which Kant relates somewhat obscurely to his conception of phenomenal nature as itself having a "supersensible substrate" or noumenal ground, only appear at a later stage of the *Critique* where it is evaluated in the light of certain qualifications to which it is held to be inevitably subject. Within the context of the Introduction, however, its chief importance lies in its being the cue for him to initiate a general account of judgment and its functions. It is necessary to speak in the plural of its role, since Kant certainly regards the power of judgment as operating at more than one level of our thought and as being relevant to discriminable philosophical concerns. That, indeed, quickly becomes apparent from the discussion which directly follows and which actually forms the centerpiece of this section of his book. For there it is issues pertinent to scientific procedure, rather than questions arising from reflection on our moral experience, that immediately occupy him. Moreover, it is with reference to such methodological considerations that he first broaches the problem of what kind of *a priori* employment may legitimately be assigned to the mental faculty he has in mind.

Kant opens his account by making a preliminary distinction between what he respectively calls the "determinant" and the "reflective" dimensions of judgment. In both it is said to involve relating universals and particulars, but the manner in which it does so is radically different in the two cases. Thus judgment is asserted to be determinant when it involves applying a "given" universal—that is, a concept or general law known or presupposed in advance—to particulars recognized as falling under it: it was in this sense that Kant referred to judgment in his first *Critique,* where the relevant universals were the formative categories and principles of the understanding and where it was simply characterized as "the faculty of subsuming under rules." He now wishes to compare that capacity with another one in which the above process is, so to speak, reversed; here it is the particular, or particulars, that is or are given, the

task of judgment being taken instead to consist in seeking a universal beneath which the latter can appropriately be brought. Engaging in such a task is the business of reflective judgment, and it is with the operations of judgment so understood that Kant is presently concerned.

What does this amount to in less abstract terms? As we have seen, it was central to the standpoint Kant adopted in his critical philosophy that everything falling within the sphere of empirical reality conformed to an overall framework whose universal applicability to phenomena was transcendentally guaranteed. And, since the forms of order embodied therein were constitutive of all objective experience, it followed that they must be taken to hold of whatever occurred within the areas explored by the empirical or natural sciences. However, it was one thing to recognize the *a priori* validity for any experience of such a categorical principle as that every event must have a determining cause. It was quite another to discover *from* experience what particular causal laws or regularities actually obtain within a given domain and to try to identify their possible connections and interrelations. Neither enquiry can be undertaken without recourse to the findings of empirical observation and scrutiny, but Kant lays especial stress on the second as expressing something that he considers to be intrinsic to the very notion of scientific thinking. That is the idea of system.

The claim that "systematic unity is what…raises ordinary knowledge to the rank of science" had already been emphasized in the first *Critique* in connection with what was there called "the logical employment of reason." Here Kant takes it up, though with the difference that the exercise of judgment is implicitly substituted for that of theoretical reason. At the level of everyday life there are innumerable generalizations which reflect the "manifold forms of nature" and which may be said to contribute to the stock of our ordinary or commonsense knowledge of the world. Even so, a mere aggregate of such perceived regularities, however comprehensive, is never by itself sufficient to qualify as a science. To satisfy that description, and to meet theoretical requirements of the kind deemed essential to scientific understanding, it is necessary that the relevant empirical laws should be seen to constitute an interdependent and hierarchically related system; as Kant puts it, from this point of view it is essential to establish "the unity of all empirical principles under higher, though likewise empirical, principles, and thence the possibility of the systematic subordination of higher and lower" (Introduction, p. 19). And that leads him to formulate what he conceives to be a fundamental presupposition of scientific enquiry. For he goes on to maintain that to embark upon such a project is to proceed on the assumption that the multiplicity of naturel laws will be found to exhibit a unitary order which is intelligible to the human mind, so that it is as if "an understanding

(though it be not ours) had supplied them for the benefit of our cognitive faculties." Nature, in other words, must be approached as though its workings were purposively adapted to our intellectual capacities and powers of comprehension, this being a conception which he specifically ascribes to reflective judgment. And in so ascribing it he at the same time contends that it amounts to an *a priori* principle possessed of an independent validity in its own right.

Kant is insistent that the distinctive status of the principle in question, together with that of subsidiary "maxims of judgement" like those which attribute economy and continuity to nature's operations, should be fully appreciated. In his own terminology, it is not "constitutive": unlike the transcendental rules imposed by the understanding, it does not represent a necessary condition of phenomenal reality as such, being prescriptively related to our modes of empirically investigating nature rather than being objectively determinative of the natural realm considered in itself. Nor, Kant holds, does it justify us in affirming the existence of an actual designer in the form of a divine or superhuman intelligence responsible for harmonizing the natural world with the needs and capacities of our finite intellects. Instead it functions purely as a principle of enquiry which, while *a priori* in the sense of being something brought to rather than derived from experience, is only "regulative" or heuristic in character. Nevertheless, although we can never justifiably claim to know that nature objectively conforms to a purposively conceived order of the sort postulated, we are subjectively obliged even so to pursue our investigations *as if* it did. For otherwise scientific thought and research, conceived as a quest after system within the *prima facie* untidy conglomeration of facts and regularities that empirically confronts us, could not be meaningfully undertaken: "were it not for this presupposition we should have no order of nature in accordance with empirical laws, and, consequently, no guidingthread...for an investigation of them" (Introduction, p. 25). It appears, therefore, that a view of nature invoking purposive conceptions—which, as was intimated earlier, might ultimately be found to serve judgment as a means of mediating between the spheres of freedom and natural causality—can at least be said to have received positive, if limited, endorsement within the context of scientific methodology. For here it is taken by Kant to underlie, as an indispensable regulative idea, the general project of comprehending phenomena within a unitary scheme of interconnected laws. It has, moreover, a further implication to which he briefly alludes. For it follows from the account he has given that, although as scientists we must always conduct our enquiries on the supposition that nature is adapted to meet our systematizing ambitions, we cannot in this case—as we can in the case of its conformity to the categories of the understanding—have any guarantee

that it will necessarily do so; if on a particular occasion it turns out to accord with our theoretical concerns, that can only be for us a contingent result. But the attainment of every objective where failure is possible is accompanied by a feeling of pleasure. Hence whenever the scientific quest after systematic unity is crowned with success, such an achievement is bound to be pleasing: the discovery, Kant notes, "that two or more empirical heterogeneous laws of nature are allied under one principle that embraces them both is the ground of a very appreciable pleasure" (ibid., p. 27). Thus it emerges that the exercise of judgment can be viewed as being intimately connected with the experience of a certain kind of pleasurable feeling, one that has its source in the satisfaction afforded to our faculties of cognition rather than in the fulfillment of any practical aims or desires we may happen to entertain.

The above concludes what Kant has to say in the Introduction about the part played by reflective judgment in rendering the scientific enterprise possible. In effect, it constitutes a prelude that leads—admittedly somewhat obliquely—to the two central sections of his *Critique,* the first comprising a comprehensive analysis of judgment in relation to the aesthetic consciousness and the second a discussion of its role that focuses chiefly on the interpretation of organic phenomena of the sort studied in biology. At first sight these might seem to represent very dissimilar fields of interest. Nevertheless, they are both ones in which Kant again treats the idea of purposiveness as occupying a pivotal position. Furthermore, the intellectually oriented conception of pleasure he associated with the use of reflective judgment in scientific contexts may be regarded as anticipating, if only in some respects, a notion that lies at the heart of his aesthetic theory.

AESTHETIC JUDGMENT AND EXPERIENCE

Kant's concern with aesthetics—the subject to which Part I of the *Critique of Judgement* is exclusively devoted—was by no means new. It is true that his appreciation of art itself was limited in both scope and depth. That was especially so in the case of music, to whose appeal he appears to have been largely insensitive; yet even with regard to literature he seems to have confined himself to a somewhat narrow diet, while his lifelong residence in the city of Königsberg meant that he had practically no direct awareness of what had been achieved in the spheres of painting, sculpture, or architecture. All the same, these constraints did not prevent him from taking a considerable interest in the nature and sources of aesthetic experience. He had long been familiar with eighteenth-century writing on

aesthetic matters, an essay he published in 1764 on the feeling of the beautiful and sublime suggesting that by that time he was already broadly acquainted with the contributions made by such British thinkers as Hutcheson, Addison, and Burke. He referred, however, to the piece in question as having been undertaken "more with the eye of an observer than a philosopher," and it was in fact only when he returned to the topic more than two decades later that he felt able to accord it the type of theoretical treatment it merited.

This was due to the circumstance that during the years immediately preceding the composition of the third *Critique* Kant underwent a fundamental change of mind concerning the character of aesthetic claims. Generally speaking, he regarded earlier theorists, who included men like Baumgarten, Lessing, and Hume, as having tended to favor one or other of two radically opposed approaches to what these involved. Either they viewed them as being essentially related to psychological reactions or sentiments which were subject to a purely empirical investigation, or else they interpreted them instead as answerable to conceptual criteria or rules in a way that implicitly assimilated them to the status of cognitive assertions about objective reality. While he had previously been inclined to sympathize with the first position, Kant was now of the opinion that neither of them was finally acceptable. Both distorted what was basically at issue, each—though in contrasting ways—failing to do justice to distinctive peculiarities of judgments of taste that rendered them problematic. He therefore concluded that it was necessary to provide a fresh analysis of their implications, one that was designed moreover to show that the possibility of such claims ultimately depended upon the satisfaction of certain *a priori* conditions. Given that he had at the same time come to regard aesthetic appreciation and the pleasure it afforded as representing a specific form in which reflective judgment manifested itself, this was not an unexpected aspiration.

Beauty and the problem of taste

Many of the elements central to Kant's revised account are set out in the section that opens this part of the *Critique* and is called "Analytic of the Beautiful." As its title indicates, he considers the judgments with which he is dealing to be propositions ascribing beauty to things, subdividing his discussion of them into four "moments"—quality, quantity, relation, and modality—which purport to elucidate their essential nature under distinguishable aspects. Although schematically separated, however, the different features thereby identified tend (some-what questionably) to be

spoken of as logically interdependent, and Kant also introduces additional points about their import that await clarification or elaboration further on in the book. Thus close attention to the order and detail of his exposition at this stage is liable to encounter obscurities or uncertainties that raise difficulties of interpretation. Nonetheless, and despite such complications, it is possible to view what he writes as contributing to a developing pattern of argument whose general tenor and purpose become evident as he proceeds.

Right at the beginning of the "Analytic" Kant makes it apparent that he wishes to draw a sharp distinction between aesthetic judgments and ones that are objectively cognitive; to that extent at least he is in agreement with previous theorists who adopted a basically subjectivist position. Judgments of taste are not concerned with, nor can their truth be determined by reference to, observable properties of phenomena in the sense in which those may be said to underlie claims to knowledge about how matters stand in the world. Rather, they crucially have to do with the manner in which particular representations affect us so as to produce a "feeling of pleasure or displeasure," the latter being something that "denotes nothing in the object." It follows, Kant thinks, that aesthetic judgments are ones whose "determining ground *cannot be other than subjective,*" and he goes on to stress the contrast between, on the one hand, apprehending a building from a strictly cognitive standpoint and, on the other, being "conscious of this representation with an accompanying sensation of delight" (Part I, pp. 41–2). *Qua* subjective feeling, such a pleasurable reaction can contribute or add nothing to our knowledge of the building considered as an independent object of perception; it is, however, indispensable as forming the basis of a favorable judgment of taste.

It appears, then, that pronouncing something to be beautiful necessarily implies finding it to occasion an experience of satisfaction. But satisfaction of what kind? Unlike some of his predecessors, who had also assigned pleasure a central place in their accounts, Kant was not content merely to regard the notion as referring to an isolable mental state, identifiable apart from the varying conditions of its occurrence. We have seen that traces of a different approach were already discernible in the Introduction to the *Critique;* but it is only here, where Kant emphasizes the need to discriminate the type of enjoyment intrinsic to the appreciation of beauty from the kinds of satisfaction experienced in other contexts, that it is explicitly formulated and developed. Thus he insists that the delight relevant to such appreciation must be carefully distinguished from pleasures which are, as he puts it, "allied to an interest" and which presuppose the presence of determinate appetites or wants on the part of the subject. Pleasures of the latter sort fall into two main groups,

respectively categorized as ones that relate to the agreeable and ones that relate to the good. So far as the agreeable is concerned, Kant singles out immediate pleasures of sense, speaking at the same time as if these involved the gratification of particular desires or inclinations. By contrast, pleasure in the good is not a matter of sensuous enjoyment, the satisfactions in question being determined instead by rational considerations of a characteristically practical nature—we may, for instance, be pleased by something's serving a certain purpose or again by its meeting certain standards or requirements we have in mind, including those prescribed by morality. Delight in the beautiful, however, stands on a completely different footing from either of the above. It derives from no specifie interest, whether sensuous or practical, that we may take in the existence of a given object or state of affairs. On the contrary, our attention in this case is directed solely to what strikes us as worthy of contemplation in its own right, the pleasure afforded being dependent neither upon sensory gratification nor upon a recognized conformity to the demands of practical rationality or volition. Hence it can be said that, of the triad of delights mentioned, taste in the beautiful constitutes "the one and only disinterested and *free* delight; for with it, no interest, whether of sense or reason, extorts approval" (Part I, p. 49). It is related to "favour," as opposed to "inclination" or "respect," and "favour is the only free liking."

The view that an attitude of disinterested contemplation is essential to aesthetic appreciation is one that has acquired widespread currency since Kant's time. He may not have been alone among eight-eenth-century philosophers in subscribing to it, but he was certainly the most explicit and influential of its original proponents. He saw it, moreover, as having a significant bearing upon a feature of judgments of taste that was vital to a proper interpretation of their meaning. For he thought that, if the delight we take in a particular object is believed to owe nothing to conditions or preoccupations peculiar to ourselves, we feel we have reason for claiming that it should elicit a similar delight from everyone. And it was just such a claim to general agreement that he held to be necessarily embodied in aesthetic appraisals, a claim which he initially encapsulated in the contention that "the beautiful is that which, apart from concepts, is represented as the object of a *universal* delight" (Part I, p. 50). The grounds and implications of this contention are examined and explored in the second and fourth "moments" of the "Analytic."

The fact that we are typically prone to speak as if beauty were a quality of things in the world is pertinent to what Kant has in mind. As one might expect, he implies that such a form of words is misleading insofar as it suggests that aesthetic judgments can legitimately be assimilated to objective judgments of a cognitive kind. Nevertheless, it is also revealing

in pointing to a genuine analogy between the two; for the former, despite being subjectively founded on feeling, resemble the latter in that they "may be presupposed to be valid for all men." This becomes apparent, Kant thinks, if one compares the ways in which we refer to the merely pleasant or agreeable, where what we say is restricted in scope to our own private sensations, with the pronouncements we make about the beautiful, these being understood to have universal import in that they lay claim to the assent of others. Appealing to ordinary usage, Kant argues that when someone says that a particular wine is agreeable he will readily admit that he is asserting no more than that it is agreeable *to him*. There is therefore no contradiction between his judgment and a divergent judgment about its agreeableness expressed by somebody else, with the consequence that neither can properly criticize or condemn the taste of the other as "incorrect": here, as in all cases of what is found personally pleasing to our various senses, the familiar dictum "Everyone has his own taste" holds good. When, on the other hand, we turn to ascriptions of beauty, the situation markedly changes. A person cannot in the same fashion confine him-or herself to saying of, for example, a building or a poem, "It is beautiful *for me,*" as if that again were just a matter of the pleasure it happened to give them. For, according to Kant,

> if it merely pleases *him,* he must not call it *beautiful*. Many things may for him possess charm or agreeableness—no one cares about that; but when he puts a thing on a pedestal and calls it beautiful, he demands the same delight from others. He judges not merely for himself, but for all men, and then speaks of beauty as if it were a property of things.
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> (Part I, p. 52)

Such an implicit call upon the agreement of others, which Kant sharply distinguishes from a mere empirical conjecture as to how they are likely to react, explains how it is that divergent judgments of beauty, as distinct from ones concerning the agreeable, represent genuine instances of conflict. For here we express ourselves as if we were entitled to their assent; in his own words, we "formulate judgements demanding this agreement in its universality," and if it is not forthcoming we are apt to regard those who dissent as being mistaken or wrong—we do not shrug off its absence as simply a difference in individual response. To that extent, then, aesthetic appraisals may justifiably be likened to cognitive judgments about matters of fact, where a similar claim to universal acceptance is implied and where divergences of opinion give rise to imputations of error.

There, however, the apparent resemblance ends. For the validity to which aesthetic appraisals lay claim is subjective only; as such it in no way

depends upon the use of concepts, whereas these play an essential role in ascribing validity to cognitive judgments about items in the world. Judgments of the latter type, in addition to presupposing the formal conditions imposed by the categories, necessarily involve subsuming what is perceptually presented under determinate empirical concepts whose applicability to the given is governed by publicly recognized rules. The validity of a particular cognitive claim is thus objectively decidable according to whether what it purports to denote and describe has been correctly characterized in a manner that conforms to the relevant rules or criteria. But it is Kant's emphatic contention that judgments of taste cannot be understood or assessed in these terms: "in forming an estimate of objects merely from concepts, all representation of beauty goes by the board," appeals to specific rules or principles as a means of compelling agreement or resolving disputes in aesthetic contexts being out of place (Part I, p. 56). If that were not so, aesthetic judgments would—as certain theorists have earnestly hoped—be "capable of being enforced by proofs." Yet their hopes are vain, disregarding as they do something that is intrinsic to the very notion of aesthetic appraisal and failing which nothing can rightfully qualify as a judgment of the kind in question. For, as Kant has already insisted, what is crucial in grounding such a judgment about a given object is the pleasure we subjectively experience when we contemplate it; we must "get a look at the object with our own eyes, just as if our delight depended on sensation." If the requisite delight is lacking we cannot properly or sincerely pronounce the thing to be beautiful, nor *a fortiori* can agreement that it is be wrung from us by others, however numerous they may be and whatever supposed "rules of beauty" laid down by distinguished critics they may invoke in their support. As he puts it elsewhere, in such circumstances I can only "take my stand on the ground that my judgement is to be one of taste, and not one of understanding or reason" (ibid., p. 140). The contrast with the claims to validity implicit in cognitive assertions could not, it would appear, be more trenchantly affirmed.

Nevertheless, and as Kant himself was well aware, the position he had reached raised a considerable problem from a philosophical point of view. If aesthetic appraisals differed from expressions of personal liking in claiming universal and—as he further maintained—necessary agreement, and if they differed from cognitive judgments in virtue of their essentially subjective orientation, the question inevitably arose as to whether, and if so in what manner, they could be said to be justifiable. It was one thing to offer an analysis that aimed to exhibit their logical and epistemological peculiarities. It was another to contend that, given such features, we were actually entitled to make them. In our ordinary practice we might speak as if we were, but with what right? When I say of an object that it is of a

certain shape or dimensions, there are determinate criteria to which reference can be made; granted that its empirically identifiable properties satisfy them, I may legitimately require general assent. When, on the other hand, I call it beautiful, it is intersubjective agreement in response, not agreement in objective description, that is centrally at issue. And here, it seems, I have ultimately to consult and rely upon my own felt reactions to the thing, "to the exclusion of rules and precepts" and without the availability of empirical or conceptual proofs. But if so, what valid grounds can I or anyone else possess for purporting to speak with a "universal voice" that lays claim to the concurrence of all? In Kant's own summary formulation of the problem, "how are judgements of taste possible?" (Part I, pp. 144–5).

An early intimation of his approach to the question he posed had already appeared when he was discussing the disinterestedness of aesthetic pleasure and when he there implied that the absence of personal idiosyncrasies in determining our delight might naturally lead us to regard it as resting on what we "may also presuppose in every other person." As originally introduced, however, this seems to be presented as a mere conjecture which is uninformative as to the content of the presupposition referred to and which in any case stands in need of independent substantiation. And much of what Kant wrote in subsequent sections may be interpreted as being designed to provide such substantiation. Thus he went on to argue that a careful examination of the inner nature and sources of our pleasure in the beautiful showed it to be due to the satisfaction of subjective conditions of judgment which must indeed be assumed to be universally present in every human being. Hence if we could be sure that the pleasure we experienced was produced in accordance with these conditions, we should in fact be entitled to call upon the agreement of others in the manner distinctive of judgments of taste. Although his reasoning in support of this conclusion takes an intricate and on occasions bewilderingly circuitous course, the salient points covered are not hard to discern.

What, then, are the "subjective conditions" to which allusion has been made? Kant's answer derives from his faculty psychology and turns on something he calls "the free play of the cognitive powers." In the account of perceptual knowledge originally given in the *Critique of Pure Reason* and briefly recalled in the present work, such cognition was portrayed as involving the operations of both imagination and understanding. The imagination, as "the faculty of intuitions or representations," holds together and synthesizes items of the sensory manifold so as to allow them to be subsumed by the understanding under appropriate concepts; in this connection, therefore, it can be said to be at the service of the understanding, "in harness" to the latter in its task of categorizing and

conceptualizing the presentations of sense. Now it is Kant's contention that the same two faculties are also operat-ive at the level of aesthetic experience. Here, however, there can be no question of there being a specifie cognitive purpose which requires the subordination of the imagination to the ends of the understanding; in consequence, the roles they respectively perform do not conform to this pattern. Instead they should be regarded as engaging or meshing together in a fashion that enlivens or "quickens" both while setting "irksome" constraints upon neither: in the ideal case, that takes the form of a harmonious accord, a mutually satisfying interaction whereby each faculty is proportionately attuned to the other in an unconstrained "entertainment of the mental powers." The resultant "feeling of free play" is one of pleasure, and it is of such pleasure that we are conscious when our experience is of an authentically aesthetic kind.

Kant believed that the above account provided the basis for a "deduction," or justification, of the intersubjective validity to which judgments of taste laid claim. For with those the delight involved was not dependent upon merely contingent capacities for sensuous enjoyment which notoriously varied from individual to individual. On the contrary, it had been shown to presuppose the operation of intellectual faculties that must be presumed to be identical in all human beings as *a priori* conditions if communicable knowledge was to be possible; hence it was pleasure of a type which everybody, in appropriate circumstances and undistracted by irrelevant considerations, could rightfully be expected to share. Kant indicated, moreover, that the position he had advanced had an additional consequence to which he attached great importance, a consequence that concerned the aspects under which an object must strike us if it was to produce the requisite response. In explaining what this consisted in, he introduced the notion of "formal finality" or "purposiveness without a purpose" *(Zweckmässigkeit ohne Zweck)*.

How are these curious expressions to be understood? At first sight Kant might be taken to mean that, in ascribing beauty to products of nature, we are subjectively disposed to think of them as somehow purposively adapted to our faculties but without being thereby justified in asserting this to be actually the case. And that is suggestive of a partial analogy with what he wrote in the Introduction about the conception of nature presupposed by reflective judgment in relation to scientific enquiry. But while in contexts involving natural beauty he is apt to speak in this vein, he also makes it clear that he has something further in mind. For he also argues that for pleasure of the relevant kind to be possible our response must be occasioned by the perceptual *form* an object displays, this form being experienced as manifesting a self-subsistent coherence or order which is apprehended neither as serving an assignable objective end or

utilitarian purpose nor as conforming to some prior notion of what the thing is supposed or intended to be. The point is elaborated in a celebrated distinction drawn between what he respectively calls "pure" or "free" beauty and "dependent" or "adherent" beauty: the first, he writes, "presupposes no concept of what the object should be; the second does presuppose such a concept and, with it, an answering perfection of the object" (Part I, p. 72). Thus if we appreciate a natural product in terms of its suitability to its biological function or a human product in terms of its meeting requirements specific to objects of that type, we are assessing it from the standpoint of dependent beauty and any pleasure we derive there-from partakes of what Kant earlier referred to as being pleasure in the good. In judging something as an instance of free beauty, on the other hand, we are concerned solely with what "pleases by its form," the form in question presenting an appearance of design or purposive organization that is satisfying on its own account and without any reference to identifiable objective ends or preassigned specifications. The latter would introduce considerations of a conceptual or cognitive character, whereas it is essential to formal relationships of the sort proper to a "pure" judgment of taste that they should not be reducible to some "universally applicable formula" and that they should be grasped and enjoyed in a way that is altogether free from the constraint of determinate rules.

In giving examples of objects that impress us with the requisite pleasingness of form, Kant selects as "beauties of nature" certain birds, flowers, and crustaceans; in general, indeed, it is to natural products that he tends to accord precedence throughout this part of his text. But he also illustrates what he has in view by mentioning various human artifacts. Thus abstract "designs à la grecque" and wallpaper patterns are said to be "free beauties" inasmuch as they have "no intrinsic meaning" or representative function—"they represent nothing—no object under a definite concept"; and he further asserts that art forms such as painting and sculpture, where "the *design* is what is essential," and musical works, where "composition" has an analogous status, are likewise capable of disposing the mind to the harmonious interplay of the faculties that is productive of aesthetic satisfaction. Whether his emphasis on exclusively formal features followed from, or was even wholly consistent with, his overall account of the character and grounds of judgments of taste may be questioned. It cannot, however, be denied that his asseverations on that particular score have frequently been seen as anticipating certain substantive critical doctrines which were to achieve considerable prominence more than a hundred years after he wrote. The conception of visual art as pre-eminently a matter of "significant form," popularized early in the twentieth century by British writers like Roger Fry and Clive Bell, has often been cited in this connection. It is noteworthy, too, that the

American critic and advocate of formalism, Clement Greenberg, later explicitly referred to him as a precursor of modernist theory. Such comparisons and parallels are understandable enough if viewed in the context of some of the claims Kant put forward in the "Analytic of the Beautiful." Nevertheless, they accord less comfortably with what he had to say when, in the second of the two main sections into which Part I of the *Critique of Judgement* is divided, he effectively widened the scope of his investigation of aesthetic experience.

The sublime and fine an

Both the title of this lengthy second section and the manner of its organization have—not surprisingly—troubled commentators. Kant called it "Analytic of the Sublime," thereby giving the impression that he would be centrally concerned with sublimity considered as a distinguishable dimension of the aesthetic consciousness. But the heading chosen turns out to be misleadingly restrictive. Not only does the implied contrast with beauty lead him back into picking up and elaborating on matters regarding the status and justification of judgments of taste that had already been alluded to in the preceding section. He also goes on to undertake an extended examination of the nature and value of artistic achievement which reaches far beyond anything suggested by his previous, rather cursory remarks on that topic. And while it is possible to descry some connection between the treatment of art he is now concerned to provide and his treatment of the sublime, the links discernible remain at best tenuous. Following the order of Kant's own account, we shall begin with the latter.

Kant's interest in sublimity as a distinctive aesthetic category dates back to his 1764 essay on its relation to beauty which was mentioned earlier on. As in the case of the beautiful, however, his approach to the sublime underwent a profound transformation, the setting in which his observations were originally framed being replaced by one that eschewed "merely empirical" considerations of the kind adduced by Edmund Burke in his famous study of the subject in favor of a "transcendental exposition" that involved conceptions deriving from Kant's mature critical system. In giving such an exposition, he makes it clear that he does not wish to deny the presence of significant similarities in our appreciation of the two. Thus he claims at the outset that both are "pleasing on their own account" and without reference to any further end. Moreover, judgments of the sublime are like pure judgments of beauty in not presupposing the application of any determinate concept and in the fact that, while being

singular and noncognitive, they nonetheless lay claim to universal validity. Yet, despite these affinities, there are important differences which Kant is at pains to point out. In his eyes, they are sufficiently impressive to make an independent explanation of how sublimity can figure as a recognizable aspect of our aesthetic experience seem an imperative requirement.

The need for such an explanation becomes plain when we compare the satisfaction we take in the beautiful with that aroused by the sublime. As has been seen, the former is held to involve the apprehension of a formal or self-subsistent purposiveness in objects which engages our faculties of imagination and understanding in harmonious free play. Furthermore, so far as natural beauty is concerned we are elevated by the thought of nature as being in some sense ideologically ordered to elicit this pleasurable response, "a finality in its form making the object appear, as it were, preadapted to our power of judgement" (Part I, p. 91). In the case of the sublime, however, nature confronts us in quite another light. For what is striking here is the circumstance that we assign sublimity to natural effects which present themselves to us as limitlessly vast or chaotic in a way that may be totally devoid of form. And this is connected by Kant with additional points of difference. Whereas what we find beautiful in nature is experienced as being happily attuned to our mental faculties, natural products of the kind typically referred to as sublime are said to "contravene the ends of our power of judgement"; they overwhelm our capacity for sensuously taking them in, thereby constituting what he calls an "outrage on the imagination" rather than anything conducive to its unconstrained accord with the understanding. It follows (Kant thinks) that sublimity, unlike beauty, is incorrectly ascribed to the phenomena themselves; for how can what is apprehended as "inherently contra-final" be noted with an expression of approval? Instead, we should properly attribute it to the sentiments and attitudes of mind they evoke in us, these being essentially associated with the presence of rational ideas that exceed the bounds of sensory presentation. As he himself puts it: "the sublime, in the strict sense of the word, cannot be contained in any sensuous form, but rather concerns ideas of reason" (ibid., p. 92).

Kant's stipulations concerning the use of the term, and the accompanying contrast drawn with beauty, consort somewhat oddly with what he says elsewhere about the grounds and subjective orientation of aesthetic judgments in general. Given that—as he here allows—objects can properly be called beautiful in virtue of their aptitude for affecting our faculties in certain ways, why should not the same considerations apply to the phenomena we call sublime, even if these are said to affect them in a radically dissimilar manner? In fact, it is his reference to reason and its ideas that is crucial in the present context and that chiefly underlies the distinction he wishes to make. For, insofar as particular natural

phenomena cause us to entertain conceptions that outrun our powers of imaginative representation, they arouse us to a consciousness of reason as an independent faculty which leads us "to esteem as small in comparison with [its] ideas…everything which for us is great in nature as an object of sense." And that, Kant claims, helps to explain the pleasurable exaltation induced by the sublime, springing as it does from a presentiment of "our superiority over nature" that awakens us to our rational vocation and makes the mind "sensible of the sublimity of the sphere of its own being." Accurately construed, therefore, sublimity "does not reside in any of the things of nature, but only in our own mind" (Part I, p. 114).

The invocation of reason as a separate "supersensible" faculty, which according to his previous *Critiques* is capable of both a theoretical and a practical exercise, underpins the account Kant goes on to give of two different modes wherein the above presentiment is held to manifest itself and which he refers to respectively as the "mathematically" and the "dynamically" sublime. In the case of the first, it is the sheer magnitude and formlessness of what appears before us that is paramount, conveying a perceptually intractable impression of unlimited extent and absence of boundary. But the failure of the imagination to encompass within a comprehensive intuition what is thus intimated to it, and the consequent dissatisfaction we feel in the face of its inadequacy, is counterbalanced by the fact that we are able to grasp in *thought* the notion of the infinite as a totality or "absolute whole," the latter being an indeterminate idea ascribable to reason in its theoretical capacity. Hence the very limitations displayed by the imagination in its fruitless endeavors to measure up to this idea at the level of sensuous representation serve to highlight by contrast the supremacy of our rational powers, indicating that we are endowed with "a faculty of mind transcending every standard of sense" (Part I, p. 102). A broadly analogous conclusion is reached in Kant's discussion of the dynamically sublime, although here the focus is on reason in its practical employment and what he writes assumes a distinctively ethical character. Whereas in the preceding case it was the vast dimensions of certain phenomena that impressed us, it is now the apparently "irresistible might" exhibited by such natural occurrences as violent storms and volcanic eruptions. Like Burke before him, Kant insists that the aesthetic appreciation of nature under this threatening aspect, which brings home "a recognition of our physical helplessness," is only possible when we view it from a position of safety; on the other hand, he fundamentally diverges from his predecessor in the interpretation he offers of the satisfaction involved. That is not (as Burke had implied) due to the moderation of our sentiments which the absence of personal danger produces and which thereby allows us to find pleasantly invigorating and stimulating what would otherwise be experienced as disagreeably

frightening. On the contrary, Kant holds its actual source to lie once again in a sense of the superiority of our rational powers to those of sensibility. This time, however, it is not a theoretical capacity to surpass in thought the limits of the sensuously oriented imagination that he has in mind. Rather, it is a supposed ability at the level of our practical life to respond to hostile or menacing circumstances in such a manner as to withstand the pressures of sensuous inclination. The dynamically sublime, in other words, awakens us to the conception of ourselves as self-determining moral agents who can rise above the solicitations of sensuous impulse and make our conduct conform instead to the principles and ends laid down by practical reason. Thus in experiencing it we are conscious of being more than mere creatures of sensibility—here conceived as a susceptibility to natural desires or fears—and are raised to a presentiment of the pre-eminence of our rational stature. This, moreover, is something we may properly expect of all human beings in virtue of their assumed capacity for moral feeling. It follows, therefore, that judgments of the sublime, like judgments of the beautiful, may rightfully command general assent, although they do so on different grounds.

The emphasis on pride in the supremacy of reason in Kant's theory of the sublime, together with the prominent place he assigned to moral considerations, may not be felt to conform very happily to our intuitive understanding of the concept as applied in aesthetic contexts. In tackling the problems it poses, however, he at least showed a novel insight into their complexity, as well as demonstrating a salutary readiness to extend the range of his enquiry beyond the somewhat narrow limits suggested by his initial analysis of taste. And a similar sensitivity to the variety of forms that aesthetic experience can take emerges in the passages he specifically devoted to the importance and value of art. In his earlier treatment of beauty he had tended to accord paradigmatic status to natural objects, with the accompanying implication that the aesthetic quality of works of art was estimable in comparable terms. Here, by contrast, it is the distinguishing features of the latter that he goes out of his way to stress.

One such feature concerns intentionality. Kant does not retract his original claim that to be beautiful natural objects must convey an impression of formal design, even appearing to us as if they had been "chosen as it were with an eye to our taste" (Part I, p. 217). But that is very different from appreciating something in the knowledge that it is the product of *actual* deliberation, consciously made with a view to affecting us in a manner that will be found satisfying in its own right. Artistic works are intentional in this full-blooded sense and realizing them to be so is vital to their appraisal—"a product of fine art must be recognized to be art and not nature." That is not to suggest that they should look artificially contrived or "laboured"; rather, they must be "clothed *with the*

aspect of nature" in not seeming to owe their creation to an obtrusive observance of constrictive or "mechanical" rules. Thus an unstudied "pleasingness of form," consonant with the conditions of taste, remains a necessary component of artistic worth. But it is not—Kant now insists—sufficient. Acknowledgment of the intentional dimension of art requires us to take account of a further factor, one that relates to the content of a work or to what it is meant to represent.

Reference to the relevance of representational considerations in evaluating artistic achievement certainly constitutes a significant departure from the restrictively formalist preoccupations evident in some of Kant's previous pronouncements on the subject. Yet it would be wrong to conclude from what he writes about artistic representation that he simply had in mind the mimetic reproduction of natural phenomena in another medium, however elegantly or harmoniously that might be accomplished. For his discussion of it is integrally connected with the role he ascribed to "genius" in art, this being described as completely opposed to the "spirit of imitation" and as involving capacities additional to merely technical skills that can be picked up and learned through academic training. Genius, according to Kant, is an esentially original and creative power, exhibiting itself among other things in the portrayal and expression of what he termed "aesthetic ideas": taste may impart a universally pleasing appearance to art, but it is genius, as the source of and ability to communicate such ideas, that animates genuine examples of fine art with "soul" or "spirit." Thus questions concerning the nature of aesthetic ideas and the manner in which they can be presented by artists in a publicly accessible form assume a critical importance in his account. How should what he says about them be interpreted?

In looking for an answer, it is worth noting some remarks Kant makes about their relation to ones of the kind that figured in his theory of the sublime. Ideas like those of absolute totality or transcendental freedom were "indemonstrable concepts of reason" to which nothing could objectively correspond at the level of possible experience and for which a "commensurate intuition" could therefore never be given. Aesthetic ideas, it is now suggested, may be appropriately viewed as constituting the counterpart of such purely rational conceptions. They resemble the latter in not belonging to the sphere of objective cognition, but they do so for a diametrically opposite reason. For what are here under consideration are representations or intuitions of the imagination "for which an adequate concept can never be found." Kant elaborates on the point as follows:

> By an aesthetic idea I mean that representation of the imagination which induces much thought, yet without the possibility of any

> definite thought whatever, i.e. *concept,* being adequate to it, and which language, consequently, can never get quite on level terms with or render completely intelligible.
>
> (Part I, pp. 175–6)

It appears, then, that insofar as works of art are understood to embody aesthetic ideas, their inner content can never be finally or exhaustively articulated in alternative terms. The multiplicity of thoughts and associations conveyed by such works overflows the boundaries of determinate formulation and definition, outrunning the resources of conceptual or linguistic expression.

Kant develops and illustrates this theme in subsequent passages. He does not dispute that, in seeking to give sensuous shape to the ideas that inspire them, artists are obliged to draw upon material which is furnished by perception and which is itself susceptible to objective description. He stresses, however, that they do not do this in a merely imitative spirit, but rather in a fashion that imbues familiar phenomena with an unfamiliar meaning or symbolic resonance, thereby "animating the mind by opening out for it a prospect of kindred representations stretching beyond its ken." Far from simply copying nature, art "surpasses" it, seizing upon the elusive intimations and fragmentary aspects of ordinary life and experience and "bodying them forth to sense with a completeness of which nature affords no parallel." Thus imagination, regarded in the context of artistic activity as a productive rather than a reproductive capacity, can be affirmed to be "a powerful agent for creating, as it were, a second nature out of the material supplied to it by actual nature" (Part I, p. 176): it does not so much mirror the everyday world as transform it. It must be admitted that Kant's allusions to the imaginative faculty are at times confusing, and not least in the apparently very different status accorded to it here from the one he typically assigned to it in his treatment of the sublime—he is even prepared to speak of it in its artistic employment as "emulating the display of reason in its attainment of a maximum." But notwithstanding such difficulties and obscurities, his suggestive account of the imaginative potential of aesthetic ideas may be seen in retrospect to have been at once arresting and seminal. In emphasizing the revelatory though conceptually "inexponible" nature of specifically artistic representation, he anticipated in outline approaches followed by both Schiller and Hegel, particularly the latter's detailed portrayal of the various arts as modes of expression in which thought and sensuousness are to be found indissolubly united or fused.

The aesthetic and the ethical

It was indeed Hegel who, referring to Kant's aesthetic theory as a whole, described him as having spoken "the first rational word" on the subject. Whatever Hegel himself may have meant by this, there can be no question that Kant's overall contribution proved to be of cardinal importance for the future development of aesthetics as a separate branch of philosophy. Rich in content and comprehensive in scope, it stands out as a historical landmark in the field, bringing into view considerations whose deeper significance had eluded the notice of earlier writers and whose ramifications have continued to haunt later ones. Furthermore, by underlining though not finally resolving problems unique to judgments of taste, it did much to encourage the notion that the aesthetic consciousness forms an autonomous or self-contained sphere, irreducible to other areas of human experience and demanding independent investigation in its own right.

Yet while Kant's influence in promoting such an outlook seems incontrovertible, a certain qualification regarding his own position is in order. It may be true that he never diverged from his fundamental claim that aesthetic judgments can no more be assimilated to practical or moral judgments than they can be to those of cognition or mere sensory liking. However, that did not prevent him from suggesting in a variety of places and contexts that connections exist between our capacities for aesthetic appreciation and broader concerns relating to our lives and conduct. This was clearly evident in his analysis of the dynamically sublime, with its pronounced ethical overtones. But discernible variations on the same general theme occur elsewhere. At one point, for example, he contends that the cultivation of taste and the communication of the delights it affords play a noteworthy role in social development, exerting a civilizing impact upon human behavior and intercourse. And at others he draws attention to analogies between the aesthetic and the moral points of view: in both cases we can be said to prescind from a preoccupation with personal gratification or advantage, regarding things instead from a universally shareable perspective; insofar as taste is conducive to such a mental state, it makes "the transition from the charm of sense to habitual moral interest possible without too violent a leap" (Part I, p. 225). Finally, Kant indicates that a concern with the beauty of nature—though not, it transpires, with that of art—is linked in a special way to our aspirations as moral beings. His point seems to turn on the often reiterated idea that natural beauties strike us as if they were designed to accord with and satisfy our mental powers in the enjoyment of aesthetic experience, intimations of such an apparent harmony between mind and nature being said to awaken an "interest…akin to the moral" (ibid., p. 160). What he

writes on this score is admittedly condensed and somewhat elusive, but he can partly be taken to mean that the interest in question derives from the notion of nature's being capable of displaying a comparable accordance with our ethical ideals and ends. If so, the moral significance he wishes to attach to the appreciation of natural beauty differs markedly from—though without necessarily conflicting with—the moral import he attributed to our experience of the dynamically sublime. For the latter was essentially related to our assumed ability as self-determining rational agents to rise above the promptings of natural inclination at the level of inward choice and intention. Here, on the other hand, it is the conception of nature's ultimately harmonizing with the fulfillment of ethical ideas and projects at the level of external reality that is relevant. And that may recall what Kant wrote about the faculty of judgment in general when, at the start of the third *Critique,* he contemplated its playing a mediating role in relating our moral aspirations to the world. Nor need this seeming echo of his wider preoccupations surprise us. Although at times only faintly in evidence, they were seldom—if ever—altogether absent from his mind.

TELEOLOGICAL JUDGMENT AND EXPLANATION

In Part II of the *Critique of Judgement* Kant takes leave of aesthetics and returns to topics in the philosophy of science, the notion of purposiveness as "the characteristic concept of the reflective judgement" once again being prominent in what he has to say. Even so, he is at pains to point out that the issues that now occupy him must be distinguished from those he was dealing with when considering the fundamental presuppositions of scientific enquiry in the Introduction. Thus it was one thing to ascribe purposiveness to nature in the sense of conceiving the natural sphere to conform to a "logical system" of empirical laws which was adapted to our cognitive capacities and powers of comprehension. It was another to postulate or assume the applicability of purposive conceptions to particular types of *objects* falling within the natural realm. And it is to the specific question of whether, and if so in what manner, it may be justifiable to interpret from a scientific standpoint certain phenomena in purposive or ideological terms that the present part of the *Critique* is to a large extent directed. As quickly emerges, the particular phenomena Kant has in view are living or organic beings of the sort studied in biology.

Internal purposiveness and the concept of an organism

Generally speaking, and given the preconceptions of the age in which Kant was writing, the belief that organic phenomena presented special problems for the development of science is not hard to understand. The adoption of mechanical principles of explanation, founded upon the notion of "matter in motion" and according to which natural objects and events were universally subject to quantitatively determinable causal regularities, appeared acceptable enough when applied to the inanimate domain; by the close of the eighteenth century, indeed, the Newtonian framework of material particles and forces seemed already to have been triumphantly vindicated through the formulation of experimentally confirmed hypotheses whose explanatory power extended over a very wide range. When, however, it was proposed that the same approach should be transferred to the sphere of the organic the position looked a good deal less straightforward. For living things possessed features that apparently distinguished them sharply from inanimate entities and substances. In particular, they exhibited a degree of internal organization and complexity which made it difficult to regard them as the merely contingent products of "blind" causal forces or mechanisms and which suggested instead that it would be more apposite to invoke notions like design and purposive function in accounting for their structure. Thus a division tended to open up between those who steadfastly maintained that in the final analysis all phenomena, animate and inanimate alike, were explicable in mechanistic terms and those who claimed that the phenomena of organic life required for their proper interpretation a quite different set of ideas.

The broad outlines of this emerging controversy were already clearly visible in Kant's time. Teleological conceptions might have been effectively extruded from the sphere of physics, but the belief that they were nonetheless requisite in some form for the understanding of living things found adherents in contemporary biology. Moreover, quasi-Aristotelian ways of thinking about nature had been revived at a more general level by the philosopher J.G.Herder whose principal work, *Ideas toward a Philosophy of the History of Mankind,* was severely criticized by Kant himself on its publication in 1784. That such views impinged crucially upon his own position will be evident from what has already been said about the epistemological theses he had advanced in his first *Critique*. For according to these the very possibility of objective experience and knowledge was dependent upon the application of *a priori* concepts and rules in unifying the data of sense, the latter being held to correspond in essentials to the basic principles of Newtonian science. It appeared to follow, therefore, that nature was universally subject to regularities that

conformed to the accepted paradigm of scientific explanation: in Kant's words, "appearances must… be capable of complete causal explanation in terms of other appearances in accordance with natural laws" (*Critique of Pure Reason,* B 574). Claims of this sort, suggestive of an unqualified commitment to the tenets of the Newtonian scheme, might thus lead one to suppose that he would have ranged himself firmly with those who argued that organisms, no less than the rest of the natural world, were susceptible to mechanistic modes of explanation, and that he would have set his face against any attempt to reintroduce—even within a limited field of enquiry—conceptions that apparently harked back to an earlier epoch of scientific thinking. In fact, however, he followed another route; the opinions on the subject he eventually arrived at were altogether more complex, with reflective judgment being invoked to resolve the matters in dispute.

At a preliminary stage of his approach to what he calls "objective finality in nature," Kant distinguishes between the notions of "external" and "internal" purposiveness. With reference to the first of these, he points out that various natural products may be regarded as being designed either for our own benefit or else for the use and advantage of other living creatures. For example, grass may be said to exist in order to support herbivores like sheep or cattle, and the existence of the latter may in turn be viewed as answering to the needs of human beings. But although we may be led to look at things in this light if we make certain further assumptions, we are in no sense bound to do so. Taken simply by themselves, we can causally account for and sufficiently explain such externally adaptive relationships without recourse to any teleological ideas.

By contrast, understanding the internal structure and development of organic phenomena seems positively to demand their employment. Thus we find it not merely natural but necessary to treat a living object like a plant or an animal as being something of which "every part is thought as *owing* its presence to the *agency* of all the remaining parts, and also as existing *for the sake of the others* and of the whole, that is as an instrument" (Part II, p. 21). So conceived, an organism can be termed a "natural end" *(Naturzweck),* an entity whose inner constitution appears to be governed by an idea of what it is meant to be or become and whose component elements variously contribute to this purpose in a fashion suggestive of the operations of a constructive intelligence; indeed, the very notion of living things as "organized beings" may be felt to carry this implication. Moreover, in the case of internal as opposed to external purposiveness, Kant insists that objects which exemplify it are such that we are unable to imagine how their nature and production could be accounted for in terms of "mechanical principles" alone. It is impossible

for human reason to hope to understand the generation of even "a blade of grass" from merely mechanical causes: "such insight," he roundly declares, "we must absolutely deny to mankind" (ibid., p. 54).

Pronouncements of the above kind strongly suggest that it is primarily to teleological modes of thought rather than to ones presupposing the operations of physical causality that we should look when investigating organic phenomena—a proposal encapsulated in Kant's dictum that an organism is a natural product in which "nothing is in vain, without an end, or to be ascribed to a blind mechanism of nature" (Part II, p. 25). Hence we may gain the impression that he was prepared after all, and despite expectations to the contrary, to side with the antimechanist camp in biology. And on the face of it this would seem to entail his accepting a dualism regarding our understanding of the empirical world which was hard, if not impossible, to reconcile with his own stated epistemological commitments. It turns out, however, that he only subscribed to it in a form that imposed important restrictions upon both the significance and the actual implications of the teleological principles involved.

Teleology and empirical science

In the first place, Kant was concerned to emphasize that similarities discernible between natural organisms and purposively constructed human artifacts must not be allowed to obscure no less striking differences. An artificial contrivance such as a watch fulfills its function because the parts of which it is composed interact by moving one another in ways that have been independently determined by its maker. Living phenomena, by contrast, are apprehended as "self-organizing" entities, endowed with a "formative power" *(bildende Kraft)* which remains for us basically mysterious in its workings and for which no close analogue exists among the products of human art or technique. The various components of an organism are interrelated in a distinctively intimate and reciprocal manner, both "producing" and "sustaining" one another: for example, if an essential part of a tree is damaged or destroyed, the deficiency is apt to be repaired or made good "by the aid of the rest" so as to preserve the life of the whole to which they severally belong. Thus in considering the role of the concepts of design and purpose in biology it is necessary to recognize the constraints that govern their meaningful use in that context.

Second, Kant indicates that in any event teleological principles of the sort employed in the interpretation of biological processes ultimately possess no more than a regulative status. In this view, to be sure, they are indispensable to our thought about these, affording modes of

understanding and suggesting fruitful lines of enquiry at a point where the resources of explanation in terms of efficient causality seem to fail us. And that, indeed, may also encourage us to enlarge the field of their application to nature as a whole, adopting a perspective on reality wherein it is assumed that "everything in the world is good for something or other; nothing in it is in vain" (Part II, p. 28). In conformity with the reservations he has already expressed about attributions of "external" purposiveness, however, Kant is careful not to ascribe to such an extended employment of teleological conceptions the indispensability he thinks these have for us within the more limited sphere of organic phenomena; we are not obliged to contemplate nature in general in this way. Nevertheless he holds that, even in the case of the organic sphere, to say that we find it subjectively necessary to bring purposive notions to its interpretation is not to say that these can be accredited with objective validity. It is one thing to assert that we are intellectually so constituted that we cannot render organic phenomena intelligible to ourselves other than by treating them *as if* they were—in some admittedly mysterious sense—designed or organized to accord with a preconceived idea or intention regarding their final form. It is another to assert this to be so as a matter of objective fact, their possibility being dependent upon the agency of a nonhuman intelligence or creative mind. The latter, according to Kant, is something we could never justify or prove: strictly speaking, "we do not *observe* the ends in nature as designed" but "only read this conception into the facts as a guide to judgement in its reflection upon the products of nature" (ibid., p. 53). Here as elsewhere, in other words, we occupy the standpoint of reflective judgment, operating with heuristic concepts and principles that play a vital role in directing our thought about nature but without being in a position to affirm the actual existence of a supernatural designer or "author of the world."

In effect, and whatever concessions he may have made to the opponents of mechanism in biology, Kant did not abandon the conviction that explanation of a cognitively acceptable kind must conform to the mechanical paradigm. It is noteworthy, for instance, that he consistently speaks of our "estimating" *(beurteilen)* organic processes through teleological conceptions, not of our explaining them thereby. Moreover, he reiterates the point that we should always press the search for mechanical causes as far as we can, since if we do not follow this procedure there can be "no knowledge of nature in the true sense at all." And while he undoubtedly asserts, quite categorically, that we can never hope to arrive at purely physical explanations of organic phenomena, he stresses that it would even so be "presumptuous" dogmatically to conclude that some "mechanism of nature," sufficient to account for them, does not in fact exist. That is something which we have simply no means of knowing; the

most that can reasonably be affirmed is that such a possibility lies beyond the limits of human comprehension.

Despite its considerable ingenuity, Kant's attempt to do justice to the rival claims of mechanism and teleology is not free from difficulty. It is true that at one point he writes as if the "antinomy" to which these approaches may be said to give rise can be surmounted by understanding each of them to be endorsing a particular methodological "maxim" for the investigation of nature rather than a principle purportively constitutive of its objective character. Thus a rule enjoining us invariably to seek causal explanations as far as we are able is not inconsistent with a rule legitimizing a resort to purposive interpretations when "a proper occasion" presents itself: to that extent the two standpoints can be reconciled. One trouble with this proposal, however, is that the causal principle was originally portrayed by Kant *as* being constitutive; to treat it now as having no more than the regulative status he has ascribed to its teleological counterpart would represent an apparent departure from that position. Furthermore, it is one thing to assert of certain phenomena, which at a given stage of enquiry seem to resist physical or mechanical explanation, that they may be accounted for instead along teleological lines. It is a different and more questionable matter to say of them that a complete causal explanation must forever be beyond our reach; indeed, the subsequent history of the biological sciences makes such a contention look somewhat bizarre. Even so, Kant certainly implied that, insofar as we found ourselves obliged to understand the functional structure of organisms in purposive terms, it was impossible for us to regard them as the mere products of what he himself called "blind efficient causes"; nor was he alone among his contemporaries in feeling that the two conceptions *prima facie* excluded one another in their application. Consequently, and notwithstanding the qualifications he introduced, he appears to have been committed to holding that we were precluded from fully assimilating organic phenomena to the framework within which all objective knowledge and genuinely scientific explanation are set. And it was perhaps partly a recognition of the problems this ostensibly presents that led him to entertain the notion of a possible understanding, "higher than the human," which would comprehend the mechanical and teleological principles as cohering within a single uniting principle that transcended them: "if this were not so," he writes, "they could not both enter consistently into the same survey of nature" (Part II, p. 70). He argues, however, that such a principle can only be referred to what, as the supersensible or noumenal ground of the phenomenal realm, lies outside the range of empirical representation. Thus so far as we ourselves are concerned it must be one of which, from a theoretical point of view, we are unable to form "the slightest positive determinate conception."

TELEOLOGY, MORALITY, AND GOD

Kant's contention that the supersensible constitutes a realm necessarily inaccessible to human knowledge and understanding of a theoretical kind is one that recurs in the Appendix which forms the long concluding section of the *Critique of Judgement*. This comprises a careful and wide-ranging discussion of the conceivable relevance of teleological interpretations of the natural world to the claims of theology. It is true that the question of whether the apparent evidence of purposiveness in nature could be invoked in support of such claims had already been broached in the *Critique of Pure Reason*, where it was examined along with other attempts that had classically been made to establish the existence and character of God from a speculative standpoint. Kant clearly felt, however, that the comprehensive investigation he had now undertaken of the general status and limitations of teleological judgment in relation to natural science warranted his embarking upon a more extended analysis than hitherto of the issues which the so-called "argument from design" involved. Furthermore, such an analysis seemed especially called for in the light of what he had written in his second *Critique* concerning the possibility of justifying belief in God from a moral or practical point of view as opposed to a theoretical one.

As has been seen, Kant specifically denied the legitimacy of deriving theological conclusions from the fact that we find ourselves subjectively obliged to interpret certain natural products in teleological terms. It may be that the best sense we can make of such apparently purposive phenomena as organisms is by thinking of them as the creations of "a supreme intelligence"; he implies, indeed, that this is the case. But at the same time he reiterates the point that such an hypothesis is devoid of objective authority and that its import must instead be comprehended heuristically; it can never do more than

> point to this cause in the interests of the reflective judgement engaged in surveying nature, its purpose being to guide our estimate of the things in the world by means of the idea of such a ground, as a regulative principle, in a manner adapted to our human understanding.
>
> (Part II, pp. 75–6)

The latter claim certainly accords with his critical objections to any theoretical attempt to transcend the limits of possible experience. Yet he thinks that, even if his strictures on that score were disregarded, other important difficulties would remain. By no means all natural phenomena

impress us as bearing the marks of design; nor is it true that everything that occurs in the empirical world is *prima facie* easy to reconcile with the thought that nature in general has issued from the hand of a wise and beneficent creator. It would seem, in fact, that the most we could reasonably hope to establish by following this path would be the formative operations of a suprahuman "artistic understanding" *(Kunstverstand)* sufficient to account for "miscel-laneous ends" of the sort natural organisms exemplify. But that is a far cry from being entitled to infer that the world as a whole is the product of a presiding moral divinity with an overarching end or purpose in view. And if we confine ourselves to the theoretical contemplation of nature alone it is unclear how such an inference could conceivably be justified. There is nothing in the natural order when considered solely by itself which can properly be held to qualify as an unconditioned or final end of creation capable of endowing it with meaning and value in our eyes.

The various weaknesses of the argument from design, referred to by Kant himself as "physico-theology," do not however require us to suppose that no such ultimate end can be identified. This becomes apparent if we turn aside from theoretical considerations and approach the matter from the standpoint of practical reason as exhibited in our moral experience. When looked at in that perspective it is evident that man emerges as the only possible candidate—"without man…the whole of creation would be a mere wilderness, a thing in vain, and have no final end" (Part II, p. 108). In our capacity as moral agents we are aware of having a status which sets us apart from the rest of the natural order and which uniquely assigns to our existence intrinsic worth. For it is a presupposition of the moral consciousness that, regarded as rational beings possessing freedom of choice and volition, we are able to act under laws and pursue objectives that originate, not in nature, but in ourselves. In Kant's words:

> Only in man, and only in him as the individual being to whom the moral law applies, do we find unconditional legislation in respect of ends. This legislation, therefore, is what alone qualifies him to be a final end to which entire nature is ideologically subordinated.
>
> (Ibid., p. 100)

How is this supposed to be relevant to the issue that physico-theology tries but fails to resolve—the existence of God as "the supreme cause of nature and its attributes"? It is Kant's contention that, while a theoretical appeal to our experience of nature cannot legitimize theological claims, there is a sense in which a recognition of what is essentially involved in our vocation as moral agents may be said to do so. Following the line of thought articulated in his second *Critique,* he argues that practical reason sets

before us as an *a priori* obligation the project of promoting what he calls the *summum bonum,* "the highest good *in the world* possible through freedom" (Part II, p. 118). Such a goal is held to constitute an ideal state of affairs wherein human happiness would be appropriately proportioned to moral desert, a condition that manifestly does not obtain in life as we know it but which we are nonetheless called upon to help to realize. Granted, however, that this is something morality obliges us to pursue as a duty, it follows that we must believe it to be ultimately attainable; and that consideration, when taken in conjunction with the limitations to which we are inescapably subject as finite and imperfect members of the world, requires us to assume the existence of a "moral author" of nature capable of ensuring that our efforts will not turn out to be finally vain. Kant thinks that someone who, though in general righteously disposed, does not assume this will inevitably be "circumscribed in his endeavour," eventually abandoning any attempt to further the project in question on the ground of its impracticability. If, on the other hand, such a person resolves to be faithful to the call of their "inner moral vocation" and acts accordingly, they thereby show themselves to be committed to "the existence of a *moral* author of the world, that is, of a God" (ibid., p. 121). Such an assumption, in other words, is essential if we are to "think in a manner consistent with morality"; to employ the terminology of the second *Critique*, it represents a "postulate" of pure practical reason. Admittedly, and as Kant points out in an important footnote, this argument still does not amount to an "*objectively* valid proof" of God; on critical principles that remains forever impossible. But it is nonetheless "sufficient *subjectively* and for moral persons" (ibid., p. 119). And given the necessary primacy for us of the moral law, he implies that it is all that we can properly ask for or need.

The priority that Kant assigns to what he calls "the moral proof" in the last part of the *Critique of Judgement* raises the question of what significance, if any, he is prepared to attribute to ideological conceptions of nature from a theological point of view. He certainly concedes that the traditional argument from design is worthy of respect; unlike other speculative arguments, it has appeared as persuasive to the understanding of the ordinary "man in the street" as it has to that of the "subtlest thinker." He implies, though, that this tends to be due to an unnoticed confusion between an ostensible reliance upon purely empirical factors and the underlying influence of "moral considerations to which everyone in the depth of his heart assents." When these two strands are carefully distinguished, it becomes clear that it is the second that actually produces conviction, any presumed dependence of the conclusion reached upon the "physico-teleological evidence" being in fact illusory. And he drives the point home by claiming that, even if as rational beings we inhabited a

universe in which nature showed no trace of features suggestive of physical teleology, the asseverations of practical reason regarding the existence of God would still retain their force. Yet all the same, and notwithstanding his insistence that "physico-theology is physical teleology misunderstood" (Part II, p. 108), he does not go so far as to declare that such a teleology is wholly irrelevant or otiose in the present context. Considered as affording the premises for a theoretical demonstration it is certainly useless to the theologian. But it does not follow that it has no subsidiary role to play.

Kant indicates, for instance, that it may at least function "as a preparation or propaedeutic," disposing the mind to entertain the idea of there being an "intelligent" source of nature and thereby rendering it "more susceptible to the influence of the moral proof." Furthermore, he also goes on to suggest that the abundance of material for teleological judgment which the actual world supplies can be said to serve us "as a desirable confirmation of the moral argument, so far as nature can adduce anything analogous to the ideas of reason (moral ideas in this case)" (Part II, p. 155). In trying to interpret this rather cryptic remark, it will be worth recalling again the notion—initially advanced in the Introduction to the *Critique*—of judgment's affording a mediating link between practical reason as the supersensible source of moral requirements and nature as constituting the sensible sphere wherein they are to be given effect and realized. Now according to Kant's moral proof we must believe that the pre-eminent objective reason sets before us is an attainable one, this belief involving as an indispensable condition our acceptance of the existence of God. But it is not easy from a human standpoint to give content to that idea without envisaging nature to be designed in a manner that makes the attainment of such an end possible. Thus the fact that innumerable natural phenomena seem to demand for their intelligibility the employment of teleological concepts may be welcomed as lending some reinforcement to the thought of nature's being purposively adapted to the practicable fulfillment of what the moral consciousness enjoins; for as Kant puts it: "the conception of a supreme cause that possesses intelligence… acquires by that means such reality as is sufficient for reflective judgement" (ibid.).

Even so, the problem of ultimately reconciling teleological and mechanistic interpretations of the natural world remains; and while Kant has allowed that a transcendent principle capable of subsuming or accommodating both might conceivably obtain at the level of a higher understanding, he at the same time reiterates the point that, so far as human knowledge is concerned, the conception of nature as a product of intelligent design can never be theoretically established or proved. Reflective judgment may perform a salutary service in supplementing assumptions to which, as a matter of moral necessity, we find ourselves

committed by practical reason. As, however, he has consistently maintained throughout the third *Critique,* in none of its forms can judgment itself be accredited with cognitive insight into what lies beyond the bounds of the phenomenal sphere. Such assurance as we have on the latter score can never be other than a moral assurance, one that holds good for us "from a purely practical point of view" (Part II, pp. 143–4).

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CHAPTER 5

Fichte and Schilling: the Jena period

Daniel Breazeale

FROM KANT TO FICHTE

An observer of the German philosophical landscape of the 1790s would have surveyed a complex and confusing scene, in which individuals tended to align themselves with particular factions or "schools," frequently associated with specific universities or, in some cases, periodicals, and engaged in often bitter public controversies with their opponents. Within this context, Kantianism (or "the Critical philosophy," as it was styled by both its opponents and its exponents) was simply one party among others. Self-appointed representatives of "Enlightenment," inspired by English and French examples and pledging their allegiance to the legacy of Lessing, dominated more urbane intellectual circles, such as that of Moses Mendelssohn and his associates in Berlin. A more academic variety of rationalism was defended by the many proponents of the Leibnizian-Wolffian philosophy, which still dominated the philosophy departments of most German universities. At the same time, there was a widespread vogue for what was then called "popular philosophy," the adherents of which, though they usually shared the liberal assumptions and conclusions of the *Aufklärer* and Wolffians, based their philosophy not upon *a priori* reasoning, but upon an appeal to the testimony of "healthy common sense." In opposition to the dominant spirit of the age, these "popular philosophers" distrusted the systematic impulse and were suspicious of all attempts to turn philosophy into a well-grounded "science."

An even more extreme rejection of philosophy as a systematic science

was associated with Friedrich Jacobi and J.G.Hamann, two idiosyncratic but influential thinkers who employed skeptical arguments in order to reveal the fragility of human reason and hence the necessity and superiority of "faith." Another eccentric but influential figure was J.G.Herder, a philosophical naturalist who challenged the prevailing mechanistic models of the mind and of society and sought to replace them with more organic or vitalistic ones. Herder's ground-breaking work on the origin of languages and the role of history in the formation of human consciousness eventually led him to call for a "meta-critique" of philosophy's alleged neglect of the influence of language, culture, and history upon thought itself. Finally, there were also a few straightforward representatives of philosophical skepticism, such as G.E.Schulze and Ernst Planner.

All of these contending parties were united, however, in their opposition to the new Kantian philosophy, which was steadily gaining in prominence. Not only were several new journals dedicated to the promulgation of Kantianism, but a university chair was established for this purpose as well (at Jena in 1787). It is noteworthy, however, that the single work which played the greatest role in calling public attention to the Critical philosophy was not a book by Kant himself, but rather a series of popular "Letters on the Kantian Philosophy" published in 1786–7 in the widely circulated *Allgemeine Literatar-Zeitung*. These "Letters" were the work of K.L.Reinhold (1756–1823), an ex-Jesuit and enthusiastic convert to the new Critical philosophy. The most striking feature of Reinhold's "Letters" is their strong emphasis upon the *practical* or *moral* consequences of Kant's thought. Consequently, it was not as a new theory of knowledge or even as a critique of metaphysics that Kant's philosophy first attracted widespread attention, but instead, as an ingenious defense of freedom, morality, and religion: a doctrine of "practical belief" which was simultaneously able to acknowledge the (limited) legitimacy of the modern scientific worldview. On the strength of his fame as author of the "Letters," Reinhold was named as the first occupant of the new chair in Critical philosophy established at Jena in 1787.

To the consternation of many of Kant's more literal-minded followers, Reinhold proved to be a rather unorthodox adherent of the new transcendental philosophy and immediately embarked upon an ambitious project of reformulating and revising Kant's philosophy. Though Reinhold was quite prepared to endorse all of Kant's conclusions, he found Kant's specific arguments and "derivations" to be somewhat lacking in inner coherence and systematic rigor. According to Reinhold, transcendental philosophy could become genuinely "scientific" only by being recast in the form of a deductive system based upon a single, self-evidently certain, "absolutely first principle," from which, in turn, everything else (e.g. the

famous distinction between "thought" and "intuition," with which Kant's theoretical philosophy begins) could be "derived."

Reinhold gave the name "Elementary Philosophy" (or "Philosophy of the Elements") to his revised version of Kantianism, and argued that the latter alone was able to provide Kant's writings with the systematic form and scientific foundation which they themselves lacked. By analyzing the bare concept of "representation," Reinhold obtained the first principle of his system, the "principle of consciousness," and from this first principle he then proposed to derive the distinction between intuition and thought, along with all of familiar Kantian faculties and categories.

Reinhold's Elementary Philosophy is historically significant for two reasons: First of all, Reinhold's explicit criticism of the "letter" of Kant's own presentation of his philosophy, and especially his criticism of the duality of Kant's starting point and the *ad hoc* character of some of his arguments, promoted a general demand for a more coherent and systematic exposition of Kant's philosophy. Second, Reinhold's specific program for accomplishing this task—viz., by deriving the entire Critical philosophy from a single first principle—stimulated others (above all, Fichte) to seek an even more "fundamental" first principle upon which philosophy in its entirety could be "grounded."

Another prominent feature of Kant's philosophy which was subjected to early criticism (though in this case not by Reinhold) concerned the problematic status of "things in themselves" within the Critical philosophy. The most influential early critic of Kant on this point was F.H.Jacobi (1743–1819), who was a well-known author of sentimental novels, as well as of several influential philosophical (or rather, antiphilosophical) works. In 1787 Jacobi devoted the Appendix to his *David Hume on Belief, or Idealism and Realism* to an examination of transcendental philosophy, and he focused his criticism upon Kant's apparently conflicting remarks concerning the status of "things in themselves." Jacobi concluded that the entire doctrine was incoherent, since, as he put it, one had to assume the existence of things in themselves in order to obtain entry in Kant's philosophy, only to discover upon entry into the same that such a doctrine is incompatible with the transcendental account of "objectivity" made possible by that same philosophy. For followers of Kant, therefore, the challenge was clear: to defend transcendental idealism from Jacobi's criticism without following Jacobi himself into a wholesale rejection of philosophical speculation and embrace of a fideistic celebration of "not-knowing."

Similar objections to treating the thing in itself as the transcendent ground of sensations were advanced by Salomon Maimon (*c.* 1752–1800), a largely self-educated Polish-Russian Jew and the author of the extraordinarily original *Examination of Transcendental Philosophy*

(1790). For Maimon, however, the lesson to be drawn from the untenability of Kant's doctrine of things in themselves was not the need to abandon reason for immediate feeling and faith, but rather, the desirability of constructing a more "skeptical" variety of Kantianism, one shorn of all transcendent remnants and aware of its own limitations. To this end, Maimon attempted to rehabilitate the Leibnizian notion of an "infinite understanding," from the perspective of which the distinction between sensibility and thought, content and form, would disappear.

Another influential critic of the new transcendental philosophy was G.E.Schulze, self-styled "Humean skeptic" and author of the anonymously published *Aenesidemus, or concerning the Foundations of the Elementary Philosophy Propounded at Jena by Prof. Reinhold, Including a Defense of Skepticism against the Pretensions of the Critique of Reason* (1792). In attacking the Critical philosophy, Schulze not only repeated many of Jacobi's and Maimon's specific criticisms but added some new ones of his own, including an objection to the very idea of "the primacy of practical reason."

In addition to the various internal difficulties within Kant's writings, Kant's first generation of readers also had to grapple with what might be thought of as the external problem of the relationship between the various *Critiques,* a problem which, of course, ultimately concerns nothing less than the systematic *unity* of the Critical philosophy. How is the worldview of the first *Critique* to be squared with that of the second? Despite Kant's own attempt to address this problem, first in the Transcendental Dialectic of the *Critique of Pure Reason,* and then in the Introduction to the *Critique of Judgment,* many readers remained uncertain about how the deterministic worldview of Kant's theoretical philosophy could be reconciled with the account of freedom and self-determination presented in his practical philosophy. There was also widespread confusion regarding the relationship between the various "subjects" (or "I's") encountered in the various *Critiques.* Is the pure subjective spontaneity that accounts for the transcendental unity of apperception (i.e. "the transcendental I") identical with the freely acting and self-legislating practical agent ("the practical I")? And how are these "I's" related, in turn, to empirical self-consciousness and to embodied persons? Finally, many sympathetic readers expressed serious reservations concerning the overall "architectonic" of the Critical philosophy. How, precisely, are the claims of theoretical philosophy related to those of practical philosophy? Indeed, what is the epistemic status of philosophical claims themselves? What kind of "knowledge" does philosophy convey, and how is such knowledge established?

Such was the philosophical context within which the achievements of Fichte and Schelling must be understood and evaluated. Everyone agreed

that, for better or for worse, philosophy was in a period of extraordinary crisis and ferment. Even as the magnitude of Kant's accomplishment was becoming increasingly apparent, it was also becoming obvious—to Kant's more perspicacious defenders as well as to his critics—that any successful defense of the Critical philosophy would have to be more than a mere restatement of the same. Instead, what would be required would be a further advance down the road first opened by Reinhold's Elementary Philosophy; only by abandoning the "letter" of Kantianism, or so it seemed, could its "spirit" be preserved.

J.G.FICHTE'S JENA *WISSENSCHAFTSLEHRE*

Johann Gottlieb Fichte (1762–1814), son of a Saxon ribbon weaver, university dropout, and itinerant tutor, first encountered Kant's writings in 1790, and the effect was immediately galvanizing. "I have been living in a new world ever since reading the *Critique of Practical Reason,*" he reported to a friend.

> Propositions I thought could never be overturned have been overturned for me. Things have been proven to me which I thought could never be proven—e.g. the concept of absolute freedom, the concept of duty, etc.—I feel all the happier for it.... Please forgive me for saying so, but I cannot convince myself that prior to the Kantian critique anyone able to think for himself thought any differently than I did, and I do not recall ever having met anyone who had any fundamental objections to make against my [previous, deterministic] system. I encountered plenty of sincere persons who had different—not *thoughts* (for they were not at all capable of thinking) but different—*feelings*.
>
> (III, 1:167)[1]

As this passage poignantly testifies, what attracted Fichte to transcendental idealism was his conviction that it alone was able to reconcile human freedom and natural necessity, moral sentiments and rational judgments, "feelings" and "thoughts." It is no exaggeration to say that Fichte devoted the rest of his life to the task of explaining and expounding the philosophy which, he believed, makes such a reconciliation possible. Though he soon confessed to nagging doubts concerning certain details of Kant's own presentations of his philosophy, Fichte never entertained any doubts concerning the fundamental truth of

the latter, at least insofar as its "spirit" was concerned—a spirit which Fichte was convinced was even better expressed in his own philosophy, which he succinctly characterized in 1795 as "the first system of human freedom" (III, 2:298).

Barely two years after his first encounter with Kant's writings, Fichte was unexpectedly propelled to fame with the publication of his first book, *Attempt at a Critique of All Revelation* (1792). Through circumstances which have never been adequately explained, the book in question, issued by Kant's own publisher and dealing with an important topic (viz., revelation, considered as the "appearance" of noumenal reality within the phenomenal world) raised by the Critical philosophy but not yet explicitly dealt with by Kant himself, was originally published anonymously. Not surprisingly, it was immediately and widely hailed as the latest publication by Kant himself. Thus, as soon as the author's true identity became known, Fichte's fame as a philosophical author was assured, since it was now too late to retract all of the extravagant praise the book had already received.

The young author's notoriety was only increased by his next two publications, *A Discourse on the Reclamation of the Freedom of Thought from the Princes of Europe, who have hitherto Suppressed it* and the first installment of *A Contribution toward Correcting the Public's Judgment of the French Revolution*. Though both works were published anonymously in 1793 in Danzig (where Fichte was once again employed as a private tutor), the author's identity was widely known. Thus, in addition to his growing renown as the "third sun in the philosophical heaven," Fichte also acquired an early reputation as a fiery Jacobin, a reputation which guaranteed him political as well as philosophical enemies during his career at Jena.

When Reinhold unexpectedly resigned his chair at Jena in the spring of 1794 it was immediately offered to Fichte, who at this point was living in Zurich in the home of his new father-in-law and was completely engrossed in a vast project of constructing his *own* version of transcendental idealism, one which would heed Reinhold's call for a system based upon "a single first principle," but would do so in a manner which would avoid the published criticisms of Jacobi, Maimon, and Schulze. It was during this period that Fichte decided that his new philosophy deserved a new name. Accordingly, since he wished to emphasize that his new, "rigorously scientific," philosophy would represent something more than mere "love of wisdom" (or "philosophy"), he baptized it "*Wissenschaftslehre*" (that is, "theory of science" or "doctrine of scientific knowledge"—*not* "science of knowledge").

Fichte, who more than anything else wished for his own philosophical efforts to make a positive contribution to the improvement of human life, could hardly afford to decline the offer from Jena, which would guarantee

the maximum amount of exposure for his new system. Accordingly, he began lecturing on his new philosophy in the summer of 1794, though not before publishing a brief and "hypothetical" introduction to the same in the form of a meta-philosophical treatise entitled *Concerning the Concept of the Wissenschaftslehre, or of so-called "Philosophy"* (1794).

Even though Fichte had not yet completed the task of thinking through even the rudiments of his new system at the time of his arrival at Jena, he nevertheless immediately began lecturing on the "Foundations of the Entire *Wissenschaftslehre*." These lectures, which continued through the winter semester of 1794–5, represent Fichte's first attempt at a full-scale public presentation of his philosophy. For the convenience of his students, he had the text of his lectures printed and distributed (in fascicles) over the course of the two semesters. However, he soon agreed to have these printed fascicles bound together and issued as a book, or rather, as several books: *Foundations of the Entire Wissenschaftslehre,* Parts I and II (1794) and Part III (1795), and *Outline of the Distinctive Character of the Wissenschaftslehre with respect to the Theoretical Power* (1795)—though the title page of each of these volumes still included the words "published as a manuscript for the use of his students."

There is considerable historical irony in the fact that this "book," the first parts of which appeared in print well before the later portions had even been drafted, became (and to this day remains) Fichte's best-known and most influential philosophical work. It is intriguing to wonder what the "history of German Idealism" would have been like if the call to Jena had not come in 1794 and if, instead, Fichte had been allowed the leisure to develop and to publish his philosophy at a somewhat less frantic pace. But, of course, such speculation is as idle as it is intriguing, for the fact is that the full text of the *Foundations,* along with that of the *Outlines,* was fatefully set before the reading public in the summer of 1795.

Fichte himself was, from the first, deeply dissatisfied with the *Foundations,* which he wished his auditors and readers to treat as no more than a provisional presentation of the basic principles of his system. Accordingly, when he next returned to this topic, that is, in the lectures on the "Foundations of Transcendental Philosophy *(Wissenschaftslehre) nova methodo*" which he first delivered in 1796–7, he offered his students a completely revised and very different presentation of the basic principles and outlines of his philosophy. Apparently, he was relatively satisfied with this new presentation (the socalled "*Wissenschaftslehre nova methodo*"), for he repeated these lectures twice more during his career at Jena. Indeed, he fully intended to revise them for publication and, in 1797–8, succeeded in publishing two "introductions" to, as well as the first chapter of, this new version, under the title *An Attempt at a New Presentation of the Wissenschaftslehre* in the *Philosophisches Journal einer Gesellschaft*

Teutscher Gelehrten, of which he was then co-editor.

However, Fichte did not confine himself to refining his presentation of the foundations of his philosophy; he also devoted a great deal of effort to fleshing out the systematic scheme merely alluded to in his programmatic writings. He did this in his lectures on *Naturrecht* (or "natural right") and ethics, subsequently published as *Foundations of Natural Right according to the Principles of the Wissenschaftslehre* (1796–7) and *The System of Ethical Theory according to the Principles of the Wissenschaftslehre* (1798). Though he announced that he would lecture on a third systematic subdivision of the *Wissenschaftslehre,* viz., philosophy of religion, during the summer semester of 1799, the lectures in question were never delivered.

Fichte was embroiled in one controversy or another (often involving his political views) from the moment of his arrival in Jena, but the final one, the so-called "atheism controversy," proved to be his undoing. In 1798 he had published a brief article entitled "Concerning the Basis of our Belief in a Divine Governance of the Universe," in which he bluntly criticized all attempts by philosophers to infer the existence of God from the fact of the moral law—or from anything else. His many local enemies seized upon this article to incite broader opposition. He was officially charged by the Saxon authorities with atheism, which provoked a very public controversy between Fichte's opponents and defenders. Eventually, and largely as a result of his own tactical miscalculations, he was dismissed from his academic post. In the summer of 1799 he moved to Berlin.

For Fichte, 1799 was a year filled with disappointment. Not only did he lose his job, but he also began to lose many of his most prominent philosophical allies, including Reinhold, who had briefly become an enthusiastic exponent of the *Wissenschaftslehre*. Schelling, the most conspicuous and prolific of the young "Fichteans," continued, despite Fichte's disapproval, to pursue his interest in "the philosophy of nature," while Jacobi, whom, for all their philosophical differences, Fichte greatly admired, published a long *Open Letter to Fichte,* in which he devastatingly characterized the *Wissenschaftslehre* as "nihilism." Finally, in August 1799, Kant himself issued a public "declaration" in which he repudiated Fichte's system and disavowed any relationship between his own philosophy and the *Wissenschaftslehre*. "One star sets, another one rises," shrugged Goethe, when informed of Fichte's departure from Jena.

When Fichte arrived in Berlin (where there was, as yet, no university) he was forced to earn his living from his writings and from occasional, privately subscribed lessons and lectures. His first project was a "popular" presentation of his philosophy, one specifically designed to rebut the charge of atheism and to reply to Jacobi's more general criticisms of transcendental philosophy. The resulting book, *The Vocation of Man,* was

published in 1800, closely followed by a rather bold foray into political economy *(The Self-Contained Commercial State)*. Still attempting to defend himself against what he viewed as widespread misperceptions of his position, Fichte then published the pathetically titled *Crystal-Clear Report to the General Public concerning the Actual Essence of the Newest Philosophy: an Attempt to Force the Reader to Understand* (1801), in which he emphasized the philosophical differences between the *Wissenschaftslehre* and rival systems of thought.

At the same time, he continued to revise and recast his "scientific" presentation of the first principles of his system; indeed, he himself accurately characterized the period 1800–4 as one of "ceaseless work on the *Wissenschaftslehre*." Finally abandoning his efforts to revise for publication his 1796–9 lectures on *Wissenschaftslehre nova methodo,* he once again drafted an entirely new version of the foundations of his philosophy, which he presented in a course of private lectures delivered in Berlin in 1801–2. Once again, however, dissatisfaction with the results prevented him from publishing this new version and impelled him to embark upon yet another, even more thoroughgoing systematic overhaul of his presentation. These efforts culminated in the year 1804, in the course of which Fichte delivered three separate sets of lectures on the *Wissenschaftslehre*. Though he expressed complete satisfaction with this latest version and readied it for publication, he appears finally to have concluded that he himself was simply incapable of producing a written exposition of his own philosophy which could stand on its own and avert the sorts of misunderstanding to which his Jena writings had been subjected. For the rest of his life he vowed "to confine himself to oral communication, so that misunderstanding can thereby be detected and eliminated on the spot" (III, 5:223). In 1804 he also delivered a well-received series of more popular lectures *On the Characteristics of the Present Age* (subsequently published in 1806), in which he dealt, for the first time, with the philosophy of history.

Fichte spent the summer semester of 1805 at the Prussian University at Erlangen, where he prepared and lectured upon yet another presentation of the first principles of his philosophy. Upon his return to Berlin in 1806 he delivered yet another set of "popular" lectures, *Directions for a Blessed Life,* which were published later that same year. These lectures reveal the strong influence of the Gospel of St John on Fichte's thinking at this point and contain what is perhaps the most accessible presentation of the new, more religiously oriented, and "mystical" tendency of his thought during his final years.

With the defeat of Prussia by Napoleon's armies in 1806 and the occupation of Berlin, Fichte took refuge in Königsberg, where he served briefly as a professor, producing for his lectures yet another version of the

Wissenschaftslehre. After the Peace of Tilsit, however, he returned to Berlin, where he delivered his celebrated *Addresses to the German Nation* under the noses of the occupying forces. These lectures, in which Fichte attempted to kindle a sense of distinctively "German" patriotism and outlined a program of national education for this purpose, were published in 1808 and subsequently exercised a wide influence upon the development of German nationalist sentiment.

Fichte was also instrumental during this period in establishing the new University of Berlin. When the university was finally opened in 1810, he served as head of the philosophical faculty and, briefly, as rector of the university. He remained a professor at the new university until his death in 1814. During these years he lectured on a variety of subjects, including the first principles of his *Wissenschaftslehre* (of which he produced at least four more versions after 1810), political philosophy (or "doctrine of the state"), philosophy of right, and a popular introduction to philosophy under the title "the facts of consciousness." None of these new lectures were published by Fichte, though in 1810 he did publish a cryptic overview of the latest version of his system, *The Wissenschaftslehre in its General Outline*. Fichte died unexpectedly at the age of 51, of typhus, which he contracted from his wife, who had been infected by wounded soldiers she was nursing.

Let us now turn to a consideration of Fichte's *Wissenschaftslehre,* limiting ourselves to the version which exercised the greatest influence upon his contemporaries, that is, the "Jena *Wissenschaftslehre*" of 1794–9. In doing so, it is vital to recall that the term "*Wissenschaftslehre*" does not refer to any particular book or even any specific presentation of Fichte's system. In its broadest sense, "*Wissenschaftslehre*" is simply Fichte's proposed new name for "philosophy" itself, understood not as a form of "practical wisdom," but rather as a rigorous, systematic "science." Thus, in *Concerning the Concept of Wissenschaftslehre,* Fichte identifies *Wissenschaftslehre* with "the science of science itself," with knowledge about the very conditions, foundations, and limits of knowledge. (To be sure, this means that philosophy, *qua* "science of science" or "knowledge of knowledge," involves a certain, unavoidable degree of circularity. But, as Fichte argues persuasively in *Concerning the Concept,* such circularity—once it has been clearly grasped—is not an objection to philosophy, but is, instead, one of its most distinctive and unavoidable features.)

Somewhat more narrowly construed, "*Wissenschaftslehre*" is Fichte's new name for "transcendental idealism" or "Critical philosophy" —in contrast to the previously prevailing systems, which Fichte lumped together under the name "dogmatism" and believed was best represented by Spinoza. The essential features of a *Wissenschaftslehre* in this narrower

sense are, first of all, that it follows Kant in insisting that genuinely philosophical questions are those of justification or warrant *(quid juris)* rather than questions of "fact" *(quid facti)*. Consequently, the actual arguments and deductions which constitute philosophy as *Wissenschaftslehre* cannot be based upon an appeal to the so-called "facts of consciousness," since the task of such a science is to "explain" or account for these very "facts." More specifically, the particular set of facts which a *Wissenschaftslehre* has to account for in the first instance are those associated with our experience of an external world of objects. Or rather, limiting ourselves to the standpoint of consciousness, what philosophy has to explain is the presence within human consciousness of "representations accompanied by a feeling of necessity." Hence the question posed by the *Wissenschaftslehre* is as follows: "What is the connection between our representations and their objects? To what extent can we say that something independent of our representations, something altogether independent of and external to us, corresponds to our representations?" (I, 3:247). What has to be explained, in short, is "how representing becomes knowing."

Second, the "explanation" of cognition provided by the *Wissenschaftslehre* must be rigorously "transcendental" in character, in the sense that it must begin with something it regards as certain or beyond controversy (e.g. in Kant's case, the continuous self-identity of the knowing subject over time) and then enquire into the necessary conditions for the possibility thereof.

Third, a *Wissenschaftslehre* takes very much to heart the Kantian insistence upon "the primacy of practical reason." This does not mean simply that it recognizes the integrity and autonomy of the moral or "practical" sphere and resolutely refuses to countenance any standpoint that treats our consciousness of our own freedom as illusory. Instead, the *Wissenschaftslehre* insists that "the practical power is the innermost root of the I" (I, 3:332); and, basing itself upon this insight, it attempts to demonstrate that "our freedom itself [is] a theoretical determining principle of our world" (I, 5:77). What a transcendental idealism of this sort has to demonstrate is that only a free and practically striving I can have any experience of a world of spatio-temporal, material objects, and the overall deductive strategy of the *Wissenschaftslehre* is to demonstrate this by showing that the latter is a condition for the former. This is the sense in which "theoretical reason" is based upon "practical reason." (Of course, there is also an important sense in which the converse is true: since, according to Fichte anyway, practical striving presupposes theoretical awareness of a goal.)

Finally, there is a third, even narrower sense of "*Wissenschaftslehre,*" in which the term is synonymous neither with philosophy in general nor with

transcendental idealism as such, but refers instead to Fichte's own, distinctive version of the latter. Although Fichte himself never relinquished his long-standing claim that "the *Wissenschaftslehre* is nothing other than the Kantian philosophy properly understood" and consequently always sought to minimize the differences between his own system and Kant's, it must nevertheless be conceded that there are many striking differences between the "letter" of his philosophy and that of Kant's.

For example, Fichte's version of transcendental idealism follows Reinhold in claiming to base everything upon a single, absolutely certain "first principle." By proceeding in this rigorously "deductive" manner, Fichte believed, the *Wissenschaftslehre* would be able to produce a more elegant and successful derivation of the *a priori* categories of possible experience—including space and time. (The deductive strategy of the *Wissenschaftslehre* makes it possible to dispense with the Kantian distinction between "transcendental aesthetics" and "transcendental logic," and thus tends to identify "forms of intuition" and "categories of thought.") By deriving everything from a single starting point the *Wissenschaftslehre* could also hope to avoid the problems of systematic unity which plagued Kant's writings. Not only would it be able to exhibit the "common root" of intuition and thinking, but, even more significantly, it would be able to demonstrate, in a systematic manner, the intimate link between theoretical and practical reason, the realm of nature and that of freedom. (This last point marks a major advance beyond Reinhold's Elementary Philosophy, which confined itself almost entirely to an account of theoretical reason.)

Or, to cite another example of the manner in which Fichte's philosophy advanced beyond the letter of Kant's, there is no room within the *Wissenschaftslehre* for any reference, however minimal or tangential, to "things in themselves." Having absorbed the arguments of Kant's critics, Fichte firmly rejected any appeal—within the context of a philosophical account of experience, though not, of course, within the context of everyday life, where such appeals are not only appropriate but unavoidable—to what he characterized as the "non-thought of things in themselves." In contrast to philosophical "dogmatism," which vainly attempts to explain representations as "produced" within the mind by external objects, and which thus pretends to derive consciousness from things, a genuine transcendental idealism or *Wissenschaftslehre* adopts the opposite strategy; that is, it tries to show how our experience of "things" is a consequence of the character of consciousness itself. If philosophy is to remain transcendental and is not to become transcendent, then the undeniable "objectivity" of the world of ordinary experience will have to be accounted for purely in terms of consciousness and its acts. This means that transcendental philosophy must demonstrate that "the representation

and the object that is supposed to correspond to it are one and the same thing—merely regarded from two different points of view" (I, 3:252). It accomplishes this by showing that consciousness must operate in certain ways if selfconsciousness (which, for Fichte as for Kant, is the starting point of the entire deduction) is to be possible at all. It is the "necessity" of these modes of acting which accounts for the "feeling of necessity" which accompanies certain representations, and thereby accounts for the experienced "objectivity" of the world. (The sort of idealism which merely asserts that mind "constructs" reality but does not offer a rigorous deduction of the *necessity* with which it acts in doing so is dismissed by Fichte as "transcendent idealism.")

Turning now to the Jena *Wissensckaftslehre,* let us begin with an examination of its first principle or starting point. Obviously, it is not sufficient that the "first principle" of all philosophy be a proposition from which all of the other propositions of the system can be derived; in addition, the principle in question must also be *true*. But how can the truth of this highest principle be established? Its truth cannot be derived from some higher principle or set of principles, for then the principle in question would not be "first." Hence the first principle, if it is to be true at all, must be immediately true; it must express something that is self-evidently certain. (To be sure, *that* this self-evident certainty is *also* the "first principle" of all philosophy is by no means self-evident; instead, this can be established only by actually erecting a system upon the certainty in question.)

What then is the first principle of the Jena *Wissenschaftslehre*? Though casual readers of the *Foundations of the Entire Wissenschaftslehre* sometimes assume that Fichte begins with the logical principle "A=A," a closer reading of the famous § I of this text reveals that the first principle in question is not the abstract logical principle of identity, which is employed purely as a preliminary "clue" for the discovery of the actual first principle of the system: viz., the material proposition which states that "the I simply posits itself." This principle expresses what Fichte believes to be the supreme act of the mind, an act in which the I is simultaneously subject and object. (Such an act is "supreme" in precisely the same, transcendental sense in which Kant considered the transcendental unity of apperception to be "supreme.")

Though there is certainly a sense in which the *Wissenschaftslehre* may be construed as a continuation of the Cartesian project of basing philosophy as a whole upon the alleged self-evidence of the *cogito,* there is also a crucial difference concerning the status of "self-consciousness." For Fichte, self-consciousness (and hence all consciousness, since the underlying strategy of the entire enterprise is to show that the latter is but a special instance of the former) cannot be understood as a "fact," no

matter how privileged; nor can it be comprehended as an accident of some substance or a modification of some "being." Instead, it must be understood as an *activity,* albeit of a most extraordinary, self-productive type. To employ Fichte's own terminology, the self-positing of the I, which alone makes possible every act of empirical self-consciousness, and indeed, object-consciousness, is a "fact/act" or *Tathandlung*. It presupposes no prior "subject" which acts; it constitutes itself, *qua* self-consciousness, in the very act of becoming conscious of itself.

From this it follows that the "being" of the I is, so to speak, a consequence of its self-positing. Indeed, this, according to Fichte, is precisely what it means to be a "free being." A similar thought has been expressed in our own century in the formula that, where human beings are concerned, "existence precedes essence."

Thus, in order to "explain representations" Fichte invokes an original act of consciousness which is not an act of mere "representing" at all, but is equally and at the same time an act of production, indeed autoproduction. Thus the starting point of the Jena *Wissenschaftslehre* is equally "practical" and "theoretical," for the act described in its first principle ("the I simply posits itself") is a "doing" as well as a "knowing." Indeed, it is precisely because Fichte's system commences with and proceeds from "that supreme point from which the practical and the speculative appear as one" (III, 2:395) that it can hope to succeed in its overall goal of reconciling freedom and necessity, morality and nature.

This choice of a starting point has equally dramatic implications for the narrower field of theoretical philosophy proper (that is, for that portion of philosophy which accounts for our experience of an external world of spatio-temporal objects), for it establishes, from the very start, the essential identity of *ideality* (being for consciousness) and *reality* (being in itself). An I is an I only insofar as it posits itself—i.e. is aware of itself as an I. Since the unity of being and thinking is explicitly present in our original starting point, it follows that it will be (implicitly) present in everything derived therefrom. Everything that "is" is only insofar as it is "for the I"; i.e. "being" is not an original category within the *Wissenschaftslehre,* but is only a subsidiary or "derived" one.

The nature of this starting point is further clarified in Fichte's second attempt at a presentation of the outlines and first principles of his system (viz., in the *Wissenschaftslehre nova methodo* and the fragmentary *Attempt at a New Presentation*). It is here, in the presentation of 1796–9, that the initial act of self-positing with which the *Wissenschaftslehre* begins is described as an "intellectual intuition." Though Fichte's use of this term has produced a great deal of confusion (and though his remarks on the topic are not always as clear or as consistent as one might wish), the term "intellectual intuition" simply designates the previously described

"act" *(Tathandlang)* of pure self-consciousness, within which the I is supposed to be immediately present to itself, thereby constituting itself as an I, at the same time that it distinguishes itself as an object of consciousness from itself as the subject thereof. Such an act deserves to be called an "intuition" (in the Kantian sense) because the object of consciousness is in this case *immediately* present. But since the object in question (the I itself) is not "given" to consciousness in this case, but is *produced* thereby, the intuition is "intellectual" rather than sensory.

One should note that it is not Fichte's claim that such an original intellectual intuition can *ever* occur within empirical self-consciousness. On the contrary, he frequently reminds his readers that "this absolute identity of subject and object within the I can only be inferred and cannot be immediately evinced as a 'fact of consciousness' " (I, 5:21). However, philosophical reflection upon our own, necessarily divided self-consciousness can lead us to *the inference* that such an original unity must necessarily underlie and condition every empirical act of consciousness (within which the reflecting subject is in fact never discovered to be identical with the object of reflection). Only if there is an original unity of self-consciousness can we account for our abiding sense of our own identity, despite the fact that within every moment of empirical consciousness we find our identity divided between that of the subject and that of the object.

Thus, whereas the formal presentation of the "foundations" of the system begins with a description of the ungrounded *Tathandlung* or self-positing of the I, actual philosophizing, i.e. recapitulating for oneself the series of deductions which constitute the *Wissenschaftslehre,* begins instead with a free act of reflective abstraction on the part of the would-be philosopher. This act of turning one's attentions away from all objects and toward the operations of one's own consciousness is not an act of "intellectual intuition" of the sort attributed to the pure I which the philosopher is trying to study. (If Fichte sometimes uses the term "intellectual intuition" to designate the act of introspection or self-observation engaged in by the philosopher, then one must carefully distinguish *this* use of the term from its other, more fundamental employment to designate the I's original act of self-positing.)

The philosopher, meanwhile, after having abstracted from the "facts of consciousness," then seeks (within the artificial context of their philosophical account) to re-establish that same realm of facts, and they accomplish this by showing *why* and *how* the I must posit such a realm if it is to posit itself at all. This is how transcendental philosophy answers the *quid juris*.

But why should a philosopher begin with precisely *this* abstraction? Why should we commence with the bare thought of what Fichte calls

variously "the absolute I," "I-hood," "the intellect," or simply "reason" (rather than beginning, for example, with the abstraction of a "thing in itself")? What is it that makes this mere idea of an original self-positing subject *certain*? Fichte's reply is instructive: The initial certainty of his proposed starting point is not theoretical at all, but is, instead, *practical*. The autonomy of the I, which is, after all, what is asserted in the formula that "the I simply posits itself," is something one must confirm for oneself within one's own moral experience. To the extent that one is aware of oneself as a free agent, to this extent one is *actually* aware of oneself as a self-positing I.

To be sure, theoretical/philosophical doubts concerning such an awareness always remain possible. This is why skepticism cannot be avoided by purely theoretical means. Instead, what keeps us from doubting the proposed starting point is our sense of moral obligation to determine our own actions, that is to say, our indefeasible awareness of our own freedom. The reason, therefore, why the transcendental idealist comes to a stop with the proposition "the I freely posits itself" is not because they are unable to entertain theoretical doubts on this point or because they cannot continue the process of reflective abstraction. Instead, as Fichte puts it:

> I *cannot* go beyond this standpoint because I am not *permitted* to do so… I ought to begin my thinking with the thought of the pure I, and I ought to think of this pure I as acting with absolute spontaneity—not as determined by things, but rather, as determining them.
>
> (I, 4:220–1)

Thus the "categorical imperative" is invoked to secure the first principles of the entire *Wissenschaftslehre* (not merely of ethics), which illuminates Fichte's striking claim that the "*Wissenschaftslehre* is the only kind of philosophical thinking that accords with duty" (I, 4:219).

This also may help explain the notoriously *ad horninem* character of Fichte's polemic against those (the "dogmatists") who are unable or unwilling to accept the *Wissenschaftslehre*. What ultimately prevents them from doing so, according to Fichte, is not any deficiency of their intellect or any lack of philosophical acumen. Instead, the reason some people persist in attempting to understand consciousness in terms of things (rather than vice versa) is because they lack a lively sense of their own freedom. The defect in question is thus one which concerns their moral character. As Fichte put it in a sardonic footnote: "most men could more easily be convinced to consider themselves a piece of lava on the moon than an I" (I, 2:326 n.). The *Wissenschaftslehre,* however, is a philosophy for those who can and do conceive of themselves as free agents, and it is in

precisely this sense that Fichte could describe it as "from first to last, nothing more than an analysis of the concept of freedom" (III, 4:182).

After one has established for oneself via abstract reflection the first principle of the *Wissenschaftslehre* and has confirmed the truth of this starting point by appealing directly to one's own practical experience, one is then in a position to discover—again, by reflection and self-observation—all of the other acts which must *necessarily occur as well* if the postulated original act is to occur. Of course, just as we are never directly aware of the original act of self-positing which constitutes subjectivity as such, so we are not usually aware of these other, "necessary but unconscious" acts which are derived as conditions necessary for the possibility of this first act (though, of course, the transcendental philosopher becomes aware of them in the course of their enquiry). The *Wissenschaftslehre* is therefore described by Fichte as both (a) a process of raising to consciousness those unconscious acts by means of which the I "constitutes" the world of its experience and (b) nothing more than a complete (and often exceedingly complex) analysis of its own first principle.

The results of such an analysis, however, are sometimes surprising. For example, one of the more striking conclusions of the "analysis" of freedom carried out in the "foundational" portion of the Jena *Wissenschaftslehre* is that, although "the I simply posits itself," freedom is never "absolute" or "unlimited"; instead, Fichte unequivocally demonstrates that freedom is conceivable only as limited. Only finite freedom is actual, just as the only sort of consciousness which is actual is finite, empirical, and embodied. Only "limited" subjects exist as subject.

The conclusion of the *Foundations* and the *nova methodo* is the same: an I must posit itself in order to be an I at all; but it can posit itself only insofar as it posits itself as limited (and hence divided against itself). The limitation in question is first posited as a "feeling," then as a "sensation," then as an "intuition" of a thing, and finally as a "concept." All that we can say, from a transcendental perspective, concerning the original character of the "limitation" in question is to describe it in terms of the I's practical striving. This limitation is first described (in the 1794–5 presentation) as a "check" or *Anstoß* to the I's striving, a "check" which manifests itself within consciousness as "feeling." Though Fichte certainly demonstrates that such an *Anstoß* must in fact occur if self-consciousness is to be actual, he never claims that such a limitation is *produced* by the self-positing I, though he does, of course, observe that a limitation cannot exist (as a limitation of the I) unless it is "posited" as such (i.e. taken up into consciousness) by the I. On the other hand, Fichte steadfastly opposes all attempts to "explain" the *Anstoß* as an "effect" produced by the Not-I. The point is simply this: like the I itself, even the most rigorously

"scientific" and *a priori* philosophy finally must admit that there are *limits* to what can be explained. Philosophy can explain, for example, why the world has a spatio-temporal character and a causal structure, but it cannot explain why objects have the particular sensible properties they happen to have. This is simply what the I discovers—albeit "within itself" and not "out there"—when it reflects upon its own original limitations.

To be sure, philosophy can show that the I cannot posit its own freedom, i.e. cannot posit itself, *unless* it finds itself to be limited (and then, in turn, posits a world of objects as the ground of its own limited state—thereby, as it were, "explaining" to itself its own limitation). However, *that* the I, in fact, finds itself to be limited—and limited in a specific manner (="feeling")—is something that cannot be demonstrated *a priori;* instead, this is something "that everyone can prove to oneself only through one's own experience" (I, 2:390).

This first account of the original limitation of the I is supplemented (in the *Wissenschaftslehre nova methodo*) by an account of how the practically striving I is originally called upon to *limit itself* freely in response to a "summons" *(Aufforderung)* received from what it takes to be another free being similar to itself. To this degree, the 1796–9 presentation goes well beyond the 1794–5 version in demonstrating that self-consciousness also presupposes a recognition of and by others; for one can be conscious of oneself only as an individual, which in turn requires consciousness of a realm of rational beings of which one is but a single member. This important argument, which demonstrates that recognition of and by others is a condition for self-recognition, was first elaborated by Fichte in his *Foundations of Natural Right* and was subsequently incorporated into his presentation of the very "foundations" of the *Wissenschaftslehre*—though it must be admitted that the precise, relative roles of *Anstoß* and *Aufforderung* in the constitution of self-consciousness remain somewhat unclear.

Let us now turn from a consideration of the starting point and deductive strategy of the Jena *Wissenschaftslehre* to an examination of the overall, systematic structure of the same (as explained in the concluding section of the *Wissenschaftslehre nova methodo*). The presentation of a complete, transcendental system of philosophy should begin with a discussion and demonstration of the "basic principles" or "foundations" of such a system, and this is precisely what Fichte himself attempted to do, first in the *Foundations of the Entire Wissenschaftslehre* and *Concerning the Distinctive Character of the Wissenschaftslehre with Respect to the Theoretical Power,* and then, in a revised form, in his lectures on the *Wissenschaftslehre nova methodo*.

The "foundational" portion of the system begins by calling upon the reader to isolate for him- or herself the concept of the freely self-positing I

("think the I!"). Once this initial starting point has been established, it is followed by an elaborate, transcendental account of subjectivity as such, an account which includes step-by-step analysis (which Fichte calls "genetic explanation") of the various unconscious acts of the mind which are required for the possibility of self-positing and which are involved in the constitution of everyday experience. This analysis includes an extended account of the creative activity of the "productive imagination," understood by Fichte as that power of the I which mediates between free self-positing *(Tathandlung)* and limited self-feeling *(Anstoß)*. This first, "foundational" portion of the *Wissenschaftslehre* demonstrates how the "entire mechanism of consciousness is based upon various ways of viewing the separation of the subjective and the objective within consciousness, and, in turn, the union of both" (I, 5:21): hence the explicitly "dialectical" structure of the argument, which constantly oscillates between moments of relative identity and moments of relative difference.

Next come what Fichte terms the various "real" philosophical sciences which make up the further subdivisions of the entire *Wissenschaftslehre*. There are three such systematic subdivisions: "theoretical philosophy," "practical philosophy," and "philosophy of the postulates," within each of which the mind's general principles, laws, and modes of acting (all of which.have previously been derived within the "Foundations") are applied and extended within a specific and limited field.

A "specifically theoretical *Wissenschaftslehre*" or "*Wissenschaftslehre* of cognition" (not to be confused with the "theoretical" portion of the *Foundations*) concerns itself with the general features of what consciousness "discovers" in the course of its experience. Accordingly, this portion of transcendental philosophy presents us with a complete "theory of the world." It deals with what is *given* to consciousness, and it explains—to the severely limited extent that this can be explained philosophically—the necessary features of such a world. Hence, theoretical philosophy is limited to a consideration of *cognition,* that is, to an analysis of the specific type of consciousness within which the conscious subject considers itself to be "determined" by its objects. Theoretical philosophy shows what objects must be like for such consciousness to be possible, and in this sense it constitutes an *a priori* account of empirical reality as a whole, or of "nature." It thus determines the content of experience, but only to the extent that this content reflects the form of consciousness. This sort of theoretical philosophy of nature can indeed circumscribe experience, but it is in no way intended to supplant or to rival the empirical, natural sciences.

Though clearly Fichte envisioned such a "distinctively theoretical *Wissenschaftslehre*" (modeled, no doubt, upon Kant's *Metaphysical*

Foundations of Natural Science), he himself never completed such a science. The closest he came was in his *Concerning the Distinctive Character of the Wissenschaftslehre with Respect to the Theoretical Power,* which barely proceeds beyond the transcendental deduction of space, time, and causality.

In contrast with the purely "theoretical" portion of the system, the specifically "practical" *Wissenschaftslehre* views the object of consciousness as freely determined by the subject. Thus it treats objects (or "being") not as *given* to consciousness, but rather, as *produced,* and produced by a freely acting and conscious subject attempting to accomplish its own goals: hence Fichte's assertion that the practical *Wissenschaftslehre* views "being as a product of concepts." The usual name for such a science is "ethics" or "ethical theory" *(Sittenlehre)*. Ethics, or the distinctively practical portion of the overall system of the *Wissenschaftslehre,* examines not what is, but what ought to be. The "world" with which it is concerned is the world as it ought to be constructed by rational beings. Thus, in this portion of his system (though not elsewhere) Fichte really does interpret the world purely as an arena for moral striving—for this is how the world is actually viewed by the practically striving I (just as the theoretical or "knowing" I views it as something given to consciousness).

Fichte's *System of Ethical Theory* begins with a recapitulation of certain conclusions established in the "Foundations": e.g. (a) an awareness of one's own efficacy (i.e. of one's capacity to realize one's goal concepts) is a condition for the very possibility of self-consciousness, and (b) the I finds itself called upon (or "summoned") to limit itself freely in relation to other free beings. The specific task of *The System of Ethical Theory* is to indicate the particular duties and practicial corollaries which follow from the general obligation to limit oneself freely. Accordingly, this portion of the system can be described as a detailed analysis of conscience as such, or as an expanded enquiry into the form and content of the "categorical imperative." The result is a systematic account of duty as such, that is, of those duties which apply to all rational beings, without taking into account any of the individual differences between persons. Here again, the argument by means of which Fichte purports to establish this system of duties is strictly transcendental in character: the various "oughts" it establishes are presented as so many conditions for the possibility of the original "ought," i.e. as conditions for the possibility of autonomous self-determination.

The third and in many respects most original systematic subdivision of the *Wissenschaftslehre* is called by Fichte "philosophy of the postulates." This portion of the system is concerned with the relationship between the theoretical and the practical realms and examines the specific demands (or

"postulates") which each realm addresses to the other. Those postulates that theory addresses to the practical realm are the subject of the portion of the system entitled "theory of right" *(Rechtslehre)* or "natural right" *(Naturrecht),* whereas those postulates that practical philosophy addresses to the theoretical realm are the subject of the philosophy of religion.

Unlike ethics, which deals with rational (i.e. free) beings as such, the "theory of right" considers these same practical agents in their *individuality,* that is, as individual members of a community of free individuals. Such a philosophical science poses the question: How must the freedom of each individual be externally *limited* in order to permit every individual to pursue their individual goals to the fullest extent possible?

The *Foundations of Natural Right* begins with a general deduction of "intersubjectivity," that is, with a transcendental demonstration that a free individual can recognize itself as such only insofar as it recognizes the freedom of others, while simultaneously distinguishing itself from all of these other freely acting individuals. The next step is to stipulate the conditions for the possibility of such "mutual recognition" among free beings, the chief one of which is free acknowledgment of the legitimacy of the general rule of "right" or "justice," namely: "limit your own freedom in accordance with the concept of the freedom of all other persons with whom you come into contact" (I, 3:320).

Since the mutual recognition in question, that is, the sway of the "rule of right," can be shown to be possible only within a free society, Fichte's examination of "natural right" quickly turns into a consideration, deeply indebted to Rousseau, of the nature of a just social order, the sources of political legitimacy, and some of the specific features of a "just state." Indeed, the *Foundations of Natural Right* could be described as a systematic effort to re-establish the *Social Contract* on purely transcendental foundations. It is the most important early presentation of Fichte's political philosophy.

From a purely systematic perspective, the most distinctive feature of Fichte's *Rechtslehre* is his clear awareness of the distinctively "mixed" character of such a discipline. It is "theoretical," because it speaks of a "world" (viz., the juridical or political order which is designed to constrain the activities of freely self-positing individuals in such a way that each can pursue their own goals); yet it is also "practical," because such a world is never simply "given" to us, but must be produced by free action. The just state is a human product, not something "natural"; but at the same time it is something *external,* something which, unlike purely ethical ends, cannot be achieved merely by internal self-limitation—though, to be sure, the "external limitations" required by the concept of "right" must be freely self-imposed (i.e. must be expressions of the "general will").

This is precisely what distinguishes the "science of right" from the "theory of ethics" (and distinguishes Fichte's treatment of the former from that of Kant, for whom the "theory of right" constitutes a subdivision of ethics): whereas ethics deals with the sphere of our duties, and thus with what is *demanded* of us as free individuals, the theory of natural right deals with those limitations of freedom which are required by the concept of a community of free individuals; i.e. it deals with what is *permitted*. Whereas ethics is concerned with the inner world of conscience, the theory of right is concerned only with the external, public realm—though only insofar as the latter can be viewed as an embodiment of freedom. Hence the concept of right obtains its binding force, not from the ethical law, but rather from the general laws of thinking and from enlightened self-interest. Such a force is hypothetical rather than categorical. If one is to posit one's own freedom, then one must posit the freedom of others and limit one's own freedom accordingly. It follows that a just political order is a demand of reason itself, since "the concept of justice or right is a condition of self-consciousness" (I, 3:358).

The other subdivision of the theory of the postulates, that is, the philosophy of religion, is described as that philosophical science which concerns itself with the postulates which morality addresses to nature. As such, the philosophy of religion considers the manner in which the sensible realm of nature is supposed somehow to accommodate itself to the goal of morality, and thus it deals primarily with what is sometimes called the problem of "divine providence." Fichte himself, as we have noted, was prevented from fully developing this portion of his system while at Jena by, ironically enough, the outbreak of the atheism controversy. Nevertheless, one can gain some idea of his thoughts on this subject from the short essay, "On the Foundation of Our Belief in a Divine Government of the Universe," which precipitated the controversy in question. What one finds in this essay is, first of all, an attempt to draw a sharp distinction between religion and philosophy (corresponding to the all-important distinction between the "ordinary" and "transcendental" standpoints), and second, a defense of our right to postulate something like a "moral world order." But whereas Fichte argues that we are justified in believing that our conscientious actions will in fact "make a difference" in the real world, he resolutely insists (against the Kantians) that such a postulate does not require the postulate of a personal deity, a.k.a., "moral lawgiver." Thus the argument of the essay in question is primarily negative. It does not deny the existence of God, but it does deny that such a postulate is morally required or justified.

Finally, a word is perhaps in order concerning the general tenor or "spirit" of Fichte's Jena *Wissenschaftslehre*. Before finally settling upon a distinctive name for his new philosophy, Fichte considered various

possibilities, one of which was *Strebungsphilosophie,* or "philosophy of striving" (II, 3:265). As a description of "the first system of human freedom" this discarded appellation is particularly apt, for the general conclusion of the Jena *Wissenschaftslehre* is as follows: Freedom is possible and actual only within the context of natural necessity, where it is never "absolute," but always limited and finite. Though it must posit its freedom "absolutely"—that is to say, "purely and simply" *(schlechthin)* or "for no reason"—a genuinely free agent can actually exist only as a finite individual striving to overcome its own limitations and to transform the natural world in accordance with its own goal concepts. To be an "I" is thus to be involved in an endless process of self-overcoming, a process which necessarily takes place in reciprocal interaction with other self-overcoming agents and in the context of a spatio-temporal, material world. Without such limits, there can be neither freedom nor self-consciousness.

Such is the philosophical "vision" which presides over and gives direction to the often bewildering complexities of Fichte's Jena writings. The *Wissenschaftslehre* is a philosophy of projects, a "philosophy of the future." The famous "absolute I" with which the system begins is a mere abstraction, just as the final unity of the I with itself toward which it aspires is a sheer ideal. Between the abstraction and the ideal lies the entire realm of actual consciousness and experience, which, as we have seen, is necessarily a realm of finite, constrained freedom and of real, empirical nature, which exists only "for consciousness"—even though the specific determinacy of this natural world remains philosophically inexplicable. What we *can* grasp is that the world is not now as it ought to be and that it is up to us to change it. Hence Fichte's parting injunction to the students who flocked to his lectures during his first semester at Jena: "Act! Act! That is what we are here for" (I, 3:67).

SCHELLING'S *NATURPHILOSOPHIE* AND SYSTEM OF IDENTITY

Even in a period when observers were in the habit of keeping a weather eye on the philosophical horizon for the emergence of the newest star, Friedrich Wilhelm Joseph Schelling was a phenomenon: a philosophical *Wunderkind* who lived a long life, marked by what at least appeared to be dramatic and frequent shifts of philosophical orientation. Accordingly, it is customary to divide Schelling's philosophical career into a number of more or less distinct phases or periods, though scholars disagree among themselves over the precise number of periods and the degree of

underlying continuity in Schelling's development. Here, in any case, we will confine our attention to the period prior to his departure from Jena in 1803.

Born near Stuttgart in 1775, Schelling was the son of a Schwabian pastor and duly attended the seminary at Tübingen, where he became close friends with Hölderlin and Hegel. His first philosophical publication, an essay on "the philosophy of mythology," appeared in 1793, when its author was barely 18 years old. With the publication of Fichte's first systematic writings, Schelling immediately became an enthusiastic exponent of the same and devoted his next two publications, *On the Possibility of a Form for All Philosophy* (1794) and *On the I as the Principle of Philosophy* (1795), to expounding and defending this latest version of transcendental idealism.

After leaving Tübingen in 1795, Schelling spent three years as a tutor to the children of a wealthy nobleman, a post which provided him ample opportunity for travel and independent study (including an extended period during which he studied physics, medicine, and mathematics at the University of Leipzig). During these years he became a regular contributor to the *Philosophical Journal,* where he published his *Philosophical Letters on Dogmatism and Criticism* (1795), as well as his *New Deduction of Natural Right* (1796)

A growing enthusiasm for Spinoza began to become increasingly evident in Schelling's writings of this period, along with mounting reservations concerning the *Wissenschaftslehre*. Above all, Schelling was dissatisfied with the status assigned to "nature" by Fichte's system. Indeed, one could characterize Schelling's philosophical project at this point as an attempt to replace Fichte's "lifeless" conception of nature with a more adequate one modeled on Spinoza's notion of *natura naturans,* but to do so without overstepping the bounds of transcendental idealism (e.g. by assimilating Spinoza's "infinite substance" or God to the idealists' "transcendental I").

Stimulated both by his enthusiasm for Spinoza and by his own scientific studies, Schelling gradually became preoccupied by efforts to construct a systematic *Naturphilosophie* or "philosophy of nature." To be sure, he was not alone. Others, for example Goethe, were also vocal in their dissatisfaction with what they regarded as the unnecessarily mechanistic and reductive character of the Newtonian worldview. Nevertheless, Schelling gave a distinctive twist to this project, inasmuch as he attempted to develop a more holistic view of nature which would at the same time be at least compatible with (if not actually a systematic subdivision of) the new transcendental philosophy of Kant and Fichte. Of his many publications on this topic, the more important include *Ideas for a Philosophy of Nature* (1797) and *On the World-Soul* (1798), as well as the *Journal of Speculative Physics* (1800–3).

In 1798 Schelling received an academic appointment at Jena, where he remained until 1803. Though he had frequent contact with Fichte during his first year in Jena, he was even more intimately associated with a younger and more artistically inclined circle, which included the Schlegel brothers, Tieck, and Novalis. Indeed, his philosophy of this period exercised a seminal influence upon the birth of "German romanticism," just as the latter, in turn, deeply influenced the subsequent development of Schelling's own thinking.

Even as he was exploring "speculative physics" and attempting to supplement transcendental idealism with *Naturphilosophie,* Schelling was also engaged in an attempt to construct a revised and improved presentation of transcendental idealism itself. His lectures on this subject resulted, in 1800, in the publication of what is perhaps, from both a literary and a philosophical point of view, his most successful single publication, *The System of Transcendental Idealism*.

Because of the quite privileged status assigned to an at the conclusion of the latter work, this phase of Schelling's thought is sometimes characterized as "aesthetic idealism." But Schelling's interest in an was not a merely passing phase, nor was it purely theoretical in character. Just as he had previously supplemented his efforts to construct a *Naturphilosophie* by studying the empirical sciences, so too, under the tutelage of Friedrich Schlegel, he attempted to cultivate himself aesthetically by making a systematic, empirical study of the history of an. The fruits of this intensive effort are apparent in the richly detailed lectures on the philosophy of art he delivered first at Jena (1801–3) and then at Würzburg (1803–4).

Schelling's Jena philosophy culminates in his efforts, in the years immediately following the publication of his *System of Transcendental Idealism,* to make explicit the implicit harmony between the philosophy of nature and transcendental idealism. In order to accomplish this goal, he incorporated both of these "sciences" within a larger, more encompassing system, which he dubbed the "System of Identity" or "Absolute Idealism" and expounded in a series of publications, including the *Presentation of my System of Philosophy* (1801), *Bruno, or On the Natural and the Divine Principle of Things* (1802), and what is unquestionably the most accessible and "popular" presentation of this phase of his thought, *On University Studies*.

This was also the period of close and regular collaboration between Scheliing and Hegel, who arrived in Jena in 1801. For the next two years the two were allied in a collaborative effort to explicate and to defend the new System of Identity. In pursuit of this goal, they founded and co-wrote the entire contents of a short-lived new *Critical Journal of Philosophy*. During this same period the rift between Schelling and Fichte—a rift

which originally arose over Fichte's misgivings at Schelling's efforts to "supplement" transcendental philosophy with *Naturphilosophie* and then turned into a more general disagreement concerning the nature and limits of philosophy itself—became permanent and public.

In 1803 Schelling, accompanied by his new wife Caroline (ex-wife of A.W.Schlegel), left Jena for a chair at the University of Würzburg, which had only recently come under the protection of the Bavarian Crown. In 1806 Schelling moved to Munich, where he served as general secretary of the Academy of Fine Art and delivered occasional public lectures as a member of the Bavarian Academy of Science. Later, following the establishment of the University of Munich, Schelling was appointed to a professorship. As a Protestant in a Catholic state increasingly dominated by ultramontane forces, Schelling found himself under growing pressure, but he nevertheless remained in Munich until his move to Berlin in 1841 (except for the period from 1820 to 1827, which he spent as a professor at the Protestant University of Erlangen).

For the next several years Schelling continued to develop and to defend his System of Identity (see e.g. his *System of Philosophy as a Whole and of the Philosophy of Nature in Particular,* 1804), while continuing to cultivate his interests in the philosophy of art (see e.g. *Concerning the Relationship of the Plastic Arts to Nature,* 1807) and *Naturphilosophie* (establishing yet another new journal, the *Yearbook for Medicine as Science,* 1805–8). However, the most distinctive feature of Schelling's thought during this period was a growing concern with religious issues and a particular fascination with the Gnostic tradition, as embodied, for example, in the theosophical writing of Jakob Boehme. This new interest is reflected in all of Schelling's post-Jena writings, and is especially prominent in his well-known *Philosophical Inquiries into the Nature of Human Freedom* (1809).

Eventually, Schelling's public forays into religious issues embroiled him in a bitter public controversy with Jacobi. At roughly the same time he also broke with his erstwhile ally Hegel, who, without mentioning Schelling by name, had mercilessly lampooned the System of Identity in the Preface to his *Phenomenology of Spirit*. Following the death of Caroline in 1809, Schelling's activity as a philosophical author virtually ceased. He began to associate more and more with conservative social and religious elements, defended the reactionary alliance of "throne and altar" represented by the Karlsbad decrees, and proudly identified himself as an opponent of "old-Jacobin views and of shallow Enlightenment."

From 1811 to 1813 Schelling worked on an ambitious speculative interpretation of human history, *The Ages of the World*. He went so far as to have text set in type, but withdrew it from publication at the last moment. He also began to lecture on the history of philosophy, and his

lectures on this subject reveal an extraordinary animus against his erstwhile philosophical allies and a special resentment toward the growing success of Hegel's dialectical idealism. More and more, however, his lectures and writings focused upon the same three subjects: art, mythology, and religion.

In 1841 Schelling relocated to Berlin, where he was appointed Privy Councilor to the court as well as Professor of Philosophy, charged with the task of stamping out the "dragon's seed of Hegelianism." To the disappointment of the civil authorities, as well as that of his auditors (whose ranks included Kierkegaard, Bakunin, and Engels), Schelling barely touched upon political and social philosophy in his lectures at Berlin. Instead, he devoted them almost entirely to the development of his new philosophy of revelation and methodology. By this point he had begun to characterize his new standpoint as "positive philosophy," in contradistinction to the purely "negative" philosophy of Kant, Fichte, and Hegel—as well as of his own Jena period. Increasingly isolated from his students and contemporaries, Schelling finally died in 1854 in Bad Ragaz in Switzerland, where he had gone to recover from a cold.

It is difficult to comment briefly upon the thought of a philosopher whose intellectual development went through as many apparent "shifts" and phases as Schelling's. Nevertheless, some brief description of Schelling's philosophical itinerary prior to 1804 is called for, beginning with his first, self-consciously "Fichtean" phase. First of all, there is some question concerning the extent to which Schelling was ever an orthodox follower of Fichte, since important differences between his views and Fichte's are apparent even in his earlier writings. In hindsight, anyway, most scholars would agree with Schelling's own judgment of 1807, that "there was certainly a time when I sought to find something higher and deeper in [Fichte's] philosophy than I could in fact find there" (7:23).[2] Still, the differences are hardly overwhelming, and it is hard to blame the young Schelling's contemporaries for initially classifying him as little more than "the town-crier of the I."

In retrospect, of course, one can detect the seeds of future development in Schelling's reluctance to endorse Fichte's view of the I as a pure activity and in his insistence, already apparent in *On the I,* on talking about the "being" of the I, and the various "spiritual properties" of the same. As has already been mentioned, however, the most striking difference between Schelling and Fichte at this point concerned the status of "nature"—both within transcendental philosophy itself and as an object of a special philosophical science.

The growing differences between Schelling and Fichte are even more apparent in the former's *Philosophical Letters on Dogmatism and Criticism,* in which the system of Spinoza ("dogmatism") is compared to

that of Fichte ("criticism"), ostensibly to the advantage of the latter. Even here, however, it is apparent that Schelling's deeper interest is not so much to demonstrate the incommensurability of these rival systems as it is to find some way of combining Spinoza's superior grasp of objective reality with Fichte's transcendental analysis of subjective freedom.

Another significant difference between Schelling and Fichte, even at this early date, is hinted at in the former's casual reference to an "intellectual intuition of the world" (I:285). Whereas for Fichte, "intellectual intuition" designated the abstractly conceived "self-positing" of the I, Schelling was prepared to employ this same term in a much broader sense to designate an allegedly "higher," non-sensible type of "direct perception" of objective reality, so that one could speak of an intellectual intuition of the Not-I as well as of the I. Understood in this manner, "intellectual intuition" was transformed into a special "faculty of truth" possessed by at least some individual human beings. It is this sense of "intellectual intuition" which attracted the attention of Novalis and Friedrich Schlegel and finally led Schelling himself to assert that "art is the organ of philosophy."

Schelling's dissatisfaction with the purely formal or "negative" concept of nature defended by Fichte, together with his admiration for Spinoza's interpretation of nature as a self-developing whole *(natura naturans)* soon led Schelling to make his first truly independent contributions to philosophy. Initially, this took the form of an effort to *supplement* transcendental idealism, which attempts to derive our knowledge of objects from an initial act of self-positing, with a "philosophy of nature" or *Naturphilosophie* that attempts just the opposite: i.e. the derivation of consciousness from objects. *Naturphilosophie* begins with nature as "pure objectivity" and then shows how nature undergoes a process of unconscious self-development, culminating in the production of the conditions for its own self-representation, that is, in the, emergence of mind of spirit. *Naturphilosophie* thus shows how subjectivity emerges from pure objectivity. As precedents for this way of viewing nature, Schelling could refer, not only to Spinoza and Goethe, but also to Kant. Not only are features of Schelling's view of nature anticipated in Kant's discussion (in the *Critique of Judgment*) of natural teleology, but Kant had also attempted (in his *Metaphysical Foundations of Natural Science*) to develop a "metaphysico-dynamical" theory of matter as an equilibrium of opposed forces. Indeed, Schelling called explicit attention to the parallels between Kant's theory of matter and his own, though he noted that the "positive elements" in Kant's theory "remained too subordinate" (5:332).

Rather than viewing nature merely as the "other" of consciousness, Schelling's *Naturphilosophie* seeks to interpret it as an analogon of the same: to treat nature as "visible spirit" and spirit as "invisible nature" (2:56). So viewed, nature no longer appears to be the mechanically

ordered, lifeless realm of the Not-I; instead, it becomes a living, self-organizing system in its own right, one not of mechanical relations between material "things," but of dynamic relations between forces, a self-developing, organic whole, containing within itself its own end or purpose: viz., the production of ever higher natural forms, culminating in mind itself.

In contrast with the approach of the experimental sciences, the method of *Naturphilosophie* is fundamentally *a priori*. It begins with the concept of the *unity* of nature *(natura naturans)* and then deals with the *diversity* of the same *(natura naturata)* by interpreting nature as a *system* of opposed forces or "polarities." The task of *Naturpbilosophie* or "speculative physics" is to describe this system, from its highest, self-organizing principle ("the world soul") to the various specific oppositions or "polarities" (e.g. attraction and repulsion, positive and negative forces, light and darkness), which manifest themselves in ever more complex levels of organization, referred to by Schelling as "powers" or "potencies" *(Potenzen)*. At the first level or "power," nature appears as a system of independent physical bodies; at the second, it is a realm of dynamic processes; whereas at the third and highest level it appears as a completely organic realm, indeed, as a single "organism." This hierarchical scheme reflects the teleological character of nature itself, inasmuch as the lower levels of organization can be adequately "explained" only in terms of the higher.

Whereas Schelling, in the first edition of his *Ideas for a Philosophy of Nature,* still sought to provide something resembling a 'transcendental deduction" of the "idea of nature," he dispensed entirely with such a derivation in the second edition (1803). In the new System of Identity the duality between nature and spirit proceeds directly from the point of "absolute indifference" with which the system begins; and thus the requisite concept of nature is immediately available for philosophical analysis.

In fact, the very idea of a *Naturphilosophie* was based from the start upon the idea of the "Absolute" (not to be confused with the "absolute I" of transcendental philosophy), an idea which can be warranted neither on empirical nor on transcendental grounds. Instead, as in Spinoza and in Schelling's own System of Identity, the idea of the Absolute must simply be asserted as the philosophical starting point. Hence, by 1801 at the latest, Schelling had come to the clear recognition that the philosophy of nature is not an autonomous, self-grounded science, but "can proceed from nothing but a system of identity" (5:116).

As has been emphasized, Schellmg never considered his interest in the philosophy of nature to be in any way incompatible with his commitment to transcendental idealism. Instead, he viewed the two as complementary,

as two sides of the same coin and two branches of a single, more comprehensive system, which he eventually names the "System of Identity." Before commenting upon the latter, however, let us consider a few of the more distinctive features of Schelling's own essay into transcendental philosophy in his *System of Transcendental Idealism*.

Whereas *Naturphilosophie* traverses the path from sheer objectivity to subjectivity, transcendental idealism proceeds in the diametrically opposed direction: pure subjectivity (self-consciousness) to objectivity (the necessary positing of the Not-I, or nature). This latter path, of course, was already blazed by the *Wissenschaftslehre,* and Schelling's description of it resembles Fichte's in many of its details. Adapting Fichte's characterization of transcendental philosophy as a "pragmatic history" of the human mind, Schelling's presentation of transcendental idealism takes the form of an analysis of successive "epochs" of consciousness; hence it moves from "sensation" to "sensible intuition," from "intuition" to "reflection," and from "reflection" to "willing." At the same time, Schelling also attempts to indicate how each of these stages in the transcendental "history" of self-consciousness is correlated with a specific *Potenz* of nature itself.

After having derived "willing," Schelling turns to what is (at least in comparison with Fichte's treatments of these topics) a rather perfunctory account of the "practical" portion of transcendental idealism, that is, to a deduction of intersubjectivity, the categorical imperative, the system of moral duties, and finally, the system of rights or laws. An innovation in Schelling's account of "natural right" and the just state is his explicit attention to the temporal, that is to say, historical, evolution of a just social order. Thus the *System of Transcendental Idealism* presents us, almost in passing, with an interpretation of human history as a process of *endless progress* toward the full realization of freedom, and thus as a "continual and gradual self-revelation of the absolute" (3:603). Schelling's remarkable suggestion that history bears the same relation to practical philosophy that nature bears to theoretical philosophy implies that Fichte overlooked one of the "real sciences" which should constitute a separate subdivision of any complete transcendental system, viz., philosophy of history.

By far the most innovative and influential portion of Schelling's *System of Transcendental Idealism,* however, is its concluding section, "Deduction of the Universal Organ of Philosophy, or, Essentials of the Philosophy of Art according to Transcendental Idealism." Here Schelling treats art, not merely as capable of providing us with an "as if" glimpse of noumenal reality (Kant), nor as capable of assisting in the transition from the ordinary to the transcendental standpoint (Fichte), but rather as accomplishing—albeit in a concrete rather than in an abstract form—the very task of transcendental idealism. It is precisely within aesthetic

experience, according to Schelling, that the identity between the subjective and the objective, what is conscious (freedom) and what is unconscious (nature), becomes an *object* to the experiencing I itself. This unity is present in the *art product,* the "beauty" of which is explicable only as a finite display of the infinite. The art product, in turn, can achieve this synthesis only because of the distinctive character of the activity which produces it. Artistic production, unlike all other human activities, is simultaneously free and unfree, conscious and unconscious.

Rather than attempting to explicate further the distinctive character of artistic production, Schelling simply invokes at this point "the obscure concept of 'genius'," (3:616). Thus he was led by the force of his own argument to the conclusion that it is here and only here—in the productive activity of the artistic genius, in the "art product" which results from this activity, and finally, in the secondary type of "genius" required for genuine aesthetic appreciation—that the fundamental insight of transcendental idealism (viz., the identity of the ideal and the real) becomes apparent *within empirical consciousness*. This, therefore, is the meaning of the oft-quoted claim that art is "the only true and eternal organ and document of philosophy" (3:627), for it is within aesthetic experience—and there alone—that the philosopher encounters in an objective form that intuition which allegedly grounds their entire transcendental system. By appealing to (objective) aesthetic intuition, the transcendental philosopher can defend him- or herself from the charge that the "intellectual intuition" with which they begin is nothing but a subjective illusion.

With this typically bold move, Schelling elevated the philosophy of art or aesthetics into a central position within his overall system. In fact, it could be argued that the "philosophy of art" outlined by Schelling during this period (1800–4) should really be viewed as constituting a third, co-equal branch of his overall System of Identity, one which should take its rightful place alongside *Naturphilosophie* and transcendental idealism. If, as Schelling maintains, art is "a necessary appearance which flows directly from the Absolute" (5:345), then art, nature, and spirit are merely three different expressions or manifestations of the underlying reality.

In the years following the publication of the *System of Transcendental Idealism* the philosophy of art sketched at the conclusion of that work was elaborated by Schelling along Platonic (or Neo-platonic) lines. Thus, in his *Bruno,* as in his lectures on *The Philosophy of Art,* he interprets individual works of art as participating in or reflecting the various divine "Ideas." No aspect of Schelling's philosophy exercised a greater influence upon his contemporaries than his remarks on art, which fell on fertile ground and were further developed into what amounted to a religion of art by the early German romantics. Schelling himself, however, was never guilty of trying to supplant philosophy with art (even though he may have come

perilously close to this at the conclusion of his *System of Transcendental Idealism,* where he calls for a "new mythology" which will represent the triumphant return of science to poetry and the synthesis of both). Instead, he insisted that art and philosophy should be viewed as correlative: art as the *real* and philosophy as the *ideal* reflection of one and the same absolute reality. What is present to the philosopher as a "subjective reflection" is present to the artist as an "objective reality"; but for this very reason the artist, who is inspired by a "genius" he himself does not clearly comprehend, remains unconscious of the true and "absolute" nature of his or her object, whereas the philosopher can acquire genuine "knowledge" of the identity in question. "This is why philosophy, despite its inner identity with art, remains always and necessarily science—i.e. ideal—and art remains always and necessarily art—i.e. real" (5:349).

If transcendental idealism traces the path from "the ideal" to "the real" and *Naturphilosophie* the path from "the real" to "the ideal," and if it is also true that the basic presupposition underlying all true science is "the essential unity of the unconditionally real and the unconditionally ideal," a unity which is identical to "the idea of the Absolute" (5:216), then surely it behooves the systematic philosopher to make this underlying unity as explicit as possible. This is precisely the task of Schelling's "System of Identity": to give philosophical substance to his frequently repeated assurance that transcendental idealism and *Naturphilosophie* are mutually complementary. Since this new system recognizes the total interpenetration of the real and the ideal at every level, Schelling called it "objective" or "absolute idealism" (5:112). Since it asserts the underlying identity of mind and nature, as well as of all other experienced differences (including the philosophical differences between the systems of Spinoza and Fichte), he also called it the "System of Identity."

The most distinctive feature of this new system is that it *begins* with a bald assertion of the unity of thought and being, that is, with the idea of the "Absolute" or "reason." As Schelling explains, "this is the idea of the Absolute: viz., that in relation to the absolute, the idea is also being, and thus the absolute is also the first presupposition of knowing and is itself the first knowledge" (5:216). Consequently, it is futile to demand any sort of philosophical deduction of or justification for the idea of Absolute Identity. Instead, the unity expressed by this idea must simply be presupposed.

The System of Identity commences not with the transcendental idealist's principle of self-identity, but with the still broader principle of identity as such, an identity which transcends and comprises every conceivable difference (hence Schelling's description of his own starting point as the "point of indifference"). To express this bare logical idea of an identity underlying every difference, Schelling utilized the abstract formula "A=A,"

which he consequently characterized as expressing "the supreme law of reason." From this undifferentiated or "indifferent" starting point, he then proceeded to a description (albeit a remarkably abstract one) of reality as a whole, considered as a differentiated system within which unity is maintained by various synthetic relationships, such as substance and attribute, cause and effect, attraction and repulsion, etc. As in his philosophy of nature, Schelling's System of Identity utilizes the notion of various hierarchically related *Potenzen* as its basic organizing principle. For since, as Schelling notes, there is only *one* absolute and identical reality, it follows that "diversity among things is possible only to the extent that the undivided whole is posited under various determinations [or 'powers']" (5:366).

It must be confessed that, for all of Schelling's dialectical ingenuity, the details of his exposition of this system remain extraordinarily obscure. Though this is especially true of his attempts at a systematic presentation modeled on Spinoza's *Ethics* (e.g. in the *Presentation of my System of Philosophy*), it is also true of the "conversational" presentation contained in the dialogue *Bruno,* as well as of the informal exposition contained in the first of his lectures *On University Studies*. However, few critics of Schelling's System of Identity even bother to examine the details of his exposition and most limit themselves to pointing out the alleged emptiness or incoherence of the first principle of the same. Generations of students and scholars have been content to echo Hegel's famous characterization of Schelling's Absolute as "the night in which all cows are black."

However, even if one overlooks the difficulty of grasping its abstract starting point, the System of Identity still suffers from an even more serious problem, viz., its inability to give an adequate explanation of the *why* and the *how* of the initial movement from the point of indifference or identity to a (real) system of differentiated elements. The difficulty in question concerns the relationship between the "indifferent absolute" and everything else (and indeed, the very intelligibility of positing anything "else" beyond or outside of the "Absolute"). How, precisely, is one to understand the transition, demanded by this philosophy, from unity to difference, from the one to the many, from the eternal to the temporal, from the infinite to the finite, from the abstract to the concrete, from form to content, etc.? Schelling himself was clearly dissatisfied with his own solution to these questions, though not with the questions themselves; indeed, they may be said to have set the agenda for his entire subsequent philosophical development.

The more one reflects upon the problem of the transition from the Absolute to its finite manifestations, the easier it is to see why, in the period immediately after his departure from Jena, Schelling was increasingly attracted to various forms of Platonism and Neo-platonism

and was particularly fascinated by the works of Bruno and Boehme; for all of these preceding philosophies explicitly address the question of how the finite can be said to "proceed from" the infinite. Furthermore, all of them tend to interpret the former merely as an "appearance of" or "way of looking at" the latter—albeit a necessary one.

Ultimately, Schelling seems to have acknowledged the intractability of this problem, at least within the framework of his earlier philosophy. Indeed, beginning with his *Philosophical Inquiries into the Nature of Human Freedom,* all of his later works may be seen as attempts to resolve this very problem, and to do so by moving from a purely abstract or formal philosophy of logical relations—a "negative" philosophy incapable of addressing questions of "existence"—to a "positive" philosophy, better able to open itself to the mystery of existence.

If Fichte's philosophy may be called a "philosophy of striving," Schelling's may be characterized as a philosophy of speculative salvation, inspired, above all, by a deep longing to restore a presumably lost unity or harmony. This longing is expressed in the profoundly "metaphysical" character of all of Schelling's writings, including his earliest ones. As early as 1795, he characterized philosophy's task as "solving the problem of the existence of the world" (I:314), a formulation which certainly betrays a radically different spirit from that expressed in Fichte's description of philosophy's task as "explaining the origin of representations accompanied by a feeling of necessity," though not inconsistent with it.

It is quite in keeping with this difference that Schelling should have soon discarded the strictly transcendental approach to philosophy and should have transformed his system into a doctrine of the Absolute, for only such a doctrine is capable of addressing the "riddle of existence." A genuinely Critical or transcendental philosophy, in contrast, while not denying the presence of such a "riddle" within human life, also acknowledges philosophy's utter inability to solve it.

But the differences between Schelling and Fichte extend beyond their disagreement concerning the limits of philosophy, and include—if indeed they are not based upon—a disagreement concerning the very aim of human life. In Fichte's view, consciousness is necessarily divided against itself and the world; freedom is expressed through practical striving; and harmonious self-identity remains an unobtainable ideal. For Schelling, on the other hand, unity is always present, however obscured by appearances; all that prevents us from acknowledging this, and thereby obtaining a kind of salvation, is our lack of knowledge.

Moreover, according to Schelling, philosophy itself—that is, a misguided philosophy of "mere reflection"—is largely responsible for our present, torn condition, our separation from nature and from our own true selves. We suffer from a "spiritual sickness"; we long for restoration

of a "lost unity." But the way to recover our health and restore this unity is not to reject philosophy, but to replace a shallow and false philosophy with a profound and true one: "to abolish the split at a higher power by means of speculation" (5:121).

In the end, there is no better way to characterize the "presiding spirit" of Schelling's thought than to contrast it with that of Fichte's, and this contrast is nowhere better expressed than by Schelling himself, in his first lecture *On University Studies*, where he wrote, in a transparent allusion to Fichte: "'Action! Action!' is the call that resounds from many quarters, most loudly however from those who do not wish to proceed with knowledge" (5:452) Though Schelling undoubtedly included himself among the ranks of the latter, he never considered knowledge to be an end in itself, but only a means: a means for overcoming our divided selves, a means toward salvation. It is no accident that, whereas Fichte's most original philosophical contributions were to ethics and social philosophy, Schelling's were to the philosophy of art and philosophy of religion.

THE LATER PHILOSOPHIES OF FICHTE AND SCHELLING

Even the most casual reader must be struck by the obvious superficial differences between the many versions of the *Wissenschaftslehre* Fichte wrote after 1800 and the two presentations of the "foundations" of the same he produced while in Jena. Experts continue to differ among themselves, however, concerning the depth and significance of the differences in question, with some arguing for a radical break in Fichte's intellectual development after the move to Berlin and others emphasizing the continuity of his writings and the similarities between the systems of his Jena and Berlin periods. (Fichte himself never renounced his earlier writings nor did he emphasize the differences between the various versions of the *Wissenschaftslehre;* on the contrary, he tended to describe them simply as so many different expressions or presentations of one and the same "spirit.")

So too in the case of Schelling, though here the differences are, if anything, even more striking (and of course Schelling himself called explicit attention to the differences between his earlier, "negative" philosophy and the "positive" philosophy of his Berlin years). Nevertheless, there are distinguished scholars who attempt to emphasize the continuity of Schelling's intellectual development and scorn the traditional division of his works into a series of separate "periods." Still,

no reader of the *Philosophical Inquiries into the Nature of Human Freedom* or the posthumously published Berlin lectures on *Philosophy of Mythology* and *Philosophy of Revelations* can fail to note the tremen-dous difference between these works and the writings of Schelling's Jena period.

Moreover, even those scholars who acknowledge the fundamental differences between Fichte's earlier and later works, or between Schelling's earlier and later writings, disagree concerning the causes or reasons for these differences. Whereas some emphasize the role of "external" factors (such as, in the case of Fichte, the atheism controversy, the dispute with Jacobi, and the French occupation of Prussia, or, in the case of Schelling, the influence of figures such as Franz von Baader, Schelling's resentment at the successes of his contemporaries, and the general reactionary mood which engulfed Europe in the wake of the Congress of Vienna), others point to internal, philosophical reasons for the specific changes they purport to find in Fichte's and Schelling's post-Jena writings.

It has been said of Fichte that whereas his earlier thought and writings belong to the history of philosophy, his later work—with the exception of such "popular" efforts as *The Way toward the Blessed Life* and the *Addresses to the German Nation*—are of purely biographical interest, and the same could be said of the works of Schelling's final period. The point of such observations, presumably, is to call attention to the greater influence the early writings of each man had upon the subsequent history of "German Idealism." This, of course, is hardly surprising, given the fact that the most important theoretical writings of both Fichte's and Schelling's later years were not published until years after their deaths. However, this fact alone should not be allowed to suggest that the later writings of either are somehow lacking in intrinsic, philosophical merit. On the contrary, it is precisely the later, posthumously published writings of both Fichte and Schelling which have received the most concentrated attention from recent and contemporary scholars.

Large claims have been made on behalf of the later versions of Fichte's philosophy, and especially concerning the 1804 *Wissenschaftslehre* (which replaces the first principle of the Jena versions—viz., "the I simply posits itself"—with the lapidary proposition, "there is truth"). So too, far more attention has been paid in recent decades to Schelling's post-1803 writings than to his earlier works. In particular, his 1809 *Philosophical Inquiries into the Nature of Human Freedom* has been the subject of studies by such eminent thinkers as Karl Jaspers, Paul Tillich, and Martin Heidegger, all of whom agree in interpreting this text as a harbinger of twentieth-century existentialism. Other scholars have pointed to the lectures Schelling delivered during his final Berlin years as representing, not merely the logical conclusion of his own protracted philosophical development, but the culmination of German Idealism as a whole. Consequently, no well-

informed contemporary student of either Fichte or Schelling would be likely to dismiss the later writings of either as lacking in interest or value.

Nevertheless, from the standpoint of a "history of German Idealism" it remains true that the Jena writings of Fichte and Schelling are the ones that matter most. They are the ones upon which their contemporary reputations were largely based, just as they are the writings which most influenced the immediately subsequent history of philosophy (unlike the later works, which exercised a negligible influence upon the "history of German Idealism"). To take a particular case in point, Hegel's philosophy, at least in the form in which we are familiar with it, is quite inconceivable apart from Fichte's Jena *Wissenschaftslehre* and Schelling's *Naturphilosophie* and System of Identity.

Hence there is some justification in the present context for ignoring the later published and unpublished writings of Fichte and Schelling. This, however, should not be taken as an implicit judgment upon the relative philosophical worth of the earlier and later writings of either Fichte or Schelling, nor is it meant as an endorsement of Hegel's self-serving interpretation of the philosophical merits of Fichte and Schelling, whom he tended to treat as little more than stepping stones toward his own version of speculative idealism. On the contrary, one must strenuously guard against such an interpretation, even if limited to the Jena writings of Fichte and Schelling. To interpret these solely in the light of their reception and critique by Hegel and others is to distort and to misunderstand them, a misunderstanding not unlike the one which would be involved if one were to read Plato merely as forerunner of Aristotle, or Descartes simply as a step along the path to Spinoza.

Quite apart from its historical influence, Fichte's Jena *Wissenschaftslehre* stands on its own as a unique and enduring, albeit widely misunderstood, contribution to philosophy, and the same can be said of Schilling's *System of Transcendental Idealism,* as well as of his various attempts to construct a "philosophy of nature" and to articulate his "System of Identity." Nobody today interprets Kant's *Critiques* merely as an "influence" upon the development of Hegelianism, even though they manifestly were such. So too, it is high time that the early writings of Fichte and Schelling be accorded the same intellectual courtesy—that is, the courtesy of being allowed to stand or to fall on their own merits.

NOTES

1 Fichte's writings and letters are cited, by series, volume, and page number,

according to the text of the (still incomplete) new critical edition: *J.G.Fichte: Gesamtausgabe der Bayerischen Akademie der Wissenschaften,* 24 vols (to date) ed. R.Lauth *et al.* (Stuggart and Bad Cannstatt: Frommann, 1964–. All English translations are by the author (though Fichte's italics have not always been retained).

2 Schelling's writings are cited, by volume and page number, according to the first collected edition, edited by his son, F.K.A.Schelling: *Friedrich Wilhelm Joseph von Schellings sämmtliche Werke,* 14 vols (Stuttgart: Cotta, 1856–61). Translations are by the author.

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CHAPTER 6

Hegel's *Phenomenology of Spirit*

Robert C.Solomon

G.W.F.Hegel (1770–1831) was the greatest systematic philosopher of the nineteenth century. As a young man he followed and was (at least at first) enthusiastic about the French Revolution. Then came the Reign of Terror of 1793, and Hegel, like many early followers of the revolution, had second thoughts. With the new century came Napoleon. Hegel and all of Germany watched with mixed fascination, anticipation, and anxiety as Napoleon began his political and military campaign eastward, forming alliances with many of the tiny principalities and city-states of Germany, threatening and swallowing others. By 1806, Napoleon was at the height of his powers, and in the battle of Jena in October of that year, he put an end to the 800-year-old Holy Roman Empire. The international success of French revolutionary liberalism impressed Hegel, who was then teaching at the University of Jena. The battle also put him out of a job. But in the wake of Napoleon Hegel envisioned the birth of a new world, and he announced in the Preface of the book he was completing, albeit in rather ponderous philosophical terms, the ultimate liberation and final unification of the human spirit. The book was called *The Phenomenology of Spirit*. Its influence in philosophy would be as profound and as enduring as Napoleon's bold ventures in European history, in terms of both its positive impact and the reactions it engendered. It is Kant, perhaps, whose "Copernican revolution" is usually compared to the upheaval in France, but it is Hegel who deserves credit for consolidating and spreading that revolution. If Heine could compare Kant to Robespierre, then Hegel, with comparable philosophical hyperbole, deserves comparison to Napoleon.[1]

Hegel began studying and writing philosophy soon after Kant had redefined the philosophical world, and just as Europe was entering the turbulent new century. As a young man, Hegel was educated in the Tübingen seminary but seemed to have little religious ambition or theological talent. In fact, his first philosophical essays were somewhat blasphemous attacks on Christianity, including a piece on "The Life of Jesus" which went out of its way to make Jesus into an ordinary moralist, who in his Sermon on the Mount espoused Kant's categorical imperative.[2] As a student, however, Hegel entertained the idea of inventing a new religion that stressed our unity with nature, a "synthesis of nature and spirit" drawn from the ancient Greeks and crudely formulated with great poetic flair by Hegel's college friend and room-mate Friedrich Hølderlin. Hølderlin was without doubt one of the poetic geniuses of his generation and a powerful influence on young Hegel. Drawing from not only the ancient Greeks but the romantic culture that surrounded them, Hølderlin promulgated a grand metaphor of **effusion,** cosmic spirit making itself known to us and to itself throughout all of nature, in human history, and, most clearly of all, in poetry and the "spiritual sciences." Their younger friend Friedrich Schelling had already converted that metaphor into philosophical currency by 1795, and when Hegel finally decided to turn to serious philosophy in 1801, it was with the encouragement and sponsorship of Schelling. He sought and obtained a teaching position, and, in opposition to the clear polemical tone of his earlier, "anti-theological" essays, he began to write philosophy in a terse, academic style.[3] Hegel joined Schelling in his bold attempt to forge a new form of philosophy, following Kant and the radical neo-Kantian Johann Gottlieb Fichte, and together they published a journal, the *Critical Journal of Philosophy.* His first professional essay was a comparison of the philosophies of Fichte and Schelling, making clear the superiority of the latter.[4] For several years, Hegel was known in the German philosophical world only as a disciple of Schelling. But then he published his *Phenomenology.*[5]

Hegel's original intentions and initial approach to the *Phenomenology* were rather modest and for the most part derivative of earlier efforts by Fichte and Schelling to "complete Kant's system." The idea of a "system" of philosophy comes from Kant, who aspired to provide a unified and all-encompassing "science" of philosophy. But according to Fichte and Schelling and several other philosophers who greatly admired and emulated Kant, he had not succeeded. He left us instead with a fragmentary philosophy which, however stunning in its individual parts, failed to show the unity of human experience. In particular, Kant left a gaping abyss between his theory of knowledge—in the first *Critique,* the *Critique of Pure Reason*—and his conception of morals in the *Critique of Practical Reason,* and so left the human mind as if cleft in two. The third

Critique was supposed to be a synthesis of the two, but in the opinion of many of Kant's closest followers, some of whom preferred the third *Critique* above all, that book failed to provide the synthesis required for a genuine system.[6] Moreover, Kant's conception of the "thing in itself," while central to his philosophy and the key to his division between the phenomenal world of knowledge and the noumenal world of free will, morality, and religion, was greeted by these post-Kantians as a mistake, a serious flaw that threatened to undermine the whole critical enterprise. The idea that there could be any intelligible conception of things as they are in themselves and not as phenomena—that is, as experienced by us—left room for the skeptic to' dig in their wedge with the challenge: How can we know that we really know anything at all? How can we have true or "absolute" knowledge—that is, self-reflective knowledge that does not permit the possibility of skepticism? How does the world of practical reason tie in with what we know, and vice versa? In his philosophy, therefore, Hegel would argue against the intelligibility of skepticism, against the intelligibility of any conception of the "thing in itself" as distinct from things as we know them, and against the bifurcation of human experience into incommensurable theoretical and practical realms. The fact that Hegel expresses this reasonably modest and academically well-established set of problems and their solution in the language of "absolute knowing" has understandably led to much misunderstanding and considerably exaggerated claims on behalf of Hegel's efforts. What Hegel was after, however, was a continuation, a correction, and the "completion" of some of Kant's key themes, die unity of knowledge, the unintelligibility of skepticism, the importance of the first-person, "subjective," Cartesian, or "phenomenological" standpoint as the origin of all knowledge, and the *a priori* necessity of certain forms of consciousness. It was not a particularly ambitious program, and Kant, Fichte, and Schelling, among others, had clearly shown the way.[7]

What emerged in 1807, however, was a book very different from anything that had been seen in philosophy before. True, the Kantian themes and the post-Kantian ambitions were still in evidence, and the book did conclude with a modest chapter entitled "Absolute knowing." But in between the introduction and opening chapters, on the one hand, in which these themes were quickly dispatched, and the brief conclusion, on the other, in which the post-Kantian ambitions were summarily concluded, the book grew into something of a beautiful monster. There are chapters on various Greek philosophies and on various eccentric movements in ethics, as well as an open attack on Kant's categorical imperative, commentaries on contemporary history including the Enlightenment and the French Revolution, bits of literary criticism, philosophy of science, and an oddly shaped survey of the world's religions, all put forward in a barely

intelligible abstract neo-Kantian jargon that makes even the Kantian *Critiques* read like vacation novels by comparison. The *Phenomenology* is not, as originally intended, merely a demonstration of "the Absolute." It is a magnificent conceptual odyssey which carries us through the most elementary conceptions of human awareness to some of the most all-encompassing and complex forms of consciousness. Its stated purpose is still to comprehend the truth—the absolute truth—but this should not be understood as a merely epistemological enterprise. What Hegel comes to mean by philosophical truth is an all-encompassing vision, and this will include not only a variety of philosophical theories but much material from religion, ethics, and history as well.[8]

THE SPIRIT OF THE *PHENOMENOLOGY*

The fact that Hegel so obviously followed in Kant's great footsteps too easily misleads us into thinking that Hegel, supposedly like Kant, was just another academic philosophy professor, worried about abstruse and abstract problems that an ordinary person would neither comprehend nor care about.[9] The truth is, of course, that this picture is unfair to Kant, and it is mistaken about Hegel as well. Kant was moved in philosophy not only by David Hume, who famously awakened him from his dogmatic Leibnizian slumbers, but by his religious piety, his firm moral convictions, and his enthusiasm for Newtonian science. He was troubled by the conflict between science and religion, and he was deeply interested in such speculative questions as the meaning of life as well as the basic Socratic question of what it meant to be a genuinely good human being. To read Kant merely as the answer to skepticism or the grand synthesis of the warring schools of rationalism and empiricism is to miss what is most important and exciting about him. So, too, to see Hegel as the continuation or "completion" of Kant is to deny what is most fascinating about his philosophy. And to read the *Phenomenology* as if it were only a wordy and difficult introduction to the mature "system" that followed is to miss what is most important and exciting about that book. For the "spirit" of the *Phenomenology* is nothing less than an all-embracing conception of the world, an attempt at synthesis, yes, but nothing so meager as a mere collaboration between (as Schopenhauer called them) "irritated professors."

In the Tübingen seminary or *Stift,* Hegel, Schelling, and Hølderlin had dreamed of a new religion.[10] They despised much of their theological training, dismissing it with those familiar vulgarities with which students have always dismissed the dogmatic studies they were forced to mouth

and respect in the classroom.[11] They had deep misgivings about German culture as well, torn between the cosmopolitan clarity and free-thinking of the French and British Enlightenment (represented in Germany by Kant) and the romantic nationalism mixed with mysticism that marked the German romantic reaction to the Enlightenment.[12] The Enlightenment seemed to many Germans to be vulgar, overly concerned with economics, and contemptuous of religion and the "spiritual" aspects of social life.[13] And yet the promises of the Enlightenment seemed so attractive, and the dead weight of feudalism, Lutheran theology, and the medieval church, by comparison, seemed to have philosophy as well as German life pinned down in a decidedly most unenlightened past. Reconciling the cosmopolitan demands of the Enlightenment and their regional pride and piety seemed essential to the young Germans, and the events across the French border made these conflicts very real and very urgent. In the years between his graduation from the seminary and his first university post, Hegel wrote his early essays on the nature of religion.[14] Most of them were hostile to Christianity and held up the spiritual life and the "folk religion" of the ancient Greeks as an attractive alternative.[15] Hegel's early essays were often sarcastic, sometimes clumsy attempts to revise and reconcile Christianity with Greek folk religion, insisting on a "natural" religion rather than one based on authority, and a "subjective" religion—a religion of ritual and social participation—rather than the "objective" religion taught by theology.[16] Religions, Hegel surmised, are and ought to be particular to particular people and a particular time, part of the life of a people and not merely abstract beliefs with no practical manifestations.[17] And yet, it makes sense to speak of "religion" in general, and of certain universal features that all religions and all people share in common.[18]

Hegel here is an evident disciple of Kant. In his *Critique of Practical Reason* and his *Religion within the Limits of Reason Alone,* Kant had insisted on the rational defense of religion and the bond between morality and Christianity.[19] Hegel does find much to criticize in Christian morality, in particular its unworkability in large groups and whole societies. He finds much to criticize in Kant too, notably Kant's neglect of local custom in ethics in favor of universal categorical principles, but he makes it clear nevertheless, in straightforward Kantian terms, that "the aim and essence of all true religion, and our religion included, is human morality."[20] To this end, Hegel tries to revise Christianity as a folk religion concerned first of all with the cultivation of morality, culminating in his awkward but amusing attempt to have Jesus preach the categorical imperative.[21] But as these early unpublished efforts deepen in their thought and their sophistication, Hegel drops much of his hostility and begins to suggest that in all religions one can discern a kind of necessary development of the human spirit.[22] He begins to focus not just on the failings of Christianity

but rather on its internal contradictions, "disharmonies," or "alienations" *(Entfremdungen)*.[23] He finds fault with the idea that God and man are separate and distinct, in which God is infinitely superior and we are mere "slaves."[24] He also finds fault with the distinctions between and separation of reason and the passions, theology and faith, theory and practice. And here we find the seeds of two of the most dramatic and central themes of the *Phenomenology,* the grand conception of Spirit or *Geist* as immanent God incorporating us all, and the all-important place of local customs and affections in ethics. Like so many other thinkers and poets in Germany of the time, Hegel found his inspiration and alternative visions in the fascinating life of the early Greeks. But with the close of the century and the French Revolution in tatters, with German culture in ascendancy and his young friend Schelling already engaged in a very contemporary philosophy that would change the way we think about ourselves, Hegel abandoned his nostalgic posture and moved into the moment. For what he saw happening was just what his youthful essays had been suggesting to him. The world was filled with contradictions and disharmony, but philosophy would make a difference. Only a few years later, ending his lectures at Jena in 1806, the manuscript of the *Phenomenology* in hand, Hegel announced to his classes:

> We find ourselves in an important epoch, in a fermentation, in which Spirit has made a great leap forward, has gone beyond its previous concrete form and acquired a new one.... A new emergence of Spirit is at hand; philosophy must be the first to hail its appearance and recognize it.[25]

The concept of Spirit or *Geist* is clearly the key to Hegel's philosophy. It is important not to translate "*Geist*" as "mind," as some early translators have done, not because it is literally incorrect but because it is extremely misleading. "Spirit" has a religious significance which is missing from "mind," and, more important, "spirit" suggests something larger about a person while "mind" suggests something merely internal and private. We typically speak of the spirit of a group or a nation and "team spirit" as a way of indicating unity and fellow-feeling, and we may also note that "spirit" thus indicates passion, whereas "mind" suggests rather only thoughts and intelligence—not, we should quickly add, that the two are or need be opposed. But what Hegel has in mind by Spirit is nothing less than the ultimate unity of the whole of humanity, and of humanity and the world. It is the concept in which he seeks to synthesize or at least embrace the various contradictions and disharmonies of religion and morality and reconcile humanity and nature, science and religion. Hegel rarely talks about God, but it is quite clear as we trace our way through the labyrinth

of the *Phenomenology* that it is God, God as Spirit, who is our subject and who is our guide. Not a God within, and certainly not a transcendent God without, but the God who ultimately we are emerges from its pages. Thus Hegel's work has often been touted as a "theodicy," an account of God's revelation on earth, and Heinrich Heine, one of Hegel's less pious students, ironically commented: "I was young and proud, and it pleased my vanity when I learned from Hegel that it was not the dear God who lived in heaven that was my God, as my grandmother supposed, but I myself here on earth."[26]

What makes Heine's comment so outrageous, of course, is his mocking usurpation of the role of God himself, but what is essential to Hegel's concept of Spirit is precisely the loss of individuality and the gain in comprehension that it requires. The realization of Spirit is not the recognition that I am myself God but that we are all God, that Spirit pervades and defines all of us. In this, Hegel's notion is much like Spinoza's pantheism, the realization that we are all one, a claim repeated by Schelling and criticized brutally by Hegel in his Preface with the sarcastic comment "the night in which all cows are black."[27] What Hegel is getting at is the necessity to demonstrate his thesis through reason and by way of a lengthy demonstration of its necessity, not by way of mystical experience or dogmatic insistence. And that is what the *Phenomenology* does or tries to do, to demonstrate by actually guiding us through the emergence of Spirit from its various individualistic guises to the recognition of the necessity of larger, more comprehensive forms.

One can understand here the political as well as ontological imagery which pervades Hegel's philosophy. Hegel is not an individualist. In the *Phenomenology* he comments that much less should be thought of and expected of the individual, and in his later *Philosophy of History* he famously tells us that even the greatest individuals follow unwittingly "the cunning of reason" and find themselves pawns in the hands of a larger fate, a dramatic idea that is embodied in flesh and blood by Tolstoy in his later account of Napoleon's Russian campaign in *War and Peace*. One can imagine Hegel envisioning the great battles of that war, in which hundreds of thousands of undifferentiated "individuals" in identical uniforms moved in waves and slaughtered one another for the sake of larger and dimly understood ideas and loyalties. So viewed, the individual does indeed count for very little, and it is the larger movement of humankind that comes into focus instead. And yet, Hegel is no fascist—whatever ideas or inspiration Mussolini and his kind may have drawn from him. Hegel insists on this larger view of human history but nevertheless insists throughout his work that the ultimate aim and result of that history has been human freedom and respect for the individual. But it is the individual as an aspect of Spirit that impresses us, not the ontologically isolated and

autonomous individual of Hegel's liberal predecessors, notably Kant.

There is a more philosophically profound way of making this point, which makes much more sense of the imagery of Spirit than the usual quasi-mystical accounts. Among the many borrowings of Hegel from Kant was the basic orientation of his philosophy, variously described as "subjective" or "Cartesian" or "phenomenological," although all of these characterizations have the potential to be misleading. (For example, both Kant and Hegel found much to criticize in Descartes, so the "Cartesian" designation has to be much qualified.) This orientation, common to the empiricists as well as most other modern philosophers, might simply be described as "the first-person standpoint," or the attempt to understand the world beginning with one's own experience. Thus the familiar questions, entertained by Descartes, Locke, Hume, and Kant, such as: How do I know that the world conforms to my experiences? Although Hegel will reject this question, as did Kant, they share this phenomenological approach to philosophy and the world in terms of one's own experiences. But, we must ask, **whose** experiences? Are they the isolated and perhaps eccentric experiences of a single individual? Or are they in some sense more general and shared? Kant identifies the subject of all experiences as what he called "the transcendental ego," distinct from the merely empirical ego that we normally refer to as the self, a particular person. The transcendental ego imposes the categories and processes our sensory intuitions into our experience of the phenomenal world, but—and this is the crucial point—it does not experience itself through those same categories. In a famous but somewhat obscure chapter of the *Critique of Pure Reason,* Kant argues against the "paralogisms of psychology," in which the self or soul is misinterpreted as a "thing," a potential object of consciousness. But the self, Kant argues, can never be the object of consciousness; it is always the subject. And because it is therefore immune from the application of the various categories of number, substance, and identity, it cannot be specified as "yours" or "mine," but remains **the** transcendental ego, "consciousness in general." What lies behind this technical move, of course, is Kant's insistence that the forms of experience cannot be matters of personal idiosyncrasy and must be universal and necessary. But Hegel rather easily takes the notion of a "consciousness in general" and converts into a literally general consciousness. That general consciousness is Spirit, the self that pervades and ultimately embraces us all.[28]

The importance of Spirit, however, lies not only in its shared immanence but in its development. The *Phenomenology* is, from beginning to end, the phenomenological account of that development. To put it in an expanded way, the *Phenomenology* adds a new dimension to philosophy, and that is the dimension of history. Not that the

Phenomenology as such is a historical account—although it contains quite a few such accounts, some easily recognizable, some not—but the idea that ideas and movements can be understood only through their development is a bold conjecture, and one rarely appreciated before Hegel (and still too rarely). In his later lectures, this insight becomes the centerpiece of Hegel's philosophy, as he traces the origins and development of the various religions, the course of human history, and the evolution of philosophy itself. Religion, he had recognized toward the end of his early essays, was not abstract dogma but the expression of certain basic human needs and tendencies, and these are not to be found whole in any single religion, nor are they ever entirely absent, but it is in the interplay and development of religions that the ultimate nature of religion emerges—eventually, he suggests, in philosophy. Human history, he will later write, first appears to be a "slaughter-bench," on which whole nations as well as millions of individuals are butchered. But to one who "looks with a rational eye," Hegel argues, "history in turn presents its rational aspect." The history of humanity, brutal as it has been, nevertheless displays an ineluctable sense of progress and increasing freedom.[29] Finally, in philosophy, Hegel teaches us not to see the history of the subject as merely competing answers to the same ill-formed questions but rather as a growth of certain ideas and their importance at certain times into subsequent, improved ideas that have benefited from the conflicts and confrontations of the past. The name of this process or confrontation and improvement, as everyone knows, is **dialectic,** and we shall have more to say about it shortly. But the point to be made here is that the **form** of the *Phenomenology,* its complex organization in terms of some sort of conceptual development, is not just an oddity of Hegel's authorship but, perhaps, the most single important feature of the book.

And yet, the *Phenomenology* is not history, and it is not as such an empirical study of the development of anything, philosophy, humanity, or religion. To be sure, various movements in philosophy are traced in more or less historical order in the first few chapters of the book, and there are bits of actual history spread through the later sections. But one also notes with some consternation that the Greeks are discussed after the moderns and Sophocles after the Stoics, and one would be hard pressed to formulate a historical interpretation that would account for such chronological oddities. What the *Phenomenology* is doing, therefore, is not tracing the actual order of the development of various "forms of consciousness" in history but rather ordering them and playing them against one another in such a way that we see how they fit and how they conflict and how a more adequate way of thinking may emerge. Dialectic is not just development but a mode of argument, and the order of the *Phenomenology* is not just a demolition derby, a process of elimination

and the survival of the fittest, but a **teleology,** a genuine progression from less adequate ways of thinking to more adequate and more comprehensive and, finally, to the most comprehensive way of all.

THE *PHENOMENOLOGY:* PREFACE AND INTRODUCTION

The Preface to the *Phenomenology* is one of the best-known, leastunderstood documents in modern philosophy. Like most prefaces, it was written after the text as a whole was completed, and what it tries to do is to describe the point and purpose of the entire monstrous manuscript. Or, less sympathetically, the Preface is Hegel's attempt to force an interpretation on his book that the text itself does not easily sustain. It is a rambling, convoluted, grandiose monologue punctuated by some striking passages which do, indeed, give considerable insight into Hegel's whole philosophy. It is there that he argues (or insists, at any rate) that "the truth is the whole," that it is a process and not merely a result, and that philosophy must be systematic, scientific, and developmental in its form. But he also insists that such comments are inappropriate in a preface and that, in any case, their whole meaning must be demonstrated in the text, not simply declared beforehand. It is in the actual "working out" of various one-sided positions and "forms of consciousness" that we come to understand how truth emerges in philosophy and how that truth is the history of philosophy itself. One must see ideas and philosophies and whole stages of history as an organic, developing process. In one of his most striking metaphors, Hegel writes, only somewhat tongue-in-cheek:

> The bud disappears in the bursting-forth of the blossom, and one might say that the former is refuted by the latter; similarly when the fruit appears, the blossom is shown up in its turn as a false manifestation of the plant, and the fruit now emerges as the truth of it instead. These forms are not just distinguished from one another, they also supplant one another as mutually incompatible. Yet at the same time their fluid nature makes them moments of an organic unity in which they do not only not conflict, but in which each is as necessary as the other, and this mutual necessity alone constitutes the life of the whole.
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> (*PG,* 2)

Hegel also announces in the Preface and in the wake of Napoleon his vision of a "birth-time" and the beginning of a new era, and in philosophy

he announces the emergence of what he calls "the concept" *(Begriff),* a holistic comprehension of the world through reason.[30] Indeed, philosophy properly developed should exist wholly in the realm of the concept. But that philosophy would be more in evidence in the works and lectures that followed the publication of the *Phenomenology* rather than in the *Phenomenology* itself.[31]

The Introduction to the *Phenomenology,* by contrast, is short and straightforward. It is indeed an introduction. It sets up the standpoint from which the *Phenomenology* will proceed. The Introduction begins where Kant's first *Critique* ends, with the rejection of skepticism and a declaration of transcendental idealism. The history of modern epistemology from Descartes and Locke through Kant's grand synthesis is very much in evidence there, as it will be in the opening chapters of the *Phenomenology.* What concerns Hegel in the Introduction is a metaphor, or rather, a pair of metaphors, whose consequence is skepticism. The irony is, of course, that the metaphors in question originated with philosophers who could not tolerate skepticism and sought to lay it to rest once and for all. The metaphors concern the seemingly contingent relationship between knowledge and truth. The first and more prominent is the metaphor of knowledge as a tool, through which we "grasp hold" of the truth. The second is the metaphor of knowledge as a medium through which the "light of truth" must pass. Both Locke and Descartes attempted to examine this tool or medium, and the ultimate result was the skepticism of David Hume. Kant was "awakened from his dogmatic slumbers" by Hume but only pursued the metaphor further with his "critique" of reason and the understanding. Hegel's argument, simply stated, is that the metaphor itself is mistaken. Skepticism can be laid to rest, as Kant had tried and seemingly succeeded in doing, only if the contingency of knowledge and the metaphors of knowledge as instrument and medium are rejected from the outset (*PG,* 73).

In Descartes, Leibniz, Locke, and Berkeley, the distinction between our knowledge and "the external world" had made way for Hume's devastating skepticism. Kant had solved the problem, in the eyes of many philosophers of the time, by incorporating the external world into the realm of knowledge itself, constituted by the categories of the understanding and the forms of intuition. But with Kant's further distinction between phenomena and noumena—the world-as-we-know-it and the world-as-it-is-in-itself—it remains impossible for us to know the world as it is in itself. Once the distinction is made between the world-for-us and the world-independent-of-us, there can be no escape from the conclusion that we can know only the world as it is for us. Hegel's pursuit of absolute knowledge begins with the rejection of this distinction.[32]

In the Introduction to the *Phenomenology,* Hegel begins his revision of

Kant's theory of knowledge by attacking just this distinction, which he claims is based on unanalyzed and undefended metaphors in which knowledge is considered a "tool with which one masters the Absolute." If knowledge is a tool, there must be a certain necessary distortion due to the operations of knowledge on reality, and therefore we can never know reality (the Absolute) itself but only as it has been manipulated and distorted by the instrument of knowledge. We can, therefore, have only mediated knowledge of the Absolute, and never know the Absolute itself. This is Kant's problem in the first *Critique,* and his solution to it is the critical doctrine that we never know reality independent of the conditions imposed on it by knowledge. The best that can be done by the philosopher is an exploration of the nature of this tool of knowledge and the demonstration of the necessary conditions it imposes on reality. Kant's *Critique,* therefore, abandons the search for absolute reality and simply investigates the tool by which we come to know reality.

But why should we accept this metaphor? Kant never examines or defends this metaphorical starting point, and Hegel turns it against itself:

> If the fear of falling into error sets up a mistrust of Science, which in the absence of such scruples gets on with the work itself and actually cognizes something, it is hard to see why we should not turn around and mistrust this very mistrust.
>
> (*PG,* 74)

By beginning with the investigation of the faculties of knowledge, Kant has already determined the critical outcome of his first *Critique*. Once the distinctions between things as known and things in themselves and between reality-for-a-subject and absolute reality are introduced, one must conclude that we cannot have any but conditioned knowledge and that the demands of traditional metaphysics are utterly impossible. Kant, according to Hegel, offers no justification for this starting point and, more importantly, fails to see fatal problems inherent in this approach. First, the metaphor simply plays on the notions 'truth', 'reality,' and 'knowledge,' and, given Kant's distinctions, Hegel argues that what he ought to have concluded was that we can have no knowledge at all, that our cognitive faculties are such that we can never know the truth. Second, Hegel argues that one cannot begin by investigating the faculties of knowledge before one attempts to gain knowledge in philosophy, for the investigation itself already utilizes these faculties and their concepts. Any such analysis is covertly circular, and one might as well try, Hegel suggests, to learn to swim before getting into the water.

Thus Kant, on the basis of the instrument metaphor, distinguishes

between two different sorts of knowledge, two different kinds of truth. There is limited or conditional knowledge giving us truth limited by the conditions of our cognitive faculties, and there is absolute or unconditioned knowledge of things as they are in themselves which human consciousness cannot have. But even limited truth is indeed truth only if it is the way things really are. If it is an unconditioned or *a priori* truth that all events must be temporally ordered (for us), then this limited truth is a truth only if all events really are ordered. If events are not really so ordered, but rather ordered by us, then this limited truth is a falsehood, even if it is **necessary for us.** (Thus Nietzsche will argue that **all** of our *a priori* or necessary truths are such 'falsehoods.') Similarly, our conditioned or limited knowledge is really knowledge only if it is in agreement with what is really true. If we have conditional knowledge that there exist objects 'outside' us due to the nature of our cognition, this knowledge is true knowledge only if there truly are such objects. In other words, truth is Absolute Truth; knowledge is Absolute Knowledge. The 'real' world is the world as it is in itself, whether that is the world of our experience or not. But what would it mean to even suggest that it is not?

Hegel's reason for rejecting the dualism between knowledge and reality is not simply its skeptical conclusions; the preliminary investigation of knowledge, which is part and parcel of the "knowledge as tool" metaphor, is logically ill-conceived. Kant argues that philosophy must begin by examining those faculties which purport to give us knowledge, but with what do we examine these faculties? The investigation of cognition must itself be carried out by cognition; thus Kant demands that we examine reason by using reason, but a preliminary investigation of the tool of knowledge is already a use of that tool. Hegel agrees with Kant that philosophy must begin with an investigation of knowledge, but unlike Kant he recognizes that this investigation cannot be independent of the use of the faculties of knowledge. Hegel argues that the investigation of knowledge changes that very knowledge, and that such an investigation can never be preliminary, but constitutes the whole of philosophical investigation. The critique of knowledge is the development of knowledge as well.

Once we appreciate this problem as Hegel perceived it, we are in an excellent position to understand the necessity for the peculiar dialectical structure of his work, particularly of the *Phenomenology.* Knowledge *develops* with our conceptual sophistication. This is not to say merely that as we learn more, our knowledge increases; rather, the **kind** of knowledge changes. Specifically, knowledge changes in kind when we turn to focus on our faculties of knowledge, when we question not so much our knowledge of the world, but ourselves. For Kant, self-knowledge was either empirical knowledge of ourselves as phenomenal objects or transcendental

knowledge which could disclose only the necessary forms of our consciousness, but, according to Kant, we could not have knowledge of ourselves in any other sense (e.g. as moral agent or as immortal soul). Neither could we have knowledge of things-in-themselves. For Hegel, knowledge of objects and transcendental self-knowledge are but two stages in the attainment of further kinds of knowledge, knowledge of oneself and the world as Spirit. The *Phenomenology* is just the demonstration and the development of such knowledge, starting with the lowest forms of knowledge, showing how these are inadequate to other forms, and culminating in Absolute Truth in which all of the problems, paradoxes, and inadequacies of the lower forms disappear.

Philosophy, for Hegel, is the demonstration of the 'becoming' of Absolute Knowledge. Such a becoming need not be the pattern of development of any particular individual consciousness, and the development of knowledge in the system is not the psychological development of an individual. For that matter, it does not faithfully appear in or as the history of philosophy either, although this history is inevitably a close approximation of the development of Absolute Knowledge and Spirit. The "forms of consciousness" or forms of knowledge derived in the *Phenomenology* lead to Absolute Knowledge, that level of conceptual development where traditional conceptual (philosophical) problems disappear, but it is not at all obvious that there is but one route—the way described in the *Phenomenology*—from partial or inadequate knowledge to absolute knowing.[33] At the ultimate stage of knowledge, traditional philosophical dichotomies are eliminated and nature and Spirit find their place together. The Fichtean antitheses of dogmatism and idealism are synthesized. The development of Hegel's system is the "working out" of these various traditional forms of consciousness and ordering them in a hierarchy of more sophisticated forms. The purpose of this ordering is to demonstrate how each level corrects inadequacies of the previous conceptual level and how it is possible to correct all these inadequacies once we adopt an all-encompassing vision of the whole rather than limit ourselves to advocacy of this or that particular position.

CONSCIOUSNESS AND THE DIALECTIC

The *Phenomenology* is divided into three uneven sections, each representing one type of 'form' or 'level of consciousness,' in (more or less) ascending order of sophistication. The first and shortest section is called "Consciousness," which deals with relatively naive epistemological consciousness. It is a critique, among other things, of the narrowly

epistemological vision of philosophy that had begun to emerge in the eighteenth century and which still, regrettably, persists today.[34] The second is called "Self-consciousness" and traces the first crude beginnings of the awakening of the consciousness of Spirit in its early form of simple antagonistic recognition of other people and the development of paradigms of dominance and submission ("master and slave") as prototypical forms of self-recognition and awareness. Finally, there is the long, twisting section on "Reason," which traces the ultimate development of a holistic spiritual-rational consciousness from the most simple sense of community to its penultimate realization of Spirit in art and religion before its ultimate realization in Hegel's philosophy.

We can summarize the progression or dialectic of the section on "Consciousness" in three readily identifiable steps, each of them corresponding to a family of "common-sense" claims and philosophical positions. At the beginning is the common-sense notion which Hegel calls "sense-certainty," that we simply know, prior to any verbal description or conceptual understanding, what it is that we experience. Hegel demonstrates that such a conception of knowledge is woefully inadequate. He then brings us from this naive realism through a number of theoretical variations in which can be recognized major insights from Leibniz and some of the empiricists, which he abbreviates as "Perception," to the philosophy of Kant's first *Critique,* in which knowledge is demonstrated to be a form of understanding. In "Understanding," Hegel also tackles the question of the thing-in-itself by way of an extended *reductio ad absurdum* and, following his opening argument in the Introduction, shows us the nonsense of supposing that the true world might be different from the world of our experience.[35]

The first section of the *Phenomenology* develops the role of the understanding in experience, but as an analysis of the entire movement in modern philosophy including such central problems as the nature of substance, the necessity of concepts, and the nature of connections between experiences and the synthesis of objects. In other words, it covers, in a dialectical way, the subject matter of Kant's first *Critique* and the major epistemological work of Locke, Berkeley, and Hume. The stage of consciousness referred to as "sense-certainty" is "knowledge of the *immediate*" (*PG,* 90; Hegel's italics). It is "what is presented before us," "what is given." It is "the richest kind of knowledge, of infinite wealth…. It is thought to be pure apprehension without yet any conceptual comprehension, raw experience, without the need of understanding, the experience of a passive sensitive receptacle" (*PG,* 91). But because it involves no understanding, just a pure knowledge of "This," the particular thing in front of me, one might say that this stage is not truly consciousness or knowledge at all, but merely "knowledge implicit." This

is the pure data of the senses which so many philosophers, of this century as well as the past, have taken to be the indubitable, secure foundation of human knowledge. It is pure experience, uninterpreted and thus unadulterated by us in any way. Accordingly, sense-certainty also includes the claims of many mystics and intuitive philosophers, including, perhaps, Schelling and Jacobi, who have claimed that the knowledge of the Absolute is not conceptual or rational but strictly intuitive, a pure experience, undistorted by human concepts and categories. Traditional epistemologists have argued that errors in human knowledge, when they arise, must arise after this level. For on this level, our knowledge is certain and becomes fallible only when we attempt to conceptualize or to understand our experiences.

Although this section is among the shortest of the *Phenomenology,* it provides us with some vital clues for understanding the nature of Hegel's dialectic. Hegel's argument against this form of 'knowledge' as certain knowledge, or even as knowledge at all, is clear and to the point. Briefly, Hegel argues that this knowledge, which he describes as a mere "this, here, now," is the very opposite of pure, "authentic" knowledge, knowledge which is complete as opposed to all other knowledge which is abstract and conditioned. It is really "the most abstract and poorest truth" (*PG*, 91). It is what we "mean" only in the sense of pointing *(this)* and thus not really meaning at all. It might be said to be reference, perhaps, but not sense. In fact, it is not even reference. How does one point to a particular without specifying what it is to which one is pointing? Thus Hegel concludes that there can be no knowledge without concepts, and the supposed certainty of sensecertainty seems certain only because it is not knowledge at all. It is, at best, mere presence. The infallibility of sense-certainty, of pure experience, lies in its failure to assert any claim to knowledge which might be shown to be wrong. This knowledge which "is called the unutterable, is nothing else than the untrue, the irrational, what is merely meant" (*PG,* 110).

We can see that Hegel essentially agreed with Kant that there can be no unconceptualized knowledge, that knowledge is essentially a product of the understanding. From this agreement, however, we can also appreciate one of the keys to Hegel's works, that knowledge is essentially an *active* process, that mere experience can never give us knowledge, that synthesis of experience by rules or concepts is necessary. To use a common philosophical term, knowledge necessarily consists of *universals*. This does not mean that it is the same the world over, "for all rational creatures" as Kant would say. It means that all sense and reference relies on concepts, on the recognition of general properties which apply not to this or that particular but to an indefinitely large number of particulars (and possibly to no actual particulars at all). One might note that Hegel's insistence on

universality as the essence of knowledge is already a reply to the Schelling-Kierkegaard criticism of Hegel as a "negative" philosopher (who ignores individual existence) which gathers momentum after Hegel's death.

The *Phenomenology* is not a running autobiography of Spirit but rather a retrospective of the development of Spirit, an attempt to understand why some forms of consciousness are inferior to others and force us to search for more adequate, more all-embracing modes of comprehension. The transitions between forms of consciousness represent a demonstration and a development, perhaps an explanation, but there is no mechanism which pushes one stage to the next and Hegel does not claim that each stage necessarily leads to the next. What he does claim is that the process itself is necessary, that consciousness is driven by its own inadequacies to pursue other modes of understanding. Sense certainty is not itself a mode of consciousness but, in more modern terminology, a theory about consciousness, a conception of knowledge. Hegel shows that this conception of knowledge is an inadequate conception, and concludes that no such conception of knowledge can succeed. Sense-certainty is inadequate as knowledge because it is not knowledge at all. Therefore, we move along the dialectic to a more adequate form of consciousness, which is that of *Perception*.

Perception is the first appearance of knowledge, for now we can interpret our experiences by applying concepts. In Hegel's short description, the object of consciousness is now "the thing." As a thing, the object is characterizable and characterized by ascription of properties, in other words, by the application of universally applicable concepts to a particular. Our experience is therefore no longer "pure" experience but experience of a thing defined by its properties. For example, our perception of a tree consists of a certain unity of colors, shapes, tactile sensations, perhaps sounds, and smells. Over and above this, we suppose that there is *the tree*, that which "lies behind" all of these experiences and ties them together. In traditional philosophical terms, there is the tree as *substance* which is responsible for the unity of the tree-perceptions. The problem, familiar from Locke, Hume, and Kant, is what if anything warrants our conclusion that the tree-perception refers to the tree, for any substance 'behind' these perceptions is by its very nature not the object of any possible perception.

In the recent history of philosophy, this line of questioning sent Berkeley to idealism, the view that there are no material substances, only ideas, although idealism does not yet appear as such in the Hegelian hierarchy of knowledge. In Hegel's terms, substance would be an "unconditioned universal," that is, not experienced through the senses. As such, it cannot be an aspect of perception. Thus Locke was forced to some rather *ad hoc* stipulations to explain how we can make the inference to substance and

Hume insisted that we could not justifiably make such inferences in philosophy. Moreover, there was the question, unanswered and even unasked by the traditional empiricists, how the various properties perceived were in fact unified as the properties of an object. Since that general view of knowledge which Hegel calls "perception" does not recognize the extraperceptual, that is, anything but conditioned (sensory) universals, if we are to understand the unity of objects and the idea that we actually know objects and not mere clusters of properties we find ourselves moving on to the next stage of consciousness.

The solution to the problem of unity is provided by the understanding. The concept of "understanding" here is clearly taken from Kant's use of the term and refers to the application of concepts to experience. However, as Kant uses the term, there is a special focus on *a priori* or "unconditioned" concepts, which Kant calls the "categories." Among these categories is the category of substance, which is the solution to the problem of unity. The tree-perceptions have a unity of a tree because of our employment of the concept of substance. Similarly, problems such as the coexistence of various objects, the reality of causal interconnections between perceptions, as well as successions of perceptions, all appear at this level of the dialectic, to which one might refer as the Kantian level, for it consists primarily of the conclusions of the Transcendental Analytic of the first *Critique*.[36] Of central interest in this section is Hegel's analysis of the theory of the understanding as culminating in a dual worldview. On the one hand, there is the world as perceived, and the laws intrinsic to that perception. On the other hand, there is the world in itself, which is postulated 'behind' this world to 'explain' it.

In the understanding, we postulate 'unconditioned universals' in our experience to represent objects in themselves. But Hegel does not adopt the traditional notion of 'substance' for those objects. He prefers a more dynamic vision of experience, and so calls them as 'forces' or 'powers,' which are related to the "kingdom of laws" which is Kant's vision of a necessarily unified and ordered (phenomenal) world. But while the chapter called "Force and understanding" is essentially Kantian, it contains a powerful critique of Kant's *Critique* and suggests that the laws of nature are not merely imposed but inherent in the world itself. In other words, Hegel rejects the Kantian insistence that we should not look for "the universal laws of nature in nature" but rather "in the conditions of possibility of experience."[37] According to Hegel, there is no valid distinction to be made here. Indeed, Hegel suggests that scientific explanation might better be understood as a **redescription** of phenomena. Again, Kant's noumenon-phenomenon distinction is fundamentally wrong; if there is any sense to be made of the notion of "thing-in-itself" it must be as part of the thing-as-phenomenon. Indeed, "the Understanding in truth

comes to know nothing else but appearance…in fact, the understanding experiences only *itself*" (*PG*, 165; Hegel's italics). Noumena are not transcendent to phenomena but immanent in them.

The closing argument of "Force and understanding" and the "Consciousness" section as a whole consists of one of Hegel's longest and most peculiar counterexamples. He postulates a noumenal world which happens to be an inverted *(verkehrte)* world. According to Kant, the world-in-itself is a necessary supposition of the conditions of knowledge but by its very nature cannot be known. Because knowledge depends on the human faculties of knowledge, and because we cannot know that our knowledge is not therefore some distortion of things as they exist independent of our experience of them, we must, while supposing our knowledge to be valid, resort to *noumenon* which very possibly might have its own principles, different from the world as perceived and known by us. Kant insists that there is nothing more to be known about the world in itself, this unknown "x." But Hegel provocatively goes on to suggest what the world-as-it-is might be like by suggesting that everything in this world is 'unlike' that in our own. "What is there black is here white, what by the first law [of phenomena] is in the case of electricity the oxygen pole becomes in its other supersensible reality the hydrogen pole" (*PG*, 158). The two-worlds doctrine is carried to the realm of morality, where Hegel argues that the two—worlds view destroys the very concept of morality it is invoked by Kant to protect. For, according to Hegel:

> an action which in the world of appearance is a crime would, in the inner world, be capable of being really good (a bad action be well-intentioned); punishment is punishment only in the world of appearance; in itself, or in another world, it may be a benefit for the criminal.
>
> (*PG,* 159)

Here we have the first reference to Kant's morality, which begins with the crushing criticism of Kant's *summum bonum* and his entire two-world view. The problem, as stated here, is that the *summum bonum* and Kant's morality in general require man and his actions to be considered as noumenon. A man and his actions are also part of the phenomenal world where they are evaluated, and Hegel is here briefly pointing out the problem in applying the phenomenonnoumenon distinction to a man acting. Why suppose that what we consider punishment to the phenomenal man will have any such effect on man as noumenon. Here, even in this first section, we have a clear indication of the continuing attack of Kant's moral-religious philosophy that will be the core of Hegel's mature writings.

The inverted-world passage is essentially an argument by ridicule, for what becomes evident is that, if we take Kant's notion of noumenon seriously, any sort of nonsense becomes equally intelligible. Either the noumenal world is just like the phenomenal world, or, not only does it not make sense to talk about it, but it does not even make sense to suppose that there might be one. The inadequacy of consciousness, considered in its entirety, is the inadequacy of Kant's philosophy, which Hegel considers the culmination of all modern philosophies before it. The inadequacy of the understanding as such is a signal to a new move in philosophy, a move which is not simply new knowledge or a new progression in conciousness, but which is an entirely new *kind* of knowledge and a new kind of consciousness. Insofar as one wishes to interpret the progress of the *Phenomenology* along philosophical-historical lines, one might say that this new stage was initiated implicitly by Kant and made explicit by Fichte. But the *Phenomenology* is not intended to be just a history of philosophy.

Throughout the *Phenomenology,* Hegel displays similar inadequacies in one form of consciousness after another, and so we are guided from one form to another in an ongoing "dialectic," eventually to reach "absolute knowing," which is the all-encompassing overview of all that has preceded it. The dialectic often proceeds by way of conflict and confrontation, when one form of consciousness contradicts another. But it is a misunderstanding of Hegel to think of the dialectic as a mechanical meeting of "thesis and antithesis," resolved by a "synthesis." That formulation, which comes from Kant, Hegel explicitly criticizes. The dialectic is rather a complex interplay of conceptions, some of which are simply improvements on others, some of which are indeed opposites demanding synthetic resolution, but others simply represent conceptual dead ends, which indicate a need to start over. Indeed, it is not at all clear that Hegel's dialectic is a linear progression from simplicity to the absolute but rather a phenomenological tapestry in which a great many (hardly "all") of the forms of human experience and philosophy jostle against one another and compete for adequacy. Within that tapestry, however, can be found much of the history of Western epistemology and metaphysics, and a great deal of ethics and social history and the history of religion. Whether or not Hegel reaches the absolute, as he states so proudly in his Preface, he gives us an eclectic but systematic philosophy which boldly demonstrates both the complex life of ideas and the role of those ideas in defining human history and consciousness.

SELF AND SELF-CONSCIOUSNESS

The *Phenomenology* makes what might well seem to be an abrupt turn from consciousness, an essentially epistemological study, to self-consciousness and "the truth of self-certainty" and an obscure discussion of "desire" and "life." But the historical linkage here is provided by Fichte, who had charted the move from the theory of knowledge to the importance of a broad, pragmatic conception of self-knowledge several years before. Consciousness becomes self-consciousness when it understands itself as the source of the understanding. To consider the problems of knowledge alone, without reference to the uses of knowledge and the psychological-social world in which knowledge functions, is futile. Thus any adequate conception of knowledge must begin with an understanding of the living self, which is not first of all epistemic but needy, full of demands and desires.

"Self-certainty," like sense-certainty, begins with a commonsense, cocksure conception of the self—in this case clearly reminiscent of Descartes's "I think, therefore I am." Hegel goes on to show that the self is not certain at all. To the contrary, in the confusion of desire and the urges of life the self is confused and desperately seeking in identity. As in the preceding epistemological chapters, Hegel will bring us from a naive view to a more complex and sophisticated philosophical standpoint, but in contrast to the preceding chapters he will now insist that there is an essentially "practical" dimension to knowledge. But "practical" here means, as in Kant, the self conceived as a true self, not just the self of appearances. Accordingly, what emerges in the section on "Self-consciousness" is a reappearance of the old dichotomy of appearance and reality. But instead of rending the world in two, as in the "upside-down" world, the self is shattered into the most "unhappy" of consciousness.

Following Hegel's brief opening comments on the supposedly self-certain "I" and its relation to desire and life, we find the bestknown and most dramatic single chapter in the *Phenomenology,* the parable of the "master and slave." The point is to show that selfhood develops not through introspection but rather through mutual recognition. The self is essentially social or, more accurately, interpersonal, and not merely psychological or epistemological. But Hegel is also concerned to speculate on a certain kind of "natural" relationship between primitive, "stripped-down" human beings. It is an imaginary situation envisioned by many philosophers (notably Hobbes and Rousseau) in their hypotheses about the "state of nature." Their common assumption is that human beings are first of all individuals and only later, by mutual agreement, members of society. Hegel thinks that this assumption is nonsense, for individuality begins to appear only within an interpersonal context.

The confrontation of two consciousnesses is the key to the master-slave relationship, which Marx would later take up as a model for his social theory and Jean-Paul Sartre would borrow as a paradigm for his analysis of "Being-for-others" in *Being and Nothingness*. Hegel tells us that "self-consciousness achieves its satisfaction only in another self-consciousness" (*PG,* 175), and that "Self-consciousness exists in itself and for itself when and by the fact that it so exists for another; that is, it exists only in being acknowledged" (*PG,* 178). These cryptic sentences are the crux of "self-consciousness"; they spell out for us the first appearance of Spirit—the recognition of the existence of a universal consciousness in the primitive form of the recognition of consciousness other than one's own. But Hegel is also arguing a radical thesis about the nature of origin of selfhood. First, there is the suggestion that the concept of "self-consciousness" or "self-identity" can only arise in confrontation with others. Hegel's thesis might thus be construed as the claim that a person has no concept of self, cannot refer to themselves and cannot say things about themselves (for example, ascribe states of consciousness to themselves) until he is shown how to do so by someone else. This thesis has remarkable affinities with Ludwig Wittgenstein's and later P.F.Strawson's claim that psychological predicates can only be learned through learning to apply them to someone else.

Second, there is a more modest thesis that one can only develop self-consciousness, that is, a particular concept of oneself, through confrontation with other people. This weaker thesis does not insist that one cannot have concepts of self-reference before social confrontation but rather that the particular image one has of oneself is acquired socially, not in isolation. It is this sort of thesis which occupies much of Sartre's quasi-psychological efforts in *Being and Nothingness*. The first claim, that concerning the concept of self-reference, is not pursued by Hegel, for he considers self-reference as such to be "merely formal" and "entirely empty," hardly worth the title of "self-consciousness" at all. (Compare his discussion of the "knowledge" of sensecertainty.)[38] The second thesis, however, seems to fit precisely into the overall ambition of the *Phenomenology,* to show how an inadequate conception of oneself is forced into some remarkable and surprising twists and turns.

The first part of the master-slave parable is quite simple and straightforward: two self-consciousnesses encounter each other and struggle to "cancel" each other in order to "prove their certainty of themselves" (their independence and freedom) against the other, who appears as an independent and therefore limiting being.[39] Each self-consciousness originally tries to treat the other as object, but finds that the other does not react as an object. Each demands that the other recognize them as an independent consciousness. But recognizing another as

independent limits one's own independence, and each becomes determined to prove their own freedom and independence. Hegel tells us:

> they have not yet exposed themselves to each other in the form of pure being-for-itself, or as self-consciousness. Each is indeed certain of its own self, but not of the other, and therefore its own self-certainty still has no truth.
>
> (*PG,* 186)

Hegel suggests that it is solely by risking one's life that such a truth is established, and, indeed, the two self-consciousnesses fight (almost) to the death. The other must be "cancelled" because their otherness contradicts one's view as self-conscious, free, and independent. However, it becomes clear that the role of the other in this life-and-death struggle is not only that of a threat or purely destructive. The recognition by the other of one's self is at the very crux of the conflict. Thus it is gaining the recognition of the other that is the point of the battle, not the extinction of the other. Hegel says that "trial by death does away with the truth which was supposed to issue from it, and so, too, with the certainty of self generally" (*PG,* 188). Thus Hegel argues that self-consciousness requires the presence of another for one's own self-consciousness. In fighting for recognition, each tries to save their own life, but each tries also, if possible, to preserve the life of their opponent. If one consciousness is victor, and neither loses their life, then one becomes a consciousness "for itself," independent, a master, while the other becomes a consciousness 'for another," a slave whose essence, Hegel comments, is "life," suggesting that all that the slave has salvaged, at least for the moment, is their life.

The lord or master "is the consciousness that *for itself,* which is mediated with itself through another consciousness" (*PG,* 190). But the master, although self-sufficient in the sense of having the slave dependent on him, is also dependent on this dependence. Because the master maintains the power, they are the master, but because they are now self-sufficient only through the industry of the slave, they are also dependent on the slave. Hegel stresses the importance of a Lockean relationship to "the thing"—presumably land, food, or some craft—which the slave has immediately ("he labours upon it") but "the master only mediately, except that he gets the enjoyment of it" (ibid.). In the course of the dialectic, the slave, because of their direct relation to the thing, becomes self-sufficient, while the master, because of their dependence on the slave, becomes wholly dependent. (From this reversal Marx is to take his central theses of class struggle and the ultimate degeneration and self-destruction of the economic master classes.) Furthermore, the problem of the continued need for the recognition of the other breeds a further instability into this

relationship. The master, who depends on the slave for the recognition that they are indeed the master, now finds that the slave is a totally dependent creature without an independent will, incapable of giving them the recognition of an independent other. The slave, in other words, becomes a "yes-man," whose recognition is irrelevant precisely because it is coerced.

In the master-slave relationship, we first see the striving for freedom of Spirit, the ultimate truth of self-consciousness. In the master-slave relationship, we see only the inadequacy of the attempt to derive this truth from human relationships which treat persons as independent and opposed. Hegel will go on to argue that the way to freedom, the goal of self-consciousness, lies not in such relationships but in the direction of increased civilization. Rousseau had famously argued that society takes a man and turns him into a citizen. For Hegel, too, individual freedom will be found not in isolated independence but in citizenship. But none of this, the explicit recognition of Spirit, appears in the section on "Self-consciousness." The master-slave relationship rather gives way to the wholesale rejection of the master-slave situation and the mutual dependency it entails, denying all external reality and rejecting all action as meaningless. Here Hegel locates the impressive philosophy of Stoicism, which flourished in the ancient world for more than 600 years. The Stoic rejects both slavery and mastery, and Hegel makes much of the fact that two of the leading Stoics, Epictetus and Marcus Auelius, were a slave and the master of the Roman Empire respectively (*PG,* 197–203). In an even more extreme form, self-consciousness attempts to get beyond the frustrations of the master-slave relationship by taking everything as meaningless, which Hegel interprets along the lines of the ancient (not the modern) philosophy of Skepticism (*PG,* 204–5). Ultimately, the contradictions or disharmonies of all possible forms of self-consciousness become explicit in a self-consciousness that is so alienated that it conceives of itself as nothing, or as worse than nothing, in contrast to a holy ideal before which it humbles itself. This unhappy consciousness is the primitive Christian ascetic who believes himself to be both part of this world and essentially divine, but the "creature of the flesh" and the "soul before God" cannot coexist (*PG,* 206–30). The master-slave relationship, which became an impossible relationship between two people, here becomes internalized in a single schizoid individual. A decade after Hegel's death, Hegel's Danish critic Søren Kierkegaard would return to this disharmonious Christian for his "knight of resignation." Where Kierkegaard will insist that this incomprehensible schizophrenia is a necessary condition for Christianity, however, Hegel insists that we go beyond this internalized master-slave relationship with its self-

flagellation and self-denial. At the very end of the discussion of the "unhappy consciousness" and the section on "Self-consciousness," Hegel anticipates a new and happier conception of Christ and Christianity, but not through self-consciousness alone. It is rather in "the idea of *Reason,* of the certainty that, in its particular individuality, it has being absolutely *in itself,* or is all reality" (*PG,* 230; Hegel's italics).

REASON AND SPIRIT

Rational consciousness is the goal of the *Phenomenology,* a final "unification of the diverse elements in its process" and "the consciousness of the certainty of being all truth" (*PG,* 231). Reason resolves by harmonizing and elevating *(autheben)* the disharmonies between self and others, between God and man, between morality and personal inclination, between nature and knowledge. The Spirit of Absolute Knowing is both immanent God and human society. It is also nature, which one might think of as the material aspect of Spirit. There is no separating God from nature or from man and it is folly to separate freedom from nature, reason from passion, or morality from society, as Kant seemed to have done in his philosophy. Reason in the *Phenomenology* marks the synthesis of a number of conflicts that have been introduced in the dialectic of the *Phenomenology* itself, the inadequacies of traditional epistemological thought, the resolution of the master-slave relationship, and interpersonal conflict (including the internalized conflict of the unhappy consciousness); and, most ambitious of all, the *Phenomenology* is Hegel's first attempt to integrate and harmonize all human forms of consciousness and find the proper conceptual place for each of them.

The long section on "Reason"—considerably more than two-thirds of the *Phenomenology*—appears to have no organizing principle or straightforward argument, such as one can discern in the first two sections on "Consciousness" and "Self-consciousness." The first part of the section is a lengthy discourse on the philosophy of nature, including what we would now call the philosophy of science, and it culminates in a particularly peculiar discussion of the oddball sciences of physiognomy and phrenology, the claims that personality and deep psychology can be "read" from certain facial features or the bumps on a person's skull. What occupies Hegel throughout the entire discussion, however, is an attempt to emphasize the nature of the organic, rejecting the familiar Cartesian divisions of mind and body, "inside" and "outside," and the reductionist conceptions of nature. The argument about faces and skulls is not so much

a defense of dubious sciences as it is a defense of the integration of our conceptions of psyche and expression, much as he had argued for the organic integrity of nature earlier in the discussion.[40]

Immediately following this discussion we find ourselves suddenly steeped in certain perennial questions of ethics, "the actualization of rational self-consciousness through its own activity" (*PG,* 347ff.). If there is a principle of transition here, apart from the holistic impetus that motivates all of reason, it is not at all easy to discern. In rapid succession, Hegel considers hedonism, what we would call moral self-righteousness, and a certain tragic conception of integrity or "virtue," but the discussion here seems to follow more or less directly from the unhappy resolution of self-consciousness. Indeed, one of the more familiar channels of denial for the unhappy consciousness is the soon jaded road of hedonism. The predictable reaction, a stubborn asceticism and the rejection of "the way of the world," is equally familiar in both literature and life (*PG,* 381). In these short chapters, as so often for the rest of the book, Hegel seems to be incorporating any number of more or less contemporary themes and controversies, rarely identified as such, from the psychology of Rousseau to the world-weary asceticism of the Jansenists. Nevertheless a general theme is perceptible through the details and meanderings, and that is the inadequacy of any conception of ethics that remains restricted to the isolated individual. Thus the emphasis in this discussion is on the phrase "actualization through its [one's own] activity," which leads inevitably to new versions of the frustrated, unhappy, divided consciousness. The discussion culminates in Kant and a discussion of the categorical imperative. This is, perhaps, the most enduring argument of the *Phenomenology,* some aspects of which are routinely trotted out in introductory ethics classes as criticism of Kant without recognizing their source in Hegel. But before we actually get to Kant, Hegel slips in one of the oddest chapters of the entire *Phenomenology,* a covert discussion of university life under the title, "The Spiritual Animal Kingdom and Deceit, or 'the Matter in Hand' itself" (*PG,* 397–418). To explain just the title would take several pages, but the upshot of the chapter is as easy to understand as it is amusing. Professors love to conceive of themselves as independent individuals, but they really are the ultimate conformists, utterly dependent on each other and on their mutual opinions of one another. Whereas the unhappy independent spirits of the "Actualization" chapter erred in their efforts to remain wholly isolated, the rather self-satisfied creatures in the "academic zoo" simply pretend to be isolated and independent, whereas in fact they are nothing of the kind. It is from here we suddenly leap into the ethical thinking of the greatest professor of all academic zoos, Immanuel Kant. For he, too, likes to feign an autonomy that is more imagined than actual.

Ever since Kant, autonomy has been the watchword of ethics. Autonomy is the ability of each of us, as rational creatures, to ascertain for ourselves what is right and, in words drawn from Rousseau, impose the moral law on ourselves. Ethics in general and Kant's categorical imperative in particular concern the recognition of our moral autonomy. Indeed, one of the three formulations of the categorical imperative appeals explicitly to the notion of autonomy.[41] But Hegel criticizes this notion of autonomy, and he does so on two different grounds. The arguments are quite succinct, perhaps because Hegel had already published them at length elsewhere.[42] The primary criticism, still the focus of much critical discussion today, is the illusory nature of Kant's moral self, which is no particular self with no particular properties but simply a confused abstraction from the social life of bourgeois or *bürgerlich* Prussian morality (*PG,* 419f.). Moreover, the basic Kantian distinction between reason and the "inclination" unwisely divides the moral self in two and gives unwarranted precedence to formal laws rather than particular moral contexts (*PG,* 425f.). But those formal laws, Hegel argues (like our best undergraduates today), cannot be so readily applied to our concrete, often ambiguous everyday situations. There is no satisfactory criterion for "testing laws," as Kant had argued; there are only the *ad hoc* stipulations of the "maxim" of one's actions such that the moral law can be made to fit as needed (*PG,* 429–37). But behind these brief hit-and-run attacks on Kant, Hegel has an alternative conception of ethics, which will soon appear. What he really objects to is the bogus individualism and *a priori* universality of Kant's notion of morality *(Moralität)*. In its place, he will emphasize the social foundations of ethics, or *Sittlickkeit,* much as he had in his first youthful essay on Greek folk religion over a decade before.

The notion of *Sittlichkeit* stands at the center of Hegel's ethics, and with it we are finally informed that we are now on the home ground of Spirit. The master-slave relation may have in some sense appeared to be a social encounter, if by that one means only the joint appearance of two or more mutually aware creatures, but society and the social are much more than a collection of individuals. They presuppose mutual attachments and dependencies—just those attachments and dependencies that those antagonistic self-consciousnesses denied. They presuppose a sense of community, a shared identity. Ethics, in other words, is based on community values, on shared customs *(Sitte),* not autonomy. And reason, in Hegel's philosophy, refers not to that abstract *a priori* ability to calculate and deliberate so much as the very concrete conception of oneself as part of the whole. Reason is not an individual "faculty" but a social process. And ethics as an exercise of practical reason means not working it out for oneself so much as understanding one's duties and obligations to one's community.

But, of course, there are different communities, with different customs, and sometimes these communities come into conflict. Nothing could have been more evident to Hegel, who as he wrote watched the tragedy of Europe tearing itself apart in the name of competing ideologies, just as Germany had torn itself apart many years before in the name of what would appear from a distance to be a couple of theological nuances.[43] Thus the upshot of Hegel's philosophy and the grand hope of the *Phenomenology,* announced with great fanfare in the Preface, is the birth of a new, international world, in which cultural differences might be preserved but the harmony of the whole would be assured. But this is getting ahead of ourselves. At this point in the *Phenomenology, Sittlichkeit* has just appeared, and it is immediately rent apart by tragedy. Within communities, as well as between them, conflict is always possible. And as so often in Hegel's writing, particular conflicts have great philosophical consequences. At this juncture, Hegel chooses to write about Sophocles' tragedy *Antigone,* one of his favorite plays (which he would discuss at length again in his *Philosophy of Right,* fifteen years later). The point of the play is taken to be the clash of two sets of laws, human and divine. The divine law, defended by Antigone, is the law of the primitive tribe, blood law, the ultimate sanctity of the family. The human law, or what would later become civil law, was represented by Creon, the king. In the battle over the burial of Antigone's brother, required by sacred law but prohibited by Creon, the two laws meet in mortal conflict within the individual person Antigone. She is simultaneously embedded in two societies, the "divine" tribal society of her family, in which family duty and honor were all, and civil society in which law and obedience were essential. Her individual case is tragic and unresolvable, but the movement of history and the dialectic provide a resolution to the conflict which was not available for the tragic heroine. With the development of modern civil society, individuals and families are integrated under the law of the land.

Hegel then goes on to speculate on the development of civil society and the concept of culture, as he would again in his *Philosophy of Right*.[44] He discusses the Enlightenment as the embodiment of a false because anti-spiritual effort to build a truly universal society, and he introduces the almost current-events topic of the French Revolution and in particular the Terror of 1793–4 and the character of Robespierre as something of a *reductio ad absurdum* argument against the Enlightenment pretense of pure reason against the more humble security of traditional spirituality and community. And at this point Kant comes back into the dialectic, not Kant of the categorical imperative but the Kant who defended the religious "postulate" of "the moral worldview" and the grand teleology of the third *Critique*. According to Hegel, Kant had earlier argued for the importance of autonomy and his narrowly described notion of morality

only at a terrible cost, a one-sided picture of man as separated from nature and his own desires and happiness, concerned only with the imperatives of duty. Hegel now argues (as he had in his earlier writings) that morality and happiness cannot be separated: "enjoyment lies in the very principle of morality." Hegel thus restates what Kant called the *summum bonum* as a necessary condition for morality: "The harmony of morality and nature, or… the harmony of morality and happiness, is thought of as necessarily existing" (*PG,* 599). This "harmony of morality and objective nature" Hegel refers to as "the final purpose of the world" (*PG,* 604). Postulation, however, is not proof, and Kant's belief in a divine moral Legislator and the Kingdom of Heaven, his "postulates of practical reason," cannot be left to mere postulation. Thus the dialectical movement fron Kant's ethics to religion is an attempt to broaden the field of ethics and get away from Kant's overly restrictive notion of duty and the ultimately self-defeating distinction between duty and reason on the one hand and the inclinations, including both the moral sentiments and the pursuit of happiness, on the other. In the *Phenomenology,* as in his early writings, Hegel suggests that a more sophisticated and harmonious conception of morality can be found in *Sittlichkeit,* but now expanded to global and even cosmic proportions. After one final, unusually harsh attack on Kant, Hegel resurrects the early Christian ideal of conscience, in which, he argues (following Fichte), the commands of duty and the incentives of the inclinations are synthesized.[45] Conscience acts on implicit principle, yet it is also specific to particular situations. It is individual yet derivative of a person's upbringing in society. Conscience finds its living ideal in the figure that Hegel identifies as the "beautiful soul," a holy figure whose "pure goodness" makes them "lose contact with social reality." One immediately thinks of Dostoevsky's Prince Myshkin *(The Idiot),* or more aptly, it is the conception of the historical Jesus who best characterizes the beautiful soul and the perfect voice of conscience. It is the person of Jesus who moves the dialectic to that penultimate level of consciousness known as religion (*PG,* 632–71).

"The concept of Religion," according to Hegel, "is the consciousness that sees itself as Truth" (*PG,* 677). After a brief excursion through primitive and 'artistic' religious consciousness, Hegel brings us back to Christianity, whose Judaic origins have already promoted the conception of God as Spirit, but an objective or transcendent Spirit, "out there." What Christ represents, according to Hegel, is not a concrete manifestation of God in the form of one man. Christ is rather the symbol of the conception that God and all men are a unity. That spirit is "substance and subject as well" means that the Christian Spirit and we ourselves are the same (*PG,* 18, 748). Here is the resolution of the disharmony between man and God which had caused Hegel to renounce Christianity in his early writings, but it is not to be thought that this is an

unambiguous endorsement of traditional Christianity either. Christianity has failed to become Absolute Truth, according to Hegel, because it has become obsessed with figurative thinking in stories and pictures. To become Absolute Truth, Christianity must reject such thinking and become wholly conceptual. Needless to say, this entails a rejection of many of the teachings and most of the ritual storytelling of the Christian church. The Absolute Knowing of the *Phenomenology* can thus be interpreted as a reconceptualization of the basic themes of Christianity. But it is, apart from its trinitarian jargon, a notoriously weak vision of Christianity.[46] The insistence that Christianity become totally conceptual does not mean that it must dispense with any content, but its content is ultimately the content of the *Phenomenology* rather than the theological constructs that Hegel occasionally imitates but just as often lampoons. It has been said that the end and the purpose of the *Phenomenology* and the justification and end of all human activity rest in Hegel's revised Christianity, but, as Kierkegaard bitterly points out, this alleged Christianity is far more Hegelian than Christian. So, too, what Hegel means by "reason" may be no more than nominally related to what most philosophers designate by that term. The tricks and twists of the *Phenomenology,* not to mention its often impossible language, belie the claim that this is a work of, indeed the very embodiment of, reason. Nevertheless, it is a masterpiece of a very different kind, and philosophy would certainly never be the same without it.

CONCLUSION

Hegel intended his *Phenomenology* as the "introduction" to a system of philosophy. It was supposed to establish the standpoint of Absolute Knowledge from which the system itself could be formulated. That task occupied Hegel for the rest of his career. The conclusion always seems to be: We do experience Absolute Reality, but we conceive of it in many different ways and these various ways can be contrasted, compared, and fitted into a single, overall system of philosophy. Nietzsche later urged us to "look now through this window and now through that one," but where Nietzsche would insist (against Hegel) on the inevitable conflict and incommensurability of these various forms of experience, it is Hegel's project to show us how they grow from and complement one another as well as conflict. A sufficiently broad, indeed "absolute", perspective will absorb (which is not to say resolve) all of those conflicts as well.

NOTES

1 H.Heine, *German Philosophy and Religion,* in *Werke,* Vol. V, trans. J.Snodgrass (Boston: Beacon, 1959), p. 137.
2 *Hegel's Early Theological Writings,* trans. T.M.Knox (Chicago: University of Chicago Press, 1948). For an excellent treatment of Hegel's early years and philosophical development, see H.S.Harris, *Hegel's Development: Towards the Sunlight 1770–1801* (Oxford: Clarendon Press, 1972).
3 Friedrich Heinrich Jacobi is said to have commented, reading one of Hegel's early unsigned academic essays: "I recognize the bad style." See R.C.Solomon, *In the Spirit of Hegel* (Oxford: Oxford University Press, 1983), pp. 147ff.
4 *The Difference between Fichte's and Schelling's Systems of Philosophy,* or "The Difference Essay," published in the *Critical Journal of Philosophy* in the summer of 1801, English trans. H.S.Harris and W.Cerf (Albany: SUNY Press, 1977).
5 All references to the *Phenomenology* in this essay are based on the A.V.Miller translation of *Die Phänomenologie des Geistes* (Oxford: Oxford University Press, 1977), henceforth referred to as *PG;* citation numbers refer to paragraph numbers, not pages. My account of the *Phenomenology* is based on two earlier treatments in R.C.Solomon, *From Rationalism to Existentialism* (New York: Harper & Row, 1972; Savage, Md: Rowman & Littlefield, 1992), and, at much greater length, *In the Spirit of Hegel,* op. cit.
6 Among the fans of the third *Critique* were the great German poet Goethe, his equally talented playwright friend Friedrich Schiller, author of *Letters on the Aesthetic Education of Mankind* (1795), and many of the young romantics of the day.
7 Fichte, *Wissenschaftslehre;* Schelling, *System of Transcendental Idealism;* see Daniel Breazeale's excellent introduction to these works in Chapter 5, "Fichte and Schelling: the Jena period."
8 The notion of "truth" employed here was obviously not strictly an epistemological notion, but one based on the original German root *"Wahr"* (like *"treowe"* in Old English and *"veritas"* in Latin) which means genuine, not simply "true to the facts." See Hegel's own etymology of "truth" in his *Encyclopedia, Logic,* trans. W.Wallace (Oxford: Oxford University Press, 1892), 24, p. 172, where he distinguishes philosophical truth *(Wahrheit)* from mere "correctness" *(Richtigkeit);* and my analysis in "Hegel: truth and self-satisfaction," in R.C.Solomon, *From Hegel to Existentialism* (Oxford: Oxford University Press, 1987), pp. 37–5 5.
9 Nietzsche once wrote that "Kant's joke" was the defense of the common man in language that the common man could not possibly comprehend.
10 Harris, op. cit., pp. 258–310; J.Hoffmeister, *Hølderlin und Hegel in Frankfurt* (Tübingen, 1931).
11 See Harris, op. cit., p. 140; and Solomon, *In the Spirit of Hegel,* op. cit., pp. 115–16.
12 Notably, in the work of Johann Herder, F.H.Jacobi, and Kant's close friend, Hamann. See Lewis White Beck's discussion of this period in Chapter 1, "From Leibniz to Kant," esp. his discussion of the Spinoza dispute, pp. 28–32.
13 Hegel defended such a position in the *Phenomenology,* ch. 6B, but evidently held it much earlier. See Harris, op. cit., e.g. pp. 140, 299. Years later, Nietzsche caught the German attitude with a quip against utilitarianism: "Man does not live for pleasure: only the Englishman does."

14 Knox, op. cit., and in Harris, op. cit., pp. 488ff.
15 Notably, "Hegel's Tübingen essay" of 1793, trans. in Harris, op. cit.; and his notoriously hostile "The Positivity of Christianity" (1795), in Knox, op. cit.
16 Harris, op. cit., pp. 504–5. Cf. Kierkegaard, Hegel's posthumous nemesis: "The way of objective reflection makes the subject accidental." *Concluding Unscientific Postscript,* trans. W.Lowrie (Princeton: Princeton University Press, 1941), p. 173.
17 Harris, op. cit., p. 499.
18 Ibid.; also Hegel, "The Spirit of Christianity and its Fate," in Knox, op. cit., pp. 182–301.
19 Hegel, *Critique of Practical Reason; Religion within the Bounds of Reason Alone*.
20 Hegel, "Positivity" essay, op. cit., p. 68.
21 Hegel, "The Life of Jesus," also written in 1795.
22 A theme he clearly borrowed from Lessing's *Education of Mankind,* which he read in 1787 and again in 1793. See W.Kaufmann, *Hegel: A Re-examination* (New York: Doubleday, 1966), pp. 67f. Hegel, "The Spirit of Christianity and its Fate," op. cit., markedly shows this change of temper.
23 See also Hegel's fragment on "Love," in Knox, op. cit., pp. 302–8.
24 Hegel, "Positivity" essay, op. cit., pp. 185–7; Solomon, *In the Spirit of Hegel,* op. cit., pp. 142–3. Cf. Nietzsche's later argument in *On the Genealogy of Morals,* Book I, trans. W.Kaufmann (New York: Random House, 1967).
25 Quoted from Solomon, *In the Spirit of Hegel,* op. cit., pp. viii–ix. See also Leo Rauch's discussion of Hegel on "Spirit" in Chapter 8, "Hegel, Spirit, and Politics."
26 Quoted in Kaufmann, op. cit., p. 366.
27 *PG,* 16. Hegel denied making personal reference to Schelling in that comment and in a crack about "monochromatic" and "schematizing formalism" a bit later (*PG,* 51–2); but compare his only somewhat more diplomatic comments on Schelling in his later *Lectures on the History of Philosophy*. "His defeat is that the idea in general [is] not shown forth and developed through the concept *[Begriff],*" p. 242. He also distinguishes himself from Spinoza's pantheism—a dangerous position to be associated with in those days—in his *Encyclopedia,* op. cit., p. 573.
28 See my "Hegel's Concept of *Geist,*" in Solomon, *From Hegel to Existentialism,* op. cit., pp. 3–17.
29 See Leo Rauch, Chapter 8.
30 The "concept" is opposed to "intellectual intuition" and represents an argumentative or "dialectical" conception of philosophy compared to the emphasis on mystical insight that fascinated many of the romantic philosophers. Just after the publication of the *Phenomenology,* Schelling wrote to Hegel: "I confess that I do not comprehend the sense in which you oppose the *concept* to intuition. Surely you do not mean anything else by it than what you and I used to call the idea, whose nature it is to have one side which is concept and one from which it is intuition" (from Munich, 2 November 1807).
31 For Hege's mature notion of "the self-development of the concept," see Willem deVries's acount in Chapter 7, "Hegel's logic and philosophy of mind."
32 See Daniel Bonevac's discussion of Kant's first *Critique* in Chapter 2, "Kant's Copernican Revolution."

33 I have suggested elsewhere that one could begin the route traced in the *Phenomenology* at any number of different starting points and, presumably, cover much of the same territory and arrive at the same conclusion. Solomon, *In the Spirit of Hegel,* op. cit., ch. 4C, pp. 235ff.
34 One of the most outspoken advocates of this attack on epistemology today is Richard Rorty, who perhaps gives too little credit to Hegel in this regard. Despite his systematic pretensions, Hegel would seem to be a much more palatable ancestor than Heidegger, for example. See Rorty, *Philosophy and the Mirror of Nature* (Princeton: Princeton University Press, 1977).
35 Cf. Nietzsche, "How the True World' Finally Became a Fable," in *Twilight of the Idols,* trans. W.Kaufmann, *The Viking Portable Nietzsche* (New York: Viking, 1954), pp. 485f
36 Again, see Daniel Bonevac's chapter on the first *Critique,* Chapter 2.
37 Kant, *Prolegomena to Any Future Metaphysics* (Indianapolis: Bobbs-Merrill, 1950), p. 66.
38 An extended discussion of this empty self-reference can be found in Part III of the *Encyclopedia,* op. cit.
39 This conception of the individual as essentially independent but limited by others cornes to Hegel from Jean-Jacques Rousseau, who influenced Hegel in many ways as much as he influenced Kant.
40 *PG,* 309ff. See A.Maclntyre, "Hegel on Faces and Skulls," in Maclntyre (ed.), *Hegel* (New York: Doubleday, 1972).
41 See Don Becker, Chapter 3, "Kant's moral and political philosophy."
42 In Hegel's essay on "Natural Law" in the 1802–3 volume of the *Critical Journal* and in his *System of Sittlichkeit* based on the lectures of that same period, trans. H.S.Harris and T.M.Knox (Albany: SUNY Press, 1979).
43 Cf. Hølderlin: "I can think of no people as torn apart as the Germans…. Is it not like a field of battle where hands and arms and other limbs lie scattered in pieces while the blood of life drains into the soil?" *Hyperion,* trans. W.Trask (New York: Ungar, 1965).
44 See Leo Rauch, Chapter 8, on Hegel's social and political philosophy.
45 *PG,* 625. Cf. Fichte, *Science of Ethics,* pp. 15off., and his *Vocation of Man,* pp. 136, 154, both in *Science of Logic (Wissenschaft),* trans. P.Heath and J.Lachs (New York: Appleton-Century-Crofts, 1970).
46 See my "Secret of Hegel," in Solomon, *In the Spirit of Hegel,* op. cit., ch. 10.

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CHAPTER 7

Hegel's logic and philosophy of mind

Willem deVries

LOGIC AND MIND IN HEGEL'S PHILOSOPHY

Hegel is above all a systematic philosopher. Awe-inspiring in its scope, his philosophy left no subject untouched. Logic provides the central, unifying framework as well as the general methodology of his system. Understanding Hegel's logic is therefore essential to a comprehensive understanding of any piece of the system and any subject it deals with.

Hegel never slavishly accepted received wisdom in any field and less so in logic than anywhere else. The philosophical revolution began by Kant demanded a thoroughgoing reconception of the purpose, method, and content of logic, Hegel believed, and his expositions of this newly reconstituted discipline in the *Science of Logic* and the *Encyclopedia of the Philosophical Sciences* remain among the most intractable works of the philosophical canon. Hegel's logic breaks radically from the Aristotelian and scholastic logic that had dominated previous philosophical speculation, and it is unrelated to the mathematical logic that began to develop soon after Hegel's demise. The primary focus of this essay will be on what Hegelian logic is about, rather than on the details of its execution.

In the first section the essential problem of Hegel's logic is introduced, viz., that logic, according to Hegel, cannot be a purely formal discipline. The second section summarizes the textual development of Hegel's logic. The third section establishes the parameters constraining the

interpretation of Hegel's logic. Because of the obscurity of the texts, it is valuable to state explicitly the conditions that constrain an adequate interpretation. Succeeding sections address these conditions by showing what it means that Hegel's logic is a self-movement of the concept and how this relates to his theory of subjectivity (the fourth section), in what sense logic is a formal science for Hegel (the fifth section), how one begins the enterprise of logic (the sixth section), and why Hegel's logic exhibits such a particular structure (the seventh section).

The paramount importance of logic within Hegel's system cannot be denied. A relatively large proportion (over 30 per cent) of his written work is devoted to logic: Of the four books Hegel published, one (the largest) is solely devoted to logic, and it is that book Hegel wrote in order to make his mark in the philosophical world after his first book, the *Phenomenology of Spirit,* garnered little notice. One-third of the *Encyclopedia* is devoted to logic. More importantly, Hegel's system begins with logic and culminates by returning to the point of departure for logic; logic is the alpha and omega of the system. Logic provides the alphabet for the system as well, for the conceptual analyses provided by logic serve as the patterns for the rest of the system. Logic is also the discipline in which Hegel's methodology is explicitly thematized. The idea that there is a "dialectical method" that can be illuminatingly brought to bear on any subject matter has fascinated post-Hegelian thought. (What this method is, however, has been notoriously difficult to specify.) Hegel's logic remains the primary source for any understanding of dialectics.

Logic plays such an important role in Hegel's philosophy, in part, because of his revolutionary interpretation of the discipline. Traditionally, logic has been understood as the study of the *formal* conditions of truth or as the study of the laws of thought. As the study of the formal conditions of truth, logic pays no attention at all to the *contents* of the items it addresses.[1] But Hegel rejects this interpretation of logic, arguing, in effect, that truth is both the subject and content of logic, and that logic cannot be a purely formal enterprise, for the notion of truth is not and cannot be a purely formal notion. If truth is the agreement of thought (or language) with reality, there is no guarantee that there must be certain conditions that thought or language on their own must satisfy in order to be able to agree with reality.[2] The conditions for the possible agreement between thought and reality or concept and object must depend in part on reality (see e.g. *WL,* I:25; *SL,* 44–5).[3] But, then, they cannot be purely formal.

Hegel also picks up on the ancient theme that logic is the science of the laws of thought and infers that "as thinking and the rules of thinking are supposed to be the subject matter of logic, these directly constitute its peculiar content; in them, logic has that second constituent, a matter, about the nature of which it is concerned" (*WL,* I:24; *SL,* 44). Whether

the connection to truth or the connection to thought is emphasized in understanding the nature of logic, Hegel concludes that logic cannot be a purely formal enterprise. Since logic concerns the fundamental conditions of truth and thought and these cannot be specified independently of their content, the fundamental structures of reality, logic merges with basic metaphysics in Hegel's system.

The hope to derive metaphysics from logic is not peculiar to Hegel by any means—besides Hegel's predecessors (Leibniz and Kant, in particular), the twentieth-century logical atomists (Russell and early Wittgenstein), who in most other ways were Hegel's antithesis, also sought to read their metaphysics off of their logic. The logic-metaphysics connection acquires still further weight in Hegel's system from his idealism. Idealism is a tricky "ism" because so many different theories have gone by that rubric. Hegel's version, *absolute* idealism, must be distinguished from Berkeleyan subjective idealism (the claim that material bodies do not exist and the only things that do exist are mental substances and their modifications), what Kant calls Cartesian "problematical" idealism (the claim that the only things we know for certain are our own mental states, all other knowledge being a probabilistic inference therefrom), and Kantian transcendental idealism (the claim that our knowledge is restricted to things as they appear to us given our forms of intuition and that things as they are in themselves can never be known). Some versions of idealism thus have metaphysical theses at the core, while others are grounded in epistemological theses.

Absolute idealism is principally a metaphysical position characterizable as the claim that mind and reality share the same categorical structure. The categorical structure of thought ("thinking and the rules of thinking"), which is the subject matter of logic, must also be, according to the absolute idealist, the categorical (read here "ontological") structure of reality, and thus logic *is* metaphysics. Hegel's epistemology, in contrast to his metaphysics, is fundamentally realist and committed to our ability to cognize the objective structure of reality, although it is complicated by a sophisticated understanding of the historical conditions of knowledge.

Without looking in greater detail at the arguments Hegel gives to back up his claims, it is hard to grasp his points fully, but one immediate warning is warranted in this introductory glimpse of his position. Do not confuse mind (spirit) with minds. Hegel's German term *Geist*, formerly translated as "mind" but now increasingly translated as "spirit," can apply to individual minds, in which case Hegel would talk of *subjective* spirit. This is the usage that is most like our contemporary use. Hegel has a specific section of the *Encyclopedia,* called the "Philosophy of subjective spirit," focused on problems in philosophy of psychology. But *Geist* or spirit can also apply more broadly. Hegel generalized the Kantian notion that the self (the

transcendental ego) is a principle uniting a disparate manifold of sense impressions into the notion that *Geist* is a principle uniting the disparate manifold of natural and historical events. Schematically:

> Kant's transcendental ego: phenomenal world::
> Hegel's absolute spirit: the world

This vast oversimplification leaves at least two important questions: What happens to the Kantian thing-in-itself in Hegel's version? And what is the relation between subjective spirits and absolute spirit for Hegel? Let me briefly address the second question here; we will return to both questions later. Individual minds *embody* spirit; they are necessary to and participate in the development of absolute spirit, but no individual mind is itself essential to spirit's self-realization.

The movement and development of absolute spirit constitutes a higher level of abstraction than the psychological or historical development of individual people or societies. It is at this very high level of abstraction that we can describe pure thought. Logic is therefore not concerned with the thinking of any individual—that would make it psychology—nor with the "rules of thinking" governing any particular culture, period, or discipline.

> Logic is to be understood as the system of pure reason, as the realm of pure thought. This realm is truth as it is without veil and in its own absolute nature. It can therefore be said that this content is the exposition of God as he is in his eternal essence before the creation of nature and a finite mind.
>
> (*WL*, I:31; *SL*, 50)

DEVELOPMENTAL HISTORY OF HEGEL'S LOGIC

This essay does not purport to trace the development of Hegel's logic (a study which is yet to be written), but here a few landmarks may help orient one within the somewhat idiosyncratic world of Hegel's thought. Hegel's earliest philosophical speculations center around issues in ethics and the philosophy of religion—in particular Hegel seeks to understand how it might be possible to reconcile the oppositions that he felt characterized modern life: the oppositions, e.g. between reason and faith, society and individual, universal and particular. In his earliest writings (1795–1801), Hegel believes philosophy cannot itself escape the

contradictions of such finite oppositions, for it remains trapped within them. Philosophy can at best lead us to see their inadequacy; religion alone can take us beyond them.

In Hegel's Jena period (1800–7) philosophy gains ascendancy over religion as the field in which the sought-for resolution of the tensions and oppositions of the modern world can be found. Nevertheless, during most of this period at least, Hegel thinks of logic and metaphysics as an *introduction* to philosophical speculation, not yet an essential *part* of it. The principal problem governing Hegel's thinking in Jena is that of overcoming the subject-object opposition. Hegel assumes that beneath the apparent opposition there is an underlying unity that takes on different forms in each of the opposed concepts. Speculative philosophy itself is the consideration of this unity and its various forms. Logic and metaphysics are preliminaries: In logic and metaphysics the fixed oppositions in terms of which we normally understand the world are shown to self-destruct. This destruction of the concepts of the understanding should then liberate us from the rigid categories that make resolution of the conflicts of modern life impossible (the task of logic) and, according to Hegel, also establish the Absolute, the unity underlying all oppositions, as the principle of all philosophy (the task of metaphysics). After the ground is cleared by logic and metaphysics, philosophy proper—the philosophy of the object, the philosophy of the subject, and the philosophy of the Absolute—can begin.

Unfortunately, little of the material in which Hegel works out his conception of logic and metaphysics at this time has survived. Yet one of the most important changes in Hegel's development is the shift in his understanding of the nature and place of logic and metaphysics that occurs toward the end of the Jena period (*c*. 1805–6). During this period Hegel ceases to distinguish between logic, metaphysics, and speculative philosophy. Briefly, Hegel seems to have discovered the idea that the formal structure of self-consciousness provides a model in which the conceptual oppositions of logic as well as the phenomena of nature and the social world can be treated in a unified, meaningful manner. Logic is the science of pure, self-conscious thought, and is therefore an essential part of the new system. In the light of this new conception Hegel adds a new kind of introduction to the system, the massive *Phenomenology of Spirit*, published in 1807, in which he traces the different forms consciousness and self-consciousness may take, culminating in the pure self-consciousness that is both the subject and object of logic.

The *Phenomenology of Spirit* was finished, as the story goes, with the battle of Jena booming in the distance. Subsequent to Napoleon's defeat of the Prussian army at Jena, the university was shut down, and Hegel had to go looking for employment, spending the next year as editor of a

newspaper in Bamberg before accepting a post as the rector of a *Gymnasium* (a college-preparatory academy) in Nuremburg.

During his time in Nuremberg the Hegelian system, especially the logic,[4] as we now know it really took shape. The first installment of his *Science of Logic* (the so-called objective logic) was published in two volumes, the Doctrine of Being in 1812 and the Doctrine of Essence in 1813. The second installment (the subjective logic) containing the "Doctrine of the Concept" was published in 1816, the year Hegel was called to a chair at the University of Heidelberg. Hegel needed a text for his students in Heidelberg, so he put together the first edition of his *Encyclopedia of the Philosophical Sciences*. This contained a brief outline of his entire philosophical system and was intended only as an aid to those attending his lectures, orienting them within his system.

Hegel was called to Berlin, the leading university of Prussia, in 1818. He was to become the dominant figure in German philosophy during the subsequent decade. He published his last book, the *Philosophy of Right*, in 1821; he began another on the philosophy of subjective spirit, but never completed it. The second edition of the *Encyclopedia* appeared in 1827. Only a few years later, he revised the *Encyclopedia* yet once more, its third edition appearing in 1831. By 1826 the original copies of the *Science of Logic* were sold out, and the printer suggested reprinting the work. Hegel, however, decided to rework the book. The new version of the Doctrine of Being was given to the printer in 1831, the new preface dated 7 November 1831. A week later, on 14 November 1831, Hegel died of cholera.

After Hegel's death a group of Hegel's students, calling themselves the Society of Friends of the Eternalized, undertook to publish a complete edition of Hegel's philosophy. Their edition of the *Science of Logic* combined the newly revised version of the first third with the older, still unrevised remainder. Thus the first third of the *Science of Logic* as it has come down to us was written almost a decade and a half after the rest of the book. In the posthumous edition of the *Encyclopedia* the editors decided that it was too cryptic in the form Hegel gave it and therefore added supplementary additions *(Zusätze)* drawn from both Hegel's own and students' lecture notes. Most of the original notes have since been lost, so there is some question about the authenticity of some of this additional material, but the *Zusätze* have been a part of the Hegelian corpus since shortly after his death and can provide a valuable perspective on the argument of the text.

In the new, critical edition of Hegel's texts currently in preparation, both versions of the *Science of Logic's* first part are available, as will be much more reliable editions of the notebook material utilized by Hegel's various editors in compiling *Zusätze* and lectures.

ADEQUACY CONDITIONS ON INTERPRETATIONS OF HEGEL'S LOGIC

Since the texts of Hegel's logic are among the most difficult in the philosophical corpus, it is not surprising that there is a wide variation in the interpretations that have been offered and that no school of interpretation is currently dominant. The salient aspects of Hegel's logic that any interpretation must account for fall into two categories, the structural and the testimonial. Any adequate interpretation must account for the place of logic within the Hegelian system, the general structure exhibited by Hegel's logic, and the particular transitions found in it. Further, any adequate interpretation of Hegel's logic must also account for Hegel's own pronouncements about its scope, content, and method. An interpretation that gave a detailed, sensible account of the progress of the argument in the logic would be powerful and very valuable—but if it could not be made consistent with Hegel's own testimony, it would always face skepticism. It seems clear, however, that Hegel's practice in the logic does not always coincide with his preaching; every interpretation of Hegel's logic will have to construct a fine balance between the structural and testimonial evidence.

Structural conditions on interpretations

What role does Hegel's logic play in the system? The system consists of three parts: Logic, Philosophy of Nature, and Philosophy of Spirit. Hegel tells us that his system is a "circle of circles," so this is not merely a linear ordering. At the end of the Philosophy of Spirit we are to be in a position to begin again with the logic in some manner. Logic, therefore, is both the antecedent and the product of spirit. Other puzzling questions quickly arise in trying to understand this triad: The Philosophies of Nature and Spirit concern items within our experience that occupy space and time, but logic seems concerned with things of quite a different stripe. Just what is the relation between the logical realm and the realms of nature and spirit?

Next, the internal structure of Hegel's logic must be accounted for by any acceptable interpretation. It is instructive to look at the arrangement of topics in the logic to get a sense of what an interpretation must cope with. Hegel's logic appears to have a very rigid hierarchical organization. An interpretation that accounts for the gross structural organization may have difficulty with the fine structural detail of the system, and two different interpretations may be able to penetrate the fine detail better in

different areas of the logic. Appended to this essay is an outline of the system as found in the *Science of Logic* (in the hybrid edition).

Several features of the logic immediately leap to the eye. Virtually everything is grouped in triads. The only exceptions are: (a) there are four groups of judgments at the fourth level under III.A.2 (see Appendix, pp. 246–7), and (b) the Idea of Cognition has only two subheadings, the Ideas of the True (which itself has only two subheadings, Analytic and Synthetic Cognition) and the Good. This triadicity is not a mere artifact of compulsive German orderliness; it is supposed to be a necessary consequence of the method of logic that generates the outline. But why, then, does it have *any* exceptions?

Several of the titles are repeated. Thus, Being is both heading I, heading I.A.I., and heading I.A.I.a; Appearance is both heading II.B and heading II.B.2. How can the same topic or concept appear at several places in the hierarchy? Other than the triad Concept, Judgment, Syllogism under III.A, most of the concepts have apparently very little to do with logic as standardly understood, then or now. Most of them are, however, connected with classical problems of metaphysics.

It is also notable that the relations among the concepts dealt with in each of the three main divisions differ. In the Doctrine of Being the concepts within a triad tend to be contrastive and mutually exclusive; in the Doctrine of Essence they tend to come in coordinate pairs, both of which can be applied to an object; in the Doctrine of the Concept the successor concepts are supposed to retain and contain their predecessors. Or at least Hegel tells us that there are such structural changes within the Logic, and on the whole his assertion seems borne out.

Testimonial conditions on adequacy

Any fully adequate interpretation will have to take account of what Hegel says about his Logic, its purpose, its method, and its achievement. We have already seen some of Hegel's own interpretation: that his logic is about thinking and the rules of thinking, that it constitutes the system of pure reason, truth in its own nature, and, more obscurely, that it is an exposition of "God as he is in his eternal essence."[5] Hegel's logic, while both logic and metaphysics, is a theology as well. According to Hegel religion and philosophy share the same content—the Absolute. In religion this content is couched in an imagistic form that is not fully adequate to the content itself; it is only in philosophy that this content receives a form adequate to itself. Thus we should expect a mapping between the truths developed within logic and the images and stories found in religion such

that logic reveals the full message embodied obscurely in the mythology of religion.[6] Christianity may be the highest form of religion, the form in which the content can, given the limitations of the imagistic presentation, most fully express itself, but every religion has at heart the one true content, the Absolute.

Undoubtedly the most difficult problems in interpreting Hegel are generated by his pronouncements about the *method* of the logic. For his method is no method at all: What we have before us in the logic is *the self-movement of the concept*. That is, Hegel rejects the idea that in philosophy there is one thing, a method, that is applied to a separate thing, a content. The logic traces out what is contained in its content, and it does that not by applying some externally definable, content-independent method to produce a result, but by allowing the content to unfold itself. There is no "dialectical method," despite its supposed practice by so many of Hegel's followers. But then just how is the elaborate structure of the logic generated?

While Hegel's logic is not in any normal sense a formal logic, Hegel does claim that it is a formal science in the sense that it is the science *of* form. What does this mean? Hegel attacks the form/content distinction, but he does not simply reject that distinction as either senseless or even necessarily confused: What he objects to is the notion that form and content are absolutely separable and autonomous elements of a whole. No form and no content are *pure*. Instead, Hegel believes form and content are necessarily correlative; some forms are best suited for some contents but not others, and vice versa. Hegel constantly distinguishes the formal aspects of phenomena from their particular contents—that is, in part, what the philosophies of nature and spirit are all about—but what kinds of forms are available and how they relate to each other simply as forms are matters for logical analysis. In the logic as a whole, form *is* its content, and this content dictates its form.

Logic must also be a presuppositionless science, according to Hegel. This is a fundamental distinction between logic and all other scientific disciplines. Other scientific disciplines must presuppose some particular, independent subject matter; to this subject they bring some method or procedure. In neither case is the justification of these presuppositions a problem within that discipline. "Logic, on the contrary, cannot presuppose any of these forms of reflection and laws of thinking, for these constitute part of its own content and have first to be established within the science" (*WL*, I:23; *SL*, 43).

Let me summarize the set of adequacy conditions for an interpretation of the logic delimited here. These conditions are not exhaustive; the logic is an extremely rich and perplexing text. But an interpretation that can meet these conditions will have a good chance of responding to other challenges as well.

1 Any interpretation must explain the sense in which the logic is the self-movement of the concept and the implications of this for its methodology.
2 Any interpretation must explain how the logic is the science of form.
3 Any interpretation must be able to explain the relation between the Logic and the Philosophies of Nature and Spirit. It should also explain the logic's relation to the *Phenomenology of Spirit,* which was proposed to be an introduction to the logic.
4 Any interpretation must explain the presuppositionlessness of the logic and how such a presuppositionless science can get started.
5 Any interpretation will have to account for the internal structure of the logic:
   (a) Triadicity.
   (b) Repetition of titles.
   (c) Differences between types of concepts in the three parts of the logic.
   (d) A detailed reconstruction of the particular arguments and transitions found in the texts.
6 Any interpretation must explain the relation between logic and God.

THE SELF-MOVEMENT OF THE CONCEPT

The concept

Understanding Hegel's claim that logic is simply the self-movement of the concept requires understanding the particular meanings Hegel gives the terms of that dictum. Hegel has quite a particular notion of a *concept,* which is central to his whole system. Of course, Hegel's notion of a concept is heir to a significant history, and much can be revealed by tracing its roots in the philosophical tradition. While there is little space here for such development, a few allusions may help situate the discussion.

Hegel's logic, like that of his predecessors, is a logic of terms and concepts, not a logic of relations between sentences and operations upon sentences. The modern logician begins by specifying a syntax, that is, a vocabulary and rules of sentence formation. These initial steps are followed by specifying a proof theory and then a semantics. Thus, if the modern logician thinks of the syntax, the vocabulary and formation rules for the system, as the preliminary set-up, the actual beginning would most likely be a set of axioms or fundamental truths. One way in which Hegel

differs is that he expects logic to develop a system of relations among concepts, not a system of relations among sentence forms. Aristotelian logic provides very few sentence forms and no system by which to generate arbitrarily complex new forms. What flexibility Aristotelian logic affords, by which it can be applied to a relatively broad range of sentences and arguments, comes from our ability to formulate arbitrarily complex concepts to use within the sparse syntax provided. Hegel therefore focuses his logic on the forms of concepts, not the forms of sentences. So he looks to begin with a fundamental, simple, immediate, unstructured concept—the simplest form a concept can take—and end with the all-inclusive, absolutely self-constituting concept, the Idea. Just as the early Wittgenstein sought the general form of a proposition, Hegel seeks the general form of a concept.

The historical background for Hegel's notion of a concept properly begins with Plato's notion of a separable form *(eidos),* a universal in which any number of sensible things can participate. This notion was then transmuted by Aristotle into a form immanent in the sensible object that shared it and necessarily embodied in an appropriate kind of matter. The most important fact about these classical Greek speculations is that both considered their concept-precursors, the forms, to be *objective* features of the world graspable by human reason. The skeptical attacks of Hellenistic philosophy coupled with the rise of Christian metaphysics forced these objective universals inside the mind; they were saved from complete subjectivity only because they could be located in the mind of God, who created the world in accordance with his divine plan. But the mind of God itself became more and more distant as the Middle Ages wore on, and by the time modern philosophy came on the scene only such patently inadequate ruses as Cartesian innate ideas guaranteed by a beneficent but ultimately unknowable God protected universals from complete entrapment in subjectivity. In the subjective idealism of the empiricists this development reached its sorry nadir.[7]

Kant began the climb out of the subjectivist coal pit when he reasserted the objectivity of certain universal concepts on the grounds that they are necessary constitutive conditions of thought itself. Such concepts are objective because without them thought could have no *object* at all. But Kantian concepts are limited to the material of sensuous intuition; *substance, cause*, and other *a priori* concepts objectively characterize phenomenal objects, but have no application beyond the bounds of sense. Our concepts do not apply to things as they are in themselves.

Kant falls back into a subjectivist skepticism despite his valiant effort to climb out (e.g. *Enz. [Encyclopedia],* §§ 40–5). Hegel is quite convinced that any "knowledge" that is not of the object as it is in itself is not *knowledge* at all. Hegelian concepts, like those of the great classical

thinkers, must be objective, humanly graspable features of things as they are in themselves (*Enz.*, §§ 19–25). In order to develop and defend his idea of a concept, however, Hegel must demonstrate how finite, sensuous intelligences like ours can grasp such objective features of our world: He must develop both an ontology and an epistemology. The general outlines of both his ontology and his epistemology emerge from Hegel's rejection of the possibility of a purely formal logic together with the constraints he believes govern any adequate theory of thinking. As a first step toward climbing out of the subjectivism Hegel thinks besets modern philosophy, let us develop the Hegelian theory of subjectivity, for only an adequate theory of subjectivity can demonstrate that we are not trapped in our own minds with no access to the world.

Logic as a theory of subjectivity

A full theory of subjectivity must account for all the phenomena of mind: sensation, feeling, perceiving, thinking, desiring, willing, etc. It would be a mistake, however, to think that the Hegelian theory of subjectivity is essentially a theory of *human* subjectivity. Human subjectivity is distinguishable from the pure thinking thematized in the logic in that it is still beset with the contingent, variable structures of sensation, feeling, desiring, etc. Pure thinking is abstracted from such contingencies. Here we will reconstruct the theory of pure thinking, for this is also the content of Hegel's logic. There are two constraints that any adequate theory of thinking must observe: First, the Kantian transcendental unity of apperception, the fact that the 'I think' must be able to accompany all my representations.[8]

Kant was always unclear about the exact status of the 'I think'—to this day his commentators wrangle about it—but it is at least clear that the 'I think' that occurs in the principle of the transcendental unity of apperception cannot, on Kantian principles, itself be a piece of objective knowledge. Objective knowledge requires application of a schematized category of thought to the sensuous content of intuition, and the transcendental unity of apperception is an analytic principle not based in any way on sensuous intuition. Kant, therefore, cannot justify his belief that he thinks. Hegel could not accept the notion that our self-reflection is in a substantially worse position than our other knowledge, and is furthermore unwilling to draw the distinctions in kind between, on the one hand, transcendental 'knowledge' of the form of experience and the role of the unity of apperception and, on the other hand, objective knowledge of items within our experience.

The second constraint on the theory of thinking is that the 'I think'

expresses an objective cognition. In this sense Hegel reasserts the Cartesian *cogito*.[9] These two constraints jointly require thought to be capable of objective self-reflection.

Hegel's theory of thinking is logic itself. In what sense logic is a theory of thinking, however, needs further clarification, for a thoroughgoing empiricist such as J.S.Mill might agree with this and conclude that logic must itself be an empirical discipline, though admittedly at a very high level of abstraction. Hegel is certainly not an empiricist, though the extent to which his system accommodates the empirical has generally not been well enough recognized. Nor is Hegel's logic itself psychologized, for it is a mistake to assume that *thinking* is solely an activity of human subjects. Psychology is a particular discipline handled within the system at its appropriate place. But *thinking* is the activity of the universal, the concept itself.

If the psychological process of thinking is not what provides logic with its content, then in what sense is thinking the content of logic? Kant distinguishes between general logic—a formal discipline that concerns the conditions of thought in general, regardless of its object—and *transcendental* logic—the discipline concerned with the *a priori* conditions of thinking about objects of our sensibility (objects located in space and time). General logic must be purely syntactic, but transcendental logic has an irreducible semantic component, for it must deal with the conditions of reference to spatio-temporal objects. Kant's table of categories, the list of those *a priori* concepts he thinks structure our abilities to think and know about the sensible world, is a product of transcendental logic, the analysis of the *a priori* conditions for applying the forms of judgment to spatio-temporal objects.

Hegel maintains, in effect, that the syntax/semantics distinction Kant presupposes to separate general and transcendental logic cannot be sustained.[10] Syntax is always contaminated with semantic content precisely because syntax's role is to subserve a semantic purpose: the embodiment of *truth*. The hope of analyzing out of language or thought a pure logical syntax without any metaphysical implications about the nature of objects is a pipe dream, or worse, a delusion. Even the bare subject/predicate distinction constrains our metaphysics; it is no accident that a traditional definition of 'substance' is the *ultimate subject of predication*. Again, *noun* is usually supposed to be a syntactic category, but its classical definition, "name of a person, place, or thing," is given semantically. In fact it is impossible to give a nontrivial but general, purely syntactic characterization of the nouns, verbs, etc. of any natural language.

For Kant, pure (unschematized) thought has no intrinsic relation to anything; it is, as it were, merely the form of relatedness to an object.

Actual relation to objects is the business of another and separate faculty of mind, sensibility. Hegel responds that thought must have, intrinsically, a relation to itself—that, as he sees it, is the point of Kant's transcendental unity of apperception. And this relation is capable of sustaining a knowledge-claim; that is the point of the *cogito*. The *cogito* does not express a piece of sensory knowledge, according to Hegel; neither does it express a direct nonsensory intuition of a thinglike existent. The self or I is itself a *concept* in Hegel's special sense of that term.[11] The *cogito* expresses a recognition and preliminary understanding of that concept, an understanding that *presupposes* a good deal of sensory knowledge, but cannot be *reduced* to such sensory knowledge. Since the 'I think' does not itself *contain* distinctively sensory knowledge, Hegel sees it as purified of such sensory content, as having left the sensory realm behind. Thus, although he rejects the Kantian notion of a pure reason entirely and in principle divorced from sensibility, Hegel recovers a notion of pure reason by postulating a form of thought and knowledge that rises above the sensory to achieve independence of any and all particular sensory contents.

Reason necessarily goes beyond sense, but the *cogito* shows that it does not thereby lose either its object of its objectivity. It therefore cannot be the case that all relation of thought to its object is the business of an entirely separate, nonrational faculty of mind. Since not *all* relation to objects is directly mediated by sensibility, sensibility is no longer the universal limitation on all thought. Thus for Hegel the distinctions Kant relied on to separate general and transcendental logic have evaporated, and the conclusion must be that all logic has a transcendental component and thus merges into metaphysics.

Bluntly put, since thought must be capable of self-relation, the conditions necessary to that self-relation are conditions on all thought. Some objects we may relate to through sensation, but the thinking that relates to them must still belong to a structure of thought capable of pure (nonsensuous), objective self-relation. The *cogito* shows the reality of this self-relation of thought to itself, but the lesson of the *cogito* goes beyond a mere ability of thought to *refer* to itself: It shows that thought must be capable of *knowing* itself. Hegel would *not* claim that the *cogito* itself contains or expresses such self-knowledge of thinking by thinking, but he does believe that he can demonstrate that the self-reference of thought to thought contained in the *cogito* is itself possible only if thought is also capable of complete self-comprehension. (This is a major result of the *Phenomenology of Spirit*.) The reality of the self-related structure of thought demands closure. The self-related structure of thought is the topic for logic.

Thus Hegel's logic is at the same time an implicit theory of subjectivity, of what kind of structure is necessary in order for thinking to comprehend

itself.[12] The self-comprehension of thought requires a comprehension of the object of thought and thought's relation to that object, for, as we have seen, thought cannot be characterized in an entirely self-contained, purely syntactic way. In completely characterizing itself, thought must also completely characterize its range of possible objects, and there can be no remainder, no things-in-themselves left over outside the structure of thought. The structures revealed by the self-comprehension of thought include necessarily the structures of all objects of thought as well; an object that is not a possible object of thought is nothing at all. But what the logic does not itself directly consider are the ways in which thought structures are embodied in the world. The rest of Hegel's philosophy deals with this, for thought structures are embodied in nature (thus the philosophy of nature), in social structures (thus the philosophy of objective spirit), in the expressive products of human activity (thus the philosophy of absolute spirit), and, of course, in the psyches of individual organisms. It is the task of the philosophy of subjective spirit to discuss how it is possible for an individual animal organism to embody within itself the structures definitive of thinking. Needless to say, the complex organization requisite to embodying a self-comprehending structure of thought imposes significant constraints on the nature and capacities of such an organism. But for our purposes it is more important to see that Hegel does not believe that the embodiment of the structures constitutive of thought is confined solely to individual animal organisms: The world as a whole also embodies these structures. In order to see why Hegel thinks this is necessary and how he believes it to be possible, we need to look more closely at his ontology.

The active concrete universal[13]

Hegel believes that most of his predecessors chose the wrong paradigm of predication. These philosophers—philosophers trapped in the "attitude of the understanding"[14] according to Hegel—took accidental predications (e.g. "The ball is red") as paradigmatic. In such a case there is no intrinsic connection between the universal and the individual it is predicated of; both the universal and the individual seem quite indifferent to each other. Taking this to be the paradigmatic predication relation, Hegel believes, leads to a metaphysics in which the world is seen as composed of a nexus of bare particulars (in his terminology *abstract individuals*) and ontologically independent universals (he would call these *abstract universals*). Hegel thinks such a metaphysics impossible; to escape being trapped in it one must reject both the abstract individual and the abstract universal.[15]

In the place of accidental predication Hegel substitutes a version of

essential predication, for in an essential predication the universal and the individual are intrinsically tied. The essence of something is also seen by Hegel to have some explanatory power; saying of what kind a thing is can be a legitimate explanatory move. In Hegel's view an essence, something's concept, is not a *descriptive* characterization, but a *prescriptive* ideal, and it plays a role in a ideological explanation. Something's concept offers an ideal pattern which the thing strives to realize in the course of its existence, though individual things are never perfect exemplars of their essence. In this respect we can begin to see a rather strange melding of Aristotle's concept of an essence with the Kantian notion of a concept. Kant insisted that "a concept is always, as regards its form, something universal which serves as a rule" (*Critique of Pure Reason*, A 107). Hegel seizes on three aspects of Kant's *a priori* concepts—their unrestricted universality, their prescriptive force, and their conceptual priority over their instances—and transfers these properties to the basically Aristotelian conception of an essence or thing-kind.

Hegel also learned from Kant that concepts are not discrete entities that exist and can be known each independent of any others; neither thinker employs the notion of a *simple* concept. We can say that Hegel took over from Kant a coherence theory of concepts: Even bottom-level basic ideas are to be understood through their interaction with other ideas in basic principles, in contrastive relationships, and so forth. Hegel is committed to a more thoroughgoing holism of concepts than Kant, for he cannot distinguish absolutely between formal and material representations. Perhaps most important, the crucial relationships between concepts need not all be construed as analytic 'inclusions': Kant inaugurated the search for nonanalytic but also non-psychological, rational connections between concepts, and Hegel willingly followed. Thus, what Hegel calls a *concept* is a prescriptive ideal that is part of a system of such ideals that the world is striving to realize and in terms of which we can make sense of what happens in the world.

However, Hegel takes the rulelike character and implicit systematicity of concepts so seriously that he made a move Kant would never have dreamed of making. Hegel insisted that the being of the T is the being of a concept, for the T is the rule for the unification of all experience. The unity of apperception is the ideal governing all synthetic activity in the mind. Indeed, since the T provides the ultimate rule—all concepts must be unified under the 'I,' including the pure concepts—the 'I,' the self, becomes a superconcept, a concept of concepts, *the* concept (*WL*, II: 220–1; *SL*, 583). Thus the *cogito* becomes the first and immediate expression of the self-directed, self-organizing activity of the concept. The T or self is not a thinglike substance, but a conceptlike self-organizing activity.

Every universal of whatever kind unifies something, but in contrast to

abstract universals like 'red,' concrete universals like 'dog' or 'thinker' not only unite various different individuals under some heading but also account for their internal unity. The model for this internal unification is the synthesis of the manifold into the unity of apperception. The manifold is unified, according to the Kantian vision, because I make it mine, constituting myself in that very process. Hegel attributes this kind of self-constituting activity to every concrete universal, to all concepts. Any unity of a manifold that is not thus actively involved in the very nature of the elements, while also constituting its own self in the activity, is to that degree a merely abstract universal. A concrete universal is therefore different from the *abstract* universals that previous thinkers in the classical tradition took to be the objects of thought.

> The universal of the concept is not a mere sum of features common to several things, confronted by a particular which enjoys an existence on its own. It is, on the contrary, self-particularizing or self-specifying, and with undimmed clearness finds itself at home in this antithesis.
>
> (*Enz*., § 163; my translation)

An abstract universal is a tag which can be hung on things otherwise quite indifferent to it in order to sort them out for whatever purposes one may have. A concrete universal, on the other hand, divides nature at the joints; it must reach to the very hearts of things and afford an understanding of their being. An abstract universal is static and unchanging because it is dead, a mere sum of otherwise unrelated features. A concrete universal, a concept, however, is alive, dynamic, and dialectical; it is essentially a part of a self-developing system.[16]

In sum, the foremost characteristic of a concept is that it is *active*. Thus Hegel explains the stability of the world, the fact that the world is not a sheer, unstructured chaos, by the activity of *concrete* universals. The manifold unified by these concepts is not itself entirely separate from them in nature, provided from the outside, but must itself be of some determinate kind and therefore itself already conceptualized. Thus there is a complex structure of interrelated concepts, a structure that is not built up from the outside by some external agency, but develops its own organization from within. Its mode of action is teleological, that is, it is self-realization. The concept is both cause and effect; it is self-developing. Second, a concept is the *truth* of those objects it characterizes and animates. It is their essence, that which explains what they are and why they have the unity they do. Third, a concept is not separable from its instances, but actively manifests itself in and through them. Fourth, concepts have an essence of their own, *the* concept, which realizes itself in the active self-realization of its contributory moments. Concepts are

essentially parts of a self-realizing system. What ultimately is, according to Hegel, is a universal self-constitutive activity that becomes self-conscious in man's knowledge of it—the Absolute.

The self-movement of the concept

In Hegel's vision this universal self-constitutive activity expresses itself in the world via the articulation of nature into different orders of entities and properties. But the expression of the Absolute in nature is itself static; the movement and change within nature are but a pale reflection of the dynamic self-activity of the Absolute, for nature itself is ahistorical, it does not *develop*, but simply changes endlessly. It is in the realm of spirit that this universal self-constitutive activity expresses itself adequately, both as historical development across the human, spiritual community and as the individual development of a thinker's thought in contemplation.

Subjectivism is no longer a problem, Hegel thinks, because the active concrete universals that structure and inform the world are one and the same as the structures that animate subjective thought (when it has freed itself from the strictures of sense and understanding). One and the same rule system governs both thought and the world. That structure is reason itself, and it is *grasped* by individual minds through their instantiating the structure of rules in a self-conscious way.

All this grand talk of self-constituting activities can still, however, leave one dissatisfied, convinced that the fundamental questions still remain: In the self-movement of the concept, just *what* is moving, and how? We have seen that concepts are items in a complex, self-developing system and that this system is itself supposed to be a concept. It is easy to get the impression that this is a case of pulling oneself up by one's own bootstraps. This is a serious charge against Hegel, and one that is not without merit, but a finer appreciation of his position shows that the situation is at least a good deal more complex.

Concrete universals must be embodied, so Hegel would not take the self-movement of the concept to be something that occurs only in a kind of Platonic heaven, apart from all sensuous, material reality. The movement of the concept must be embodied in a movement of things embodying the concept. Nature embodies the concept in one way, but not a way best suited to showing the concept's own self-movement. It is spirit that embodies the concept in a way capable of exhibiting its self-movement. On the one hand the social structures of humanity embody the concept, and thus the historical development of those social structures is one form of the self-movement of the concept. But this is not the sense in which the

logic is the self-movement of the concept. The other form in which spirit embodies the concept is in thinking itself. In philosophy, pure thinking, we realize the self-movement of the concept by instantiating the self-developing system of concrete universals in a higher and still more adequate form than either nature or social reality finds possible.

Importantly, however, Hegel realises that even this pure thinking must be embodied, and its embodiment is language, for "we think in names" (*Enz.*, § 462). But if we think in words, then the movement of thought must also be a movement of words, and an investigation of "thinking and the rules of thinking" will result in conclusions that apply indirectly to language as the essential expressive embodiment of thought. This line of thought leads to the notion that Hegel's logic is an attempt to construct an ideal language. What is the Hegelian ideal for language? This is a difficult question, but one desideratum stands out above all others: The ideal language must be its own meta-language. It must contain its own truth concept and be capable of expressing its own relation to the world (and itself) truthfully. Indeed, since Hegel believes thought must *necessarily* know itself as thought, its embodiment, ideal language, must also *necessarily* be expressively complete and capable of demonstrating this expressive completeness. Thus Hegel's logic is an attempt to elaborate a set of conceptual *qua* linguistic structures that are expressively complete and capable of demonstrating this completeness by (a) reconstructing the depth-conceptual and linguistic structures we in fact find around us in ordinary language, in the sciences, and in religion and philosophy, and (b) accounting for its completeness by generating these structures from the very idea of (linguistically embodied) thought.

Hegel takes this project to be implicit in the very existence of language. He regards it as a project to which language users contribute unconsciously as they use language in navigating through the world and consciously as they engage in logic or philosophy. Hegel's logic presents an explicit and self-conscious culmination of this historical development, but not *as* an historical development—that occurs in the philosophy of history and also, in part, in the *Phenomenology*. Hegel's logic presents us with the pure results of this process: an expressively complete and self-reflexive set of linguistic/conceptual structures.

LOGIC AS THE SCIENCE OF FORM

Since everything that can be thought or expressed must utilize one of the conceptual structures/expressive forms elaborated in the logic, it is easily seen how the logic constitutes the science of form. Every possible form is

systematically generated in the course of the logic, Hegel claims, and all content, every phenomenon, will find its appropriate form somewhere in the battery of conceptual forms so generated.

It is no objection that this means Hegel intends his logic to be irrefutable and unfalsifiable; anything properly called logic intends to be irrefutable. Usually this is explained in terms of the contentlessness, the pure formality of logic. This explanation is not open to Hegel. His explanation can only be that his logic simply spells out the necessary conditions of thought, and therefore the necessary conditions of the existence of the refutable. It would be self-defeating to reject it because it is irrefutable.

But there is also no guarantee in Hegel's logic that phenomena come with their logic already patent. Although it seems to be a consequence of his interpretation of the form/content distinction that every content will have some form in which it is best expressed and comprehended, given the imperfection of nature, form-content mismatches in which both moments are obscured are only to be expected. In this case a great deal of acumen may be required for proper analysis. Surface structure may conceal logical form.

So-called "dialectical" consideration of nature or society is nothing more than a learned ability to identify the conceptual structures characteristic to the phenomena at stake.[17] This means that one understands the dialectic of X when one has properly diagnosed the kinds of conceptual structures definitive of X's. For instance, the dialectic of the family is controlled by the fact that implicit in the very concept of a family are certain kinds of relationships within the family, certain kinds of relationships between the family unit and the external world, the general function of the family in the ethical life of a community, and the relation of the family, as a social structure, to other forms of social organization such as the commercial marketplace. Not all of these relationships are superficially evident within the concept of the family, however, Dialecticians may start with a superficial understanding of the concept of a family, but as they seek to understand the concept more deeply, they can use the abstract structures plotted out in logic to explore the conceptual space of the family in greater detail. What conceptual tensions are resolved within the family structure? What tensions does it itself generate? Under what higher heading would the family fall? The concept of the family reveals as well the dysfunctional family, for it will then be clear how families can fall short of the concept. The logic provides the theoretical structures within which our comprehension of such phenomena operates; all of these phenomena and their relationships will be instances of the most general kinds of objects of thought as laid out in the logic.

PRESUPPOSITIONLESS BEGINNINGS

Though we have now seen how Hegel thinks his logic compares to the traditional conceptions of logic and metaphysics, the characterization has been very abstract. It is still hard to see how to begin this project and then carry on with it. Let us therefore consider these matters at a more practical level. How does one start doing logic? Since logic is the self-movement of the concept, it seems that there is nothing that one *does* at all. How does one get concepts to move themselves?

Hegel insists that logic can have no presuppositions, even to the point of not having a clear conception of the discipline itself until it is completed. "What logic is cannot be stated beforehand, rather does this knowledge of what it is first emerge as the final outcome and consummation of the whole exposition" (*WL*, I:23; *SL*, 43). Yet, as we will see, he also knows exactly where to begin: Being. The presuppositionlessness of logic is apparently the guarantee of its purity, its universality, its necessity, its absoluteness, and it is therefore extremely important. Yet Hegel also says that the system is a circle of circles, and that seems clearly to imply that the logic is in some sense generated by, derived from, or entailed by the rest of the system as well; why isn't this a form of presupposition?

Apparently, then, one can begin doing logic without any clear idea of what it is that one is doing or how it is to be done. Nonetheless, despite all the talk about presuppositionlessness, it is not the case that logic is begun absent of all conditions. "The beginning is *logical* in that it is to be made in the element of thought that is free and for itself, in *pure knowing*" (*WL,* I:53; *SL*, 68). The point seems to be that the essential condition for logic consists in a certain attitude or state on the part of the logician. This state of pure knowledge is reached at the end of the 1807 *Phenomenology of Spirit* by overcoming the subject-object distinction altogether. However one arrives at it (there is no reason to believe it can be reached only via the train of thought contained in the *Phenomenology*),[18] pure knowing is a state in which thinking is directed solely upon thought itself (shades of Aristotle's thought thinking thought!), without constraint from any sensory conditions, prejudices of the understanding, or even preconceptions about thinking. One has, as it were, opened oneself up to the world, which can finally lay itself bare before one, unobscured by merely subjective intrusions. Even this way of describing the situation rings slightly false, for it makes the world seem something distinguished from and therefore opposed to an observing consciousness. But in pure knowing the distinction between knower and known, subject and world, has utterly vanished, or more accurately, there is only a distinction in their forms, for in pure knowing the content of world and thought is identical.[19]

> Now starting from this determination of pure knowledge, all that is needed to ensure that the beginning remains immanent in its scientific development is to consider, or rather, ridding oneself of all other reflections and opinions whatever, simply to take up, *what is there before us*.
>
> Pure knowing as concentrated into this unity has sublated all reference to an other and to mediation; it is without any distinction and as thus distinctionless, ceases itself to be knowledge; what is present is only *simple immediacy*.
>
> (*WL*, I:54; *SL*, 69)

Hegel admits that in this case pure knowing as an outcome of finite (impure) knowing is presupposed, but pure knowing in this sense is not a thesis or claim that is presupposed. It is itself a mode of being, a being in a position to know. It is not itself a cognitive presupposition, but only the presupposition of pure cognition. The circle is complete when this mode of being has itself been reapprehended in knowledge and the identity of thought and being it is predicated upon is vindicated.

> But if no presupposition is to be made and the beginning itself is taken *immediately*, then its only determination is that it is to be the beginning of logic, of thought as such. All that is present is simply the resolve, which can also be regarded as arbitrary, that we propose to consider thought as such.
>
> (*WL*, I:54; *SL*, 70)

The claim here seems even more radical: The honest, even naive resolve to think about thought as such should be sufficient to begin logic, for that honest, if naive, resolve begins from the identity of thought and being. We do not need to know that we are in the state of pure knowledge to begin logic. To require that before we begin doing logic we know that we have achieved a state of pure knowing would introduce a cognitive presupposition again. The possibility of pure knowing—which Hegel equates with the identity of thought and being—means that the honest resolve to think about thought can and eventually will succeed. The vindication of the state of pure knowing achieved by the end of our deliberations suffices to legitimate the entire undertaking. The only things that stand in the way of reaching that consummation are the sedimented preconceptions we have accumulated through our experience of acculturation.

But why should the appropriate beginning be pure being? Hegel tells us that since it is a pure beginning, it must be something immediate, that is, not derived from anything else, not mediated by any other. Further, it must be simple, without any internal structure (or we would have to start with

that). He then informs us that "this simple immediacy… in its true expression is *pure being*" (*WL,* I:54; *SL*,) 69). Why is this? What makes "being" the correct expression of the beginning point of logic? Here we encounter a general difficulty with Hegel's logic: The concept designations he chooses often seem less than compelling. That the simple, immediate universality with which logic begins should be called "being" is, in fact, more intuitive than many of his other choices. Although we have said that logic is tied to language in that thought must express itself in language, there is no guarantee that the purified structures of thought will map exactly onto the pre-existing vocabulary and manipulation rules of any language. Ordinary language gives us a rich resource refined over millennia of reflection, but the logician must get behind the surface structures of the language to uncover the real logical structures embodied in that language.

> Philosophy has the right to select from the language of common life which is made for the world of pictorial thinking, such expressions as *seem to approximate* to the determinations of the Concept. There cannot be any question of *demonstrating* for a word selected from the language of common life that in common life, too, one associates with it the same concept for which philosophy employs it; for common life has no concepts, but only pictorial thoughts and general ideas, and to recognize the concept in what is else a mere general idea is philosophy itself.
>
> (*WL*, II:357; *SL*, 708)

The history of philosophy provides a particularly rich resource, for it mirrors (though by no means exactly) the progress of thought itself. Thus, the attempt to think pure immediacy appeared early on in the philosophy of the Eleatics. Parmenides' pronouncement that "Being is and Not-Being is not" is its earliest expression, and surely Hegel is leaning on this phrasing when he says that the beginning point, simple immediacy, is being. The attempt to think pure being turns out to be unstable—it is identical to a thought of pure nothing, even though the two concepts are superficially in absolute opposition. And it is no accident that this conflict generates a concept Hegel expresses as "becoming," the key word in Heraclitus' philosophy.

TRIADS AND DIALECTIC

Hegel is perhaps most renowned for the constant triadic structure of his logic, popularized without much textual basis as "thesis-antithesis—synthesis." But whatever slogan one uses to characterize the triadic

structures encountered throughout the logic, Hegel believes this pattern arises necessarily from "the method" of the logic. Since, as we have seen, this method is no method at all, but rather the self-movement of the concept, Hegel believes the triadic structure is inherent in concepts themselves (*Enz*., § 79). What are these triads, and why does Hegel believe that the conceptual realm is so structured?

Logic is the self-investigation of thought; at its end, thought must comprehend itself. We can therefore think of each concept encountered in the logic as a candidate theory of thought. This is a slightly misleading way to phrase it, for it seems to presuppose that someone, a subjectivity external to and separate from the object of its thinking, is proposing some abstract set of propositions intended to characterize correctly that object of thought. Thus, there would be three relata here: a subject, an object, and a theory. But in logic there is only one presence: self-related thought. We might better think of each concept in the logic as a mode of thought's self-relation. And since thought *is* self-constituting activity, each concept is therefore a mode of thought's existence. The highest mode of thought's existence, the mode without which it could not be the completely self-constituting activity of thought, is the Idea, thought's adequate self-comprehension.

Put another way, the constant content throughout the logic is thought itself; each of the concepts encountered up to the Idea is a less than fully adequate form for that content. Though less than fully adequate, each captures a dimension of thought, a real mode of thought's existence. The form adequate to the content of logic is, in fact, none other than the comprehension of the whole of the series of less than adequate forms, for collectively the concepts embody and enable thought's self-comprehension.

Suppose, then, we begin with the honest resolve to think thought, and that we begin with the immediate, simple universality Hegel calls "being." It is important to be clear about what this beginning point is. It is to be *pure* being, which means that no determinate being is in question here. It is not the kind of being one may talk of in speaking of the *being of a number* or the *being of space* or the *being of consciousness*. Hegel is well aware that this concept is an abstraction, indeed, the absolute abstraction from all determinateness.

As the beginning point of the logic this concept is at once a prototheory of thought and a mode of thought itself, a way in which thought *is*. As a proto-theory of thought, something a consciousness considers for adoption, there are many inadequacies to this concept: It is highly inarticulate, unable to describe or explain any of the phenomena we normally associate with thought, including its own existence. But as correct as such considerations are, they are irrelevant from Hegel's point of view. They do not exhibit the "self-movement of the concept," for one.

They exhibit instead an external reflection upon a subjective reality, according to Hegel. Second, while they may give good reason for rejecting the proto-theory, they fail in two regards: (a) they do not show whether the concept indeed captures something of the nature of thought, and (b) they do not point the way to a better conception.

But consider this concept as itself a mode or determination of thought. For being is as much a way of thinking as an object of thought. Concepts are not simple, given entities, each capable of its existence entirely separately from others. They are essentially and necessarily involved in contrastive relations, in entailment relations, etc. The system of pure thoughts forms a self-realizing structure. No single determination of thought is entirely self-subsistent. The concept of pure being, indeterminate immediacy, however, attempts to be just that—without inner determination, without relation to anything else. In its attempt to purify itself from every determinate content, it divests itself of all content and turns out to be identical to the concept of nothing. In this case the self-movement of these concepts turns out to be the intrinsic connection between the contents (or in this case, lack thereof) of the concepts.

Hegel confronts the question of how these concepts could be self-moving more explicitly in considering Jacobi's critique of Kant's notion of *a priori* synthesis. Jacobi claimed that when he achieved a state of purified, abstract consciousness, no synthetic activity, no "movement" among the concepts was evident at all. Hegel replies:

> But this is found immediately in them. They [the thoughts of pure space, pure time, pure being, and so on] are, as Jacobi profusely describes them, results of abstraction; they are expressly determined as *indeterminate* and this—to go back to its simplest form—is being. But it is this very *indeterminateness* which constitutes its determinateness; for indeterminateness is opposed to determinateness; hence as so opposed it is itself determinate or the negative, and the pure, quite abstract negative. It is this indeterminateness or abstract negation which thus has being present within it, which reflection, both outer and inner, enunciates when it equates it with nothing, declares it to be an empty product of thought, to be nothing. Or it can be expressed thus: because being is devoid of all determination whatsoever, it is not the (affirmative) determinateness which it is; it is not being but nothing.
>
> (*WL,* I:85; *SL,* 99)

The attempt to think pure, indeterminate being is, in effect, a failure, for its indeterminateness is its determinateness. But thought does not stop here. The failure is not absolute. Thinking of pure being has turned out to be thinking of nothing, but this unity of being and nothing has

transformed them both. The lesson is that in all thinking being and nothing are thought together.

> Being and nothing are the same; but in their truth, in their unity, they have vanished as these determinations and are now something else. Being and nothing are the same; *but just because they are the same they are no longer being and nothing,* but now have a different significance…. This unity now remains their base from which they do not again emerge in the abstract significance of being and nothing.
>
> (*WL,* I:95; *SL,* 108)

Everything and everythinking is a union of being and nothing; just how these two are to be unified and what further transformations must occur before a fully stable conceptual scheme is available is the story of the logic.[20]

But Hegel admits that the transaction between being and nothing is not typical: there is no real *transition* to be found, but only an immediate identity.

> In the pure reflection of the beginning as it is made in this logic with being as such, the transition is still concealed; because *being* is posited only as immediate, therefore *nothing* emerges in it only immediately. But all the subsequent determinations, like determinate being which immediately follows, are more concrete; in determinate being there is already *posited* that which contains and produces the contradiction of those abstractions and therefore their transition.
>
> (*WL,* I:86; *SL,* 99)

Nonetheless, this unity of being and nothing, which is their "truth," is labeled "becoming" by Hegel.

> *Becoming* is the unseparatedness of being and nothing, not the unity which abstracts from being and nothing; but as the unity of *being* and *nothing* it is this *determinate* unity in which there *is* both being and nothing. But in so far as being and nothing, each unseparated from its other, is, each *is not*. They *are* therefore in this unity but only as vanishing, sublated moments.
>
> (*WL,* I:92; *SL,* 105)

Depending on whether one emphasizes being or nothing as the immediate element and the other as related to it, becoming has two forms, coming-to-be and ceasing-to-be. But is "becoming" at all an appropriate label for the unity of being and nothing? It has the historical pedigree of being Heraclitus' response to Parmenidean Being, but it is so loaded down with temporal connotations and so closely associated with the notion of change

that it seems at best a highly misleading choice of terms. But it is also hard to see what other term might serve better. Becoming is the third, yet it is not itself stable.

> Being and nothing are in this unity only as vanishing moments; yet becoming as such *is* only through their distinguishedness. Their vanishing, therefore, is the vanishing of becoming of the vanishing of the vanishing itself. Becoming is an unstable unrest which settles into a stable result.
>
> (*WL,* I:93; *SL,* 106)

The stable result is the concept of determinate being. Being and nothing have been transformed, or rather have revealed their true colors in their unity, becoming, but this very unity cannot retain the character of becoming. "It is...inherently self-contradictory, because the determinations it unites within itself are opposed to each other; such a unity destroys itself" (ibid.). Becoming destroys itself, not by negating itself entirely—that would return to mere nothing—but by settling into a stable and once again immediate oneness: determinate being.

The identification of being and nothing seems to be motivated by considerations of the nature of identity and individuation of concepts by their contents and other reasonable considerations in the context of the project of the logic. But the subsequent moves to becoming and thence to determinate being do not seem nearly as intelligibly grounded. It is hard not to think that talk of the vanishing of vanishing and suchlike is mere word play without significant philosophical import. Yet there is also something intuitively right about Hegel's conclusion that the attempts to think pure immediacy must fail in favor of thoughts of determinately qualified forms of being. The text of the logic challenges the interpreter to show how Hegel's principal moves actually trace the "self-movement of the concept"—a movement that is supposed to be the very soul of intelligibility—despite a superficial form as crabbed and obscure as any text ever written.

Numerous authors have attempted overviews of the progress of Hegel's logic, and numerous claims have been made about the general course of the argumentation, but there is still no thoroughgoing commentary on Hegel's logic to place beside the commentaries on other philosophical masters by scholars like Cornford, W.D.Ross, Vaihinger, or Kemp Smith. No one has been able systematically to reconstruct the flow of argumentation in the logic in a thoroughly coherent, detailed, and intelligible manner. In the opinion of this writer, generalizations about the overall pattern of argumentation followed by attempts to show with specific examples how the pattern is instantiated have for so long failed so badly to illuminate this text that a new push to investigate the individual

arguments entirely on their own should take precedence. If Hegel's pronouncements about his method are correct and in each case only the self-movement of the concept is involved, each argument should be intelligible in its own right. Indeed, if Hegel's remark that the method of the logic just is the self-movement of the concept is taken more seriously than most of his interpreters have allowed, there may be no higher principles involved throughout the whole course of the logic.[21] The detail work may be all that there is to understanding Hegel's logic.

APPENDIX

I have marked one divergence between the *Science of Logic* and the *Encyclopedia* in the Doctrine of Being, but it should be noted that the *Encyclopedia* includes far less detail than the greater *Logic* and that the arrangement in the Doctrine of Essence differs fairly significantly, enough that it could not be easily marked on this outline.[22]

I. The Doctrine of Being
  A. Determinateness (Quality)
    1. Being
      a. Being
      b. Nothing
      c. Becoming
        (1) Unity of Being and Nothing
        (2) Moments of Becoming: Coming-to-be and Ceasing-to-be
        (3) Sublation of Becoming
    2 Determinate Being
      a. Determinate Being as Such
        (1) Determinate Being in General
        (2) Quality
        (3) Something
      b. Finitude
        (1) Something and Other
        (2) Determination, Constitution, and Limit
        (3) Finitude
          (a) The Immediacy of Finitude
          (b) Limitation and the Ought
          (c) Transition of the Finite into the Infinite
      c. Infinity
        (1) The Infinite in General

(2) Alternating Determination of the Finite and Infinite
(3) Affirmative Infinity

3. Being-for-self
   a. Being-for-self as such
      (1) Determinate Being and Being-for-self
      (2) Being-for-one
      (3) The One
   b The One and the Many
      (1) The One in its Own Self
      (2) The One and the Void
      (3) Many Ones—Repulsion
   c. Repulsion and Attraction
      (1) Exclusion of the One
      (2) The One of Attraction
      (3) The Relation of Repulsion and Attraction

B. Magnitude (Quantity)
   1. Quantity
      a. Pure Quantity
      b. Continuous and Discrete Magnitude
      c. Limitation of Quantity
   2. Quantum
      a. Number
      b. Extensive and Intensive Quantum
         (1) Their Difference
         (2) Identity of Extensive and Intensive Magnitude
         (3) Alteration of Quantum
      c. Quantitative Infinity
         (1) Its Concept
         (2) The Quantitative Infinite Process
         (3) The Infinity of Quantum
   3. The Quantitative Relation or Ratio (*Enc.*: Degree)
      a. The Direct Ratio
      b. Inverse Ratio
      c. The Ratio of Powers

C. Measure
   1. Specific Quantity
      a. The Specific Quantum
      b. Specifying Measure
         (1) The Rule
         (2) Specifying Measure
         (3) Relation of the Two Sides as Qualities
      c. Being-for-self in Measure
   2. Real Measure

a. The Relation of Self-subsistent Measures
(1) Combination of Two Measures
(2) Measure as a Series of Measure Relations
(3) Elective Affinity
b. Nodal Line of Measure Relations
c. The Measureless
3. The Becoming of Essence
a. Absolute Indifference
b. Indifference as an Inverse Ratio of its Factors
c. Transition into Essence

II. The Doctrine of Essence
A. Essence as Reflection within Itself
1. Illusory Being
a. The Essential and the Unessential
b. Illusory Being
c. Reflection
(1) Positing Reflection
(2) External Reflection
(3) Determining Reflection
2. The Essentialities of Determinations of Reflection
a. Identity
b. Difference
(1) Absolute Difference
(2) Diversity
(3) Opposition
c. Contradiction
3. Ground
a. Absolute Ground
(1) Form and Essence
(2) Form and Matter
(3) Form and Content
b. Determinate Ground
(1) Formal Ground
(2) Real Ground
(3) The Complete Ground
c. Condition
(1) The Relatively Unconditioned
(2) The Absolutely Unconditioned
(3) Emergence of the Fact into Existence
B. Appearance
I. Existence
a. The Thing and its Properties
(1) Thing-in-itself and Existence

(2) Property
(3) The Reciprocal Action of Things
b. The Constitution of the Thing out of Matters
c. Dissolution of the Thing
2. Appearance
a. The Law of Appearance
b. The World of Appearance and World-in-itself
c. Dissolution of Appearance
3. The Essential Relation
a. The Relation of Whole and Parts
b. The Relation of Force and its Expression
(1) The Conditionedness of Force
(2) The Solicitation of Force
(3) The Infinity of Force
c. Relation of Outer and Inner

C. Actuality
1. The Absolute
a. The Exposition of the Absolute
b. The Absolute Attribute
c. The Mode of the Absolute
2. Actuality
a. Contingency, or Formal Actuality, Possibility, and Necessity
b. Relative Necessity, or Real Actuality, Possibility, and Necessity
c. Absolute Necessity
3. The Absolute Relation
a. The Relation of Substantiality
b. The Relation of Causality
(1) Formal Causality
(2) The Determinate Relation of Causality
(3) Action and Reaction
c. Reciprocity

III. The Doctrine of the Concept
A. Subjectivity
1. The Concept
a. The Universal Concept
b. The Particular Concept
c. The Individual
2. The Judgment
a. The Judgment of Existence (Inherence)
(1) The Positive Judgment
(2) The Negative Judgment

(3) The Infinite Judgment
b. The Judgment of Reflection
(1) The Singular Judgment
(2) The Particular Judgment
(3) The Universal Judgment
c. The Judgment of Necessity
(1) The Categorical Judgment
(2) The Hypothetical Judgment
(3) The Disjunctive Judgment
d. The Judgment of the Concept
(1) The Assertoric Judgment
(2) The Problematic Judgment
(3) The Apodeictic Judgment
3. The Syllogism
a. The Syllogism of Existence
(1) First Figure of the Syllogism
(2) The Second Figure: P-I-U
(3) The Third Figure: I-U-P
(4) The Fourth Figure: U-U-U, or the Mathematical Syllogism
b. The Syllogism of Reflection
(1) The Syllogism of Allness
(2) The Syllogism of Induction
(3) The Syllogism of Analogy
c. The Syllogism of Necessity
(1) The Categorical Syllogism
(2) The Hypothetical Syllogism
(3) The Disjunctive Syllogism

B. Objectivity
1. Mechanism
a. The Mechanical Object
b. The Mechanical Process
(1) The Formal Mechanical Process
(2) The Real Mechanical Process
(3) The Product of the Mechanical Process
c. Absolute Mechanism
(1) The Center
(2) Law
(3) Transition of Mechanism
2. Chemism
a. The Chemical Object
b. The Chemical Process
c. Transition of Chemism

3. Teleology
    a. The Subjective End
    b. The Means
    c. The Realized End

C. The Idea
1. Life
    a. The Living Individual
    b. The Life Process
    c. The Genus
2. The Idea of Cognition
    a. The Idea of the True
        (1) Analytic Cognition
        (2) Synthetic Cognition
            (a) Definition
            (b) Division
            (c) The Theorem
    b. The Idea of the Good
3. The Absolute Idea

NOTES

1 Ideally, the formal properties of items do not depend in any way on their semantic or representational properties, and therefore cannot depend in any way on the nature of the reality they represent. But this is really too simple, since the logician must distinguish logical from nonlogical particles. The whole reason for making the distinction and doing logic in the first place rests on the different kinds of content embodied in the symbols.

2 Traditionally, logic is thought to spell out the conditions for thought's 'agreeing' with itself, assuming that unless it agrees with itself, it cannot agree with reality. But there are substantive (and nonformal) assumptions here about the nature of such internal agreement and about the nature of reality.

3 *WL*: Hegel, *Wissenschaft der Logik*, 2 vols, ed. G.Lasson (Leipzig: Meiner, 1923); *SL: Hegel's Science of logic*, trans. A.V.Miller (London: Allen & Unwin, 1969).

4 I distinguish between the generic discipline of logic and Hegel's particular treatment of it by calling his treatment *the* logic. This usage does not distinguish between his treatments in the *Science of Logic* and the *Encyclopedia of the Philosophical Sciences*.

5 Note that Hegel explicitly does not say that the logic is an exposition of the ideas or the mind of God, for he would insist that this kind of imagistic and metaphoric way of describing the logic is very inadequate. Rather, it is an exposition of God himself.

6 A good example of this occurs in the *Zusätz* to § 24 of the *Encyclopedia*, where the Mosaic legend of the fall of man is read as an "ancient picture of the origin and consequences" of the self-disruption of spirit that makes all knowledge possible to begin with.

7 Actually, Hegel himself would have been more likely to have said that this development bottomed out with Kant, whom in this regard he classifies as an empiricist, simply because the hard-core nominalist empiricists still held onto the simple faith that thought (in their case their ideas and impressions) and reality match. Only in Kant are we inescapably confined to a realm of thought without direct connection to reality.

8 "It is one of the profoundest and truest insights to be found in the *Critique of Pure Reason* that the *unity* which constitutes the nature of the *Concept* is recognized as the *original synthetic* unity of *apperception*, as unity of the *I think,* or of self-consciousness…. Thus we are justified by a cardinal principle of the Kantian philosophy in referring to the nature of the *I* in order to learn what the *Concept* is" (*WL*, II:221–2; *SL*, 584–5).

9 Hegel does not believe that the *cogito* expresses a direct intuition of a substantial soul. Indeed, just what is at stake in the *cogito* turns out to be very complex and intertwined with a great deal of other knowledge about ourselves and the world around us. Thus, Hegel's interpretation of the *cogito* is highly anti-Cartesian. I have discussed this in greater detail in W.A.deVries, *Hegel's Theory of Mental Activity* (Ithaca: Cornell University Press, 1988), ch. 6.

10 Hegel, of course, never couches his objection to Kant in these terms.

11 See *WL*, II:220–3; *SL*, 583–5.

12 This aspect of Hegel's logic has been emphasized in K.Düsing, *Das Problem der Subjektivität in Hegels Logik*, Hegel-Studien Beiheft 15 (Bonn: Bouvier, 1976).

13 The following section is derived, in substance, from deVries, op. cit., pp. 171–4.

14 The attitude of the understanding seeks to find and hold on to a set of rigid categories and distinctions that can be brought independently to bear on any material. The pre-Kantian thinkers, both rationalist and empiricist, with their consistent drive to decompose everything into simple atoms, are strong examples of this (pre-)philosophical attitude.

15 See R.Aquila, "Predication and Hegel's Metaphysics," in M.J.Inwood (ed.), *Hegel*, Oxford Readings in Philosophy (Oxford: Oxford University Press, 1985).

16 Cf. the discussion of the active universal and "objective thought" in *Enz.*, §§ 19–25.

17 Hegel seems to assume that with sufficient consideration one conceptual structure will present itself as being *the* structure characteristic of the phenomenon in question. But why could there not be alternative structures, perhaps each revealing something important about the phenomenon, but none with a claim to being *the* privileged structure inherent in the phenomenon? Hegel's own attempts to find the "right" structure for the philosophy of religion, for instance, show that he struggled with different alternatives.

18 Nevertheless, there are some contemporary commentators, e.g. Kenley Dove and William Maker, who seem to hold that retracing the *Phenomenology* is indeed the only way to achieve this state.

19 Although Husserl never thought much of Hegel, Hegel's conception of the attitude of pure knowing bears striking similarities to Husserl's notion of the phenomenological attitude. This may help explain why so many of Husserl's followers, unlike their master, found Hegel fascinating.

20 For any excellent review of the interpretations and criticisms of the opening moves in Hegel's logic, see D.Henrich, "Anfang und Methode der Logik," in his *Hegel im Kontext* (Frankfurt Main: Suhrkamp, 1967). Unfortunately, this

essay—the entire book, for that matter—is not available in English translation.

21 The major argument against this particularist reading of Hegel's logic is that it leaves the systematic triadicity of the system totally unexplained. Surely there is no particular reason to think that each and every concept must have an intrinsic, implicit triadic structure. I am willing to hazard the revisionist guess that the triadicity is an artifact of Hegel's commitment to a logic of terms in which the principal model of logical relation is a three-termed syllogism. But this is not the place to defend such a radical interpretation.

22 Hegel succeeded in revising only the Doctrine of Being before his untimely death. This revision brings it into accord with the logic as contained in the third edition of the *Encyclopedia*. But the Doctrine of Essence remains unrevised in the *Science of Logic,* and it differs in some significant ways from the version contained in the *Encyclopedia*. We must assume that had Hegel lived to revise the Doctrine of Essence in the larger *Logic,* it would have been brought into agreement with the version in the *Encyclopedia*. I am not aware of a thoroughgoing study of the differences between the two logics. Significantly, the Doctrine of the Concept as contained in the *Science of Logic* and published in 1816, several years after the appearance of the first two parts, accords substantially with the version in the *Encyclopedia;* apparently it would not have needed as extensive revision.

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CHAPTER 8

Hegel, spirit, and politics

Leo Rauch

Hegel's impact on political thought has been immense—giving shape to the major political movements of the modern world. Yet the person of average education is hardly familiar with the name, which is usually identified with a small number of simplistic statements, to the effect that Hegel argued for the supremacy of state power over all else; or that Hegel says individuals must subject themselves completely to the will of the state, and so on. Moreover, Hegel was seen (until recently) as the prophet of German totalitarianism—and the alleged evidence for this is in his characterization of the state as "the divine idea as it exists on earth," "the march of God in the world," etc.

In our century, such views have ominous echoes, especially when we have seen states override the rights of individuals; when state power has more often crushed personal freedom than it has preserved it; when individuals have all too often been forced to cooperate in their own enslavement by the state; and when the areas of state power have been expanding irreversibly. In the light of all this it surely seems that any endorsement of state supremacy is suspect and ought to be rejected out of hand.

Moreover, we may well wonder if there is anything in Hegel's political philosophy that merits our attention. The affirmative answer comes from the fact that so much of what he wrote has been reflected in other political streams, even if these involve distortions of Hegel's thinking. World communism, for example, adopted the dialectical logic of Hegel's worldview, although that dialectic was linked (in communism) to a materialism Hegel had rejected utterly.

There is no question about Hegel's power to fascinate readers with his views of state and history. To understand his views, we must understand his reaction to the eighteenth-century Enlightenment. In an age that placed

great emphasis on the concept of a static and unchanging human nature, Hegel chose to emphasize the dynamism of the political theater. He sees the political reality as being historical through and through. But that dynamism also characterizes culture in all its aspects. And if we now regard the law, medicine, science, and the arts as fundamentally dynamic—so that it is by now basic for us to study these in their histories—this perspective is due in no small part to Hegel. But in regard to the dynamism of politics we must ask: If politics presents a scene of change, what is it changing from? what is it changing to?

DYNAMISM AND HISTORY

The dynamic emphasis was not always the norm. Thinkers associated with the Enlightenment believed that there is a fixed human nature, making all historical change unreal. As Voltaire is often thought to have said, "Plus ça change, plus c'est la même chose."[1] And Hume, in his *Enquiry* (VIII:i), tells us that if we wish to know the ancient Greeks and Romans we need merely study the French and English, since humanity stays much the same, and history "informs us of nothing new or strange."

Hegel's approach makes a sharp contrast to all this. Instead of arguing for the unchanging character of human nature, Hegel emphasizes the evolutionary perspective in history: the state, and all else that is human, is seen to be in process and to derive its significance from the process. The Spanish philosopher José Ortega y Gasset said: "Man has no nature, only a history." The very concept of an unchanging human nature seems to have been mocked by history's spectacle of mindless chaos and blind change. Hegel rejects the characterization of history as mindless and blind: History does have an aim, and that aim is rational. If so, what is all this change aimed at? If the fundamental characterization of humanity involves its volatility in the dimension of *time,* in what direction does time take us: to development or decline? And how inevitable is the historical process anyway?

Hegel's way of addressing this complex issue is to make it even more complex. If we agree to see human life as historical in its very essence, the historical dimension must be seen in a global perspective—even in a cosmic perspective whereby human history is regarded as a continuation of the development of the cosmos as a whole. In the terminology of our own time, we may see the cosmos beginning as simple matter composed of undifferentiated particles, but ending as mind and culture subsumed under the heading of what Hegel calls Spirit: i.e. all that has been created by humans using their minds, language, culture, and society. *Geist* has also

been seen as a "general consciousness, a single mind common to all men."[2] It is this metaphor that makes it possible for Hegel to look at history as though it were the report of the world's own coming to self-consciousness, like a mind growing up and achieving maturity and freedom.

What about matter and spirit? How did we get from the one pole to the other? In the temporal "distance" between these two poles (matter and spirit), we see an emerging process: it all has tended in the direction of the highly complex and self-conscious beings we are—beings capable of understanding themselves in rational terms and giving shape to their lives accordingly; beings capable of grasping their own history, and of seeing reason at work in it.

Hegel must have been struck by the sheer wonder of it all. But if so, he did more than wonder at it: he organized his wonderment into a comprehensive system of metaphysical speculation. In his *Encyclopaedia of the Philosophical Sciences* (1817), Hegel undertook to demonstrate a very remarkable doctrine (among other remarkable ones): namely that the mere *concept* of Being must eventuate in an existing world, an Ontological Argument for the world's existence. Being—a purely abstract and formal concept in metaphysics—must somehow lead to an eventual materialization of itself as reality, so that the self-enclosed concept must produce a version of itself outside itself, as nature! From there, Hegel went on to show how the world of inorganic nature must produce an organic version of itself, as life. And from there he showed how life as such must lead to consciousness and then to self-consciousness. Moreover, he showed how these separate stages *must* follow from one another, not merely as a haphazard biological/ evolutionary progression but as a matter of *logical* necessity.

The final goal of the process—that is, our rational self-consciousness made real in the world—must be seen as somehow embedded in its very beginning. The omega is entailed in the alpha—so that our modern cultural life, in all its wealth of complexity and detail, is implicitly there in the simple first moments of the life of the universe. (Needless to say, Hegel does not use such a term as "the Big Bang.") If we are now so highly evolved as to be capable of understanding ourselves rationally, this self-consciousness of ours must be the final goal of the entire process, the purpose that gives the cosmos its ultimate meaning. Accordingly, it is Spirit—fully evolved and fully self-conscious—that is the goal of history. And the entire process of cosmic evolution culminates in *freedom* (for in being fully self-conscious we are in a position to act freely, according to our own will, and to shape our lives to meet the standards of our own rationality).

Hegel undertakes to show how such freedom has emerged in time. History is the account of the emergence of freedom (in the fullest sense of

that term). Not all cultures have attained such self-directing freedom, and they are therefore in the early or intermediary stages in the evolutionary process of history. Obviously, an authoritarian culture, in which only one person is "free," does not provide the setting wherein the individual participants can regard themselves as fully self-motivating, since they are not in a position to shape their lives according to their own rational precepts. Thus Hegel sees history as the gradual fulfillment of our rational potential, in freedom.

All this must change our view of the violent history of Hegel's time—and ours. History is not a chaotic succession of meaningless and disconnected events. There *is* a meaning that unites it all, Hegel says, a meaning we can see if we approach history with a rational attitude. In his view, then, the unifying meaning is implicit in the omega of history: the fully explicit and self-conscious rationality manifested in a public life of full freedom.

Yet we might ask: Assuming that this genuine goal of full rationality could be realized, would it justify the necessary sacrifices? In our century (perhaps the most horrific of them all), the question of a sacrificial calculus is inescapable. Every point on the horizon has its pile of corpses heaped up in the name of so-called "historical" aims: there are the vast multitudes who died in the prolonged trench warfare of the First World War; the millions who were victims of Stalin's collectivization; the millions who perished in Hitler's "final solution," not to mention the further millions, on all sides, who died in the Second World War as its victims or combatants; then think of Hiroshima; of Mao's "cultural revolution"; of Cambodia and Vietnam; and on and on. Can all this misery be said to have contributed to the developing freedom and rationality of history? And even if such a contribution could be proven, in the long range, could the remote goal justify all the immediate suffering?

Hegel has no illusions about history's violence and its short-range irrationality. He does not see history as filled with sweetness and light. Indeed, he speaks of history as a "slaughter-bench." He lived through the Napoleonic Wars; and although he admired Napoleon when he saw him on horseback, riding through the conquered city of Jena in 1806, Hegel knew that he must come to terms with the destructive side in what Napoleon had done, and keep both eyes open to history's murderous aspect. How, then, could anyone argue for the intrinsic rationality of history, in view of its so obvious irrationality?

For Hegel, the irrational element in history is necessary for the fulfillment of the ultimate aims of cosmic reason. He argues for this view on two levels: He begins by saying that "world-historical individuals" such as Alexander, Caesar, and Napoleon (i.e. the "movers" of history) are merely the unwitting instruments of a higher Spirit working through them,

a Spirit which is mysteriously exploiting their very irrationality for the sake of Spirit's rational goals, and achieving (through these individuals) ends *they* never intended, but which were the implicit goals of history all along. This is the "Cunning of Reason" in history.

Then he extends this concept to human action in general. Human actions stem from human passions, needs, and interests; and however irrational these may be, they too are the means whereby the World Spirit fulfills its rational goals. Thus the aims of Spirit are made real through the actions of the human will, revolving around its irrational passions, etc. And thus the rational Idea (i.e. cosmic reason) and the irrational passions of the individual are interwoven as the "warp and woof" of history, Hegel says.

THE DIALECTIC

We have seen that human beings can act irrationally, yet serve the rational goals of cosmic Spirit in so doing. Despite all appearances, therefore, there is an implicit rationality at work in history and in states. Does this entail a contradiction? Could this be a positive feature of states and their history?

Here we must say a few words about the topic of Hegel's dialectic. The term "dialectic" means (in Greek) discourse, debate, logical reasoning. Hegel adopted it as a technical term, to mean "logic" in a special sense. Aristotle's logic avoids contradiction—so that if a conclusion contradicts its premises, you know that the argument is invalid. Hegel incorporates the element of contradiction into his discourse, and makes it play a constructive role there.

Here is how it works: An idea or proposition *(thesis)* will readily suggest its opposite *(antithesis)*, and the one will enter into the very definition of the other. (Think of the idea of slavery, and how the idea of freedom enters into its very meaning. Think of Rousseau's ringing sentence: "Man is born free, and yet everywhere he is in chains.") For Aristotle, a thesis and its antithesis cannot *both* be true; you must give up one or the other. Hegel says that two opposed statements *can* be true if each is only a partial truth. Indeed, each leads to its opposite *because* it is true in only a partial manner. When we see the partial nature of such truths, we are led to think of a higher truth which is more comprehensive and includes them both, *as* partial, so that the partial nature of these lower truths is overcome. (Thus we could respond to Rousseau by saying: "Yes, man is by nature free, but he himself freely creates the chains of his enslavement.") This higher truth, bringing thesis and antithesis together, is a *synthesis*. The synthesis, in turn, will generate a further opposite. ("If

man is free to create his chains, then he is free to break them. Why, then, does he remain unfree?")

Let us take note of the productivity of thought as it arises out of the clash of its implicit opposites. (It, too, is creating its chains, then breaking them.) The Danish physicist Niels Bohr said: "There are two sorts of truth, small truth and great truth; the opposite of a small truth is a falsehood; the opposite of a great truth is a further truth." This remark is straight out of Hegel, except that Hegel was not content to let such a contradiction remain a contradiction; rather, he would take it to a higher synthesis. He might say: "The great truths and their opposites are in opposition only by virture of their compatibility."

From this, Hegel goes on to the remarkable view that this dialectical logic works in two separate but parallel areas, i.e. in thought and in history. Thus our thinking process is dialectical in character, creating its own counter-questions and their solutions, leading to further questions, etc. But Hegel goes on to say that history, too, is dialectical in the way it unfolds—for it is marked by conflicts and solutions, then further conflicts, and so on. Thus the process of history has the same implicit logic to it, the dialectic.

Thus the main feature of the dialectic is that it is said to work in two spheres—the formal and the factual, i.e. logic and history. This means that if some events are linked logically, that is also the way they are linked in reality—with the same rigorous necessity characterizing both.

But here we may want to ask: Is there not an antithesis between logic and history, as there is between pure theory and concrete reality? (This antithesis, as well, cries out to be resolved in a higher synthesis.) Thus in the field of pure theory we are confronted by an embarrassing series of dichotomies (e.g. freedom vs determinism, facts vs values, individual rights vs collective expectations, etc.)—and the only way these antitheses can begin to be resolved is by showing that their component "truths" are not final, that they are mere abstractions or merely piecemeal truths, and that they can be brought to unifying syntheses if we see them from a "higher" (unifying) perspective. From that perspective, both thesis and antithesis are "negated" at the same time that they are "lifted up" (as we shall see in the forthcoming example of the classless society).

At all events we must grasp the parallelism of logic and history—an isomorphism that becomes feasible when we realize that the way our minds think things through (when we think in a thorough manner) is actually the way things do and *must* happen—again, because the same necessity is to be found in both spheres. It is this feature that enables us to declare, about any series of connected events, that whatever *has* happened *had* to happen.

We can thereby presume to demonstrate the inevitability of (say) the

Communist Revolution of 1917 by showing that it occurred with a logical necessity, both in its initial causes and its ultimate aims: Thus the opposed interests of the bourgeoisie and the proletariat (as thesis vs antithesis) erupted into open conflict wherein class differences were eventually to be eliminated through the creation of a supposedly classless society (synthesis). So, if Marx and Engels are correct, and all history is the record of class conflict, then the synthesis that is the classless society negates social classes entirely at the same time that it elevates them into a higher synthesis—wherein the individual would see him- or herself as belonging to a higher entity, altogether outside class.

It is an ironic fact about the dialectic process that a synthesis need not be final either, but that it too may create a further opposition in another antithesis, to be followed by yet another synthesis, and on and on. If, however, any historical synthesis *is* final, then it becomes the "end" of history—in the combined sense of its completion and its ultimate purpose (and, indeed, that is how the "classless society" was seen by Marxist theoreticians).

We may conclude, therefore, that what drives history is its internal (i.e. formal) conflicts brought about by the one-sided "partiality" and inconclusiveness of its theses and antitheses, and that all this will come to an end in an all-embracing synthesis wherein the imperfections inherent in the one-sidednesses are altogether overcome.

We must leave to the judgment of history the question as to whether this dialectical vision is for the most part correct. However that may be, the fact that so many historical events do involve conflict of some sort tends to make the dialectical explanation a useful model, though probably a reductive and simplistic one. Moreover, since the dialectical model is most often applied after the events, not predictively, its power to explain is limited because it is so arbitrary. Hegel never uses the dialectical model in this formal and puerile manner, but only for the purpose of arguing in support of the link between logic and history—a link that is somewhat reflected in the powerful statement in the Preface of Hegel's *Philosophy of Right:* "What is rational is actual; what is actual is rational" (p. 10).

HISTORY AND THE COSMIC SPIRIT

With the foregoing statement—important enough for Hegel to utter it in his Preface—the parallelism of thought and reality comes into full view. That link is possible because both belong to the realm of Spirit. The concept of "Spirit" *(Geist)* is so central to Hegel's entire doctrine that if that concept falls, then his entire system falls with it. What can be said for it, or against it?

To begin with, the concept of a World Spirit *(Weltgeist)* is the paradigm case of a "metaphysical" concept if ever there was one. And if we adopt the anti-metaphysical stance so typical of our age, we would have to say that *any* sentence with the word "Spirit" in it (as Hegel uses the term) cannot be verified, and so it must be rejected as a sentence devoid of meaning. Thus if I say, "Spirit acts through the world-historical individuals," I cannot describe just *how* the connection works, or how Spirit makes them act as they do. Further, I cannot specify what observable conditions would make that sentence true or make it false. In the absence of such verifying or falsifying conditions, the sentence must be judged to be literally without meaning! (This is the general criticism leveled by Logical Positivists against all metaphysical utterances.)

Moreover, if we were to adopt the Marxian standpoint, we would have to say that Hegel's doctrine of Spirit (as a doctrine) is nothing but theology in disguise. Like the God of the Bible, Hegel's "Spirit" acts in history, chooses certain nations to bring *its* (Spirit's) message to the world, acts through certain individuals to manifest *its* will—and all the while keeps its (i.e. His) ultimate intentions hidden. ("God works in mysterious ways…" The sentence has the same meaning if its subject is "Spirit.") And if Hegel is really talking theology in this metaphysical doctrine of his (as Marxist criticism alleges), and religion is the opium of the people (an opium employed for the purpose of keeping the lower classes in their place), then Hegel's doctrine is on very shaky ground indeed.

Yet there is no denying some important points in favor of Hegel's doctrine of Spirit:

(a) In view of history's dynamic nature, it does seem to be moving toward a goal. Hegel speaks of the process of history as though it were an individual mind growing up and becoming aware of itself, a process of maturation in the world's "mind." We therefore need the concept of a "mind" or "Spirit" to give meaning to the process.

Consider the probable mentality of (say) Neanderthals or other paleolithic primitives who might have come only as far as domesticating fire and the dog, and who might have had only the most rudimentary ideas about their surrounding world. They must have had only the vaguest reasonings regarding their own social organization. Their ability to function in the world, to explain it successfully and make use of its opportunities for providing food, clothing, shelter, health, social order, and security—all these would have been severely limited.

Now contrast the picture (admittedly fanciful) of that crude mentality to that of a Freud, Einstein, Bertrand Russell, and it is obvious that we have come a long way in our mental evolution. Our capacity for handling abstract concepts has grown exponentially. Our ability to think our way through a complex series of issues in a sustained way, then to

communicate and record the process—all this has far exceeded anything of which the primitive was capable.

In what does the difference consist? If we say it is a difference in "culture"—what does that term amount to in its comparative/ explanatory power? Frued, Einstein, and Russell were the "products" of their culture—and they would hardly have survived in the Neanderthal world. The Neanderthals, in turn, no doubt had their characteristic ways of relating to the world, of using it and explaining it, etc. But this relativistic approach of ours (placing all "cultures" on an equal footing) gives us little; in and of itself, it does not tell us what the differences amount to.

The difference between "us" and "them" is not simply in what we might call civilization. To account for the contrast, we must observe that the intervening process has been thrusting its way *toward* the goal of a more articulate level of self-consciousness—i.e. a more complex mentality or spirituality active in the world. The historical process makes sense only in the light of that increasing complexity in the mentalization or spiritualization of humanity. Thus we become human to the degree that we can think of ourselves as human. With this, the concept of a developing Spirit is indispensable if we are to understand the process as a whole. Otherwise the process itself (along with the contrast between ourselves and the primitives) remains an unexplored mystery.

(b) Moreover, without that concept there would be an unexplained mystery in connection with cultural boundaries which some civilizations have marked out for themselves: Why do the Elizabethans have such sublime theater, but so little painting? Why do the Florentines produce such magnificent painting, but such negligible theater in comparison to the Elizabethans? How is is that the ancient Hebrews develop such an exalted conception of deity, at a level of thought calling for the most profound wisdom and insight—yet have nothing to say in regard to art as such, or democracy, or science? How could the ancient Greeks, that miraculous people, have had so much to contribute in art, science, and mathematics—and even have invented tragic drama, democracy, and philosophy—yet not have gone so far as the most elementary form of monotheism?

Here, the concept of Spirit has considerable explanatory power. Hegel says that the characteristic differences between cultures can be explained by what he calls the "Spirit of a people" *(Volksgeist)*. As he sees it, each people has a distinct contribution to make to the great stream of cultural history. A people will step up upon the stage of world history just once, will say its "lines," and then step down. The Hebraic contribution of ethical monotheism is entirely distinctive in the Hebrews; no other people could have made that contribution to world culture, and that world culture is the richer for it. The Greek contribution of theater, democracy, science, and philosophy is (in its totality) similarly distinctive. Again, no

other people could have made that combined contribution, and without it the world would be a bleak place indeed—with no civilization at all but only some form of stunted cultural existence.

These contributions—the "lines" spoken by each of these peoples on the world stage—are not arbitrary or accidental, but are rather the necessary steps in the maturation of the world's "mind." At certain definite moments in time, this or that contribution had to be made—and the world's "mind" chose one people or another to make it. This is precisely what demarcates one people or another. It is the Hebraic *Volksgeist* and the Greek *Volksgeist* that explain what these peoples *are,* thereby dispelling the mystery about their different capacities and characteristic achievements. At this level we are no longer dealing with a mysterious cosmic Spirit or world mind, but with Spirit in a more limited scope, the mind of a people or nation—and perhaps the concept's explanatory force is all the greater for being limited.

(c) There is a further argument to support the concept of Spirit, perhaps the most convincing of all: An inventory of the world's "contents" must include not only all material objects and material particles; it must also include all thoughts, all actions, relations, concepts, meanings, etc. All these latter things must be differentiated from material objects, since their descriptions cannot be equated with material descriptions. They must therefore be consigned to a nonmaterial category, and this is Spirit. (We could just as well call it "Mind," or the "mental," and Hegel would accept these terms as equivalent, since *Geist* includes them all.) Spirit embraces the totality of human significations. And if we are to see that totality in dynamic terms, as evolving in history and historical time, then we must have a dynamic conception of Spirit itself, to comprehend all that is cultural and distinctly human.

We ought to respond to the Marxian objection made earlier—to the effect that Hegel's metaphysical doctrine or history is theology in disguise, that his philosophy is merely a version of religion. Thus Hegel's statements about history should (in the view of Marx) be translatable into theological statements, and these translations should then reflect the true meaning of what Hegel has to say. Hegel, however, maintains the converse: rather than philosophy being religion in another form, religion is actually philosophy in another form. That is to say, religious assertions are trying to say what philosophy says, but they say it crudely, by means of imagery (human figures representing abstract concepts, and so on). Thus religious statements are inadequate expressions of deeper philosophic truth; and it is the philosophic truth (not the religious) which is ultimate—since philosophy is fully articulate and self-critical, while religion must express its insights in nothing better than imperfect verbalizations which must wait to get their truth by way of philosophy.

Marx respected Hegel for his dialectical logic—the logic of conflict and its overcoming. He accepted Hegel's view that history works dialectically (the Marxian class struggle being the best example of dialectical conflict in history). But Marx felt that Hegel was wrong about Spirit being the moving force in history; he believed he had cleared up one of Hegel's errors, replacing Hegel's "idealistic" doctrine with a "materialistic" view of history. (This occasioned Marx's famous remark about his finding Hegel standing on his head, and setting him back on his feet.) It was Plekhanov who in 1891 coined the phrase "dialectical materialism" to characterize Marx's view of history. Yet Marx's "materialistic conception of history" involves a false materialism: the "material forces" which he believes move history are the economic factors embedded in human society; they are the products of human effort, not the effects of physical matter. Hegel calls them Objective Spirit—and they *are* the work of Spirit, after all, not of matter. Despite Marx's never-ending attack on Hegel, the Marxian conception of history is Hegelian through and through.

Thus, if there is any doubt about Hegel's view that "ideas" move history, such doubt is readily dispelled by Marx's own case, since the "material forces" he adduces are themselves the work of the "mental," i.e. people's *ideas* about history—and few "ideas" have moved history more decisively than have Marx's doctrines.

REASON IN THE WORLD

We saw Hegel say, "What is rational is actual; what is actual is rational." Here, again, we see the implicit parallelism of thought and history, united by a parallel dialectic. Elsewhere he says that when we approach the world with our own rationality, the world responds by showing us its rationality in return. (This is from his *Introduction to the Philosophy of History,* p. 14.) The rational aspect he shows us is the world's dialectical structure—which we can comprehend because it parallels the dialectical structure of our thinking.

Here, then, we may see a further side to the puzzling theme of Spirit in history: Instead of seeing "Spirit" as a mysterious metaphysical agency (and most critics of Hegel see him thinking in just this way), we might take "Spirit" to refer merely to the element of active reason in the world, the rational in the actual.

Once we have this in full view, Hegel's "metaphysical" utterances are tamed and demystified. In every way he can, he is trying to account for the existence of reason in the world. After we have acknowledged the obvious truism that the world and the mind are mutually reflective, mutually

consistent, we can either marvel at the fact or shrug our shoulders at it. Hegel sees the consistency between world and mind, between the actual and the rational, as the most deeply problematic of truths. Einstein said: "The one incomprehensible fact about the world is that it is comprehensible." For Hegel, that fact is *not* incomprehensible, and his aim is to show this to be so.

He approaches the problem at a number of levels: Not only does he make it a metaphysical issue requiring some very complex lines of argument (as in the grand structure of his *Encyclopaedia*); he also examines the actual workings of reason in such different areas as art, religion, culture in general, history—and political life. Here, then (as I suggest), we see a less-than-metaphysical approach being taken by him. And as soon as we realize that this is so—namely, that not all his explanations are intended as metaphysical assertions but rather as statements closer to the world's everyday ontology—then many of his "metaphysical" utterances (so called) become less daunting.

In the *Introduction to the Philosophy of History* (p. 75), there is the oft-quoted statement: "World history in general is…the unfolding of Spirit in *time,* as nature is the unfolding of the Idea in *space*." This statement is far less metaphysical-sounding when we realize that Hegel is merely contrasting the realm of mind and culture with that of physical nature. Each has its source in a rational process, Hegel is saying.

HEGEL'S *PHILOSOPHY OF RIGHT*

Much of the tradition of political thought rests on two tenets that are sometimes made explicit, but are more often left tacit. These are:

> The human being is by nature a social animal.
> The human being is by nature a rational animal.

Political theory, throughout its variegated course, has tried to prove the mutual compatibility of these two statements—although there have been thinkers, such as Nietzsche, who have sought to demonstrate how incompatible these are, so that our social inclination is by no means a rational one. If they are compatible, then we may expect human society to exhibit the same rationality that typifies all other human contrivances and constructions; if they are not compatible, then there is no basis for expecting society (or anything else that is human) to display anything like a rational aspect. The problem goes back to a wider controversy in ancient Greek philosophy, as to whether the laws are the product of nature or of convention: Are social values

entirely random, arbitrary—and irrational? For Nietzsche, there is nothing in social life or custom that can be given a fully rational and intellectually satisfying justification. (In one of his examples, he speaks of a culture in which the act of scraping ice off one's boots with a knife is punishable by death—and he seems to be saying that there is no socially sanctioned act anywhere that does any better in its justification.)

On the other hand, we have had a host of thinkers who regard the state as a rational device specifically created (by rational and naturally social creatures) to serve one or more of our basic social purposes: to promote peace and social order; to protect life and property; to determine and secure natural rights; to insure that a people will have a unifying voice; to make possible the transmission of inherited values from one generation to the next; to make it possible for the wisest to rule, etc. Whatever these various theories argue for, they share an emphasis on the purposiveness and rationality of societal life. Is it at all rational and sensible for individuals to enter into social ties with others? Presumably, we enter into contractual arrangements with one another for one rational end or another. Having done so, is it rational and sensible for us to try to give further order to our societal interrelations through the application of reason? Or is all this speculation about the social interactions of ourselves as primordial humans merely an idle exercise?

Of course, like Nietzsche, we may express no confidence at all in the reasonableness of human institutions and arrangements. Where Nietzsche is at the nadir of trust in regard to such institutions, Hegel is at the zenith—as reflected in the motto we have been citing about the rational and the actual. Society, as Aristotle says, begins with the process of satisfying the needs of life, although its ultimate aim is the pursuit of the *good* life. Again, how rational are these as goals, and how rational is the aim of achieving them?

We might go so far as to conceive of certain rights, to which all humans may lay claim; we may even speak of such rights as parts of self-evident truths, i.e. as standing to reason. But it is no secret that the theoretical foundations of these rights have been roundly attacked over the centuries. (Can an attack on what is "self-evident" avoid self-contradiction?) Accordingly, we may state one of the challenges confronting Hegel as follows: to decline the use of "natural rights" as a basis for a theory of statehood; yet to maintain the emphasis on the *rationality* of the state.

There are further challenges: Throughout his Preface, Hegel argues against the uncritical acceptance of social convention and entrenched values. What is to be decisive is not convention but *truth*. We may or may not wish to go along with him in his search for a basis in objectivity for such truth. As for its other criteria we must reiterate his motto, since it tells us that only what is *fully* rational is actualized in the world, and only

the fully actual is transparently rational. All this reminds us that we must avoid convention as a basis for argument, along with the intellectual fashion of the moment, and especially the individual conscience. All these are now seen as impediments in the search for truth, its objectivity and rationality.

All this may well be a sensible goal in, say, logic or mathematics. In political theory, moored as it is in the concrete life of society and its values, we can hardly avoid our individual feelings and points of view. Can we be altogether free of perspectives that have become historically ingrained? Hegel insists that we must somehow put these things behind us if we are to have any hope of attaining truth and rationality.

Hegel goes so far as to suggest that Plato drew his *Republic* from the values implicit in Greek ethical life. What is the status of that "actuality"? In Hegel's motto, the German word that is translated as "actual" is *wirklich*. With this, he does not mean that just any actuality is rational—and certainly not the false and ephemeral "actuality" we encounter in political life. Rather, *wirklich* refers to the union of existence and essence—as when we speak of a "real" athlete, one who fulfills the essence of what it means to *be* an athlete. Accordingly, *wirklich* means "real" (or actual), "true," "genuine," etc.

And therefore Hegel's "science of the state" (i.e. of the rational/ actual state) is not a study of this or that example of statehood, but of the state that perfectly fulfills the functioning *ideal*. Up to this point we can hardly have been enlightened as to what all this means. Yet when we do grasp this, the challenge that faces us is "to apprehend in the show of the temporal and transient the substance which is immanent and the eternal which is present" (p. 10).

The state's rationality and its actualization as such emerge together. Thus, a further challenge confronting Hegel is "to apprehend and portray the state as something inherently rational" (p. 11). This sounds as though he is trying to set up an ideal of the state as it *ought* to be (à la Plato). But no, it is the state as it *is* which is to be united with its essence, as the actuality. As he tells us: "To comprehend what is, this is the task of philosophy, because what is, is reason."

To apprehend the eternal in what is transitory. But most emphatically, this does *not* involve setting up a standard of perfection with the purpose of getting us to live up to it. Instead, there is a hint of resignation when Hegel admits that the aim of philosophy is not to change the world, but only to apprehend our own time by way of thought (again, the synthesis of the rational and the actual). As for changing the world, wisdom makes its appearance only at the end of an era, when things can no longer be changed but only understood. As he famously says: "The owl of Minerva takes to flight only in the oncoming dusk."

HEGEL'S *INTRODUCTION*[3]

We have been speaking of history as an evolutionary process. That process, however, is not entirely value-neutral. Instead, Hegel sees it as involving (a) the concept of right, and (b) its actualization through time, in a transition from merely "abstract" right to "concrete" right, fully realized. Consider, for example, such concepts as these: "selfhood," "humanity," "property," "obligation," and so on. In some societies these could be mere concepts, with an application that is nothing more than a matter of *form* or ritual; in other societies, these concepts might be more fully articulated, with a *content* that can be given words as well as a concrete expression in societal life.

On a broader scale, we may contrast an arid ideology (powerful though it may be) against a set of political tenets whose meaning is made fully verbal and rational. This transition, then, is what occurs (or should occur) in any society in the course of time. It is a transition to a stage of cultural life wherein mind is consciously applied, a transition to something more fully rational and actual in regard to the element of *right*.

We must not identify this with the values held by any particular society (whose existence is in any case contingent and variable). Nor ought we to link "reason" to any social values expressed as positive law in this or that place. Rather, we must think of a universal, or norm, applied to particular cases in law, but reflecting the essential *Geist* of a people (par. 3). Above all else, it is the essence of right that we are seeking: its basis is Spirit which is given expression as the will of a people. Since the will is free, as Hegel explains, freedom is both the substance of right and its goal. Indeed, "the system of right is the realm of freedom made actual, the world of mind brought forth out of itself like a second nature" (par. 4). Yet although the process is free, it is in search of determination. This is provided by its dialectical counterpart.

The free will, taken to an extreme in politics, ignores all restraints. As a result it rises to pure destructiveness, to eliminate all individuals who might pose some sort of a threat to it, and thus turning to destroy the social order itself. Hegel is obviously thinking of the French Revolution in this regard; but these words of his are ominous for our own time as well—with all the abundant examples of murderous autocracies operating destructively in the name of "freedom," equality, or whatever (as abstract ideas).

This is one of the most penetrating insights Hegel offers: namely, that the abstract idea is not merely one-sided and empty of content; but that it is necessarily destructive, in that its partiality and one-sidedness—mistaken as the *whole* truth—must become destructive of society as a

whole, as a result of the violence inhering in the dialectic itself. There are numerous ways whereby this may occur: The will, being free, is indeterminate; it is the ego that seeks to give itself some determinate content. In so doing, it turns back into itself; it becomes the reflection of itself, by reflecting on its own reflection—and this is its universality, its infinity, its self-determination, and also its absoluteness (par. 7). Above all, its self-relatedness is its freedom. And in that freedom from external factors, it may well become politically autistic and violent; or it may become rational.

We might wonder whether Hegel is thinking here in terms of the will of the individual or the will of a people. Most likely, he is deliberately conflating the two levels of discourse, so that the individual will can be taken as a metaphor for the social will. Once he has engaged that metaphor, he can come to analogous conclusions about a social "mind"—attaining its freedom, self-determination, and maturity on the basis of how an individual undergoes the same process. From here it is an easy step to conclude that just as the individual ego is autonomous, so the social "mind" can claim a similar degree of autonomy, even an absolute authority over its own "selfhood." Hegel often decried the use of analogy in philosophical argument; he preferred direct (non-analogical) discourse, whereby we say exactly what we mean, and nothing else.

Yet the fact is that he himself employs analogies—and he does so in support of his most crucial points (the twofold "mind" being one such analogy, among others), and this must cast much of what he says into doubt, since this "double-speak" is deliberately ambiguous on this score. Thus, while leaving the question open as to whether he is speaking of the will of an individual person or the will of a people, he can say: "It is not until it has itself as its object that the will is for *itself* what it is in itself" (par. 10). Only in its self-awareness does the will, or ego, attain its essence. But just *whose* will is this—that of the individual person or that of society? This question is not addressed, since Hegel prefers to leave the ambiguity in place. Shortly thereafter (par. 13), he speaks of the individual will coming to its resolutions; but as individual it is a will only in form, and is therefore abstract.

It is in the individual will that we see the dialectic of choice and resolution combining to form contradictions in the ego, an ego therefore divided against itself. This is surely a destabilizing factor when it occurs in the social "mind," which sees these differences of will as arbitrary, subjective, and threatening; they are therefore uprooted as much as possible. With this remark, Hegel seems to damn all dissent in society, as well as all diversity (par. 19). We get the same result by extending his metaphor: a psyche divided is unhealthy in the individual, and is made healthy by its integration; in the social "psyche" integration is wholesome,

a people speaking with one voice, in a unity of social purpose. Such integration ought therefore to be fostered as the primary social goal.

What is most important is to get the will away from its abstractness, so that it becomes self-relating and self-determining, thereby achieving its freedom, universality, and infinitude (as we have seen). This, then, is its truth (pars 21–3). By turning back into itself, the will is able (in its resulting indeterminacy) to turn outward and project itself into the world, which it shapes according to that will.

This defines the progression in Hegel's *Philosophy of Right-proceeding* from the abstractness of its concepts to their external embodiment, thence back into the will and its freedom, it is then turned outward once more, but now energized by its freedom. Having turned outward, the will is made objective in a shared system of morals, to be followed by what he calls "Ethical Life" (par. 33). This will undergo a dialectic of its own. The book is therefore divided into three main sections: "Abstract Right," "Morality," and "Ethical Life."

ABSTRACT RIGHT

John Locke, in his *Second Treatise of Government*, explains how rights evolve, and he uses the right of property as the paradigm of all other rights: Thus, a man in the "state of nature," wherein no one owns anything, mixes his bodily labor with nature (say, by picking fruit off a tree). The resulting product of this mixture is rightfully his. A similar argument holds for all other rights: they, too, are extensions of one's bodily self, expressions of one's will. In this way, the rights to "life, liberty, and estate" are established. Governments are specifically set up for the purpose of safeguarding those rights.

Here we can think of a variety of philosophic approaches describing the basic formation of the state as a primordial instrument for securing property and personal safety. Obviously, we do not leave it at that—as though, with security achieved, the state has completed its task. Rather, the state persists beyond that task; there are further purposes for it.

Moreover, the right which is secured by the primordial state is merely an "abstract" right—namely, a formal, less-than-real right. This is because there can be no "right" to property *prior* to the establishing of a government and a system of ownership, and therefore no rights which a government is *subsequently* meant to protect. What Hegel must do, therefore, is to show that the "abstract" right is an *inadequate* and incomplete picture of rights and their justifications.

The essence of what it is to be a person involves the notion of self-

relatedness. Selfhood is a relation in which a self relates itself to itself. This powerful paradox is derived from Schelling. (It is a paradox because a relation relates one term to another that is pre-existing; and yet, in Schelling's terms, the self does not pre-exist for a self to relate to, but only begins to exist as a *result* of the relation itself.) Hegel reiterates this point by saying: "I am simply and solely self-relation" (par. 35). Only by virtue of my relation to my self, which logically should already exist, do I *then* begin to exist as a self. Hegel needs this paradox, this antithesis, as a basis for his subsequent dialectic. On the other hand, Locke's exposition is straightforward, involving a progression from a state of nature, to labor, to property, to ownership, to a civil state which protects property, etc. Hegel goes much deeper, to the ego which originates labor and which owns; yet that ego is paradoxical, since it is not the originator but the *result* of its acts of will.

Locke's picture is that of the rational primitive who discovers that there are things to be gotten through labor, and that these things must be protected by some human invention; the state is that invention. There is nothing problematic about the insight of this primitive individual. Hegel's dialectic, however, is not driven by anything so straightforward. Rather, Hegel's dialectic is driven by paradoxicality: it is the ego itself, in its self-relatedness, that is the engine of the dialectic. My self-relatedness is what gives me my sense of self, my sense of being complete in myself. It is a loop by means of which I have turned inward; that turn has a dimension of universality, for in turning back into myself I see what all human beings are. I am, therefore, an individual and at the same time a universal. I am, so to say, one of a kind—and one *and* a kind, a unit-class, solo yet complete.

Yet that very sense of self is incomplete, since my self begins to emerge only from my relation to the self which is also the *product* of my self-relation. Thus I would have an abstract right if I were a Lockean manager of my external world. But then my selfhood would still be far from established. My act of establishing it, now, is what propels my thoughts and rights in their paradoxicality. Let us examine the dialectics of this.

Social contract theorists—such as Hobbes and Locke—have portrayed a "state of nature" with human occupants. Each of these is a fully formed ego, with a will which has all of the attributes of the humans *we* know. Such a primordial ego has a will which is free and universal (universal in the sense of representing all humanity). Hobbes and Locke regard their protagonist as psychologically complete, endowed with the various personal characteristics shared by the rest of us (although Hobbes and Locke differ diametrically in regard to what those "common" characteristics are). Hegel, on the other hand, regards that picture of the primal human as incomplete: Rousseau introduced the

notion of that human as but half-human; Hobbes's and Locke's man is someone we would readily recognize; Hegel sees this creature as incomplete since he will only begin to define himself through his encounter(s) with others.

Prior to such encounter(s), therefore, the self is not yet in the process of self-formation, let alone the fully formed and recognizable product of that process. That self is abstract, so far. As Hegel says: "The universality of this consciously free will is abstract universality, the self-conscious but otherwise contentless and simple relation of itself to itself" (par. 35). Thus this is not a fully formed individual, but a case of bare self-relatedness, a purely formal narcissism—an abstraction.

From this perspective, it follows that such "rights" as are based on such an abstraction must be merely abstract rights as well. It may be that "in my finitude I know myself as something infinite, universal, and free," but these are still a "contentless" infinitude, universality, and freedom—i.e. not concretely real, but entirely abstract.

On the other hand, it is the very abstractness of these features that enables me to connect myself to others: for in acknowledging my personhood as the basis of my rights (however abstract that personhood and those rights), I grasp my link to others on the same basis. Thus, Hobbes and Locke see my need for personal security as my reason for entering into social relations; Hegel sees those relations emerging from a recognition of others as beings similar to myself. For this purpose he enunciates something like a Kantian imperative: "Be a person and respect others as persons" (par. 36). That is the basis of universality, to be sure. Yet that personhood is incomplete as long as it does not include my recognition of whatever it is that makes me a particular individual and unique. Over against the background of the universal, therefore, I become particularized. Over against the objectivity of the others who are there, I emerge as subjective (although this contradicts my own universality). Out of this struggle between the universal and the individual, and between the objective and the subjective, my own personality evolves (par. 39).

There are rights which I attach to myself on a subjective (i.e. infantile) basis: The world is *my* world, as Wittgenstein says. When I emerge out of my infantile solipsism, my rights take on an objective character, recognized by me as inherent in my very personhood. When I enter into a contract with another person, I implicitly recognize him or her *qua* person, and I am thus recognized in turn. The transfer of property from one to another serves as the medium of personhood.

Let us note how far we have come: i.e. from the rather primitive picture offered by Hobbes and Locke, of self-interested individuals desirous of securing what they have wrested from nature, to a far more ephemeral image of human beings engaged in the far more subtle activity

of self-recognition, and from that recognition giving form to selfhood and ego, both in personal and societal terms.

The ego must turn its attention outward, by externalizing the self in some property. But the paradoxical feature of such a thing is that it is both an extension of the self, yet is separable from the self, both different from the self, yet the same. Moreover, a piece of property may be material and inert, and yet the very vehicle of selfhood. "A person has as this substantive end the right of putting his will into any and every thing…thereby making it his," Hegel says (par. 44). We may go even further and say that not only does a piece of property become *his*, it becomes *him*. Man puts himself, his will, into a thing -but, in turn, the thing may come to encompass his very self. Property is thus the *embodiment* of personality, involving not only my possession of property but also the recognition of it, as mine, by others (par. 51). This entails their recognition of my will in it. This is so fundamental a feature of ownership that we may say that the fact that a thing is recognized as mine makes the thing take on a character that is external to it.

There are dialectical elements in all this as well, and these elements, in their very contradictoriness, actually propel the dialectic into creating a social fabric. Thus the fact that a thing is *mine* (dependent on me) and also *it* (an object that is independent of me) can be said to raise difficulties which only a society can be called upon to resolve. This piece of earth is mine, although it exists as something on its own; but the opposite is also true, that its being mine becomes an external feature of the object. (Thus slavery, the ownership of a "living chattel," had to be sanctified by society; but when the time came for the abolition of slavery as an institution, only society could be expected to undertake that task.) Similar contradictions obtain with regard to my body as both mine and it; and the social fabric both sustains and dissolves this contradiction. Such contradictions account for the manysided ambiguity in the use of terms such as "my body," "my person," "my self." In general, the ambiguities arise in the dialectics of those terms as reflecting the selfhood of the user. (Do I warm my "self" at the fire?)

With property, then, a fabric of recognitions emerges. That is to say, we may see society evolving around the mutual recognition of the property right. We might even say that Hegel regards property as the first step away from "abstract right" and into the creation of a social fabric, with "rights" moving in the direction of concreteness.

In discussing the alienation of property, i.e. giving it into the hands of another person, I can also alienate my time, my creativity or ability, etc. But Hegel points out—as Marx does in the section on alienated labor in his Paris Manuscripts of 1844—that with this I am also alienating "the substance of my being…my personality" (par. 67). My product may cease

to be strictly mine if someone copies what I have made, and uses it to express their own personality. We may also wonder whether, having put my will or ego into a thing, I must devalue myself when my product drops in value.

Since property involves a tacit agreement between the owner and all others (i.e. to respect the right of the owner), we may regard that relation as implicitly contractual. Now, whether I hold on to my property (and others respect it as such) or I do alienate it by transferring it to someone else, there is a conjunction of wills (for example, in regard to the sale price). Thus we have a conjunction of wills, but also a separation of wills, since each of us is out to serve our own interest by means of the transaction. Once again, we see property and the property relation leading both to a social configuration and to selfhood.

Although we have made mention of Hobbes and Locke, we are by no means proposing to consider Hegel as another social-contract theorist. Hegel does not speak of a social contract as anything like the formative nexus of society, the way they do. For him, society is based on a fabric of mutual recognition—and this is psychological and self-relating, rather than overtly contractual. A contract is therefore a reflection of such recognition, not the genesis of it. When Hegel does discuss the meaning of a contract, he is speaking quite literally of the way contractual relations actually function *in* a social setting; he is decidedly not speaking in a metaphorical sense of a social "contract" arranged prior to the formation of society and therefore the instrument of its formation. His primary aim is to examine the working of the wills of contracting parties. Thus, in the case of a contract for a sale or exchange, he says, value passes in both directions: the seller alienates their property, while the buyer appropriates it and (say) exchanges value for it. Value, therefore, remains as a constant throughout—always provided that there is a concurrence of wills: the seller asking a certain sum, the buyer agreeing to pay that sum (pars 76, 77).

The agreement of the two parties, the legality of their contract, the very notion of right—all these things are negated when the contract is broken or is fraudulent. Thus there is the appearance of legality and formal Tightness—and obviously there could be no appearance of right without the implied background-of Tightness, legality, etc. This Tightness is reasserted if the fraud is challenged as fraud, etc. (pars 82, 83).

What we see here is a further stage in Hegel's dialectic of society: a contract requires the concurrence of wills; one of those wills is now challenged, and the challenger asserts a claim on the basis of implicit right—which now becomes explicit—and thus may lead to a clash of rights. This clash is adjudicated on the basis of right, i.e. in the question as to who has the right to the property at issue. When the right is challenged,

even when it is negated altogether, the right is in some way asserted, implicitly or explicitly.

This being so, the criminal must be regarded as acting inside the fabric of right, even when he or she violates the right of another (indeed, especially so). Here, Hegel brings out a strange result of this dialectic: namely, that the penalty which is meted out to the criminal is implicitly *his* will, an embodiment of his freedom, his right, even a right established with the criminal himself, Hegel says, so that the criminal's punishment is *his* act: "his action is the action of a rational being…[thus] the criminal has laid down a law which he explicitly recognized in his action and under which he should be brought as under his right" (par. 100). In crime, there is a conflict between a universal law (or universal will) which is implicit and a single will (that of the offender) which is explicitly independent. With punishment, the injury done is negated, the law is asserted, and the offender's freedom is secured (that is, in their having determined the law which asks for their punishment).

MORALITY

We have offered some observations about consciousness becoming self-conscious, turning back into itself. This self-consciousness is the key to a society's freedom and autonomy; and it is therefore the key to its morality as well. We might wish to say, superficially, that morality is the product of a society setting up rules for the behavior of its members. This need not necessarily be a self-conscious process. Indeed, we might compare societies for the degree of self-consciousness involved in their choice of values: some societies have managed to develop a set of mores without involving much thought in the process; others more so. But at its best—when a society is entirely conscious of what it is doing, so that it becomes self-reflecting, and examines its values in the light of other values, deeper ones, in an effort at making such values consistent and coherent—then such a society is closest to being fully in control of itself and of its destiny as it exercises its freedom in choosing the values by which it will live.

Let us recall Hegel saying that the self-consciousness of a culture is the goal of history, and this is its freedom. Thus the maturity associated with such freedom is the product of the will which has turned back into itself. In the individual person, such self-reflection is what makes that person the *subject* of their own will; the same holds true for a culture when it becomes the subject of *its* will (par. 105). It is a striking metaphor—whereby social change is presented as a maturation of the individual—yet it is but a metaphor, and thus it has its characteristic weaknesses. Hegel

persists in using it—as when, in his *Philosophy of History*, he speaks of a society as though it were an individual growing up, becoming responsible, and so on.

The metaphor is used to its strongest effect in regard to morality. Now, we are not considering the growth of morality from primitive society to complex ones; nor is Hegel giving us a picture of primitive humans in action (as Hobbes and Locke do). Yet Hegel does concern himself with the intrinsic nature of moral values as such; and therefore he must concern himself with the question of how moral values as such; and therefore he must concern himself with the question of how moral values come into being (*as though* there were human beings engaged in creating values, à la Hobbes and Locke).

The point may be clarified methodologically: The analysis of moral values exposes their component elements; with these elements in view we may see how they fit together—as though someone had actually *put* them together, actually synthesized them. This returns us to the metaphor of the maturing individual, standing for the social mind in *its* development. It is a metaphor that prevails throughout Hegel's writing, even if he does not make that metaphor explicit at all points. Thus we can regard Hegel's account of morality as *genetic*, i.e. concerned with the *origin* of values in society (and in this respect he does resemble Hobbes and Locke, though only in an abstract and formal sense).

A further extension of the metaphor is reflected in Hegel's way of regarding morality as the creation of will: he addresses this concept as though it were the will of an individual person, although it is something like an abstract social will that is meant. This adds a further dimension to the dialectic of all this: namely, in that the will is something *subjective*, within the mentality of the individual, and yet its product is *objective*, in that it is given expression in the outer world of social values. Hegel can speak of the "self-determination of the will" in its subjective character (par. 107), yet he can pit against it the objectivity of the social will (par. 109).

It is the characteristic strategy of Hegel's, after setting up a dichotomy, to show the two sides to be identical. In the case of the subjectivity/objectivity dichotomy, this is precisely what he does when he speaks of the objectification of subjectivity. Each of us absorbs social values in our individual process of enculturation, and each of us makes those values private ones, as though each of us had created them for ourselves. It is in this light that we may say that there is therefore a private and a public will at work; it is my will at work, yet it is identical to the will of others (par. 112).

Further dichotomies are reflected in the fact that the subjectivity/objectivity stand-off is externalized (and thus is resolved) in activity, as

well as in the fact that the values of the individual are those of the universal, i.e. the intention behind the action (par. 119). In transactions between individuals, it is the shared meaning of the universal that makes mutual understanding possible. The aim of all action is to produce good, or benefit—again, understood in universal terms. There can be benefit without right, or right without benefit—but neither of these is good (par. 130). Only in their combination is good realized. The subjective will sees its object(s) as good, and this is its prerogative, i.e. to judge its object(s) as being right or wrong, good or ill, legal or illegal, etc. (par. 132). But in all this the process of judging is still rather abstract, as Hegel suggests.

All this has the Kantian caste of universalizability—down to the element of duty (and it would be more Kantian still, if not for the genetic dimension of Hegel's account). Thus the objective side is eventually united with subjective knowing, so that the subjective is given expression in ethical life, where the abstractness of mere contentless morality is overcome (par. 137). At this stage, morality subsists in good intentions alone, and the good heart is taken to justify all (p. 99). Yet the objective good is lacking here. As for the identity of the two terms of the dichotomy, it is the identity of objective good with the subjective will that makes for concreteness. Hegel says that the identity of the two is the "truth" of each, and as such it constitutes the Ethical Life.

ETHICAL LIFE

From what we have seen of the Morality discussion, the component values were not yet complete. True, there was the element of universality, i.e. the humanity to which we all belong and which we share as humans. But this was still abstract as a value-element and had not yet been given concreteness in a social form. The thrust of Hegel's discussion, hereafter, will be to show that our *moral* values are a function of our *societal* arrangement, and of the way(s) our societal life is actually run.

Hegel will turn his attention to the most rudimentary form of societal life—the family—to show what values are implicit in it and, further, what values can be expected to emerge from it. Then he will go on to discuss civil society, to show some of the workings of the law and its management of justice. And finally, there will be an extended discussion of the state—as the highest (i.e. the most moral) operation of our shared life.

With Ethical Life, we enter into the institutional aspect of societal life. This may suggest the unconscious organic side; yet in Hegel's view it is that part of societal life reflecting self-conscious knowing and willing—i.e. freedom. There are values made concrete as an "objective ethical

order"—with such objectivity transcending both the subjectivity of the individual and the mutability of social mores (par. 144). Indeed, the objectivity of these values exceeds (for the individual) the "authority" of nature.

From the very outset, the individual is in a secondary position vis-à-vis these life-regulating values, "as accidents to a substance" (par. 145). And yet, this ethical "substance" is not something external or alien to us, since it is the very element of our spirituality, amounting to a "second nature." As he says: "It is mind living and present as a world, and the substance of mind thus exists now for the first time as mind" (par. 151). This is objectified in institutions such as the family and the nation. It is here that rights and duties become reciprocal, so that having the one entails having the other.

The family is held together by bonds of love, despite the fact that (as a proto-state) its characteristic function is the exercise of power. In this light, the individual exists not as a totally independent entity but as a *member* (par. 158). This is why we may see the family as a state in embryonic form.

History is a process of the growth of freedom, the story of freedom (as we have seen). Hegel can therefore see each stage as mirroring the whole: just as marriage begins with the physical aspect and proceeds to the affirmation of love, so the cosmic process as a whole involves the transition from nature to Spirit. For Hegel, then, we may say that any and every segment of the historical process is the emblem for the entirety: at first, in the opposition between nature and Spirit; then in the transition from the individuality of the two persons to their unity as one (and in the process overcoming the transiency of love).

Monogamy is the essence of marriage, Hegel says, since it entails the total absorption of the individuals in the ethical bond. Thus the family itself becomes an "individual"—one whose personality is constituted by property (par. 169). This is also the basis for setting up further families in the newer generations. Just as the offspring become independent individuals, so do the new families, making their own transition from particularity to universality (par. 181). This transition culminates in civil society, wherein the ethical life of the family is absorbed in a broader context.

We may wish to find that broader context in the state, and to regard the state in terms of some of its services, such as water supply, the post, etc. For Hegel, all these necessary functions come under the heading of civil society. This is a subordinate classification, which allows Hegel to reserve the state for higher purposes: to serve as the vehicle of history, the medium of Spirit, etc.

In the most basic terms, civil society is a communal arrangement for the

mutual satisfaction of our fundamental needs. An interesting question, therefore, asks what social values are implicitly attached to that arrangement: Does it lead us to give conscious acknowledgment to our interdependence, so that we actually come to regard society in that way? If so, then the mere understanding is at work: i.e. we grasp the meaning of civil society in its *particularity*, whereby individuals are concerned with their private interests alone. On the other hand, to grasp the essence of the state, we must appeal to reason, which is in touch with *universality*. In regard to the personal needs satisfied by civil society, mere understanding will suffice, with its focus on subjectivity and particularity. Civil society can therefore be regarded as a system of needs; the state, as we shall see, goes far beyond this.

To illuminate the system of needs (and their satisfaction) Hegel speaks of class organization in civil society: \there is the agricultural class, the business class, and the universal class (i.e. the civil servants concerned with the needs of society at large). Through some measure of self-identification with the interests of the community, a morality is built up wherein one's wider responsibility is expressed, but where the closest one comes to a universality of interests is in the right to property.

The abstract right becomes objectified when we become *conscious* of its objectification. It becomes binding in our recognition of it as *law*. Obviously this cannot be enough: there are the ties established by positive law in regard to property in civil society; but there also are the ethical ties of the heart, of love and trust (par. 213). Since these ties touch us at the most private level, morals cannot be a matter of legislation. Laws do comprise a system—and, ideally, we ought to be able to expect such a system to fulfill the requirements of any system, namely, that the totality ought to exhibit consistency, coherence, and completeness. All this would come to a test when the universal principles are applied to particular individuals and cases. Here, too, law becomes objectified in our recognition of its objectification—primarily in regard to property and the infringement of the rights connected to it (par. 218).

When a crime is committed, it is the *universal* that is being injured, and when the law exacts its vengeance it goes beyond vengeance in the personal sense which is subjective and contingent. In punishment, an offense is annulled, the law is reconciled with itself. Accordingly, we may see in this an elevation of values to an objective and universal sense—a further reflection of the historical evolution of Spirit (par. 220).

The fact that the parties to a legal case have certain express rights, and that every legal case is established on the basis of argument and proof, also reflects the evolution of spirituality by way of the introduction of reason into public life. In this way, that public life is increasingly moralized—notwithstanding the fact that the legal process *can* turn into

lethal formalities. Above all, the fact that a judge applies a universal standard to a single case reflects the process of the rational moralization of society as a whole (par. 225). (Thus we may say that the development of positive law is what enables us, by its example, to think in universal terms and thus to apply the thinking appropriate to, say, the categorical imperative.)

From all this, we might hastily conclude that all social progress is a moralizing process. We have pointed to some clear examples in this regard. Thus, in pointing to some rudimentary forms of social existence, Hegel speaks of the family as the "first ethical root of the state" (par. 255). The continuity is fundamentally ethical.

Civil society can be seen as largely efficacious in providing for society's basic needs. But Hegel also points to some inevitable weaknesses associated with civil society; and he is not far from Marx in this criticism—except for the difference that Hegel does not trace these weaknesses to capitalist production but to civil society itself. Thus there is poverty, massive unemployment, illiteracy, a disparate distribution of wealth, economic imperialism and the search for foreign markets, colonialism, etc. (pars 244–8)—ills which he includes under the rubric of "this inner dialectic of civil society" (par. 246).

Where Marx, however, would condemn the source (capitalism) for its results, Hegel merely sees them as by-products of the larger framework which is civil society. But where Marx sees that source as dissolvable in revolution—so that an industrial society would be made more moral by the removal of capitalism's antisocial and destructive effects on human beings—Hegel goes back to civil society and its broader perspective of the role of power. The primary purpose of public authority, he says, is "to actualize and maintain the universal contained within the particularity of civil society" (par. 249). A further difference, therefore, is that Marx sees true morality emerging in the negating of capitalism's effects, while Hegel sees morality emerging from the social and legal functioning of civil society itself—in its lawlike effect of universalizing human judgment within a framework of law.

THE STATE

All of Hegel's prior discussion has been leading up to his treatment of the state; and indeed, this is the culmination of his *Philosophy of Right*. But here a caution must be noted: the state is the continuation of civil society, yet it is different from it. (This tactic is consistent with his dialectic, where two adjacent areas form a continuum or identity by virtue of their

difference from one another, and differ by virtue of their being identical.) Thus civil society is a collection of atomic individuals, each motivated by a private interest that excludes the interests of others; the state, on the other hand, is a collective entity wherein individuals fulfill their separate interests by merging them into the interests of the whole (much like the ideal of the Greek *polis*).

The libertarian tradition of Anglo-American thinking sees the individual as the most fundamental political entity; with this in mind, the state is seen as a device for serving the interests of individuals—and therefore the main stress is placed on the limits to be imposed on state power. Hegel, on the other hand, comes from a *holistic* tradition wherein state power is irreducible to the interests of individuals. The state is a higher entity—even something approaching the mystical—into which the goals of individual persons are to be dissolved. Let us recall Rousseau, who gives emphasis to a *volonté générale*, a consensus wherein all voices share; the libertarian tradition, on the other hand, must allow for a *dissensus* among its individual citizens.

As for the continuity between civil society and the state, this is to be seen in the different moral purposes to be served by each: i.e. the purposes of the individual as against those of the collective. Both are systems of value, existing tacitly in custom, and explicitly in the ideal of a rational self-consciousness. As Hegel says:

> The state is the actuality of the ethical Idea. It is ethical mind *qua* the substantial will manifested and revealed to itself, knowing and thinking itself, accomplishing what it knows and in so far as it knows it. The state exists immediately in custom, mediately in individual self-consciousness, knowledge, and activity, while self-consciousness—in virtue of its sentiment towards the state—finds in the state, as its essence and the end and product of its activity, its substantive freedom.
>
> (par. 257)

Presumably, since all this is reflective of a process *toward* rationality, such rational self-consciousness is not in the state's present, but only in its idealized future. And only when its implicit aim is fully realized—i.e. as "the actuality of the substantial will which it possesses in the particular self-consciousness once that consciousness has been raised to consciousness of its universality"—only then does the state exercise a supreme right over the individual. In other words, the fully realized aim is the right of the state *qua* Plato's *Republic* (nothing less), i.e. the state as "mind objectified" (par. 258). It is also freedom objectified in self-legislating consciousness, and thus closer to Kant's ethic.

At this point, the question that must present itself is this: How can a Platonic universal or a Kantian imperative, although fully rationalized, necessarily entail any socio-political modes common to a perfect state as such? In an Addition to par. 258, Hegel declares:

> The state in and by itself is the ethical whole, the actualization of freedom; and it is an absolute end of reason that freedom should be actual. The state is mind on earth…consciously realizing itself there…. Only when it is present in consciousness, when it knows itself as a really existent object, is it the state…. The march of God in the world, that is what the state is. The basis of the state is the power of reason actualizing itself as will…. In considering the Idea of the state, we must not have our eyes on particular states…. Instead we must consider the Idea, this actual God, by itself…. The state is no ideal work of art, it stands on earth and so in the sphere of caprice, chance and error, and bad behaviour may disfigure it in many respects. But the ugliest of men, or a criminal…is still always a living man. The affirmative, life, subsists despite his defects.
>
> (Addition, p. 279)

With this, we ought to stress the point that Hegel's Platonic/Kantian dimension is no piece of idle metaphysical theorizing; rather, it calls for a fully concrete realization of the essence of political life.

Up to now, what Hegel has said in regard to the state and its supremacy over all other interests has not seemed to contradict the widespread prejudice concerning his supposed sympathy for the totalitarian state. The point is, however, that Hegel does not leave it at that; instead, he clearly argues in favor of (a) the rule of law, (b) the fulfillment of the individual's goals through the political freedom that is guaranteed to the individual by means of a constitution, and (c) the absorption of particular interests into the universal.

Accordingly, it is in this light—i.e. in the light of an existing constitutional system—that Hegel says: "The state is the actuality of concrete freedom" (par. 260). Indeed, it is only by means of particular interests and actions that the universal is achieved. In civil society, the society stands opposed to the individual (who is usually seen in an adversarial position vis-à-vis society); with the state, we see the completion of the individual, and the fulfillment of their most private concerns in and through the social. Nothing less than this can be regarded as a proper state in Hegel's sense.

We may ask, therefore: How is the individual to find a personal fulfillment in a state? Only in the union of the individual with the universal can this be achieved—a union of public and private interests,

such that the public interest is that which is closest to the individual's heart. The *polis* alone provided the framework that made such an identity possible, and thinkers such as Rousseau and Hegel have been searching ever since for ways to make it real.

Accordingly, the two polar elements—namely, the public interest and the private interest—comprise an antithesis that demands resolution in a higher synthesis. It is the state that provides such a synthesis—i.e. by offering the individual their personal fufillment in the state, as well as that very concern as embodied in the words of Hegel's Preface: "What is rational is actual; what is actual is rational." We can now see this for the tautology that it is: When the term *wirklich* is translated as "real," we have some suggestion of the Platonic realism to which Hegel is sometimes prone, though not fully committed; but when we translate *wirklich* as "actual," we have the Aristotelian *entelechy* to which Hegel is fully committed in his notion of development.

Thus Plato seeks the perfect form of the state in its pure and unchanging permanence; Aristotle's emphasis, on the contrary, is on the dynamism of the historical state in its *becoming*. The state is not a finished entity but a process: its *telos* is its *arche*, its end is in its beginning. If we can see duty and right as a dualism of reciprocal entailment (so that where there is one there is the other), we will have grasped Hegel's concept in a nutshell. He stresses this point as being of vital importance, as the source of the state's "inner strength" (par. 261, p. 162).

In civil society the antithesis (of public vs private) is of a limited nature. But when these are resolved (i.e. absorbed) in a higher synthesis, they become "the firm foundation not only of the state but also of the citizen's trust in it" (par. 265). This involves, further, the unification of the opposed realms of freedom and necessity. Thus my personal interest is both preserved and negated *(aufgehoben)* in the state, and this organic unity is, as Hegel says, "the constitution of the state" (par. 269). It should be pointed out that the term "constitution," here, does not refer to a document, or a set of laws (written or unwritten), but is to be taken as the organizing principle(s) of a state, that by which it is constituted. This organizing principle, then, is the nascent reason inhering in the state. It is in this special light, therefore, that Hegel can say: "The state is the divine will, in the sense that it is mind present on earth, unfolding itself to be the actual shape and organization of a world" (par. 270, p. 166).

The task of civilization, over the centuries, has been the transfer of the inner into the outer, "the building of reason into the real world" (par. 270, p. 167). In the modern world, this manifestation of reason in the political has involved "the development of the state to constitutional monarchy" (par. 273, p. 176). Since all this is happening to *reason*, the diremption of that process has occurred to the universal, the particular, and the

individual—not as abstract and empty categories, but as the actual legislature, the executive, and the monarch, respectively.

Hegel points to the development of the state to constitutional monarchy as "the achievement of the modern world," and the "inner deepening of the world mind." There is a greater complexity here, whether in the mind of the individual or even in that of the cosmos. This has the consequence of producing diremption, polarization, conflict, and dialectic. Indeed, it is the developing complexity of mental and political life that actually fuels the engines of change and progress. Without such conflict, nothing much would be happening, and certainly no historical advance.

Hegel suggests that the constitution of the state (i.e. its actual organization) is not to be regarded as "made" by humans, but as *sui generis* or (as he likes to put it) "divine" (par. 273, p. 178). His reasoning is peculiarly Feuerbachian (although Feuerbach published his work two decades after Hegel published his *Philosophy of Right*): Anything regarded as having been made by humans can as easily be regarded as capable of being unmade by humans; only by being seen as "divine" does it retain its measure of authority over humans and beyond change.

This must surely introduce a measure of schizophrenia into the body politic (or the mental equivalent of that metaphor): i.e. the difference between the process of opening our political life to increased rationality and the closing of that rationality for the sake of myth. Political maturity (whether in the individual or in the state) involves a coming-to-self-consciousness; and in the light of this, the deliberate self-delusion that prompts us to see the state as "divine" is a piece of counter-rationality that cannot be expected to thrive. Why is this?

One thinks here of Marx's Feuerbachian Paris Manuscripts: With regard to the institution of monarchy (or, equally, the capitalist system), can one actually "tell" oneself that this is *not* an institution made by humans—and believe it? Rather, to take that step in the direction of demythologization, and to regard any institution as man-made, is to start on the road to dismantling it, denying its superhuman authority.

Yet the Crown embodies the element of subjectivity, although this is condensed into the individual human being. To say, "The state decides," is as much as to say "The Crown decides"—but for the fact that in Hegel the crown has the limited authority of a constitutional monarch. Implicitly, the Crown combines its three component elements: the legislative power embracing the universality of the constitution and its laws; the adjudication which subsumes single cases under the universal through the power of the executive; and the power of ultimate decision by way of the self-determination in which the subjectivity of just such determinations are made (pars 273, 275). Nevertheless, the element of self-delusion (as when we say, with the ritualism of the law court, "The state versus…" or "The

Crown versus…") is all too easily dispelled, once seen—and once this is grasped we can hardly resist the inclination to demythologize all our social myths, everywhere and on all sides.

This leads us into the most troubling—and controversial—part of Hegel's entire political edifice, that of the monarch. There is hardly a philosopher who is more of a rationalist; but while this entails the dissipation of myths, we ought not to overlook Hegel's profound respect for myths and their social purpose. In this respect Hegel is the tool of his own myth-making, and this is reflected in his theorizing on kingship. One might wonder why a monarch should be needed at all in Hegel's state, given Hegel's emphasis on constitutionalism and the rule of law. Further, one might ask why a monarch is needed, as Hegel says, to embody the element of subjectivity in the state, or why that subjectivity should need to be *embodied* at all.

Perhaps this is a result of Hegel's pervasive metaphor in all this: If history can be seen as a process wherein the state (as "mind") comes to self-awareness, to maturity and freedom, then that so-called "mind" would certainly require a subjective dimension for its completion.

But must we stay with that metaphor? (Since the main point of history is that it is to be compared to a mind "growing up," we may call it Hegel's "educational metaphor" of the state.) As a metaphor, it has its uses: the state, immersed in time, is necessarily dynamic in its process—just as human individuals are in their endless movement toward a *telos*. That *telos* holds out the hope of progress in history—i.e. human individuals learning from experience. (As Dewey says, experience doesn't merely exist, it *teaches*.) The state, in its various efforts to reconcile its inner contradictions, is what produces this human thrust into the future. The state thereby fulfills the potentialities embodied in the perennial human condition. (Here is the educational metaphor once again.) In so doing, the state can be said to *learn* through time, to improve on its own enlargement, etc.—in effect, to provide the equivalent of a *secular* salvation.

Yet the ubiquitous metaphor is hardly convincing when Hegel, as we saw, speaks of something as dubious as a World-Spirit *(Weltgeist)* coming to self-awareness. He is stuck with the metaphor; we are not. Here is where the monarch comes in: as a concept, the monarch serves to flesh out the metaphor, yet it does little more than leave it in its abstract form; *in concrete*, however, it provides the subjective aspect that a *Geist* ("mind" or "Spirit") would need in order for us to understand it.

The monarch, then, enables *us* to address the metaphor, to question it and to demand that it explain itself and account for itself. Clearly, the figure of the monarch can (in principle) be addressed in this way, while the

state cannot (so that we cannot literally speak of the state's "purposes," etc.) because it is entirely impersonal.

Yet the state, as something mental (i.e. spiritual, non material), is the bearer of a "soul," an identity (Addition to par. 275, p. 287). As such it may be seen as "sovereign" over all its component elements, and containing all differences in itself. As the "soul" can be said to unify its disparate elements, so the sovereign performs a similar function by containing all differences itself. Indeed, without a monarch, Hegel says, a people is but a "formless mass" (par. 279, p. 183). As a totality, the state is an organic whole of which the monarch is the "personality."

But here a further contradiction enters, stemming from Hegel's view of the state as the embodiment of reason—i.e. reason objectified: "The state is mind fully mature and it exhibits its moments in the daylight of consciousness" (p. 283). If so, then objectified reason must reflect the realm of the immutable and be unchanging; yet states do change. If it is "the way of God with the world" that there should be states, can the state be regarded as being the effect of temporal forces? To be sure, the person of the monarch is the effect of natural forces, as *this* individual; but the state itself is a nonnatural entity, designed to serve a higher-then-natural purpose. As such, the "immediate individuality" of the monarch must be irrelevant to the state's inherent rationality. And if individuality is the synthesis of the universal and the particular, cannot the state itself be such an individual in its sovereignty, i.e. without a king?

*

Hegel is one segment of the long tradition of visionary philosophers who (beginning with Plato) have sought to introduce reason into the concept of the political world. What we must realize, with Hegel, is that that vision is to be taken as a totality, in which its prismatic elements combine to form a unity wherein those elements are merely *seen* as individual but are actually unified. As he says:

> In the state, self-consciousness finds in an organic development the actuality of its substantive knowing and willing; in religion, it finds the feeling and the representation of this its own truth as an ideal essentiality; while in philosophic science, it finds the free comprehension and knowledge of this truth as one and the same in its mutually complementary manifestations, i.e. in the state, in nature, and in the ideal world.
>
> (par. 360)

NOTES

1 *The Oxford Dictionary of Quotations* ascribes the remark to a certain Alphonse Karr (1808–90) in *Les Guêpes* (Jan. 1849).
2 R.C.Solomon, "Hegel's Concept of *Geist*," *Review of Metaphysics,* 23 (1970): 647; see also R.C.Solomon, *In the Spirit of Hegel* (New York: Oxford University Press, 1983), p. 197.
3 Numbers refer to paragraphs in Hegel's *Philosophy of Right*.

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CHAPTER 9

The Young Hegelians, Feuerbach, and Marx

Robert Nola

Largely through lectures delivered at the University of Berlin, Hegel built up a circle of followers, mainly contemporaries or pupils, who were intent on working out aspects of the philosophical system that their master had suggested but left undeveloped. After Hegel's death in 1831 this circle, later dubbed "the Old Hegelians," became the core of a group of philosophers whose task was to put the finishing touches to the Hegelian philosophical edifice. Though there were during Hegel's lifetime external critics of his philosophy, especially his theology, the work of his close associates was directed toward establishing the unity of his system rather than exposing its inner tensions. True to its dialectical character, Hegel's philosophy did contain contradictory tendencies which if taken too far would transform the apparent unity of his system into a clash of opposites. When "the Young Hegelians" emerged in the mid-1830s, they exploited in various ways these contradictory tendencies, thereby dissolving the unity of Hegel's system and bringing about what Marx called "the putrescence of the absolute spirit."

Though his followers were not united on every aspect of Hegel's philosophy, after his death the differences between them became more marked, first in theology then in political theory. Latent divisions became open disputes when the 27-year-old David Friedrich Strauss published his *The Life of Jesus Critically Examined* in 1835–6, thereby breaking with Hegel over matters to do with religion and philosophy. Strauss (1808–74), who had attended some of Hegel's lectures just before his death, differed markedly from his master over the role which was to be assigned to the Gospels and to the life of Jesus within speculative theology.

While Hegel did not pay much attention to the actual details of the life of Christ and the historicity of the Gospels, he did think that the basic tenets of Christianity, found in the doctrine of the Trinity and expressed in historical events such as the Incarnation, the Ascension, the Creation, and the Fall, could be given an independent philosophical foundation. There would be no need to appeal, for example, to miracles or to historical evidence to establish Christian doctrine. For Hegel the very content of Christianity is identical with the content of Hegelian philosophy, though the form of each is different. The difference in form is the difference between *Vorstellung* (representation) and *Begriff* (concept). In the case of the philosophical *Begriff*, Hegelian philosophy gives us the absolute content of Christianity in the form of pure thought, or as a "deduction" from pure thought. In the case of the *Vorstellung*, popular Christianity with its dogmas deals in pictorial or representational imagery or in figurative thought. These images are not logically particular, as are our sensuous experiences of our mental imagery, but are alleged to be of universal significance; aspects of pure thought contained in such imagery are to be made explicit within Hegelian philosophical theology.

During his time as a vicar in 1830–1 Strauss became acutely aware of this difference of form; the popular religious *Vorstellung* of his parishioners seemed far removed from the religious *Begriff* of the Hegelian philosopher-theologian. While not abandoning the latter, Strauss delved more into the former, particularly the historical genesis of the ideas of Christianity among its earliest devotees. This in turn led to a close study of the life of Jesus and the manner in which this was presented in biblical texts. When *The Life of Jesus* was finally published most of it was devoted to a densely argued critical examination of the historicity of the Gospels—with only a little devoted to philosophy and speculative theology.

The startling result of Strauss's research was that even though there was an historical Christ there was little that we could regard as true of him. Instead most of the biblical stories about him were to be understood as myths, constructed not by individuals but by the earliest Christian communities in response to the teaching of Christ and the Messianic tradition which they had inherited from the Old Testament. For Strauss an "*evangelical mythus* [is] a narrative relating directly or indirectly to Jesus, which may be considered not as the expression of a fact, but as the product of an idea of his earliest followers."[1]

Earlier theologians had accounted for much of the Old Testament in terms of myth. Strauss, who drew on their work, was one of the first to extend the mythical account to much that had previously passed as literal truth in the four Gospels and the rest of the New Testament. Though his mythical account of the Gospels still remains contentious, Strauss's critical work on their historicity stands at the beginning of the modern tradition

of scholarly and scientific study of the New Testament. For Strauss the Hegelian theologian, the important consequence of his research was that there was no longer any identity between Hegelian philosophy and the Christian religion. Hegel's philosophical theology still remained correct, but if the stories of the Gospels were no longer historical truths but myths, then there is nothing in the actual history of Christianity for Hegelian theology to capture and the theology stands quite independently. As Strauss says in the Preface to the First German Edition:

> The author is aware that the essence of the Christian faith is perfectly independent of his criticism. The supernatural birth of Christ, his miracles, his resurrection and ascension, remain eternal truths, whatever doubts may be cast on their reality as historical facts.[2]

At the end of his book Strauss also made another highly contentious claim: since God and man have the same essence, viz., spirit, then they are not genuinely distinct, and thus humanity is divine. Strauss even allowed himself to talk of the God-man as an expression of this unity.[3] The argument for the identity is a bad one; the Young Hegelians were not, on the whole, sensitive to the logical faults in their arguments. However, the rejection of a transcendent God and the identification of God with man underline the extreme humanism that characterized not only Strauss's thought but the thought of all the Young Hegelians.

The conclusion of Strauss's investigations would have been, at the time of their publication, sensational enough for ordinary believers. The notoriety of his book was such that Strauss was prevented from ever obtaining a permanent university position in Germany. The reaction of his fellow Hegelians was also sensational; many rejected his interpretation of the Bible and came to doubt his Hegelian orthodoxy. In reply to their criticism in his "Controversial Writings"[4] Strauss divided the Hegelians into the Right, Center, and Left—his model being the various political factions in the French National Assembly. The Right Hegelians, also called "Old Hegelians," tended to conserve as much of the doctrines of their master as possible, particularly the old doctrine of the unity of Hegelian philosophy with the historical truth of Christianity. The Right included such people as the old defender of Hegel against earlier criticisms, Karl Friedrich Göschel (1784–1861); the successor to Hegel's chair of philosophy in Berlin, Georg Andreas Gabier (1786–1853); and, very briefly, the young Bruno Bauer (1809–82). The Center included people such as Karl Rosenkranz (1805–79) who accepted most of what Strauss claimed about Christ and the Gospels but who insisted, contrary to Strauss, that Christ, not humanity as a whole, was divine. (It was

Rosenkranz who published in 1840 a comic drama about the dissolution of Hegel's School after his death.)[5] Strauss's supporters were on the Left—the Left Hegelians. This division of reactions to Strauss's work persisted even when other Left Hegelians subsequently developed their own critiques of Christianity in ways different from Strauss's mythological explanations.

Karl Ludwig Michelet (1801–93), a Center Hegelian who was in other respects sufficiently orthodox to be one of a panel whose task was to edit the works of Hegel, suggested that there was enough in common between the Center and the Left to make the distinction unnecessary. But this initial attempt to overcome one of the divisions among the Hegelians failed to touch the major division. The differences deepened when the terms "Old (i.e. Right) Hegelians" and "Young (i.e. Left) Hegelians" became a common mode of designation for the two factions in the late 1830s[6]—though such a bipartite division simplifies in many respects the complex relationships that existed among German philosophers in the two decades after Hegel's death. As Karl Löwith says of the Old Hegelians who eschewed any radical philosophical innovation:

> They preserved Hegel's philosophy literally, continuing it in individual historical studies, but they did not reproduce it in a uniform manner beyond the period of Hegel's personal influence. For the historical movement in the nineteenth century they are without significance.[7]

The Young Hegelians were more radical; they dared explore innovatively Hegel's philosophy for their own time, rejecting aspects of it as they saw fit.

The important Young Hegelians, some of whom had attended Hegel's lectures at the University in Berlin, include: Arnold Ruge (1802–80); Ludwig Feuerbach (1804–72); Max Stirner (1806–56); David Strauss (1808–74); Bruno Bauer (1809–82) and his younger brother Edgar Bauer (1820–86); Moses Hess (1812–75); August von Cieszkowski (1814–94); Karl Marx (1818–83); and Friedrich Engels (1820–95). As their dates indicate, they were all born within the first two decades of the nineteenth century, and most, if Engels and Marx are excluded, were born in the first decade. Despite appearances the Old/Young distinction is not based on age since many contemporaries of the Young Hegelians were sufficiently philosophically orthodox to be grouped with the Old Hegelians (e.g. Rosenkranz and Michelet). Nor should it be assumed that the Left/Right distinction carries its standard political connotations. Rosenkranz, who was active in politics, adopted a liberal rather than a reactionary stance despite his identification with the Old Hegelians. In contrast, even though

Strauss's views on religion were radical, he was conservative politically, especially in the period leading up to the revolutions of 1848 when he became involved (on the whole unsuccessfully) in practical politics.[8] In fact in the 1840s, even though Strauss's *Life of Jesus* was still an important work for unorthodox Hegelians, he ceased to be a leading Young Hegelian as the focus of the criticism of Hegel shifted from his speculative theology to his social and political theory.

Given the close alliance in the Germany of the time between religion and state, any criticism of religion inevitably brought in its train conflict with the state. For this reason alone none of the Young Hegelians were able to obtain permanent teaching positions in German universities and their work was often subject to the scrutiny of the censor. For many of the Young Hegelians their critique of religion in the late 1830s laid the ground for a critique of the state in the 1840s—though few took the bold approach of Marx and Engels in finally jettisoning much of the Hegelian theory of the state and in supporting revolutionary movements. The political and social changes in Germany in the 1830s and 1840s did shape some of the differences between the Old and the Young Hegelians. Löwith makes a suggestive point when he says that the divisions between Old and Young Hegelians can be traced back to Hegel's dictum that "the real is the rational and the rational is the real."[9] The conservative Old Hegelians put emphasis on the first part of this dictum, thereby supporting the status quo, viz., that the real existing state is also rational. In contrast the more radical

Young Hegelians put emphasis on the second half of the dictum, viz., currently existing conditions were irrational and would have to be transformed so that in the future the real would be the rational (a view quickly adopted by Marx and Engels). In respect of this dictum Hegel himself was more of an Old than a Young Hegelian. The Young Hegelian movement began after the European revolutions of 1830, reached its zenith in the early 1840s, and was over by the 1848 revolutions. Frederick-William IV, who ascended the Prussian throne in 1840, had the support of many of the Young Hegelians who looked forward to the reform of the bureaucratic Prussian state and to greater participation of a broader range of people in public life. Initially the Young Hegelians benefited from the relaxation of censorship and the creation of a freer press which allowed their ideas to gain wider circulation. But this was short-lived for by the end of 1842 the radical press had been suppressed and the monarch began to move Prussia in the direction of a conservative Christian state. For the Young Hegelians who had criticized received conceptions of religion and whose political thought was, in several cases, strongly influenced by the ideals of the French Revolution, this was a move in the opposite direction from the constitutional democracy which many favored.

It is thus not surprising that some of the Young Hegelians turned to a critique of Hegel's political and social theory. Among the first of these critics was Arnold Ruge whose "Hegel's *Philosophy of Right* and the Politics of Our Times" appeared in August 1842 in the *Deutscher Jahrbücher* which he edited. Ruge argued that there was a deep-seated contradiction between the theory of the state which Hegel developed and the actual state in which he existed. As he put the matter: "The abstract inwardness of Protestantism did not free even Hegel from the illusion that one could be theoretically free without being politically free."[10] According to Ruge this raised for Hegel an ethical question which had previously haunted Kant, viz., even though one should not state falsely what one believes, should one create controversy by publicly disclosing all of what one truly believes? In Ruge's view it might have been diplomatic for Hegel not to have publicly aired all that he thought. He commented: "If Hegel had been presented with an opportunity to stand up for his theory, his times would have had to have turned against him, as happened with Kant."[11] Even though during his lifetime Hegel's philosophical theories, including his theory of the state, had the support of the Prussian government, Ruge pointedly observed that Hegel passed over the contradiction between his theory and the actual Prussian state without acknowledgment.

Ruge also complained that

> Hegel undertook to present the hereditary monarch, the majority, the bicameral system, etc., as *logical necessities*, whereas it had to be a matter of establishing all of these as products of history and of explaining and criticizing them as *historical existences*.[12]

In Ruge's view there is a place both for the philosophical discussion of the purposes and aims of the state and for the historical (and social) investigation of any form of government. However, one should not conflate historical and logical categories. Ruge goes to the heart of his difficulty with Hegel's *Philosophy of Right* when he says: "[Hegel] wrenches the state out of history and considers all of its historical forms only under logical categories (thus, right from the start the categories of universality, specificity, and singularity are employed again and again)."[13] Ruge's complaint was to be repeated later by Marx.

In February 1844 Ruge published in the *Deutsch-Französische Jahrbücher* Marx's own critique of German philosophy and the German state in an article entitled "A Contribution to the Critique of Hegel's *'Philosophy of Right'*: introduction." This was only part of a much longer paragraph-by-paragraph critique of Hegel's *Philosophy of Right* which Marx had written in the previous year and which he had intended to revise

for publication; the surviving sections of this critique first saw the light of day only in 1927.[14] Though the published "Introduction" does not contain any detailed criticism of Hegel of the sort found in the unpublished drafts, Marx does use some Hegelian notions when, for the first time, he proclaims that the proletariat is the class whose revolution will bring about the emancipation of humanity.

For Marx the proletariat is a part of what Hegel had called "civil society"; at the time Marx was writing it was just beginning to emerge in Germany with the rise of industrial development. For Hegel civil society is the sphere of private interest in which each person pursues their own ends often in conflict with others; in contrast the state is that sphere in which the clash of private interests is transcended and there is unity and universality of interest. Whatever defects there may be in actual states, Hegel says in the Preface to his *Philosophy of Right*: "This book, then, containing as it does the science of the state, is to be nothing other than the endeavour to apprehend and portray the state as something inherently rational."[15] In criticizing Hegel, Marx sets out to show: there is no separation of the sort Hegel envisages between civil society and the state; the falsity of Hegel's supposition that in the state there is rationality and unity; and universality of interest masks the fact that in actual states the interests of one particular group dominate within civil society.

Though Hegel recognizes that there are various groups within society, such as civil servants, an agricultural class, an industrial/commercial class, etc., the notion of the proletariat developed in Marx's critique of Hegel is distinctively Marx's own—but without the theoretical depth that his later economic analyses would give the notion. However, the genesis of Marx's notion of the proletariat does have its roots in Hegel's notion of a universal class, i.e. a class whose interests are supposedly those of society as a whole. Marx rejects Hegel's idea that the universal class might be the class of civil servants or the bureaucracy. He also claims that Hegel's attempt to reconcile the differences between civil society and the state is misplaced; instead the historical role of the proletariat is to abolish the very ground which makes these differences possible. In answer to the self-posed question "Where is the positive possibility of a German emancipation?" Marx replies that it lies

> In the formation of a class with *radical chains*, a class of civil society which is not a class of civil society…a sphere which has a universal character by its universal suffering…a sphere, finally, which cannot emancipate itself without emancipating itself from all other spheres of society and thereby emancipating all other spheres of society, which, in a word, is the *complete loss* of man and hence can win

> itself only through the *complete rewinning of man*. This dissolution of society as a particular estate is the *proletariat*.
>
> (*MECW*, 3:186)[16]

The future evolution of the proletariat is also described in the "Introduction" in terms of Hegel's dialectic—the one prominent feature of Hegelian thought that Marx never abandoned. Marx speaks of the proletariat "demanding *the negation of private property*." For the proletariat private property is "the *secret of its own existence*"; by calling for its abolition the proletariat undermines the very condition that makes its own existence possible. Thus the quite thoroughgoing nature of the social transformation that Marx envisages, viz., "the *dissolution of the hitherto existing world order*" (*MECW*, 3:187). Marx's notion of the proletariat thus has its origin both in a critique of speculative Hegelian political theory and in Marx's observation of the social changes taking place within Germany at the time. Much later when writing *Capital*, Marx found a more secure basis for his views about the proletariat in his economic theory; they are the means whereby surplus value is created. But, as chapter 32 of *Capital 1* shows, Marx still maintained that the future evolution of the proletariat was best described using the notions of the Hegelian dialectic.

It was through Arnold Ruge's activities as an editor and publisher that many of the ideas of the Young Hegelians found a public outlet. In 1837 he started the highly influential *Hallische Jahrbücher für deutsche Wissenschaft und Kunst*. Owing to the pressure of censorship Ruge shifted to Dresden in 1841 and continued the journal under the new name *Deutsche Jahrbücher für Wissenschaft und Kunst*, However, early in 1843 even this journal was suppressed, along with Marx's daily newspaper *Rheinische Zeitung*. In 1844 a similar fate befell the *Allgemeine Literatur-Zeitung*, started by Bruno and Edgar Bauer in Berlin in the previous year, thus ending the sequence of journals that had been the main public vehicle for Young Hegelian thought. These journals helped give the Young Hegelian movement a semblance of identity. Their end was only partly due to censorship; by 1845 the movement itself had lost whatever unity it might have possessed and much of its impetus.

The Berlin wing of the Young Hegelians, also known as Die Freien, had its origin in the Doktorenklub, a group formed at the University of Berlin in 1837 for the discussion of radical Hegelian ideas (it was in this group that Marx became acquainted with Hegelian philosophy). The leading member of Die Freien was Bruno Bauer. As a student he had attended Hegel's lectures and had been deemed sufficiently orthodox to be asked to defend the Right Hegelian position against Strauss's *Life of Jesus*. Soon after reviewing the book Bauer was converted to its general themes and

took an even more radical position than Strauss on Christianity; he became an atheist, arguing in several works that not only was there no historical truth to be found in the Gospels but Christianity was a barrier to progress and it was an irrational doctrine that ought to be opposed.

Bauer's subsequent dismissal from his university position became a *cause célèbre* for the Young Hegelians during the early 1840s. With little to lose Bauer wrote an ironic attack on Hegelian philosophy in an 1841 pamphlet, *The Trumpet of the Last Judgment over Hegel the Atheist and Antichrist: An Ultimatum*, in which Hegel is exposed as a closet atheist and revolutionary. Even the apostasy of Young Hegelians, Bauer claimed, is not original to them, for Hegel too, when unmasked, is revealed to be one of them: "It cannot be believed that they [the Young Hegelians] have not recognized the destructive rage of this [Hegel's] system, for they have taken their principle only from their Master"![17] Thus the true heirs of Hegelian thought were not the Old Hegelians and their ilk (found in university and government circles) but the Young Hegelians, since Hegel himself, when properly interpreted, also espoused their subversive and radical doctrines.

Though Bauer continued his attacks on religion he slowly dissociated himself from Die Freien, whom he dubbed "beer literati"; after the 1848 revolution, which he thought seriously mistaken, he became politically conservative. By the early 1840s Marx, who had been close to Bauer when a student at the University of Berlin, had begun to reject many of Bauer's characteristic views, especially his development of a modified version of Hegel's theory of self-consciousness. The progress of man, Bauer alleged, occurred as the result of the development of successive levels of self-consciousness, criticism being the means whereby the development of self-consciousness took place. The term "criticism" was one of the buzzwords of the Young Hegelian movement, meaning many things to each of them; Bauer and his followers even referred to their own theoretical activity as "Critical Criticism."

Bauer became the object of sustained critical attacks by Marx in both his 1844 article "On the Jewish Question" and his first collaborative work with Engels, *The Holy Family, or Critique of Critical Criticism: Against Bruno Bauer and Company* (first published in February 1845). The "Holy Family" were Bauer and his contributors to the *Allgemeine Literatur-Zeitung*, many of whom wrote in opposition to the Communist movement as it was currently developing. They doubted whether any proletarian movement could ever be the means whereby the appropriate development of self-consciousness, whether personal or social, could be achieved. For example, in September 1844 Bauer wrote in his journal that the crowd (i.e. the masses or the proletariat) were in conflict with Spirit, i.e. with critical self-consciousness. Among others he attacks French communism because if

it were to achieve its aims "it would abolish freedom in the smallest things" and give rise to a "despotic condition of subdued atoms." His conclusion is that there is "an inevitable war of the multitude against spirit and self-consciousness, and the significance of this war is found in nothing less than the fact that in it the cause of criticism is set against the genus [human species]."[18] With much hindsight it might be thought that Bauer has anticipated the despotic communism of some recent Communist societies—forms of communism which Marx had already criticized in his unpublished *Economic and Philosophic Manuscripts of 1844*.[19] However, Bauer's article is obscure both in its argument and in its appeal to "spirit and self-consciousness" as opposed to "the crowd."

Marx became increasingly opposed to the use of self-consciousness as a fundamental category of analysis; along with this went his rejection of Bauer's Critical Criticism as the means whereby self-consciousness is to be developed. From Marx's perspective it is evident that Bauer's Critical Criticism applied to self-consciousness would represent a dead end in subjective idealism and even a regressive step away from the objective idealism of Hegel. Also in drafts of the unpublished *Economic and Philosophic Manuscripts of 1844* Marx had written of the need to criticize Bauer's views; Feuerbach, Marx claimed, had shown what was wrong with the mystical transcendental aspect of Hegel's dialectic which Bauer continued to use.[20] More significantly, while in Paris in 1844 Marx had attended meetings of a worker's society called the League of the Just and had closely aligned himself with the French Communist movement; consequently he was at odds with all the contributors to the *Allgemeine Literatur-Zeitung* concerning the role of "the crowd" that Bauer and others had denigrated.

The friendship that had developed between Marx and Engels from August 1844 gave them the opportunity to collaborate in producing *The Holy Family*. Beside the broadsides against the Berlin faction of the Young Hegelians and others, the book contains not only the further development of Marx's theory of the proletariat outlined in his earlier critical work on Hegel, but also the first outlines of what was to become Marx's theory of historical materialism. Unfortunately much of the dated polemics of *The Holy Family* obscures this aspect of the development of Marx's thought. Despite the considerable differences between Marx and Bauer, Marx absorbed much of Bauer's writings; as McLellan shows,[21] Marx uses one of Bauer's metaphors when he famously says that religion is the opium of the people.

One of the final works to be identified with the Young Hegelian movement was *Dir Einzige und sein Eigentum* (1845), written by another member of Die Freien, Max Stirner (his real name being the more prosaic Johann Schmidt). Stirner's fame rests on this one book, known in English

as *The Ego and its Own: The Case of the Individual against Authority*. The book, which initially attracted much attention, is in several places merely a collection of notes without an overall structure, as befits it anarchistic theme. However, Marx and Engels thought it sufficiently important to write their own book-length critique of Stirner, whom they dubbed "Saint Max"; this long, sometimes turgid, often insightful polemic remained unpublished during their life-time.[22] Though Marx adopted none of Stirner's views, McLellan argues that Stirner's criticisms of Feuerbach did play some role in Marx's final rejection of Feuerbach, the one Young Hegelian whose influence Marx acknowledged.[23] Commentators have often linked Stirner with Nietzsche in respect of both style and content, though there is no evidence that Nietzsche ever read him. During this century Stirner has had a strong influence upon many of those of the non-Communist left and anarchists. Two writers who have attested to his influence upon their work are Herbert Read and Albert Camus.[24] On the darker side, Stirner has not been without an influence on Fascist thought.

Stirner's work stands opposed to the abstractions of thought and the tendency to systematization found in Hegel and the Young Hegelians. It is also a plea for the totally unconstrained freedom of the individual person. The short introductory section of his book, whose title "All Things Are Nothing To Me" is a quotation from Goethe, ends with the claim:

> The divine is God's concern; the human, man's. My concern is neither the divine nor the human, not the true, good, just, free, etc., but solely what is *mine,* and it is not a general one, but is unique, as I am unique. Nothing is more to me than myself![25]

Since Stirner's theme is the exaltation of the individual above any abstraction such as God, the state, the party, man or mankind, etc., he presents the main body of his book in two parts, the first called "Man," the second "I"—the unique individual or ego.

From the stance of the unique individual not only is all consideration of pure thought or Spirit to be expunged from philosophy but also all talk of man. Even Feuerbach, who believed that all talk of God is really talk of man and man's essence, is still too abstract for Stirner and becomes the object of much criticism and even undergraduate ridicule. For example, in a section of his book entitled "The Spook" Stirner says: "To know and acknowledge essences alone and nothing but essences, that is religion; its realm is a realm of essences, spooks, and ghosts."[26] Elsewhere he adds: "*Man* is the last evil *spirit* or spook…the father of lies."[27] Continuing his criticism, Stirner inverts the entire thrust of Hegelian philosophy when he says:

> Feuerbach…is always harping upon *being*. In this he too, with all his antagonism to Hegel and the absolute philosophy, is stuck fast in abstraction; for "being" is abstraction, as is even "the I". Only *I am* not abstraction alone: *I am* all in all, consequently even abstraction or nothing; I am all and nothing; I am not a mere thought, but at the same time I am full of thoughts, a thought-world. Hegel condemns the own, mine—"opinion". "Absolute thinking" is that which forgets that it is *my* thinking, that *I* think, and that it exists only through *me*.[28]

Stirner replaces fantastic Hegelian abstractions with almost common-sense banalities about what is the proper subject of thought, viz., the person. As Stirner implores us to realize when reading Hegelian philosophy: "Man, your head is haunted; you have wheels in your head!"[29] This kind of criticism of Hegel, which Stirner could have found in the earlier work of Feuerbach (and, under Feuerbach's influence, is to be found in Marx's unpublished critique of Hegel), would have a sympathetic response from more nominalistically inclined twen-tieth-century analytic philosophers.

Even Stirner's Berlin associates of Die Freien are not spared when he criticizes various forms of society in a section called "The Free." He attacks the political liberalism of the bourgeoisie, the social liberalism of the Communists, and the humane liberalism of Bruno Bauer, all of whom had their representatives in the Berlin circles in which Stirner moved. In particular Stirner picks out some features of social (or Communist—Stirner did not distinguish) liberalism that have become all too evident in twentieth-century Communist states. He is deeply suspicious of "the Sunday side" of communism in which each man views the other as brother while masking an illiberal "workday side" in which men are merely laborers. He alleges that for communism it is of our essence to labor (strictly not Marx's view). Further he argues that under communism (as well as other forms of state) our labor takes place under the domination of the all-encompassing state with its regulation of life. From this Stirner draws the conclusion that under communism there will appear a new form of tyranny to dominate the individual: "Society, from which we have everything, is a new master, a new spook, a new 'supreme being', which 'takes us into its service and allegiance'!"[30] As he adds later: "Communism rightly revolts against the pressure that I experience from individual proprietors; but still more horrible is the might that it puts in the hand of the collectivity."[31]

In the second section, "I," Stirner explores his doctrine of the unique individual. What is left of the individual once he or she is liberated from the snares of philosophy, religion, culture, family, morality, the various forms of liberalism, the state, any political party, property—even love,

equality, and human rights? Concerning the last of these Stirner says: "Right—is a wheel in the head, put there by a spook; power—that am I myself, I am the powerful one and the owner of power."[32] Here the obscure and somewhat sinister side of Stirner's thought appears with its Nietzschean appeal to the power each individual possesses, its exercise, and the egoistic individual so created. He ends his book with a peroration to the power of the self-creating individual:

> I am *owner* of my might, and I am so when I know myself as *unique*. In the *unique one* the owner himself returns into his creative nothing, of which he is born. Every higher essence above me, be it God, be it man, weakens the feeling of my uniqueness, and pales only before the sun of this consciousness. If I concern myself for myself, the unique one, then my concern rests on its transitory, mortal creator, who consumes himself, and I may say: All things are nothing to me.[33]

In speaking of the property that the unique individual owns (viz., his or her own self-creative power), it is as if Stirner never got beyond the opening passages of Hegel's *Philosophy of Right,* summed up in, for example, § 47. There Hegel talks about the right of property which each has in their own person, i.e. in their body, and the will they exercise through their body. The ego and what it owns are both the beginning and end of Stirner's anarchistic political theory.

Even in his discussion of love Stirner adopts a completely egoistic position. Though he claims to love every other person he does so egoistically: "I love them because love makes *me* happy."[34] For an extreme individual egoist such as Stirner all forms of the state are to be resisted—the state, too, is a spook. However, he does feel the need to speak of an association or union of egoists; but it is hard to see what such a union is like for an extreme egoist. We are told: "it is not another State (such as a 'people's State') that men aim at, but their *union,* uniting, this ever-fluid uniting of everything standing."[35] Elsewhere he paints a bleak picture of what this ever-fluid union of egoists might be like:

> For me no one person is to be respected…but [each is] an *object* in which I take an interest or else do not…. And if I can use him, I doubtless come to an understanding and make myself at one with him, in order, by the agreement, to strengthen *my power,* and by combined force to accomplish more than individual force could effect. In this combination I see nothing whatever but a multiplication of my force, and I retain it only so long as it is *my* multiplied force. But thus it is a—union.[36]

Stirner may have raised some important critical points concerning Hegel and his fellow Young Hegelians and to have alerted us to the dangers in appeals to unanalysed abstractions such as "man" and "the state." However, he often bases his own positive theory of the freedom of the individual on a false inference from the need to be free of this and that particular thing (e.g. a political party, or the family, etc.) to the need to be free from everything. By combining the idea of absolute freedom from everything with the idea of the power that the individual can egoistically exert in making itself, Stirner is led to rather unsavory views about the kind of relationships people can have. Belatedly, Stirner recognizes the need for some association of egoists; but his theory of the union does not get beyond the Hobbesian state of nature. In the end he espouses views characteristic of twentieth-century right-wing and Fascistic movements:

> My intercourse with the world, what does it aim at? I want to have the enjoyment of it, therefore it must be my property, and therefore I want to win it. I do not want the liberty of men, nor their equality; I want only *my* power over them, I want to make them my property, *material for enjoyment*.[37]

No wonder a recent editor of an abridged version of Stirner's book thought it appropriate to include it in a general series with the title "Roots of the Right." Even Mussolini wrote: "Leave the way free for the elemental power of the individual; for there is no other human reality than the individual! Why shouldn't *Stirner* become significant again?"[38]

Marx and Stirner have, at a certain level, common themes; Stirner's graphic account of alienated labor is paralleled by Marx's own account of alienation given at the same time in his unpublished *Economic and Philosophic Manuscripts of 1844*. However, at a deeper theoretical level of the relationship between the individual and society Marx and Stirner are poles apart. For Stirner the states of mind of, and the powers exerted by, the egoistic individual are *sui generis* and are not to be further explained. In contrast, for Marx, as he developed his materialist view of history, the states of mind to which Stirner appeals are falsely treated as ultimate and are themselves things which stand in need of explanation. As Marx first said in *The German Ideology:* "It is not consciousness that determines life, but life that determines consciousness,"[39] where "life" is to be understood as people "developing their material production and their material intercourse" (*MECW, 5*:37). In particular Marx complains:

> Stirner regards the various stages of life only as "self-discoveries" of the individual, and these "self-discoveries" are moreover always reduced to a definite relation of consciousness. Thus the variety of

> *consciousness* is here the life of the individual. The physical and social changes which take place in individuals and produce an altered consciousness are, of course, of no conern to Stirner. In Stirner's work, therefore, child, youth and man always find the world ready-made, just as they merely "find" "themselves"…. But even the relation of *consciousness* is not correctly understood either, but only in its speculative distortion.
>
> (ibid.: 128)

Stirner's egoistic individual cannot merely be a person cultivating their unconditioned power unrelated to any circumstances whatever: "[Stirner] quite consistently abstracts from historical epochs, nationalities, classes, etc., [and] he inflates the *consciousness* predominant in the class nearest to him in his immediate environment into the normal consciousness of 'a man's life' " (ibid.: 129). Thus the unique I does not well up out of itself from nothing, as Stirner claims, but, according to Marx, is the product of circumstances to which the I remains blind.[40]

The only Young Hegelian to have exerted an influence on Marx was Ludwig Feuerbach. The nature and extent of Marx's relationship to the work of Hegel and the Young Hegelians have only been able to be fully assessed since the 1930s when the *MEGA* edition (1927–32) made available all of Marx's and Engels's early writings (i.e. before 1848). Before the 1930s the full range of Marx's thought on Hegel and the Young Hegelians and the extent of Feuerbach's influence were not known.

Marx says in his 1859 Preface to *A Contribution to the Critique of Political Economy* that in 1845 he and Engels had

> decided to set forth together our conception as opposed to the ideological one of German Philosophy, in fact to settle accounts with our former philosophical conscience. The intention was carried out in the form of a critique of post-Hegelian philosophy. The manuscript, two large octavo volumes, had long ago reached the publishers in Westphalia when we were informed that owing to changed circumstances it could not be printed. We abandoned the manuscript to the gnawing criticism of the mice all the more willingly since we had achieved our main purpose—self-clarification.
>
> (*MECW,* 29:264)

This manuscript, first published in full in 1932, is now known as *The German Ideology*.[41] The manuscript left to the mice was in Engels's hands again in 1886 when he leafed through it in the course of writing a review of a book on Ludwig Feuerbach. The review reappeared in 1888 as a separate pamphlet entitled *Ludwig Feuerbach and the End of Classical*

German Philosophy. In the Preface, Engels tells us that he had undertaken the earlier review willingly, since "a full acknowledgement of the influence which Feuerbach, more than any other post-Hegelian philosopher, had upon us during our *Sturm und Drang* period, appeared to me to be an undischarged debt of honour" (*MECW,* 26:520). In the first section of this work Engels treats us to his own brief version of the history of the development of German philosophy from Hegel until the 1848 revolutions. The crucial turning point for Hegelian philosophy was, according to Engels, the publication of Feuerbach's *The Essence of Christianity* in 1841:

> The spell was broken; the "system" [i.e. Hegel's] was exploded and cast aside, and the contradiction [between the Idea and nature], shown to exist only in our imagination, was dissolved. One must have experienced the liberating effect of this book for oneself to get an idea of it. Enthusiasm was universal: we were all Feuerbacheans for a moment. How enthusiastically Marx greeted the new conception and how much—in spite of all critical reservations—he was influenced by it, one may read in *The Holy Family*.
>
> (*MECW,* 26:364)

Engels's claim in the last sentence is at variance with the facts, as McLellan points out.[42] In *The Holy Family* Feuerbach's *The Essence of Christianity* is not mentioned, as a glance at the index will show. However the index lists two other works by Feuerbach published in 1843 that are arguably an equal or more important influence on Marx, viz., *Provisional Theses for the Reformation of Philosophy* and *Principles of the Philosophy of the Future*. Engels's 1888 pamphlet is important in another respect. In the Preface he also tells us that "in an old notebook of Marx's I have found the eleven theses on Feuerbach, printed here as an appendix. These are notes hurriedly scribbled down for later elaboration, absolutely not intended for publication" (*MECW,* 26:520). These, now known as the *Theses on Feuerbach,* along with *The German Ideology,* contain Marx's own critical evaluation of Feuerbach.

Marx had been aware of the work of Feuerbach from the time he wrote his dissertation (1840–1). At the beginning of 1842 he said in an article, comparing Feuerbach with Strauss, that "there is no other road for you to *truth* and *freedom* except that leading *through* the stream of fire [the *Feuer-bach*]. Feuerbach is the *purgatory* of the present times."[43] The significance of Feuerbach's work as a tool for the criticism of Hegel became apparent to Marx with the publication of Feuerbach's two 1843 works in which a program is set out for the future development of philosophy once Hegel's speculative philosophy had been abandoned.

However, Marx was aware of one important limitation of these works. He wrote to Ruge on 13 March 1843 concerning the *Provisional Theses:* "Feuerbach's aphorisms seem to me incorrect in only one respect, that he refers too much to nature and too little to politics. That, however, is the only alliance by which present-day philosophy can become truth" (*MECW,* 1:400). In the unpublished *Economic and Philosophic Manuscripts of 1844* Marx has only praise for the "theoretical revolution" that Feuerbach had wrought. The other Young Hegelians, especially Strauss and Bauer, are singled out for failing to appreciate that these two works have "in principle overthrown the old dialectic and philosophy." For Marx, "*Feuerbach* is the only one who has a *serious, critical* attitude to the Hegelian dialectic and who has made genuine discoveries in this field. He is in fact the true conqueror of the old philosophy."[44] It is only in subsequent, unpublished work that one can find Marx's criticisms of Feuerbach.

Feuerbach, who had met Hegel and attended some of his lectures, devoted much of his philosophical career to the study of religion. He gained notice with the publication of *Thoughts concerning Death and Immortality* (1830) in which he argued that there was no personal immortality and no transcendent God but, instead, only the immortality and transcendence of the human spirit. The reception of his book ended any hopes that he may have held for a permanent university position. With the publication of *Toward a Critique of Hegelian Philosophy* (1839)[45] Feuerbach became firmly identified with the Young Hegelians. This work is an attack on several major themes in Hegel's logic and metaphysics, particularly his idealism.

Among the many points concerning Hegelian philosophy that Feuerbach takes up in the *Critique* are the following, (a) In contrast to the idea that Hegelian philosophy is absolute because it is presuppositionless, he argues that, like all other philosophy, it too has its hidden presuppositions, (b) In contrast to Hegel's abstract notion of thought he claims that all thought involves interpersonal dialogue and that language itself is "the realization of the species." (c) Philosophy is bound up with communication and language and is not to be, as in Hegel, imprisoned and compressed into a system, (d) Even though Hegelian philosophy employs a critical method it fails to notice what Feuerbach calls the "genetico-critical philosophy" in which the causal origins of thought and ideas are traced, (e) Common Hegelian errors are to be rectified by turning the Hegelian subject into a predicate and, conversely, the predicate into a subject. This is the first statement of Feuerbach's famous *inversion principle* that so attracted Marx, (f) The Absolute is "a vague and meaningless predicate" and Hegelian philosophy is "rational mysticism." (g) Hegel's opposition of Being and Nothing is to be rejected (though Feuerbach's own arguments concerning Nothing sometimes fall into logical error).

The work which propelled Feuerbach into fame as the leading Young Hegelian was the publication in 1841 of *The Essence of Christianity*. The enthusiasm with which this work was greeted ranged from Engels's remark that "we were all Feuerbacheans for a moment" to Richard Wagner's claim that he "always regarded Feuerbach as the ideal exponent of the radical release of the individual from the thraldom of accepted notions."[46] While the body of the book illustrates how the genetico-critical method is applied to the analysis of religious belief, the Preface to the second edition tells us more about the manner in which Feuerbach's method differs from the approach of Hegel. Importantly Feuerbach views himself as "a *natural philosopher in the domain of the mind*" in applying his genetico-critical method not only to religious belief but to other sons of belief as well.

The genetico-critical method is not to be understood in the Humean manner in which *epistemological justifications* of our beliefs (i.e. thoughts) are to be sought by logically basing them in our impressions of experience. The method that Feuerbach employs has its roots more in the continental tradition of the interpretation of Locke. It is *genetic* in that it traces the *causal origin* of our beliefs back to their source in experience (but not in the sense of providing an epistemic justification by means of experience). It is *critical* in that it uncovers what is the real cause, as opposed to the commonly believed but false cause, of some of our beliefs. If a belief cannot be epistemically justified, the Humean response is to reject it as epistemically illegitimate; in contrast, such illegitimate beliefs are of prime concern for the genetico-critical method.

It is in this sense that Feuerbach sees himself as "a natural philosopher of the mind" investigating even the residue of our epistemically illegitimate beliefs. Feuerbach speaks in this context of the geneticocritical method being mainly concerned with "secondary" causes, citing as an example the theological view that comets are the work of God and contrasting this with the astronomer's or the natural philosophical view of their cause.[47] This example suggests that what we commonly take to be the cause of a phenomenon might be quite wrong and that there is some other "secondary" cause of the phenomenon which scientific investigation would reveal. It is Feuerbach's view that when it comes to the phenomenon of belief, particularly religious belief, we can be quite mistaken about what is the proper (i.e. secondary) cause of particular beliefs.

For Feuerbach religion provides a particularly fertile field for beliefs which have a causal origin in something quite distinct from their putative object. On Feuerbach's analysis, beliefs about God do not have their causal origin in God but in something quite different, viz., our human nature. As Feuerbach might say, human nature, not God, is the correct

"secondary" cause of our religious beliefs. Elsewhere Feuerbach talks of religious beliefs being *reduced* to beliefs about human essence and that God himself has been *reduced* to the essence of the human species. With hindsight the genetico-critical method can be viewed, in part, as an early exercise in the sociology of knowledge, or, much better, the sociology of belief, in which the origins of beliefs are traced to causes other than their putative objects.

Feuerbach's genetico-critical account of the source of our concept of God is at least as old as Xenophanes, who is reported to have said that if horses, cows, or lions could draw then they would draw their gods like horses, cows, or lions; i.e. we make our god(s) in our own image. For Feuerbach's reductive program every predicate of God is in fact a predicate of the human essence. It is we who then project God as an independently existing object onto the world; at the same time we believe that God created us—thus inverting the true but hidden causal relation.

In presenting his case for this inverted picture Feuerbach begins the first section of chapter 1 of *The Essence of Christianity* by describing the essential nature of man, i.e. those features which distinguish us essentially from other animals. We are told that the essence of man is such that each being "has consciousness in the strict sense"; such consciousness is "present only in a being to whom his species, his essential nature, is an object of thought." Feuerbach even claims that science, which has to do with species or kinds rather than individuals, is only possible for beings who can be conscious of their own species, i.e. their essential nature. Feuerbach continues his account of our essence by saying that such consciousness is also consciousness of the infinite. By means of a rather muddled argument he tells us that this means that "the conscious subject has for his object the infinity of his own nature." At best this cannot be the nature of the individual but of the species as a whole, though it does not strictly follow that even the species as a whole will necessarily have an infinite nature. In the course of this discussion Feuerbach introduces the notion of religion; this is, somewhat question-beggingly and without any accompanying argument, identified with our essence, i.e. "with the consciousness which man has of his nature."

When he comes to say what further properties our essential nature has it transpires that our essence is very Cartesian; the essential properties of the human species are reason, will, and affection. Thus our natures are such that we have the power to think, to act forcefully, and to love—and our power to do so as a species is allegedly infinite. Given that this is our essence, how does Feuerbach get from our essential nature to our concept of God? To ask this is to put the wrong question. Rather one must ask: given some feature alleged to be of God, how is this feature to be causally reduced, using the geneticocritical method, to features of our essence?

To assist in this Feuerbach appeals to his inversion principle, adapted to suit the special case of God: "the object [God] of any subject [man] is nothing else than the subject's own nature taken objectively."[48] That is, all the features we attribute to God, e.g. that God is loving, are nothing but features of our own nature—in this case the power we have of affection or love. We then project onto the world an independently existing object which has the power to love. From this Feuerbach concludes that our knowledge of God is nothing but knowledge of ourselves. However, he is careful to point out that the identity of God with man's essence is not something evident to us, for "ignorance of it [the identity] is fundamental to the peculiar nature of religion."[49] This is in effect Feuerbach's genetico-critical method applied to our beliefs about God. As Feuerbach himself later puts the matter, somewhat obscurely:

> Man—this is the mystery of religion—projects his being into objectivity, and then again makes himself an object to this projected image of himself thus converted into a subject; he thinks of himself is *[sic]* an object to himself, but as the object of an object, of another being than himself.[50]

At the end of Part I of his book Feuerbach does speak of his program in terms of reduction: "We have reduced the supermundane, supernatural, and superhuman nature of God to the elements of human nature as its fundamental elements."[51]

Feuerbach's attempt to be "a natural philosopher in the domain of the mind," especially for our beliefs about God, is not without its problems—not least of which is the use of the inversion principle to get his reductive account of God launched. Related to this is the alleged identity of God with the human essence. To establish this, what Feuerbach needs to show first is that our concept of God does not hold of any external being. Descartes recognized more clearly than Feuerbach the need to show, by argument, that our idea of God is an idea of some external existent entity (though it is generally recognized that Descartes's use of a version of the ontological argument does not prove this). Since Feuerbach is not fully aware of this Cartesian point he makes heavy weather in § 2 of chapter 1 of *The Essence of Christianity* of the question of whether God exists or not. Sometimes Feuerbach says that a God with features other than those of our human essence is not a God we would recognize, and so would not be a God for us. On other occasions he seems to suggest that where God lacks our human features then it follows that God does not exist, i.e. atheism is established.

Nor is Feuerbach particularly clear about whether, in reducing God to our human essence, he has shown that God is identical to our human

essence (somewhat in the style of Strauss) or that God does not exist and that he is a fantastic projection of ours upon the world. Often Feuerbach intends the latter, but sometimes his extreme atheism is tempered with the "divine humanism" of the former—this being the manner in which a number of contemporary theologians attempt to interpret Feuerbach. This is important because even if Feuerbach can show that our beliefs about God can be reduced to those about our human essence, it does not follow that there is no God. Whether or not God exists is left untouched by his genetico-critical method applied to religious concepts. Of course, for an already committed atheist the genetico-critical method might tell us something about why so much false religious belief still traffics its way through people's minds. This point brings out the important difference between the Humean *epistemic justification* of a belief and the genetico-critical method for tracing the *causal origin* of a belief. The justification for God's existence is quite independent of how people are caused to have the beliefs they do about God.

Setting aside these difficulties in his account of God, Feuerbach provides a bold and innovative attempt to employ the genetico-critical method to the case of our religious concepts. As will be seen, Marx did not accept Feuerbach's reductive account of religious belief; instead he put more emphasis on the functional role of our religious beliefs. But he did adapt the general reductive program, illustrated by Feuerbach's analysis of religion, to the concepts Hegel employs in expounding his theory about the state.

Feuerbach's two works published after *The Essence of Christianity* in 1843 exerted an important influence on Marx; these were *Provisional Theses for the Reformation of Philosophy* and *Principles of the Philosophy of the Future,* the latter being a more thoroughgoing treatment of themes of the former. Both works are set out in paragraphs, sometimes quite lengthy, and contain criticisms of Hegelian speculative philosophy while outlining a program for an alternative philosophy. The first paragraph of the *Provisional Theses* says:

> The secret of *theology* is *anthropology* but the secret of *speculative philosophy* is *theology,* the *speculative* theology. Speculative theology distinguishes itself from *ordinary* theology by the fact that it transfers the divine essence into this world. That is, speculative theology *envisions, determines,* and *realizes* in this world the divine essence transported by ordinary theology out of fear and ignorance into another world.[52]

This summarizes the project of *The Essence of Christianity*—but with the additional comment that the projection of God into another world is due

to our ignorance and fear. According to this thesis theology becomes part of anthropology, understood as the study of man and man's essence; the reduction of ordinary theology to anthropology is the province of what Feuerbach calls "speculative theology." Such a reductive'program also contains an important message for Hegelian speculative philosophy; it, too, can be reduced to anthropology:

> The method of the reformatory critique of *speculative philosophy in general* does not differ from the critique already applied in the *philosophy of religion*. We only need always make the *predicate* into the *subject* and thus, as the subject, into the *object* and *principle*. Hence we need only *invert* speculative philosophy and then have the unmasked pure, bare, truth.[53]

The *inversion principle* (as we have already called it), in which predicate and subject are interchanged, is not the most perspicuous of principles. Yet it is this principle, which some call Feuerbach's "transformative method," that most attracted Marx. It is unclear how the principle is to be applied in particular cases because what comprises the subject and predicate and the manner in which they are to be inverted are not always clear. Consider the following example of inversion given by Feuerbach in *The Essence of Christianity:*

> For, according to the principles which we have already developed, that which in religion is the predicate we must make the subject, and that which in religion is a subject we must make a predicate, thus inverting the oracles of religion; and by this means we arrive at the truth. God suffers—suffering is the predicate—but for men, for others, not for himself. What does that mean in plain speech? Nothing else than this: to suffer for others is divine; he who suffers for others, who lays down his life for them, acts divinely, is a God to men.[54]

It is obvious, contrary to what Feuerbach says, that "God suffers (for others)" does not mean the same as "whoever suffers for others is divine." However, in a slightly strained sense the subject "God" of the first sentence has become the predicate "divine" of the second sentence. Also the predicate "suffers" of the first sentence might be construed as the subject of the second sentence; but we must understand the subject of the second sentence not as Feuerbach expresses it, viz., as people (who suffer for others), but as suffering (which is other-directed). Whichever way we take the inversion we lose all reference to God as a subject of discourse. Instead what we talk of is either people who suffer for others,

i.e. sufferers (whose suffering is other-directed), or something slightly more abstract than individual people, viz., suffering, which is other-directed.

Feuerbach's reduction of the first sentence to the second via the inversion principle could be resisted on the grounds of lack of meaning equivalence. However, for those not ontologically committed to God, the reduction given might be acceptable, despite the lack of meaning equivalence. Feuerbach's procedure in this example is akin to those twentieth-century nominalists who eschew certain classes of abstract entity and who logically transform their discourse so that apparent references to undesirable abstracta are removed. While it would be out of place to see Feuerbach's inversion principle as an anticipation of some of the reductive or nominalistic moves of Russell or Quine, his procedure in the above example would not meet with their disapproval. We could without too much strain call Feuerbach's inversion a "nominalistic reduction" in that it relieves us of higher levels of abstract entity in favor of lower-level, more nominalistically acceptable items.

With this example of the inversion principle in mind, now consider the following two theses:

> The essence of theology is the *transcendent* essence of the human being, placed outside human beings. The essence of Hegel's *Logic* is *transcendent* thinking, the thinking of the human being *supposed outside human beings*.[55]

> "To abstract" means to suppose the *essence* of nature *outside nature,* the *essence* of the human being *outside the human being,* the *essence* of thinking *outside the act of thinking*. In that its entire system rests upon these acts of abstraction, Hegelian philosophy has *estranged* the human being *from its very self*.[56]

We have seen already how the inversion principle might work in the case of religious claims about God. It is also supposed to work in the case of thought and thinking; the apparent postulation of thought as a subject of predications becomes, by the inversion principle, a predicate, thinking, of other subjects, viz., people (who think) or thinkers. The reverse of the inversion principle is the process of abstraction, viz., the postulation of thought as a subject in its own right with an existence independent of people who think.

Feuerbach applies his inversion in detail only to religious beliefs but sketches ways in which it might be applied to Hegel's *Logic*. Toward the end of the *Provisional Theses* he suggests that the inversion principle can also be applied in political philosophy:

> All speculation about right, willing, freedom, personality without the human being, i.e. outside of or even beyond the human being, is speculation *without unity, without necessity, without substance, without foundation, and without reality*. The human being is the existence of freedom, the existence of personality, the existence of right.[57]

Feuerbach's programmatic claim that the inversion principle can be used to analyze Hegelian political philosophy attracted Marx when he read the *Provisional Theses*. Though Marx had been studying Hegel's *Philosophy of Right* before this, the *Provisional Theses* gave him a new critical tool with which to approach it. He also took to heart, as will be seen, the message of another thesis: "The beginning of philosophy is not God and the beginning of the absolute is not the absolute, not being as a *predicate* of the idea. The beginning of philosophy is the finite, the determined, the actual."[58]

It is impossible to deal adequately here with Marx's detailed paragraph-by-paragraph critique of Hegel's *Philosophy of Right* found in his Feuerbach-inspired *Critique of Hegel's "Philosophy of Right"*.[59] Instead a few examples must suffice. Marx's surviving manuscript begins with § 262 of Hegel's *Philosophy of Right:*

> The actual Idea is mind, which, sundering itself into the two ideal spheres of its concept, family and civil society, enters upon its final phase, but it does so only in order to rise above its ideality and become explicit as infinite actual mind. It is therefore to these ideal spheres that the actual Idea assigns the material of this its finite actuality, viz., human beings as a mass, in such a way that the function assigned to any given individual is visibly mediated by circumstances, his caprice and his personal choice of his station in life.[60]

Often Marx begins the criticism of a section from Hegel by translating it into ordinary prose, removing its stylistic peculiarities; this section is no exception. Marx notes that the actual Idea (mind as infinite and actual) is taken to be something, a subject, that has its own powers to evolve toward a determinate end; moreover it sunders itself into "two ideal spheres," viz., family and civil society. The Idea, which is distinct from family and civil society, makes these into dependent existences; they are finite determinations of the Idea which arise from the Idea's own processes. This Marx condemns as "logical, pantheistic mysticism."

Both following Feuerbach's directive to begin with the "finite and determined" rather than the Absolute, and using the inversion principle,

Marx begins instead with the mass of human beings. It is they who make up families and civil society and these in turn are modes of existence of the state: "family and civil society make *themselves* into a state. They are the active force."[61] Speculative Hegelian philosophy treats this wrongly as an achievement of the Idea-subject, its aim being to "become explicit as infinite actual mind." According to Marx: "The entire mystery of the *Philosophy of Right* and of Hegelian philosophy in general is contained in these paragraphs."[62] Marx demystifies § 262 when he rewrites it as: "The family and civil society are elements of the state. The material of the state is divided amongst them through circumstances, caprice, and personal choice of vocation. The citizens of the state are members of families and of civil society."[63]

It is hard to see in Marx's demystified rendering of Hegel's § 262 the precise application of the inversion principle. The Idea as a selfacting subject does not reappear as a predicate. It has disappeared and in its place are new subjects, viz., the masses of people, the family, civil society; they make up the state and, as Marx says, "are the active force." Rather it seems more accurate to view Marx's alleged use of the inversion principle in this case as a reductive nominalizing move in which mystifying abstracta, such as the actual Idea with its powers, are replaced by more concrete talk of the mass of people, the family, civil society, and their powers. The last item, civil society, may itself be somewhat abstract but it is not as obnoxiously so as the actual Idea. How does Marx's desire to rid social theory of abstracta affect his own social ontology? As is well known, the ontology of Marx's later historical materialism, first set out in *The German Ideology,* came to include not abstracta of the sort just mentioned but relational items such as relations of production, and, in some cases, forces of production. The postulation of such relational items in no way counts against Marx's reductive nominalism when used as a critical tool to demystify Hegel's theory which is populated by obscure abstract entities (or as Stirner would say, by spooks).

Sometimes Marx does not employ the inversion principle in his criticisms of Hegel. Thus he complains, in commenting on § 278, that where Hegel says "The sovereignty of the state is the monarch" the common man would say "The monarch has the sovereign power, or sovereignty." This is a straightforward nominalizing move in which the definite description of the first sentence is eliminated in the less mystifying second sentence said by the common man, thereby making it quite clear where the power lies. However, elsewhere in his lengthy comments on § 278 Marx quite explicitly formulates the inversion principle several times in the course of developing his criticism of Hegel on sovereignty. Thus he cavils at Hegel's reification of sovereignty when he says:

> Accordingly, sovereignty, the essence of the state, is here first conceived to be an independent being; it is objectified. Then, of course, this object must again become subject. However the subject then appears to be a self-incarnation of sovereignty, which is nothing but the objectified spirit of the state's subjects.[64]

And so on for other Hegelian reifications, for example, concerning patriotism or the constitution, that Marx ferrets out of *The Philosophy of Right*.

Marx has criticisms to make of Hegel's political philosophy that do not depend on Feuerbach's inversion principle; but its application does relieve one from much that is mind-numbing in Hegel's theory. As a number of commentators have pointed out,[65] the nominalizing moves leave untouched the empirical content of Hegel's claims. This is obviously the case in the above transformation of what Hegel says about sovereignty into what the common man would say. Even though Marx elsewhere makes empirical objections to Hegel's theory (e.g. about the function of primogeniture), the inversion principle, in leaving untouched empirical matters, exposes only the pseudo-profundity of Hegel's mystifying presentation of these empirical matters. As Feuerbach put it in another thesis:

> To have articulated what is *such as it is,* in other words, to have *truthfully* articulated what truly is, *appears superficial*. To have articulated what is *such as it is not,* in other words, to have *falsely* and *distortedly* articulated what truly is, *appears profound*.[66]

Often Marx and Engels assume in criticizing Hegelian speculative philosophy that they are entitled to drop the epithet "Hegelian speculative" and conclude that all philosophy-is similarly flawed. However, all they have shown is that one kind of philosophy, Hegel's, is defective. Marx's reductive nominalizing moves are of a piece with much of the logical critique of language developed in twentieth-century analytic philosophy.

Aspects of Feuerbachian, and even Hegelian, influence can be found in another work that Marx left incomplete and so unpublished in his lifetime, now known as the *Economic and Philosophic Manuscripts of 1844*. This is Marx's most humanistic work, particularly in its exploration of the notion of alienation. But within a year Marx explicitly rejected much of Feuerbach's philosophy, including his account of human essence, his critical analysis of religion, and his version of materialism. In *The German Ideology* (1845–6) Marx became impatient with all attempts to define the essential properties of human beings in terms of consciousness and its forms. Without referring directly to Feuerbach he says:

> Men can be distinguished from animals by consciousness, by religion or anything else you like. They themselves begin to distinguish themselves from animals as soon as they begin to *produce* their means of subsistence, a step which is conditioned by their physical organization.
>
> (*MECW,* 5:31)

But this is not adequate because it leaves out the possibility of humans living in hunter-gatherer societies in which there is no production of means of subsistence. Nor does it take into account the possibility of either biological attempts to specify the human essence, or biochemical attempts in terms of our DNA structure.

Marx did not entirely abandon all talk of necessary features of humanity even in *Capital:*

> So far therefore as labour is a creator of use-value, is useful labour, it is a necessary condition, independent of all forms of society, for the existence of the human race; it is an eternal nature-imposed necessity, without which there can be no material exchanges between man and Nature, and therefore no life.[67]

In the first sentence Marx speaks only of labor as a necessary condition for our existence, and not as our essence. However, in the second sentence he seems to make a much stronger claim when he talks of labor as "an eternal nature-imposed necessity" upon human beings. But all this means is that, given the way the actual world is, we humans must always labor if we wish to exist. Perhaps there are possible worlds in which nature itself is so bountiful that it produces all that would be needed for human existence without any labor on our part. If so, and if we take an essential property of a species to be one without which the species *cannot* exist, then labor is not an essential property of the human species; rather it is a necessary condition of our existence given that in the *actual* world we must work in order to live. Thus in the absence of a different theory of essence in Marx (and in Feuerbach) the above quotation does not entail that labor is an essential feature of human beings.

Marx makes no mention in the above quotation of consciousness. But elsewhere in *Capital* he does appeal to consciousness as that which differentiates us from the animals. In discussing "the labour process independently of the particular form it assumes under given social conditions" he says, when comparing human labor with spiders as makers of webs or bees as makers of cells: "But what distinguishes the worst architect from the best of bees is this, that the architect raises his structure in imagination before he erects it in reality."[68] However, not every laborer

raises the product of their labor in their imagination before they make it. This point aside, Marx claims that what distinguishes humans from animals is imagination—a form of consciousness. Even though the kind of consciousness that Marx appeals to is different from the consciousness Feuerbach alleges is our human essence, their claims have this much in common: there exists an essential feature which differentiates humans from the animals.

The above becomes significant when we consider the sixth and seventh of the *Theses on Feuerbach* (1845):

(6) Feuerbach resolves the essence of religion into the essence of *man*. But the essence of man is no abstraction inherent in each single individual. In its reality it is the ensemble of the social relations. Feuerbach, who did not enter upon a criticism of this real essence, is hence obliged:

1 To abstract from the historical process and to define the religious sentiment by itself, and to presuppose an abstract—*isolated*—human individual.

2 Essence, therefore, can be regarded only as "species", as an inner, mute, general character which unites the many individuals *in a natural way*.

(7) Feuerbach, consequently, does not see that the "religious sentiment" is itself a social product, and that the abstract individual which he analyses belongs to a particular form of society

(*MECW, 5*:4–5)

Thesis (6) begins with a pithy summary of Feuerbach's view of religion, but then challenges it by denying that there is any Feuerbachean essence and, more strongly, that there is a human essence at all. For Marx there is nothing intrinsic to each person, or to humanity as a whole, which is their individual or species essence. Rather, if Marx is going to admit talk of essences at all, then the "essence" of each person will arise from something external to each. According to Thesis (6) each member of the human species exists in some specifie ensemble of social relations, different ensembles of social relations existing at any one time and over time. Individual humans, among other things, are the relata, the items that stand in the relations in the ensemble. Moreover the items related do not retain their important characteristics from one ensemble of relations to another since the ensemble plays an important role in "shaping" the characteristics of the items in the relata. Both the relata and the ensemble of relations must be taken together and cannot be easily separated out into relata and relations. That is, the relations are, in some sense, intrinsic to the relata and not extrinsic. (This raises a problem about the extent to which the relata and the ensemble of relations affect one another, which Marx attempts to address in Thesis (3); it will not be discussed here.)[69]

The views Marx expresses in Thesis (6) are of a piece with the remark already cited from *The German Ideology:* "It is not consciousness that determines life, but life that determines consciousness." It follows that the forms of consciousness that people have are "determined" by the ensemble of social relations of which they are the relata, and the forms of consciousness change with change in the ensemble. Thus on Marx's view there can be no common forms of consciousness to which Feuerbach can appeal as the essence of humankind across all the ensembles of relations in which humans can exist—especially emotional features such as suffering for others which Feuerbach mentions. This is not the place to assess this central claim of Marx's materialist view of history; but it does highlight the reasons why Marx rejects essentialist views of human nature.

The two theses are also important for the light they cast on Marx's view of religion. For Feuerbach the reductive base of religion is the human essence. In contrast there is no such universal reductive base for Marx; so he must reject Feuerbach's genetico-critical analysis of religion. Since the ensemble of relations, i.e. society, is alleged by Marx to determine consciousness, the very features of human beings that Feuerbach alleges to be our human essence, i.e. our forms of consciousness, are not *sui generis* and stand in need of explanation. In effect Marx shifts the reductive base from human essence to the ensemble of relations, i.e. society as a whole. Marx expresses just this in his "Contribution to the Critique of Hegel's *'Philosophy of Right'*: introduction": "This state, this society, produce religion, an *inverted world-consciousness"* (*MECW,* 3:175). This is, in part, Feuerbach inspired; however, it is in the society that "produces" religion, not our human essence. A little further on Marx talks of religion as "the opium of the people" and of the abolition of religion as "the demand to give up illusions about the existing state of affairs" which in turn is "the demand to give up a state of affairs which needs illusions."

It is now commonplace to look for functional explanations of the role of religious belief in the overall fabric of society. For example, the function of religion might be to provide an illusion, e.g. religious consolation or the postulation of a better afterlife, for a state of affairs that needs an illusion, in this case the suffering that people experience as a result of poverty or war. Or religion might have, as Marx suggests in *The German Ideology,* the function of maintaining a form of the division of labor in a given society:

> When the crude form of the division of labour which is to be found among the Indians and the Egyptians calls forth the caste-system in their state and religion, the historian believes that the caste-system is the power which has produced this crude form.
>
> (*MECW,* 5:55)

It is a long-standing issue of interpretation to reconcile Marx's claim here that, on the one hand, the state of society "produces" or "calls forth" religion, and, on the other, the claim he makes elsewhere that religion (e.g. the religious caste system) can help maintain the state and its relations of production (in this case the division of labor represented in the caste system). Cohen has argued that the tension between "producing" and "maintaining" can be resolved by adopting a functional account of the explanation that social factors can give of religious belief [70] If this is the case then Marx's functional explanation of religious belief is quite distinct from Feuerbach's account of religion; however, both still hold that religion is a form of illusion.

Marx also rejects Feuerbach's version of materialism. Feuerbach provides an explicit, though muddled, statement of his empiricist materialism in his *Principles of the Philosophy of the Future,* § 32: "The real in its reality or taken as real is the real as an object of the senses; it is sensuous. Truth, reality, and sensation are identical. Only a sensuous being is a true real being."[71] Crudely put, this asserts that something is real if and only if it can be sensed (by us humans). When it comes to the theory of perception Marx understands Feuerbach to hold the simple *tabula rasa* view in which the mind is a passive receptacle for sense impressions produced by objects and by our feelings. Marx criticizes this, along with other "old" versions of materialism in contrast to his "new" version of materialism, in the first of the *Theses on Feuerbach:*

> The chief defect of all previous materialism (that of Feuerbach included) is that things, reality, sensuousness are conceived only in the form of the *object, or of contemplation,* but not as *sensuous human activity, practice,* not subjectively. Hence, in contradistinction to materialism, the *active* side was set forth *abstractly* by idealism—which, of course, does not know real, sensuous activity as such. Feuerbach wants sensuous objects, really distinct from conceptual objects, but he does not conceive human activity itself as *objective* activity. In *The Essence of Christianity,* he therefore regards the theoretical attitude as the only genuine human attitude, while practice is conceived and defined only in its dirty-Jewish form of appearance. Hence he does not grasp the significance of "revolutionary", of "practical-critical", activity.
>
> (*MECW, 5*:3)

Much critical ink has been spilt on this thesis.[72] For our purposes we need note only the following. In the second sentence Marx appeals to "idealist" theories of knowledge, such as those advocated by German Idealist philosophy from the time of Kant, in which the knower makes an active

contribution to perceptual knowledge; the knower actively synthesizes what the senses passively present to him or her in order that the knower can have knowledge of empirically given objects such as chairs or the moon. In this sense Feuerbach is out of step with the idealist tradition concerning ordinary perceptual knowledge in omitting reference to this activist side of idealist epistemology.

But Marx also adds that both Feuerbach and the idealist tradition miss an important aspect of the way in which human activity "constructs" the objects of which we are sensuously aware; this is a central feature of his materialist view of history. In a section of *The German Ideology* (for which editors of this work usually provide a heading such as "Feuerbach's Contemplative and Inconsistent Materialism"), Marx criticizes Feuerbach for having too "contemplative" or too passive a view of our relationship with the objects that exist in the world. The plain fact, claims Marx, is that even the ordinary chairs and tables commonly appealed to as objects of perception by the epistemologist are human creations. Most of the world in which we live is a human-created world; it is our industry over thousands of years that has produced most of the objects which surround us. Even the common cherry tree is a product of human husbandry, a result of "human activity" or "practical-critical activity" as Marx puts it in Thesis (I). Science is also an important part of this practical-critical activity transforming even more thoroughly and rapidly the world in which we live. This does not mean that there is no external world: "Of course, in all this the priority of external nature is unassailed" (*MECW,* 5:40); but, adds Marx, perhaps only a few Australian coral islands are untouched by human activity. It is the man-nature interaction, emphasized throughout all of Marx's subsequent writings, that has produced our everyday world. It is this that the old materialists and Feuerbach omit totally and that the idealists treat in a one-sided manner by ignoring *objective* human activity in producing the world in which we live. In summary Marx says: "As far as Feuerbach is a materialist he does not deal with history, and as far as he considers history he is not a materialist" (ibid.: 41).

As important as Marx's point is, it fails to address the traditional philosophical problem about the perception of ordinary objects, even if they are human-made chairs. The traditional epistemological problem was of little interest to Marx. Instead he was interested in our practical interaction with the world, how it "revolutionizes" the world and how this is reflected in our discourse about the world. (This is a reorientation of the traditional epistemological problem taken up in some respects by the later Wittgenstein.) The last two sentences of Thesis (1) emphasize this, but in a curious way. The reference to Feuerbach's *The Essence of*

Christianity takes us to Chapter 14 of that work in which a contrast is made between "the Greeks [who] looked at nature with the theoretic sense" and the Israelites who "opened to Nature only the gastric sense." In support of this Feuerbach quotes the Bible passage in which it is said that after Moses and the seventy elders ascended the mountain "they saw God; and when they had seen God they ate and drank." Since the sight of God excites in the Jews the appetite for food, Feuerbach claims that the Jewish religion involves "the most practical principle in the world—namely egoism."[73] Later Feuerbach goes on to praise the theoretical attitude of the Greeks as joyful, happy, and aesthetic, while the practical attitude, exemplified by the Jews, is unaesthetic and "is not pure [*schmutzig*—dirty], it is tainted with egoism."[74] Thus Marx was not making an anti-Semitic remark[75] in talking about practice in "its dirty-Jewish form"; rather he was having a dig at Feuerbach for failing to grasp that much of our relationship with the world is not theoretical but bound up in our practical activity, which may be "dirty" and in which egoism may play a part.

Feuerbach's contemplative epistemology omits any role for human practical activity. In contrast Marx's materialistic view of history puts strong emphasis on the practical activity of humans as they labor to produce their means of existence, activity which Marx calls "revolutionary" in Thesis (I). In the final thesis of his *Principles of the Philosophy of the Future*, Feuerbach's proposals for reform remain entirely within the realm of philosophy:

> So far, the attempts at philosophical reform have differed more or less from the old philosophy only in form, but not in substance. The indispensable condition of a really new philosophy, that is, an independent philosophy corresponding to the needs of mankind and of the future, is, however, that it will differentiate itself in its essence from the old philosophy.[76]

It is surely this passage that Marx has in mind when in the eleventh of his *Theses on Fenerbach* he rejects reform merely at the level of speculative philosophy and emphasizes not only human practical activity in transforming the world but also the revolutionary character of that activity: "The philosophers have only *interpreted* the world in various ways; the point, however, is to *change* it."[77]

For Marx the Young Hegelians provided a range of theories, many still current, about the individual and society which rivaled his own developing theory of historical materialism. His criticisms of the Young Hegelians, though often buried in now irrelevant polemical points, provide a useful survey of the responses a socialist might make to these rival theories. By

1846 the views of Marx and Engels on history and politics had matured to the point where they could fully distance themselves from not only Hegelian political theory but also the theories of all of the Young Hegelians. Marx declared not only that "the decomposition of the Hegelian system, which began with Strauss, has turned into a universal ferment" but also that the Young Hegelian movement was a "philosophic charlatanry," was "parochial" and "tragicomic" in its pretensions, and represented "the putrescence of the absolute spirit."[78] In his view the Young Hegelians had not comprehensively criticized Hegel's system; they had merely played off one part against another. Moreover they had not fully given up religious conceptions of people and their circumstances. Thus their thought was confined to merely ideological accounts of people and their circumstances:

> Since the Young Hegelians consider conceptions, thoughts, ideas, in fact all the products of consciousness, to which they attribute an independent existence, as the real chains of men (just as the Old Hegelians declare them the true bonds of human society), it is evident that the Young Hegelians have to fight only against these illusions of consciousness. Since, according to their fantasy, the relations of men, all their doings, their fetters and their limitations are products of their consciousness, the Young Hegelians logically put to men the moral postulate of exchanging their present consciousness for human [Feuerbach], critical [Bauer], or egoistic [Stirner] consciousness and thus of removing their limitations.
>
> (*MECW*, 5:30)

After this Marx continues in a manner not unrelated to his eleventh thesis on Feuerbach: "This demand to change consciousness amounts to a demand to interpret the existing world in a different way, i.e. to recognize it by means of a different interpretation." We are now familiar with such radical changes in the way we understand the world through Kuhn's talk of "paradigm shifts" or through recent French philosophy in which much is made of "epistemological breaks." Marx had undergone a change in his understanding of the connections between human beings and society more radical than any of his contemporary Young Hegelians. The above harsh judgments concerning his contemporaries sprang from the self-clarification he had achieved in setting out for the first time the materialist conception of history as opposed to the ideological conception of history in which he believed Hegel and the Young Hegelians were hopelessly enmeshed.

NOTES

1 D.Strauss, *The Life of Jesus Critically Examined*, trans. G.Eliot (London: Swann Sonnenschein, 1906), p. 86.
2 Ibid., p. xxx; or L.S.Stepelevich (ed.), *The Young Hegelians: An Anthology* (Cambridge: Cambridge University Press, 1983), p. 22.
3 See Strauss, op. cit., § 150, "The speculative Christology"; or Stepelevich, op. cit., pp. 44–6.
4 See D.Strauss, *Streitschriften zttr Vertheidigung meiner Shrift über das Leben Jesu und zur Charakteristik der gegenwärtigen Theologie* (Tübingen, 1837).
5 J.E.Toews, *Hegelianism: The Path toward Dialectical Humanism, 1805–1841* (Cambridge: Cambridge University Press, 1980), pp. 203–4.
6 For further discussion of the division of Hegelians into Left, Center, Right, Young, and Old, see: Stepelevich, op. cit., "Introduction"; K.Löwith, *From Hegel to Nietzsche: The Revolution in Nineteenth-Century Thought*, trans.D.E.Green (London: Constable, 1965), pp. 53–71; Toews, op. cit., chs 6 and 7.
7 Löwith, op. cit., p. 54.
8 For an account of Strauss's political activities, see W.J.Brazill, *The Young Hegelians* (New Haven: Yale University Press, 1970), pp. 121–3.
9 Löwith, op. cit., pp. 70–1. A version of Hegel's dictum occurs in the Preface to *Hegel's Philosophy of Right,* trans. T.M.Knox (Oxford: Oxford University Press, 1952), p. 10 and n. 27.
10 A.Ruge, "Hegel's *'Philosophy of Right'* and the politics of our times" (1842), in Stepelevich, op. cit., p. 223.
11 Ibid., p. 225.
12 Ibid., p. 228.
13 Ibid., p. 230.
14 This material, which was untitled by Marx, is commonly, but not always, known in English as "Critique of Hegel's *'Philosophy of Right'*." It was published by D.Rjazanov in Vol. 1 of *Karl Marx, Friedrich Engels: HistorischKritisch Gesamtausgabe* (Frankfurt/Main and Berlin, 1927–32); henceforth referred to as *MEGA*. See also *Karl Marx and Friedrich Engels: Collected Works* (London: Lawrence & Wishart, 1975–), henceforth referred to as *MECW*, Vol. 3, "Contribution to the critique of Hegel's philosophy of law," pp. 3–129. The two Hegel critiques, the one Marx published and the drafts he left unfinished, are collected together, with a useful commentary, in Marx, *Critique of Hegel's "Philosophy of Right"*, ed. J.O'Malley (Cambridge: Cambridge University Press), 1970.
15 *Hegel's Philosophy of Right*, op. cit., p. 11.
16 *MECW: Karl Marx and Friedrich Engels: Collected Works*, op. cit.; citations are by volume and page number.
17 A few extracts from this work are available in English in Stepelevich, op. cit., pp. 177–86; the quotation is from p. 183.
18 B.Bauer, "The genus and the crowd," in ibid., pp. 204–5. The German title of the work is "Die Gattung und die Masse"; the term *"Gattung"* was extensively used by Feuerbach and is often translated into English as "(human) species" rather than "genus."
19 See Marx's distinction between crude communism and other forms of

communism in *MECW,* 3, pp. 294–7; see also S.Avineri, *The Social and Political Thought of Karl Marx* (Cambridge: Cambridge University Press, 1968), pp. 220–39.
20 See *MECW*, 3, pp. 231–4, Preface, and the concluding section p. 327.
21 D.McLellan, *The Young Hegelians and Karl Marx* (London: Macmillan, 1969), p. 78.
22 See "Part III: Saint Max" of Marx and Engels, *The German Ideology, MECW,* 5, pp. 117–450. In contrast Marx devotes only pp. 27–93 to a critique of Feuerbach, the Young Hegelian generally held to have had some influence upon him.
23 McLellan, op. cit., pp. 129–36.
24 For an account of Stirner's influence, see the Introduction by J.Carroll to his abridged edition of *Max Stirner: The Ego and Its Own* (London: Cape, 1971); this appeared in a series entitled Roots of the Right under the general editorship of G.Steiner.
25 M.Stirner, *The Ego and his Own* (1844), ed. J.Carroll, trans. S.T.Byington (London: Cape, 1971), p. 5.
26 Ibid., p. 40.
27 Ibid., p. 184.
28 Ibid., p. 339.
29 Ibid., p. 43.
30 Ibid., p. 123.
31 Ibid., p. 257.
32 Ibid., p. 210.
33 Ibid., p. 366.
34 Ibid., p. 291.
35 Ibid., p. 224.
36 Ibid., pp. 311–12.
37 Ibid., p. 318.
38 Quoted in Carroll, Introduction, op. cit., p. 14.
39 See *MECW*, 5, p. 37. The import of this central idea of Marx is obscure. I suggest one way in which it might be criticized toward the end of section II of R. Nola, "The strong programme for the sociology of knowledge, reflexivity and relativism," *Inquiry*, 33 (1990): 273–96.
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41 For a history of the manuscript and its publication, see *MECW*, 5, n. 7, pp. 586–8.
42 McLellan, op. cit., p. 93.
43 Marx, *Writings of the Young Marx on Philosophy and Society*, ed. L.D.Easton and K.H.Guddat (New York: Doubleday, 1967), p. 95.
44 For Marx's praise, see Preface to *Economic and Philosophic Manuscripts of 1844, MECW*, 3, pp. 232–3, and the final section, headed "Critique of the Hegelian dialectic and philosophy as a whole," pp. 327–9. See also the letter which Marx wrote to Feuerbach on 11 August 1844, ibid., pp. 354–7.

45 M.W.Wartofsky, *Feuerbach* (Cambridge: Cambridge University Press, 1977), ch. VII, is an excellent account of this work; a translation can be found in Stepelevich, op. cit.
46 The remark of Wagner is cited in Brazill, op. cit., p. 137.
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48 Feuerbach, *The Essence of Christianity*, trans. G.Eliot (New York: Harper Torchbook, 1957), p. 12.
49 Ibid., p. 13.
50 Ibid., pp. 29–30.
51 Ibid., p. 184.
52 Stepelevich, op. cit., p. 156.
53 Ibid., p. 157.
54 Feuerbach, *The Essence of Christianity*, op. cit., p. 60.
55 Stepelevich, op. cit., p. 158.
56 Ibid., p. 159.
57 Ibid., p. 170.
58 Ibid., p. 160.
59 See O'Malley's editorial comments in Marx, *Critique of Hegel's "Philosophy of Right"*, op. cit.; R.N.Berki, "Perspectives in the Marxian critique of Hegel's political philosophy," in Pelczynski, op. cit.; Avineri, op. cit.; L.Dupré, *The Philosophical Foundations of Marxism* (New York: Harcourt, Brace & World, 1966), ch. 4; and D.McLellan, *Marx before Marxism* (London: Macmillan, 1970), ch. 5: all of whom attempt to evaluate Marx's own criticisms of Hegel.
60 Marx, *Critique of Hegel's "Philosophy of Right"*, op. cit., p. 7.
61 Ibid., p. 8.
62 Ibid., p. 9.
63 Ibid., p. 8.
64 Ibid., p. 24.
65 For example, O'Malley in ibid., p. xxxiii.
66 Stepelevich, op. cit., p. 162.
67 Marx, *Capital: Volume 1* (Moscow: Progress Publishers, 1973), p. 50.
68 Ibid., p. 174.
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70 See G.A.Cohen, *Karl Marx's Theory of History: A Defence* (Oxford: Clarendon Press, 1978), chs VI, IX, and X, for his account of functional explanation in Marx's historical materialism.
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73 Feuerbach, *The Essence of Christianity*, op. cit., p. 114,
74 Ibid., p. 196.

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76 Feuerbach, *Principles of the Philosophy of the Future*, op. cit.
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CHAPTER 10

Arthur Schopenhauer

Kathleen M.Higgins

Despite a recent surge of philosophical interest, Arthur Schopenhauer remains one of the most underappreciated philosophers of modern times. He has arguably had a greater influence on subsequent philosophy and intellectual history than any other figure. The richness of Schopenhauer's thought is suggested even by a perusal of the intellectual world's reactions. Friedrich Nietzsche, Ludwig Wittgenstein, Sigmund Freud, Thomas Mann, Thomas Hardy, Richard Wagner, and Woody Allen all claim him as their intellectual and/or spiritual ancestor. Such influential concepts as Wittgenstein's "family resemblance,"[1] Nietzsche's "will to power"[2] and "eternal recurrence,"[3] and Freud's "libido"[4] all develop from ideas originally suggested by Schopenhauer.

Yet Schopenhauer's philosophy has often been dismissed as being of mere historical interest. One explanation is that Schopenhauer is an emphatically systematic thinker. In claiming that his philosophy is an "organic" whole, composed of elements that stand or fall together, Schopenhauer invites the reader who rejects a part of it to reject the theory *in toto*.[5] In light of his insistence on complete resignation, extreme asceticism, and sexual abstinence as the only alternative to a life of futile struggling, many readers understandably balk at embracing his theory wholesale.

Another explanation for Schopenhauer's unpopularity is the reaction of many readers to his personality. Bertrand Russell, who criticizes Schopenhauer's philosophy for "inconsistency and a certain shallowness," seems most indignant about Schopenhauer's character. After complaining about the internal tensions in Schopenhauer's doctrine of resignation, Russell continues:

> Nor is the doctrine sincere, if we may judge by Schopenhauer's life.

> He habitually dined well, at a good restaurant; he had many trivial love-affairs, which were sensual but not passionate; he was exceedingly quarrelsome and unusually avaricious. On one occasion he was annoyed by an elderly seamstress who was talking to a friend outside the door of his apartment. He threw her downstairs, causing her permanent injury. She obtained a court order compelling him to pay her a certain sum (15 thalers) every quarter as long as she lived. When at last she died, after twenty years, he noted in his account-book: "Obit anus, abit onus." ["The old woman dies; the burden departs."] It is hard to find in his life evidence of any virtue except kindness to animals, which he carried to the point of objecting to vivisection in the interests of science. In all other respects he was completely selfish.[6]

Russell's sense of virtue is probably quite different from Schopenhauer's. But even if Russell is not entirely fair in his attack, Schopenhauer's biography suggests grounds for *ad hominem* attack. Russell's anecdote alone suggests an impulsive, willful personality, a matter worth comment in one convinced, as is Schopenhauer, that Will is the fundamental metaphysical principle of the world.[7] Schopenhauer's system and, in particular, his denunciation of sex as the focal expression of the will and guarantor of human unhappiness prompt Nietzsche to remind his readers:

> In all questions concerning the Schopenhauerian philosophy, one should, by the bye, never lose sight of the consideration that it is the conception of a youth of twenty-six, so that it participates not only in what is peculiar to Schopenhauer's life, but what is peculiar to that special period of his life.[8]

Whether or not one considers such *ad hominems* to be legitimate in philosophical argumentation, Schopenhauer's writings present a psychological puzzle.[9] Although misanthropic and barbed in his tone, Schopenhauer advocates an ethic of compassion. Despite his elitism, he insists that all individuals are manifestations of the identical Will. Consistently analyzing the world's phenomena as manifestations of futility, Schopenhauer nonetheless describes them with voluptuous enthusiasm. He displays great wit and insight into human behavior—and yet he shows no sign of self-irony. Perhaps it was this last feature of Schopenhauer's work that moved the youthful Nietzsche to describe him as motivated by the need "for love above everything else."[10]

SCHOPENHAUER'S LIFE AND WORKS

Schopenhauer's biography at least sheds light on his intellectual breadth. Schopenhauer was born in Danzig on 22 February 1788 to a cosmopolitan couple, consisting of Heinrich Floris Schopenhauer, a prominent merchant, and Johanna Henriette Trosiener, a successful novelist. Heinrich's penchant for travel and unconventional views on schooling led to Schopenhauer's receiving a rather nomadic education. He lived in Hamburg from ages 5 to 9, spent the following two years in France, and subsequently spent two more years traveling the world with his parents and sister, briefly attending a British boarding school in Wimbledon. As a result of this globe-trotting lifestyle, Schopenhauer developed fluency in several languages and his own predilection for travel.

Schopenhauer's father died, apparently through suicide, when Schopenhauer was 17. Schopenhauer briefly attempted to fulfill a promise to his father that he would become a merchant; but concluding after two years that this career choice didn't suit him, he abandoned that career for classical studies. He began these at Gotha, but transferred to Weimar, where his mother lived. Schopenhauer and his mother were constant antagonists who could not bear to live in the same house. Indeed, Schopenhauer's misogynist comments, directed in particular at the modern "ladies" of Europe, may stem from this relationship to his mother.[11] Despite his dislike for her, however, Schopenhauer frequently visited her and her salon during this period, which included some of the most celebrated literary figures of the time (Goethe, Schlegel, and the brothers Grimm among them).

When he received his considerable inheritance at the age of 21, Schopenhauer began medical studies at the University of Göttingen. His growing interest in philosophy prompted him to transfer to the University of Berlin, where Fichte was professor. Schopenhauer found the lectures of both Fichte and his colleague Schleiermacher wanting, however, a conclusion reiterated in footnotes to virtually all of his subsequent works.

The proximity of battle during the Napoleonic Wars prompted Schopenhauer's next move, to a small town called Rudolstadt, near Weimar. There he wrote his dissertation, *On the Fourfold Root of the Principle of Sufficient Reason* (1813), which was awarded the doctorate by the University of Jena. Schopenhauer's private printing of the thesis did not win him a large readership. Nevertheless, Goethe read and praised it. In response to their subsequence conversations, Schopenhauer wrote a short book entitled *On Vision and Colors* (1815).

After returning to Weimar and briefly living with his mother, Schopenhauer completely severed his relation with her, never to see her

again. He moved to Dresden, where he wrote the central statement of his philosophical theory, *The World as Will and Representation* (1818). The book was by no means a bestseller, but Schopenhauer's publication record was strong enough to gain him a lectureship in philosophy at the University of Berlin. Hegel, object of Schopenhauer's considerable scorn, had inherited Fichte's chair. By scheduling his courses at times when Hegel was also lecturing, Schopenhauer forced his students to choose between himself and Hegel. The predictable result was that the students chose Hegel, with the consequence that Schopenhauer's lectures were canceled. The independently wealthy Schopenhauer never again sought an academic position; indeed, he consistently disparaged academic philosophy in his writings.

The cholera epidemic that killed Hegel in 1831 inspired the somewhat hypochondriacal Schopenhauer to make his final move, this time to Frankfurt. He devoted his remaining years to writing and traveling. His works of this period include "On the Will in Nature" (1836) and "On the Foundation of Morality," which were conjoined in *The Two Fundamental Problems of Ethics* (1841); the second edition of *The World as Will and Representation,* together with a second volume of supplementary essays (1844); a revised and enlarged edition of *On the Fourfold Root of the Principle of Sufficient Reason* (1847); and a collection of essays entitled *Parerga and Paralipomena* ("Supplementary Works and Omitted Material") (1851). Schopenhauer lived to see his works become popular in his waning years. He died on 21 September 1860.

SCHOPENHAUER'S GRAND SYNTHESIS

Schopenhauer's principal statement of his philosophical system is *The World as Will and Representation,* Volume I. Although he added subsequent essays in the years following its publication, these only elaborated on positions he initially stated in that volume. Schopenhauer never disavowed any detail of his initial formulations. As he announced in his Preface to the book's second edition: "I have altered nothing."[12]

Schopenhauer's Preface to the first edition of *The World as Will and Representation* reveals a demanding author. Schopenhauer insists that the book is the development of a single thought, and that the first chapters depend as much on the last as the other way around. Hence, he insists that the reader must read the entire book twice. In addition, since he is presupposing the work he had done in his dissertation, Schopenhauer also requires that his readers be familiar with *On the Fourfold Root of the Principle of Sufficient Reason* (and ideally with *On Vision and Colors* as

well). Finally, he requests that the reader have thorough familiarity with the writings of Kant, and preferably with Plato's dialogues and the *Upanishads* as well.

These last requirements give a hint as to what will follow. Schopenhauer's system aims to synthesize the philosophies of Kant, Plato, and India (in particular Buddhistic philosophy). The common denominator of the three is a distinction between the world of everyday appearances and a truer reality, ascertainable by the human mind. In order to accomplish his grand synthesis, Schopenhauer has to modify considerably the works from which he draws inspiration. Nonetheless, it is noteworthy that for all his curmudgeonly complaints about most other human beings, Schopenhauer expresses awe for his heroes.[13] (In fact, he decorated his rather sparse living quarters in Frankfurt with a bust of Kant and a statue of the Buddha.)[14]

The essential moves involved in Schopenhauer's synthesis are as follows. Schopenhauer accepts Kant's distinction between the phenomenal world and the noumenal world. The former is called, in Schopenhauer's idealistic scheme, the **world as representation,** for it is composed of objects constituted by the forms imposed by the conscious mind. The noumenal world, or thing-in-itself, is the reality underlying the world as representation. Schopenhauer disagrees with Kant that the thing-in-itself is inaccessible to us. Instead, he points out that each of us, in our own case, recognizes an immediate reality behind the phenomenal behavior of our own body. This inner reality is "will." Schopenhauer extends this inner reality to all phenomena, concluding that **"Will"** is the thing-in-itself.[15]

Although the entire phenomenal world is a manifestation of "Will," Schopenhauer maintains that the Will manifests itself to various degrees in different types of things. He invokes the Platonic Ideas (or Forms) to account for the different forms of the Will's manifestation. Following Plato, he argues that everyday human awareness usually focuses on particular things, not on their eternal, universal prototypes. However, in aesthetic experience, the individual sees the object as the Platonic Idea, and in the process raises him- or herself to the condition of "the universal subject of knowledge." In aesthetic experience, the willful character of our inner life is silenced. Aesthetic experience, therefore, affords the human being brief moments of inner peace.

Schopenhauer places high value on inner peace, and this valuation prompts him to incorporate insights from Indian philosophy into his system. Although the Will is the fundamental metaphysical principle behind all phenomena, its internal struggling character ensures that its phenomenal manifestations will themselves be characterized by struggle and suffering. Schopenhauer follows Buddhism in concluding that the only way to stop suffering is to stop desiring. Hence, he contends that

resignation and the asceticism that arises from it are the only alternative to a life of continuing suffering. Resignation is the outlook attained by the human being who fully grasps that the same Will is the inner reality within all phenomena. When one has fully incorporated this insight, one is no longer capable of competing or struggling with other phenomena. One achieves in this case the ideal that lies at the core of all religions—the ideal of compassion toward all other beings, in the full recognition that all are, in reality, one.

THE WORLD AS REPRESENTATION AND THE PRINCIPLE OF SUFFICIENT REASON

Let us now consider Schopenhauer's system in more detail. Schopenhauer begins *The World as Will and Representation* with a clear statement of his idealism." 'The world is my representation': this is a truth valid with reference to every living and knowing being, although man alone can bring it into reflective, abstract consciousness."[16] The existence of the world as it appears to us—the world as representation—is entirely contingent on consciousness.

True to his word, Schopenhauer begins his analysis of the world as representation by presupposing the account that he had given in *On the Fourfold Root of the Principle of Sufficient Reason.* Indeed, he asserts the world of representation is entirely governed by **the principle of sufficient reason,** a principle which he simply assumes. This principle, although variously formulated, essentially contends that there is a sufficient reason for every phenomenon. In one formulation Schopenhauer states that the principle holds that "every possible object… stands in a necessary relation to other objects, on the one hand as determined, on the other as determining."[17] The principle of sufficient reason establishes that all objects that are represented for the conscious mind stand in a nexus of connection with one another. Thus, every represented object can be entirely explained in terms of its relation to other objects.

In his dissertation Schopenhauer describes the different forms that the principle of sufficient reason takes in relating the four possible types of objects to their grounds. The four types of objects he analyzes are those of **being, becoming, knowing,** and **acting,** a list which he takes to be exhaustive of possible objects. By considering these sequentially, we can observe much about the structure of the Schopenhauerian world as representation.

As representation, the world is subject to the Kantian forms of intuition, **time and space.** These are forms essential to the constitution of

all objects by consciousness, and they individuate the world into particular, individual objects. For this reason, Schopenhauer sometimes refers to time and space as the *principium individuationis* (the principle of individuation). He also designates them "the ground of being" because of their fundamental role in securing the possibility of the world that we perceive. When Schopenhauer considers the principle of sufficient reason as it pertains to "being," he has time and space in mind.

The principle of sufficient reason pertains to our intuitions of time and space by establishing that positions within time and space exist in a nexus, mutually determining each other. In other words, the location of objects in time and space can be determined only in relation to other locations. Schopenhauer takes the existence of mathematics to reflect the lawlike interrelation of positions in the time-space continuum. Arithmetic focuses on relationships within time (for Schopenhauer sees it as originating in counting, which deals directly with succession in time). Geometry focuses on relationships within space. Geometric proofs depend on the principle of sufficient reason, for they draw on the fact that certain relationships imply others.

The representations of consciousness include both intuitive and abstract representations. Among the objects that are directly intuited are both objects of perception and the conditions of their possibility. These latter include time and space, and also causality. The **law of causality** is the form that the principle of sufficient reason takes in connection with perceptual objects, whose character Schopenhauer analyzes in terms of "becoming." Causes, for Schopenhauer, have to do with changes of states over time.

In order for change to occur within time, something must undergo the change. Schopenhauer considers the persisting object of change to be **matter.** He even defines matter as "the perceivability of time and space."[18] Matter and causality are conflatable, for "matter is absolutely nothing but causality…its being is its acting."[19] The "acting" that concerns Schopenhauer in this connection is the action of perceptual objects on our bodies. By means of these effects, we come to know causes. Causes provide the ground for given states of perceptual objects. Thus they are the form of connection that the principle of sufficient reason provides between representations of this type.

One might ask, at this juncture, how we come to know causes. Schopenhauer, like Kant, contends that perception is intellectual, for it essentially involves the **understanding** as well as sensation.[20] But Schopenhauer's conception of understanding differs from Kant's. Kant considers the understanding to be the faculty that applies principles of judgment to representations. Schopenhauer considers the understanding to be a faculty that leaps from a represented effect to its cause. At times Schopenhauer argues that apprehension of causality is the sole operation

of the understanding.[21] Schopenhauer attributes understanding to animals, as well as to human beings, maintaining that the "most sagacious animals" (e.g. dogs, monkeys, elephants, and foxes) give us an accurate picture of what the understanding can achieve without the assistance of reason.[22] Because causality is among the forms that constitute the world as representation, the world as representation exists only insofar as the understanding of at least one animal or human being is in operation.

Reason is the faculty, uniquely possessed by human beings, that enables them to form abstract representations, or concepts, the third possible object of consciousness that Schopenhauer considers. Concepts are "representations of representations." Thus, they are derived from perception. Many particulars (known through perception) can, at least in principle, be thought under a given concept, for concepts are essentially abstract and universal. Any concept can therefore be said to have a range. The faculty of **judgment** determines the relations among the ranges of various concepts.

"Knowing" is a matter of determining the truth of given judgments. The principle of sufficient reason ensures that every true judgment can be referred to a ground, and that truth can be established by this means. The particular form of the ground for a judgment depends on the type of judgment being made. Logical truths are grounded in other judgments; material truths are grounded empirically; transcendental truths are grounded in the conditions of the possibility of experience; and metalogical truths are grounded in the formal conditions of thought (the laws of identity, excluded middle, and contradiction, and the principle of sufficient reason).

Despite the fact that Schopenhauer credits judgment with the ability to interrelate concepts in a way that yields knowledge, he has little enthusiasm for the abstract articulation of such relationships in logic. "It is merely knowing in the abstract what everyone knows in the concrete."[23] Logic has no practical use, although Schopenhauer is willing to declare it "perfectly safe."[24] The only useful role of logic, according to Schopenhauer, is to assist philosophers in gaining insight into the nature of reason—and this should be their concern in their logical investigations.

The fourth type of object that Schopenhauer considers to be governed by the principle of sufficient reason, the object of "action," is the self as a willing being. In this case, the ground of action is a **motive.** Motives determine only the external results of willing—actions within the world as representation. The inner reality involved in willing will be discussed in connection with the world as Will.

In every case, the principle of sufficient reason pertains only to objects in the world as representation. It does not govern the thing-in-itself. Schopenhauer utilizes this distinction to dismiss a number of traditional

philosophical positions. Among these are all views regarding what Schopenhauer calls "the foolish controversy about the reality of the external world."[25] Because causality operates only within the phenomenal world, i.e. the world as representation, Schopenhauer argues, causality obtains only between objects, not between subject and object. The real object is always a representation of consciousness. Therefore, it is nonsense to seek (as do all who concern themselves with the problem of the external world's existence) a "real" object outside the phenomenal realm.[26]

Schopenhauer dismisses materialism on similar grounds. The materialist attempts to explain consciousness by reference to a prior material ground. But "matter" is, as we have seen, one of the forms fundamental to the thinking subject's capacity for representation. Without the thinking subject and the forms that it uses to constitute its representations, "matter" evaporates." 'No object without subject,' is the principle that renders all materialism for ever impossible."[27]

THE AMBIVALENCE OF REASON

Reason affords the human being unique possibilities, unavailable to animals. Through reason, human beings can transcend their own understanding. Unlike animals, who are motivated only by what they perceive directly, humans can be motivated by abstract ideas. They are also able to choose among motives because reason can represent several simultaneously. This transcendence enables the human being to have a sense of time, and to plan for the future. The use of words as tokens for concepts, an essential characteristic of rational beings, facilitates the formulation and preservation of knowledge, which in turn can be put to use in actualizing human plans.

Schopenhauer is less enthusiastic about reason, however, than most of his fellow philosophers. Reason introduces error, care, and doubt into human experience. By virtue of reason, human beings can lose touch with their perceptions and behave much more foolishly than animals can act. Along with consciousness of time, reason produces consciousness of death, and the dread that goes with it.

Schopenhauer considers reason's proper role in human experience to be relatively modest. Rational knowledge fixes "in concepts of reason what is known generally in another way."[28] Thus, reason does not, strictly speaking, yield knowledge; instead, it reproduces perceptual knowledge in an alternative form.

The value of reason's alternative mode of formulation is primarily that it enhances the communicability and preservation of knowledge. The

price, however, is a sacrifice of some of the fineness of perceptual knowledge, such as that which an expert billiard player or musician can employ in practice. The concepts of reason are also insufficient to produce art, which depends on the artist's perceptual acumen. Even in behavior, the concepts of reason are deceptively clear, lacking the finegrained character of perceptual knowledge.

Schopenhauer concludes that reason, while essential and useful in human life, must never gain the upper hand over perception. In this, he opposes not only the philosophical commonplace that reason is the pride of humanity. He also opposes the common ethical view that reason should be entrusted with control of one's behavior.

Reason is so far from being a trustworthy guide in behavior that Schopenhauer considers it to be an essential presupposition of folly. He analyzes the ludicrous, the ground of all humor, as arising from the incongruity of reason's concepts in relation to real objects. Behavioral foolishness, like other forms of humor, occurs when one interprets an object in terms of a single concept, but suddenly perceives that the object has one or more characteristics that are incompatible with that concept. Thus, to appropriate a joke from Kant's *Critique of Judgment,* the man who complained about the mourners at his loved one's funeral, on the grounds that they kept looking happier the more he paid them to look sad, makes a conceptual error. He interprets the mourners' expressions as being the services for which he pays them, and he ignores the fact that their expressions might literally "express" their pleasure at being paid.[29] Building on this analysis, Schopenhauer labels "foolish" those principled moralists who see reason as the appropriate ethical guide:

> Pedantry…arises from a man's having little confidence in his own understanding, and therefore not liking to leave things to its discretion, to recognize directly what is right in the particular case. Accordingly, he puts his understanding entirely under the guardianship of his reason, and makes use therefore on all occasion; in other words, he wants always to start from general concepts, rules, and maxims, and to stick strictly to these in life, in art, and even in ethical good conduct…. The incongruity between the concept and reality soon shows itself, as the former never descends to the particular case, and its universality and rigid definiteness can never accurately apply to reality's fine shades of difference and its innumerable modifications. Therefore the pedant with his general maxims almost always comes off badly in life, and shows himself foolish, absurd, and incompetent.

Even Kant, whom Schopenhauer largely admires, is convicted by this analysis:

> We cannot entirely exonerate Kant from the reproach of causing moral pedantry, in so far as he makes it a condition of the moral worth of an action that it be done from purely rational abstract maxims without any inclination or momentary emotion.[30]

Schopenhauer's insistence on the primacy of perception over reason extends to his analysis of science. Science aims at complete knowledge in the abstract of some particular species of objects. It is concerned with the form of knowledge, for it aims at facilitating and completing (i.e. systematically connecting and hierarchizing) what is known about its objects. Perception, however, being the ultimate source of knowledge, is also the basis of science. All scientific evidence derives ultimately from intuitive perception.

As a systematic employment of reason, science is subject to the limitations inherent to abstract thought. Frequently, science makes use of proofs, which involve the deduction of new consequences from previously accepted propositions. Proofs do not establish the certainty of their conclusions, for the truth of a conclusion depends on the truth of the premises. The conclusion of an abstract chain of reasoning, moreover, is never really new knowledge; it is only an exposition of what the premises already imply. "Proofs are generally less for those who want to learn than for those who want to dispute."

Schopenhauer is so thoroughly convinced that reason is subordinate to perception that he believes that every truth ascertained through proof or syllogism is, in principle, recognizable through direct perception as well.[31] He recommends a strategy of teaching geometric truths through direct observation of geometrical figures. This he prefers to Euclid's method of proof from axioms, "a very brilliant piece of perversity." Schopenhauer likens Euclid's approach to "a conjuring trick" that brings truth in "almost always…by the back door, since it follows *per accidens* from some minor circumstance."[32] Through direct perception we can see both *that* something is so and *why* it is so, according to Schopenhauer, while with Euclid's method, we see only the former.

Science, insofar as it aims to explain things, is concerned ultimately with the principle of sufficient reason. Explanation establishes the relations of phenomena with one another, a relation always determined by the principle of sufficient reason. In every case, however, the systematic pursuit of explanation stops, confronted either with the necessary truths fundamental to our basic forms of knowledge or with "an accepted *qualitas occulta* ('occult quality'), which is entirely obscure."[33] Primary concepts of science, such as weight, cohesion, and chemical properties, as well as the inner nature of a human being, are all *qualitates occultae*. Such occult qualities establish the limits of every science. Schopenhauer sees

these as indications of the thing-in-itself, which appears in them. The thing-in-itself is the inner reality that science cannot explain. It is thus the absolute limit that science cannot penetrate.

THE WILL AS THING-IN-ITSELF, THE INNER LIFE OF OBJECTS

Schopenhauer's account of the world as representation presupposes a third-person point of view. But what is the real significance of the world as representation? Schopenhauer observes, regarding the world's phenomena, that "these pictures or images do not march past us strange and meaningless…but speak to us directly, are understood, and acquire an interest that engrosses our whole nature."[34] Yet if we restrict our attention to what Schopenhauer considers in his account of the world as representation, our interest in these phenomena is mysterious. Our own position seems a bit like that of

> a man who, without knowing how, is brought into a company quite unknown to him, each member of which in turn presents to him another as his friend and cousin, and thus makes them sufficiently acquainted. The man himself, however, while assuring each person introduced of his pleasure at meeting him, always has on his lips the question: "But how the deuce do I stand to the whole company?"[35]

The key to resolving this question regarding our relationship to phenomena is the status of our own bodies. Each of us is not merely the consciousness for whom the world as representation exists. We are not only consciousness, but embodied. The body to which each consciousness is attached has an odd relationship to the world as representation. On the one hand, the body is itself a representation, which behaves much like other representations. On the other hand, the body seems to be moved by an inner mechanism. This inner mechanism, according to Schopenhauer, is aptly designated "will."

Schopenhauer takes sexual desire to be a paradigmatic manifestation of this inner will.[36] The will is demanding, persistent, discontented, and perpetually goal-oriented. Insofar as one has desires, one has will, according to Schopenhauer. The will connects us to the world as representation; it gives us "interests." We take an interest in our world because it provides objects, instruments, and obstructions in connection with our various desires and projects.

The individual's direct knowledge of his or her body has two aspects.

The individual experiences inner acts of will; yet these acts of will are simultaneously acts of the body. Schopenhauer concludes that the body is "nothing but the objectified will, i.e. will that has become representation." From the point of view of the world as representation, it is "the immediate object," but from the point of view afforded by one's inner awareness, it is "the objectivity of the will."[37]

Schopenhauer indicates several corollaries to his principle that the will and the body are one. First, willing and acting are one and the same. "Only the carrying out stamps the resolve; till then, it is always a mere intention that can be altered; it exists only in reason, in the abstract."[38] Second, pleasure and pain are not representations, but impressions of the will through the body. Such impressions are pleasure when they accord with the will, pain when they contradict the will. Third, every emotion, which Schopenhauer defines as a "vehement and excessive movement of the will," directly "agitates the body and its inner workings," thereby disturbing its vital functions.[39] Fourth, one cannot separate one's knowledge of the will from one's knowledge of the body and its individual acts in time. Thus, one cannot observe one's will as a whole, in its timeless reality.[40]

Schopenhauer considers the individual's direct knowledge of the will within the body to be knowledge of what the body is in itself. In this respect, our bodies afford access to the thing-in-itself, the realm that Kant denies to knowledge. Schopenhauer's approach here raises a conceptual problem. He accepts Kant's claim that the thing-in-itself does not admit of plurality. Yet in appealing to each individual's insight into the inner mechanism of his or her own body, Schopenhauer seems to have indicated an "inner reality" that still admits of plurality. He goes on to argue that the inner life that each individual recognizes in the body is a single life common to all. But how do we get from the plurality of inner "wills" to the unified thing-in-itself? Schopenhauer's statements regarding the relationship of particulars to the Will are not particularly illuminating: "only the will is thing-in-itself.... It is the innermost essence, the kernel, of every particular thing and also of the whole."[41]

Schopenhauer's argument for extending the concept of "will" to refer to the inner reality of all phenomena is similarly problematic. He defends this move by arguing that one has only two options. Either one can account for one's unique access to the inner life of one's own body by claiming that it is the *only* object that is both will and representation. This course would amount to solipsism, or theoretical egoism, the conviction that one's own being is the only real being. Or the individual can assume that all objects have a similar inner reality, and that while one's *relationship* to one's body is unique, the body itself is not. Serious theoretical egoism being a form of insanity, Schopenhauer dismisses the former alternative as a view that

requires "not so much a refutation as a cure."[42] He concludes that one is warranted in granting to every other phenomenal object a reality comparable to that of one's own body.

Thus, Schopenhauer exends the term "will," which seems apt for the inner life of our own bodies, to refer to the inner nature of all objects. Schopenhauer's primary defense of this extension is that we have no better alternative. He believes that we naturally tend to anthropomorphize our world because anthropomorphic metaphors convey the most to us. "Will," accordingly, conveys more to us than any other term we could use.

"Force" might be thought a viable alternative. But we have no insight into the basic forces of nature at all, Schopenhauer insists. They are *qualitates occultae,* completely unfathomable to us. By contrast, the word "will" refers to the most distinct form in which the reality underlying all phenomena appears to us. Thus, "will" is the most meaningful term we could use to name the inner reality of all things.

Schopenhauer considers the inner reality of other phenomena to be thoroughly comparable with our own. "Spinoza (*Epist*. 62) says that if a stone projected through the air had consciousness, it would imagine it was flying of its own will. I add merely that the stone would be right."[43] Schopenhauer points out, however, that in calling the inner nature of all objects, including inanimate ones, "Will," he does not mean to attribute sentience and conscious motives to all of them. Will operates differently in different types of objects. Only in humans and animals does it employ motives determined by knowledge. The stimuli that prompt most organic processes and the causes that occasion inorganic ones are mechanisms that do not involve knowledge. Nevertheless, despite the differences among these forms of causation, the Will is operative through all of them.

NO FREE WILL

Because he believes that motives determine the will in human beings, Schopenhauer denies that human beings have free will. An individual's actions are completely determined by motives in conjunction with his or her character. Schopenhauer follows Kant in distinguishing the **empirical character,** the character of the individual as it appears in phenomenon, from the **intelligible character,** the character as it is in itself, outside of time and space. Schopenhauer considers the latter to be a timeless, unalterable act of the Will, which is manifest in empirical behavior over time. The empirical character accurately objectifies the intelligible character: "the man…will always will in the particular what he wills on the whole."[44] But it does this gradually; and the precise forms through

which it manifests the intelligible character are in part determined by the entirely contingent features of circumstances.

Given that the empirical character, motives, and one's actions are all among the objects of representation, causality obtains among them. Hence, in principle, a causal account can be given to explain any of an individual's actions. However, in practice such accounts are limited. In the first place, human beings possess more striking individuality than do any other kind of beings. The range of human characters is considerable. Hence, one needs considerable knowledge of a particular person's character, in addition to knowledge of the motive, in order to predict what that person will do in a given case.

Moreover, the knowledge that one can have is knowledge of the empirical character, which is not the character of the individual in itself, but only the appearance of the latter over time. In the case of those whom we have known well for a long time, we may be fairly competent predictors of behavior. But we come to know the empirical character only through its actions, after the fact; thus, our knowledge is limited. This is as true of one's own character as of any other individual's. Knowledge even of one's own character is a considerable achievement. Schopenhauer labels such gradually accumulated knowledge of what one wills and what one can do **"acquired character."** Such knowledge enables one to direct one's actions consistently and effectively toward satisfaction of one's will, for it allows one to recognize in advance what courses of action are worth attempting, given one's own limitations.

Our ignorance, even of our own characters, leads many to believe that human beings have free will. Because we lack sufficient information to predict our own and others' behavior accurately, we cannot see that it follows absolutely from the interaction of character and motive. Moreover, because we engage in deliberation, the abstract contemplation of multiple motives, each of which recommends a different course of action, we tend to feel as though the ensuing action is in suspension until we choose. "But," claims Schopenhauer,

> this is just the same as if we were to say in the case of a vertical pole, thrown off its balance and hesitating which way to fall, that "it can topple over to the right or to the left"…this *"can"* has only a subjective significance, and really means "in view of the data known to us." For objectively, the direction of the fall is necessarily determined as soon as the hesitation takes place. Accordingly, the decision of one's own will is undetermined only for its spectator, one's own intellect, and therefore only relatively and subjectively…. In itself and objectively, on the other hand, the decision is at once determined and necessary in the case of every choice presented to it.[45]

The true situation is reflected by our own attitudes regarding freedom. Schopenhauer observes that

> everyone considers himself to be *a priori* quite free, even in his individual actions, and imagines he can at any moment enter upon a different way of life, which is equivalent to saying that he can become a different person. But *a posteriori* through experience, he finds to his astonishment that he is not free, but liable to necessity; that notwithstanding all his resolutions and reflections he does not change his conduct, and that from the beginning to the end of his life he must bear the same character that he himself condemns, and, as it were, must play to the end the part he has taken upon himself.[46]

The explanation lies in the fact that as individuals our actions are completely determined by our characters and a motive. However, because our own inner reality is the Will, which is not constrained by causality, we feel the Will's freedom within ourselves and mistakenly associate it with our own individuality. What the Will freely does, however, is to assign to each of us a character, which we have no power to alter. We are also incapable of explaining why an individual has the particular character he or she does, for the Will is not subject to causality, and thus is not constrained by anything in its selection of this character.

Thus, no explanation can be provided as to why an individual is motivated by the particular motive he or she is. Our account of human behavior is necessarily limited. In this respect, human behavior is akin to the behavior of everything else in the phenomenal world. All rests on *qualitates occultae* which cannot be further illuminated.

PLATONIC IDEAS

We have already observed that Schopenhauer's account of the unity of the thing-in-itself does not square easily with the plural points of departure we are told to use to infer it. Schopenhauer touches on the problem of bridging the noumenal and phenomenal realms in his appeal to the Platonic theory of the Forms, or "Platonic Ideas."

Schopenhauer attempts to clarify the Will's relationship to its plural manifestations by arguing that it does not make sense to say that "more" will is in the human being than in the stone. "More" and "less" depend on the spatial form in which the representation appears and have to do only with the will's objectification, not with the Will itself. The inner life of each thing is "present whole and undivided" within it.[47] However, it is

appropriate to say that the Will is objectified to a higher degree in the human being than in the stone. The Platonic Ideas are the immediate objectivity of the Will at particular grades, or degrees.

The Platonic Ideas are for Schopenhauer, as for Plato, the unchanging eternal patterns, or Forms, in which the innumerable, transient particulars of the phenomenal world participate. Every particular Idea, in Schopenhauer's usage, is a definite "grade of the will's objectification…related to individual things as their eternal forms, or as their prototypes."[48] These are, according to Schopenhauer, intuitively graspable by perception, not mediated by the abstractions of reason.

The "location" of the Platonic Ideas in relation to the noumenal and phenomenal worlds (i.e. the world as Will and the world as representation) is a bit confusing. The Platonic Ideas are outside time and space, and hence not in the world as representation. On the other hand, they are multiple, while the Will is not. Perhaps the best way to understand the Ideas' "bridging" of the world as Will and the world as representation is to envision the Ideas as windows through which the Will has access to the world as representation. Of course, the world as representation is entirely a manifestation of the Will, according to Schopenhauer. Thus, the window image is misleading, in that it makes the world as Will and the world as representation seem more distinct than they are in Schopenhauer's scheme.

Although the Platonic Ideas and the thing-in-itself are not identical, Schopenhauer considers them "very closely related," being two "paths leading to one goal."[49] He concludes that the most paradoxical concepts in the thought of Plato and Kant—the Forms and the thing-in-itself—are thus reflections of essentially the same insight:

> the inner meaning of both doctrines is wholly the same; that both declare the visible world to be a phenomenon which in itself is void and empty, and which has meaning and borrowed reality only through the thing that expresses itself in it (the thing-in-itself in the one case, the Idea in the other).[50]

The unity of the Platonic Idea in all its phenomena is, according to Schopenhauer, what is meant by "a law of nature." Laws of nature relate the Idea to the forms of representation. Because both the Idea and the conditions of its representability are constant, a law of nature holds for all the phenomena it governs, without exception. What acts in any such case is an inexplicable natural force. The "cause" involved determines only when and where a particular natural force has the occasion to exhibit itself in a particular piece of matter.

The Platonic Ideas, according to Schopenhauer, comprise a hierarchy of

discrete levels. The "lowest" grades of the Will's objedification are the universal forces of nature. Among these are gravity and impenetrability, which govern all matter. Schopenhauer also includes "rigidity, fluidity, elasticity, electricity, magnetism, chemical properties, and qualities of every kind," forces that govern some pieces of matter but not others.[51]

Individuality is a function of the hierarchy of the Platonic Ideas, such that the higher grades of the Will's objectification exhibit more individuality than the lower ones. Accordingly, higher animals have more individuality than lower ones. In the lower animals, one sees no trace of individuality, but only the general character and physiognomy of the species. Plants have little individual character, according to Schopenhauer, while inorganic objects have virtually none.

Human beings have more individuality than anything else in nature. Individuality is so extreme in human beings that every person can "to a certain extent" be described in terms of a particular idea. Schopenhauer identifies this "Idea" of the individual as the individual's intelligible character, the result of a unique act of the Will outside time. Nonetheless, Schopenhauer insists that human beings manifest a common form of humanity. Perhaps the best way of integrating these two claims is to see the "special" Ideas of each individual human to be facets of the more encompassing Idea of humanity. Indeed, Schopenhauer indicates that individuality in general amounts to partial expression of "the whole of the Idea."[52]

Because the same Will manifests itself in all Ideas, all phenomena manifesting the Ideas have an inner relationship with one another. One consequence is that the forms of the various plants and animals all bear a kind of analogy with one another. A family likeness prevails even between the Ideas of inorganic phenomena. Schopenhauer points to the analogies that can be observed between electricity and magnetism, and between chemical attraction and gravitation.

The levels of the Will's manifestation are also mutually dependent upon one another. The Ideas form a pyramid, with the Idea of humanity as its culmination. The manifestations of the higher Ideas, accordingly, presuppose the manifestations of the lower in external nature. Hence, the human being depends on animals; animals depend on other animals and plants; the plants need soil, water, sun, etc.; and all of nature depends on the inert mass of the planet. Every phenomenon adapts itself to its environment, while its environment similarly adapts itself to each phenomenon. This interdependence of all phenomena in nature reflects the fact that "the will must live in itself, since nothing exists besides it, and it is a hungry will."[53]

Despite such analogies, however, Schopenhauer insists that the Ideas should not be conflated with one another. Indeed, phenomena of different

Ideas can be seen as essentially at war with one another. Throughout the organic world, one organism eats or somehow assimilates another: "every animal can maintain its own existence only by the incessant elimination of another's."[54] The struggle among the various kinds of phenomenon assimilated in the organic body exemplifies a more basic struggle, that inherent to the nature of the Will. The Will, as Schopenhauer conceives it, is fundamentally at "variance with itself."[55] Even matter exists by virtue of a struggle among forces of attraction and repulsion, manifested as gravitation and impenetrability. Although the unity and oneness of the Will are manifest in the mutual adaptation of all natural phenomena, the harmony goes only so far as is necessary for "the continuance of the world,"[56] which requires only the continuance of species, not that of particular individuals.

The essential struggle among all phenomena corresponds to the fact that the Will operating within them is blind. Even in beings that have knowledge, knowledge is originally and fundamentally an expedient of the will. Only rarely, in aesthetic experience and ethical insight, does human knowledge do anything but assist the fulfillment of the will's demands. Thus, humans, too, with rare exceptions, struggle endlessly with other phenomena.

Although the Will struggles continually, we are not in a position to say why the Will wills. Even to ask the question is to confuse the Will with the phenomenon, for it amounts to asking what causes the Will's willing. Nothing can cause the Will's willing, for the Will is not determined by causality, which is only a form of the Will's objectification in the world as representation. As thing-in-itself, the Will is groundless. Schopenhauer concludes that the Will is aimless, and that aimless, endless striving is also characteristic of its manifestations.

AESTHETIC EXPERIENCE

Aesthetic experience provides, for most individuals, the sole respite from "the penal servitude of willing."[57] According to Schopenhauer, aesthetic experience involves direct knowledge of the Platonic Ideas. Because these Ideas are not subject to the principle of sufficient reason, they are not objects of knowledge in the phenomenal world. The individual is manifest as an individual only within the phenomenal world, however. Schopenhauer concludes that the Ideas can only become objects of knowledge "by abolishing individuality in the knowing subject."[58] This is what aesthetic experience accomplishes.

Schopenhauer describes aesthetic experience by means of a contrast

with everyday experience. In everyday experience, the individual experiences his or her body as existing in a world of other objects that stand in various relations to it, and by means of it, to the individual's will. The other objects of the phenomenal world are conceived by the individual as either potential means or potential obstacles to the fulfillment of the will's desires. These objects are known, in fact, only in terms of their relations to other manifestations of the will—for accounts in terms of the principle of sufficient reason are essentially relational accounts.

Aesthetic experience alters the individual's perception of objects and the individual's awareness of self. The individual ceases to be "merely individual" and becomes "a pure will-less subject of knowledge."[59] In aesthetic experience, the subject is no longer concerned with relations between his or her body and other objects, but instead restfully contemplates the object alone, outside of all relations. This contemplation is not mediated by abstract concepts; instead, one devotes one's mind entirely to perception of what is present. The distinction of subject and object drops away in this state of absorption; one does not differentiate the perceiver from the perception. In aesthetic experience, we are appropriately said to "lose ourselves."[60]

The "knowledge" involved in aesthetic experience does not involve knowledge of an object's relations. What is known, instead, is the Idea of the object. The object is rendered universal in this experience, for it becomes, for the perceiver, the eternal form of the will's objectivity at its grade. The subject, at the same time, also becomes universal as the "*pure* will-less, painless, timeless subject of knowledge."[61] Both subject and object have passed beyond the forms of the principle of sufficient reason. The timeless Idea that is the object's prototype becomes present to the observer as a timeless intellect, no longer engaged in projects of the will.

In arguing that aesthetic experience undermines desire, Schopenhauer accepts Kant's claim that aesthetic experience is essentially disinterested. Nietzsche indicates the controversial nature of this claim in his caricature of Schopenhauer's aesthetics:

> Schopenhauer speaks of *beauty* with a melancholy fervor.... Beauty is for him a momentary redemption from the "will"—a lure to eternal redemption. Particularly, he praises beauty as the redeemer from "the focal point of the will," from sexuality—in beauty he sees the negation of the drive toward procreation. Queer saint! Somebody seems to be contradicting you; I fear it is nature.[62]

Nietzsche rejects Kant and Schopenhauer's characterization of beauty as

inspiring contemplation that is "disinterested," arguing that nothing is of greater interest to human beings.

Although Schopenhauer follows Kant in his analysis of aesthetic disinterestedness, he breaks from Kant in his analysis of the difference between **the beautiful** and **the sublime**. According to Kant, appreciation of the beautiful and appreciation of the sublime involve different mental operations and even different faculties. Schopenhauer, by contrast, insists that the beautiful and the sublime differ rather slightly. Both aim, in his view, at contemplation of the Idea within phenomena.

The difference between the beautiful and the sublime lies only in the contemplated object's usual relationship to the will. In the case of the beautiful, the object contemplated seems almost designed for willless contemplation; its form is so well suited to the human senses that it invites tranquil observation. In the case of the sublime, however, the contemplated object has, by its very nature, a hostile relationship to the observer's will, and the observer is consequently aware of some inner aversion to it. One can achieve aesthetic contemplation of the sublime, therefore, only by means of forcibly subduing the will's aversion. In the case of the beautiful, on the other hand, the object itself soothes the will, and no effort is required to silence it.

Schopenhauer concludes that the beautiful and the sublime are two ends of the same continuum. Besides paradigm cases of each, certain cases fall in between. These Schopenhauer considers relatively sublime. For example, even the aesthetic appreciation of radiant sunlight on a snowy landscape is somewhat sublime; one must forcibly resist dwelling upon the inhospitable temperature of the snow in order to enjoy the visual spectacle.

Like experience of the beautiful and of the sublime, in Schopenhauer's analysis, aesthetic experiences of nature and art are essentially kindred. **Art** is "the work of **genius**."[63] Genius is a pre-eminent talent for engaging in aesthetic contemplation. The genius is able to "grasp the Idea of each thing, not its relation to other things."[64] Because this process involves forgetting one's own personal concerns, Schopenhauer describes genius as "the most complete objectivity, i.e. the objective tendency of the mind."[65]

The genius's talent is possessed in some measure by all human beings. According to Schopenhauer, this is why the average individual is able to enjoy art. In art the genius communicates his or her own recognition of Ideas. Aesthetic pleasure is always a matter of grasping the Idea, whether the phenomenon contemplated is a natural object or an artwork. For most individuals, however, "the Idea comes…more easily from the work of art." This is because "the artist, who knew only the Idea and not reality, clearly repeated in his work only the Idea, separated it out from reality, and omitted all disturbing contingencies."[66]

Through this analysis of the artwork, Schopenhauer suggests criteria for evaluating art. Good art is produced when the artist works from direct perception of the Idea, not from conceptual recipes. The success of an artwork also depends on the artist's technical skill at communicating this direct perception to the audience.

Like many aestheticians of his own and the previous century, Schopenhauer hierarchically classifies the types of an. His criterion for classification is the significance of the Platonic Ideas that are focal within a given medium. Thus, the arts that invite contemplation of the lower Ideas are ranked lower than those that invite contemplation of the higher Ideas.

Architecture is assigned the lowest place in Schopenhauer's hierarchy, because it brings "to clearer perceptiveness some of those Ideas that are the lowest grades of the will's objectivity." Among these, he includes "gravity, cohesion, rigidity, hardness," and also "light, which is in many respects their opposite."[67] Architecture reveals the way in which these basic forces oppose one another. Thus, rigidity opposes gravity in certain constructions. Schopenhauer classifies "artistic arrangements of water" on the same level as architecture, for fountains bring into prominence the Ideas of fluidity and gravity, again Ideas at the lowest grades of the Will's objectivity.

Landscape gardening and landscape painting comprise the level above architecture and fountain art in Schopenhauer's scheme, for these reveal the Ideas of the vegetative world. The next level includes animal painting and animal sculpture, which reveal the Ideas of animal life. Historical painting and sculpture reveal the Idea of the human being, and hence these occupy a still higher level. But a fuller revelation of the Idea of the human being occurs in poetry, where the principal object is the human being "in so far as he expresses himself not through the mere form and expression of his features and countenance, but through a chain of actions and of the accompanying thought and emotions."[68]

Schopenhauer believes that the most profound insight into humanity involves awareness that the same Will wars against itself in the conflicts among human beings. Presumably, this is why he classifies tragedy as "the summit of poetic art." Tragedy aims at "the description of the terrible side of life," and it reveals the profound insight "that what the hero atones for is not his own particular sins, but original sin, in other words, the guilt of existence itself."[69] Optimally, tragedy can bring home to its audience the true character of our interactions with one another. In the best type of tragedy,

> characters as they usually are in a moral regard in circumstances that frequently occur, are so situated with regard to one another that their position forces them, knowingly and with their eyes open, to do one

> another the greatest injury, without any one of them being entirely in the wrong.[70]

Thus far, no mention has been made of music. Schopenhauer sees music as being entirely unlike the other arts. All other arts aim to facilitate perception of the Ideas, on his account; but music copies the Will directly. As a consequence, "the effect of music is so very much more powerful and penetrating than is that of the other arts."[71] Not at all concerned to represent specific phenomena, as do the visual arts, music transcends particularity even in emotional expression:

> Therefore music does not express this or that particular and definite pleasure, this or that affliction, pain, sorrow, horror, gaiety, merriment, or peace of mind, but joy, pain, sorrow, horror, gaiety, merriment, peace of mind *themselves,* to a certain extent in the abstract, their essential nature, without any accessories, and so also without the motives for them.[72]

Because the world as representation itself, taken as a whole, is an objectification of the Will, music and the world have a parallel relationship to the Will. Thus, Schopenhauer concludes that a complete philosophy of music would "also be at once a sufficient repetition and explanation of the world in concepts, or one wholly corresponding thereto, and hence, the true philosophy."[73]

Schopenhauer elaborates on this suggestion by indicating points of analogy between features of music and characteristics of the world. These depend, to a certain extent, on the structure of the music with which Schopenhauer was contingently familiar. Thus, he compares the relatively hierarchical relationships among voices common in Western music of the eighteenth and nineteenth centuries to the hierarchical relationships among Ideas. The low voices, like the lowest Ideas, provide the ground on which all the others depend. Schopenhauer compares the melody to "the intellectual life and endeavor of man," for unlike the inner voices in his analogy (which he compares to animal and vegetable life), "*melody* alone has significant and intentional connexion from beginning to end."[74]

Despite Schopenhauer's analysis of music as a copy of the Will, he believes that music, like the other arts, affords escape from everyday awareness, which is constantly driven by will. This is because music expresses the nature of willing in universal form, without concern for particular phenomena. In this respect, the insight that music affords resembles that which Schopenhauer sees essential to ethics, the insight that the phenomenal world, with its apparently separate objects and individuals, is an illusion that veils the transcendent nature of the world.

LIFE IS SUFFERING

Because all individuals, and indeed all living phenomena, are objectifications of the Will, their essential tendency is to will. Striving continually, living beings gain one objective only to strive anew for another. Dissatisfaction of one sort or another characterizes life from beginning to end. The life of all humans and animals "swings like a pendulum to and fro between pain and boredom, and these two are in fact its ultimate constituents."[75]

Analyzing all striving as essentially "need, lack, and hence pain," Schopenhauer concludes that life is essentially suffering:

> The life of the great majority is only a constant struggle for this same existence, with the certainty of ultimately losing it. What enables them to endure this wearisome battle is not so much the love of life as the fear of death.[76]

Schopenhauer contends that fear of death is irrational. Only the human being as phenomenon is transient; as thing-in-itself the human being is eternal. Nevertheless, this is rarely consoling to the individual, who most often takes individual existence (understood through the forms of the world as representation) extremely seriously. Thus, the life of the individual human being is for the most part perverse and pointless:

> The life of every individual, viewed as a whole and in general, and when only its most significant features are emphasized, is really a tragedy; but gone through in detail it has the character of a comedy. For the doings and worries of the day, the restless mockeries of the moment, the desires and fears of the week, the mishaps of every hour, are all brought about by chance that is always bent on some mischievous trick; they are nothing but scenes from a comedy. The never-fulfilled wishes, the frustrated mistakes of the whole life, with increasing suffering and death at the end, always give us a tragedy. Thus, as if fate wished to add mockery to the misery of our existence, our life must contain all the woes of tragedy, and yet we cannot even assert the dignity of tragic characters, but, in the broad detail of life, are inevitably the foolish characters of a comedy.[77]

Sexuality, which most pointedly displays the Will in human beings, exemplifies this connection between desire and suffering. The Will deludes the individual into imagining that gaining the beloved will result in happiness. In fact, however, the Will is only concerned with the

preservation of the species, not with the happiness of the individual. Thus, while human sexual desire is extremely individualized, it is motivated only by the Will's concern that the species propagate a new generation of healthy children with relatively standard traits.[78] Schopenhauer concludes that the embarrassment surrounding sexuality stems from guilt at renewing the world's suffering by contributing to a new generation.

> If…we…contemplate the bustle and turmoil of life, we see everyone concerned with its cares and troubles, exerting all his strength to satisfy infinite needs and to ward off suffering in many forms, yet without daring to hope for anything else in place of it except just the preservation of this tormented existence for a short span of time. In between, however, we see in the midst of the tumult the glances of two lovers meet longingly; yet why so secretly, nervously, and furtively? Because these lovers are the traitors who secretly strive to perpetuate the whole trouble and toil that would otherwise rapidly come to an end. Such an end they try to frustrate, as others like them have frustrated it previously.[79]

SALVATION AND MORAL GOODNESS

The affirmation of the Will-to-live, which is fundamental to all living beings, necessarily results in a life of suffering. The only salvation from suffering, according to Schopenhauer, is the denial of the Will-to-live. This is possible only for human beings, for human beings alone are capable of inner knowledge into the reality behind phenomenon. In rare individuals this knowledge becomes so completely absorbed that particular phenomena come to seem merely illusory. In such a case, these phenomena no longer provide motives for the will. When this happens, the will is quieted, "and thus the will freely abolishes itself."[80] The suffering Will itself, in such an individual, attains peace. The saintly individual, therefore, fulfills the ultimate aim of the Will (the cessation of struggle), but precisely by denying the will within.

Although Schopenhauer's formulations of such ascetic salvation sound negative, the insight motivating the holy life is essentially the same insight that motivates all virtuous behavior. The basic knowledge fundamental to both is the knowledge that the Will driving all phenomena is essentially one.

When one perceives this truth, one is no longer motivated to do **wrong,** which Schopenhauer describes as being the denial of the will in another

individual. Egoism, the source of all wrongdoing, arises from the delusion that one's individual, phenomenal existence is tremendously important. Perception of the truth—that the same will is manifest in all beings—dispells this delusion.

Such perception, however, admits of degrees. Even the **bad** person, who is so little in control of the will within that he or she chooses to violate the will in other individuals, has a pained awareness that such action is wrong. This is because every individual dimly grasps that such action violates one's own true being. The person who recognizes the Will's oneness to a somewhat greater degree is **just**. Such a person refrains from affirming his or her own will at the expense of any other individual's right to a similar affirmation.

Moral goodness, in Schopenhauer's analysis, stems directly from knowledge and its quieting effect on the will. Schopenhauer denies that universal moral principles have any value, for virtue is achieved individually by means of insight. One might wonder how beings without free will can achieve moral transformation by means of insight. Schopenhauer's answer is that while motive and character together determine action, change of knowledge produces a change of motive, which in turn affects the action that results. All **repentance** arises from a change of knowledge, not from a change of will. When one recognizes that one has used an inappropriate means for obtaining one's object, for instance, this knowledge results in a change of behavior. In the case of radical transformation toward virtue, Schopenhauer would argue that one has recognized that no action directed against another's will could possibly enhance one's life. Hence, any such action is no longer seen as a viable means to achieve one's ends, so one comes to avoid such actions.

The **good** person goes further than the just person and is moved to **compassion** for all sentient beings by the recognition that they are all phenomena of the same will. A truly noble person "makes less distinction than is usually made between himself and others," and thus displays concern for others of the same degree as that concern directed toward the self.[81] Such individuals have penetrated the *principium individuationis,* which creates the illusion of individual separateness.

The ultimate penetration of the *principium individuationis* is achieved by the saint. A saint has seen through the delusions of the phenomenal world and responded with so much compassion that he or she no longer wants to have any part in inflicting suffering. This self-abolition of the will is the course taken by mystics of all traditions, according to Schopenhauer. No longer motivated by phenomena, these holy individuals abandon the usual expressions of will in human life. Thus, they abstain from sex, adopt voluntary poverty, fast, and in general mortify the body, which is objectified affirmation of the Will. Their

entire existence is characterized by **renunciation of the will,** and their lives are models of **resignation**.

True salvation stems from this complete denial of the will.[82] At its extreme point, the result is the extinction of character, for no motive still stimulates willful action on the part of the saint. The saint's will evaporates. But in addition, with the evaporation of the will, the entire world as representation, with its inherent distinctions among objects and individuals, vanishes. What remains is "empty *nothingness*" which the Buddhists have labeled *nirvana*.[83]

This nothingness is not, however, absolute. Indeed, the saints and mystics of the ages have described their state as full and blissful. Schopenhauer observes that we conceive of their condition as nothing only because our world of suffering and struggle complete absorbs us:

> we have to banish the dark impression of that nothingness, which as the final goal hovers behind all virtue and holiness, and which we fear as children fear darkness.... On the contrary, we freely acknowledge that what remains after the complete abolition of the will is, for all who are still full of the will, assuredly nothing. But also conversely, to those in whom the will has turned and denied itself, this very real world of ours with all its suns and galaxies is—nothing.[84]

SCHOPENHAUER'S INTELLECTUAL LEGACY

Schopenhauer did not really expect his theory of resignation and denial of the will to inspire enthusiasts. Indeed, he prided himself on his renunciation of popularity with his contemporaries.[85] Nevertheless, Schopenhauer would presumably be gratified by the extent to which his ideas have assumed prominence.

Most strikingly, Schopenhauer's conviction that knowledge is subordinate to will—as well as his suggestive remarks on the unconscious—have taken root in contemporary psychological theory. In these respects, as well as in his focus on the body as a philosophical starting point, he reverses Cartesianism and influences much twentieth-century thought. Schopenhauer is also pioneering in developing a systematic philosophy that is completely disconcerned with theology. His pessimistic theories offer a critical response to German romanticism within its own century. Schopenhauer is also closer to the following century in

valuing and engaging in comparative studies of the philosophical traditions of the East and the West. Finally, although the ethical claims that he would endorse are relatively traditional, Schopenhauer's denial of the efficacy of moral maxims and universal principles precurses later radical critiques of morality in general.

Ironically, given his doctrine of renunciation of the will, Schopenhauer's writings reveal an insatiable zest for life. Impatient with virtually all of his contemporaries, Schopenhauer seems nevertheless to delight in description and to take pains to move others through his prose. Perhaps his clarity of insight into phenomena is Schopenhauer's greatest philosophical legacy. Schopenhauer lends us his own perceptions of the world. Fittingly, in one who elevates perception over reason, Schopenhauer's perceptions continue to provoke and inspire many who reject every detail of his philosophical system. Although his system is "ingeniously elaborated,"[86] his perceptions are brilliant.

NOTES

1 See Schopenhauer, *The World as Will and Representation,* 2 vols, trans. E.F.J.Payne, Vol. I (New York: Dover, 1969), hereafter referred to as *WWR,* I, pp. 96–7, 154.
2 See ibid., pp. 326f.
3 Ibid., pp. 280, 283–4, 324.
4 See ibid., p. 330.
5 Ibid., p. xii.
6 B.Russell, *A History of Western Philosophy* (New York: Simon & Schuster, 1945), P. 758.
7 The German word *"Wille,"* like all German nouns, is consistently capitalized. Payne, in his translations of Schopenhauer, consistently translates this term as "will," with the "w" in lower-case type. I shall adopt the convention of using "Will" to refer to Schopenhauer's metaphysical principle and "will" to refer to the individual will in my own discussion. In citations from Payne's translations, however, I shall follow his usage.
8 F.Nietzsche, *The Genealogy of Morals,* in *The Complete Works of Friedrich Nietzsche,* ed. O.Levy, Vol. 13, trans. H.B.Samuel (Edinburgh: T.N.Foulis, 1910), p. 132.
9 For a sympathetic discussion of the tensions within Schopenhauer's personality, see T.Mann, Introduction to *The Works of Schopenhauer,* ed. W.Durant (New York: Frederick Ungar, 1928), pp. xvii-xxi.
10 F.Nietzsche, *Schopenhauer as Educator,* trans. W.Arrowsmith, in *Unmodern Observations,* ed. W.Arrowsmith (New Haven: Yale University Press, 1990), p. 176.
11 See Schopenhauer, "On Women," in *Parerga and Paralipomena: Short Philosophical Essays,* 2 vols, trans. E.F.J.Payne, Vol. II (Oxford: Clarendon Press, 1974), hereafter referred to as *PP,* pp. 614–26. There, after insisting that

women have no talent for the arts, Schopenhauer compares contemporary "ladies" to "the sacred apes at Benares who, conscious of their sanctity and invulnerability, think that they are at liberty to do anything and everything" (p. 622). He also contends that unlike men, who feel rivalry only for other members of their profession, women feel hostility for all other women. The explanation he offers for this alleged phenomenon is that "with women" professional jealousy "embraces the whole sex since they all have only one line of business" (p. 619). Copleston observes that Schopenhauer's experience of women other than his mother was also "of a character hardly calculated to generate a real respect for and appreciation of the other sex." See F.Copleston SJ, *Arthur Schopenhauer: Philosopher of Pessimism,* Bellarmine Series, XI, ed. E.F.Sutcliffe SJ (London: Burns, Oates & Washbourne, 1947), pp. 39–40.

12 *WWR,* I, p. xxii.

13 This is reflected by his choosing to open his Appendix to *WWR,* I, entided "Criticism of the Kantian Philosophy," with Voltaire's comment: "It is the privilege of true genius, and especially of the genius who opens up a new path, to make great mistakes with impunity" (p. 413). This sentiment contrasts markedly with Schopenhauer's assessments of virtually every other philosopher in the Western tradition, with the exception of Plato. Consider, for example, his remarks on Aristotle in "Fragments for the History of Philosophy": "The fundamental characteristic of Aristotle might be said to be the greatest shrewdness and sagacity combined with circumspection, power of observation, versatility, and want of depth. His view of the world is shallow, although ingeniously elaborated." *PP,* I, p. 47.

14 P.Gardiner, *Schopenhauer* (Harmondsworth: Penguin, 1963), p. 21.

15 Julian Young has recently taken issue with the standard reading of Schopenhauer, which interprets the Will as the thing-in-itself. According to Young, the Will is another aspect of the thing-in-itself's appearance, but not the thing-in-itself. See J.Young, *Willing and Unwilling: A Study in the Philosophy of Arthur Schopenhauer* (Dordrecht: Nijhoff, 1987), pp. ix, 32ff.

16 *WWR,* I, p. 3.

17 Ibid., p. 6.

18 Ibid., p. 8.

19 Ibid., p. 8.

20 Kant also claims that perception involves imagination as well as understanding. Schopenhauer focuses exclusively on understanding when he considers the role of the intellect in perception.

21 See *WWR,* I, p. n. For an analysis of the many additional operations that Schopenhauer implicitly assigns to the understanding, as well as a comparison of Schopenhauer's analysis of perception with Kant's, see D.W.Hamlyn, *Schopenhauer,* Arguments of the Philosophers Series, ed. T.Honderich (London: Routledge & Kegan Paul, 1980), pp. 18–22.

22 *WWR,* I, p. 23.

23 Ibid., p. 45.

24 Ibid., p. 46.

25 Ibid., p. 13.

26 Schopenhauer does, as we shall see, believe that a thing-in-itself exists over and above representation. But the thing-in-itself, independent of the principle of sufficient reason, does not admit of duality. Hence, we cannot construe the

thing-in-itself to be the realm of "real" objects that are only represented in the phenomenal world.
27 *WWR,* I, pp. 29–30.
28 Ibid., p. 51.
29 See I. Kant, *Critique of Judgment,* trans. J.C.Meredith (Oxford: Clarendon Press, 1952), pp. 199–201.
30 *WWR,* I, p. 60.
31 See ibid., p. 65.
32 Ibid., p. 70.
33 Ibid., p. 80.
34 Ibid., p. 95.
35 Ibid., p. 98.
36 Ibid., p. 330.
37 Ibid., p. 100.
38 Ibid., p. 100.
39 Ibid., p. 101.
40 Schopenhauer also considers the validity of physiognomy to be a corollary to the principle that the body and the will are one. See *WWR,* I, p. 225, and Schopenhauer, *The World as Will and Representation,* trans. E.F.J.Payne, Vol. II (New York: Dover, 1958), hereafter referred to as *WWR,* II, pp. 421, 598–9. See also Schopenhauer, "On Physiognomy," *PP,* II, pp. 634–41.
41 *WWR,* I, p. no.
42 Ibid., p. 104.
43 Ibid., p. 126.
44 Ibid., p. 292.
45 Ibid., pp. 290–1.
46 Ibid., pp. 113–14.
47 Ibid., p. 129.
48 Ibid., p. 130.
49 Ibid., p. 170.
50 Ibid., p. 172.
51 Ibid., p. 130.
52 Ibid., p. 132.
53 Ibid., p. 154.
54 Ibid., p. 147.
55 Ibid., p. 147.
56 Ibid., p. 161.
57 Ibid., p. 196.
58 Ibid., p. 169.
59 Ibid., p. 178.
60 Ibid., p. 178.
61 Ibid., p. 179.
62 F. Nietzsche, *Twilight of the Idols,* in *The Portable Nietzsche,* trans. and ed. W.Kaufmann (New York: Viking, 1968), pp. 527–8.
63 *WWR,* I, p. 184.
64 Ibid., p. 188.
65 Ibid., p. 185.
66 Ibid., p. 195.
67 Ibid., p. 214.
68 Ibid., p. 244.

69 Ibid., pp. 252, 254.
70 Ibid., p. 254.
71 Ibid., p. 257.
72 Ibid., p. 261.
73 Ibid., p. 264.
74 Ibid., p. 259.
75 Ibid., p. 312.
76 Ibid., pp. 312–13.
77 Ibid., p. 322.
78 Schopenhauer elaborates a theory of sexual attraction based on the principle that opposites attract. Opposites attract, according to Schopenhauer, because the Will aims to produce children that correspond more or less to the Idea of humanity. Thus, it tries to prevent individuals who are too similar from mating, lest they reproduce offspring who are too extreme in certain characteristics. See "The Metaphysics of Sexual Love," *WWR,* II, pp. 531–60.
79 *WWR,* II, p. 560.
80 *WWR,* I, p. 285.
81 Ibid., p. 372.
82 Schopenhauer sharply distinguishes denial of the will from suicide. Suicide, in his view, is an extreme expression of affirmation of the will and no salvation at all. See *WWR,* I, pp. 366, 398–9. See also Schopenhauer, "On Suicide," *PP,* II, pp. 306–11.
83 Schopenhauer's assessments that life is suffering, and that only an end to desire would put an end to suffering, are directly taken from Buddhist thought. For some of Schopenhauer's remarks on Buddhism, see *WWR,* I, p. 356, and II, pp. 169, 463, 508, 607f.
84 *WWR,* I, pp. 411–12.
85 See ibid., p. xxi.
86 See *PP,* I, p. 47. See also n. 13 above.

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CHAPTER 11

Kierkegaard's speculative despair

Judith Butler

> Every movement of infinity is carried out through passion, and no reflection can produce a movement. This is the continual leap in existence that explains the movement, whereas mediation is a chimera, which in Hegel is supposed to explain everything and which is also the only thing he never has tried to explain.
>
> (Kierkegaard, *Fear and Trembling,* p. 42)

Kierkegaard's critique of Hegel concerns primarily the failure of a philosophy of reflection to take account of that which exceeds reflection itself: passion, existence, faith. The irony in Kierkegaard's challenge to Hegelianism is, however, minimally twofold. On the one hand, Kierkegaard will ask, where is it that Hegel, the existing individual, stands in relation to the systematic totality that Hegel elucidates? If Hegel the individual is outside the complete system, then there is an "outside" to that system, which is to say that the system is not as exhaustively descriptive and explanatory as it claims to be. Paradoxically, the very existence of Hegel, the existing philosopher, effectively—one might say *rhetorically*—undermines what appears to be the most important claim in that philosophy, the claim to provide a comprehensive account of knowledge and reality. On the other hand, Kierkegaard's counter to Hegel consists in the valorization of passion and existence over reflection and, finally, language. It is in relation to this criticism that a different sort of irony emerges, one which Kierkegaard appears not to know, but which attends his various claims to be writing on behalf of that which is beyond

speculation, reflection, and language. If Kierkegaard is right that Hegel omits the existing individual from his system, that does not mean that Kierkegaard maintains an unsystematic or nonspeculative view of the existing individual. Although Kierkegaard sometimes uses the speculative terminology of Hegelianism, he appears to parody that discourse in order to reveal its constitutive contradictions. And yet, in Kierkegaard's descriptions of despair in *Sickness unto Death* (1849), his use of Hegelian language works not only to displace the authority of Hegel, but also to make use of Hegelianism for an anlaysis that both extends and exceeds the properly Hegelian purview. In this sense, Kierkegaard *opposes* himself to Hegel, but this is a vital opposition, a determining opposition, one might almost say 'an Hegelian opposition,' even if it is one that Hegel himself could not have fully anticipated. If Hegel's individual is implicated in the very existence that he seeks to overcome through rationality, Kierkegaard constructs his notion of the individual at the very limits of the speculative discourse that he seeks to oppose. This appears to be one ironic way, then, that Kierkegaard's own philosophical exercise is implicated in the tradition of German Idealism.

DESPAIR AND THE FAILURE TO ACHIEVE IDENTITY

In the following, I will try to make clear why *despair* is a category or, in Kierkegaard's terms, a sickness and a passion, whose analysis is crucial to both the extension and critique of Hegel in Kierkegaard's work. Insofar as despair characterizes the failure of a self fully to know or to become itself, a failure to become self-identical, an interrupted relation, then despair is precisely that which thwarts the possibility of a fully mediated subject in Hegel's sense. That subject is documented in Hegel's *Phenomenology of Spirit* as an emerging set of syntheses, the subject as one who mediates and, hence, overcomes that which initially appears as *different from itself*. The success of this mediating activity confirms the capacity of the subject to achieve self-identity, that is, to know itself, to become at home in otherness, to discover that in a less than obvious and simple way it *is* that which it incessantly encounters as outside of itself.

Hegel narrates in *The Phenomenology of Spirit* the various ways in which this mediating relation can fail, but insofar as Hegel claims that subject is substance, he defends the ideal possibility of articulating the *successful mediation* of each and every subject with its countervailing world. The various failures to mediate that relation effectively are only and always instructive; they furnish knowledge that leads to more effective

proposals for how to mediate that apparent difference. Each time the subject in *The Phenomenology of Spirit* claims to discover the condition by which the mediating relation works, it fails to take into account some crucial dimension of itself or of the world which it seeks to bind together in a synthetic unity. That which it fails to comprehend returns to haunt and undermine the mediating relation it has just articulated. But that which remained outside the relation is always recuperated by the subject's synthesizing project: there is no final or constitutive failure to mediate. Every failure delineates a new and more synthetic task for the emerging subject of reflection. In a sense, Kierkegaard enters Hegel's system at the end of the *Phenomenology:* if Hegel thought that the subject of the *Phenomenology* had taken account of everything along the way which turned out to be outside the terms to be mediated, understanding *what* needed to be synthesized as well as how that synthesis could take place, then the last laugh is on Hegel's subject. In its mania for synthesis, the subject has forgotten to include that which can never be systematized, that which thwarts and resists reflection, namely, its very existence and its constitutive and mutually exclusive passions: faith and despair.

In Kierkegaard's view, despair is precisely that passion that can never be 'synthesized' by the Hegelian subject.[1] In fact, despair is defined by Kierkegaard as "a misrelation" (*SUD,* 14),[2] one which confirms the failure of any final mediation and, therefore, signals the decisive limit to the comprehensive claims of the philosophy of reflection. Despair not only disrupts that subject's efforts to become at home with itself in the world, but it confirms the fundamental impossibility of ever achieving the self's sense of belonging to its world. The Hegelian project is not only thwarted by despair, but it is *articulated in despair* (*"the category of totality inheres in and belongs to the despairing person": SUD,* 60). As we shall see, one form of despair is marked by the effort to become the ground or origin of one's own existence and the synthetic relation to alterity. A kind of arrogance or hubris, this conceit of the Hegelian project suffers a humiliation at Kierkegaard's hands. To posture as a radically self-generated being, to be the author of one's will and knowledge, is to deny that one is constituted in and by that which is infinitely larger than the human individual. Kierkegaard will call this larger-than-human source of all things human "God" or "the infinite." To deny that one is constituted in that which is larger than oneself is, for Kierkegaard, to be in a kind of despair. Toward the end of this essay, we will consider just how crucial this form of despair is for Kierkegaard's own authorship. Indeed, it may turn out that the despair that Kierkegaard diagnoses in *Sickness unto Death,* and which, in part, he attributes to Hegel, conditions essentially the very writing whose object it is to denounce and overcome despair.

So despair is a "misrelation," a failure to mediate, but what are the

terms to be mediated? And if Hegel fails to understand (his own) despair in the system he articulates, is it also true that Kierkegaard fails to understand the speculative conceptualization that inheres in the very notion of despair by which he counters speculation?

The opening page of *Sickness unto Death* appears to be a properly Hegelian exegesis populated with familiar terminology: 'self,' 'spirit,' 'mediation,' 'relation.' And yet, as the first paragraph proceeds it becomes clear that Kierkegaard is parodying Hegel's language; significantly, however, this is a parody that does not entail a thorough rejection of Hegel. On the contrary, through parodying Hegel, Kierkegaard both recirculates or preserves some aspects of Hegel's system and jettisons some others. Parody functions like the Hegelian operation of *Aufhebungy* set into motion this time, ironically, by Kierkegaard to preserve, cancel, and also transcend the Hegelian corpus itself. The crucial dimension of *synthesis* is, of course, absent from this Kierkegaardian redeployment of Hegel. Parody functions for Kierkegaard as an *Aufhebung* that leads not to synthesis between his position and Hegel's, but to a decisive break. Kierkegaard does not lay out his arguments against Hegel in propositional form. He re-enacts those arguments through the rhetorical construction of his text. If the issues he has with Hegel could be *rationally* decided, then Hegel would have won from the start. Kierkegaard's texts counter Hegel most effectively at the level of style, for part of what he wants to communicate is the limits of language to comprehend that which constitutes the individual. Let us, then, consider the way in which this argument is performed through the parodie reiteration of Hegel at the outset of *Sickness unto Death*.

Kierkegaard begins Part One of this text with a set of assertions and counter-assertions, splitting his own philosophical voice into dialogic interlocutors, miming the dialectical style which dates back to Socrates: "A human being is spirit. But what is spirit? Spirit is the self. But what is the self?" (*SUD,* 13). Then comes a ponderous sentence which one might expect to encounter at the hilarious limits of rationality in a Woody Allen film: "The self is a relation that relates itself to itself or is the relation's relating itself to itself in the relation; the self is not the relation but is the relation's relating itself to itself." The first part of the sentence is a disjunction, but it is unclear whether the disjunctive "or" operates to separate alternative definitions or whether it implies that the definitions that it separates are essentially equivalent to one another. Prior to the semicolon, there appear to be two definitions: one, the self is a reflexive relation (the self is that which takes itself as its own object), and two, the self is *the activity* of its own reflexivity (it is that process of taking itself as its object, incessantly self-referential). If this is an Hegelian exposition, then one expects that this self will achieve harmony with itself, but here it

seems that the more the possibility of a synthesis is elaborated, the less likely that synthesis appears.

In the above quotation, then, we might ask: can the self both be the relation and the activity of *relating*? Can the differently tensed definitions be reconciled? Is the first a static conception, and the second, a dynamic and temporalized one which is incompatible with the second? Or will we learn, Hegelian style, that the static notion is *aufgehoben* in the second, that the temporalized version of the reflexive self presupposes, transforms, and transcends the static one? After the semicolon, the sentence appears to contradict the definition of the self as static relation and to affirm the temporalized version of the self, thereby undermining the possibility of an emerging synthesis between the two versions: "the self is not the relation but is the relation's relating itself to the self." The original ambiguity over whether the "or" functions to set up a mutually exclusive set of alternatives or a set of appositional and equivalent definitions appears temporarily to be resolved into the first alternative.

The development of the sentence echoes the narrative logic of Hegel's *Phenomenology,* but in that text it is more often the case that mutually exclusive alternatives are *first* laid out only then to be synthesized as part of a larger unity. Already in Kierkegaard's style of exposition, we see how the expectation of an Hegelian logic is both produced and undermined. Indeed, as the paragraph proceeds, that failure to conform to Hegelian logic turns into a full-blown illogic, a kind of high philosophical comedy. The rest of the paragraph reads as follows:

> A human being is a synthesis of the infinite and the finite, of the temporal and the eternal, of freedom and necessity, in short, a synthesis. A synthesis is a relation between two. Considered in this way, a human being is still not a self.

Here the development of what appears to be an argument takes several illogical turns and seems by the propelling force of rationality to be spiraling into irrationality. By the end of the first sentence, we have concluded (a) that the self is temporalized, (b) that it is the *activity* of relating, and (c) that it is *not* a static relation. The possibility of a synthesis is therefore negated. This next sentence, however, poses as a logical consequence, but only to make a mockery of logical transition. Here we have the sudden and unwarranted shift from a discussion of the "self" to that of the "human being," and the announcement that the human being is a synthesis. Moreover, the terms of which that synthesis is composed are in no way implied by the static/temporal opposition that preoccupied the preceding sentence. Instead, we find wild generalizations asserted at once in the mode of a conclusion and a premise. As a conclusion that follows

from the earlier sentence, this second sentence makes no sense. As a premise, it is equally absurd: the synthesis is asserted and described, and then the appearance of a conclusion emerges, "in short, a synthesis," which can be read only as a flagrant and laughable redundancy.[3] A didactic sentence follows, which is itself nothing other than a repetition of the obvious: "a synthesis is a relation between two." And then a most curious sentence concludes the paragraph in which Kierkegaard appears to take distance from the Hegelian voice that he has both assumed and mocked. "Considered in this way," the sentence begins, suggesting that there might be another way, Kierkegaard's way, "a human being is still not a self." Here Kierkegaard offers a distinction to suggest that what is called "the human being" is not the same as the self. But interestingly, we are also recalled to the problem of the temporality and tense of the self. What is described as the human being is "still not a self," not yet a self, a self that has not yet been articulated, or, rather, cannot be articulated within the language of synthesis.

Kierkegaard proceeds to take issue with this self which seems never to coincide with itself. He remarks that any synthesis requires a third term. The second and third paragraphs proceed in a note of tentative seriousness, making use of an Hegelian schematic precisely in order to show the way beyond it. The second paragraph begins: "In the relation between two, the relation is the third as a negative unity, and the two relate to the relation and in the relation to the relation." The examples of the terms to be related are the "psychical and the physical" in this textual instance. Kierkegaard argues that if the self is a synthesis of psychical and physical dimensions, and if it is *also* the activity of relating its psychical aspect to its physical aspect, then that very act of relating will have to be composed of one of those aspects. Here he assumes that the activity of "relating," a term that seems to have been kept purposefully abstract in the previous discussion, calls now to be specified as a psychical activity. This more specifie determination of that relating activity will become even more significant as Kierkegaard's text proceeds to distinguish between *reflection,* the Hegelian way of understanding that constitutive relation, and *faith,* Kierkegaard's preferred way. As this semi-Hegelian exposition proceeds, Kierkegaard will show what is concretely at stake for the existing individual in this abstract logic.

Kierkegaard begins here to confound the distinction between the self as a static relation and the self as a temporal or active one. The two dimensions of the self to be related must already in some sense *be* the very relation, which is to say that psychical and the physical, as parts of the relation, are defmitionally related, that is, presupposed as related, and are constantly in the activity of becoming relating. These two dimensions of that relation cannot be captured by a logic of noncontradiction. The

reflexivity of this relation is what marks the relation as a self. For it is the distinguishing feature of a self to endeavor to become itself, constantly and paradoxically to be in the process of becoming what it already is. For one can always refuse to 'relate' to oneself, to endeavor to become a self, but even then that very refusal will still be a way of relating to the self. To deny that one has a self, to refuse to become one: these are not only modes of reflexivity, but specifie forms of despair.

This paradoxical view of the self, as that which incessantly becomes that which it already is, coincides partially with Hegel's view of the subject. Hegel argues that the subject of the *Phenomenology* will develop and become increasingly synthetic, including all that it discovers outside itself in and as the world. And this subject, which successively appears to be identified as life, consciousness, self-consciousness, Spirit, Reason, and Absolute Knowledge, discovers finally that *implicitly* it has always been what it has become. The *becoming* of the Hegelian subject is the process of articulating or rendering explicit the implicit relations which constitute that subject. In this sense, the Hegelian subject is successively discovering what it has always already been, but has not known that it has been. The development of constitution of the Hegelian subject is the process of coming to know what it is that that subject already is.

For Kierkegaard, however, this view of the subject is only partially true. For Hegel, the subject is every aspect of this relation: the subject is itself, the activity of relating, and that to which it relates (since the world, or Substance, turns out to be synthetically unified with the subject). It is precisely this circle of immanence, however, that Kierkegaard tries to break; he performs this break, however, by working Hegel's own logic to its own breaking point. A new paragraph following the above exposition graphically enacts the break with the Hegelian argument. Kierkegaard states an either/or question that cannot be asked within the Hegelian framework: "Such a relation that relates itself to itself, a self, must either have established itself or have been established by another." Here Kierkegaard raises the question of the genesis of this relation. It is not enough to know what the relation constitutes, nor to know that in some way it constitutes itself. The question remains: What has constituted this relation as a self-constituting relation? What put this circular relation into motion? Kierkegaard infers that there must be a relation that is temporally prior to the self-constituting self, that this prior relation must be reflexive and constituting as well, and that the self must be one constituted product of that prior relation. This prior relation appears to be God, although Kierkegaard almost never supplies a definition of God.

PASSIONATE SELVES AND THE AFFIRMATION OF FAITH

In *Concluding Unscientific Postscript* (1846), Kierkegaard makes clear that he is not interested in proving rationally that God exists, but only in the question of how to achieve faith as it arises for the existing individual: how do I become a Christian, what relation can I have to faith?[4]

If that which constitutes the self remains part of that self, then the self whose task it is to take itself as its own object will of necessity take that prior ground of its own existence as its object as well.[5] It is in this sense that for Kierkegaard the self which takes itself as its own object will of necessity take "another" as its object as well. In Hegel, this same formulation applies, but the "other" who constitutes the self will be the social other, the community of other subjects who collectively supply the common social and historical world from which the particular subject is derived. That move, however, is for Kierkegaard symptomatic of a refusal to see that which transcends the social and human world, namely, the transcendent or the infinite from which the social world in its concreteness is derived.

The task of the self, for Kierkegaard, is indissolubly twofold: self-constituting yet derived, the self is "a relation that relates itself to itself and in relating itself to itself relates itself to another" (*SUD,* 13–14). Insofar as "another" is infinite, and this prior infinity constitutes the self, the self partakes of infinity as well. But the self is also determined, embodied, and hence finite, which means that every particular self is both infinite and finite, and that it lives this paradox without resolution. Faith will be described by Kierkegaard as infinite inwardness, the unceasing and passionate affirmation of the infinite, and in this sense faith will be an occasion for infinity to emerge within the self: "that which unites all human life is passion, and faith is a passion" (*FT,* 67).[6] In yet another sense, that self, however capable of infinite faith, will never be equivalent to the infinity that is prior to the individual, which Kierkegaard calls "God," but which is sometimes figured in terms of infinite possibility.[7] However infinite in its passion and faith, the self is still *existing* and, hence, finite. Strictly speaking, the infinity prior to the self, the infinity from which the self emerges, does not *exist*. For unactualized and infinite possibility to exist, it would have to become actualized, which is to become finite and, hence, no longer to be definable as infinite possibility. This infinite possibility, this ground or God, cannot be known or affirmed as a finite object, but can only be affirmed by a passionate faith that emerges at the very limits of what is knowable.

This is an affirmation that cannot take place through rationality, language, or speculation; it emerges as a passion and a possibility only on the condition that reflection has failed. In Kierkegaard's *Philosophical Fragments* (1844), he refers to this crisis in speculative thought as "the passion of Reason" and "the passion in all thinking" (*PF,* 46).[8] Here passion carries the meaning of suffering and longing, and Kierkegaard appears to imply that passion is generated precisely at the moment in which thought fails to grasp its object. Because part of what is meant by comprehending an object is comprehending its origin, and because that origin or ground is the infinity of God, every act of knowing is haunted by the problem of faith and, hence, also by passion. Kierkegaard commentator Niels Thulstrup describes this passion as "something which reason cannot comprehend and which leads reason to founder in its passion, the passion which wills the collision, which strives to discover that which cannot be thought and cannot be comprehended in the categories of human thought."[9] In the face of the infinite, thought can only supply a finite concept or a word, but both of these are finitizing instruments which can only misconstrue and, indeed, *negate* that which they seek to affirm. This is, of course, also the problem with Hegel's reliance on the concept to grasp infinity.[10]

One might be tempted here to think that Kierkegaard proposes that the self overcome its finitude in order to affirm through passionate inwardness the infinity from which that self emerges. But that is, for Kierkegaard, an impossibility. And here is where he appears to take Hegel seriously, even as he finally disputes him: the self is inevitably both finitude and infinitude which the self lives, not as a synthesis, and not as the transcendence of the one over the other, but as a perpetual paradox. Inasmuch as the self is self-constituting, that is, has as its task the becoming of itself, it is finite: it is *this* self, and not some other. Inasmuch as the self is derived, a possibility actualized from an infinite source of possibility, and retains that infinity within itself as the passionate inwardness of faith, then that self is infinite. But to reconcile existence and faith, that is, to be an existing individual who, in its finitude, can sustain itself in infinite faith, that is the paradox of existence, one which can only be lived but never overcome. As Kierkegaard puts it with characteristic irony: "to be in existence is always a somewhat embarrassing situation" (*CUP,* 404).

Let us return then to the sentence from *Sickness unto Death* which suggests that the Hegelian subject, reconceived as a self (with the capacity for inwardness), and understood as derived from an infinite source, is both self-constituting and derived, "a relation that relates itself to itself and in relating itself to itself relates itself to another." This sentence, which appears logical and to some extent implicitly theological, leads to the introduction of despair as a psychological category:

> This is why there can be two forms of despair in the strict sense. If a human self had established itself, then there could be only one form: not to will to be oneself, to will to do away with oneself, but there could not be the form: in despair to will to be oneself.
>
> (*SUD,* 14)

Despair is the result of the effort to overcome or solve the paradox of human existence. If one seeks to be grounded in the infinite and to deny that one exists and is, therefore, finite, one falls into the despair of the infinite, willing not to be the particular self that one is. But if one denies the infinite and seeks to take full responsibility for one's own existence, viewing all of one's self as one's own radical creation, that is the despair of the finite.[11] It is this second form of despair, the despair of willing to be oneself, that is, to be the ground or sole source of one's own existence, that is more fundamental than the first. This second form constitutes a refusal to be grounded in that which is more infinite than the human self and so constitutes a defiance of God. The primary way in which human selves fall into despair is through the repudiation of their infinite origins. This despair is marked by a certain hubris or arrogance and, at its limit, becomes demonic, understood as a willful defiance of the divine. We will consider that demonic extreme of despair toward the end of our remarks when we consider Kierkegaard's ambivalent relationship to his own authorship.

What this means, of course, is that if one knows one is in despair and seeks *by one's own means* to extricate oneself from despair, one will only become more fully steeped in that despair. That self is still trying to refuse its groundedness in that which is greater than itself. Paradoxically, the self that refuses the infinite must enact that refusal *infinitely*, thereby recapitulating and reaffirming the infinite in a negative way in the very gesture of disbelief. If Hegel thought that the subject might be a synthesis of finite and infinite, he failed to consider that that subject, reconceived as a self with inwardness, can never mediate the absolutely qualitative difference between what is finite in that self and what is infinite. This failure of mediation is what underscores the paradoxical character of existence; the passionate and nonrational affirmation of that paradox, an affirmation that must be infinitely repeated, *is faith;* the effort preemptively to resolve this paradox is the feat of despair. In this sense, despair marks the limit of dialectical mediation or, rather, every effort at mediation will be read by Kierkegaard as symptomatic of despair. Every synthesis presumes and institutes a *repudiation* of that which cannot be comprehended by thought; infinity is precisely that which eludes conceptualization. That refused infinity returns, however, as the infinite movement of despair in the existing individual who seeks to resolve the

paradox of existence through thought. Through the invocation of despair, Kierkegaard marks out the limits of the Hegelian ideal of synthesis: "Despair is the misrelation in the relation of a synthesis that relates itself to itself" (*SUD,* 15).

The Hegelian ideal of becoming at one with oneself is achieved through one's social relations and through one's relation to everything that is outside the self. For Hegel, the subject discovers that other human beings and objects are part of its own identity, that in *relating* to others and to objects, the human subject enacts (or actualizes) some of its own most fundamental capacities. Hence, the subject achieves a certain oneness with itself through relating to that which is different from itself. This oneness, however, is not a possibility for the Kierkegaardian self. As much as that self might want to affirm itself as the ground or origin of its own relations with others, it is bound to fail. This self can take responsibility for its own capacities by denying that it is itself produced by that which is greater than itself. That is one kind of despair, the despair of willing to be oneself. On the other hand, if that self tries to relinquish all responsibility for itself by claiming that some greater and infinite reality, God, has produced everything about that self, then that self is in a different kind of despair, the despair of willing not to be oneself. There is no escape from this paradox. Hence, to be a self means either to be in one of these two forms of despair or to have faith. But in both despair and faith, this paradox is never resolved. In despair, one lives one side of the paradox and then another (one takes radical responsibility for oneself or not at all), but in faith, one affirms the paradox, taking responsibility for oneself at the same time affirming that one is not the origin of one's existence.

One might ask, is one always either in despair or faith? The answer for Kierkegaard is yes. For the most part, human beings live in despair, and they do not even know that they are in despair. In fact, this not knowing that one is in despair is a symptom of despair. The person who does not know that there is a task, a struggle to affirm oneself in this paradoxical way, makes some set of presumptions about the solidity of its own existence which remain unquestioned and, hence, outside the difficulty of faith. And there appears to be no way to faith except through despair. But faith for Kierkegaard does not provide a solution for the paradox of the self. Indeed, nothing provides such a solution. The self is an alternation, a constant pitching to and fro, a lived paradox, and faith does not halt or resolve that alternation into a harmonious or synthetic whole; on the contrary, faith is precisely the affirmation that *there can be no resolution.* And insofar as 'synthesis' represents the rational resolution of the paradox, and the paradox cannot be resolved, then it follows that faith emerges precisely at the moment at which

'synthesis' shows itself to be a false solution. This is, as it were, Kierkegaard's last laugh on Hegel. Whereas Hegel argues that the failure of any given synthesis points the way to a greater and more inclusive synthesis, Kierkegaard tries to show that synthesis itself, no matter how inclusive, cannot resolve the paradox of the self. Concretely, this difference between Hegel and Kierkegaard implies that the self will ultimately have a very different experience of and in the world. For Hegel, the subject will eventually find a unified and harmonious relation with what appears at first to be outside itself, so that it can, ideally, find itself at home in the world, 'of ' the world that it is 'in.' But for Kierkegaard, that which is 'outside' the finite self, namely, the infinite, is also 'within' the self as freedom and the dual possibility of despair and faith (all of which are 'infinite' passions, passions that can have no end); further, the infinite that persists as the ground of the finite self or within the self as its own passion will never fully belong to the finite self or the finite world in which it nevertheless exists in some less than apparent way. Hence, for Kierkegaard, the infinity that is the source of the self and which persists in the self as its passion will never fully be 'of' the world in which it dwells. The self, for Kierkegaard, will be perpetually estranged not only from itself, but from its origins and from the world in which it finds itself.

One might imagine an Hegelian rejoinder to Kierkegaard's affirmation of the paradoxical self. Hegel might argue that if there is something in the self which is infinite, that infinity must nevertheless *appear* in some way in order to be *known*. In Hegelian language, one might say that for the infinite to become actual and, hence, knowable, it must become determinate or appear in some form. And Hegel imagined that certain kinds of concepts could be both finite (particular, determinate, specific) and infinite (nonspecific, indeterminate, unbounded). Hegel wanted to arrive at a concept, understood as a kind of speculative thought, in which the finite and the infinite would not only coexist, but be essentially dependent on one another. Imagine a thought which would be *your* thought, specifically yours, and therefore determined and specific, but which would *at the same time* be a thought of that which is infinite and, hence, not bound to you at all, indeed, not bounded or limited by anything. Hegel imagined that the thought of the infinite depends on the determinate thinker, the place and existence of that thinker, at the same time that that infinite thought exceeds that determinate place and thinker. In this sense, the infinite thought depends on the finite thinker in order to be thought, in order to have its occasion and its form; and the finite thinker is no thinker, that is, is not really thinking, thinking thought through to its infinite possibility, unless that finite thinker is able to think the infinite. Hence, for Hegel, a mutual dependency exists between that

which is finite and that which is infinite in the human subject, where both the finite and the infinite form the project of thinking.

Kierkegaard's rejoinder is firm. If one tries to *think* the infinite, one has *already* made the infinite finite. There can be no thinking of the infinite, for the infinite is precisely that not only which cannot be thought, but which insistently forces a crisis in thought itself; the infinite is the limit of thinking, and not a possible content of any thought. To the Hegelian claim that the infinite must first *appear* before it can be known, Kierkegaard would have to respond that the infinite can neither appear nor be known. Hence, it is to some extent *against* Hegel that Kierkegaard formulates his notion of the infinite and, therefore, also of faith: the infinite eludes the dialectic, the infinite cannot be grasped or 'Understood' by any rational effort of thought or synthesis. The infinite can be affirmed nonrationally and, hence, passionately, at the limits of thought, that is, at the limits of Hegelianism.

FEAR, TREMBLING, AND OTHER INWARD PASSIONS

This opposition to Hegel puts Kierkegaard in a bind, for Kierkegaard is *a writer,* he puts his opposition to Hegel into words, and he produces concrete and determinate texts, finite things, which house his claims about that which is infinite. How do we understand Kierkegaard, the finite man or 'existing individual,' in relation to this notion of the infinite that can never fully be expressed by any finite or determinate statement or text. As finite expressions, Kierkegaard's own texts, the *Sickness unto Death* itself or *Fear and Trembling* (1843), can only *fail* to express the very notion of infinity that they seek to communicate. Whereas an Hegelian might argue that Kierkegaard's writing of the infinite is itself essential to the infinite that it expresses, Kierkegaard's response will be that if there is an infinite that can never be resolved with the finite, then Kierkegaard's own texts will always *fail* to communicate the infinite. Indeed, Kierkegaard's response will be: 'My texts *must* fail to express the infinite, and it will be by virtue of that *failure* that the infinite will be affirmed. Moreover, that affirming of the infinite will not take the form of a thought; it will take place at the limits of thought itself; it will force a crisis in thought, the advent of passion.'

So, for Kierkegaard to set about to write a book against Hegel, against synthesis, and in favor of passion and faith, he must write a book that fails to communicate directly the very passion and faith he seeks to defend. An author cannot embody or express the infinite, for that 'expression' would

inadvertently render finite that which must remain infinite. Indeed, the words "passion" and "faith" cannot express or communicate passion and faith; they can only *fail* to communicate, and in failing, *point the way* to an affirmation that is fundamentally beyond language. Aware of this paradoxical task of trying to write about that which cannot be delivered in language, Kierkegaard insists upon the necessity of indirect communication, a kind of communication that knows its own limitations, and by enacting those limits, indirectly points the way to that which cannot be communicated.

Evidence of Kierkegaard's views on indirect communication can be found in the fact that he often wrote and published under a pseudonym. *Sickness unto Death* was published with "Anti-Climacus" as its author. *Fear and Trembling* was written by "Johannes de Silentio," and *Philosophical Fragments* by "Johannes Climacus," also the author of *Concluding Unscientific Postscript*. Other pseudonyms include "Constantin Constantius" (*Repetition,* 1843) and "Victor Eremita" (*Either/ Or,* 1843). The use of a pseudonym raises the question of who is the author behind the author? Why is Kierkegaard hiding? What is it that is concealed in this writing, and what is it that is revealed? Does the author mean to say what he says, or does the pseudonymous author allow the 'real' author to write what he would not write under his own name. What does it mean to write under the name of another? I do not want to suggest that pseudonymous authorship always works in the same way or for the same reasons in Kierkegaard's work. But it does seem directly related to the problem of writing the infinite that we mentioned above. The false name suggests that whatever is written under that name does not exhaust the full range of what the author, Kierkegaard, might be. Something is not being uttered or expressed or made known. Minimally, it is Kierkegaard the man who to some degree hides behind the fictional author under whose name he writes. On an existential level, however, there is something in every self which *cannot be expressed* by any act of writing. There is that in every self which is silent, and Kierkegaard is clear that in the end faith, and passion more generally, is not a matter of writing or speaking, but of remaining silent.

If Kierkegaard's texts, then, are to be works of faith, they must not only be a labor of language, but a labor of silence as well. This is suggested by the pseudonym "Johannes de Silentio," the 'author' of *Fear and Trembling*. And in that text, we encounter the figure of Abraham whose silence cannot be understood by the author. Indeed, Abraham stands for faith; he is called "a knight of faith," and yet he does not speak and leaves us no clues by which we might be able to find reason in his faith. The author tries repeatedly to understand Abraham's faith, but fails.

What is the story of Abraham, and what is the nature of Abraham's faith? Abraham receives a sign from God that he is to take his son to the top of a mountain, Mount Moriah, and there to slay his son as an act of faith. According to the Bible, Abraham does not tell Isaac, his son, what he is about to do, and neither does he tell Sarah, his wife. Through the pseudonym of Johannes de Silentio, Kierkegaard opens *Fear and Trembling* by telling the story of Abraham several times. Each effort to narrate what happened with Abraham is also an effort to fathom how it is that Abraham could prepare himself to act in such a way. If Abraham were willing to slay his son, he risks becoming a murderer according to conventional ethical norms; he destroys his own son, his own family, breaking the most cherished of *human* bonds. Johannes de Silentio tries to fathom how it could be that Abraham, who loved his son, was nevertheless willing to defy, resist, or suspend that love as well as one of the most fundamental laws of ethics in order to perform his faith. What kind of faith has God exacted from Abraham such that he must prepare himself to sacrifice that worldly connection that is most important to him. Is this a cruel God, one to be disobeyed? And why does Abraham persist in his course, silently bringing Isaac to the top of Mount Moriah, and draw his hand only *then* to have his hand stayed by God?

The example is, of course, a shocking one, but Kierkegaard rehearses that scene of Abraham climbing Mount Moriah, drawing the sword, and he tries to understand how any human being could turn against that which is most important to him in the world. Abraham supplies no explanation, and Kierkegaard leads us to the point of understanding that there can be no explanation in words. In the name of what? For what higher good? For Johannes de Silentio, the answer never comes, but the questions repeat themselves insistently, exhausting language and opening out into the silent void of faith.

Kierkegaard imagines how it would be for Abraham to feel the full force of his love for Isaac and at the same time follow the dictate of a faith that requires the sacrifice of Isaac. This is surely a paradox, and in the story of Abraham we receive from Kierkegaard something like an allegory of the paradoxical self. There is no way to reconcile the profoundly finite and worldly love of a father for his son with a notion of faith which is infinite, 'in' the world but not 'of ' it. This is precisely the kind of paradox that cannot be thought, cannot be resolved into some harmonious solution, but which wrecks thought, forces an exposure of thought itself. In Kierkegaard's indirect words: "I cannot think myself into Abraham" (*FT*, 33); "For my part, I presumably can describe the movements of faith, but I cannot make them" (*FT*, 37); "faith begins precisely where thought stops" (*FT*, 53).

But Kierkegaard is not only horrified by the sacrifice that faith has exacted from Abraham. He is also appalled by the fact that Abraham appears to get Isaac back, that God not only asks for a sacrifice, but returns what has been lost, and all this *without reason*. Furthermore, it appears that Abraham does not turn against the God who has, it seemed, played so cruelly with the most precious object of Abraham's human love:

> to be able to lose one's understanding and along with it everything finite, for which it is the stockbroker, and then to win the very same finitude again by virtue of the absurd—this appalls me, but that does not make me say it [faith] is something inferior, since, on the contrary, it is the one and only marvel.

On the one hand, Kierkegaard is appalled by the *arbitrariness* and whimsical character of the way in which God is figured here as giving and taking away. On the other hand, Abraham's faith is a marvel, since it does not waver in the face of the alternating beneficence and cruelty of this ultimate authority. Abraham is not shrewd with respect to God. Abraham does not figure that if he only acts as if he is willing to sacrifice Isaac, God will stay his hand: "he had faith by virtue of the absurd, for all human calculation ceased long ago" (*FT*, 36). If faith designates the limit of thought, if faith emerges precisely when thought fails to comprehend what is before it, then Abraham climbs the mountain and draws the sword *without knowing* that God will return Isaac to him. What is awesome in Abraham is that he sustains his faith *without knowing* that he will receive Isaac back. Faith is not a bargain; it is that affirmation that emerges when all bargaining has failed. This is what Kierkegaard means when he claims that Abraham has faith by virtue of the absurd. And if faith is a leap, it is a leap beyond thought, beyond calculation, a leap made from and with *passion* that can be neither comprehended by thought nor communicated through language.

In *Fear and Trembling,* Kierkegaard claims that he cannot yet make this leap, but that he can only trace its steps and applaud that movement as a marvelous thing. He knows enough to recognize that Abraham must have been in anxiety at the moment in which he drew that sword. And whereas there are those who would defy God and return to the ethical world, refuse to draw the sword, and allay their anxiety in that way, Abraham is not one of them. And whereas there are those who would turn against their love for Isaac and deny the importance of that bond, Abraham is not one of them. He turns against neither the finite (Isaac) nor the infinite (God), but prepares for the paradoxical affirmation of both. In preparing to sacrifice Isaac, however, Abraham performs "the teleological suspension of the ethical" (*FT,* 54). This is not the denial of ethics, but the

suspension or post-ponement of the ethical domain in the name of that which is higher, namely, the infinite or the divine. The human and finite world is grounded in that which is larger than itself, namely, the infinite, and there are occasions in which the affirmation of that infinity takes priority over the affirmation of that finite and ethical domain which is the product of that infinity. But this suspension of the ethical entails anxiety, and faith does not resolve anxiety, but exists with it. Any finite individual can have faith only by contracting anxiety, for all faith involves some loss or weakening of worldly connections, including the worldly connection to one's own finite, bodily self. There is in faith a dying away of the finite self, this body, this name, these worldly connections to family, friends, lovers, this belonging to a time and a landscape, a home, a city. Faith underscores that all those finite things in which we are invested are perishable, and that there is no necessary reason or assurance that they will remain as we know them or survive at all.

If the story of Abraham is an allegory of faith, and if Abraham himself is a figure for faith, then we can read the story for its more general philosophical implications. Aristotle once claimed that philosophy begins with a sense of wonder, the wonder that there are things rather than no things. Aristotle's 'wonder' is not so different from Kierkegaard's sense of the marvelous in his encounter with Abraham's faith. For Aristotle, wonder emerges over the fact *that* there are things, not over *how* things came about—although that interested him, too—but that things came about at all. Kierkegaard writes of "the emotion which is the passionate sense for coming into existence: wonder" (*PF,* 99). In Kierkegaard's terms, it is, on the one hand, a marvel that these specific finite beings, humans, the elements, objects of all kinds, came into the world rather than some other set of beings. On the other hand, it is terrifying that all that exists appears to come into the world for no necessary reason at all. For if there is no necessary reason that things came into the world, there is no necessary reason that sustains those very things in the world, and there is no necessary reason that keeps those things from passing out of the finite world. If these finite beings came into the world from a set of infinite possibilities, then why is it that, of all the myriad and countless beings that came into the world, *these* came into being? There appears to be no necessity that *these* beings came into existence, and that others did not, if we consider that the source or origin of all things is infinite possibility, another name for God. But the wonder or marvel is provoked by another realization as well. If that which exists in the finite realm is the actualization of a set of possibilities, and this set of possibilities is only a subset of the infinite possibilities that are not actualized in the existing world, then how do we account for which possibilities made the *passage* from infinite possibility into that which exists in the finite world? No

reason can be supplied: there is no necessity for what exists to exist. In fact, not only is there no necessity for the infinite, God, to create the finite, the human world, but it is perfectly absurd that he did at all.

The finite is grounded in the infinite: we know this from Kierkegaard's analysis of despair. But the finite never fully expresses the infinite which is its origin. Precisely to the extent that an existing individual, for instance, is finite, that is, limited, mortal, located in space and time, and bodily, that individual is clearly not infinite and, hence, does not fully express the infinity out of which he or she (absurdly) arises. This passage from the infinite to the finite cannot be thought; it is wondrous and a marvel, but also quite terrifying, for there is no necessary reason for anything to exist or, for that matter, to persist in its existence, that is, to stay alive. Whatever God is for Kierkegaard, 'he' (Kierkegaard tends not to personify God) is not that which supplies a reason or a necessity for that which exists. On the contrary, the postulation of the Kierkegaardian God underscores that existence itself is absurd.

The story of Abraham suggests that whatever exists in this world does so by virtue of a kind of grace, an arbitrary and irrational act. Existence can be understood as a kind of unexpected gift, one which comes just as easily as it is taken away. To have faith means to affirm this contingency, this absurd coming-into-being of existence, regardless of the suffering that recognition of absurdity causes. To transform the terror produced by the recognition of existence in its absurdity is no easy task. Indeed, the aesthete and the ethicist cannot find relief from this terror; they are in despair to the extent that they are run by this terror and involved in sensuous or ethical endeavors which seek to quell the anxiety produced by the fact of human contingency. The Knight of Resignation in *Fear and Trembling* can be understood as a figure at the limit of the ethical domain, tracing the movements of faith, but not able to make the necessary leap. As a consequence, he is *horrified* by the prospect of Abraham's 'sacrifice' of his own son; indeed, the Knight of Infinite Resignation can understand Abraham's intended act as a murder—and not a sacrifice or offering to God.

We might then understand the movement from the ethical domain to that of faith as the transformation of terror into a sense of grace. The difficulty with making this movement, however, is that the prospect of losing one's worldly attachments, indeed, one's own finite existence for no necessary reason, is not easy to face with anything other than terror. Kierkegaard understood that the task of faith would be especially difficult to accomplish by those who lived according to the romantic impulse to invest existing individuals with such enormous value that they cannot imagine themselves continuing to exist in a world without them. This was the anguished predicament of the young man in *Repetition,* and there is good evidence to support the view that Kierkegaard himself felt just this

way about Regine Olsen with whom he broke off an engagement to be married. This broken engagement can be understood as Kierkegaard's own 'sacrifice' which, from an ethical point of view, appeared to be the emotional equivalent of murder.

In the midst of Kierkegaard's discussion of Abraham's faith in *Fear and Trembling,* he remarks with due irony that if Hegel's philosophy were right, then Abraham would, indeed, be a murderer. For Kierkegaard, Hegel represents the ethical domain, for in Hegel's *Phenomenology of Spirit* and *Philosophy of Right,* he argues that the individual realizes his or her true and proper purpose in a community bound by *ethical* laws. Indeed, Hegel argues that if an individual holds him- or herself to be above the ethical law, that individual is sinful. Kierkegaard objects to Hegel's characterization of the assertion of individuality as sin. According to Kierkegaard, Hegel fails to understand that the individual is higher than the universal ethical norm, that there are times when ethical laws must be 'suspended' or 'surrendered' so that a higher value can be affirmed, namely, the value of faith—which, of course, for Kierkegaard, is always an *individual* affair. The relation to God cannot be mediated (this belief aligns Kierkegaard with Luther). Hegel would believe that God is present in the ethical law, and that individuals, by submitting to the ethical law, come into a mediated relationship to God. This happy reconciliation of the ethical (called 'the universal') and the religious (called 'the absolute') is one that Kierkegaard firmly rejects. The middle term, the ethical or 'universal,' which Hegel understands to mediate between the individual, on the one hand, and the divine, on the other, is, for Kierkegaard, precisely that which must be subordinated and suspended for the absolute and immediate relation of faith to take place between the individual and God: "this position cannot be mediated, for all mediation takes place only by virtue of the universal; it is and as such remains for all eternity a paradox, impervious to thought" (*FT,* 56).

In Kierkegaard's view, Hegel's ethical community requires the sacrifice of the individual to an anonymous law. As law-abiding citizens, we are interchangeable with one another; each of us expresses our true and proper self through the same acts by which we conform to a law which applies to all human beings regardless of our differences. In this sense, none of us are individuals before the law or, rather, each of us is treated by the law as an anonymous subject. Insofar as Abraham takes distance from the ethical law which prohibits murder, he becomes an individual, and the more he refuses to honor the authority of that law over his own existence, the more individuated he becomes. This act of putting into question the ethical law as a final authority over one's life engages Abraham in anxiety, for in questioning the law, Abraham encounters his own being apart from the ethical community in which he stands.

Opposing himself to Hegel's notion of individuality as sin, Kierkegaard values this anxiety as human freedom, the demand to make a decision whether or not to comply with the law or whether to follow a higher authority. Although Hegel appears to worry about such a moment in which the individual stands apart from the ethical community, suspending the power of its laws to govern his or her life, Hegel also appreciates fear and trembling as necessary moments in the development of the human subject.[12] Significantly, Kierkegaard does not acknowledge that moment in Hegel in which fear and trembling are considered to be necessary experiences in the acquisition of human freedom. We can find that moment at the end of Hegel's well-known chapter in the *Phenomenology* entitled "Lordship and Bondage." There the bondsman who has been the property of the lord has cut himself loose from his own enslavement. What we might expect is the jubilant celebration of freedom, but what we encounter in the emerging bondsman instead is a shattering fear. Consider the following description of the emancipated bondsman from Hegel's *Phenomenology of Spirit* as an example of the fear and trembling produced by the experience of human freedom temporarily untethered by authority. The bondsman labors on objects, and for the first time *recognizes* his own labor in that which he makes. In the recognition of *himself* in the object of his making, he is struck with fear:

> the formative activity…has the negative significance of *fear*. For, in fashioning the thing, the bondsman's own negativity [his freedom] becomes an object for him…this objective *negative* moment is none other than the allen being before which it has trembled.
>
> (*PS*, 118)[13]

Whereas the bondsman has been afraid of the lord, he is now frightened of his own freedom now that that freedom has become that which 'lords' over his own existence. A few lines later, Hegel continues with a passage that further links the expression of freedom through work with the experience of fear:

> Without the formative activity, fear remains inward and mute, and consciousness does not become explicitly *for itself*. If consciousness fashions the thing without that initial absolute fear, it is only an empty self-centred attitude…. If it has not experienced absolute fear but only some lesser dread, the negative being has remained for it something external [its freedom still appears to belong to another and is not yet its own], its substance has not been infected by it through and through.
>
> (*PS*, 119)

Hegel goes on to remark that if the bondsman has not been shaken by fear in the very fiber of its being, it will remain "a freedom enmeshed in servitude."

We can begin to see here that Kierkegaard's characterization of Hegel is not always fair. Hegel is clearly not in favor of the enslavement of the individual to the ethical law, for the fear and trembling associated with the moment of emancipation will inform the individual as he or she enters ethical life in the following chapter in the *Phenomenology.* Indeed, one might well ask the question of whether Kierkegaard's very language of "fear and trembling" is not derived from Hegel's description of the emerging bondsman in *The Phenomenology of Spirit.* How far is the bondsman's trembling at the sight of his own freedom from Abraham's anxiety in the face of his own potential act? How do these 'tremblings' differ?

Whereas Hegel's bondsman trembles before that which he has created, the external confirmation of his own power to create, Abraham trembles (inwardly) before that which he is compelled by God to sacrifice and destroy. Whereas the bondsman is frightened of his own capacity to create, a capacity which in its apparent limitlessness makes the bondsman into a figure with enormous responsibility and power, Abraham is compelled to act according to a divine demand that he cannot understand. In this sense, Abraham's freedom is not guided by reason, but by that which is irrational, beyond reason, and which requires an obedience to that irrationality over any human law. The bondsman, on the other hand, appears to legislate a law for itself, expressed in its own 'formative activity' or labor. The bondsman appears to be temporarily without an authority, a 'lord,' who is other to himself. But Abraham, he is enthralled to a Lord who is so radically different from himself that he cannot understand him at all. That the bondsman is compelled to be free without the guidance of a supervening authority is an unbearable situation which leads to the development, in the following chapter on the "Unhappy consciousness," of a *conscience,* the self-imposition of an ethical law, what Hegel himself understands as a form of self-enslavement. Hence, Hegel's bondsman retreats from the fearful prospect of his own freedom through enslaving himself to ethical projects and practicing various rituals of self-denial. Abraham, on the other hand, must bind himself to an authority whose demands are incomprehensible, an act which leaves him frighteningly detached from the ethical community and from his own rational capacities. Kierkegaard tells us that it is through this persistence in fear and trembling that Abraham comes to the full and gracious experience of faith.

The task of faith is to continue to affirm infinite possibility in the face of events which appear to make existence itself a radically impossible

venture. What astonished Kierkegaard about the Abraham story is that Abraham faced the prospect of losing what was most precious to him in the world, and he still did not lose faith and curse God: he maintained his faith not only in the face of that loss, but in the face of having to make the sacrifice himself.[14] Abraham loves Isaac, but that human bond cannot be the most important passion of his life, for what merely exists can come and go, and that transience can never be the object of faith. If in the throes of romantic love or in the complicated emotional ties of family life, we say that our existence is meaningless without some existing individual, that is a symptom that we are in despair. For Kierkegaard, if any existing individual becomes the fundamental reason to live, that individual must be sacrificed so that faith can return to its proper object: the infinite.

In *Repetition,* published simultaneously with *Fear and Trembling,* Kierkegaard relates the story of how a young man, a thinly veiled substitute for Kierkegaard himself, breaks off an engagement with a girl he loves. The sacrifice appears absurd, for he has not fallen out of love with her. And yet, if the girl has become the ultimate reason for living, the source of all affirmation, then the young man has transferred and invested the boundlessness of his passion onto an existing individual: this is, for Kierkegaard, a kind of despair and a failure of faith. Precisely because she has become an object he is not willing to lose, he must demonstrate his willingness to lose her altogether. His sacrifice is not unlike Abraham's, except that Abraham, being a "Knight of Faith," receives Isaac back again, whereas the young man, a veritable "Knight of Resignation," appears to orchestrate and suffer an irreversible loss. He knows how to sacrifice finite things, and to avoid the despair that characterizes the life of the aesthete as well as the ethicist, but he does not know how to affirm that infinity which appears to make existence utterly absurd.

What does it mean that whereas Abraham receives Isaac back, the young man in *Repetition* fails to have his love returned? To have faith means no longer to invest absolute meaning in what is finite, whether it is an individual person, a set of objects or possessions, a homeland, a job, a family. All of these sites of investment are finite and perishable, and when we transfer religious passion onto those things, according to Kierkegaard, we turn away from God and invest the things of this world with a displaced religious meaning and, hence, fall into despair. If one makes the leap of faith, then one invests absolute passion and meaning in the infinite; this entails a suspension not only of the ethical, but of the finite realm altogether, for any finite object of passion will now be understood as emerging as a gift from the infinite and passing back eventually into the infinite. For Kierkegaard, it is only once we affirm the transience and contingency (nonnecessity) of that which we love in this world that we are

free to love it at all. If Abraham gets Isaac back, it is because he has suspended his attachments to that which is finite, affirmed the infinite, and so understood that nothing that exists in this world can sustain an absolute passion. It is in this sense that Isaac was *always* a gift from God; one's own existence is a gift, and that of every other existing thing.

Of course, to recognize that there is no necessary reason that some beings exist and other possible beings do not produces not only a sense of wonder, but a sense of terror as well. The thought of an existing life as a contingency, as an arbitrary event which just as well *could not* have happened, or which could without reason pass away, this is a thought that, strictly speaking, cannot be maintained; it is a thought which founders on itself, for how can a thought think the contingency of the thinker who thinks it? But it is this thought that leads to the anxiety over existence that leads to the question of faith. To witness the existing world this way, as a terrifying and wondrous gift, is to know that one is not the author of that world, that the father, strictly speaking, is not the 'origin' of the son, and that not only do all things originate—absurdly, wondrously—in the infinite, but all existing things return there as well.

For Kierkegaard, this problem of the contingency of existence has implications for human love, a passion that verges on faith, but which becomes despair when it becomes too much like faith, an absolute or infinite passion. To love that which exists without at the same time knowing the fragile and contingent nature of existence is to be in despair; if one tries to love a human object as if it were absolute, one projects a religious passion onto a human object. The result, for Kierkegaard, is to become wracked with displaced passion and a constant sense of loss. Kierkegaard describes this problem at some length in the first volume of *Either/Or.* Considered to be part of Kierkegaard's early writings, *Either/Or* is composed of two volumes. The first offers writings that enact and explore the *aesthetic* point of view; the second volume offers sermons and treatises in the *ethical* point of view. Neither of these perspectives is the same as faith, but Kierkegaard, in unmistakenly Hegelian fashion, suggests that these two spheres, these two ways of approaching the world, have to be experienced in order to understand the limits of each and the superiority of faith. There is no writing in the perspective of faith in either of these volumes, but it is unclear that such a writing could exist; faith is nevertheless there in the writings as the path not chosen, the way to affirm the paradox that emerges between the aesthetic and ethical perspectives.

The vain effort to make of a human being an object of absolute and infinite passion is the fateful predicament of the aesthete in *Either/Or.* The alternative in that text is to become a purely *ethical* being, one who makes no attachments to anything finite, but acts in accordance with a universal law, a law that applies to everyone, and which makes of its obedient

subject an anonymous and impersonal subject. The aesthete, on the other hand, values what is most immediate and finite as if it were absolute; the ethical person (also termed the "Knight of Infinite Resignation") treats the human law as if it were absolute, and invests his or her full passion into the application of that law. The one in faith, however, lives fully in the finite world, but affirms its contingency at the same time. This is the marvel that Kierkegaard claims he cannot perform, to love that which exists and to affirm that it might be lost, that it cannot serve as the ultimate object of passion, that for which one lives. Human love requires the knowledge of grace, that what is given for us to love is not ours, and that its loss refers us to that which is the origin of all things finite, including ourselves. This means that for the one who has faith, love is always an anxious and ironic affair, and there is no way to see directly how that infinite faith in that which is infinite lives alongside the finite love of that which exists. In Kierkegaard's terms, "absolutely to express the sublime in the pedestrian—only that the knight [of faith] can do it, and this is the one and only marvel" (*FT,* 41).

One implication of Kierkegaard's paradoxical view of faith is that it is *not* a form of asceticism. Kierkegaard does not advise a turning away from the finite world. On the contrary, he imagines that the Knight of Faith will be one who dwells among the ordinary world of things, a "tax collector" he suggests in *Fear and Trembling*. One would not be able to see from the outside that this individual has faith, for faith, by virtue of its radical inwardness, is inexpressible. The entirety of the finite realm would be 'returned' to such an individual for the paradoxical reason that, through faith, he or she no longer fears the loss of what exists; in faith, the individual affirms the absurdity and arbitrariness by which the existing world comes into being and passes out again. That affirmation is not a kind of wisdom or knowledge, but an irrational passion that emerges at the limits of all thinking.

THE PARADOXICAL LANGUAGE OF FAITH

Although it is clear that Kierkegaard writes in favor of faith, there are at least two remaining questions that trouble any reader of his works. The first question concerns the 'what' of faith: in what does Kierkegaard have faith? What is this God which appears to be the infinite or, more specifically, infinite possibility? The second question is intimately related to the first: how could we have received an answer to the question 'in what does Kierkegaard have faith?' if we expect the answer to arrive *in language*? After all, we have already learned that faith cannot be expressed in language, that it is the infinite passion of the inwardness of the self. But what is the status of Kierkegaard's own texts, if we understand the purpose of these texts to be an incitement to faith? How do these texts work? How do they achieve their purpose, if from the start we know that they can never express faith or, if they claim to have expressed faith, they have failed in that very task?

Kierkegaard's God is in-finite which means that this God can never be identified with one of his products. This God is said to be the origin of the existing world, but this is not a God who, in a personified form, at some point in history—or prior to history—said 'Let there be light' and light suddenly there was. And it is not that Kierkegaard disputes the truth of the Bible, but he insists that the truth of the Bible is not to be found in the language of the text. In this sense, Kierkegaard is against a literal reading of the Bible, one which takes every word printed there to be the transmitted word of God. On the contrary, the 'truth' of the Bible is not, properly speaking, *in* the text, but is to be found *in the reader,* in the various acts by which the various injunctions to faith are *appropriated* and taken up by those who read the text. The truth of the Bible is to be found in the faith of those who read the Bible. The text is a *condition* by which a certain kind of instruction in faith takes place, but faith can never be achieved by learning what the Bible says, only by finally turning away from that text and turning inward to discover the infinite passion that emerges from the demand to affirm contingency. In *Philosophical Fragments,* the Bible and biblical scholarship are treated with irony: these texts can deliver no *historical* truth of interest to the person interested in faith, for no historical documentation regarding the existence or teachings of Jesus Christ can ever convince a person into faith. Faith does not arrive as the result of a persuasive argument; faith (along with its alternative, despair) is precisely what has the chance to emerge when all argumentation and historical proof fail.[15]

But there is a further difficulty with an historical approach to faith. Some Christian scholars argue that it can be proven that Jesus Christ lived,

that he came into the world, and that he was the son of God. The proof 'that' he existed is, however, not enough for Kierkegaard. That assertion simply prompts him to ask a series of philosophical questions which the historical enquiry cannot answer: what does it mean for anything to 'come into existence'? If something can be said to 'come into existence,' then at some early point in time, it did not exist at all. How, then, can something which is nonbeing become transformed into being? This is, of course, the question that preoccupied us above when we considered how philosophical wonder focuses on the apparent absurdity that some things exist rather than not, that certain possibilities become actual or finite, whereas other possibilities remain merely possible. Possibility and actuality are mutually exclusive states, that is, a thing is either possible or actual, but it would make no sense to say that it is both at once. Therefore, to say that a given thing has come into existence implies that it has moved from a state of possibility to one of actuality. This transition cannot be 'thought,' says Kierkegaard, but is a contradiction, one that accompanies all 'coming into being.'

In *Philosophical Fragments,* Kierkegaard considers the highly significant paradox that in the person of the Savior (whose historical status remains uncertain or, at least, irrelevant), it appears that what is Eternal has come into time, and that what is infinite has appeared in finite form. Whereas Hegel would claim that the finite appearance in this consequential instance expresses and actualizes the infinite, that this person in time, aging and mortal, expressed that which can never die; Kierkegaard takes issue with such a notion, arguing that this occurrence is utterly paradoxical, that the human and divine aspects of the figure of Christ can never be reconciled; insofar as he is infinite, he cannot appear in finite form, without losing his status as infinite; and insofar as he is finite, he cannot become infinite, for finitude implies mortality.

What is striking about Kierkegaard's writing in *Philosophical Fragments* is that the so-called miracle of God coming into existence recurs at every moment that some finite thing 'comes into being.' Christ is no exception to this paradoxical movement, but neither is he singular. After all, every human self emerges from a set of infinite possibilities and so moves from the infinite (which is nonbeing, that which is not yet finite and does not yet have a specified kind of being) to the finite (or being). Indeed, anything that comes into existence is miraculous for the very reasons we set out above in our discussion of wonder. In making this move, Kierkegaard appears to be taking an almost arrogant distance from the church authorities, the Scriptures, and the religious authorities whose task it is to settle historical details about Christ's sojourn on earth. Indeed, Kierkegaard goes so far as to subject the key concepts of Christianity to a

new set of definitions, ones that are devised by him. Kierkegaard is not interested in testing his interprerations against the Bible or against earlier interpretations; he devises and sets forth his own. Throughout the introductory chapter of *Philosophical Fragments,* Kierkegaard appears to take over the power to name that properly belonged to God in the book of Genesis. In Genesis, God spoke and said, 'Let there be…light, man, woman, beasts, etc.,' and the very power of his voice was sufficient to bring these entities into being. Kierkegaard appears to appropriate this power of naming for himself, but the entities he brings into existence through his writings are Christian concepts. As a result, he *names* these concepts and, in the naming, revises their meaning according to his own inter-pretive scheme: "What now shall we call such a Teacher, who restores the lost condition and gives the learner the Truth? Let us call him *Saviour*…let us call him *Redeemer*" (*PF,* 21). Further definitions are offered for "conversion," "repentance," "New Birth," and more (*PF,* 22–3).

What are we to make of this Kierkegaardian willingness to fabricate new meanings for the orthodox terms of Christianity? Is it not a kind of arrogance or pride to offer new interpretations for such words? By what right does Kierkegaard proceed with such obvious enthusiasm to create new meanings for old words? Is this creative way with words related to Kierkegaard's enigmatic career as an author?

What is the authority of the author? For Kierkegaard, faith cannot be communicated, so that any effort to write a book that communicates faith will, by definition, have to fail. In this way, then, Kierkegaard must write a book which constantly fails to communicate faith, a book which insistently renounces its own authority to state what faith is, a text which turns back upon itself and effectively wills its own failure. If the reader of his book knows that the book cannot offer knowledge of faith, then that reader will be seduced by the promise of that knowledge only to be disappointed in an instructive way. Kierkegaard's language must, then, perform the paradoxical task of enacting the limits of language itself. The author who wishes to point the way to faith must resist every effort to communicate faith directly; in other words, that author must will the failure of his own book, and in that very failure, know its success.

In *Sickness unto Death,* Kierkegaard considers the peculiar kind of despair that afflicts "poets" and makers of fiction. We can read in this diagnosis a thinly veiled autobiographical confession. Consider that Kierkegaard is a kind of poet,[16] one who produces a fictional narrator for most of his early texts through the construction of various pseudonyms. He then produces "examples" of faith and despair, fabricating "types" of individuals, embellishing on biblical and classical characters: Abraham, Don Juan, etc. And now consider Kierkegaard's diagnosis of the person

who suffers from defiant despair, the will to be oneself, that is, the will to be the sole ground and power of one's own existence and, therefore, to take the place of God:

> this is the self that a person in despair wills to be, severing the self from any relation to a power that has established it, or severing it from the idea that there is such a power…the self in despair wants to be master of itself or to create itself.
>
> (*SUD,* 68)

Kierkegaard then explains that this kind of despairing individual regularly fantasizes that he or she is all kinds of things that they are not: "the self in despair…constantly relates to itself only by way of imaginary constructions" (*SUD,* 68). This fiction-producing self can make itself into "an imaginatively constructed God," but this self is for that reason "always building castles in the sky…only shadowboxing" (*SUD,* 69). At an extreme, this defiant form of despair becomes *demonic* despair, and here the will to fabricate and fictionalize asserts itself in clear defiance, even hatred, of God. Is there, for Kierkegaard, a stark opposition between the life of faith and that of fiction-making? And can Kierkegaard himself give up his imaginary constructions in order to live the life of faith, one which we know, from the consideration of Abraham, is a life of silence?

Demonic despair, which Kierkegaard calls the most intensive form of despair, is rooted in "a hatred of existence": "not even in defiance or defiantly does it will to be itself, but for spite" (*SUD,* 69). And what evidence does such a person have against existence? The one in demonic despair is himself the evidence that justifies his hatred of existence. This appears to imply that the one in demonic despair, that incessant maker of fictions, *hates himself* for producing an imaginary construction of himself, but nevertheless persists in this self-fabrication. This is a self which, through fiction-making, postures as the creator of its own existence, thus denying the place of God as the true author of human existence. But this demonic self must also despise itself for trying to take over the power of God. This self in demonic despair alternates between self-fabrication and self-hatred. Inasmuch as this demonic one is an author, and is Kierkegaard himself, he produces a fiction only then to tear down the construction he has just made. The one in demonic despair can acknowledge the divine authorship that enables his own fiction, his pseudonymous work, only by admitting that what he has produced is a necessary fraud.

At the end of Part One of *Sickness unto Death,* Kierkegaard appears to begin this disavowal of his own production, clearing the way for an

appreciation of God as the only 'first-rate author' in town, acknowledging that Kierkegaard's own work must always be under-stood as derived from the power that constitutes him, a power that precedes and enables his own imaginary production:

> Figuratively speaking, it is as if an error slipped into an author's writing and the error became conscious of itself as an error—perhaps it actually was not a mistake but in a much higher sense an essential part of the whole production—and now this error wants to mutiny against the author, out of hatred toward him, forbidding him to correct it and in maniacal defiance saying to him: No, I refuse to be erased; I will stand as a witness against you, a witness that you are a second-rate author.
>
> (*SUD,* 74)

Written thus in 1848 and published in 1849, we can see here the fruition of Kierkegaard's intention to resist the seduction of authorship. Two years earlier, he wrote in his journal: "My idea is to give up being an author (which I can only be altogether or not at all) and prepare myself to be a pastor."[17] It appears that Kierkegaard gave up his career as a literary and philosophical author after *Sickness unto Death,* and persevered in writing purely religious tracts. Had he achieved faith? Did he overcome despair? Was his writing as compelling after the leap or did it turn out to require the very despair he sought to overcome?

NOTES

1 It would be interesting to compare this claim with Freud's efforts to address the question of 'anxiety' through analysis.
2 *SUD: Sickness unto Death,* ed. and trans. H.V.Hong and E.H.Hong (Princeton: Princeton University Press, 1983).
3 "Hegel and Hegelianism constitute an essay in the comical." *Concluding Unscientific Postscript,* trans. D.Swenson and W.Lowrie (Princeton: Princeton University Press, 1974), henceforth referred to as *CUP,* p. 34.
4 "In order to avoid confusion, it is at once necessary to recall that our treatment of the problem does not raise the question of the truth of Christianity. It merely deals with the problem of the individual's relationship to Christianity. It has nothing whatever to do with the systematic zeal of the personally indifferent individual to arrange the truths of Christianity in paragraphs; it deals with the concern of the infinitely interested individual for his own relationship to such a doctrine." Ibid., p. 18.
5 Descartes, Fifth Meditation. God is perfect and can only make that which is equally perfect or less perfect than him-/her-/itself, for nothing can be more perfect than God. If there is something which has some degree of perfection in it, that thing must be produced by that which is at least as perfect or more

perfect than the thing itself. There is nothing in the world that is more perfect than human beings even though human beings are imperfect in some ways (they sin, they are ignorant). This implies that human beings must be created by that which is equally or more perfect than themselves. And it is perfect being that is called God.

6 *FT: Fear and Trembling/Repetition,* ed. and trans. H.V.Hong and E.H.Hong (Princeton: Princeton University Press, 1983).

7 See Kierkegaard's discussion of Abraham, ibid.

8 *PF: Philosophical Fragments,* ed. N.Thulstrop, trans. D.Swenson and H.V. Hong (Princeton: Princeton University Press, 1962).

9 "Commentator's introduction," *PF,* p. 1xxv.

10 See Kierkegaard's discussion of the limits of speculative thought in *CUP,* ch. 2, "The speculative point of view."

11 This is a view which is falsely attributed to existential philosophy generally, but which we can see ought not to be ascribed to Kierkegaard.

12 It is interesting to note that Kierkegaard takes the phrase "fear and trembling" from the New Testament, Philippians 2:12–14, but applies it to an Old Testament figure, Abraham. Hegel's placement of "fear and trembling" in relation to work is perhaps slightly closer to the meaning of the New Testament use: "Wherefore, my beloved, as ye have always obeyed, not as in my presence only, but now much more in my absence, work out your own salvation with fear and trembling: For it is God which worketh in you both to will and to do of his good pleasure." *The Dartmouth Bible,* ed. R.B.Chamberlin and H. Feldman (Boston: Houghton Mifflin, 1961).

13 PS: Hegel, *The Phenomenology of Spirit,* trans. A.V.Miller (New York: Oxford University Press, 1977).

14 Imagine if Hegel's bondsman were to have created a son with a woman, and that he was then compelled to sacrifice that son, how would Hegel's analysis have to change in order to take account of Abraham's anguish?

15 Note Kierkegaard's ironic tone in his writing against the historical efforts to supply a proof of God's existence: "And how does the God's existence emerge from the proof? Does it follow straightway, without any breach of continuity?...As long as I keep my hold on the proof, i.e. continue to demonstrate, the existence does not come out, if for no other reason than that I am engaged in proving it; but when I let the proof go, the existence is there. But this act of letting go is surely also something; it is indeed a contribution of mine. Must not this also be taken into account, this little moment, brief as it may be—it need not be long, for it is a *leap*. However brief this moment, if only an instantaneous now, this 'now' must be included in the reckoning." *PF,* p. 53.

Kierkegaard here plays on the double meaning of the act of letting go being "a contribution of mine." On the one hand, this is his philosophical contribution to the critique of rationalism, and "the leap" is a concept he introduced into philosophical and religious discourse. On the other hand, he is suggesting that no person, including himself, can arrive at faith without making a contribution of him- or herself. And this contribution, being one of passion, has to come from the inwardness of the self, and be directed toward a faith which no 'proof can automatically produce.

16 See L.Mackey, *Kierkegaard: A Kind of Poet* (Philadelphia: University of Pennsylvania Press, 1971).

17 Quoted in the Introduction to *CUP,* p. xiii.

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Glossary

***a priori*—**In the early eighteenth century, knowledge was called *a priori* if it was acquired by reason, not observation, or by deduction, not induction. Opposite: *a posteriori*. Kant introduced a new meaning, described under "*a priori* knowledge."

***a priori* knowledge—**what can be known independently of any (particular) experience.

Absolute—the complete, all-encompassing whole of reality. In Hegel's philosophy, the term refers to knowable reality.

absolute idealism—the metaphysical position that mind and reality share the same categorical structure, and thus that understanding the nature and fundamental structures of thought is the same enterprise as understanding the nature and fundamental structures of the world. To be distinguished from epistemological idealisms of any kind.

absolute knowledge—unbiased, undistorted knowledge, without inconsistencies. In Hegel's philosophy, this term does not refer to knowing every detail, but to having an adequate understanding of knowlege and the Absolute, and to recognizing that knowledge and the Absolute are not epistemologically separate.

abstract—in Hegel's philosophy, that which is empty and devoid of content. Abstract knowledge focuses on certain aspects of a thing at the expense of other aspects and the thing's context.

acquired character—in Schopenhauer's philosophy, the gradually accumulated knowlege of what one wills and of one's abilities. Such knowledge has transformative impact on behavior, for it provides new motives to the individual's will.

analytic judgment—a judgment or assertion the predicate of which is implicit in the concept of the subject. Example: a bachelor is an unmarried man.

***ars charactenstica*—**a form of symbolic logic invented by Leibniz, in which numbers replace concepts of things, and combinatorial arithmetic is applied to the numbers. Leibniz believed that in this way a universal language could be established.

atheism controversy *(Atheismusstreit)*—a famous public dispute over the relationship

between philosophy and religion, provoked by Fichte's assertion that what is truly divine is the moral world order itself and that there is no need to posit a "moral law-giver" or personal God as the creator of this moral order.

Aufbeben, Aufhebung—a German word variously translated as "to supersede," "to sublate," "to sublimate," or, more colloquially, "to pick something up." In Hegel's *Phenomenology of Spirit,* the term is used to refer to history moving forward while preserving what has come before. The term also implies improvement, so that the original is "lifted" into something better.

autonomy (positive freedom)—the ability to determine for oneself the principles in accord with which one determines one's will.

principle of autonomy—the categorical imperative.

check *(Anstoß)*—in Fichte's philosophy, the name for the inexplicable thwarting of the outwardly directed, practical activity of the I, in consequence of which one becomes conscious of a "feeling."

cogito—"I think," supposed by Descartes to be a sort of direct intuition of self, by Kant to express the unity of apperception.

compassion—according to Schopenhauer, the orientation that proceeds from the recognition that all beings are manifestations of the same will. A person who fully recognizes this no longer feels any inclination to assert his or her will against those of others and is, accordingly, a saint.

concept—an objective, though often implicit, humanly graspable ideal unity of a "many-ness." A prescriptive ideal that is part of a system of such ideals that the world is striving to realize and in terms of which what happens in the world can be made sense of.

concrete—in Hegel's philosophy, the whole, the thing-in-itself. Knowledge of an entity is concrete to the extent that it comprehends the entity in its entirety.

concrete universal—See "concept."

Critical philosophy, the—another name for transcendental idealism or Kantianism.

dialectic—development through apparently contradictory sequential stages. In Hegel's philosophy, this is the way in which the human Spirit has evolved through history. It is the means by which human beings attain an adequate conception of the world, drawing and carrying forward the conclusions of various conceptions of the world characteristic of the stages sequentially achieved through history.

dogmatism—Fichte's name for philosophical realism, understood as an attempt to derive consciousness from things in themselves.

duty—how one ought to act.

perfect duty—a duty with which one's every act ought to accord.

imperfect duty—a duty with which one ought to adopt a principle of acting in accord, but for which the individual has latitude in deciding exactly when the principle ought be acted upon.

ethical duty—all of one's duties comprehended as ways that one ought to act exactly because they are duties, i.e. because they follow from the categorical imperative. The only incentive for acting in accord with one's duties, so comprehended, is. the internal incentive that follows merely from the recognition that they are duties.

juridical duty—those duties that one can be coerced to fulfill through external incentives.

elementary philosophy—the name given by K.L.Reinhold to his own systematic revision of Kantianism.

empirical character—the individual's character as it appears phenomenally.

end of nature—nature's purpose. **ultimate end of nature**—the most comprehensive purpose that can be realized within nature and in accord with its laws. Kant thinks that this is human culture, by which he means the development of aptitude of human beings to accomplish their chosen ends. **final end of nature**—that purpose for which the entire system of nature functions as an enabling condition, but which cannot be realized within nature. Kant thinks that this is the development of humanity toward moral perfection.

entelechy—an Aristotelian conception concerned with completion. Entelechy is a thing's actuality when it is fully complete, no longer possessing any potentiality. Entelechy is also the directing agent of a thing's natural activity toward the fulfillment of its natural end.

extended—spatial, as in "bodies are extended."

extension—space.

extra mentem—existing outside (independent) of the mind.

faculty—an ability of the mind; for example, "Human beings have an imaginative ability, or faculty."

form of consciousness ***(Gestalt des Bewusstseins)***—a self-sufficient conceptual framework. In Hegel's philosophy, a stage of the human Spirit's development.

freedom positive—See "autonomy." **negative**—independence from determination through the laws of nature. **internal**—freedom with respect to the determination of one's will. **external**—freedom with respect to one's ability to effectuate one's will, especially thought of as independence from constraints that come from the will of other rational beings. **innate right to external freedom**—the right that all rational beings have, by virtue of their nature as rational being, to so much external freedom as is compatible with the same for others.

genius—in Schopenhauer's philosophy, an exceptional talent for heightened perception (specifically aesthetic experience) and for communicating this state to others.

Grundbegriff—a simple concept which admits no further analysis. For example: substance, cause.

historical materialism—From 1845 Marx developed the view that the driving force of history was the growth of the productive forces at the disposal of humans and the productive relations into which humans entered. This "economic base," he maintains, "shapes" other aspects of society such as the state and our forms of consciousness. Such a theory of history Marx called "materialist" in opposition to other theories, called "idealist" or "ideological," in which the economic base either was ignored or played hardly any role.

Identity Philosophy (or "System of Identity")—Schelling's name for a system which embraces both transcendental idealism and speculative *Naturphilosophie* and

is based upon the idea of "the Absolute," understood as sheer identity, that is, as the undifferentiated unity of the ideal and the real (also called "objective idealism" or "absolute idealism").

imperative—the formula that expresses a command that constrains the will of a rational being whose will is influenced by both pure reason and material incentives. **hypothetical imperative**—presents an action as the necessary means to some particular end. **categorical imperative**—presents an action as of itself necessary, without regard to any other end. Kant thinks that the categorical imperative is best formulated as "Act only according to that maxim by which you can at the same time will that it become a universal law."

indifference, point of—the first principle or starting point of Schelling's Identity Philosophy; another name for "the Absolute."

intellectual intuition—(a) in Kant, the name for a nonexistent faculty of knowledge, through which one would have direct experience of an object; (b) for Fichte, another name for the original self-positing (or *Tathandlung*) of the I, an act within which the I as an object is directly present to itself as a subject; (c) for Schelling, a higher faculty of direct, nonsensible knowledge of reality, hence a special "faculty of truth" employed by artists and philosophers.

intelligible character—the individual's character as it is, outside time and space. In Schopenhauer's philosophy, the intelligible character is akin to a Platonic Idea for the individual.

justice—the aggregate of those conditions in which everyone's will is completely compatible in accordance with universal law. The condition of justice is identical to the universal realization of the innate right to external freedom.

leap of faith—the nondialectical act of will by which an individual leaves his or her previous stage of experience and achieves the highest stage possible for human beings, the stage of religious faith.

maxim—the general principle according to which an individual acts (e.g. "When I'm hungry, I'll eat").

meta-language—a language used to discuss a language. A meta-language is often a theoretical language. The language being discussed through a meta-language is called, by contrast, "the object language."

moment—a partial but essential aspect, a stage.

monad—in Leibniz's philosophy, a simple spiritual substance whose activities are representation and appetition.

monadology—Leibniz's theory that the world consists of monads.

natural right *(Naturrecht)* or theory of right *(Rechstslehre)*—that portion of Fichte's *Wissenschaftslehre* which examines the ways in which individual freedom must be limited in consequence of (and, at the same time, as a condition of) the recognition of the freedom of the others. The "theory of right" is equivalent to social and political philosophy and is, according to Fichte, entirely independent of ethics.

***Naturphilosophie* ("philosophy of nature")**—Schelling's name for that branch of philosophy which interprets nature as a single, hierarchically organized, and self-developing whole, and thus, not as the opposite, but rather as the

complement or "analogon" of the realm of spirit and consciousness; whereas transcendental idealism proceeds from subjectivity to objectivity, Schelling's philosophy of nature begins with objectivity and proceeds toward subjectivity.

negative philosophy—the name by which Schelling, during his final period, designated the transcendental philosophy of Kant and Fichte, as well as his own earlier philosophy.

nominalism—the position that words do not refer to the essences of things (for essences do not exist); instead, they are simply names that we assign to things. On this view, abstractions are all fictions (albeit useful ones). Only particular things exist.

odium theologicum—a special kind of hatred sometimes said to be characteristic of theologians who do not agree.

ontology—the division of metaphysics which deals with the most necessary and universal concepts of being, like Aristotle's enquiry into "being as being." Also called "first philosophy" and "general metaphysics."

pantheism—the doctrine that the world (i.e. the physical universe) is God or a mode of God's being. A Christian heresy which, in the eighteenth century, was usually ascribed to Spinoza.

particular—an entity that is definite and locatable with space and time. This term may refer to an individual person, as well as a thing.

Platonic Ideas—Plato's Forms. In Schopenhauer's philosophy, Platonic Ideas are grades of the will's objectivity. The universal prototypes of phenomenal objects accounting for natural kinds. As the universal forms that are instantiated in particulars, Platonic Ideas are the objects beheld in aesthetic experience.

positive philosophy—Schelling's name for the philosophy of revelation and mythology which he developed during his final period, a philosophy which, he believed, was genuinely capable of dealing with the mystery of existence.

powers, or potencies *(Potenzen)*—Schelling's term for the various levels of systematic organization exhibited within nature, as well as for the various levels of expression of the indifferent absolute.

practical philosophy—that division of transcendental idealism which is concerned with freedom and the will, and hence with "what ought to be" rather than with "what is."

practical philosophy, primacy of—For Fichte, this Kantian maxim implies that theoretical cognition must be grounded in willing and that freedom is thus a determining principle of all experience.

practical reason—reason employed with respect to action, i.e. with respect to bringing about conditions in the world.

pre-established harmony—In Leibniz's philosophy, the apparent causal connections between changes in different monads is denied, and it is asserted that these changes are pre-established (by God) so as to make a harmonious whole.

principium individuationis—principle of individuation. In Schopenhauer's philosophy, the *principium individuationis* is equivalent to time and space, the essential forms through which individuation becomes apparent in the phenomenal world.

pure will-less subject of knowledge—the condition of the individual during aesthetic experience, according to Schopenhauer. The individual becomes, as it were, the universal subject, contemplating the universal forms (or Platonic Ideas) evident in the object observed.

rationalism—a philosophical orientation which considered *A priori* reason capable of ascertaining significant truths about the world, and which considered natural science to be primarily a rational, deductive system only secondarily concerned with sense experience. In this sense, Kant is a rationalist. However, the term is principally associated with Descartes, Spinoza, and Leibniz, who are known as "the Rationalists." Rationalism is frequently contrasted with empiricism, which takes sense perception to be the fundamental basis for knowledge.

reductio ad absurdum—a mode of argument in which one shows that a thesis held by one's opponent, however reasonable it may seem to be, implies an absurdity and is therefore itself absurd.

repentance—According to Schopenhauer, repentance amounts to change of knowledge (and consequently motive), with the result that behavior is transformed.

resignation—in Schopenhauer's philosophy, the renunciation of the will that is characteristic of the saint. This renunciation results from full recognition that the entire phenomenal world, and every object in it, is a manifestation of a single will. In Kierkegaard's philosophy, the condition of being reconciled to tragedy in one's situation, without yet being capable of faith. The person in this condition is Kierkegaard's "Knight of Infinite Resignation," in contrast to the "Knight of Faith."

right in oneself—the right to have others not exercise any control over one's body, i.e. to not be assaulted in any manner.

rightful possession—possession that is consistent with justice.

semantics—the interpretation of a symbolic system.

***Sittenlebre* (“theory of ethics”)**—The specifically "practical" portion of Fichte's *Wissenschaftslehre,* the "theory of ethics" provides an account of both the form and the content of the highest principle of morality (the categorical imperative) and derives specific duties from one's general obligation to posit one's own freedom.

social contract theory—the theory that people are subject to political obligations because they have contracted with others to subject themselves to such obligations (presumably because of some benefit that they thereby expect to receive).

solipsism—the theory that "I alone exist." This theory has probably never been held by a sane philosopher, but it is conceptually interesting as a *reductio ad absurdum* of some forms of idealism.

speculative—In the eighteenth century, "speculative" often meant "theoretical." Thus "speculative philosophy" did not mean speculative in the sense of fanciful dreaming, but theoretical as opposed to practical (moral) philosophy.

Spirit *(Geist)*—the subject in a universal sense. In Hegel's philosophy, the Spirit includes every individual and every object of human experience. It amounts

to the human world, conceived as self-conscious and a comprehensible unity.

stages—in Kierkegaard's philosophy, a particular orientation or lifestyle that characterizes an individual's pursuits. Kierkegaard describes three distinct stages: the aesthetic, the ethical, and the religious stage. These stages do not automatically or dialectically give way to one another. Instead, an individual must "leap" from one to another by means of an inner response to his or her situation. Such a move is usually precipitated by the individual's recognition that he or she is in despair.

sufficient reason, principle of—the principle that there is a sufficient reason (or cause) of everything that exists or happens. According to Schopenhauer, this principle applies only to phenomenal objects. Each such object stands in a necessary, mutually determining relationship to all other phenomenal objects.

summons ***(Auffordentng)***—in Fichte's *Wissenschaftslehre*, the term designating one's inner awareness of the freedom of others, as a consequence of which one is called upon to limit one's own freedom.

syntax—a purely formal specification of the legal strings of a symbolic system.

synthetic judgment—a judgment or assertion which is not analytic.

system—an interconnected set of propositions, demonstrably related. In the eighteenth century, the term referred to a deductive system, a set of first principles and theorems deducible from them.

Tatbandlung **("fact/act" or more literally, "deed/act")**—a term coined by Fichte to designate the original, self-positing act of the I, an act which is postulated by the philosopher as underlying the experienced separation between the subject and object of consciousness.

teleological suspension of the ethical—in Kierkegaard's philosophy, a condition in which die ethical law, which is universally applicable to human individuals, is suspended in a particular individual's case because that person's religious vocation places more specific demands upon him or her.

theoretical philosophy—that branch of transcendental idealism which accounts for human cognition, that is, for our experience of "representations accompanied by a feeling of necessity."

transcendent, transcendental—These words were used loosely in the eighteenth century before Kant to refer to metaphysical concepts common to all the branches of special metaphysics. For example, "Cause is a transcendent concept." Kant gave specific technical meanings to these words. (See "transcendental argument.")

transcendental argument—according to Kant, an argument in support of one claim, because the truth of this claim can be shown to be a necessary condition of the truth of another claim that is (necessarily) recognized as true.

transcendental unity of apperception—Kant's principle that, necessarily, any conscious state must be so unified with the other states of that consciousness as to make it possibly self-conscious.

transformative method (also called "the inversion principle")—Feuerbach proposed that God was merely a projection of idealized human qualities onto the world in the form of an allegedly independently existing being who

is then believed to have the power to create us. As a consequence of this, Feuerbach proposed to trace all our talk of God back to some human quality or qualities. We may say that God is a "reification" of idealized human qualities. Marx adopted Feuerbach's method in political theory to criticize Hegel's reification of features of the state and society above the human relations of production. He transforms the Hegelian reifications into more concrete talk of humans and their productive relations.

universal—what is nonparticular, not specifically located in time and space, and logically accessible to every individual. In Hegel's philosophy, Spirit is universal; it includes all possible particulars, including every individual human being.

veil of Maya—the Vedantic "veil of illusion," a term that Schopenhauer appropriates as descriptive of the phenomenal world.

will—(according to Schopenhauer) the thing-in-itself, the reality that underlies phenomenal appearances.

***Wissenschaftslehre* (literally "theory of science" or "doctrine of scientific knowledge")—**Fichte's name for his entire system of philosophy; not to be confused with any particular book or presentation of this system, and, especially, not to be confused with the presentation of the mere "foundations" of this system (as presented, for example, in *The Foundations of the Entire Wissenschaftslehre*).

world as representation—(for Schopenhauer) the world as it appears as a consequence of the forms imposed by our minds; the phenomenal world.

world as will—(for Schopenhauer) the world as it is in itself; the noumenal world.

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General editors' preface

The history of philosophy, as its name implies, represents a union of two very different disciplines, each of which imposes severe constraints upon the other. As an exercise in the history of ideas, it demands that one acquire a 'period eye': a thorough understanding of how the thinkers whom it studies viewed the problems which they sought to resolve, the conceptual frameworks in which they addressed these issues, their assumptions and objectives, their blind spots and miscues. But as an exercise in philosophy, we are engaged in much more than simply a descriptive task. There is a crucial critical aspect to our efforts: we are looking for the cogency as much as the development of an argument, for its bearing on questions which continue to preoccupy us as much as the impact which it may have had on the evolution of philosophical thought.

The history of philosophy thus requires a delicate balancing act from its practitioners. We read these writings with the full benefit of historical hindsight. We can see why the minor contributions remained minor and where the grand systems broke down: sometimes as a result of internal pressures, sometimes because of a failure to overcome an insuperable obstacle, sometimes because of a dramatic technological or sociological change, and, quite often, because of nothing more than a shift in intellectual fashion or interests. Yet, because of our continuing philosophical concern with many of the same problems, we cannot afford to look dispassionately at these works. We want to know what lessons are to be learned from the inconsequential or the glorious failures; many times we want to plead for a contemporary relevance in the overlooked theory or to consider whether the 'glorious failure' was indeed such or simply ahead of its time: perhaps even ahead of its author.

We find ourselves, therefore, much like the mythical 'radical translator' who has so fascinated modern philosophers, trying to understand an author's ideas in their and their culture's eyes, and, at the same time, in our own. It can be a formidable task. Many times we fail in the historical undertaking because our philosophical interests are so strong, or lose sight of the latter because we are so enthralled by the former. But the nature of philosophy is such that we are compelled to master both techniques. For learning about the history of philosophy is not just a challenging and engaging pastime: it is an essential element in learning about the nature of philosophy—in grasping how philosophy is intimately connected with and yet distinct from both history and science.

The *Routledge History of Philosophy* provides a chronological survey of the history of western philosophy, from its beginnings up to the present time. Its aim is to discuss all major philosophical developments in depth, and, with this in mind, most space has been allocated to those individuals who, by common consent, are regarded as great philosophers. But lesser figures have not been neglected, and it is hoped that the reader will be able to find, in the ten volumes of the *History*, at least basic information about any significant philosopher of the past or present.

Philosophical thinking does not occur in isolation from other human activities, and this

History tries to situate philosophers within the cultural, and in particular the scientific, context of their time. Some philosophers, indeed, would regard philosophy as merely ancillary to the natural sciences; but even if this view is rejected, it can hardly be denied that the sciences have had a great influence on what is now regarded as philosophy, and it is important that this influence should be set forth clearly. Not that these volumes are intended to provide a mere record of the factors that influenced philosophical thinking; philosophy is a discipline with its own standards of argument, and the presentation of the ways in which these arguments have developed is the main concern of this *History*.

In speaking of 'what is now regarded as philosophy', we may have given the impression that there now exists a single view of what philosophy is. This is certainly not the case; on the contrary, there exist serious differences of opinion, among those who call themselves philosophers, about the nature of their subject. These differences are reflected in the existence at the present time of two main schools of thought, usually described as 'analytic' and 'continental' philosophy. It is not our intention, as general editors of this *History,* to take sides in this dispute. Our attitude is one of tolerance, and our hope is that these volumes will contribute to an understanding of how philosophers have reached the positions which they now occupy.

One final comment. Philosophy has long been a highly technical subject, with its own specialized vocabulary. This *History* is intended not only for the specialist but also for the general reader. To this end, we have tried to ensure that each chapter is written in an accessible style; and since technicalities are unavoidable, a glossary of technical terms is provided in each volume. In this way these volumes will, we hope, contribute to a wider understanding of a subject which is of the highest importance to all thinking people.

G.H.R.Parkinson
S.G.Shanker

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C.L.Ten
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Chronology

	Politics and religion	The arts
1800		
1801	Newman b.	
1803		
1804	Napoleon becomes Emperor	Johann Strauss (the Elder) b.
1805	Battle of Trafalgar	Wordsworth, *The Prelude*
1806		
1807	Abolition of slave trade in British Empire	
1808		Goethe, *Faust*, part I
1809		Mendelssohn b. Haydn d.
1810		Chopin b. Schumann b.
1811	Luddite riots in England against use of machines in industry	Liszt b. Austen, *Sense and Sensibility*
1812		Dickens b. Wagner b. Verdi b.
1813		Austen, *Pride and Prejudice* P.B.Shelley, 'Queen Mab'
1814	Napoleon abdicates	Austen, *Mansfield Park* Scott, *Waverley*
1815	Battle of Waterloo and defeat of Napoleon	
1816		Charlotte Bronte b. Austen, *Emma* Coleridge, 'Kubla Khan' Scott, *Old Mortality*

Science and technology	Philosophy
Invention of electric battery by Volta	1800
	1801

Malthus, *An Essay on the Principles of Population* (1st edn 1798)		1803
	Kant d. Feuerbach b.	1804
	Tocqueville b.	1805
	J.S.Mill b.	1806
	Hegel, *The Phenomenology of Mind*	1807
		1808
Charles Darwin b.		1809
		1810
		1811
		1812
	Kierkegaard b.	1813
	Fichte d.	1814
Davy invents the miner's safety lamp		1815
		1816

Politics and religion	**The arts**
1817	Austen d. Coleridge, *Biographia Literaria*
1818	Turgenev b. Emily Bronte b. Mary Shelley, *Frankenstein* Austen, *Northanger Abbey* Austen, *Persuasion* Scott, *Heart of Midlothian*
1819	Whitman b. Eliot b. Scott, *Bride of Lammermoor*
1820	Scott, *Ivanhoe* P.B.Shelley, *Prometheus Unbound*
1821	Keats d. Dostoievsky b.

		Baudelaire b. De Quincey, *Confessions of an English Opium Eater* Scott, *Kenilworth* P.B.Shelley, *Adonais*
1822		P.B.Shelley d. Franck b.
1823		Scott, *Quentin Durward*
1824		Byron d.
1825		Johann Strauss (the Younger) b.
1827		Beethoven d.
1828		Tolstoy b. Schubert d. Goya d.
1829	Catholic Emancipation Act, Britain	Millais b.
1830		Pissarro b.
1831		Goethe, *Faust*, part 2
1832	Reform Act, Britain, extending the franchise to the middle classes	Goethe d. Monet b.
1833	Factory Act, England, prohibiting the employment of children under nine years old in factories Oxford Movement	Brahms b. Carlyle, *Sartor Resartus* (1833–4)
1834		Degas b. Dickens, *Sketches by Boz*

Science and technology	**Philosophy**	
	Hegel, *The Philosophy of Right*	1817
	Marx b.	1818
	Schopenhauer, *The World as Will and Idea*	1819
Oersted publishes discovery of link between electricity and magnetism	Engels b. James Mill, *Essay on Government*	1820
		1821
Pasteur b.		1822
		1823
		1824

		1825
		1827
	James Mill, *Analysis of the Phenomena of the Human Mind*	1828
Stephenson constructs steam powered railway Lobachevsky, *On the Foundations of Geometry* Thomas Graham, Graham's Law on diffusion of gases		1829
Lyell, *The Principles of Geology*, vol. 1 (vol. 3 1833)	Comte, *Cours de philosophie positive* (1830–42)	1830
Maxwell b. Faraday invents dynamo	Hegel d.	1831
	Bentham d.	1832
Faraday presents the laws of electrolysis	Dilthey b.	1833
		1834

	Politics and religion	**The arts**
1835		
1836	Beginning of Chartist movement in Britain for extension of the franchise to all adult males	Dickens, *Pickwick Papers* (1836–7)
1837	Victoria becomes Queen of Britain	Pushkin d. Constable d. Dickens, *Oliver Twist* (1837–8)
1838		Bizet b. Dickens, *Nicholas Nickleby* (1838–9)
1839		Cézanne b.
1840		Tchaikovsky b. Rodin b. Dickens, *Old Curiosity Shop*
1841		Renoir b. Dvořák b. Dickens, *Barnaby Rudge*
1842		
1843		Wordsworth becomes Poet Laureate Henry James b. Grieg b. Dickens, *Martin Chuzzlewit*

	(1843–4) Carlyle, *Past and Present*	
1844		
1845		
1846 Potato famine in Ireland. Repeal of Corn Laws in Britain	Dickens, *Dombey and Son* (1846–8)	
1847	Mendelssohn d.	
1848 Revolutions in Europe. Marx and Engels, *The Communist Manifesto*	Emily Bronte d. Gauguin b. Charlotte Bronte, *Jane Eyre* Thackeray, *Vanity Fair* Emily Bronte, *Wuthering Heights*	
1849	Chopin d. Johann Strauss (the Elder) d. Dickens, *David Copperfield*	
1850	Wordsworth d. Tennyson becomes Poet Laureate	
1851	Turner d.	

Science and technology	**Philosophy**	
	Tocqueville, *Democracy in America*	1835
	James Mill d. Green b.	1836
	Whewell, *History of the Inductive Sciences*	1837
	Sidgwick b. Mach b. Brentano b.	1838
	Peirce b.	1839
	Bosanquet b. Whewell, *The Philosophy of the Inductive Sciences*	1840
	Feuerbach, *The Essence of Christianity*	1841
Discovery of Doppler effect	William James b.	1842
	J.S.Mill, *A System of Logic* Kierkegaard, *Either/Or* Kierkegaard, *Fear and Trembling*	1843
	Nietzsche b. Kierkegaard, *The Concept of Dread* Kierkegaard, *Philosophical Fragments*	1844

Faraday introduces the notion of magnetic field	Whewell, *Elements of Morality, including Polity*	1845
	Bradley b. Kierkegaard, *Concluding Scientific Postscript*	1846
	Boole, *The Mathematical Analysis of Logic*	1847
	J.S.Mill, *The Principles of Political Economy*	1848
	Kierkegaard, *Sickness unto Death*	1849
		1850
Great Exhibition in London	Comte, *Système de politique positive* (1851–4)	1851

Politics and religion	**The arts**
1852	Dickens, *Bleak House*
1853	Van Gogh b.
1854	Dickens, *Hard Times*
1855	Charlotte Bronte d. Dickens, *Little Dorrit* (1855–7)
1856	Schumann d.
1857	Elgar b. Charlotte Bronte, *The Professor*
1858	Puccini b.
1859	Dickens, *Tale of Two Cities* Eliot, *Adam Bede*
1860	Chekhov b. Mahler b. Dickens, *Great Expectations* (1860–1) Eliot, *Mill on the Floss*
1861 Abraham Lincoln becomes president of the United States American Civil War starts (ends in 1865)	Eliot, *Silas Marner*
1862 Bismarck becomes Prime Minister of Prussia	Debussy b. Delius b.
1863 Slavery abolished in the United States	Delacroix d. Eliot, *Romola*
1864	Richard Strauss b. Toulouse-Lautrec b. Dickens, *Our Mutual Friend*

	(1864–5)
1865	Sibelius b. Matthew Arnold, *Essays in Criticism* Carroll, *Alice's Adventures in Wonderland* Dickens, *Our Mutual Friend* Tolstoy, *War and Peace* (1865–9)
1866	Dostoievsky, *Crime and Punishment*
1867Second Reform Act	Baudelaire d.
1868	George Eliot, *The Spanish Gypsy* Dostoievsky, *The Idiot*
1869	Matthew Arnold, *Culture and Anarchy*

Science and technology	**Philosophy**	
	Whewell, *Lectures on the History of Moral Philosophy in England*	1852
	Meinong b.	1853
	Boole, *An Investigation of the Laws of Thought*	1854
	Kierkegaard d.	1855
	Freud b.	1856
	Comte d.	1857
		1858
Charles Darwin, *The Origin of Species* Lenoir develops internal combustion engine	J.S.Mill, *On Liberty* Marx, *A Contribution to the Critique of Political Economy* Tocqueville d.	1859
	Schopenhauer d.	1860
	J.S.Mill, *Considerations on Representative Government*	1861
		1862
	J.S.Mill, *Utilitarianism*	1863
Maxwell's equations of electromagnetism		1864
Mendel reports findings on genetics	J.S.Mill elected MP for Westminster	1865
Nobel invents dynamite	Whewell d.	1866

Faraday d.	Marx, *Das Kapital*, vol. 1 (vol. 2 1885, vol. 3 1894)	1867
		1868
F.Galton, *Hereditary Genius: An Inquiry into its Laws and Consequences* Mendeleyev publishes periodic table of elements de Lesseps completes Suez Canal	J.S.Mill, *The Subjection of Women*	1869

	Politics and religion	The arts
1870		Dickens d. Dickens, *Mystery of Edwin Drood*
1871	Britain legalises trade unions Establishment of German Empire	Eliot, *Middlemarch* (1871–2)
1872		
1873		Rachmaninov b.
1874		Schoenberg b.
1875		Bizet d. Ravel b. Tolstoy, *Anna Karenina* (1875–7)
1876		Eliot, *Daniel Deronda*
1877		Henry James, *The American*
1879		Henry James, *Daisy Miller* Dostoievsky, *The Brothers Karamazov* (1879–80)
1880		Eliot d.
1881		Dostoievsky d. Bartók b. Henry James, *Portrait of a Lady*
1882		Stravinsky b.
1883		Turgenev d. Monet d. Wagner d.
1884	Third Reform Act	
1885		
1886		Liszt d. Henry James, *The Bostonians* Stevenson, *Dr Jekyll and Mr Hyde* Stevenson, *Kidnapped*
1887		

1888		
1889		
1890	Newman d. Van Gogh d. Franck d.	
1891		
1892	Whitman d.	

Science and technology	**Philosophy**	
		1870
Darwin, *The Descent of Man*		1871
	Nietzsche, *The Birth of Tragedy* Feuerbach d.	1872
Wundt, *Principles of Physiological Psychology*	J.S.Mill d. J.S.Mill, *Autobiography*	1873
	Sidgwick, *The Methods of Ethics*	1874
		1875
Bell invents the telephone	Bradley, *Ethical Studies*	1876
Edison invents phonograph		1877
Maxwell d.	Frege, *Begriffsschrift*	1879
		1880
		1881
	Green d.	1882
	Dilthey, *Einleitung in die Geisteswissenschaften* Nietzsche, *Thus Spoke Zarathustra* Bradley, *The Principles of Logic* Marx d. Mach, *The Science of Mechanics*	1883
	Frege, *The Foundations of Arithmetic*	1884
Pasteur develops vaccine against rabies		1885
	Nietzsche, *Beyond Good and Evil* Mach, *The Analysis of Sensations*	1886
	Nietzsche, *The Genealogy of Morals*	1887
	Bosanquet, *Logic*	1888
	Nietzsche, *The Twilight of the Idols*	1889
	Green, *Prolegomena to Ethics* William James, *Principles of Psychology*	1890
	Nettleship (ed.), *Works of Thomas Hill Green*, vols. 1–3 (1891–4)	1891
		1892

Politics and religion	The arts
1893	Tchaikovsky d. Maupassant d.
1894 The Dreyfus Affair in France	
1895	
1896	Millais d.
1897	Brahms d. Henry James, *What Maisie Knew*
1898	Henry James, *The Turn of the Screw*
1899	Johann Strauss (the Younger) d. Henry James, *The Awkward Age*

	Science and technology	Philosophy
	Bradley, *Appearance and Reality*	1893
		1894
Roentgen discovers x-rays Pasteur d.	Nietzsche, *The Antichrist*	1895
		1896
	William James, *The Will to Believe*	1897
		1898
Freud, *The Interpretation of Dreams*	Bosanquet, *Philosophical Theory of the State*	1899

Introduction

C.L.Ten

This volume covers most of the major philosophers of the nineteenth century. The most conspicuous exceptions such as Hegel, Marx, Schopenhauer and Kierkegaard, are included in other, more thematically focused volumes. Of the philosophers considered in this volume, the figure of John Stuart Mill looms large. He made contributions to a wide area of philosophy, although he is best known today for his defence of individual liberty and for his much-maligned attempt to 'prove' the utilitarian principle. The roots of his ethics are to be found in the writings of his father, James Mill, and Jeremy Bentham. None of these was a professional philosopher, unlike many other philosophers of the century. The Mills worked for the East India Company, while Bentham was a man of independent means.

James Mill and Bentham were very concerned with practical issues of changing established social, political and legal institutions, exposing and rooting out the 'sinister interests' behind them. Bentham paid careful attention to language and especially to the language of law. Sinister interests flourish where unclear terms are used. We can make social progress only by trying first to translate the sentences in which these terms occur into equivalent sentences in which the vague terms are replaced by terms referring to entities that are real and perceptible by the senses. We can then be purged of those fictitious entities which cannot in this manner be replaced by real entities. Pleasure and pain are real entities which explain human motivation and also set the end of promoting the greatest happiness which all conduct should aim at. This standard of what we ought to do is the famous principle of utility.

Laws and constitutional arrangements should be framed in accordance with the principle. Bentham and James Mill supported democracy as the system of government that will ensure that the power of the rulers is not abused. But although they argued for the extension of the franchise, James Mill explicitly excluded women from the vote on the ground that their interests would be adequately protected by others. It was left to his son to promote the cause of women in his *The Subjection of Women*.

John Stuart Mill took up many of the concerns of James Mill and Bentham, but there was a distinct shift of emphasis in the way in which he argued for similar causes. The case for representative democracy was presented not just in terms of protecting the interests of the people but also, and perhaps more importantly, as providing the basis for their moral, intellectual and social development through participation in the political process. John Stuart Mill also changed the conception of utility, distinguishing between higher and lower pleasures, and emphasizing the importance of free and active choices between different ways of life. He argued passionately in his essay *On Liberty* for freedom of discussion and for individual liberty to perform acts not harmful to others even though the views expressed, or the acts in question, were those towards which the

majority felt repugnance.

Utilitarian theory was developed further by Sidgwick, a professional philosopher in Cambridge. He regarded common-sense morality as a system of rules which tended to promote general happiness. But utilitarianism would systematize and sort out some of the inconsistencies in common-sense morality and give it a rational foundation. Sidgwick recognized a paradox in that the utilitarian goal of promoting happiness may be better served if only a few enlightened people accept utilitarianism. If 'the vulgar' are told the truth that utilitarianism is the ultimate basis for their conduct, then they are likely to produce bad results as they miscalculate the consequences of their actions in an uncertain world. Sidgwick also acknowledged that the utilitarian principle is not the only principle that it is rational to comply with; it is also rational to act on the principle of egoism.

John Stuart Mill developed what he regarded as a refined version of an alternative to intuitionist moral theory in which moral truths are self-evident and known by intuition. One of the targets of Mill's attack was William Whewell. Mill in turn was attacked by the idealist philosophers. Bradley poured scorn on Mill's alleged attempt to show that each person desires the general happiness from the fact that each desires his or her own happiness. Bradley propounded a morality of self-realization to replace the goal of maximizing pleasure, whether it be one's own or the pleasures of all. The two other prominent British idealist philosophers were T.H.Green and Bernard Bosanquet, whose contributions to moral and political philosophy involve the working out of the view that the criterion of reality is coherence. A person's good is identified with the development and integration of his or her capacities into a coherent whole. Social life is necessary for individual perfection, and an account of the common good is developed whichinvolves the harmonious integration of complementary social roles. The sharp and frequent conflicts between the individual good and the social good are absent from this account.

On the continent Nietzsche presented a radical challenge to traditional morality. Declaring 'the death of God', he saw this as undermining the foundations of Christian morality. He distinguished between the 'master morality' of a ruling group and the 'slave morality' of the weak. 'Good' is a term that the ruling group use to refer to themselves and their conduct, and what is common is decreed 'bad'. But the weak have different values, and strength is regarded as 'evil'.

The moral theories of philosophers like John Stuart Mill and Bradley were integrated with their more general philosophical views. Three major types of philosophy were prominent during this period—the empiricism of Mill, the idealism of Bradley and the pragmatism of the American philosophers Peirce and William James.

Major advances were made in mathematics. For example, in the earlier part of the century there were challenges to Euclidean geometry, while the latter part saw Frege's contributions to the understanding of the foundations of mathematics. Similarly, significant scientific discoveries were made, and there was much interest in scientific method, as reflected for example in the dispute between Mill and Whewell on induction and the role of hypothesis in scientific enquiry. Whether, or to what extent, the understanding of human conduct and human society required the adoption of the methods of observation and experiment common to the natural sciences was also a bone of contention. The disagreements were particularly fierce with respect to the nature and status of psychology which gradually established itself as a discipline independent of

philosophy.

In France Comte considered himself the founder of the new science of ‘sociology’, applying scientific method and knowledge to the understanding of social behaviour and to the reconstruction of human societies. His Law of the Three Stages states that there are three stages of intellectual development. In the theological stage, phenomena are explained in terms of the activities of supernatural beings. In the metaphysical stage, explanations appeal to abstract forces. In the third and final positive stage, the human mind seeks the invariable relations of succession and resemblance between phenomena, and explanation is in terms of establishing connections between particular phenomena and some general facts.

In Germany Dilthey rejected the assimilation of the human sciences to the natural sciences. We have internal knowledge of our mental life, a direct understanding different from the external knowledge of an alien, external world. We understand others by analogy with our understanding of our own mental life. Their actions are expressions of human minds, and we understand them by re-living their experiences. This kind of understanding is also applied to other expressions of the human mind—social institutions, literature and works of art. Later Dilthey developed what is now an influential ‘science’ of hermeneutics which embodies a procedure for interpreting written documents and other expressions of the human mind. Treating these expressions as coherent and unified, the hermeneutic procedure uses the parts of the whole to mutually clarify each other.

Charles Darwin’s *The Origin of Species* propounded a contentious theory of evolution. One important issue was the application of evolutionary theory to ethics. Herbert Spencer developed an uncompromising version of Social Darwinism in which the process of natural selection in social life was to be left unhampered, with the weak having to fend for themselves.

The issues mentioned in this brief introduction are among those discussed at much greater length in the various chapters. Some issues and philosophers are discussed in several chapters from different points of view and in different contexts. The styles of the authors of the chapters are different, as are their opinions and philosophical sympathies. But they have all given their own illuminating interpretations of a wide range of philosophical theories.

CHAPTER 1
The early utilitarians

Bentham and James Mill

G.L.Williams

Jeremy Bentham was born in 1748 in London; his prosperous father, a lawyer who became wealthy from property rather than the law, planned out for his son a brilliant legal career. After an early education at Westminster and Oxford he was called to the Bar in 1769. However, instead of mastering the complexities, technicalities, precedents and mysteries of the law in order to carve out a successful career, Bentham's response to such chaos and absurdity was to challenge the whole structure of law and to attempt to replace it with a system as perfect and as rational as it could be. In many ways a typical *philosophe* of the eighteenth century, Bentham at this early stage seized on the possibility of improvement through knowledge, on the supremacy of reason over superstition and of order over chaos. Despite his living and writing into the new age of the nineteenth century—post-revolutionary, industrialized, democratic—this early inspiration that enlightenment would bring about a better world never left him. To help create a world as it might be—as it ought to be—rather than succeed in a world as it was—customary, prejudiced and corrupt—was his constant aim whatever the particular object he pursued within his encyclopaedic interests, and whether the study be abstract and philosophical or detailed and practical. His central concern was the study of legislation, a concern developed from his own disillusionment with the state of English law and his positive response to the works of those like Helvetius and Beccaria who had argued that there must be some general and rational test as to the adequacy of existing law in order to justify its reform. As we shall see, this task involved both expository and censorial elements and the principle of utility which Bentham formulated provided the basis of his life's work.

During the eighteenth century his main approach assumed that the successful achievement of Enlightenment thought would lead to its equally successful application through direct contact and conversion of benevolent despots or at least their influential advisers. In the 1780s he spent two years in Russia with some hope of convincing Catherine the Great, but with his failure to gain influence amongst the powerful, whether over his general ideas or over his detailed projects, he became increasingly convinced that sinister interests—the law, the Church, Parliament—would act as obstacles to Reason and Reform. In which case, politics would have to be reformed—the ruling elite would have to be tamed—before his life's work could be realized. Constitutional law not just civil and criminal law stood in need of drastic reform. The influence of James Mill and later the growth of a school of reformers—the Philosophical Radicals—gave Bentham, now in his sixties, a new zest for work and an added commitment to reforming

the law in Russia, America, Spain, Portugal, Greece, Latin America, as well as to reforming all manner of abuses in British public life. Indeed he was as productive in the last twenty years of his life as he had ever been before, if not more, and his belief in the supremacy of his method and his principle as the key to philosophical and practical advancement was as clear and deep as when he first discovered it over sixty years earlier.

The starting point for the whole project which gives meaning and form to these brief biographical points was Bentham's early realization of the importance of language. Not only in the field of law, where falsehoods, absurdities and nonsensities were common, but in many other fields as well, careful definition was sacrificed to vagueness and emotiveness. The dominant and therefore sinister interests in any area—law, morality, politics—maintained a language in which the words were either totally unclear or contained an inherent prejudice or bias in their favour. Unless language could be made clear the truth would be concealed and the possibility of improvement would be lost. Definition is the key and it depends first on distinguishing between real and fictitious entities and then on determining the legitimacy or not of the latter by Bentham's new method—that of paraphrasis.

Nouns can be divided into those which are names of real entities—those things whose existence gives immediate consciousness, which can be directly perceived by the senses, and which are either states of body or states of mind—and fictitious entities which are referred to as if they really exist but need further exposition to give them meaning. In the first category the most basic examples would be pleasure or pain while in the latter the most frequent examples, say in law, would be duty, right or power. These latter are linguistic constructs and as such are 'fictions' but, as those examples show, this does not mean that language could do without them. Although they do not exist in themselves and although they give rise to doubt and confusion this does not mean that they are all meaningless. Fictions then are necessary, but how to distinguish fictions that are legitimate from those which are strictly speaking nonsense—fictional entities from fabulous entities? The key here is a method which while 'translating' fictional entities into real entities at the same time gives a criterion for denying meaning to those fictions incapable of such 'translation'.

The method Bentham discovered was that of paraphrasis, the only mode of exposition for those abstract terms where there was no superior genus to which they belonged and where the Aristotelian method of definition *per genus et differentiam* was thus inapplicable. To define a fictitious entity only by reference to other fictitious entities offered no solution. The clarification needed is in terms of the real and perceptible; Bentham does this not by translating one word by another or one term by its component parts, but by translating one sentence in which the term appears into another which is equivalent but in which the fictitious entity is replaced by a real one. In these two parallel propositions the import would be the same but the device of paraphrasis would give simple clarity to the sentence translated and if such translation into real terms were impossible it would reveal the fabulous or nonsensical nature of the original ([1.5], 495). An example might help here: however much we might classify rights and duties, the general idea of a right or duty can only be explained by paraphrasis—thus a sentence containing those terms would be translated into one explaining for what the law makes us liable to punishment, for doing or not doing, and punishment is then further explained in

terms of pain, a real entity. Thus a fiction is made clear by its translation into its relation to the real. Ideas are thus clarified by reference to their context—the sentence; whether or not the sentence can be paraphrased into one which contains real terms is the deciding factor with regard to its sense or nonsense. In a sense the substitute sentence provides the possibility of verifying the original by reference to the world of real entities. Thus if the word 'duty' were used without reference to the pain through punishment which the law laid down then the 'duty' would have no more meaning than an expression of opinion.

In this way the law, by distinguishing between the real and the fictitious and between the fictitious which can be paraphrased or verified and those fictitious entities which cannot be, can be clarified and reformed. The fabulous entities will be purged, the (legitimate) fictional entities will be established on firm—because real—foundations. These real entities are pleasures and pains and where some might refer to 'frugality' and 'thrift' and others to 'meanness' and 'greed' these in the end come down to the pleasures and pains consequent on the action not on any inherent goodness or badness in the motive. The real world must be recognised in this way and all fictions, however necessary, must be referable to them. It is thus important to reform language to give it meaning and so be in a position to change the real world. The slate of confusion, mystery and corruption must be wiped clean and on it written only that which makes sense by being real. Once this is done the process of describing, classifying, quantifying as well as the process of prescribing and reforming can begin—a science of legislation both accurate in detail and conducive to improvement can begin to be formulated. Once vagueness and ambiguity are eliminated and abstract terms are replaced by concrete detail then the way is open for a clear understanding of human nature which will provide the basis for a system of legislation which in turn will be the great instrument for social progress. Bentham's intention was to combine the discovery of new principles with detailed attention to their practical uses; indeed he saw his own genius as lying in the introduction of rigorous detailed investigation to supplement the more traditional concern with general principles. In this he compared his work with that of the natural scientist though in his case the detail came not from observation and experiment but from analysis, classification and division. His belief in the fundamental importance of a clear and accurate vocabulary underlay his early optimism that reason once employed would be the vehicle of both accurate exposition of the law as it was and enlightened criticism of the law as it ought to be.

The *Introduction to the Principles of Morals and Legislation* ([1.5], 11) is Bentham's best known attempt to outline the fruits of this new method by outlining his principle of utility and the structure of law which would result from its adoption and application.

> Nature has placed mankind under the governance of two sovereign masters, *pain* and *pleasure*. It is for them alone to point out what we ought to do, as well as to determine what we shall do. On the one hand the standard of right and wrong, on the other the chain of causes and effects, are fastened to their throne.

This striking though rather compressed summary of his basic philosophy puts forward two distinct claims, though in a manner not altogether without confusion. Following Hume, Bentham was always emphatic that the idea of what is must be kept distinct from

the idea of what ought to be, and thus he is here making two claims, a factual or descriptive one and also a normative or prescriptive one. The first is that human beings are so constituted that what they seek is pleasure and the second is that every action is judged right or wrong according to its tendency to augment or diminish such happiness (or pleasures over pains) for the party involved. Thus Bentham is involved in two enquiries—the one into human nature and the other into moral philo-sophy. Although the second should accord with the first it could not be logically deduced from it; indeed strictly speaking it could not be proved at all. However, that these are two separate statements is important to recognize despite Bentham's linking of them both to Nature. The normative or critical principle indicates what ought to happen, the end, the goal of legislation; the descriptive indicates the material, the limitations imposed on the legislator in achieving those ends. For the project to work these two aspects must be made consistent—the pursuit of pleasure by the individual as a natural activity must be made compatible with the achievement of the happiness of the community over whom the ruler legislates. Only if the two principles are kept separate can the critical one do its work, the work of improvement and reform; indeed only then does it have a role at all. The principle of utility or the 'greatest happiness' principle is meant to be realizable and thus must recognize the natural qualities of human beings, but it has to work on or modify the ensuing conduct in order to achieve its moral end. Whether and how the individual pursuit of pleasure can co-exist with the community's aim of greatest happiness is an issue to be resolved once further exploration of the two claims is completed.

The natural statement—of what is the case—amounts to a form of psychological hedonism, that all action willed by human beings is motivated by the desire to obtain pleasure or avoid pain. This does not necessarily imply psychological egoism, that it is only the agent's own pleasure or pain which acts as the motivating force, though, as we shall see, Bentham sees this as a general rule. However, is the hedonism which Bentham believes in a matter of fact, a matter of definition, or itself also a generalization? Is it an *a priori* axiom or the result of observation? Although Bentham at times seems to incline towards the latter, in that he cites evidence and the results of observation, his enumeration of the great range of motives is entirely in terms of pleasures and pains—not certainly all egoistic—but nevertheless making all human conduct analysable in those terms. Thus the 'facts' of human psychology reflect Bentham's earlier view that the only real entities are pleasures and pains. Such motives can be social, dissocial, or self-regarding but they all correspond to pleasures, even those of goodwill or benevolence. Where all examples can be thus described in terms of pleasure and pain, the original assumption becomes definitional rather than empirical. However, such pleasures are not all self-regarding even if in the final analysis the pleasure sought is the agent's own, for it is still possible to distinguish such pleasures from those more obviously concerned with self-preference. Put differently, while every motive has a corresponding interest this need not strictly speaking be self-interest in a crude egoistic sense.

Nevertheless, having made due allowance for the social motives of sympathy and benevolence, Bentham did not consider them to be of great force and argued that generally self-preference was predominant; certainly it should be the basic assumption for the art of legislation. He argues that such self-preference is the normal state for normal people and that the design of law should reflect this. It is not a definition *a priori*

nor a factual truth—the one would be trivial and the other false—but a generalization which is not only true as such but is the only working assumption which a legislator can adopt. In this way all human conduct with all the possible motives influencing it can be reduced to pleasures and pains—real entities experienced by real individuals whose psychology generally puts themselves first. Thus a scientific approach becomes possible in that pleasures and pains become the unit of classification, measurement and comparison. Certainly this will be no easy process, not least because each individual may judge pleasures differently, but the fact that the legislator is dealing with observable conduct which it can be assumed indicates the strength or weakness of the motive opens up the possibility of rational calculation. The evidence of interests, of the pleasures which motivate people, is thus their conduct, and the relative value of such pleasures and pains can be observed. As it is only consequences that count and as these are empirically observable then science can begin its work. The process of analysis and quantification in terms of calculable units offers the opportunity of seeing human conduct with a clarity and precision never before seen.

Although there were a huge variety of pleasures and although exact comparison between the pleasures of different people with different sensibilities and in different circumstances would not be possible, nevertheless from the point of view of the law or policy-maker general calculations were possible. This was to be done through recognizing that pleasures had certain dimensions of value and that the sum of these would give the overall result. Thus intensity and duration were relevant in estimating value as were the degree of certainty and the degree of remoteness of a pleasure, the likelihood of further pleasure following on or the opposite effect occurring. In addition the number of people affected, or the extent of the pleasure, must enter the calculation. Unless this sort of common measure, or currency, were introduced then no comparison would be possible and neither individuals nor legislators could conduct their affairs with any order or rationality or predictive force, those very elements needed for the successful pursuit of the interests which all human beings aimed at.

As well as giving Bentham a fundamental reality by which to describe human behaviour, the idea of pleasure and pain also enters into his moral principle that the only legitimate standard for the individual and the community is utility or the ‘greatest happiness principle’. This is his great critical principle designed to promote reform, not a principle, as with Hume, to explain the rationality of custom and constraint but to emphasize the gulf between what is and what ought to be. It is Bentham’s attempt to erect an external standard by which disputes can be resolved by a rational calculation of various options; these options being in turn resolvable down to questions of pleasures and pains. The principle cannot be proved but it is for Bentham the only objective alternative to the mere expression of personal taste. Utility or caprice, reason or mere sound—these are the options and Bentham emphasizes the need for a standard which can be empirically applied. There is no ultimate proof that happiness is better than suffering but, once presented in this way, Bentham is confident that all reasonable people would choose the former and having done so his task is to convert such a principle into a detailed and radical weapon for change.

If happiness is the goal and if moral language is meaningless without reference to this standard then the legislators’ task is to create a legal order in which the fictions with

which they work are constantly reduced to the real entities of pleasure and pain which should act as their guide in maximizing the community's good. Thus the moral evaluation of a law or a policy proposal comes down in the end to matters of fact, to observation of consequences, to verification. Similarly the tools which the law uses in order to create 'the greatest happiness' are also examples of pleasures and pains, the most notable of course being punishment. The attractiveness of the principle then is that it provides a framework for moral criticism and evaluation which respects the reality of nature and by judicious modification of human behaviour it transforms what could be a life of irrational suffering into one of happy enjoyment. The prescriptive principle is not confused with the descriptive acts; otherwise it would have no role to play. Instead it enables us to become moral actors rather than mere pleasure-seekers, to appreciate our duties and to follow them rather than pursue without restraint the self-preference which our nature inclines us towards. The terms 'duty', 'ought', 'right' and 'good' carry no meaning for Bentham unless they are used of actions which conform to the principle and thus can be translated into statements whose factual elements can be verified. How then are the duties which arise from the moral principle to be reconciled with the pursuit of the self-regarding interests which are posited by the psychological principle? Is the latter, which sees the agent's own happiness as the natural goal of behaviour, compatible with the former, which directs us to act in conformity to the greatest happiness? Could an answer be found which preserved both of the two claims which Bentham is concerned to support? Certainly Bentham did not want to depart from the view that the driving force in society was the individual pursuit of happiness and there is no attempt to replace this with moralistic pleas for altruism or benevolence; equally he holds firm to the principle of utility. Thus duty or conformity to the principle would also have to be something which it was in the interest of the agent to perform. Given the assumption of how people do behave, the society must be so ordered that this behaviour coincides with how they ought to behave. In other words, through the use of sanctions—physical, moral, political and religious—the society would give people an interest in performing their duty. The most powerful influence to bring this about would be punishment, that artificial pain, which would force men to recalculate their happiness and act in accordance with the general well-being. The motives natural to each individual would remain the same but the new threat of pain would deter the anti-social act and create a situation where it would be in an individual's interest to do his or her duty.

It is on the basis of this belief in people as they are and society as it ought to be that Bentham undertakes his massive investigation into the principles of law—constitutional, civil and criminal—and the detailed application of these in all areas of life. And this was a political activity, one geared to bringing about change, not merely an intellectual project aiming at clarity and enlightenment. Bentham was well aware that utility had been a standard held by others in the past; the need now was for it to be applied in detail and through this to be accepted and implemented. Utilitarianism was a theory about the State, government, law, public matters generally, and although Bentham's works published in his own lifetime wander from principle to detail, from general to particular, the total work is a logical and exhaustive—and exhausting—survey of the most general framework of law, the constitutional, down to the most minute detail of actual laws, offences and punishments.

If we turn to the broadest framework of law relevant to the utilitarian aim of reform, Bentham's major work was the *Constitutional Code* [1.6] not begun until he was over seventy and the most developed account of his mature views. In his earlier days he had held a rather naive view that enlightenment—clarity and reason—would itself persuade rulers of the need for legislative reform, but after his adoption of the need for a radical overhaul of the system of government he developed his detailed system of representative government. The *Constitutional Code* was envisaged as the first stage to three other Codes—Procedure, Penal and Civil—which together would make the Pannomion, a complete body of law. It was meant to be a three-volume work but only one was printed in Bentham's own lifetime, a volume which included chapters on the electorate, the legislature, the prime minister and the administration—the whole framework within which the democratic principle would work and where laws would be made according to the principle of utility rather than in response to the sinister interest of those in power. Unless the constitutional arrangements are right then the resulting laws and policies will be likewise flawed. These arrangements must be based on the principle of utility, not on any useless fiction like the original or social contract, a point he had made as early as 1776 in his *Fragment on Government* [1.5]. However, the point is now made in conjunction with his suspicion of sinister interests, and the framework must now be democratic and also contain protection against the tendency of those in power to rule in their own interests. As with human nature in general, interest must be brought into accord with duty, and this is as important a problem in the constitutional arrangements as it is in the spheres of civil and penal law. The possibility of divergent interests between the rulers and the ruled, the few and the many, would not simply disappear with the inauguration of representative democracy but would need rigorous safeguards to prevent it. It is on this issue of making rulers constantly accountable that Bentham is at his most novel and most detailed.

In his own time, Bentham's analysis of democracy was somewhat overshadowed by the more popular and striking writings of James Mill and it is only in recent years that painstaking and illuminating research has brought out the range and quality of Bentham's innovative ideas ([1.6] and [1.50]). The older view of Bentham as someone arguing naively from first principles to their logical and democratic conclusion (people put their own interests first, the rulers do likewise, therefore the people must rule in order to maximize the general interest) is replaced by a much more sophisticated account which combines the empirical approach with the critical utilitarian one. At its heart is a scepticism regarding the ability of institutional arrangements alone to bring about the greatest happiness; they must be subject at all times to the scrutiny of an informed and involved public.

If we turn first to the arguments in favour of representative democracy and then to the extra safeguards to protect against misuse of power we can appreciate most fully Bentham's originality and, it can be argued, also the value of his neglected contribution to democratic thought. Viewing political societies generally, Bentham replaces the traditional concern with discovering their origins in order to define their character, limits and legitimacy with the simpler view that they exist wherever there is a general habit of obedience to a person or assembly. In a democracy the sovereign constitutive authority lies with the people while the legislative authority is omnicompetent within its own

domain. It is the people who choose the rulers and who may dismiss them if they fail to serve the greatest happiness; in turn only the rulers have the power to make and execute laws which, because of their representative nature and their accountability to the people, they are likely to do in the common interest.

Looking at the more detailed application of this basic relation between rulers and ruled, we see the state divided into equal districts each electing a member to the legislature while also having its own sub-legislature and forming a judicial district. This model, depending on the size of the State, would be applied also to sub-districts and if necessary to smaller units again. The electorate in each district is based, with few exceptions, on universal manhood suffrage (the world may not yet be ready to grant female suffrage though there is no logical reason to exclude women) and the electors both choose and may dismiss the representatives; mistrust is built into the system and the power of the people preserved. The legislature so elected by secret ballot is a single chamber, normally elected for one year, and comprising full-time and paid members. While this legislative branch is checked by the constitutive branch—through elections and dismissals—it in turn is responsible for the appointment and control over the administrative and judicial branches. The prime minister and justice ministers are elected from outside by the legislature and they in turn appoint ministers from within the legislature and judges respectively. The power to dismiss such appointments lies with the prime minister and justice minister but also with the legislature and the electorate as a whole, such power extending in the latter two cases also to dismissing the prime and justice ministers themselves. Thus the administration and the judiciary, while not being directly elected by the people but chosen for their intellectual and moral qualities, would nevertheless be subject to popular control through the electorate's power of dismissal and if need be punishment. To render this democratic control meaningful, Bentham insists on the open nature of government, administration and judicial affairs, and includes maximum publicity at all stages of the conduct of public affairs. Further, a similar arrangement of elections, legislatures, administration and judiciary is applied at the local level, maximizing at all levels the power of the people and thus the securities against misrule.

In this way, the tendency of those in power to pursue their own interest—one which in an unreformed system sees the wealthy rule at the expense of the poor—must be guarded against even in the reformed constitutional democracy which Bentham outlines and the major antidote to the sinister power of government is public opinion. However precise, exact and carefully constructed the constitutional details may be, it is the power of public opinion which is the final guarantee against misuse of power by the rulers. So important was this view to Bentham that he envisages a Public Opinion Tribunal, the voice of the general interest speaking through meetings, speeches, writings and the press, in order to inform, criticize, praise or support the actions of the more formally constituted elements of government. Thus while the people do not themselves rule, their involvement is not restricted to mere elections; they are the guardians as well as the source of power.

More than this, Bentham also believes that his proposed system would protect the individual against abuse of power by the government. Although dismissing any idea of natural rights as nonsense, as fictions which are illegitimate because untranslatable into the real entities of pleasure and pain, he nevertheless pursues a somewhat similar goal of defending the individual, through his concern with securities against misrule. In a sense

the whole constitutional system is designed to deter the rulers from abusing their power—through elections, dismissals, publicity, and so on, i.e. through the practice of responsibility and accountability. The system is based on the principle of mistrust and although the legislature is omnicompetent it is limited by the continual scrutiny of the public over its actions as well as by its limited duration. The legislature is essentially dependent on the people and this for Bentham is a greater guarantee of the security and liberty of the citizen than any appeal to rights, whether abstract or legal. In addition, as we shall see, one of the main aims of the law is security, as one of the essential elements of happiness, and for Bentham this security, which it was the duty of the law to maintain, solves those problems traditionally discussed in terms of individual liberty. Constitutionally, however, accountability was the chief means to ensure the security of the individual against oppressive State power through the ability of individuals to control their rulers.

Given this radical overhaul of the system of government it is necessary to see why it has taken place—whatever the source, power and limits of the legislature its function is to create and impose law according to the principle of utility, thus providing an alternative to the traditional view of law as something which grew organically and embodied the wisdom of the past modified by judges in the light of new experience. In many ways this idea of common law was always Bentham's chief target for he saw it as a massive and illegitimate fiction; real law was the expression of the will of the sovereign legislature and should be clear, known and in the general interest not vague, dependent on judges and serving the interest only of lawyers. The law should be the deliberate and rational instrument whereby to create the greatest happiness through the harmony of duty and interest. The test of law should always be its success or failure in making individuals so act as to maximize their own pleasures but in doing so refrain from inflicting pain on others. To attain this end of modifying human behaviour it must be known in advance; otherwise it could not serve its purpose, and Bentham's alternative to the mysteries of the common law was his proposal for the systematic codification of all law. Its validity would be gained from its source, the legislator; its morality from its purpose, utility; but its efficacy from its clear and rational formulation in the form of a code. Such codes would make the law accessible and comprehensible to all through the clear enumeration of offences and the accompanying rationale in terms of utility. It is through the classification of offences and their corresponding punishments that a framework is established such that the good of community can be maintained. Only then would it be known unambiguously what was unlawful, what rights existed, and what punishments were threatened. In this way the unlawful act would be deterred and lawful ones encouraged. The security of the individual would thus be assured.

The key to offences where punishment is involved is their detrimental nature to others; if the offence is entirely self-regarding and involves no other individuals, groups of individuals or the community at large, then the law has no role to play. In this area of an individual's duty to himself or herself, he or she can be left alone to pursue happiness in the way judged best. Punishment being itself a pain is an evil and can be justified only if it prevents the greater evil of the offence under consideration. The threat of punishment should influence the calculation which the individual makes of his or her own interest; it is this fear which acts as the primary deterrent. Punishment looks ahead—it is concerned

to prevent future mischief—rather than backwards, as a retaliation for mischief done. Within this perspective there are four further restrictions on the use of punishment (in addition that is to self-regarding conduct): where it is groundless, there being no real mischief to prevent; where it is inefficacious, where it cannot work to prevent mischief; where it is unprofitable, where the cost is too great; and where it is needless, where other means would do as well. At the heart of the perspective is the idea of punishment being used economically—an offence brings a profit and the punishment must threaten a loss sufficient to outweigh the temptation to commit the act.

If Bentham's constitutional reforms were in place and his view of law established, with offences and punishments reflecting the principle of utility, a major question would still remain—would the laws aim at the maximization of aggregate happiness and thus risk the possible sacrifice of individual happiness if and when necessary for the general good, or would the laws work towards the general welfare within the limits of some standards of fair distribution such that individuals would have rights or securities against despotic domination? Is there any connection between Bentham's theory and the liberal desire to protect individual rights against democratic rule or are the two perspectives hopelessly at odds? Should the law aim directly at utility or should it aim to establish rules through which individuals are guaranteed an area in which they pursue their own good in their own way? Is there a framework of rights within which individuals operate or is the general happiness to be pursued and dictated according to the changing judgement of the law and policy-making body? Having established a system of government in which public opinion plays a dominant role, what is there to prevent such opinion operating in a tyrannical way?

In order to answer these questions it is useful to look more closely at the ends at which government ought to aim. As we have noted, the major aim of legislation is security, without which there could be little pleasure or happiness. Unless security of expectation were established no ordered social life would be possible, happiness could never be enjoyed with confidence, long-term pleasures would not be pursued, well-being would be constantly threatened. Although in a general sense pleasure is the only real goal, yet individuals differ on their estimation of what gives them pleasure, and thus the legislator cannot judge on their behalf and thus should not aim to maximize the individual's pleasure but rather provide the basic security, or liberty, by which individuals, judging for themselves, maximize their own happiness. By defining offences and establishing rights, the law created an area free from interference where pleasure could be pursued without harmful consequences to the interests of others. Security is the necessary guarantee of both present and future enjoyment of individual interest, and this is what above all the law provides and provides uniquely. Within this perspective the problem of defining, comparing and calculating pleasures becomes less important, for within the limits laid down by the law the problem passes over to individuals to evaluate and to act as they see fit. This emphasis on individual judgement and control, together with his concern for free elections, free speech and freedom of the press, has led some modern commentators to see Bentham as a liberal utilitarian rather than seeing his utilitarianism as a threat to individual liberty. By seeing security as one of the four main aims into which the general happiness can be divided, it is argued that Bentham's theory avoids the authoritarianism conventionally ascribed to him. Protection against intentional offences was the first

priority of law but Bentham also envisaged a fairly wide area of responsibility for the government in preventing a whole range of dangers which could threaten the security of individuals. By thus minimizing pain the individual was free to pursue pleasure in the sphere made secure through the protection of the law.

The second major end involved in the general happiness was subsistence and although in general this could be left to individuals who would naturally seek it, there would nevertheless be circumstances where its attainment would demand government action either by intervention in the economy or through direct provision of relief, involving the limited transfer of means from the rich to the poor. Similarly with the third end, abundance, this would normally be a natural goal best left to individuals. However, the fourth of the subordinate ends, equality, is at once something desirable from a general utilitarian point of view and something threatening from the particular point of view of security.

In Bentham's argument, equality follows from the diminishing marginal utility of wealth or other goods—a pound is worth more in terms of pleasure to a poor man than it is to a rich man; thus redistribution of wealth would maximize aggregate happiness. However, pursuit of this goal appears to threaten the chief object of law which is security of expectation. While equality of rights can be maintained—everyone's security is equally protected—a substantive equality of wealth cannot be guaranteed without undermining people's expectations of future enjoyment. Where the reduction of inequality could occur without damage to security—through various forms of taxation, for example, or through the provision of services to aid the sick, the uneducated or the poor—then this would be justified, but generally Bentham's commitment to political equality does not extend to the material sphere. The primary goal is always security as the framework for the realization of happiness but where suffering and pain can clearly be eliminated through government intervention then this is an obvious responsibility which the government should accept. Indeed much of Bentham's writing is concerned with practical proposals for the reform of prisons, factories, health and safety, education, poor relief and other social institutions.

Although much of Bentham's reputation came from his fierce denunciations of the sinister interests of the ruling establishment of his own day, he was as concerned to construct proposals for future government action as he was to oppose present government action. The test was always utility and, while this might point to action in some cases or inaction in others, it could never justify negligence. In general, nothing could restrict the omnicompetence of the legislature—except utility—and Bentham sees its work not as interventionist or *laissezfaire* in principle but as guided in practice by the general welfare as broken down into its four aims of security, subsistence, abundance and equality. And where utility pointed, Bentham followed—and in great detail. Thus, not content with merely outlining the principles of punishment, he devised in great detail and at great personal expense and over many years a model prison, the Panopticon ([1.12], vol. 4). Similarly in other areas, principles had to be applied and in minute detail to test their possibility and to make utilitarianism a practical reforming creed rather than merely a philosophical rationale. Whether it be the architectural details, the hours of work, the rates of pay, the balance between humanity and economy, the details of the syllabus, the form of record-keeping, whether it be prisons or workhouses, schools or factories, detail

was always the test of principle: what ought to be must always be compatible with what could be.

Morality must work with Nature not against it, thus making it a realistic cure for social ills. At times this concern with gathering facts and information can make Bentham appear to value the exercise for its own sake but that would be to forget the inspiration behind his life's work—the desire to do good for a species which ironically he had to assume was itself only concerned with its own good. It was not enough to be a philosopher; his ambition was to be practical, useful and realistic—a critic who could construct as well as demolish, whose goal was both modest and magnificent—to build a system in which people might be happy. And the system as finally devised was one in which the people themselves controlled the system. Indeed one test of the whole enterprise was that once the creation had been completed, the creator was no longer needed.

This movement in Bentham's thinking from reforming the law to reforming the whole structure of political arrangements from which the law would emanate—the movement from adviser of rulers to champion of the people in order to bring about the reign of utility—owed a great deal to the influence of James Mill, who brought to the utilitarian cause not only a sharp, lucid and persuasive style of powerful literary propaganda but also a democratic hostility to the establishment and a rigorous reforming programme in the fields of law, education and political economy based on a foundation of associationist psychology. Often overshadowed in the literature by his friend Bentham and by his son, John Stuart Mill, James Mill was a thinker and active reformer of independent stature. In many ways he was a more dominant figure amongst the radical utilitarians than the master himself.

James Mill was born in 1773 in a small village in Scotland, the son of a shoemaker and a farmer's daughter. After his early education he went to the University of Edinburgh in 1790 and after that studied Divinity and was licensed as a preacher in the Church of Scotland in 1798. Engaged as a tutor by Sir John Stuart he accompanied him to London in 1802, married in 1805 (John Stuart Mill was born a year later), and met Bentham in 1808. From 1806 to 1817, he was busy writing the *History of India* while also writing journal articles and his influential essays for the Supplement to the fifth edition of the *Encyclopaedia Britannica*. Following the publication of his *History of India* in 1818 [1.59], he was appointed to the East India Company where he became Chief Examiner in 1830. He continued to write regularly for radical journals, published his *Analysis of the Phenomena of the Human Mind* [1.54] and his *Fragment on Mackintosh* [1.58]; he died in 1836. His association with Bentham lasted from 1808 until the latter's death in 1832; for some four years he and his family lived with Bentham at Ford Abbey, but his influence on the utilitarian movement was that of someone who brought to it a systematic philosophy already formed rather than that of a mere disciple.

Mill had been educated at Edinburgh and was strongly influenced by the Scottish philosophy of Dugald Stewart and Thomas Reid. From Stewart, amongst other things, he learnt the importance of adding a concern with reform of existing institutions and the development of enlightened legislation to the more traditional concern with explanatory description, a distinction similar to Bentham's between censorial and expository jurisprudence. Thus philosophy must move from the reflective or sceptical to the active and optimistic. In addition, Stewart's lectures introduced Mill to the philosophy of Reid.

Reid's philosophy of experience and common sense came down firmly on the side of induction and against deduction, following Bacon and Newton, and although Mill later rejected the Christian underpinning of this philosophy—that we know only because God has given us the power of perception—he held fast to the importance of induction, learning from experience, in order to formulate general laws which in turn would be the basis for deductive reasoning. For Mill the centre of such enquiries into the laws governing human behaviour were the laws of psychology which could be known through observation of the study of mental phenomena. The result was Mill's doctrine of association: the mind perceives the external world by sensations—smell, taste, hearing, touch, sight—and what remain once the sensations cease are ideas. These ideas are copies of the sensations, and just as sensations are associated together, and more strongly the more frequent and vivid the connection, so ideas are associated in the same way. Knowledge is the result of frequency of conjunction; in some cases the frequency and strength is such that the ideas cannot be separated and this is what gives us our belief in the external world. All our mental faculties can be explained by this principle of association as can our behaviour in response to the two ultimate elements of painful and pleasurable sensations. We learn about the world by associating certain actions with certain sensations and thus learn to avoid the one kind and seek the other. Thus the route to the fundamental reality of pleasure and pain which Bentham had discovered through his logical notion of real entities was found by Mill through his notion of the psychological association of ideas as copies of sensations. And just as Bentham's discovery gave him a weapon by which to attempt to change the world so did James Mill's; that their objectives coincided should not blur the differing starting points. It is in pursuing their shared objectives that, at least in a political sense, Mill shows himself the superior.

While Bentham wrote voluminously but published relatively little about the whole range of philosophical, constitutional and legal enquiries, Mill directed his attention to converting the relevant public through concise and clear articles. His *Encyclopaedia* articles were superb examples of a combination of his philosophical views—notably his doctrine of associationism—and his radical political views. They were intended to have an impact and in this they succeeded. His article on 'Education' is probably the clearest example of this attempt to put philosophy into practice. Given that the mind knows only through sensations and their sequences, the object of education is to provide for the constant production of those sequences most conducive to happiness; the individual is virtually what education in the broadest sense makes him or her. If the right associations are made early on in life then education improves not only the intellect but also the moral character. The whole environment has an effect on the progress of the mind, and thus 'education' for Mill encompasses a far wider range than conventionally thought of, and has implications for social and political change. Thus domestic education starts at birth, and associations must be so ordered that the happiness of the individual is the end but one that is bound up also with the happiness of others. After this early formation of character, education in the more normal sense continues to aim at the development of both the intelligence and the moral feelings as the key to happiness. This is supported by the effect of society and government which should provide the environment in which the pursuit of individual happiness harmonizes with general utility. Thus education is a question not

simply of the advancement and spread of knowledge to all members of the community but, as importantly, of the development of mutual sympathy and benevolence amongst them. Thus where Bentham had relied on sanctions in order to bring duty and interest into harmony, Mill is more optimistic of the beneficial effects of education in developing the right associations between one's own pleasure and the good of others. To achieve this, early environment as well as school education needs reform within the context of a reformed society led by a reformed government. Only then will individuals pursue their happiness with that degree of self-control which recognizes the importance of the happiness of others.

However, such moderation and harmony cannot be generally expected in an unreformed society and the key to improvement here is to change the system of government. Here Mill's next famous and influential article was his essay on 'Government' [1.56] which highlights the link which Mill forged between utilitarianism and radicalism and which explains his importance to the school of philosophical radicals. His basic argument is that government is necessary in order to protect for each individual the fruits of his own labour. As it is labour not Nature that provides the means for life and happiness and as men, without restraints, would take from each other what they desired and thus undermine the whole enterprise, then a system of government is necessary. Unhappily, however, governments are also composed of men who again, without restraints, would plunder and oppress their fellow men. The laws of human nature are such that the pursuit of pleasure is the primary motive for those within as for those without government, and the main means to such ends are wealth and power. The mere establishment of government, therefore, provides no guarantee that the rulers will follow the general interest rather than their own; indeed it guarantees the very opposite. Hence, the need for government is accompanied by the need to ensure against its oppressive tendencies. Human nature explains the need for government, the dangers of government, and also the key to good government, where the basic problem is one of restraining the power-holders from abusing their role.

Such securities against misrule cannot be found within any of the traditional forms of government. A democratic government—in the literal sense of the whole community gathering together as often as the business of government required—would be near impossible as well as ill-adapted to decision-making. An aristocratic form of rule would naturally pursue its sinister interest against that of the community; so much more so would a monarchical form. Further, any mixture of these three forms is also unable to secure against abuse and thus guarantee the general interest. If there are three powers, two of them will always be able to swallow up the third, and that will mean the monarchical and aristocratic, whose sinister interests are opposed to the people's interests, rendering the community defenceless against its powers. We all desire our pleasures and we all need wealth and power to achieve them; small wonder that the prize of government is so keenly sought by those who want to further their own interests.

From the general viewpoint there is therefore always a tendency for government to be badly conducted, for power to be abused; the antidote lies in a system of checks or securities to prevent such abuse. It is the discovery of representation which makes this possible, where the community's interest in good government acts as a check on the representatives who in turn operate as a check on government. The representatives, while

having an identity of interests with the community, have sufficient power to guard against abuse and thus secure good government. Limited terms of office and regular elections would guard against the representatives pursuing their sinister interest and thus destroying the identity which is the rationale of the system. In terms of whose interests should be represented—in crude terms, who should vote—Mill is prepared, at least in this essay which is an argument for parliamentary reform in the 1820s as well as a treatise on the foundations of government, to exclude those whose interests are included in those of others. Thus women and men under forty can all be protected by others and their interests pursued on their behalf. Such a system of representative democracy with an extended franchise could confidently be relied on to pursue the general interest, not least because the dominant part, the middle rank of society, is also the most virtuous and the one whose opinions are most respected by the class of people below them. They are the ones to set the political and social standards which will form the wider educational context for the general improvement of the community. Their influence, combined with that of the law and the formal educational system, will create a culture in which duty and interest go together, not so much as in Bentham because the citizens have an interest—through the various sanctions—in doing their duty but because through the principle of association the pursuit of interest will constantly have the consciousness of others' interests allied to it. Thus with political reform as with educational reform an effect on character will be produced as well as an effect on intelligence and wisdom.

In comparing Mill's case for representative democracy with that of Bentham a curious paradox appears. Mill, the historian of British India, who stressed the need for a close examination of the manners and institutions of that society before recommending any appropriate changes in its organization or government, here adopts a largely abstract deductive method, whereas Bentham, the upholder of that method of logic, appears in the *Constitutional Code* to include much more empirical evidence about the actual practice of societies in order to achieve the end of good government. Thus Mill is optimistic that representation can itself achieve an identity of interests between the rulers and ruled; frequent elections are the key safeguard. Bentham, as we have seen, insists on additional securities against misrule, so that while the legislature remains omnicompetent it is still subject to the power of the people, and much of his evidence in the *Code* is from existing countries rather than from the logic of the situation alone.

In fairness, of course, Mill could claim that the deductive method was one based on a prior and thorough induction giving rise to comprehensive and known principles of human nature. Further, his essay is a brief and direct case for reform rather than a complete study of government. Whatever the case, it is true that it was Mill's method as much as his conclusions which gave rise to fierce criticism at the time. Mill's leading opponent, Macaulay, accused him of assuming certain principles of human nature and then arguing deductively from them, ignoring completely the history and practice of government through the centuries. Even if there were any absolutely true principles of human conduct, no science of government could be deduced from them. Knowledge of politics comes from empirical study and induction, and the generalizations which result will be related always to the context of their discovery ([1.47] 97–129). As already noted, Mill's case, as the utilitarian one generally, was that the original proposition that it is self-interest which is the dominant motive was in fact based on experience. Without any

checks, so would men behave, and this need to prevent men from injuring each other in the pursuit of their interests is recognized as the chief function of government. The problem here lies in the status of the original proposition: is it a law of human nature supported by empirical evidence and holding true without exception or is it the only sensible assumption to make in order to organize social and political life? Mill's position seemed to waver between the two—a law that men's actions are governed by their interests, in turn explained by the association of ideas, or a prudential maxim that everyone should be supposed to be acting in their interests; in either case the only safeguard for good government lay through a system of representation to check against the abuse of power. It was this certainty in Mill's thinking, that utilitarianism had to point in a politically radical direction, that helped move Bentham from his original expectation that an enlightened despot or aristocracy would usher in the reign of utility to his mature position that democracy was an essential instrument towards the desired end.

That James Mill's position is more complex than might be assumed from his essay on 'Government' and the deductive method applied there can be seen by examining his further articles in the Supplement to the *Encyclopaedia*. Apart from what seems to be a simple faith in the identity of interest created by regular elections, Mill is aware that for electors to make informed choices and judge their rulers wisely they must have knowledge of their actions and be free to criticize them. Freedom of expression is thus added to the other securities against misrule. His essay on the 'Liberty of the Press' [1.56] attends to this problem. For the government to pursue the greatest happiness, for the system of checks to work, knowledge or the glare of publicity is essential. Democracy as institutionalized mistrust depends on the ruled knowing what the rulers are doing. Truth acts as the great restrainer; a free press is an essential security without which free elections would not serve their purpose.

Having established good government and provided securities against misrule, the question arises as to its responsibilities. As with Bentham, Mill sees the law as providing the framework of organized and secure social life. The law creates offences and these are violations of rights, every infringement of which involves an injury. Utility determines what should be rights and the law should translate these into legal rights. Not all painful acts are to be treated as injuries, for example when they result from people's antipathies to actions which cause no evil, as in the religious hostility to eating or drinking certain types of food or drink, as argued in 'Liberty of the Press' [1.56], 11). Thus while liberty is to be restricted where rights are violated, not every evidence of pain is to count as good reason for legal protection. As with Bentham's four types of case where punishment is not appropriate—because groundless, inefficacious, unprofitable or needless—so Mill excludes intervention where the evil of punishment is not outweighed by some positive good. The law's concern is primarily to deter the commitment of mischievous acts not to compel the individual to seek his or her own happiness in prescribed ways. A duty to oneself is a matter of individual prudence; the law steps in when duty to others is involved. And the moral sanction or public opinion reinforces the force of law in matters where considerations of utility can be objectively shown to be involved. There must be empirical evidence of mischief or injury not merely prejudice or antipathy; with Mill as with Bentham this was what made the principle of utility superior to others. Where there would be no pain without the antipathy, no harm without the dislike, then the case for

interference is groundless. Utilitarianism is an external standard capable of being applied empirically. And so the law creates the conditions in which all individuals are allowed to pursue their own conception of happiness secure in the knowledge that fellow individuals will not injure their rights and they likewise are equally secure, equally free to maximize their own good. The individuals' original mistrust of others is replaced by a trust based on the rightness and strength of the law.

Mill is optimistic that democratic reform would lead to utility and rejects the criticism that the poor, once in majority power, would pursue a short-term self-interest which would threaten the security of person and property which it was the law's main business to protect. He believes, on the contrary, that they would act on their long-term interests which involved the maintenance of private property and respect for individual rights. Both the influence of the middle class and the power of education would show people that the rational course demanded such moderation. In such a reformed environment people will indeed successfully pursue their own interests, but in an intelligent, temperate and benevolent manner. In this way Mill injects into utilitarianism a more high-minded tone than generally appears in Bentham, a tone to be accentuated further by his son, John Stuart Mill.

The influence of both Bentham and James Mill is a matter of some controversy, not least because it has to be assessed both philosophically and practically in order to respect their claims that proper understanding could only be tested by practical results. More than this, any practical changes which did occur cannot be unquestionably attributed to the utilitarian philosophy which recommended them. There were many other influences at work. Furthermore, it is difficult to pin-point the exact extent of Bentham's own influence exerted as it was by correspondence, conversation and public discussion as much as by his published work. That much of the reform was in accord with Bentham's thought is not conclusive proof of a connection yet the general atmosphere conducive to reform seems clearly to have been formed at least partly by the activities of Bentham, James Mill and their school of radical utilitarians. Generally speaking the reforms—political, legal, administrative and social—which took place in nineteenth-century Britain were much more modest than Bentham and Mill would have liked and the sinister interests so vehemently attacked by both thinkers were much more powerful and enduring than even they thought possible. Bentham's theory of democracy based on mistrust, accountability and publicity failed to dominate and instead the growth of democracy was attended with deference and secrecy. No written constitution was enacted, the Lords and monarchy survived, as did the Common Law, and the movement Bentham hoped for towards equality of power to challenge the privilege and corruption of the ruling few did not take place. Bentham's faith in the people and his hostility to those in power unless checked by the people was not the faith which motivated democracy; rather a distrust of the people and a reliance on a new ruling elite, more akin to James Mill's version, was the dominant theme in the movement towards democracy. Once Bentham had been converted to the radical cause he was clear that the key to happiness—a life of security, with adequate subsistence, the possibility of abundance, growing equality—lay in a democratic system with accountability as the primary value. In this sense his influence was less than that of James Mill or John Stuart Mill, both in different ways concerned with the quality of the rulers rather than the vitality of the

people; this is not of course to say that Bentham's argument was wrong, simply that his radical democracy was overshadowed by a version in which the people ruled only in a distant sense and with little direct involvement or power of supervision.

In the matter of more detailed legislation—parliamentary reform, local government reform, the Poor Law, prison legislation, public health—the growth of government intervention and central administration was influenced by the Benthamites along with humanitarians, philanthropists, working-class radicals and Christian campaigners. The pressure for reform came from many sources but in formulating the detailed proposals and insisting on central control through inspection, in making the new system accountable to government, the Benthamites played a key role.

It is of course in the field of moral philosophy that Bentham is best known largely because of his supposed inferiority to his successor, John Stuart Mill. He has been seen as the proponent of a crude version of utilitarianism which the younger Mill sought to improve. In this way his contributions in the whole field of law and of reform were often seen as suspect, resting as they did on what was seen, following J.S.Mill, as a defective philosophy. Mill's debt to Bentham and to his father was generally concealed behind his somewhat severe criticisms of them. Thus J.S.Mill's *Autobiography*, though giving a distorted picture of his father's character and influence, was regarded as the authorized version, and his critical essays on Bentham were thought to be no more than the master deserved. In consequence, the younger Mill's attempt to defend a new version of utilitarianism, despite later criticisms of it, was thought at least to be an advance on the original. Similarly with J.S.Mill's concern with individual liberty, it was seen as a radical departure from a form of utilitarianism which had no liberal dimension. The influence of Bentham and James Mill was thus cast in terms of an influence from which Mill liberated himself with the aid of new more sensitive, romantic and emotional guides. While there is no doubt that J.S.Mill made important changes to the older version of utilitarianism, the continuities are also important; furthermore the evidence of change does not itself indicate improvement. Given Bentham's ambition to change the world through the power of enlightened law and thus liberate people from the constraints placed on them by the power of sinister interests, and given John Stuart's different agenda to liberate them through the improvement of their characters, perhaps comparison is a misconceived exercise. If it is allowed, who is to say that Bentham's massive but modest practical enterprise is inferior to the grander but more elusive project which animated J.S. Mill? Into this picture James Mill constantly strays, exhibiting at times the practical optimism of Bentham and at other times a sterner pessimism about the possibility of improving character in a world beset with prejudice, ignorance and selfishness. Generally speaking, the older utilitarians took men (and women for Bentham) as they were and looked to laws as they might be, before considering society as it could be. For Bentham, and James Mill to a lesser extent, the strength of his position was that the changes recommended were all possible because tangible; they involved no change in human nature but only in the conditions in which men and women find themselves. All people want a happy life, a life of well-being, and it is politics which can assure them of the right context for such a very human ambition. From this standpoint Bentham never deviates, though James and John Stuart Mill are constantly worried by a more paternalistic concern with evaluating the happiness of the individual, a matter which Bentham is happy to leave to the individual to

decide.

In some ways the different interpretations given to utilitarianism were part of its strength as an enduring ethical principle. Thus for those concerned with matters of practical efficiency and reform it offered the possibility of empirical calculation of consequences, while for those concerned with the more spiritual improvement of mankind it offered a standard of qualitative judgement. Thus within the broad utilitarian perspective many versions persisted but all in some ways or other owed much to the classical formulation of Bentham either directly or through its modified transmission by James Mill.

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CHAPTER 2
Whewell's philosophy of science and ethics

Struan Jacobs

ON SCIENCE

Introduction

Among the most prodigious of English minds of the nineteenth century, William Whewell (1794–1866) was at various times, and among other things, philosopher, intellectual historian, scientist, educationist, theologian, economist, student of Gothic architecture, classicist. 'Science is his [Whewell's] forte and omniscience his foible', quipped Sidney Smith. Born at Lancaster, son of a master-carpenter, Whewell won in 1812 an exhibition to Cambridge University whose most famous College—Trinity—he went on to serve continuously from 1817, initially as a Fellow then from 1841 as Master, to his untimely death from a riding accident.

Whewell was intellectually eminent in his lifetime, then his reputation went through a long eclipse. Interest in his work has, however, steadily increased over recent decades in an atmosphere more congenial to it, the intellectual shift—displacement of logical empiricism by historically informed philosophy of science—associated with Thomas Kuhn *(The Structure of Scientific Revolutions)* and others. Whewell believed, as now so many scholars believe, that the key to understanding the methods of science and the character of its knowledge lies in history, rather than in formal analysis of propositions and arguments.

Whewellian scholarship has tended to concentrate on those texts that Whewell himself took to be his most important, *The Philosophy of the Inductive Sciences* (1840 [2.3]) and its more concretely detailed companion, *History of the Inductive Sciences* (1837 [2.31]).[1] These were works for whose composition Whewell's extensive interest in science—crystallography, mineralogy, geology, mathematics, astronomy, physics, biology, tidology, political economy—equipped him superbly.

Historiography

Whewell produced his *History of the Inductive Sciences* concurrently with the *Philosophy*. He envisaged a relation between the two works such that the *History* would, besides providing a chronicle of scientific discoveries, empirically inform the other inquiry. Philosophical study of the methods by which truth in science is discovered requires to be, which to date it has not been Whewell claims, 'based upon a survey of the truths' already known to scientists ([2.1], 1:viii). In this respect Whewell sees the *History* as a work without precedent, as he does also in its 'point of view' or 'plan'.

According to Whewell's broad perspective, development of scientific disciplines typically involves 'preludes', 'inductive epochs', and 'sequels'. Certain disciplinary histories may reveal no epoch at all (thermotics, science of heat, for example); some are exhausted by a single case of the threefold sequence (about Newton's law of universal gravitation revolves the solitary epoch of physical or explanatory astronomy, and round the undulatory theory of Young and Fresnel turns that of physical optics); others show two or more of these cases (formal astronomy, covering astronomical relations as distinct from causes, with epochal figures in Hipparchus, Copernicus and Kepler).

How are inductive epochs, the periods chiefly constitutive of the history of science, identified by Whewell? Their most prominent feature is major intellectual breakthrough, achieved by the inductive method.

No epochal discovery is ever made 'suddenly and without preparation' ([2.1], 1:10). In the course of preludes, by invention of hypotheses and by analysis, ideas gain in clarity and facts in precision; materials needful for discovery are so prepared. Among 'imperfect, undeveloped, [and] unconfirmed' ([2.1], 2:370) preludial conjectures, some anticipate and 'touch' the great truths of epochs, as did Descartes' vortex theory relative to Newton's theory of gravity.

In sequels to inductive epochs champions of new theories overcome by argument defenders of traditional beliefs, winning over 'the wider throng of the secondary cultivators' ([2.1], 1:10). Implications of epochal discoveries are traced out, increasing their evidential support.

Emphasizing 'great discoveries' in the development of disciplines, their concepts and vocabularies undergoing significant change, Whewell may be said to work in the *History* with a concept of *scientific revolutions*. And the term itself is in evidence, Whewell noting the occurrence of 'revolutions' in 'the intellectual world' ([2.1] 1:9) and of 'revolutions in science' ([2.1], 3:114).[2] But his use of 'revolution' is attenuated, its xconnotation including continuity between successive scientific theories, which, with the fact that 'revolution' commonly signifies sudden sweeping change, may explain why Whewell is not at all times comfortable with the word. Discomfort, indeed denial, manifests in his remark that 'earlier truths are not expelled but absorbed, not contradicted but extended; and the history of each science, which may appear like a succession of revolutions, is, in reality, a series of developments' ([2.1], 1:8). There coexist in the science of Whewell's historiographic depiction an element each of evolution and revolution.[3]

From Whewell's account of scientific development as variations on the theme of prelude, epoch, sequel, one is not to infer it is his view that science has undergone continuous development. He actually finds in the 'history of human speculations' ([2.1], 1:11) times of stasis when science has languished. Book IV of *History of the Inductive Sciences* presents as the major case the Middle Ages or, in Whewell's phrase, the 'Stationary Period'. From the epoch of Hipparchus virtually to the time of Copernicus, science stood still. Inquiring into why this was so, Whewell notes how often during these one-and-a-half millenniums ideas were left indistinct, and how rarely were theories hauled before the tribunal of facts. These failures were results of deeper tendencies: rigid obeisance to intellectual authority, intolerance of dissent and an 'enthusiastic temper' subjecting 'the mind's operations to ideas altogether distorted and delusive' ([2.1], 1:81).

Ideas and perception

History of the Inductive Sciences covers one side of the development of science, the observational, *Philosophy of the Inductive Sciences* covering the other, the 'history of the Sciences so far as it depends on *Ideas*' ([2.1], 1:16). The *Philosophy* commences with a book on 'Ideas in General', books following on each of the better developed sciences: 'Pure Sciences' (mathematics), 'Mechanical Sciences', 'Chemistry', 'Morphology, including Crystallography', and the like. Such sciences impress Whewell as rich storehouses of 'unquestioned truths'. The second—theoretically much the more interesting—part of *Philosophy*, 'Of Knowledge', chiefly consists of Books XI to XIII: 'Of the Construction of Science', 'Review of Opinions on the Nature of Knowledge, and the Method of Seeking It', and 'Of Methods Employed in the Formation of Science'.

It is contended by Whewell that sciences rest on 'fundamental ideas', each science having one idea or some combination of ideas uniquely its own. The 'pure sciences' (of mathematics) are based on ideas of space, time and number; the 'mechanical sciences' on that of cause; 'palaetiological sciences' (historical sciences, including geology and biology) on historical cause. (An implication of this doctrine is denial of disciplinary reductionism. It excludes the possibility of a fundamental bedrock science, of whose laws those of other sciences are functions and from which deducible. Each science is for Whewell *sui generis*.) To the development of each science ideas contribute 'elements of truths'. Elements of another kind also play a part, which dualism is nowhere brought out more clearly by Whewell than in his account of perception. Analysing this will lead us into his philosophy of science.

Perception requires *sensory impressions* of shape, surface, colour, and movement. But there must be in perception materials besides these, for sensations are formless, evanescent, disconnected and without assignable boundaries, whereas perception is of enduring *objects* with specific properties, involved in definite relations. It is inferred by Whewell that mind is greatly involved, informing and fashioning the sensory flux.[4] Perception of objects with properties and in relations—discrete, spatially located, shaped, enduring, numbered, operated on by forces, resembling others—is the synthesis of sensory presentations and mental emanations. Impressions on senses by phenomena without are materials to which form is given by ideas within.[5] Sensations and ideas are one expression of that which Whewell describes as the *'fundamental antithesis'* of knowledge; elements which while mutually dependent are unlike in character and issue from opposite sources.

Innate to the mind and developed over time through its intercourse with the world are powers of forming fundamental ideas (space, time, number, likeness, causality, matter, force, substance, medium, symmetry and design) and of cognate conceptions. To exercise these powers is to organize in definite ways the otherwise shapeless flux of sensations, impregnating it with assumptions. The product of the process is conceptually informed material, sensations and ideas fused in perception.

Whewellian ideas are nothing like the mental images or objects of thought to be found in Descartes and Locke, but are close to Kant's 'forms of sensibility' (space and time). Whewell's account of mind and perception would appear to have been significantly

affected by Kant. True, Whewell ([2.6], 334–5) describes his 'main views' as 'very different from Kant's' (instancing Kant's denial of knowledge of noumena or things in themselves), but he admits in the same breath to having 'adopted some of Kant's views, or at least some of his arguments. The chapters…on the Ideas of Space and Time in the *Philosophy of the Inductive Sciences,* were almost literal translations of chapters in the *Kritik der Reinen Vernunft*'. 'Kant considers that Space and Time are conditions of perception, and hence sources of necessary and uni-versal truth' as indeed—except that he recognizes more of such 'conditions' and 'sources'—does Whewell ([2.6], 336).

Induction

Whewell's philosophy of science builds on the foregoing analysis of perception, elaborating the theme of the fundamental antithesis. The philosophy of science includes among its main components an account of induction as the process of scientific discovery, and standards for measuring which theories are true. The most accessible source of all this is Book XI, 'Of the Construction of Science', forming as Whewell ([2.3], 2:3–4) puts it the 'main subject' of *Philosophy of the Inductive Sciences,* all earlier chapters being in relation to it 'subordinate and preparatory'.[6]

The materials or 'conditions' of knowledge Whewell in opening his account of it explains are ideas and conceptions emanating from mind and—the other side of the antithesis—facts originating from observation and experiment. Scientific knowledge is expressed in 'exact and universal' propositions. It consists in the application of conceptions or ideas, distinct and 'appropriate' to some science (as is symmetry to morphology, force to mechanics, and vital power to physiology),[7] to numerous facts possessed of clarity and certainty.[8] A *system* of scientific knowledge is said by Whewell ([2.3], 2:3) to exist 'when, facts being thus included in exact and general propositions, such propositions are, in the same manner, included with equal rigour in propositions of a higher degree of generality; and these again in others of a still wider nature, so as to form a large and systematic whole'.

Necessary for achieving scientific knowledge are a twofold process of preparation—'explication of conceptions' and 'decomposition of facts'—and a method Whewell distinguishes as 'colligation'. Explication is undertaken to clarify conceptions and to gauge their suitability to research projects. (In the terminology of *History of the Inductive Sciences* it is 'preludial' work.) Controversy is prominent in this process. Vague and unfamiliar, new conceptions are objected to, placing on protagonists the onus of elucidation and integration. It is Whewell's judgement ([2.3], 2:8), a combination of 'whiggishness' and hindsight, that all controversies respecting scientific conceptions have ended in victory to 'the side on which the truth was found'. Under the broad heading of 'explication' Whewell also includes disclosure of necessary truths as inhering in ideas and functioning as presuppositions of sciences. Ideas must be clear before necessity in axioms can be discerned and their implications be traced out: 'the distinctness of the idea is necessary to a full apprehension of the truth of the axioms' ([2.2], 170).

As conceptions call for 'explication', in the other part of the process of preparing materials for discovery, facts have need of 'decomposition'. Facts properly decomposed are 'definite and certain…, free from obscurity and doubt' ([2.3], 2:26). Reduced to

simple elements and considered in regard to clear ideas and conceptions, experience may be rid of impurities—the likes of myth, prejudice and emotion. Among the original basis of decomposed facts for astronomy, for example, were the moon's recurrent phases, rising and setting points of the sun, and those regular intervals between which the same stars become visible at the same time of the year.

After explication and decomposition the way is clear for 'colligation' as the really creative work of science. By exercise of imagination, the scientist endeavours to hit upon a conception capable of expressing a 'precise connexion among the phenomena which are presented to our senses' ([2.3], 2:36). In the case of Kepler's third law, 'Squares of the periodic times of planets are proportional to the cubes of their mean distances from the sun', Whewell finds elementary facts about the planets' solar distances and durations of years colligated (literally, 'bound together') by such conceptions as squares of numbers and proportionality.

Explication, decomposition and, above all, colligation are the constructive elements forming *induction*, from which process Whewell ([2.3], 2:47) derives all *'real general knowledge'* of the world, by which he believes are discovered all laws of nature. Whewellian induction has little more than its name in common with the process traditionally so called. It is not generalization from facts but invention of an hypothesis using a new conception(s) or an old one(s) transposed from some other context; the hypothesis being superimposed on, so as to bring order to, facts hitherto not perceived as connected. Successful hypotheses depend on suitable conceptions, for invention of which there is no methodological rule, being fruit of sagacity and serendipity.

Whewellian induction also takes in negative testing of hypotheses to strike those out that are false. In coupling colligation with critique, Whewell presages by one hundred years in a most remarkable manner Karl Popper's image of science as 'conjectures and refutations'. Writes Whewell:

> This constant comparison of his [the scientist's] own conceptions and supposition with observed facts under all aspects, forms the leading employment of the discoverer: this candid and simple love of truth, which makes him willing to suppress the most favourite production of his own ingenuity as soon as it appears to be at variance with realities, constitutes the first characteristic of his temper.
>
> [2.3], 56–7).[9]

There is for scientists a temptation to cling on to hypotheses, setting their faces against empirical violations, and Whewell believes it helps explain the 'obloquy' into which hypotheses 'have fallen' ([2.3], 2:58). This detraction, and more so the misuse, Whewell regrets. When, however, science proceeds properly, an episode of invention and test continues for as long as it takes for an hypothesis to be framed to bind 'scattered facts into a single rule' ([2.3], 2:41). Whewell is able to find no clearer illustration of the process in the history of science than Kepler's successive invention and disposal of nineteen hypotheses (oval, combinations of epicycles, etc.) as he struggled to describe the orbit of Mars, which he eventually succeeded in doing through his colligation with the conception of ellipse.

John Stuart Mill, prominent among Whewell's adversaries, critically considered in *A System of Logic* Whewell's account of the case of Kepler. Mill did this under the heading 'Inductions Improperly So Called', indicating that to his mind what Whewell terms 'colligations' and identifies with inductions are strictly speaking not inductions at all. 'Induction' for Mill ([2.17], 288) 'is the process by which we conclude that what is true of certain individuals of a class is true of the whole class'. It is generalization, the inferring of general propositions, whereas by colligation he ([2.17], 292) understands 'mere description', there occurring no inference from, no going beyond, the facts.

That which Mill ([2.17], 297) identifies as the 'fundamental difference' between Whewell and himself over how Kepler should be interpreted centres on whether the ellipse colligation was logically equivalent to, only a description of, Kepler's experience. Mill ([2.17], 295) demurs to Whewell's suggestion that Kepler '*put* what he had conceived into the facts'. In Mill's account, having the concept of ellipse, Kepler considered whether observed positions of Mars were consistent with an elliptical orbit, and realized they were. 'But this fact, which Kepler did not add to, but found in, the motions of the planet…was the very fact, the separate parts of which had been separately observed; it was the sum of the different observations' ([2.17], 297).

So far as implications for his own philosophy of science are concerned, Mill, if I may digress to note a most interesting historical fact, devotes undue attention to the lesser of two associated problems. Let us put to one side whether Kepler's third law is no more than a description, and focus on the fact that descriptions do not exhaust Whewell's class of colligations. Universal propositions happen also, even more so, to be included and these, going beyond the facts, are by Mill's standards generalizations not descriptions. Mill ([2.17], 297) unreservedly agrees with Whewell that the 'tentative method' of trying conceptions is 'indispensable as a means to the colligation of facts for purposes of description'. To be true to his inductive philosophy Mill must now restrict Whewell's hypothetical or conjectural method to colligation in the restrictive (Millian) sense, ascribing to induction (generalization) all universal propositions of science. But this he fails consistently to do. Ultimately he wishes also to admit hypothesizing as a further source of general propositions. So it is one finds in Mill's *System of Logic* two philosophies of science: one in essence inductive, the other hypothetical. Of Mill's recognition and comprehension of this second method Whewell, as I have elsewhere argued, was almost certainly an important source ([2.15]; [2.16], 128–32).

Consilience

Whewell considers that scientific hypotheses are susceptible of proof, which is a major difference from Popper in whose view they are falsifiable only. We may conveniently denominate Whewell's conditions of proof as 'static success' and 'progressive success'. Each condition is required, and the two together are sufficient, for proof.

An hypothesis is advanced to explain some property or behaviour of the members of a class of phenomena. The 'static' condition of proof demands of a theory successful predictions of facts of the same nature within its subject class. The condition is minimal and non-definitive, being always satisfied by true, as well as sometimes by false, theories. While the theory of Ptolemy accurately predicted planetary positions along with solar and

lunar eclipses, eventually it was judged an inaccurate representation of the structure of the heavens. Is the achievement of any so-far predictively successful theory ever sufficient to insure it against refutation later on? In Whewell's other condition of success lies the answer, and it we see is affirmative.

Whewell notices two forms of 'progressive' explanatory success ('successive generalization' being his term for it). One concerns theories to which hypotheses are added. It may be the case that the hypotheses successively '*tend to simplicity* and harmony;…the system…[becoming] more coherent as it is further extended'. Observes Whewell ([2.3], 2:68), 'The elements…we require for explaining a new class of facts are already contained in our system', and for him this amounts to an infallible sign of truth. His prize example is the addition to Newton's theory of suppositions of: the sun's *attraction* to satellites to account for the motions of the aphelia and nodes; mutual *attraction* of planets to account for perturbations; *attraction* between earth, sun, and moon to account for tides, for the earth's spheroidal form, and for precession. The pattern is unmistakably that of progressive simplification, says Whewell ([2.3], 2:70), several hypotheses resolving 'themselves into the single one, of…universal gravitation'. In cases of the opposite kind, being historically the more numerous, assumptions happen neither to be suggested by nor to be reconcilable with theories to which they are appended. To Descartes' vortex theory were added hypotheses to explain elliptical planetary and lunar orbits, perturbations, and earth's gravitation. But they were independent, arbitrary, and *ad hoc*, and brought the theory into disrepute. By scientists using it to account for weights of chemical compounds, phlogiston theory was supplemented with, to the detriment of its credibility, the barely coherent notion that phlogiston is an element at once heavy and light, which upon entering compounds serves to reduce their weight. *Ad hoc* assumptions are to Whewell a sure sign of false theories.

The other form of 'progressive' success is *'consilience of inductions'*. This is achieved when a theory T ('All *Cs* have property *H*'), advanced to causally explain a confirmed generalization *L1* ('All *P1*s have property *A*'), is later discovered also to give a successful explanation of a confirmed law about a class of phenomena, L2 ('All *P2*s have property *B*'), *different* from that for which it was framed.[10] *T* is advanced to explain *L1* on the assumption that *P1*s are *C*s. T's explanation is confirmed if, in testing P1s in various circumstances, *H* is found to cause property *A*. This is the 'static' condition above. If—the salient characteristic of consilience of inductions—theory T is successfully applied beyond its intended domain to an (originally) *unintended* domain, such that *H* is shown to cause property *B*, it follows that *P2*s, like *P1*s, are members of the class of *C*s.

'Static' and 'progressive' success together, Whewell says, 'irresistibly' establish a theory's truth. As Whewell uses the same theories to illustrate both types of 'progressive' explanatory success, the thought occurs that perhaps his 'consilience' and 'progressive simplification' are different names for a single process. In the words of one commentator:

> Actually however, Whewell was not that sure that… simplification is all that different from a consilience. If we get a consilience, then one hypothesis is being used to explain facts from two different classes. And this, in a sense, is what simplicity is all about, for we are using a minimum to explain a maximum.
>
> ([2.19], 231)

It is clear from what Whewell says that scientists can never hope to induce (generalize) theories and laws from others already established. Conception is unpredictable; imagination strikes out in different direc-tions. Progressive cognitive expansion is none the less suggested. While no one knows in advance how to explain established laws, a new theory is required deductively to so do as a condition of its acceptance. A successful Whewellian scientific discipline resembles in the manner of its growth the construction in layers (theories) of an inverted triangle from apex to base. Explanation is in the opposite direction, deductively descending.

Suffice in closing this section to note that Whewell's paradigm cases of progressive explanatory success—universal gravity and the undulatory theory of light—physicists came in the fullness of time to judge as false. There seems nothing for it but to say Whewell fails to establish a criterion of proof: predictive successes, no matter how outstanding, are no indicator of future performance of theories.

Necessity

Whewell's writings on necessity as a property of (at least some) scientific theories would appear to have given rise to greater interpretative disagreement than has his treatment of any other topic. It will be shown that he theorizes the property in more than one way, which fact, not widely appreciated, may help explain the variety of interpretation. Whewell first addressed necessity in a paper 'On the Nature of the Truth of Laws of Motion' (1834), included later in *Philosophy of the Inductive Sciences*. Focusing on mechanics, science of 'motions as determined by their causes, namely, forces' ([2.3], 2:574), Whewell identifies three necessary axioms: *'Every change is produced by a cause'; 'Causes are measured by their effects';* and *'Action is always accompanied by an equal and opposite Reaction'* ([2.3], 2:574–6). Newton's laws of motion are respectively related to the axioms, the first axiom applied to motion yielding the first law, 'when no force acts, the properties of the motion [direction and velocity] will be constant' ([2.3], 2:577), and so on. In the same essay Whewell distinguishes each law of motion into 'necessary' and 'empirical' parts. The first law, continuing here with the same example for ease of exposition, in its necessary part affirms that 'Velocity [as a property of motion] does not change without a cause', the empirical part affirming that 'The time for which a body has already been in motion is not a cause of change of velocity' ([2.3], 2:591). In what for Whewell consists the 'necessity' of the axioms and laws of motion? He describes the 'necessary' parts of the laws of motion, and, by implication, the axioms from which they derive, as 'inapplicable'. But this adjective, suggesting analytic necessity, is not a happy choice, seeing that Whewell goes on to describe the axioms not only as 'absolutely and universally true' and expressive of 'absolute convictions' but as serving also to regulate *our experience*. When 'looking at a series of occurrences…we inevitably and unconsciously assume' the axioms' truth, for experience we we are unable to 'conceive otherwise' ([2.3], 2:575).[11] Axioms being necessarily true of, and indispensable to the reception of, experience, so must be the necessary element in each law of motion. Each such element makes a true, albeit highly general, assertion about the world. While the first law of motion *truly asserts* that change of velocity requires a cause, it is silent on what kind of causation is involved (inherent or extrinsic?) and is on this

level, as Whewell would have it, 'inapplicable'. It is *a posteriori* that we find out that the causation in question is external, not an inner power. The kind of necessity of which Whewell ([2.3], 2:593) here speaks is instructive and, at the same time, strictly universal (the 'all possible worlds' variety) for the necessary part of a law of motion cannot 'be denied without a self-contradiction'. The axioms of mechanics and the non-'empirical' (read non-'contingent') part of each law of motion appear in Whewell's 1834 essay as synthetic-necessary truths.

In *Philosophy of the Inductive Sciences* the analysis of necessity is along broadly similar lines except that the doctrine of ideas is now brought into play. Mechanical sciences in general rest on the idea of cause and its modes or conceptions of *force* (mechanical cause) and *matter* (resistance to force), with the special branch of 'dynamics' depending on the axioms of cause and the laws of motion. What the 1834 essay presents as axioms *simpliciter* in *Philosophy* appear as axioms grounded in and expressing the idea of cause. The axioms are described as 'true independently of experience', meaning *a priori,* and as true 'beyond the limits of experience', meaning necessary and synthetic. That the truth of axioms is 'necessary' in the robust sense of that word is evident from the imperative mood of the first axiom: *'Every Event must have a Cause'* ([2.3], 2:452). To laws of motion also necessity is ascribed, yet they are said to have been 'collected from experience' ([2.3], 1:247; [2.3], 2:453). The air of contradiction that surrounds this combination of claims Whewell dispels by noting in each law the presence of a non-necessary element, the *content* being true but only contingently so. It is their universality and vocabulary ('cause', 'effect', 'action', 'reaction', etc.), in a word their 'form', in virtue of which the laws 'exemplify' the corresponding axioms, and in which their necessity consists. Laws so formed Whewell ([2.3], 1:249) regards as necessary in yet another way, drawing attention to an 'indestructible conviction, belonging to man's speculative nature' that there are laws of motion, 'universal formulae, connecting the causes and effects when motion takes place'.

P*hilosophy of the Inductive Sciences,* in that part of the third edition titled *Philosophy of Discovery,* presents knowledge of necessary truth as 'progressive', Whewell largely devoting himself to making sense of this fact. Part of his explanation is that necessary truth proves accessible only to minds properly prepared. 'To see the truth and necessity of geometrical axioms, we need geometrical culture' ([2.6], 347), just as necessity in axioms of mechanics remains opaque until, their discipline developed, scientists acquire the right culture. While scientific disciplines (mechanics, chemistry, geometry, and the like) could never have been raised other than on the basis of axioms, 'internal conditions' of experience and knowledge as Whewell calls them, the knowledge that axioms are necessary truths is acquired later.

Whewell goes on to claim that in (but not only in) mechanics, his exemplar of excellent physical science, axioms encapsulate 'in a manner' the science in its entirety. 'The whole science of Mechanics is only the development of the Axioms concerning action and reaction, and concerning cause and its measures' ([2.6], 357). For this bold claim Whewell offers no effective support;[12] his present interests not including analysis and defence of his doctrine of necessity.

It has been indicated above that 'Laws of Motion' and *Philosophy of the Inductive Sciences* both treat the axioms of mechanics as wholly necessary and the laws of motion

as necessary in form and contingent in content. In that account the laws are not deducible from axioms. By implication, there being in what Whewell says nothing to suggest otherwise, the distinction between necessary and non-necessary truth is an ontological and absolute one, based on objective properties.[13] But *Philosophy of Discovery* presents a different doctrine altogether. As the entire science of mechanics is able to be exfoliated from axioms (once the laws are discovered), the distinction between truths necessary and truths non-necessary in mechanics must in this case be drawn only *relative to* the state of knowledge (level of cultivation), all truths of mechanics in reality being, and eventually recognized as being, necessary.

As noted, Whewell on the subject of necessity in *Philosophy of Discovery* wants specifically to explain the progressiveness of knowledge of necessity: how propositions whose truth is in the first instance known *a posteriori* come to be known *a priori* (as necessarily true). His explanation in its first part revolves around development of disciplines and cultivation of minds. Its second part presents the proposition that structural identity must exist between mind and the world. Ideas exist in God's mind, and these he has impregnated in the human mind as well as constituting the world according to them. Consequences of ideas in the world are laws of nature, which coincide with consquences of ideas in the mind (propositions), consequences of both descriptions being necessary. This same general view Whewell in *Philosophy of Discovery* extends to ethics, postulating the existence of ethical ideas that coincide with ideas in God's mind. We now turn to Whewell's ethical doctrines.

ON ETHICS

Introduction

Whewell has been credited with having revived in the nineteenth century 'the study of moral philosophy at Cambridge', being at the head of an impressive 'line of Cambridge moralists—John Grote, Henry Sidgwick, G.E.Moore, C.D.Broad—whose outlook, despite important differences, is strikingly similar on certain central issues' ([2.21], 109). Their historical importance notwithstanding, Whewell's ethical works have in the twentieth century been almost entirely neglected.[14]

Whewell began publishing on ethics in 1836 with a 'Preface' to James Mackintosh's *Dissertation on The Progress of Ethical Philosophy*. *On the Foundations of Morals, Four Sermons* appeared in 1837. The following year, appointed Knightbridge Professor of Moral Philosophy (his second chair, that of Mineralogy having been held by him from 1828 to 1832), Whewell delivered twelve lectures which later appeared as *Lectures on the History of Moral Philosophy in England* (1852, [2.5]). Certain themes of these lectures form a backdrop to the *opus magnum* of Whewell the moralist, *Elements of Morality, including Polity* (1845, [2.4]).

The leitmotif of *Lectures on the History of Moral Philosophy in England* is the history of conflicting understandings of the foundations of morals, the basic principles of duty or right conduct. Theories of one class, distinguished by Whewell as 'high' or 'independent', explain conduct as moral or immoral *per se*, right and wrong being

independent (inherent) qualities of actions. According on the other hand to the theories Whewell designates as ‘low’ (the adjective serving to make plain his antipathy), morality is reducible to facts more fundamental and real. The facts in question are consequences of actions, notably pleasure and pain. The debate between theorists of these two proclivities arose in ancient Greece, Stoics pitted against Epicureans. Woven through Christian moralizing, the independent perspective was long ascendant, up to the seventeenth century in fact. Then, at the same time as Hobbes and Locke were forcefully asserting the low view of morality, developments in science and metaphysics were straining and breaking the web of traditional belief. The high position began to look anachronistic, fewer people found it credible. For a new age, in a new climate of opinion, the independent doctrine had to be appropriately reformulated. And while attempts have been made to adapt it to the altered circumstances, they have only been partial and never really satisfactory. So far as Whewell is concerned, the real work of reconstruction remains to be done.

From the early eighteenth century, in England generally and at Cambridge University in particular, dependent theorizing on morality formed ‘the general tendency’ ([2.5], 165). Since the middle of that century, the successive main sources of the ethical instruction given at Cambridge have been Gay, Rutherforth and William Paley. Gay’s *Dissertation* (1732) affirms God’s will as the determinant of virtue, and human happiness the measure. On any occasion the action productive of greatest happiness is that which God would have us perform. In *Essay on the Nature and Obligations of Virtue* (1744) Rutherforth attempts to show that happiness as the ultimate end of action is a teaching of reason, with revelation the source of our knowledge that God will reward with happiness in the next life right conduct towards others in this. The major production of Paley was *Principles of Morals and Politics* (1785). Such has been its intellectual impact, Whewell puts it in another league altogether from the last mentioned works. Radiating influence far beyond the walls of Cambridge colleges, Paley affected ‘the habits of thinking, reasoning and expression’ of English people ‘to at least as great an extent as any previous moral doctrine has ever done’ ([2.5], 176–7). The central teaching of Paley is that happiness for humanity is desired by God, by whom those of our actions that conduce to happiness are deemed right and to whom they prove agreeable. We may know God’s will so Paley reasons, and reasoning thus he is close to Gay, by determining which actions achieve most happiness for all concerned. There is for Whewell sad irony about Paley’s labours; of noble intentions and impeccable religiosity, his thought was a major antecedent of secularized utilitarianism. Little did he, and profoundly would it have aggrieved him to, know that his writings would in time ‘lead to dangerous and immoral tenets’ and ‘produce…evil’ ([2.5], 178). Whewell expresses in *History of Moral Philosophy* a resolve to deal with the problem as he recognizes it, seeking reform of the Cambridge curriculum. The ‘system of [Paleyian] morals which is now taught among us is unworthy of our descent and office; and it will be my endeavour in future years… further to point out, and, if possible, to remedy the defects which I lament’ ([2.5], 184). He was as good as his word. Whewell’s ethical ‘writings became text-books at Cambridge, and were naturally studied by young men reading for Trinity fellowships’ ([2.24], 1371).

The reader of *History of Moral Philosophy* catches glimpses of some of the likely

sources of influence on Whewell's constructive ethical thought. Grotius, Pufendorf and Cumberland are approved of for having recognized in human nature principles besides self-interest. He accepts Butler's proposition that 'The proper office of each of the principles of our nature assists us…to determine their limits, and to lay down rules for their direction, control, or restraint', rules that is for framing 'special moral duties', although he can nowhere find in Butler a satisfactory 'classification of the faculties and operations of the human mind' ([2.5], 112). And with Paley, Whewell ([2.5], 166) is able to agree on at least this: the task of the moralist must include deductive ordering of 'the commonly-received rules of morality'. This leads on to Whewell's constructive doctrine.

Rational morality in context

The diverse materials of *Elements of Morality* are sorted into six books: '*Introduction*. Elementary Notions and Definitions', '*Morality*. Of Virtues and Duties', '*Religion*. Of Divine Laws and their Sanction', '*Jus*. Of Rights and Obligations', '*Polity*. The Duties of the State' ('*Jus'* treating law as it is, '*Polity'* law as it ought to be), and '*International Jus*. Rights and Obligations Between States'. In its final (fourth) edition, the main body of the work runs to around 550 pages, with its longer books, *'Morality'* and *'Polity'*, in the order of 200 and 130 pages respectively. There are two senses of 'morality' to be noticed in the titles. In that of the volume it connotes the five provinces of human conduct and rules, of which each, while 'intimately connected', has its own questions and modes of answering them. In the case of reasoned 'Virtues and Duties' (Book II), 'morality' signifies the primary part of the whole.

E*lements of Morality* is a work of conservative intent. It is not designed to add to the first-order ethical knowledge we have already (which Whewell takes to be considerable), nor to inquire into how such knowledge is obtained—Whewell supposing himself to keep to the bare essentials. Whewell ([24], x) wrote the *Elements* principally to bring method to bear on what we know about how we ought to act, 'to construct a [moral] *system*'.[15] Our knowledge of rules, duties and virtues is seen as demonstrable by stepwise deductions. The purely ethical part of the system, rational morality comprising Book II, is based by Whewell on the supreme rule of human action or of 'human nature', which notion, as 'universal standard' of right, is redolent of natural law. From this supreme rule of reason lesser moral rules are drawn, each conveying some part of its content.

'Moral Rules Exist Necessarily' Whewell titles one of the chapters in the first book of the *Elements*, and it is a statement that underlies his explication of basic concepts. The predicate 'right' describes con-formity of action to rule. Rules indicate by what actions objects of designated classes may be properly attained. 'Labour, that you may gain money' prescribes labouring as 'the *right* way to gain' that object ([2.4], 48). Rules gain validity, and objects value, from superior cases. 'The Rule, *to labour*, derives its force from the Rule, *to seek gain*' ([2.4], 48). In the same way, it is suggested, rules receive reasons: Why should I labour? To earn income to maintain myself and dependants. Climbing the scale eventually one comes upon an object of intrinsic value, source of value in all other objects. The chain of reasons must if valid likewise have a terminus, one rule exerting sway. So it is that Whewell settles to his own satisfaction the existence of the supreme rule and supreme good.

In utilitarianism is recognized by Whewell the main alternative interpretation of ‘right’ and cognate moral terms. He argues against it that pursuit of rightness is distinct from and apt to conflict with wanting to maximize pleasure, and in cases of conflict it is rightness every time that makes the stronger claim on us. To assess an action accurately as right is to provide for its performance a reason, writes Whewell: ‘*paramount* to all other considerations. If the action be right, it is no valid reason against doing it, that it is unpleasant or dangerous. We are not to do what is pleasant and wrong. We are to do what is unpleasant if it be right’ ([2.4], 6). ‘Right’ is in ethics an absolute term implying a supreme rule as the ultimate reason for action: above all we are to act rightly.[16]

Whewell’s supreme rule extends beyond morality in the ordinary acceptation of the word. All feelings and conduct are regulated by it, ‘all intercourse of men, all institutions of society’ ([2.4], 77). Rules acquire the property of rightness from expressing portions of the supreme rule of action, but whether Whewell regards as its components all rules that have a defensible claim on conduct is uncertain. He distinguishes moral rules from prudential, but by his ([2.4], 139) description of the latter as ‘not directly moral’ a connection with the supreme rule is not necessarily excluded. What is clear however and for Whewell’s purposes more important is that *laws* are part of the supreme rule’s content no less than are moral precepts. These are respectively characterized as ‘Rules of external [bodily] action’ and rules of internal action or events—‘Will and Intention,… Desires and Affections’ ([2.4] 68)—which form ‘the only really human part of actions’ ([2.4], 66).[17] Laws create rights and correlative obligations; precepts impose duties.

While ‘Every thing is *right* which is conformable to the Supreme Rule of human action’ ([2.4], 54), on another level there exist what Whewell identifies as ‘national’ moralities. ‘Nations and communities…have their Standards of right and wrong’, including positive laws and ‘current moral Precepts and Rules’ ([2.4], 199).

From so devout a Christian as was Whewell (Anglican clergyman, doctor of divinity and theologian) it comes as no surprise to learn that ethics is religiously embedded. Natural religion furnishes the idea of the course of nature as in harmony with, as subject to, divine moral government. God governs by laws he wills, that of which in human affairs is foremost being the selfsame supreme rule. Endowed with reason as part of the divine providence individuals are able to, and of course should, act conformably to the divine laws.

> The Supreme Rule of Human Action derives its Real Authority, and its actual force, from its being the Law of God, the Creator of Man. The Reason for doing what is absolutely right, is, that it is the Will of God, through which the condition and destination of man are what they are.
>
> ([2.4], 141)

By God’s appointment, violation of his moral laws is punishable by misery, and conformity rewardable with happiness. The apportionment, taking place in the next life, serves to complete the divine ‘moral government’, God determining the final, eternal condition of the soul according to the level of its moral progress when embodied.

The ‘history of the world’ recorded in the Scriptures Whewell presumes to be the ‘fact’ corresponding to the ‘idea’ just noted. The part of the Scriptural record of chief

importance concerns God's transactions with humanity, '*Revelations* of the Commands and Promises of God, and of the Methods by which men are to be enabled to obey these Commands, and to receive the benefit of these promises' ([2.4], 257). The revelation made through Jesus Christ confirms the claims of natural theology.

Through the addition of Christian precepts and doctrines to those of rational ethics we are offered, Whewell believes, a more complete picture of the grounds of duty, providing for virtue's more effective pursuit. Christ embodied in human form the moral perfection we conceive in God, and Christian morality presents this *'Image of God in Christ'* as the 'summit of the Moral Progress, which it is our Duty to pursue' ([2.4], 258). It is important to our hopes and aspirations, and to the way we conduct our lives, that we know whether sinners may be saved from eternal punishment. The answer, to be found in revealed Christian doctrine, is that Christ's crucifixion, burial and ascent into heaven formed a divine interposition to save humanity from 'infliction of merited punishment' ([2.4], 259). Conditions are revealed as necessary to fit the soul for future life: belief in Christ ensures participation in the Holy Spirit, and united with Christ the soul receives its aliment.

Law and morality

Leslie Stephen ([2.24], 1372) has described as 'The most curious characteristic' of Whewell's ethical writings 'the prominence given to positive law in the deduction of moral principles'. It is possible to understand Whewell's ethics only after studying how he relates law to morality, and this requires the disentanglement of a number of threads in his work.

Of Whewell's claims on this subject perhaps the most prominent is that *morality depends on law*. He opens with an argument that mental desires, our 'most powerful' springs of action, can be gratified only if regulated, and on their gratification preservation of the fabric of society depends. Whewell ([2.4], 45–6) in the first instance describes these rules as 'moral'. This it may be thought is in conflict with the basic dependence relation: *'that Moral Rules may exist, Men must have Rights'*, where 'rights' signifies abstract conceptions assigned to people by positive laws that are 'subordinate to the Supreme Rule' ([2.4], 51). But upon inspection the conflict turns out to be verbal only, apparent rather than real. 'Moral' is in the first sense inclusive of, and used in such a way as to highlight, laws as a type of moral rules, having in the second its usual, more restricted, meaning. At least three claims may be distinguished. There is a thesis, call it 'causal', about the possibility of moral conduct: people cannot act morally unless already they obey positive laws. Moral conduct and character presuppose legally ordered society. There is a closely related ontological claim about the possibility of moral rules: 'We must suppose the Rights of Property, and the Laws of Property, before we can lay down the Moral Rules, Do not steal, or Do not covet another man's Property', etc. ([2.4], 55). A further claim, this made in regard to morality's vocabulary, is that 'Desires and Intentions cannot be defined or described in any way, without some reference to Things and Actions; and therefore, cannot supply a basis of Morality independent of Law' ([2.4], 201). Without him saying it in so many words, the precedence of law for Whewell really boils down to it enabling mental desires to be satisfied. More than moral rules, suggests

Whewell, laws are directly concerned with constraining conduct and, being enforced, usually succeed in this.

Whewell's follow-up to this is a rather more informative statement that duties (morality) depend upon rights, not in general but of a *specific class*. What 'Rights must exist' are determined by—a common expression in eighteenth- and nineteenth-century philosophical writing—*springs of action* ([2.4], vii).[18]

Acts Whewell believes are properly ours when reason directs the will. Through the faculty of reason we discover truth and falsehood, conceive of general rules, recognize actions as cases of rules, and discriminate right from wrong.[19]

Will represents the final step of intention (purpose), a process of internal motion as Whewell conceives it, produced by springs of action. Springs of action he distinguishes by their ends. Bodily desires for physical objects are *appetites*, primordial among which are 'natural wants' (hunger, thirst). Satisfaction of wants is a source of enjoyment, giving rise to the desire of *pleasures of sense*. Employment of art to satisfy appetites stimulates *artificial wants*. As appetites are directed to things, *affections* (love and anger) tend to people. Most 'universal and most powerful' ([2.4], 32) among springs of action are *mental desires* for abstract conceptions of physical safety, private property, companionship of family and membership of civil society, kept promises and respected agreements ('mutual understanding'), 'superiority' (skill, strength, wealth, or power), and 'knowledge' or reason. *Moral sentiments* (approval, esteem, and their opposites) accompany moral evaluations of actions, disposing us to treat people 'as we approve or disapprove their actions' ([2.4], 41). *Reflex sentiments* are the desire that others would love and esteem us; and desire of honour, fame and self-approval.

From mental desires as the predominant springs of action Whewell derives fundamental rights. To have a satisfactory life each person is in need of: protection from assault (right of person), control over physical objects (right of property), dependable conduct from others (right of contract), exclusive relations with certain others (family rights), and an organization to establish rights (rights of government). The rights are to objects of mental desires. (In *'Jus'*, Book IV of the *Elements*, rights in Roman and English systems of law receive extensive classification under the foregoing heads.)

These 'primary and universal' rights Whewell respects as absolutely valid, imperatives in all societies. They are rights that *must be*. 'Family Rights', as a case in point, 'necessarily exist'; while society without 'Rights of Government…loses its social character; and the moral character of man cannot find its sphere of action', and so on ([2.4], 52). The most important objects in our lives, those of primary (mental) desires, cannot be secured outside a framework of law. Rights respected are realities; abstract conceptions as objects are thus realized.

As we have so far understood Whewell in this part of his thought, his essential theses are two. There is a set of *ideal* rights corresponding to springs of action. The same rights serve in *fact* as the indispensable conditions of social order and morality.

To this conjunction an objection immediately suggests itself: Is not the proposition that ideal rights necessarily exist contradicted by the variety of laws and rights found both within (temporally) and between societies? The objection is one that Whewell ([2.4], 59) himself anticipates in order to obviate, claiming the positions to be 'reconcilable'. In this reconcilableness he sees a further case of the fundamental antithesis or distinction

between *ideas* (conceptions) and *facts*. Ideas of the primary rights are derivations from human nature. There can be no conceiving of people as members of society nor as moral agents except in so far as they have the (ideal) rights to personal safety, property, etc. That said, ideas of rights must be in society as facts. By positive laws the forms so to speak are specifically defined and, on account of being historically conditioned, the definitions of ideas of rights differ between societies. The traveller whom law in one society permits to 'pluck the fruits of the earth as he passes' finds such fruits are in another society 'the Property of him on whose field they grew'. Explains Whewell ([2.4], 59), the 'Precept, *Do not steal'* is absolutely moral and 'universal', a corollary of primary rights, whereas 'the Law, *To pluck is to steal*', is historically contingent or 'partial'. According to the present thesis *actual rights (in 'national moralities') are in all cases definitions of, and consistent with, the rights identified as ideal*.

Appearing in *Elements of Morality* is a further account of rights positive in relation to rights ideal, almost certainly contradicting the account above. In a passage that merits quoting at length we have Whewell (1864:68) saying:

> positive definitions of Rights for the moment, may be themselves immoral. Rights, as we have described them…, are arrangements not only historically established, but also established in conformity with the supreme Rule; that is, they are such as are right. The actual definitions of Rights at any moment, that is, the state of the Law, may need improvement and reform: but in general, the Law gives, for the moment, the definitions of Rights upon which Morality must proceed.[20]

Actual rights may be immoral, contradicting ideal rights. So, while *positive rights* should, the fact is they *do not, in all cases assign definite shape to some part or other of the content of ideal rights*.[21]

From his case for morality requiring a specific set of rights Whewell has veered away, apparently unaware of how damaging to his basic doctrine are the implications of such change. Societies may produce, and their 'national' moralities may exist on, immoral rights, conflicting with the ideal or 'primary' rights and failing to gratify primary desires.

Closing coverage of this part of *Elements of Morality* it may be commented that Whewell's procedure—grounding ideal rights in human nature—appears strange given his inclusion of the same rights in the supreme rule. To this, the first and fundamental principle of morality, he might have been expected to go and exfoliate the ideal rights directly.[22]

Rational morality

In '*Morality*. Of Virtues and Duties' we confront the longest and most important of the *Elements*' six books. The core of this as of the other parts of Whewell's ethical thought is the 'supreme rule' coupled with the 'supreme object'. These points have been noted. Whewell early in Book II equates the idea of the supreme object with moral goodness, to which he otherwise refers as virtue or rightness in the soul. The soul attains this state when the faculties (consciousness, reason, will, imagination, and affections) are regulated

by virtue and habituated to duty. The supreme object—goodness or virtue—Whewell ([2.4], 241) also designates as happiness, which he specifically says stands for 'the Supreme Object of our Desires' and is 'identical with…the Ultimate and Supreme Guide of our Intentions'. Utilitarians have commonly equated happiness with pleasure, demonstrating to Whewell ([2.4], 254) how confused they are, for in happiness is a compound of 'all other objects', whereas pleasure is only that *simple* state we experience upon the satisfaction of our physical desires. The doctrine of absolutely right action (as action in accordance with the supreme rule) denies that pleasure can be, while confirming that happiness is, the ultimate desire and end.

> The Desire of Happiness is the Supreme Desire. All other Desires, of Pleasure, Wealth, Power, Fame, are included in this, and are subordinate to it. We may make other objects our ultimate objects; but we can do so, only by identifying them with this.
>
> ([2.4], 241)[23]

No doubt some utilitarians would approve of this, and imagine that Whewell on account of it might be counted as one of them. But although Whewell takes it as true that happiness ought to be increased, he goes on to suggest that there is no possibility of anyone knowing how to go about it. A basket, or if you like an umbrella, concept, no 'special element' is implied in happiness while 'all…objects' and 'all good' are ([2.4], 243). As happiness, Whewell says, is too complex and indeterminate to be measurable, rules for attaining it are out of the question. Whereupon the possibility of Whewell's project of arranging existing rules-and-objects hierarchically boils down to this: there must be some other way, more fertile of implications, in which to envisage the supreme object.

Whewell for his part typically discusses this object with reference to, and in such a way as to identify it with, 'goodness', reducing it to five terms—benevolence, justice, truth, purity and order—each with subjective and objective denotations. Subjectively they refer to classes of dispositions or 'cardinal virtues', and objectively to 'abstract mental Objects or Ideas' ([2.4], 75–6) to which dispositional desires and affections are directed. *Benevolence* as virtue is the sum of all affections that bring together people, and the absence of feelings that divide; of which the corresponding idea, 'humanity', is of the good or well-being of all people.[24] *Justice* as virtue is 'the Desire that each person should have his own' ([2.4], 73), and as idea or object is 'the Rule, To each his own' ([2.4], 76). *Truth* as virtue or disposition has as its idea '*Objective Truth*, the agreement between the reality of things and our expressed conceptions of them' ([2.4], 76). In the state of *purity* reason and moral sentiments govern bodily desires, the objective counterpart consisting in the idea of human nature 'free from…mere desire' ([2.4], 76). *Order* denotes the disposition to conform willingly to positive laws and moral rules and, objectively, the idea of obedience.

Goodness or virtue is the supreme object of action and of rules, subordinate objects all taking their moral value from it. Enjoining us to love virtue (benevolence, justice, etc.) and to seek it 'as the ultimate and only real object of action' ([2.4], 77), the supreme rule directs our 'Affections and Intentions to their proper objects' ([2.4], 96). Conforming to

this rule, *character* is virtuous and *action* dutiful, the twin elements serving to make a person good. The supreme rule is possessed of a structure which for the most part reflects its (supreme) object, with matching pairs—objective and subjective—of component rules. Conveying aspects of the supreme rule's content, *express* (objective) moral principles have objects in the form of ideas. The principles are those of humanity, *'Man is to be loved as Man';* justice, *'Each Man is to have his own';* truth, *'We must conform to the Universal Understanding among men which the use of Language implies',* desisting from lying; purity, *'The Lower parts of our Nature are to be governed by, and subservient to, the Higher';* and order, *'positive Laws [are to be obeyed] as the necessary Conditions of Morality'* ([2.4], 95–6). Completing the list of express principles are: earnestness, *'The Affections and Intentions must not only be rightly directed, but energetic';* and moral purpose, '*Things are to be sought universally,* not only in subservience to moral rules, but *as means to moral ends*' ([2.4], 96). The supreme rule's other set of principles Whewell distinguishes as 'operative'. These have to be cultivated; express principles being incorporated into the character of an individual habitually to guide affections and purposes, functioning as springs of action.

Specific virtues and duties, the bulk of the materials of rational morality, Whewell explicates in terms of, and distributes according to, the plan above. Virtues are a sub-class—those that are desirable—of the habits or dispositions of inner states (desires, affections and volitions), combining to form an agent's moral character. Duties are right actions, the ways in which we ought to conduct ourselves. Virtues exist and operate unconsciously, while duties are conscious. Between the two Whewell finds a relation approaching to concomitance. Duties need not issue from virtues (motives to right actions may be amoral, even immoral), but virtues are manifested in and developed by performance of duties, and by cultivation of virtues performance of corresponding duties is made more likely. 'Acts of Duty are both the most natural operation of virtuous Dispositions, and the most effectual mode of forming virtuous Habits' ([2.4], 97).

Distinguishing duties in relation to objects, Whewell's basic categorization of them is similar to that of cardinal virtues, with duties of affections (benevolence), property, truth, purity, and order. A duty of cultivating the affections is also recognized, reducible to which is a duty of the affections: the 'Duty of thus cultivating these Affections includes the Duty of possessing such affections' ([2.4], 115). It is unclear whether Whewell believes all duties owed to other people involve the duty of affection, but at least those of justice and truth in his view do.

From these primary duties, enjoined by the 'express' principles of morality, Whewell goes on to deduct rationally many specific rules of duty, but their enumeration shall not detain us. The general classification of duties reappears to shape discussion in other parts of *Elements.* The book *'Polity'* has chapters on the State's duties of 'Justice and Truth', 'Humanity', 'Purity' and 'Order'. Explicating religious ethics, Christian precepts are arranged by Whewell under such headings as 'Duties of the Affections', 'Property', 'Truth', 'Purity', 'Obedience and Command'.

One further duty to be noted is that of moral progress, incumbent on States and individuals alike. The State must be recognized as an agent given that it, among other things, 'makes war and peace, which it may do justly or unjustly; keeps Treaties, or breaks them; educates its children, or neglects them' ([2.4], 208). Continuously existing,

purposive and active, States are moral beings endowed with life, and ‘During this Life, it is their Duty to conform their being more and more to the Moral Ideas’ ([2.4], 208). By its duty of moral progress the State is obliged to acquire more virtue and to perform its duties better. It must become more just and act more justly (observe treaties with, and respect possessions of, other States; make laws that remedy inequalities from the past), become more benevolent and act more benevolently (liberate slaves, relieve poverty), and so on. What meaning is to be given to Whewell’s talk of the State as a subject of virtue, and of it being by the enhancement of its own virtue disposed to perform duties better? It seems probable he regards this virtue and its increase as a function of citizens:

> And, as the condition of other Duties being performed, the moral Education of its citizens, *and consequently of itself*, is a Duty of the State. It is its Duty to establish in the minds of its children, and to unfold more and more into constant and progressive operation, the Moral Ideas of Benevolence, Justice, Truth, Purity, and Order.
>
> ([2.4.], 208, emphasis added)

Correspondingly, to the individual is ascribed a ‘reflex’ duty of moral progress or of moral self-culture. The character should according to this duty be developed as far as possible towards the ideal centre of morality at which, the point of goodness, cardinal virtues represent tendencies (‘operative principles’) of conduct so firmly established that no duty can ever be transgressed. Among the requirements of this duty, *benevolent affections* of gratitude to benefactors, compassion to the afflicted and love between family members are to be made steadier and more earnest; the *malevolent feelings* of violent anger, peevishness and captiousness are to be suppressed. *Justice* is to be developed as an operative principle, the character being cleansed of stains of greed, covetousness, and partiality; the agent desiring only possessions to which she or he is entitled and only for moral purposes. The individual is likewise called on to foster the other virtues—truth, purity, order—while eliminating desires running contrary to them. ‘We have to form our character, so that these principles [benevolence, justice, truth, purity, and order] are its predominant features. We have to seek not only to *do*, but to *be;* not only to perform acts of Duty, but to become virtuous’ ([2.4], 142). The duty of moral progress is itself performed, just as the several virtues are most effectively cultivated, by performance of the other, more particular, duties. And in opposite fashion whenever temptations are succumbed to and rules of duty transgressed, when affections are malevolent and intentions fraudulent, moral progress ceases and the character goes down ‘a retrograde moral course’ ([2.4], 143).

While the present study of Whewell’s view of ethics has concentrated on that which he labels ‘rational morality’ as the truly distinctive, striking and substantial part of his teaching, it is as well to remind ourselves that this department depends for him in a most fundamental manner on religion. The cardinal virtues, as noted, are conceived of by Whewell as perfectly realized in God and as having had embodiment in human form in Christ. The supreme rule of rational morality is the rule of God which fact in conjunction with his imposition of sanctions provides the compelling reason for obeying it. The supreme rule as understood by Whewell

> derives its Real Authority, and its actual force, from its being the Law of God, the Creator of Man. The Reason for doing what is absolutely right, is, that it is the Will of God, through which the condition and destination of man are what they are.
>
> ([2.4], 141)

The rule commends to us, and commands us to emulate, the character of Jesus, moral progress having the goal of 'a godlike being and a heavenly life' ([2.4], x). On our success in following the supreme law and in making moral progress depends our prospect of happiness in this life and, more so, the next.

Postscript

It is natural to ask whether in its structure and method Whewell's analysis of morality resembles his philosophy of science. There is a difficulty to be faced, however, before answering this, the two main works in question, *Philosophy of the Inductive Sciences* and *Elements of Morality, including Polity*, each being predominantly on a different level from the other. Rehearsal of some basic distinctions will enable us to identify more clearly the source of the difficulty. Concerning the subject-matter of physical objects and processes (level 1), scientists advance prepositional laws and theories (level 2), with philosophers theorizing scientific practice and products (level 3). Whewell's *Philosophy* is a contribution on the third of these levels. The corresponding levels of ethics put simply are: human agents and actions, rules dictating how agents ought to conduct themselves, and meta-ethical theories of the discovery and evaluation of right rules. Most of *Elements of Morality* occupies the second level, systematizing occurrent rules, duties and virtues. Philosophical analysis of ethical knowledge and its methods is not its major concern. We are not altogether without material for comparison, Whewell producing some philosophy in the *Elements*, but for comparison to be full and rigorous more of such matter would be needed. We proceed bearing in mind this caveat.

Whewell himself ([2.5], 168) speaks confidently of the 'analogy between the progress of the science of Morals and other sciences'. Concepts and knowledge in both subjects form part of the flux of history. In *Elements of Morality* ([2.4], 202), for example, it is observed generally that 'As the intellectual culture of the nation proceeds, abstract words are used with more precision; and in consequence, the conceptions, designated by such words, grow clearer in men's minds'.

Whereas progress of scientific theories turns for Whewell on wider colligations, that of ethical rules is accounted for by him differently,[25] the key apparently being morality's interaction with law. Definitions that laws give of rights vary socially and historically, and the virtues and duties supported in society depend upon its laws. At the same time morality exercises authority over law and, as a nation's morality improves, laws should be and, Whewell it would appear believes, typically are brought into line. Exactly how improvement in morality is effected and how people have in the past been able to tell that morality was changing to the good are matters which in Whewell remain obscure. Perhaps Christianity's revealed morality has acted as both inspiration for and criterion of

improvement in national moralities. But whether (as I am inclined to believe) or not this speculation constitutes Whewell's opinion on the matter, the main point at the moment is that *Elements of Morality* has no doctrine corresponding to that of colligatory trial and error.

Whewell as explained sees a corpus of real moral knowledge having formed through history. It is to this knowledge, expressed in rules, that under the rubric of 'rational morality' he imparts systematic shape. The axioms employed by him to this end are, like those he locates in science, understood by Whewell to be presuppositions of knowledge, embedded in ideas. Yet their roles are appreciably different: axioms are in rational ethics used for *proving* claims to knowledge (whether rules are right), which in science falls to the lot of the *a posteriori* test of consilience, axioms transmitting necessity to, and assisting deductive ordering of, propositions less general.

The presence in science and ethics of the 'fundamental antithesis' provides what is for Whewell perhaps their most striking similarity. The antithesis is recognized in *Philosophy of the Inductive Sciences* in its second edition ([2.3], x) as 'suited to throw light upon Moral and Political Philosophy, no less than upon Physical'. Now without in any way gainsaying that Whewell often employs the terms 'idea' and 'fact' in *Elements of Morality*, one does find that phenomena to which he applies them are in their natures most diverse. He for example writes of ideas and conceptions of primary rights, and of their 'definitions' by positive laws as facts. In another part of the work, as already we have had cause to comment, he finds in natural religion the idea 'of the course of the World', whose corresponding fact is God's manifestations in history (revealed religion). But Whewell's principal usage, of 'idea' at any rate (for he is silent on what the term 'fact' might in this case mean),[26] is that which we find in his explication of rational moral-ity. And the way in which he understands ideas here is nothing like how he understands them in his philosophy of science. Whewellian ideas in rational ethics are *ideals* forming *subjects* of inquiry. To know their content is to have moral knowledge about what rules are right. In science, by contrast, ideas are conditions of and materials for knowledge, of which *physical reality* is the *subject.* Gaining knowledge of that reality, a scientist at the same time gains knowledge of ideas, but the latter is more properly regarded as a secondary effect of enquiry rather than as its purpose.

Whewell has been described as having 'written with an explicit view not merely to embrace the world of learning but to synthesize it and render it a unified intellectual whole' (Fisch [2.13], 31), and this may well be true. But if he so sought synthesis and unification, what has been said in this paper must cast doubts on whether he attained them.

NOTES

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1 'Whewell himself regarded his *History of the Inductive Sciences*…and *Philosophy of the Inductive Sciences*…as both the crowning achievement of his career and the unifying "hard core" of his entire system of thought' ([2.12], 2). I shall in what follows also refer to these works simply as *History* and *Philosophy*. References unless otherwise indicated are to the reprint editions (1967).

2 Cohen ([2.7], 528ff.) is illuminating on Whewell's notion of revolution.

3 Schipper ([2.20], 49), after noting several respects in which Whewell's historiography of science anticipates that unfolded by Kuhn in *The Structure of Scientific Revolutions*, argues that in this—cognitive continuity (Whewell) as against discontinuity (Kuhn)—consists their major difference. This leads on to a further difference: science from Kuhn's standpoint is ultimately aimless while Whewell ascribes to it the aim of truth.

4 As Richard Gregory ([2.14], 219), distinguished psychologist of perception, states: 'objects have a host of characteristics *beyond their sensory features*. They have pasts and futures; they change and influence each other, and have hidden aspects which emerge under different conditions' (emphasis added). Whewell's account of perception (and of facts) has a readily discernible counterpart—'theory-dependence of observation'—in writings of such twentieth-century figures as Karl Popper, N.R.Hanson, and Kuhn.

5 As explicitly defined, *'ideas'* refers 'to certain comprehensive forms of thought,—as *space, number,*…—which we apply to the phenomena which we contemplate'. Whewell ([2.3], 2:5–6) then proceeds to define the important related term—'*conceptions'*—as 'special modifications of these ideas', giving as examples *'a circle, a square number, an accelerating force, a neutral combination* of elements'.

6 A fine-grained, more technical and more manifestly prescriptive rendering by Whewell of scientific methods is in Book XIII of the *Philosophy*. Ducasse ([2.9], 183–217) digests this particular book; Todhunter ([2.25], 139–42) detects several discrepancies between its structure and that of Book XI.

7 With reference to their disregard of this condition Whewell explains the Greeks' failure fully to cultivate science, whereas in the 'Stationary Period', as noted, the accent was the opposite, on ideas at the expense of facts.

8 This suggests that facts are reports of perceptions of concrete objects and events. 'Fact' for Whewell may also cover theories or inductions as candidates for explanation. In the latter distinction theories and facts are of the same nature, have the same properties, the distinction being time-dependent and relative.

9 Niiniluoto [2.18] deals at length, in most interesting fashion, with this and other similarities between the images of science of Whewell and Popper.

10 This explication of consilience owes a great deal to that of Fisch [2.11].

11 According to Fisch ([2.10], 287; [2.12], 158) Whewell's axioms are true only of ideas. But if, as quite clearly Whewell maintains, axioms are true 'beyond… experience' they must also be true within and of it. He is to be understood as saying that axioms (1) express the content of ideas, and (2) are propositions about physical reality.

12 Some would say (e.g. Fisch [2.10]; [2.12]) that Whewell's *Mechanical Euclid* provides ample evidence for this claim. But Whewell there on my reading presents the distinction between inductive (non-necessary) and non-inductive (necessary) truths in mechanics as absolute rather than as epistemologically relative (to the state of knowledge). So no matter what he may say or suggest to the contrary, on his account of it in that work, the non-

necessary truths cannot and can never be logical derivatives of the necessary. That which *is* true (but could be false) is not among the implications of that which *must* be true.

13 Again, aside from those passages already referred to, Whewell should be seen as operating with just such a distinction in his opening account of necessity in *Philosophy of the Inductive Sciences* ([2.1], 54–73).

14 The paucity of exceptions serving to prove this rule are Schneewind ([2.21] and [2.22], 101–17) and Donagan [2.8].

15 About this Whewell is clearest in the preface of the first edition. See also the letter in Stair Douglas ([2.23], 326), and the preface of the fourth edition ([2.4], 3 and 6).

16 For further discussion of happiness and of utilitarianism see Whewell [2.5], x, 170ff., 174ff., and 188ff.; [2.4], 125–6, 254ff.

17 Not always faithful to this characterization, Whewell ([2.4], 244) may on occasion subsume external action under precepts.

18 The language of necessity (‘must’), freely employed in the *Elements*, is ambiguous in signifying what ought to be (ideal morality), or else what cannot but exist (in ‘national’ moralities) in that human nature demands and cannot survive without it. Arguing that certain rights ‘must’ exist, Whewell conflates both senses.

19 For extensive enumeration of the operations of the faculty of reason see Whewell [2.4], 23–4.

20 Other relations between rights and morality are delineated later in the work ([2.4], 201f., 229ff., 337ff.).

21 The same contradiction between this and his doctrine about necessary rights is latent in a note in the second and subsequent editions ([2.4], 62).

22 This calls into question the categorization of Whewell as an ‘intuitionist’. Tracing rights from human nature his method is a combination of empiricism and deduction.

23 This embracing conception of happiness is noteworthy for being akin to that which one finds in John Stuart Mill’s ‘utilitarianism’.

24 Not the least of the difficulties facing the reader of *Elements* is that a number of key terms have different denotations which Whewell fails to mark. ‘Ideas’ is a case in point: usually referring to a select class of ideals or objects of action, Whewell ([2.4], 94–5) may also apply it to dispositions to seek those objects.

25 Similarity of methods is suggested, it is true, in the *Lectures* ([2.5], 168) but not shown, and careful examination of the texts uncovers no evidence of it.

26 Schneewind ([2.21], 120) speaks in this context of ‘Human Nature’ as the corresponding ‘fact’, but he provides no evidential support to show Whewell has this in mind and, so far as this author can ascertain, none exists.

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CHAPTER 3
J.S.Mill

Ethics and politics

R.F.Khan

ON LIBERTY

John Stuart Mill's mature views on ethics and politics are to be found in *On Liberty* (published in 1859), *Utilitarianism* (1861), *Considerations on Representative Government* (1861) and *The Subjection of Women* (written in 1861–2 but published in 1869). Of these, *Liberty* is the centrepiece, detailing the doctrines and themes which govern most of the discussion in the other works. It is also the work by which Mill will be most remembered. He himself picked it out as 'likely to survive longer than anything else' that he had written.[1] It has aroused more controversy than any other of his writings, and the essay *On Liberty* has been taken by many of Mill's critics as well as his supporters to be the most distinctive if not authoritative statement of the liberal position.[2]

In Mill's words, the subject of the essay is 'moral, social, and intellectual liberty asserted against the despotism of society whether exercised by governments or by public opinion' (15:581). From the outset, Mill emphasizes the threat to individual liberty posed by 'the tyranny of the majority' exercised either by a democratically elected government or through the non-legal pressure of public opinion (219–20).[3] This was a concern that Mill had expressed in earlier writings, notably in the article on *Bentham*[4] and in his reviews of Alexis de Tocqueville's *Democracy in America*.[5] In *Liberty* the main threat to individual independence is portrayed as coming from majority rule. This is because Mill believed that, at least in the western world, democracy based on universal suffrage was the inevitable next stage of history (218).[6] But it makes little difference to his main arguments whether the threat to individual liberty comes from a majority dominated govern-ment and society or from non-democratic or less democratic social and political organization.

In order to draw the dividing line between the area of individual independence and social control, Mill appeals to a 'very simple principle' initially stated and elucidated as follows:

> the sole end for which mankind are warranted, individually or collectively, in interfering with the liberty of action of any of their number, is self-protection…. [T]he only purpose for which power can be rightfully exercised over any member of a civilized community, against his will, is to prevent harm to others. His own good, either physical or moral, is not a sufficient warrant. He cannot rightfully be compelled to do or forbear because it will be better for him to do

> so, because it will make him happier, because, in the opinions of others, to do so would be wise, or even right. These are good reasons for remonstrating with him, or reasoning with him, or persuading him, or entreating him, but not for compelling him, or visiting him with any evil in case he do otherwise. To justify that, the conduct from which it is desired to deter him, must be calculated to produce evil to some one else. The only part of the conduct of any one, for which he is amenable to society, is that which concerns others. In the part which merely concerns himself, his independence is, of right, absolute. Over himself, over his own body and mind, the individual is sovereign. (223–4).

Two points fundamental to Mill's doctrine are affirmed here. Firstly, the self-protection principle, invoked to justify social and other external restrictions on individual independence, appeals to the distinction between conduct that only 'concerns the individual' and that which also 'concerns others'. This distinction, commonly referred to as that between 'self-regarding' and 'other-regarding' actions,[7] has often been the target of Mill's critics. They have sought, by challenging the validity of the distinction, to undermine Mill's entire case for individual liberty. The standard objection has consisted in denying that there is, or can be, any such thing as purely self-regarding conduct. James Fitzjames Stephen, a younger contemporary of Mill and a most vehement critic, declared that 'every act that we do either does or may affect both ourselves and others', consequently the distinction between self-regarding and other-regarding actions is 'altogether fallacious and unfounded'.[8] And in spite of the fact that what Mill says in further elaboration of the distinction is enough to rebut this objection, it has been echoed by other commentators.

The second feature of Mill's doctrine that is emphasized in the passage quoted above is the rejection of paternalism—the view that society is justified in preventing otherwise fully responsible people from hurting or injuring themselves. The individual's own good or simply the perceived wrongness of his or her conduct is never 'a sufficient warrant' for any kind of coercive interference on the part of society or anyone else. Mill's uncompromising stand against paternalism has provoked much criticism and has found little favour even amongst many of those who claim to support his other views and his general outlook.[9]

Mill claims that his case for individual liberty is based on utilitarian grounds: 'I forego any advantage which could be derived from the idea of abstract right, as a thing independent of utility. I regard utility as the ultimate appeal on all ethical questions; but it must be utility in the largest sense, grounded on the permanent interests of man as a progressive being' (224). However, this qualification of the principle of utility, particularly as Mill presents it in the detail of his argument, has led some commentators to hold that Mill has abandoned utilitarianism,[10] and many others to assign to him doctrines which are more or less radically modified versions of classical or Benthamite utilitarianism.[11] Whether, and to what extent, this is true constitutes an area of continuing interest in Mill's moral and political philosophy.

The view that self-regarding conduct should be protected from external coercive interference implies, as Mill points out, the freedom to frame and pursue our plan of life so long as what we do does not harm others; and also the freedom to associate with others

for purely self-regarding purposes. Mill also specifies as a necessary feature of a free society: 'liberty of conscience, in the most comprehensive sense; liberty of thought and feeling; absolute freedom of opinion and sentiment on all subjects, practical or speculative, scientific, moral, or theological' (225). However, Mill does not justify freedom of speech on the grounds of a simple appeal to the self-protection principle. Although expressions of opinion may be said to be a species of other-regarding conduct, the question of their permissibility or otherwise is not to be decided on the basis of how they affect others—because 'The liberty of expressing and publishing opinion…being almost of as much importance as the liberty of thought itself, and resting in great part on the same reasons, is practically inseparable from it' (225–6). Mill's concern is to defend freedom of speech regarding only the subjects he specifically mentions, thus excluding matters pertaining to a person's private affairs. It is with respect to this specified area of thought that he supports absolute or unrestricted freedom of expression,[12] and seeks to justify it on grounds other than those based on the distinction between self-regarding and other-regarding conduct.

The essential ideas which constitute or underpin Mill's defence of individual freedom are the distinction between self- and other-regarding conduct, the rejection of paternalism, the unrestricted right to freedom of expression, and the ethical doctrine to which he appeals. These are the theses that his critics have challenged ever since the publication of *Liberty*. And the fact that they are still being questioned speaks not only for the central character of the issues Mill addresses but also for the strength of the arguments that can be mounted in defence of his answer.

FREEDOM OF EXPRESSION

Chapter 1 of *Liberty,* which sets out Mill's general position, is followed by his defence of freedom of expression. Almost a third of the book is devoted to this subject and it is clear that Mill regards the arguments and considerations that he advanced in support of free speech to have special significance for individual liberty.

The central argument[13] that Mill cites against censorship is epitomized in the statement that 'All silencing of discussion is an assumption of infallibility' and, therefore, unjustified since any such assumption must be unfounded (229–30).[14] The argument proceeds on the basis that 'Complete liberty of contradicting and disproving an opinion, is the very condition which justifies us in assuming its truth…; and on no other terms can a being with human faculties have any rational assurance of being right' (231).[15] This is a logical claim regarding the rationality of beliefs or the basis for the assignment of truth-values to beliefs. Mill's contention is that we are entitled to hold a belief or declare it to be true only if it is open to criticism and survives attempted refutations. Consequently, if discussion and criticism of an opinion are prevented by legal or social restrictions, then there can be no rational basis for taking it to be true or false.

This principle of the rationality of beliefs is explicitly acknowledged in the following passage:

> The beliefs which we have most warrant for, have no safeguard to rest on, but a

> standing invitation to the whole world to prove them unfounded. If the challenge is not accepted, or is accepted and the attempt fails, we are far enough from certainty still; but we have done the best that the existing state of human reason admits of; we have neglected nothing that could give the truth a chance of reaching us: if the lists are kept open, we may hope that if there be a better truth, it will be found when the human mind is capable of receiving it; and in the meantime we may rely on having attained such approach to truth, as is possible in our own day. This is the amount of certainty attainable by a fallible being, and this the sole way of attaining it. (232)[16]

The passage also indicates that in Mill's view there are no absolutely certain beliefs and that all claims to truth are provisional in so far as subsequent criticism may overthrow them.[17] Of course, as Isaiah Berlin points out, those who maintain that it is possible to ascertain and affirm absolute truths will not accept Mill's account of the logical foundation of beliefs.[18] On the other hand, those who claim that we can get hold of absolute truth, particularly in the area of human affairs, will need to show that we can still have a viable conception of rationality, and it is Mill's contention that this is not possible.[19]

Fitzjames Stephen, who recognized the real (logical) character of the argument from infallibility,[20] challenged it on the grounds of irrelevance to the question of censorship. He pointed out that censorship may be, and commonly is, justified not because the suppressed opinion or doctrine is considered to be false but because 'it is not considered desirable that it should be discussed' ([3.30], 77). Mill anticipates such a move which, as he puts it, seeks to make 'the justification of restraints on discussion not a question of the truth of doctrines, but of their usefulness; and flatters itself by that means to escape the responsibility of claiming to be an infallible judge of opinions' (233).[21] He rejects the move on the grounds that 'no belief which is contrary to truth can be really useful' in that no one can genuinely hold a belief unless it is taken to be true. And as the usefulness of a belief requires that it should be subscribed to, it follows that its utility would also require it to be regarded as true.[22] What Mill is maintaining here is not to be questioned on the grounds that many useful beliefs happen to be false. What, in his view, is necessary is that when these beliefs are held they are subjectively taken to be true. Consequently, beliefs protected from criticism on the basis of their utility must also be viewed as true, and those contrary to them as false, thus exposing such a move to the original charge of irrationality. No doubt those who protect a belief because of its utility—the censors—need not take it to be true and may even regard it as false. But they cannot avoid *declaring* it to be true in so far as they want to promote subscription to it. And as they must declare it to be true without permitting it to be criticized, they present themselves as infallible.[23]

In the second part of his case against censorship Mill proceeds as if he concedes for the sake of argument that truth is not logically tied to scrutiny and discussion.[24] We may then take an opinion to be true independently of any critical assessment of it. But, Mill declares, this still does not justify protecting it from criticism because such a move reduces the belief in question to 'a dead dogma',—'held in the manner of a prejudice… deprived of its vital effect on the character and conduct,…as a mere formal

profession' (243, 258). If beliefs are to function as living truths governing the conduct and affairs of those who hold them, they need to be fully and frequently put to the test of critical discussion. Mill suggests that where there is a natural and general consensus in favour of some view, it may be necessary to introduce artificially a programme of dissent and criticism in order to vitalize it (251).[25]

It is not clear why, and consequently in what sense, opinions in the absence of discussion turn into 'dead dogma'. On the one hand, we are told that they have no effect on character and conduct in that they involve only a verbal adherence.[26] Those who hold a belief or subscribe to a doctrine in the absence of discussion do not in any proper sense of the word know what they profess, the very meaning of the belief is lost or seriously distorted (247, 258);[27] consequently, it cannot have any significant impact on character and conduct. On the other hand, the protected beliefs are said to be held as mere prejudice, without any rational consideration of their grounds (244). But as we all know, prejudice serves very effectively as a determinant of dispositions and actions. Moreover, the examples that Mill gives of 'dead' beliefs do little to clarify the conception. He points out that 'the maxims and precepts contained in the New Testament', which constitute the central doctrines of the faith, were accepted as 'living truths' by the early Christians because they were held in the face of active and hostile criticism. These same doctrines have become 'dead dogmas' because in the modern era Christianity is protected from critical dissent. With hardly any exception, latter-day Christians merely verbally acknowledge that one should love one's neighbours as oneself or take no thought for the morrow, or that it is doubtful that the rich can enter the kingdom of heaven, etc. without acting on these beliefs (248–50). But clearly the case that Mill draws attention to is open to a different and more reasonable interpretation. The beliefs he mentions are those whose content essentially spills over into conduct, so that in the consistent absence of relevant actions we may well deny that they are held at all by those who profess them. What we would have then would be cases of hypocrisy and not, as Mill claims, failure to grasp the meaning of these propositions.

This is the least satisfactory part of Mill's case for freedom of expression. Even if we grant that protecting a belief from criticism implies ignorance of its grounds,[28] it does not follow from this that one does not know the meaning of what one believes.[29] The view that a racial group is inferior in specified respects may be protected from criticism without any loss in meaning to those who subscribe to it.[30] Propaganda and other forms of indoctrination by their very nature exclude criticism and rational discussion but they still succeed in promoting the desired beliefs. And, as history shows, there is no reason to hold that such protected beliefs have little or no direct influence on conduct.

The strength of Mill's case against censorship lies in his central contention that the very idea of rationality regarding beliefs and attitudes depends on the possibility of critical assessment. The value of freedom of expression then consists in the fact that its provision makes it possible for us to be rational. Where the life of a community is concerned, freedom of discussion is indispensable for 'great thinkers' to pursue bold and novel lines of thought, and much more so for 'average human beings to attain the mental stature they are capable of (243).[31] In other words, since our mental well-being depends on our being rational, freedom of discussion is necessary for our mental well-being (on which all other well-being depends) (257–8).

SELF-REGARDING CONDUCT AND INDIVIDUALITY

The line dividing the area of individual freedom from that of legitimate social control is identical to that separating self-regarding from other-regarding conduct. Mill indicates from the start that the boundaries of these regions are not to be drawn simply on the basis of determining whether or not a causal connection exists between the individual's actions and specified effects suffered by others. Rather, he makes it abundantly clear that we need to appeal to a normative criterion in order to demarcate between self-regarding and other-regarding conduct. Thus, in the opening chapter of *Liberty*, Mill describes the area of self-regarding action as 'comprehending all that portion of a person's life and conduct which affects only himself, or if it affects others, only with their free, voluntary and undeceived consent and participation' (225).[32] This statement is immediately qualified: 'When I say only himself, I mean directly and in the first instance; for whatever affects himself may affect others through himself; and the objection that may be grounded on this contingency will receive consideration in the sequel' (225). In the 'sequel', i.e. chapter 4 of *Liberty*, Mill concedes that

> the mischief which a person does to himself may seriously affect, both through their sympathies and their interests, those nearly connected with him, and in a minor degree, society at large. When, by conduct of this sort, a person is led to violate a distinct and assignable obligation to any other person or persons, the case is taken out of the self-regarding class, and becomes amenable to moral disapprobation in the proper sense of the term… Whoever fails in the consideration generally due to the interests and feelings of others, not being compelled by some more imperative duty, or justified by allowable self-preference, is a subject of moral disapprobation for that failure, but not for the cause of it, nor for the errors merely personal to himself, which may have remotely led to it. In like manner, when a person disables himself, by conduct purely self-regarding, from the performance of some definite duty incumbent on him to the public, he is guilty of a social offence… Whenever…there is a definite damage, or a definite risk of damage, either to an individual or to the public, the case is taken out of the province of liberty and placed in that of morality or law… But with regard to the merely contingent, or…constructive injury which a person causes to society, by conduct which neither violates any specific duty to the public, nor occasions perceptible hurt to any assignable individual except himself; the inconvenience is one which society can afford to bear, for the sake of the greater good of human freedom. (281–2)[33]

Although, in these statements, Mill seems to be specifying two necessary conditions of self-regarding conduct—that it does not involve the breach of a specific duty and also that it is not the cause of perceptible hurt to an assignable individual—further consideration shows that the second condition should be regarded as subordinate to the first. The cases of contingent injury that Mill specifies are of the following four kinds: (1)

An individual through some form of self-indulgence harms himself (‘deteriorates his bodily or mental faculties’) with the result that he is unable to use his abilities for the benefit of society, e.g. he cannot be, or any longer function as, a doctor (280).[34] (2) Similar conduct on the part of an individual that affects others adversely by serving as a bad example which they follow (280). (3) An act (e.g. not observing the Sabbath) which causes pain and distress to others because it goes against their views and practice (283ff.).[35] (4) An individual’s success in a competitive examination, or the competitive selection of candidates for a job, causes loss and pain to those who, as a consequence, are not preferred (292–3). The injury caused in these and other cases may be perceptible enough and may clearly affect assignable individuals. For example, selling or renting a house to a black family in a white neighbourhood may bring about a fall in the value of adjacent properties, so that other house-owners suffer serious financial loss. Or the knowledge that the next-door neighbours are atheists may cause a religious person’s feelings to be outraged to the extent of bringing on a serious illness. What would make these injuries ‘merely contingent’ is not the fact that they are ‘non-perceptible’ nor the fact that they do not affect an assignable individual—for in these two cases we can specify precisely those who suffer a clear injury—but the fact that the individual concerned is not violating any specific public duty or any distinct obligation to the other persons concerned. No one, it might be said, is under an obligation not to sell or rent a house to a black family, or to be religious.

It is along these lines that Mill responds to the kind of cases he mentions. With regard to (1) above, he points out that society has no right to exact any socially beneficial exercise of the talents and capacities which individual members of it may possess, so that the individual has no such corresponding duty (282).[36] In connection with (4), he states that ‘society admits no right, either legal or moral, in the disappointed competitors to immunity from this kind of suffering’, i.e. no one owes a duty to another to ensure that such pain and loss does not occur (293). With regard to (3), the actions complained of cause pain and distress to others only because they are believed to be wrong, so that the injury in question would not exist independently of these beliefs.[37] Mill takes this fact to imply that the so-called injured parties in such cases have no right to expect those, whose conduct is found to be offensive to act differently.[38] Mill’s notion of self-regarding conduct then depends on the existence and nature of the duties the individual owes either to society at large or to other persons. If an action is not a violation of such a duty then it is to be classified as self-regarding and any injury it causes to others taken to be merely contingent.

How should we determine the existence and nature of these duties which serve to mark out self-regarding from other-regarding conduct? It is as a utilitarian that Mill claims to answer this question. The ultimate appeal on all ethical questions should be to utility, provided that we take it to be ‘grounded on the permanent interests of man as a progressive being’ (224). This qualification is explained in chapter 3 of *Liberty* where Mill specifies *individuality* to be ‘one of the principal ingredients of human happiness’, ‘one of the leading essentials of well-being’ (261). What he has centrally in mind when he speaks of ‘individuality’, in particular ‘the free development of individuality’ or ‘individual spontaneity’, is the development of a certain kind of character or person. The favoured kind of person is one who does not do things just because it is customary or

because it conforms to someone's views. This does not mean that such a person ignores general preferences and other people's views but only that this 'recorded experience' when available is used and interpreted in the individual's 'own way', in so far as it is deemed to be 'properly applicable to [the individual's] own circumstances and character' (262). What Mill values here is the nature or character of the individual's choice, of the reasons for which a course or policy of action or plan of life is chosen. The desirable kind of choice is that where the grounds on which it is made and justified are the product of the individual's own reasoning and judgement taking into account his or her own beliefs and desires, and not something derived mechanically from an external source ignoring 'the opinions and feelings of home growth' (264–5). Mill insists that such a choice should be based on the individual's 'own impulses and desires', which he identifies in terms of the distinction drawn between a deliberately made person whose character has been fashioned on the lines of a model hostile to natural endowment and one whose development has been allowed to occur 'naturally' within the unavoidable framework of a particular social and cultural environment.[39] It is only the latter kind of person whose desires can be said to be their own, it is only of such individuals that we can predicate true 'individuality of desires and impulses' and, accordingly, what we might call autonomous or genuine choice (264).[40]

Mill declares that it is only by making autonomous choices that one exercises and develops the essential human faculties of 'perception, judgement, discriminative feeling, mental activity, and even moral preference' (262), whereas those who fail to operate autonomously fail to make a choice in the proper sense of the word.[41] If choosing non-autonomously is not to choose at all, then we can say that what Mill wants to secure is freedom in a substantial or positive sense of the term—not simply freedom from external interference which allows the translation of prevailing desires into action but which also consists in being moved by reasons which are, in the sense specified, one's own and in realizing one's own purposes and goals.[42]

If it is only the individually spontaneous person who is a human being in the full sense of the term—in that we have with such a person the development of distinctive human endowments—then we can see what Mill means when he declares individuality to be one of the principal ingredients of human happiness and, therefore, desirable in itself. In so far as we aim to bring about happiness, we must find place in this final end for the happiness of those who have developed their individuality. And if we measure happiness in terms of pleasure or the satisfaction of desires and preferences, then we can point out on Mill's behalf that individually spontaneous persons will gain pleasure or satisfaction from the fact that they act and live in accordance with their true nature, i.e. in being what they are. In addition, Mill holds out other avenues of satisfaction available to autonomous persons if they develop their capacities to the full—the satisfaction of having achieved a distinct wholeness of being which translates into the pattern of their lives.[43]

The values placed on the development of individuality can be carried over to the pleasure or satisfaction associated with it. However, this does not mean that we can detach the pleasure or satisfaction from the exercise of individuality—it has value as part of happiness only because it is related to individual spontaneity. Mill's qualified appeal to the principle of utility on the basis of taking into account 'the permanent interests of man as a progressive being' amounts to assigning an independent intrinsic value to the

development of individuality ([3.31], 73–5). Again, the modified view is not an aggregative doctrine ([3.31], 78–9). Neither the development of individuality nor the attendant satisfaction can be traded off against a greater degree of it in some other case or against a nett increase in the total amount.

If individuality is recognized to be desirable in itself then each of us will have a right to its promotion provided that what we do does not prevent others from pursuing it.[44] Consequently, there will exist a general duty to refrain from acting in ways that prevent others from being individually spontaneous and, in this sense, to refrain from harming or hurting them. The boundaries of self-regarding conduct in specific situations will be marked out on the basis of respecting the rights of others, and acknowledging corresponding duties, regarding the development of individuality.

We also need to consider the other components of happiness in order to determine rights and duties, and by reference to these the boundaries of individual freedom. In *Utilitarianism* Mill takes observance of the 'rules of justice', i.e. the moral rules which fall under the category of justice, to be part of 'the essentials of human well-being' and thus as the grounds, in given situations, of specific duties to others.[45] Examples of such duties, whose violation constitutes harm done to others, and determines the conduct to be other-regarding, are the obligation to keep one's promises or carry out the requirements of a commitment that one has voluntarily entered into (10:242–3). It is on this basis that in *Liberty* Mill declares that a man may be legally coerced into providing education for his children, and that it would not be a violation of liberty to legally forbid marriage unless the parties concerned can show that they have the means of supporting a family (300–4). In addition, there are duties which we owe to the society to which we belong and whose object is to ensure its continued viability—for example, to give evidence in a court of law, to share in the common defence of the country, etc. (224–5). Our obligations to the community and to others will need to be restricted to the minimum required for a viable society to exist in order to provide for a sufficiently large area of self-regarding conduct and of individual freedom. But this will be secured by the great intrinsic value placed on individual spontaneity.

As a component element of happiness or well-being, individuality is regarded as a greater good than the other elements. Its higher value is justified on the grounds that it is a necessary condition of other components of happiness: 'it is not only a co-ordinate element with all that is designated by the terms civilization, instruction, education, culture, but is itself a necessary part and condition of all those things'.[46] Without individual spontaneity these other ends will lose their value—for what can be the worth of education and culture if those involved in their pursuit are incapable of thinking and deciding for themselves? The classical utilitarian ends of pleasure and freedom from pain will also form part of happiness, and they may be partly accommodated under 'the obligations of justice' which provide security for the individual in various respects (10:251). Otherwise they are to be regarded as goods which are less valuable than the other components of happiness: paternalistic control may promote people's welfare or keep them out of harm's way, but the comparative worth of such an undertaking will be much less than individuals determining their own affairs (263).

Mill concedes that some, possibly many, may not want to lead an individually spontaneous life because they do not recognize its intrinsic value (261, 267). To these one

can point out that a society which permits and encourages the free development of individuality will benefit in that such a move will introduce ‘originality’ in its affairs. The value of originality is said to consist in the discovery by ‘persons of genius’ of ‘new truths’ and ‘new practices’ which may prove beneficial to others in the community. In addition, we may expect the free development of individuality to promote the existence of ‘a succession of persons whose ever-recurring originality’, by insisting on an independent and rational scrutiny of the grounds of generally accepted beliefs and practices, will help to prevent merely mechanical and unthinking acceptance of these on the part of the rest of society (267). Clearly, in the latter sense of ‘original’, the belief or practice that is supported need not be novel, and all that is required is that its truth or desirability is affirmed or defended independently by the individual.[47] Mill admits that geniuses are likely to be few in number, so that it is originality in the sense of independence of thought that may be held out as being within the reach of the generality of humankind and as a necessary feature of a free society. Far from advocating the control of a community by an elite or ‘the strong man of genius’, it is originality in the sense of independence of thought that Mill emphasizes: ‘If a person possesses any tolerable amount of common sense and experience, his own mode of laying out his existence is the best, not because it is the best in itself, but because it is his own mode’ (270).[48]

PATERNALISM

The intrinsic value placed on individuality rules out, with exceptions, paternalism, i.e. the entitlement to coerce people for their own good, for example, prevent them from hurting themselves. One class of exceptions Mill stipulates is children and persons below the legal age of adulthood as well as ‘those backward states of society in which the race itself may be considered as in its nonage’ (224). In the case of the latter, benevolent despotism, which seeks to improve the condition of the people, is justified until they have become ‘capable of being improved by free and equal discussion…, of being guided to their own improvement by conviction or persuasion’ (224). It is very likely that Mill had in mind not only ancient communities but also contemporary societies judged not to be developed enough for the application of libertarian principles. His view may be challenged on the grounds that he is mistaken about the existence of such societies anywhere whose members are generally incapable of being moved by rational discussion and persuasion. But by convicting Mill of any such factual error we do not invalidate his case against paternalism.[49]

The other kind of exception mentioned by Mill is that where we are justified in forcibly preventing people from injuring themselves because it is clear that they are not aware of what they are doing—e.g. physically preventing someone from crossing an unsafe bridge when they are ignorant of its condition and there is no way of warning them (294). Ignorance of the particular circumstances of the action in such a case vitiates the decision to perform it.[50] But where there is no reason to doubt the voluntary character of the individual’s choice then there is no basis for any kind of paternalistic interference, however undesirable or harmful the consequences of the action may be for the agent

concerned.[51]

To abandon coercion in such cases is not to give up attempts to influence the individual to modify his conduct. We may, and in certain circumstances should, try to deflect someone from harming himself or herself by means of advice, persuasion or entreaty. And where self-regarding conduct exhibits folly or some other defect it may, according to Mill, properly become the object of distaste and even of contempt on the part of others. Such adverse judgements of individuals' self-regarding deficiencies may carry further penalties in the form of avoidance of their society or cautioning others about them, etc. Such penalties are not to be seen as specially designed forms of punishment—they are the natural outcome of the individual's self-regarding faults in that the restrictions they bring are 'strictly inseparable from the unfavourable judgement of others'. If we feel contempt regarding a person's conduct then it is natural (to be logically expected) that, unless there is some special reason for explanation, we will avoid the individual's company. Mill emphasizes the difference between adverse judgements of self-regarding faults and moral denunciations of harmful other-regarding actions. In the latter case, the conduct is regarded as the proper object of 'moral reprobation, and, in grave cases, of moral retribution and punishment'. Moreover, the penalties suffered in such cases are purposely inflicted in order to punish the individual. Self-regarding faults 'are not properly immoralities, and…do not constitute wickedness'. What they reveal is folly, imprudence and absence of self-respect and, as such, deserve 'lack of consideration' but not 'reprobation'; consequently, they do not call for any kind of coercive interference in the individual's affairs (278–80).[52]

Referring to Mill's views on paternalism, H.L.A.Hart states that he

> carried his protests…to lengths that may now appear to us as fantastic. He cites the example of restrictions of the sale of drugs, and criticizes them as interferences with the liberty of the would-be purchaser rather than with that of the seller. No doubt if we no longer sympathise with this criticism this is due, in part, to a general decline in the belief that individuals know their own interests best, and to an increased awareness of a great range of factors which diminish the significance to be attached to an apparently free choice or to consent. Choices may be made or consent given without adequate reflection or appreciation of the consequences; or in pursuit of merely transitory desires; or in various predicaments when the judgement is likely to be clouded; or under inner psychological compulsion; or under pressure by others of a kind too subtle to be susceptible in a law court. Underlying Mill's extreme fear of paternalism there perhaps is a conception of what a normal human being is like which now seems not to correspond to the facts. Mill, in fact, endows him with too much of the psychology of a middle-aged man whose desires are relatively fixed, not liable to be artificially stimulated by external influences; who knows what he wants and what gives him satisfaction or happiness; and who pursues these things when he can.[53]

Part of this criticism, in so far as it depends on the defective character of the individual's choice, will fall under the exceptions Mill cites to his rejection of paternalistic

interference. And where the impairment of the individual's choice is due to the activities of others (for example the use of various kinds of subtle pressure), the coercive interference, even if not provable in a court of law, will still invoke the self-protection principle. If the impairment of individual choice is said to be substantial, then, besides enlarging the area of paternalistic direction, we will need to bring about other more radical institutional changes, e.g. exclude at least the ordinary person from serving on juries or electing a legislature etc. If we are not prepared to support such moves then, to that extent, we cannot support Hart's general doubts regarding the authenticity of individual choice.

The other common objection to Mill's rejection of paternalism, which Hart also mentions, is that it is doubtful that individuals know their own interests best. However, it is not Mill's contention that individuals can always or mostly be relied on to know where their real good lies but only that others are unlikely to do so. This is because estimates of the individual's interests made by others are arrived at from the outside, so to speak, and they fail to capture the intimate view which the person actually affected by the situation normally has. In contrast, the individual's own assessments of what constitutes his or her good are more reliable because 'with respect to his own feelings and circumstances, the most ordinary man or woman has means of knowledge immeasurably surpassing those that can be possessed by any one else' (277). Whereas the individual's knowledge is based on immediate acquaintance with what happens to and around, those who seek to direct his or her life from the outside can proceed only on the basis of 'general presumptions…which may be altogether wrong, and even if right, are as likely as not to be misapplied to individual cases' (277).[54]

William James, discussing the special case of appreciating the way of life of those who are significantly different from us, distinguishes (as Mill does) between how things appear from the external standpoint and the assessments made from the point of view of the individual concerned: 'The spectator's judgement is sure to miss the root of the matter, and to possess no truth. The subject judged knows a part of the world of reality which the judging spectator fails to see, knows more while the spectator knows less'. In James's view, the greater the difference in lifestyles between 'the judging spectator' and 'the subject judged', the greater the chances of the former's judgement being distorted ([3.16], 1–2). Mill (and also James) sometimes talks as if it was impossible for anyone to see and estimate things accurately enough on behalf of another person. But it is not necessary, even if it is possible, to hold this extreme view. We may concede that there may be occasions where one may understand and follow the 'mechanisms of the mind' of some people well enough. But we may still be justified in doubting that this happens, or is likely to happen, often or normally or typically. That should provide sufficient grounds to challenge the reasonableness of a policy which seeks, in the likely absence of relevant knowledge, to manage the lives of people in order to promote their real good.

Mill's objections to paternalism gain support from the additional fact that the inability to see and assess matters from the standpoint of the individual whose interests are to be promoted may lead, possibly unwittingly, to the imposition of values held by those engaged in carrying out the undertaking. Paternalism then will collapse into an attempt to bring about conformity with values held by others and the good sought on behalf of the individual misidentified in terms of a set of alien norms.[55] But, apart from all these

considerations, we cannot expect external control and direction normally to promote the individual's interests because it is a central part of the individual's good that he or she should be free from any such direction. As Mill points out, 'All errors which he is likely to commit against advice and warning are far outweighed by the evil of allowing others to constrain him to what they deem is his good' (277). If the removal of tutelage and the exercise of individuality is the most essential part of a person's well-being then how can paternalism, which consists in imposing tutelage, contribute to it?

UTILITARIANISM

In one of his earlier letters to Carlyle, Mill states that he is 'still, and likely to remain a utilitarian—but having scarcely any secondary premisses in common with those picked out as Utilitarians; and a utilitarian in a sense which no one else would regard as one' (12:207–8). Originally intended to deflect Carlyle's hostility to utility as the foundation of morals, the statement indicates well enough the final direction of his thought. There is a sense in which Mill never gave up utilitarianism but his views, in spite of his efforts to hold on to their original character, would not have been acknowledged by those professing the Benthamite and hedonistic version of the doctrine. In *Liberty*, the modified account of utilitarianism that Mill appeals to consists in specifying individual spontaneity to be both desirable in itself and a greater good than the other elements of happiness. *Utilitarianism*, which is meant to be both a defence of utilitarian doctrine and also an account of his own ethical theory, re-affirms this conception of happiness as comprising a plurality of ends some of which are more valuable than others. The 'utilitarian formula' is said to be 'a comprehensive formula, including all things which are in themselves good' (10:208) and happiness is characterized as 'a concrete whole' whose constituents or 'parts' are such things as health, virtue etc. (10:236). And although Mill declares that 'the theory of life' on which his moral views are founded is still the orthodox belief that 'pleasure and freedom from pain are the only things desirable as ends' (10:210), his further characterization of the ideas of pleasure and pain as well as the role he assigns to this central belief in our moral thinking leaves little room for the original hedonistic character of the doctrine.

Two kinds of pleasure are distinguished—that associated with the exercise of our higher faculties and the one involved in the operation of our bodily nature and the satisfaction of the animal appetites. The 'pleasures of the intellect, of the feelings and imagination, and of the moral sentiments'—of the capacities specified in *Liberty* as the distinctive endowments of a human being—are declared to have 'a much higher value, as pleasures than…those of mere sensation' (10:211). Since the difference between the two is qualitative, the higher kind of pleasure is said to be more desirable than any amount of the lesser variety (10:211). Mill leaves the difference in quality between the two kinds of pleasure to be indicated by the expressed preference (in judgement and action) of those who have had actual experience of both. No further description is given, or even considered to be possible, of the qualities which are supposed to distinguish the two kinds (10:213). This is understandable in that whether we take 'pleasure' to stand for a psychological state or experience, or construe it in terms of enjoyment or of the

satisfaction of desires, no reasonable candidate for any such distinguishing quality is available. Quantitative differences may be readily specified: the pleasure or enjoyment or gratification that attends the operation of the higher faculties may be deeper or longer lasting or superior in terms of fecundity and, on this basis, one may prefer to engage in intellectual pursuits as against the satisfaction of bodily appetites. But what other, non-quantitative, considerations can one mention here except the character of the goals pursued and activities engaged in? And it is on this basis that Mill himself promotes the distinction: the one kind of pleasure is superior to the other because the activities and pursuits it is associated with are more valuable. He speaks of opting for the higher kind of pleasure as equivalent to preferring 'the manner of existence which employs [the] higher faculties' (10:211). And he remarks on our general unwillingness 'to sink into…a lower grade of existence' because it offends 'the sense of dignity which all human beings possess in…proportion to their higher faculties… It is better to be a human being dissatisfied than a pig satisfied; better to be Socrates dissatisfied than a fool satisfied' (10:212).

If a human life, in spite of its many dissatisfactions,[56] is to be preferred to the contented life of a pig, then what makes it more valuable is its character, the kind of life it is. Mill, however, also wants to maintain that such a life, in spite of the imperfections and disappointments it is likely to contain, will still be productive of pleasure in that human beings will want to pursue it and desiring something is necessarily to find it to be pleasant.[57] In order, then, to hold on to hedonism, he falls back on a version of the doctrine according to which the pursuit of pleasure as an end turns out to be the pursuit of anything that we may desire as such. Moreover, Mill allows that we may intentionally aim at ends other than pleasure and even persist in such conduct when it is productive of pain—but in such cases it is still true that the conduct in question was originally ('in the beginning') followed because it was a source of pleasure or served to avert pain.[58] Finally, what is valued as a means to happiness (because it is externally productive of pleasure or instrumental in the satisfaction of desires) may, we are told, become *part* of it and valued for itself (for the pleasure directly associated with it).[59] It is in this way that wealth, power, fame and virtue can become parts or constituent elements of happiness. The unrestricted pursuit of some of these ends, such as power or wealth, may have a negative effect on the general welfare, but there need be no limit placed, in this regard, on the disinterested pursuit of virtue: 'Utilitarianism…could only obtain its end by the general cultivation of nobleness of character' (10:213–14), hence 'the utilitarian standard…enjoys and requires the cultivation of the love of virtue up to the greatest strength possible, as being above all things important to the general happiness' (10:237).

Mill remains a utilitarian to the extent that his moral theory appeals to *consequences* as the test of right and wrong. In this he sees himself to be following Bentham and the other classical utilitarians in holding that a necessary condition of an acceptable morality is that it appeals to an 'external standard' and is not based simply on 'internal convictions' or feelings (10:111, 179). But the consequences that Mill specifies are not restricted to pleasure and the avoidance of pain in the ordinary sense of these terms. He includes other items in his conception of happiness as the ultimate end. And he tries to preserve the hedonistic character of these items, such as the cultivation of virtue, by (1) postulating a necessary connection between desiring something and getting pleasure from it; and (2)

appealing to the empirical hypothesis that it is only by way of an original means-end relationship to pleasure that any other element of happiness comes to be valued in itself. But the first move is dubious unless we dilute 'pleasure' to mean no more than being pleased to do what one intentionally does or wants to do. And the second is equally doubtful as an account of why we come to value such things as virtue. We may get pleasure from being virtuous and perhaps, as Aristotle states, if we are truly virtuous then we must 'delight' in being so (*Nicomachean Ethics* 1104b 4–8), but this does not mean that we initially or otherwise come to value virtue for the pleasure it brings. Mill takes the main difference between his version of utilitarianism and the original Benthamite doctrine to lie in the 'secondary premisses' which his own view supports and highlights. He tries to play down the difference by claiming a hedonistic foundation for these secondary rules along the lines mentioned above. Consequently, if we reject this attempt to re-introduce hedonism then some of the secondary premisses will effectively govern interests or pick out ends other than pleasure and the avoidance of pain, such as the free development of individuality, the exercise and fulfilment of the higher human capacities, the cultivation of virtuous dispositions, etc.

The different items in Mill's conception of happiness will need to be ranked and he seems to provide for this partly by way of the distinction between higher and lower kinds of pleasure, so that those elements associated with the higher kind of pleasure may be said to be more valuable. And partly the ranking is made to depend on the extent to which an element of happiness, though valuable in itself, is also valued as a necessary ingredient of other component ends—for example the free development of individuality is valuable not only in itself but also as a necessary feature of significant achievement in education and the promotion of culture (261).[60] On this basis, 'the standard of morality' will ensure the 'happiness' (i.e. serve and advance the interests) of human beings as creatures essentially endowed with the higher faculties and capable of freely developing their individuality. This in effect is the criterion characterized by Mill in *Liberty* as the appeal to 'utility grounded on the permanent interests of man as a progressive being'.

In *Utilitarianism* Mill gives a proof of the principle of utility which has achieved notoriety because of the fallacies it is supposed to involve. The first part of the proof where these fallacies are located runs:

> [T]he only proof capable of being given that an object is visible, is that people actually see it. The only proof that a sound is audible, is that people hear it… In like manner…the sole evidence it is possible to produce that anything is desirable, is that people do actually desire it. If the end which the utilitarian doctrine proposes to itself were not, in theory and practice, acknowledged to be an end, nothing could ever convince any person that it was so. No reason can be given why the general happiness is desirable, except that each person…desires his own happiness. This, however, being a fact, we have not only all the proof which the case admits of, but all which it is possible to require, that, happiness is a good: that each person's happiness is a good to that person, and the general happiness, therefore, a good to the aggregate of all persons. Happiness has made

> out its title as *one* of the ends of conduct and consequently one of the criteria of morality.
>
> (10:234)

The inference from something being seen to its being visible is justified because it is part of the meaning of 'visible' that the thing in question is capable of being seen. But no such conceptual rule links 'desired' with 'desirable', hence what is actually desired may not be desirable (or worthy of being desired) at all. If it is Mill's purpose to base his case for utilitarianism on a strict analogy between 'visible' and 'desirable', then clearly he is guilty of arguing fallaciously. But it is open to us to take the offending statements in the proof to be no more than a bad rhetorical flourish. In the introductory chapter of *Utilitarianism*, Mill declares that ultimate moral principles cannot be justified by means of strictly deductive reasoning: 'Questions of ultimate ends are not amenable to direct proof, consequently the utilitarian theory cannot be the 'subject of what is commonly understood by proof (10:207–8). But such issues still fall within the scope of rational inquiry in that 'Considerations may be presented capable of determining the intellect either to give or withhold its assent…and this is equivalent to proof—so that we are to consider whether and 'what rational grounds…can be given for accepting or rejecting the utilitarian formula' (10:208). We can then ignore the unjustified analogy and take Mill's point to be that a central reason for regarding happiness as desirable is the fact that it is generally desired.[61] We must take happiness in this connection as comprising the constituent elements Mill assigns to it and its more or less general pursuit to be the product of experience and reflection.[62]

The further inference from each person's happiness being a good to that person to the general happiness being a good to the aggregate of all persons should also be interpreted in the light of Mill's reservations here about strict deductive proofs. What we must consider is whether there are good reasons in favour of the principle of utility, and although Mill does not canvass these reasons in the context of his proof we can specify them as they are mentioned elsewhere in his account. The consideration that seems to be most central is discussed in the chapter preceding the statement of the proof: Mill maintains that we naturally see ourselves as social beings,[63] so that whatever is thought to be necessary for the continued existence of the society to which we belong comes to be regarded as essential to human (including our own individual) existence. The movement of history is towards a state of human society where more and more people regard themselves as equal. And since social relations between equals can survive only if the interests of all concerned are considered equally, individuals in these circumstances come to recognize the interests of others as their own: 'The [individual] comes, as though instinctively, to be conscious of himself as a being who *of course* pays regard to others. The good of others becomes to him a thing naturally and necessarily to be attended to, like any of the physical conditions of our existence' (10:232). In this way the good of others forms part of the individual's own good and the greatest good or happiness of others part of the individual's greatest happiness.[64] An additional consideration that Mill seems to rely on is that ethical doctrines opposed to utilitarianism not only acknowledge the duty to pursue the general good but also assign to it a pronounced importance (10:230).[65] These opposing moralities differ from utilitarianism in that they also support

the pursuit of other ends besides happiness and the second part of the proof is designed to show that they are mistaken in this regard as happiness (in the form of promotion of pleasure and avoidance of pain) is the only end desired.

But, as we have seen, Mill reaches this conclusion on the basis of doubtful moves, so that we are left with an unreduced plurality of ends—both with regard to the opposing moralities and with regard to his own doctrine. We may, of course, group these different ends under 'happiness' as an inclusive ultimate end. One of the elements of this inclusive end will be the general well-being or the good of the society or collective to which the individual belongs. And although the general good is conceived to be the sum of the good of individuals,[66] it will function as just one of a plurality of ends and not as the overriding goal of orthodox utilitarianism.[67]

REPRESENTATIVE GOVERNMENT AND THE SUBJECTION OF WOMEN

Much of the discussion in *Representative Government* is about practical proposals regarding the mode of operation of a parliamentary government, particularly the method of electing members of parliament.[68] The theoretical issues considered relate to the value of parliamentary democracy and take up Mill's concerns regarding the dangers inherent in government by the majority.[69] Mill gives two main reasons why parliamentary democracy based on universal suffrage is to be preferred to other forms of government. Firstly, it enables every member of society to assert and defend their own rights and interests and, consequently, prevent them from being disregarded.[70] And, secondly, a democratic society, by giving citizens a voice in its affairs and letting them take part in the business of government, promotes those qualities of mind and character which make for excellence in intellectual, practical and moral capacity (19:407). The outcome of this process of education is the development in such a society of active and energetic individuals with a real desire to pursue the public good and the capacity to do so (19:408–12). The idea of individual development canvassed here is the same as that supported in *Liberty* and *Utilitarianism;*[71] hence we may take Mill's defence of representative democracy to appeal to the same conception of utility as that proposed in these works.

As regards the danger inherent in a parliamentary democracy based on universal (or fairly extensive) suffrage, Mill holds the greatest to be that of 'class legislation: of government intended for…the immediate benefit of the dominant class' made up of the numerical majority (19:446). This is the threat posed by 'the tyranny of the majority' which Bentham and the other utilitarians had ignored and which de Tocqueville had emphasized. The other defect of representative government based on majority support is the likelihood of 'general ignorance and incapacity,…insufficient mental qualifications' in those who make up the legislative body (19:436). Mill thinks that both these deficiencies can be overcome by the adoption of an electoral system such as the one proposed by Thomas Hare involving the representation of minorities in proportion to their size. This would allow minority points of view to be represented in the deliberations of parliament and thus prevent minority interests from being disregarded (19:449). The scheme would also allow people of merit and independent views to be elected, thus raising the intellectual level of the assembly and serving to counter the tendency of all

universal democracies towards 'collective mediocrity' (19:456–7). Mill is so concerned about the ignorance and stupidity of the electors rubbing off on those they elect, and thus lowering the intellectual standard of parliament, that he proposes minimum educational qualification for all voters.[72] And he also recommends, if it is possible to overcome practical difficulties, additional votes given to those who are intellectually qualified or more intelligent (19:476–9).

The presence in parliament of people representing points of view different from that of the majority, and of people who are intellectually superior, will provide a public centre of opposition and dissent where, whenever necessary, majority opinion may be challenged and minority views defended. Parliament so constituted will then perform an important social function ('the function of Antagonism') without which the community living under the unchallenged influence of the majority is likely to stagnate or decline (19:458–9). It is not too implausible to trace a connection with *Liberty* here: just as beliefs in the absence of criticism are supposed to turn into dead dogmas, so too are societies existing under the direction of unchallenged power fated to end in stagnation and decay. Conflict and collision are the foundation both of truth and social progress.

T*he Subjection of Women* is designed to show that the social and legal disabilities suffered by women (for instance in nineteenth-century England) are unjustified and that the relations between the two sexes should be governed by a 'principle of perfect equality, admitting no power or privilege on the one side, nor disability on the other' (21:261). Pointing out that he has held this view from his earliest days, Mill concedes the difficulty involved in the enterprise—not because of 'the insufficiency or obscurity of the ground of reason on which [the] conviction rests' but because the contrary beliefs are embedded in 'a mass of feeling' against which rational argument is ineffectual (21:261).[73] Consequently, much of what he has to say against the subordination of women takes on the character of tracing these 'feelings' to their source or revealing their influence when they are dressed up as 'reason'. Mill does recognize that the disabilities suffered by women, particularly their disenfranchisement and exclusion from the political process, their status in the marriage contract and relation ('the assimilation of the wife to the slave' (21:286)) and the denial of entry to the professions and educational institutions, are unjustified in terms of the principles asserted in *Liberty* and *Representative Government*. Thus, he invokes the doctrine of *Liberty* when he declares that refusing women entry into the professions and various occupations for their own good constitutes denying them 'the equal moral right of all human beings to choose their occupation (short of injury to others) according to their own preferences, at their own risk' (21:300). And he argues that given the value of 'personal independence as an element of happiness', the subordination of women, in so far as it denies them freedom as individuals, contributes to their (and to the general) unhappiness (21:336–40).[74] Again, he justifies giving women the right to vote because it is 'a means of self-protection due to every one' (21:301), appealing to what for him is an essential feature of representative democracy.[75]

However, the greater part of the discussion consists of an examination of various arguments purporting to defend the subordinate status of women. Many of these arguments are manifestly weak[76] but Mill still takes them seriously and considers them at length, possibly because he wants to reveal the underlying irrational basis in 'feeling'

and, perhaps, also because 'such things do affect people's minds' (21:303).[77] Referring to the general practice of distinguishing the sexes in terms of their different *'natural'* capacities and inclinations—so that women's disabilities (and male privileges) are seen to be natural and attempts to remove them unnatural—Mill points out that what is taken to be natural in this case can easily be shown to be the product of historical and social circumstances: 'What is now called the nature of woman is an eminently artificial thing—the result of forced repression in some directions, unnatural stimulation in others', the product of 'a hot-house and stove cultivation…for the benefit and pleasure of their masters' (21:276).[78]

Mill's account is particularly significant in that he tries to show how women become the product of the system which oppresses them, so that they may appear to justify the discrimination and may even need to be convinced of their oppression.[79] His psychological insights in this regard and in his characterization of the effects of the legal and social subordination of women on the male psyche have been singled out for praise.[80] And in general his views, and sometimes even the language in which he presents them, are well ahead of his times and more appropriate to our contemporary scene.[81] But it is the classic doctrine of *Liberty* that gives shape to most of the views expressed in the other works, so that we can see them as part of a conception of human affairs centred on the supreme value of individual freedom and autonomy.

NOTES

All references to Mill's writings unless otherwise indicated are to *The Collected Works of John Stuart Mill* cited by volume and page. References to *On Liberty* in volume 18 are by page number only.

1 '(with the possible exception of the *Logic*)' (1:259) But the parenthetical qualification has not been borne out by time. *Liberty* has continued to be the subject of discussion and controversy as much (if not more) in our times as in the years immediately following its publication. In the last two or three decades alone there have been, in English, nearly thirty studies of it and of Mill's views on ethics and politics. There is nothing comparable to this with regard to the *Logic*.

2 In the *Autobiography* Mill states that *Liberty* was revised many times (jointly by his wife Harriet and himself)—'there was not a sentence of it that was not several times gone through by us together, turned over in many ways, and carefully weeded of any faults, either in thought and expression, that we detected in it' (1:258–9). This fact seems to have escaped the notice of many of his critics, particularly those who claim to have found the most obvious inconsistencies and defects in his argument. A close reading of the text much more often than not reveals Mill's awareness of these objections and a sufficient response to them.

3 Mill often talks as if the greater threat to individual liberty exists in the coercion exercised through the medium of public opinion than in the form of legal or government interference. However, this is not meant to be taken as anything more than a contingent fact regarding English political life: 'The majority have not yet learnt to feel that power of the government their power, or its opinions their opinions. When they do so, individual liberty will probably be as much exposed to invasion from the government, as it already is from public opinion' (223).

4 According to Mill, a major defect of Bentham's political philosophy is that 'not content with enthroning the majority as sovereign, by means of universal suffrage without king or house of lords, he exhausted all the resources of ingenuity in devising means for riveting the yoke of public opinion closer and closer round the necks of all public functionaries, and excluding every possibility of the exercise of the slightest or most temporary influence either by a minority, or by the functionary's own notions of right.' Conceding that it is best (because less unjust than any other arrangement) that power should be vested in the majority, Mill proposed as a corrective institutional provisions (left unspecified) for the protection of 'freedom of thought and individuality of character, a perpetual and standing opposition to the will of the majority' (10:106–8).

5 'De Tocqueville on Democracy in America' I (1835) and II (1840) (*CW*, vol. 18). In the *Autobiography* Mill acknowledges his debt to de Tocqueville's 'masterly analysis [of] the specific dangers which beset *Democracy* considered as the government of the numerical majority'.

6 Mill accepts de Tocqueville's contention that the civilized world shows clear signs of an inevitable progress to democracy.

7 Mill speaks only of 'self-regarding' conduct etc. (226 and 276ff.); the expression 'other-regarding' has been supplied by commentators.

8 Stephen [3.30], 28. Fitzjames Stephen originally saw himself as Mill's disciple. And it was as a classical or Benthamite utilitarian, determined to rescue Mill from his heretical abandonment of the doctrine, that he attacked the views expressed in *Liberty* ([3.30], 2, 11–12). Mill's comment that he 'does not know what he is arguing against' is, in general, not an unjust assessment of Stephen's passionate but often misguided critique ([3.2], in).

9 An example of a friendly or liberal critic of Mill on this point is H.L.A.Hart who holds that 'Mill carried his protests against paternalism to lengths that may now appear to us as fantastic', hence 'a modification in Mill's principle is required' ([3.11], 32–3). At the other extreme, we have Fitzjames Stephen in whose view the ignorant and stupid, who will always exist in number in any society, clearly ought to be coerced into pursuing their own good ([3.30], 65ff.). Carlyle held similar beliefs: 'The immense mass of men he believed to be poor creatures, poor in heart and poor in intellect, incapable of making any progress at all if left to their own devices… Every advance which humanity had made was due to special individuals supremely gifted in mind and character. It was not true…that men were equal. They were infinitely unequal…in intelligence, and still more…in moral purpose. So far from being able to guide or govern themselves, their one chance of improvement lay in their submitting to their natural superiors, either by their free-will or else by compulsion' (Froude [3.6], 386–7).

10 For example Isaiah Berlin in 'John Stuart Mill and the Ends of Life' declares that Mill's version of utilitarianism stretches the meaning of utility or happiness 'to the point of vacuity' ([3.4], 181).

11 Compare Ten [3.31], [3.32], Gray [3.7], Berger [3.3], Donner [3.5], etc.

12 Mill distinguishes between the formation of beliefs or opinions and the expression of beliefs or opinions. We may then take the reference to absolute freedom of opinion to apply to the former, which would make the freedom to express opinions nearly but not entirely absolute. This would allow restrictions on freedom of speech mentioned or implied by Mill in the subsequent discussion. On the other hand, it seems reasonable to hold that in *Liberty* Mill had in mind only opinions having to do with the range of subjects he specifically mentions—'practical or speculative, scientific, moral, or theological'. If we take 'practical' to cover social, political and general human affairs, then the specified range of topics will rule out

personal and private matters. Although he did not explicitly canvass it in *Liberty*, Mill did have a notion of privacy in so far as he held that there was no general right on the part of others to enquire into the personal aspects of an individual's life and affairs. During the period of his election to Parliament in 1865, he refused to give any information regarding his religious beliefs on the grounds that 'no one has any right to question another on his religious opinions' (*Later Letters*, *CW*, vol. 16, no. 834; also cf. no. 1324 and the *Autobiography*, 1:274). In 1834, in response to Daniel O'Connell's proposal in his bill regarding freedom of the press that truth should be a justification, Mill declared that 'there are insuperable objections to allowing the details of a person's private conduct' to be aired in public and, in a libel action, made the subject of judicial investigation in order to determine its truth (6:166–7; cf. *Earlier Letters*, *CW* vol. 12, no. 99). The fact that Mill's discussion of the right to free speech in *Liberty* makes no mention of the laws of libel also indicates the exclusion of an area of privacy from the scope of this right.

In *Liberty*, Mill holds that 'opinions lose their immunity, when the circumstances in which they are expressed are such as to constitute their expression a positive instigation to a mischievous act', for example denouncing corn-dealers as oppressors of the poor to an excited mob before a corn-dealer's house (260). Clearly the exclusion here is only nominal in that the case specified is such that the so-called expression of opinion really constitutes an action designed to incite or get others to hurt someone, like throwing the first stone (cf. Ten [3.31], 131ff. and Monro [3.21], 239–40). In 'Law of Libel and Liberty of the Press', one of his earlier publications in the *Westminster Review*, Mill quotes a passage from Montesquieu's *De l'Espirit des Lois* which specifically refers to cases where words, or what is said, by participating in an action take on the character of an action (21:5).

13 Mill divides his case into three parts: where the suppressed opinion is true (and the protected opinion false), where it is false (and the protected opinion true) and where the truth is shared between the conflicting opinions; and he cites different objections to censorship under this division. However, what I have called his central argument clearly covers all these cases and governs in each case the assignment of truth-values to both the protected and the suppressed beliefs.

14 According to C.L.Ten, the assumption of infallibility argument is ambiguous in that Mill sometimes uses it to affirm the necessity of freedom of expression for the actual discovery of true beliefs and sometimes as a condition of rational beliefs ([3.31], 124–6). Perhaps one can say, in Mill's defence, that if there is an ambiguity here it is not significant since, for him, it is only on the basis of the principle of the rationality of beliefs that truth-values are to be assigned in particular cases.

15 Bain points out that Mill's view on freedom of discussion 'works round a central idea… namely, the necessity of taking account of the *negative* to every positive affirmation; of laying down, side by side with every proposition, the counter-proposition' ([3.2], 104).

16 Although Mill generally speaks in terms of the truth or falsity of beliefs and opinions, his central argument applies even in those cases where we may use other (cognate) notions such as 'justified'/'unjustified', 'reasonable'/'unreasonable' etc.

17 This brings to mind Sir Karl Popper's views concerning the character of scientific theories, according to which tests of such theories are to be regarded as attempts to refute them; and a successful test (where such an attempt fails) can only temporarily support the theory since future tests may produce a negative result ([3.25], chapters 1 and 10). It is interesting to find the arch-inductivist invoking elements of the hypothetico-deductive account of knowledge. Still it should be noted that the strength of Mill's defence of freedom of expression is that it presents more or less the same line of thought as what many would regard as an illuminating

and fruitful view of the structure of scientific inquiry (cf. Ryan [3.27], 136ff.).

18 Berlin holds that Mill's account follows from his general empiricist outlook: 'he believed that no truths are—or could be—rationally established except on the evidence of observation. New observations could in principle always upset a conclusion founded on earlier ones' ([3.4], 187).

19 Berlin takes Mill as no more than contemptuously dismissing his opponents here ([3.4], 187). It seems to me that it is more reasonable to take the discussion on pp. 230–43 of *Liberty* as partly constituting an attempted rebuttal of absolutism on these lines. Mill uses historical examples to support his case.

20 [3.30], 76. Other commentators were less discerning. John Morley in an article in *The Fortnightly Review* of August 1873 takes the argument to make the same point as Milton in *Areopagitica* ([3.22], III). But Milton's point is very different from Mill's. Milton's contention is that if censorship is justified on the grounds of protecting people from 'Vice and Error', then how can those who do the censoring avoid these calamities unless it is assumed that *they* are proof against deception and corruption: 'how shall the licensers themselves be confided in, unless we can confer upon them, or they assume above all others in the land, the grace of infallibility and uncorruptedness?' ([3.20], 73). Another misinterpretation is that by John Plamenatz who takes Mill's point to be that those engaged in the business of censorship actually come to believe that they are infallible. He thinks Mill is wrong about this: 'It may be true that men who often silence discussion come, in the end, to believe that they are always right… But this is not nearly enough to establish Mill's point. It does not prove that those who exercise the power only occasionally and under the guidance of a powerful tradition make any such assumption' ([3.24], 127).

21 What Mill had in mind was the prevailing and popular view regarding the social utility of religion. In the *Autobiography* he refers to the 'examination not of the truth, but of the usefulness of religious belief…which, of all the parts of the discussion concerning religion, is the most important in this age, in which real belief in any religious doctrine is feeble and precarious, but the opinion of its necessity for moral and social purposes almost universal' (1:73).

22 Mill's argument, which is not stated too clearly, is to be found on pp. 233–4 of *Liberty*.

23 I take Mill's statement 'it is not the feeling sure of a doctrine…which I call an assumption of infallibility. It is the undertaking to decide that question *for others* without allowing them to hear what can be said on the contrary side' (234) to have this contextual relevance.

24 Or we may take Mill's argument here as addressed to those who do not accept the proposed principle of rationality.

25 The proposal is to be taken seriously in that we can envisage such cases in terms of Mill's non-absolutist conception of truth, namely where beliefs, though open to scrutiny, are not as a matter of fact challenged or discussed.

26 'The words which convey it cease to suggest ideas, or suggest only a small portion of those they were originally employed to communicate' (249). This is the same notion as Locke's 'bare sounds' without any ideas or mental significata annexed to them (*Essay Concerning Human Understanding*, III. 10.26 etc.). The absence of the corresponding ideas is supposed to exclude the so-called belief from the causal or associative mental chains leading to the adoption of attitudes and to action.

27 Mill's view is that it is only by defending the belief and criticizing opposing beliefs that one really grasps its content and meaning.

28 Because its grounds involve the refutation of other opposing beliefs from which it is protected (244–5).

29 Mill is quite vague here: ‘Instead of a vivid conception and a living belief, there only remain a few phrases retained by rote; or, if any part, the shell and husk only of the meaning is retained, the finer essence being lost’ (247).

30 I am not implying that such a belief is true. Mill’s contention that absence of criticism turns a belief into a ‘dead dogma’ will apply also to the adoption of beliefs which are false.

31 Mill makes it quite clear that it is not only for an elite that he advocates freedom of discussion: ‘There have been, and may again be, great individual thinkers in a general atmosphere of mental slavery. But there never have been, nor ever will be, in that atmosphere, an intellectually active people’ (243).

32 The normative character of the criterion is brought out by the fact that *consent* on the part of the affected parties is meant to ensure the self-regarding nature of the relevant actions.

33 Mill is here primarily concerned about the liability of ‘personal errors’ such as intemperance or extravagance to legal and moral penalties. However, the discussion naturally leads him to specify the criteria of self-regarding and other-regarding conduct.

34 The example is not Mill’s. A parallel case he mentions is where someone by damaging his own property supposedly ‘diminishes…the general resources of the community’ (280).

35 Mill’s examples refer to the prohibition on the eating of pork in a Muslim society and of Protestant forms of worship in a Catholic country. Mill does discuss Sabbatarian legislation and restrictions but not in relation to contingent injury.

36 (2) calls for a similar response. But Mill does not adopt it because he takes the view that where individuals directly harm themselves by some form of self-indulgence, the example is likely to make others avoid that kind of conduct because ‘it displays…the painful or degrading consequences…attendant on it’ (283).

37 For a fuller discussion of this feature of self-regarding conduct see Wollheim [3.35] and Ten [3.31], 19ff. Honderich argues that there is no basis for assigning this idea to *Liberty*.

38 ‘There are many who consider as an injury to themselves any conduct which they have a distaste for, and resent it as an outrage to their feelings; as a religious bigot, when charged with disregarding the feelings of others, has been known to retort that they disregarded his feelings, by persisting in their abominable worship or creed. But there is no parity between the feeling of a person for his own opinion, and the feeling of another who is offended at his holding it; no more than between the desire of a thief to take a purse, and the desire of the right owner to keep it’ (283). Ten [3.31] takes this passage to refer to the idea of morality-dependent harm. Honderich [3.14] finds only the last sentence to give off no more than a ring in support of Ten. I draw attention to the passage also because of the implicit reference to rights and duties.

39 Compare ‘Human nature is not a machine to be built after a model, and set to do exactly the work prescribed for it, but a tree, which requires to grow and develop itself on all sides, according to the tendency of the inward forces which make it a living thing’ (263). And: ‘A person whose desires and impulses are his own—are the expression of his own nature, as it has been developed and modified by his own culture—is said to have a character. One whose desires and impulses are not his own, has no character; no more than a steam-engine has a character’ (264). Also compare Mill’s critique of the Calvinistic ‘conception of humanity’ which takes its nature to be bestowed on it for no other purpose than ‘merely to be abnegated’ (265–6). Gertrude Himmelfarb points out that Mill assumed that a larger amount of ‘the raw material of human nature’ meant that though there was a greater potential for evil, there was also a greater potential for good ([3.12], 63).

40 I use ‘autonomous’ to refer to nothing more than the kind of choice (and life) that Mill assigns to the ‘individually spontaneous’ person.

41 ‘He who does anything because it is the custom, makes no choice’ (262).

42 For the distinction between the positive and the negative sense of freedom, see Isaiah Berlin, ‘Two Concepts-of Liberty’, [3.4], 122ff. When Mill refers to freedom of speech it is wholly in the negative sense of freedom from external coercive barriers to expression and discussion of opinion. But where action is concerned, he adds the *further* requirement regarding the character of the choice determining it. Unlike Rousseau and the Hegelian idealists, he does not abandon ‘negative freedom’ in favour of a positive conception.

43 Compare ‘Such are the differences among human beings in their sources of pleasure, their susceptibilities of pain, and the operation on them of different physical and moral agencies, that unless there is a corresponding diversity in their modes of life, they neither obtain their fair share of happiness, nor grow up to the mental, moral, and aesthetic stature of which their nature is capable’ (270). And: ‘In proportion to the development of his individuality, each person becomes more valuable to himself… There is a greater fullness of life about his own existence’ (266). Also compare Wilhelm von Humboldt’s views in *The Sphere and Duties of Government*—which Mill quotes with approval: ‘the end of man…is the highest and most harmonious development of his powers to a complete and consistent whole’ (261). Humboldt contrasts the partial and one-sided development of the individual’s separate human capacities with ‘harmoniously combining them’ so as to achieve an organic unity of life, a ‘union of the past and the future with the present’ ([3.15], 16–17). Cf. Ten [3.31], 73.

44 In *Liberty* Mill refers to ‘the limits imposed by the rights and interests of others’ on freedom of action (266) and speaks of ‘certain interests which either by express legal provision or by tacit understanding ought to be considered as rights’ (276). In the *Autobiography* he assigns to *Liberty* as its ‘leading thought’, ‘the doctrine of the rights of individuality’ (1:260). Cf. Berger [3.3], 229; Donner [3.5], 190–1.

45 ‘Justice is a name for certain classes of moral rules, which concern the essentials of human well-being more nearly, and are therefore of more absolute obligation, than any other rules for the guidance of life; and the notion which we have found to be of the essence of the idea of justice, that of a right residing in an individual implies and testifies to this more binding obligation… The moral rules which forbid mankind to hurt one another (in which we must… include, wrongful interference with each other’s freedom) are more vital to human well-being than any maxims…which only point out the best mode of managing some department of human affairs’ (10:255). J.C.Rees distinguishes self-regarding from other-regarding conduct in terms of actions which *merely affect* others from those which also adversely affect the *interests* of others; and he takes the ‘rules of justice’ to pick out essential or vital human interests ([3.26], chapters 5 and 6).

46 Cf. Berger [3.3], 233; and Donner [3.5], 125—Aristotle conceives of ‘happiness’ or *eudaimonia*, ‘the most final end’, as made up of several elements, each of which is necessary for achieving it, but some of which are more valuable than others; for example, *moral virtue* because while those who possess it may miss out on happiness, still they can never become ‘miserable’ (*Nicomachean Ethics*, I, 7–10). For a discussion of Aristotle’s conception of eudaimonia as an inclusive end see Hardie ([3.10], chapter 2) and Ackrill [3.7].

47 ‘Original’ here means ‘underived, independent, proceeding from the person directly’. Cf. *The Subjection of Women*, 21:314.

48 Mill’s plea that ‘exceptional individuals should be encouraged in acting differently from the mass’ because ‘in this age, the mere example of nonconformity, the mere refusal to bend the knee to custom, is itself a service’ (269) surely covers the exercise of originality in both senses of the term. One can act differently from the mass, and refuse to bend the knee to custom not only by supporting novel beliefs and practices but also by subscribing to beliefs

and practices, whether novel or not, only on the basis of one's own rational assessment: the manifestation of nonconformity can also be seen as the refusal to follow custom just because it is custom or subscribe to opinions just because they are generally acknowledged.

49 Cf. Donner [3.5], 170–1. Fitzjames Stephen asks: 'Was there ever a time or place at which no men could be improved on any point by free discussion?' But he goes on to support a more restrictive interpretation of Mill's criterion which justifies paternalistic intervention in every society ([3.30], 69).

50 Cf. Ten [3.31], no; and chapter 7 for a full and valuable discussion of Mill's rejection of paternalism.

51 Mill declares that people should not be allowed to sell themselves as slaves, or otherwise contract to become someone's slave (299–300). This is sometimes said to be inconsistent with his rejection of paternalism. But we need not take the prevention of people selling themselves into slavery as justified on paternalistic grounds. Mill advocates making any such engagement 'null and void', i.e. not enforceable by law or the pressure of public opinion. Clearly what this is meant to achieve is to prevent anyone else from coercing the individual to act as their slave on the basis of such a contract. The rejection of such contracts then can be taken to fall under the self-protection principle. At the same time, the exclusion of formal slavery contracts does not mean that we should also prevent someone from actually acting and living as another's 'slave' of his or her own free choice (cf. Ten [3.31], 117–19).

52 The distinction Mill seeks to make here, and which he stresses is not 'merely nominal', is designed to show that protecting the area of self-regarding actions from coercive intervention does not preclude us from being concerned with such conduct on the part of others and from judging its worth. The doctrine of *Liberty*, Mill points out, is not one of 'selfish indifference', unconcerned about what happens to others unless one's own interests are involved. Rather, it allows full scope for 'disinterested exertion to promote the good of others. But disinterested benevolence can find other instruments to persuade people to their good, than whips and scourges, either of the literal or the benevolent sort' (276–7) (also cf. 10:246).

53 [3.11], 32–3. With regard to restrictions on the sale of poisons, Mill is concerned about the liberty of the purchaser because some regulations would effectively prevent their purchase: 'to require in all cases the certificate of a medical practitioner, would make it sometimes impossible, always expensive, to obtain the article for legitimate uses' (294). He is not against requiring purchasers to give their name and address and specify the proposed use of the substance, and even when there is no medical prescription to require the presence of a third person to attest to the sale. Mill acknowledges the 'right inherent in society to ward off crimes against itself by antecedent precautions' (295). But he is also concerned that this 'preventive function of government' may be abused 'for there is hardly any part of the legitimate freedom of action of a human being which would not admit of being represented, and fairly too, as increasing the facilities for some form or other of delinquency' (294). It should be noted that Mill is here offering 'not so much applications, as specimens of applications' designed to illustrate the relevant kinds of reasoning entailed by his doctrine

54 The 'general presumptions' Mill has in mind are beliefs of the form 'Most people would or would not want…', 'No one wants…' etc.

55 Cf. Ten [3.31], 116–17; Khan [3.17], 61–5.

56 And, according to Mill, it is only in order to escape from *extreme unhappiness* that one would prefer to abandon a distinctive human existence (10:211).

57 Cf. 'desiring a thing and finding it pleasant, aversion to it and thinking of it as painful, are phenomena entirely inseparable, or rather two parts of the same phenomenon; in strictness of language, two different modes of naming the same psychological fact' (10:237). Mill justifies

the claim on factual grounds; however it should be noted that for him all truths, even those of mathematics, are empirical; and that he goes on to say that 'to desire anything, except in proportion as the idea of it is pleasant, is a physical and metaphysical impossibility' (10:238).

58 According to Mill, the *will* or 'conscious volition…which has become habitual' is to be distinguished from *desire*, and may be directed to ends other than pleasure. But it is still the case that 'will, in the beginning is entirely produced by desire; including in that term the repelling influence of pain as well as the attractive one of pleasure' (10:238–9). (Also cf. *Logic*, 8:842–3).

59 Cf. 'What was once desired as an instrument for the attainment of happiness, has come to be desired for its own sake…as *part* of happiness. The person is made, or thinks he would be made, happy by its mere possession; and is made unhappy by failure to obtain it' (10:236). And: 'Those who desire virtue for its own sake, desire it either because the consciousness of it is a pleasure, or because the consciousness of being without it is a pain, or for both reasons united' (10:237).

60 Another such element is the provision of a sense of security as the outcome of a general acknowledgement and society's protection of individual rights (picked out by the 'rules of justice'—for example protecting people from unjustified infliction of injury and wrongful interference with their freedom). Without security no good can be pursued or enjoyed and no evil confidently averted. For this reason, Mill takes the claim for security to assume a 'character of absoluteness' so that 'indispensability becomes a moral necessity' (10:251). Berger divides the essential elements in Mill's conception of happiness into two basic categories: (1) 'the constituents and requirements for an individual's sense of being his or her own person, of developing one's life as one chooses—a sense of freedom, power, excitement', and 'whatever is necessary to maintain human dignity'. And (2) 'those things requisite for a sense of security, the prime ones being the fulfilment by others of the rules of justice, and their respect for our rights' ([3.3], 40–2). I am greatly indebted here and elsewhere to the late Professor Berger's account of Mill's moral and political views and, in particular, of Mill's concept of happiness. For a discussion of Berger's views see Hoag [3.13] and Ten [3.32].

61 In a letter to Gomperz, the translator of the German edition of *Utilitarianism*, Mill refers to 'the real argument' behind his misleading statement of it and seems to accept the need for dropping the offending analogy (10:cxxvi; and 16:

62 Cf. Skorupski [3.29], 286–7. It seems to be Mill's view that the evidence we are supposed to cite in favour of the desirability of happiness is that it is consistently and generally desired or pursued as an end and also acknowledged or accepted as such on the basis of reflection and rational consideration. If this were the case then, in the absence of a countervailing explanation, we would have a strong argument in favour of the principle of utility.

63 He declares that 'the social feelings of mankind' involve 'the desire to be in unity with our fellow creatures… The social state is at once so natural, so necessary, and so habitual to man, that, except in some unusual circumstances or by an effort of voluntary abstraction, he never conceives himself otherwise than as a member of a body' (10:231). (Cf. Berger [3.3], 44 and 59–61 for a fuller discussion of this aspect of Mill's views.)

64 The argument proceeds on the basis that social life is requisite for the individual's own happiness and a requisite of social life is a concern for the general welfare ([3.3], 59).

65 According to Berger, the proof is addressed to intuitionists who held that our moral *feelings* are the sole foundation of moral obligations and judgements ([3–3], 53–4).

66 But, as Skorupski points out, this is not enough. We need to know on what principles the good of individuals is to be incorporated into the general good ([3.29], 287). (For a

discussion of this and related issues see chapter 9.)

67 Referring to Mill's proof, Berger writes: 'It is tempting…to say that there is a missing premise or assumption here, namely, that Mill believed there is a strong connection between the individual's welfare and the general welfare. Each individual's welfare is *included in* the general welfare, so, if a person desires that person's own welfare, and it is therefore a good to them, the general welfare is also a good to them. Of course, it does not follow that they *desire* the general welfare, because *they* may not see the connection; yet, it will be true that the general welfare is good for them. Moreover, they can come to desire the general welfare when made aware of the connection, especially if social life is requisite for their happiness, and a requisite of social life is a regard for the general welfare' ([3.3], 59). This would make it possible, at least technically, to hold on to the general welfare or happiness as a necessary feature of the moral standard.

68 Part of what Mill says concerning the mechanism of parliamentary government is also to be found in two other essays published in 1859—*Thoughts on Parliamentary Reform* and *Recent Writers on Reform* (19:311ff.). The latter contains a review of Thomas Hare's *A Treatise on the Election of Representatives* (1859) containing the proposal for an electoral system based on proportional representation involving a national quota of votes for entry to parliament together with preferential voting, a scheme that Mill enthusiastically supported. Having, as he thinks, answered objections brought against the scheme, he predicts that its implementation will usher in a new era of parliamentary government (19:453–65). But he does not consider the standard objection that such a system is likely to introduce political instability and allow minorities to wield power out of proportion to their size or importance.

69 He also discusses other matters which cut across this division, such as the forms of government best suited to the rule of colonies by a democracy (19:562ff.).

70 He refers to this as the power of 'self-protection' (19:404, 21:301). However, this feature of democracy has no relation to the self-protection principle mentioned in *Liberty*.

71 See 19:399–403, 467–9. etc.

72 He wants minimum proficiency in the three R's: the voter should be able to 'copy a sentence from an English book, and perform a sum in the rule of three' (19:471). He also stipulates that every voter should be a taxpayer, so that those who elect legislatures will have a special interest in keeping expenditure and taxes down. But to allow most people to qualify under this rule, he recommends that a direct tax in lieu of some existing indirect taxes should be levied on all adults. Other categories of exclusion are undischarged bankruptcy and non-payment of taxes, and 'the receipt of parish relief (19:472).

73 'So long as an opinion is strongly rooted in the feelings, it gains rather than loses in stability by having a preponderating weight of argument against it…; the worse it fares in argumentative contest, the more persuaded its adherents are that their feeling must have some deeper ground, which the arguments do not reach; and while the feeling remains, it is always throwing up fresh entrenchments of arguments to repair any breach made in the old' (21:261).

74 Also cf. 21:273, 280; *Liberty* 301, and *Papers on Women's Rights,* the joint product of Mill and his wife, Harriet, 21:386.

75 Also cf. *Representative Government,* 19:479–81; and 21:386–7.

76 For example, the contention that women's 'greater nervous susceptibility' makes them too impulsive and changeable, incapable of perseverance, uncertain, etc. so that they are not fit for anything but raising a family! Or the view that men are superior to women in mental capacity because they have a larger brain (21:307–12).

77 Another reason for Mill to review these arguments might be the fact that they were

commonly used in public debate and he wants to provide opponents of discrimination with the details regarding their refutation. It should be recognized that Mill saw *The Subjection of Women* to be a manifesto for legal and social reform—as he said in a letter to Bain, he wanted 'to stir up the zeal of women themselves…, excite the enthusiasm in women which is necessary to break down the old barriers' (17:1623).

78 Also cf. 21:302. As part of the social forces which are said to produce female character traits and mental capacities, Mill assigns a central function to 'the education given to women—an education of the sentiments rather than of the understanding and the habits which are the outcome of their restricted life-styles' (21:330). Mill does not deny that the subordination of women may seem to be natural, for: 'unnatural generally means only uncustomary, and… everything that is usual appears natural The subjection of women to men being a universal custom, any departure from it quite naturally appears unnatural' (21:270).

79 Women, according to Mill, are indoctrinated to be submissive and obedient 'by representing to them meekness, submissiveness and resignation of all individual will, into the hands of a man, as an essential part of sexual attractiveness' (21:272). This is reflected in the work of women writers, so that the 'greater part of what women write about women is mere sycophancy to men' (21:279).

80 'its psychological contribution is the book's great achievement: Mill's psychology is grounded in a more lucid distinction between prescription and description than one encounters in Freud, and a far more intelligent grasp of the effects of environment and circumstance. Mill is also sensitive to the mechanisms by which conservative thought construes the status quo into the inevitable' (Millett [3.19], 96). Kate Millett's account of Mill's views as contrasted with those of Ruskin is an important contribution to our understanding of the issues involved ([3.19], 88–108).

81 For example, the 1852 edition of the *Logic* carried a footnote which deplored the common use of the pronoun 'he' to refer to human beings in general, and went on to point out that this was 'more than a defect in language; tending greatly to prolong the almost universal habit, of thinking and speaking of half the human species as the whole'. Although the footnote was deleted in later editions, its existence indicates an awareness on Mill's part of the 'gender-bias' attaching to language ([3.34], 136).

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CHAPTER 4
J.S.Mill

Logic and metaphysics

John Skorupski

ENLIGHTENMENT AND ROMANTICISM IN MILL'S PHILOSOPHY

Mill's importance as one of the major figures of nineteenth-century politics and culture, and the current interest in him as a moral and political philosopher, are both so great that they make it hard to see him in another aspect—as a leading contributor to the British tradition of epistemology and metaphysics. Yet it was the *System of Logic* (1843) that first established his reputation; and his views in this field remain as interesting and relevant as his better known views in ethics and politics.

Throughout his intellectual life Mill sought to weave together the insights of enlightenment and Romanticism. He applied Romantic idealism's moral understanding to utilitarianism's concepts of character, imagination and purpose, freedom and reason, human good. To German Romanticism he owes one of his master themes—that of the culture of human nature as a whole, both in its diverse spontaneity and in its rational autonomy. But the metaphysical and psychological foundations of his thought lie securely in the naturalistic empiricism of the British school—and, moreover, in its radical and associationist, rather than its conservative and innatist, wing. Thus the deepest questions about Mill's philosophical success turn on the possibility of such a synthesis, and on how far he achieved it.

Reasons for doubt centre on two great issues, which at bottom are linked. Must not naturalism subvert reason, as Kant thought? And must not a natural science of man—a scientific psychology—subvert the understanding from within, the *moral* psychology of autonomy and expressive spontaneity, which Mill shares with the 'Germano-Coleridgeans' (as he called them)? Both questions lead us to the *System of Logic*, the first to its analysis of deductive and inductive reasoning, the second to its treatment of freedom and determinism. They remain important issues in contemporary philosophy. Beyond these two questions about the coherence of Mill's thought, there is a third—whether his associationist psychology can be reconciled with the idea of determinate human potentiality he requires for his account of 'man as a progressive being'. But this question does not have the direct contemporary significance that the other two have and will not be discussed here.

NATURALISM AND SCEPTICISM

Naturalism is the view that the mind is an entirely natural entity—a part of the natural order. But if the mind is only a part of nature, it seems that no real knowledge of the natural world can be *a priori*. Either all real knowledge is *a posteriori*, grounded in experience, or there is no real knowledge. That this consequence genuinely follows from naturalism Mill and Kant would have agreed. The difference between them was that Mill, unlike Kant, thought that knowledge could be grounded on such a basis. Thus the purpose of the *System of Logic* was, firstly, to spell out the full extent of epistemological empiricism—that is, of the view that all knowledge is *a posteriori*—and, secondly, to show how knowledge is possible on that basis. Its greatest achievement is the radicalism and the rigour with which it presses through to the first of these objectives.

Before we examine the *System* it will be useful to draw some further broad contrasts between Mill, Kant, David Hume and Thomas Reid. Unlike Hume, Kant or even Reid, Mill shows no interest at all in scepticism. He agrees with Kant that naturalism must remove *a priori* grounding from the common-sense principles which Reid presents. He does not agree with Reid that those principles are 'innate', but he also sees—though with less clarity, as we shall see—that even if they were, that would not give them an epistemological, as against a merely psychological, independence of experience. Yet he does not unleash a sceptical attack on reason as Hume does, nor does he see any need to defend reason against such an attack. In fact he sees no crisis of reason, and it is this that sets him apart most fundamentally from the Critical legacy of Kant.

Here he is loyal to his Benthamite inheritance. The Benthamites wished to distance themselves from Hume's scepticism just as firmly as the Scottish common-sensists did—unlike the latter, though, they felt no call to respond systematically to it. Mill agreed with them: in this respect his attitude was English rather than Scottish. More broadly, however, both Mill and Reid belong in that British naturalistic camp which believes that no serious philosophical lesson can be drawn from scepticism. For neither of them thinks—as Hume did—that sceptical arguments are sound and significant, that they show something of negative importance about reason. The difference between them is rather that Reid believes that scepticism stems solely from an erroneous theory of mind, and can be entirely defused by denying the existence of the objects postulated by that theory—ideas—while Mill in contrast never engages with scepticism at all.

If one thinks that scepticism is both unanswerable and unserious this may be the true philosophic wisdom. Whether it is wisdom or evasion is a question which keeps on returning in philosophy. But whatever view one takes on it one will misunderstand the *System of Logic* if one does not grasp that it is a work of what a contemporary philosopher in the same tradition, W.V.O.Quine, has called 'naturalized epistemology'. One of the ways in which it is, is precisely this: that it neither raises nor seeks to answer sceptical questions.

THE ANALYSIS OF LANGUAGE: LOGIC AND MATHEMATICS CONTAIN REAL INFERENCES

Fundamental to the *System* is a distinction Mill draws between 'verbal' and 'real' propositions, and correspondingly, between 'merely apparent' and 'real' inferences. He applies it with greater strictness, and addresses his thesis, that merely apparent inferences have no genuine cognitive content, with greater resolution, than anyone had done before.

We can best reconstruct it by starting with the notion of a merely apparent inference. An inference is merely apparent when no real inferential move has been made. For this to be so, the conclusion must literally have been asserted in the premisses. In such a case, there can be no epistemological problem about justifying the apparent inference—there *is* nothing to justify. A verbal proposition can now be defined as a conditional proposition corresponding to a merely apparent inference. (This is not the whole of Mill's distinction, for he also counts elementary inferences and propositions concerning identity as verbal; but we can ignore that for the moment.)

The distinction corresponds, as Mill himself notes, to that which Kant makes between 'analytic' and 'synthetic'. (Kant formulates it for affirmative predicative propositions, and so does Mill, but the version given in the previous paragraph can be used to avoid this limitation.) But there is also a broader notion of analyticity, which has been influential in this century and which may also be thought to be implicit in some, though not all, of Kant's formulations. It defines an analytic truth as one from whose negation a contradiction can be deduced, with the help, where necessary, of definitional transformations, and using principles of logic alone. In the broad sense of 'analytic', it becomes a trivial truth that logical principles are analytic. But what is then no longer trivial is the crucial thesis that analytic propositions have no genuine cognitive content, and hence pose no epistemological problem.

If we keep to Mill's understanding of the distinction between 'verbal' and 'real', which corresponds to the narrower Kantian notion of analyticity, pure mathematics, and logic itself, contain 'real' propositions and inferences with genuine cognitive content. The clear recognition of this fact is the chief philosophical achievement of the *System of Logic*. For if Mill is also right in holding that naturalism entails that no real proposition is *a priori*, then he has shown the implications of naturalism to be radical indeed. Not only mathematics but logic itself will be empirical.

To demonstrate that logic and mathematics contain real propositions Mill has to embark on an extensive semantic analysis of sentences and terms (he calls them 'names'), of syllogistic logic, and of the so-called 'Laws of Thought'. His analysis has many imperfections and he never unifies it in a fully general account. But he does supply the foundations of such an account, and in doing so takes the empiricist epistemology of logic and mathematics to a wholly new level.

The starting point is a distinction between the denotation and connotation of names. Names, which may be general or singular, denote objects and connote attributes of objects. (Attributes may themselves be denoted by 'abstract' names, though the term is misleading, for Mill conceives attributes nominalistically). A general name connotes

attributes and denotes each object which has those attributes. Most singular names also connote attributes, but their grammatical construction indicates that they denote just one object if they denote at all.

There is however an important class of singular names—'proper names' in the ordinary sense, such as 'Dartmouth'—which denote an object without connoting any property. Identity propositions which contain only such non-connotative names, as 'Tully is Cicero', are in Mill's view verbal. They lack content in the sense that, according to Mill, the only information conveyed is about the names themselves: 'Tully' denotes the same object as 'Cicero' does. Mill's point is that there is no fact in the world to which 'Cicero is Tully' corresponds; a thought similar to that which inspired Wittgenstein's treatment of identity in the *Tractatus*. The obvious difficulty about assimilating them to verbal propositions on this basis is that knowledge that Cicero is Tully is not *a priori*. We cannot know the proposition to be true just by reflecting on the meaning of the names—whereas Mill's overall inten-tion is that the class of verbal propositions should be identical with the class of propositions which are innocuously *a, priori because* empty of content. He does not seem to notice this difficulty.

The meaning of a declarative sentence—'the import of a proposition'—is determined by the connotation, not the denotation, of its constituent names; the sole exception being connotationless proper names, where meaning is determined by denotation. (Again there is something puzzling here, for it needs to be explained how this thesis about the meaning of proper names is to be reconciled with the aposteriority of 'Cicero is Tully'.) Mill proceeds to show how the various syntactic forms identified by syllogistic theory yield conditions of truth for sentences of those forms, when the connotation of their constituent names is given.

Armed with this analysis he argues that logic contains real inferences and propositions. (He assumes that to assert a conjunction, *A and B,* is simply to assert *A* and to assert *B.* He defines *A or B* as 'If not *A,* then *B,* and if not *B,* then *A*'. 'If *A* then *B*' means, he thinks, 'The proposition *B* is a legitimate inference from the proposition *A*'.)

His strategy is an admirably forceful pincer movement. One pincer is an indirect argument. If logic did not contain real inferences, all deductive reasoning would be a *petitio principii,* a begging of the question—it could produce no new knowledge. Yet clearly it does produce new knowledge. So logic must contain real inferences. The other pincer is a direct semantic analysis of the supposed 'axioms' of syllogistic reasoning and of the laws of thought. It shows them to be real and not merely verbal.

The execution of this strategy is flawed, because Mill mixes it up with an interesting but distinct objective. He wants to show that 'all inference is from particulars to particulars'. The point is to demystify the role general propositions play in thought. He argues that in principle they add nothing to the force of an argument; particular conclusions could always be derived inductively direct from particular premisses. Their value is psychological. They play the role of 'memoranda', summary records of the inductive potential of all that we have observed, and they facilitate 'trains of reasoning' (as e.g. in 'This is *A,* all *A*s are *B*s, no *B*s are *C*s, so this is not *C*'). Psychologically they greatly increase our memory and reasoning power, but epistemologically they are dispensable.

As Mill presents it, this thesis is tied in with his rejection of 'intuitive' knowledge of

general truths and with his inductivism (which we shall come to shortly). For it assumes the illegitimacy of *hypothesizing* general propositions, as against generalizing to them from observation of singular conjunctions. Beneath this, however, there lies a deeper and obscurer sense in which a radical empiricist must hold that all inference is from particulars to particulars. For consider the inference from 'Everything is *F*' to '*a* is *F*'. Is it a real or merely apparent inference? It is impossible to hold it real if one also wishes to argue that real inferences are *a, posteriori*. But the only way of treating it as verbal which is open to Mill is to treat the premiss as a conjunction: '*a* is *F* and *b* is *F* and…' If that approach is precluded then all that remains is to deny that 'Everything is *F*' is prepositional—it must, rather, express an inferential commitment.

Both approaches are very close to the surface in Mill's discussion of the syllogism, and he comes closest to the latter when he emphasizes that a general proposition is 'a memorandum of the nature of the conclusions which we are prepared to prove'. But these issues about generality (and about conditional propositions) do not emerge clearly in his analysis; like his treatment of proper names and of identity, they were destined to make a decisive appearance on the agenda of philosophical logic only later, in the twentieth century.

MILL'S EMPIRICIST VIEW OF LOGIC, GEOMETRY AND ARITHMETIC

Though Mill's treatment of generality and the syllogism is somewhat confused and opaque, he is quite clear cut in holding the laws of contradiction and excluded middle to be real—and therefore *a posteriori*—propositions. He takes it that 'not *P*' is equivalent in meaning to 'it is false that *P*'; if we further assume the equivalence in meaning of *P* and 'It is true that P', the principle of contradiction becomes, as he puts it, 'the same proposition cannot at the same time be false and true'. 'I cannot look upon this' he says 'as a merely verbal proposition. I consider it to be, like other axioms, one of our first and most familiar generalizations from experience.' He makes analogous remarks about excluded middle, which turns—on these definitions—into the principle of bivalence, 'Either it is true that *P* or it is false that *P*'.

A truly radical empiricism! After this it is not surprising to find the same broad strategy applied to mathematics. If it was merely verbal, mathematical reasoning would be a *petitio principii*. Moreover a detailed semantic analysis shows that it does contain real propositions.

Mill provides brief but insightful empiricist sketches of geometry and arithmetic. On geometry he is particularly good. The theorems of geometry are deduced from premisses which are real propositions inductively established. (Deduction is itself of course a process of real inference.) These premisses, where they are not straightforwardly true of physical space, are true in the limit. Geometrical objects—points, lines, planes—are ideal or 'fictional' limits of ideally constructible material entities. Thus the real empirical assertion underlying an axiom such as 'Two straight lines cannot enclose a space' is something like 'The more closely two lines approach absolute breadthlessness and straightness, the smaller the space they enclose'.

Mill applies his distinction between denotation and connotation to show that

arithmetical identities such as ‘Two plus one equals three’ are real propositions. Number terms denote ‘aggregates’ and connote certain attributes of aggregates. (He does not say that they denote those attributes of the aggregates, though perhaps he should have done.) ‘Aggregates’ are natural not abstract entities—‘collections’ or ‘agglomerations’ individuated by a principle of aggregation. This theory escapes some of the famous but rather unfair criticisms Frege later made of it, but its viability none the less remains extremely doubtful. The trouble is that the respects in which aggregates have to differ from *sets* if they are to be credibly natural, and not abstract, entities are precisely those in which they seem to fail to produce a fully adequate ontology for arithmetic. (One can for example number numbers, but can there be aggregates of aggregates, or of attributes of aggregates, if aggregates are natural entities?)

However this may be, Mill’s philosophical programme is clear. Arithmetic, like logic and geometry, is a natural science, concerning a particular department of the laws of nature—those concerning the compositional properties of aggregates. The upshot is that the fundamental principles of arithmetic and geometry, as well as of logic itself, are real. Given epistemological empiricism, it follows that deductive reasoning, ‘ratiocination’, is empirical. Mill has provided the first thoroughly naturalistic analysis of meaning and of deductive reasoning itself.

He distinguishes his own view from three others—‘conceptualism’, ‘nominalism’ and ‘realism’.

‘Conceptualism’ is his name for the view which takes the objects studied by logic to be psychological states or acts. It holds that names stand for ‘ideas’ which make up judgements and that ‘a proposition is the expression of a relation between two ideas’. It confuses logic and psychology by assimilating propositions to judgements and attributes of objects to ideas. Against this doctrine Mill insists that

> All language recognises a difference between a doctrine or opinion, and the fact of entertaining the opinion; between assent, and what is assented to… Logic, according to the conception here formed of it, has no concern with the nature of the act of judging or believing; the consideration of that act, as a phenomenon of the mind, belongs to another science.
>
> (7:87)

He traces conceptualism to the seventeenth century: it was introduced by Descartes, fostered by Leibniz and Locke, and has obscured the true status of logic—which is simply ‘the Science of Science’—ever since.

The nominalists—Mill cites Hobbes—hold that logic and mathematics are entirely verbal. Mill takes this position much more seriously than conceptualism and seeks to refute it in detail. His main point is that nominalists are able to maintain their view only because they fail to distinguish between the denotation and the connotation of names, ‘seeking for their meaning exclusively in what they denote’ (7:91).

Nominalists and conceptualists both hold that logic and mathematic can be known non-empirically, while yet retaining the view that no real proposition about the mind-independent world can be so known—but both are confused. But what if one abandons the thesis that no real proposition about the mind-independent world can be known *a*

priori? The realists do that—they hold that logical and mathematical knowledge is knowledge of universals existing in an abstract Platonic domain; the terms that make up sentences being signs that stand for such universals. This is the view Mill takes least seriously—but versions of it were destined to stage a major revival in philosophy, and semantic analysis would be their main source.

In fact in the contemporary use of the term, Mill is himself a nominalist—he rejects abstract entities. That is why he treats aggregates as concrete objects, and attributes as natural properties rather than universals. But, just as severe difficulties lie in the way of treating the ontology of arithmetic in terms of aggregates rather than classes, so there are severe difficulties in the way of treating the ontology of general semantics without appealing to universals and classes, as well as to natural properties and objects. We can have no clear view of how Mill would have responded to these difficulties had they been made evident to him. But we can I think be fairly sure that he would have sought to maintain his nominalism.

However, the central target of Mill's attack is the doctrine that there are real *a priori* propositions. What, he asks, in practice goes on, when we hold a real proposition to be true *a priori*? We find its negation inconceivable, or that it is derived, by principles whose unsoundness we find inconceivable, from premisses whose negation we find inconceivable. Mill is not offering a definition of what is meant by such terms as *'a priori'*, or 'self-evident'; his point is that facts about what we find inconceivable are all that lends colour to the use of these terms.

They are facts about the limits, felt by us from the inside, on what we can imagine perceiving. Mill thought he could explain these facts about unthinkability, or imaginative unrepresentability, in associationist terms, and spent many pages claiming to do so. They are not very convincing pages, but that does not affect his essential point, which is this: the step from our inability to represent to ourselves the negation of a proposition, to acceptance of its truth, calls for justification. Moreover, the justification *itself* must be *a, priori* if it is to show that the proposition is known *a, priori.* (Thus Mill is prepared for example to concede the reliability of geometrical intuition: but he stresses that its reliability is an empirical fact, itself known inductively.)

At this point, Kant could agree. To vindicate the possibility of synthetic *a priori* knowledge calls, he claims, for nothing less than transcendental idealism. But without synthetic *a priori* knowledge, knowledge as such becomes impossible. The very possibility of knowledge requires that there be *a priori* elements in our knowledge.

THE METHODS OF INDUCTION AND THEIR STATUS

The *System of Logic* in contrast sets out to vindicate in general terms the possibility of a scheme of scientific knowledge which appeals at no point whatever to an *a priori* principle. One point in the opposition between *Critical* and *naturalistic* epistemology, as we have noticed, is the latter's refusal to take seriously pure sceptical arguments; but naturalistic epistemology also has two other ingredients—an appeal to a natural, or in Mill's word 'spontaneous', agreement in propensities to reason, and what may be called an 'internal' vindication of these fundamental reasoning propensities. All three

ingredients are present in the *System of Logic*.

For Mill, the basic form of reasoning—epistemologically, historically and psychologically—is enumerative induction, simple generalization from experience. This is the diposition to infer to the conclusion that all *A*s are *B* from observation of a number of *A*s which are all *B*. (Or to the conclusion that a given percentage of all *A*s are *B* from observation of that percentage of *B*s among a number of *A*s.) We spontaneously agree in reasoning that way, and in holding that way of reasoning to be sound. The proposition 'Enumerative induction is rational' is not a verbal proposition. But nor is it grounded in an *a priori* intuition. All that Mill will say for it is that people in general, and the reader in particular, in fact agree on reflection in accepting it. It is on that basis alone that he rests its claim.

Mill's problem of induction, the problem *he* wants to solve, is not Hume's. In sidestepping the purely sceptical question about induction, Mill uses the analogy of a telescope which Thomas Reid had also used in a similar context—though in Reid the telescope is Reason as against Common Sense, while in Mill it is Scientific as against spontaneous induction:

> Assuredly, if induction by simple enumeration were an invalid process, no process grounded on it would be valid; just as no reliance could be placed on telescopes, if we could not trust our eyes. But though a valid process, it is a fallible one, and fallible in very different degrees: if therefore we can substitute for the more fallible forms of the process, an operation grounded on the same process in a less fallible form, we shall have effected a very material improvement. And this is what scientific induction does.
>
> (7:567–8)

Mill's aim is to provide the telescope. The problem he starts from is not a sceptical but an internal one—why is it that some inductions are more trustworthy than others?

> Why is a single instance, in some cases, sufficient for a complete induction, while in others, myriads of concurring instances, without a single exception known or presumed, go such a very little way towards establishing a universal proposition? Whoever can answer this question…has solved the problem of induction.
>
> (7:314)

Mill's answer takes the form of a natural history of the 'inductive process'. The point is to show how that process is internally vindicated by its actual success in establishing regularities, and how it eventually gives rise to more searching methods of investigation.

Mankind begins with 'spontaneous' and 'unscientific' inductions about particular unconnected natural phenomena or aspects of experience. Generalizations accumulate, interweave and are found to stand the test of time: they are not disconfirmed by further experience. As they accumulate and interweave, they justify the second-order inductive conclusion that *all* phenomena are subject to uniformity, and, more specifically, that all have discoverable sufficient conditions. In this less vague form, the principle of general

uniformity becomes, given Mill's analysis of causation, the Law of Universal Causation. This conclusion in turn provides (Mill believes) the grounding assumption for a new style of reasoning about nature—eliminative induction.

In this type of reasoning, the assumption that a type of phenomenon has uniform causes, together with a (revisable) assumption about what its possible causes are, initiates a comparative inquiry in which the actual cause is identified by elimination. Mill formulates the logic of this eliminative reasoning in his well-known 'Methods of Empirical Inquiry'. His exposition is rather garbled but he was right to be proud of it, for it did show how effective eliminative reasoning can be. His picture of the interplay between enumerative and eliminative reasoning, and of the way it entrenches, from within, our rational confidence in the inductive process, is elegant and penetrating.

The improved scientific induction which results from this new style of reasoning spills back on to the principle of Universal Causation on which it rests, and raises its certainty to a new level. That in turn raises our confidence in the totality of particular enumerative inductions from which the principle is derived. In short, the amount of confidence with which one can rely on the 'inductive process' as a whole depends on the point which has been reached in its natural history—though the confidence to be attached to particular inductions always remains variable.

The fundamental norm of scientific reasoning, enumerative induction, is not a merely verbal principle. But what can it mean to deny that it is *a priori*? Mill says that we learn 'the laws of our rational faculty, like those of every other natural agency', only by 'seeing the agent at work'. He is quite right: we can find out what our most basic reasoning dispositions are, only by critical reflection on our practice. This reflective scrutiny of practice is, in a *certain* sense, an *a posteriori* process. It examines dispositions which we have before we examine them. Having examined our dispositions, we reach a reflective equilibrium in which we endorse some—and perhaps reject others. We endorse them as sound norms of reasoning.

But at this point the sceptic will ask by what right we do so—and Mill rules his question out of order. So denying that the fundamental principle of induction is *a priori* comes down, it seems, to just that ruling. Might it not just as well have been said that the principle is *a priori*? But that would suggest that there was some further story, Platonic or transcendental, to be had, which explained and legitimated our reasoning practice, and *this* is what Mill denies.

So too does the sceptic: the fact that the sceptic and the naturalist agree on that hardly shows why it is all right to rule the sceptic's question out of order. It seemed obvious to Mill's epistemological critics, whether they were realists or post-Kantian idealists, that this was evasive: naturalism could seem to differ from scepticism only by being uncritical.

Where Hume launches a sceptical assault on reason, Mill opens up *all* our beliefs to an empirical audit. Hume takes deduction for granted and raises sceptical questions about induction. Mill takes the legitimacy of natural reasoning propensities for granted, but he questions the aprioricity of deduction. Hume and Mill are both naturalistic radicals—but in quite different ways. Mill leaves no real principle of deduction, no common-sense belief entrenched—with one telling exception. The exception is our disposition to rely on the deliverances of memory, which he acknowledges, in the manner of Thomas Reid, to

be ‘ultimate’. But, with this exception, the only ultimate principle that survives in Mill’s science of science is enumerative induction. The whole of science, he thinks, can be built by this single instrument.

HYPOTHESIS

This is Mill’s *inductivism*—the view that enumerative induction is the only *ultimate* method of inference which puts us in possession of new truths. Is he right in thinking it to be so? The question produced an important, if confused, controversy between him and William Whewell (1794–1866). Their disagreement concerned the role of hypotheses. Whewell argued that the Hypothetical Method was fundamental in scientific inquiry: the method in which one argues to the truth of an hypothesis from the fact that it would explain observed phenomena.

Mill had read Whewell’s *History of the Inductive Sciences* (1837), and he could hardly fail to be aware of the pervasiveness of hypotheses in the actual process of inquiry, or of their indispensableness in supplying working assumptions—their ‘heuristic’ value, Whewell called it. The same point—the indispensableness of hypotheses in providing lines of inquiry—had been emphasized by the Frenchman Auguste Comte, with whose *Cours de philosophie positive* (which began to appear in 1830) Mill was also familiar. But what Mill could not accept was that the mere fact that an hypothesis accounted for the data *in itself* provided a reason for thinking it true. He denied that the Hypothetical Method constituted, in its own right, a method of arriving at new truths from experience.

Yet Whewell’s appeal was to the actual practice of scientific reasoning, as observed in the history of science. An appeal of that kind was precisely what Mill, on his own naturalistic principles, could not ignore. The disposition to hypothesize is spontaneous, so why should it not be recognized as a fundamental method of reasoning to truth, as enumerative induction is?

Mill’s refusal to recognize it is not arbitrary. The essential point underlying it is a powerful one: it is the possibility that a body of data may be explained equally well by more than one hypothesis. What justifies us in concluding, from the fact that a particular story would, if true, explain the data, that it is a true story? Other stories may equally explain the data.

Mill places great emphasis on the increasingly deductive and math-ematical organization of science—that is quite compatible with his inductivism, and indeed central to it. But he takes the ‘Deductive Method’ of science to involve three steps: ‘induction’, ‘ratiocination’, and ‘verification’. A paradigm, in his view, is Newton’s explanation of Kepler’s laws of planetary motion. Induction establishes causal laws of motion and attraction, ratiocination deduces lower level regularities from them in conjunction with observed conditions, and verification tests these deduced propositions against observation. (Though this was not, and did not need to be, the historical order of inquiry.) But

> the Hypothetical Method suppresses the first of the three steps, the induction to ascertain the law; and contents itself with the other two operations, ratiocination

> and verification; the law which is reasoned from being assumed, instead of proved.
>
> (7:492)

Mill agrees that it is legitimate to do this when the hypothesis in question has effectively been shown, by eliminative reasoning, to be the only one consistent with the facts. He allows various other cases of apparently purely hypothetical reasoning which are, in his view, genuinely inductive.

When all such cases have been taken into account, we are left with pure cases of the Hypothetical Method, in which the causes postulated are not directly observable, and not simply because they are assumed to operate—in accordance with known laws, inductively established—in regions of time or space too distant to observe. What are we to say of such hypotheses? For example of the 'emission' theory, or the 'undulatory' theory of light? They cannot be accepted as inductively established truths, not even as probable ones:

> an hypothesis of this kind is not to be received as probably true because it accounts for all the known phenomena; since this is a condition sometimes fulfilled tolerably well by two conflicting hypotheses; while there are probably many others which are equally possible, but which from want of anything analogous in our experience, our minds are unfitted to conceive.
>
> (7:500)

Such an hypothesis can suggest fruitful analogies, Mill thinks, but cannot be regarded as yielding a new truth itself. The data do not determine a unique hypothesis: it is this possibility, of underdetermination, which stops him from accepting hypothetical reasoning as an independent method of achieving truth, even though it is a mode of reasoning as spontaneous as enumerative induction.

In seeing the difficulty Mill is certainly on sound ground. What he does not see, however, is how much must be torn from the fabric of our belief if inductivism is applied strictly. Thus, for example, while his case for empiricism about logic and mathematics is very strong, it is his methodology of science which then forces him to hold that we know basic logical and mathematical principles only by an enumerative induction. And that is desperately implausible.

So it is an important question whether the difficulty can be resolved—and whether it can be resolved within a naturalistic framework, which does not yield to idealism. If naturalism can endorse the hypothetical method, it can develop a more plausible empiricism about logic and mathematics than Mill's. But the ramifications of his inductivism are even wider, as becomes apparent if we turn to his general metaphysics.

THE DOCTRINE OF THE RELATIVITY OF KNOWLEDGE

Mill sets this out in his *Examination of Sir William Hamilton's Philosophy* (1865). Sir William Hamilton (1791–1856) was a Scotsman who sought to moderate the views of

Reid and Kant. He was a philosopher of subtlety and erudition (or even pedantry), the last eminent representative of the school of Scottish common sense, and a ferocious controversialist. Mill deemed him a pillar of the right-thinking intellectual establishment, ripe for demolition. But by the time the *Examination* appeared Hamilton's death had made it impossible for him to reply—a fact which predictably caused Mill some regret. For the present-day reader, however, what is more regrettable is that Mill's discussion of general metaphysical issues should be cast in so polemical a form. It means that important issues, particularly on the nature of logic and thought, remain shrouded in obscurity. Mill does however give himself space to develop his view of our knowledge of the external world.

He begins by expounding a doctrine which he rightly takes to be generally accepted (in his time) on all sides. It affirms

> that all the attributes which we ascribe to objects, consist in their having the power of exciting one or another variety of sensation in our minds; that an object is to us nothing else than that which affects our senses in a certain manner; that even an imaginary object is but a conception, such as we are able to form, of something which would affect our senses in some new way; so that our knowledge of objects; and even our fancies about objects, consist of nothing but the sensations which they excite, or which we imagine them exciting, in ourselves.
>
> (9:6)

This is 'the doctrine of the Relativity of Knowledge to the knowing mind'. But there are two forms in which it may be held.

> According to one of the forms, the sensations which, in common parlance, we are said to receive from objects, are not only all that we can possibly know of the objects, but are all that we have any ground for believing to exist. What we term an object is but a complex conception made up by the laws of association, out of the ideas of various sensations which we are accustomed to receive simultaneously. There is nothing real in the process but these sensations.
>
> (9:6)

According to the other,

> there is a real universe of 'Things in Themselves,' and… whenever there is an impression on our senses, there is a 'Thing in itself,' which is behind the phaenomenon, and is the cause of it. But as to what this Thing *is* 'in itself,' we, having no organs except our senses for communicating with it, can only know what our senses tell us; and as they tell us nothing but the impression which the thing makes upon *us*, we do not know what it is *in itself* at all. We suppose (at least these philosophers suppose) that it must be something 'in itself, but all that

> we know it to be is merely relative to us, consisting in the power of affecting us in certain ways.(9:7)

The first form (omitting from it the appeal to laws of association) corresponds to what is meant by 'phenomenalism' as the term is often used by philosophers today—though it was not so used in Mill's time.

Reid's point, that sensations are not representative mental images but states of mind, does not contradict the doctrine of the Relativity of Knowledge, any more than his thesis that we perceive physical objects does. For on his account sensations, states of sensory consciousness, do mediate between the objects that excite them and the beliefs about those objects which are prompted by them—they are themselves distinct from both the objects and the beliefs. I cannot perceive without sensing. But I can sense without perceiving. For example I may have a visual sensation which prompts me to believe that I am seeing a red triangle on a green field. It is then apparently true to say, in an obvious and legitimate sense, that what I am immediately aware or conscious of is my visual sensation. That remains true even if I am perceiving no red triangle because no red triangle exists. Or, if one objects to talk of consciousness *of* a state of consciousness, one may simply say that my immediate visual consciousness is of a red triangle on a green field—in a sense in which that can be true though there is no such triangle.

This is already enough to make epistemology, in Mill's phrase, the 'Interpretation of Consciousness'. The very fact of consciousness seems to impose the doctrine of the Relativity of Knowledge. To escape it, something more counter-intuitive would be required than the sensible points Reid makes about perception and sensation. It is notoriously difficult to pin down what that might be. Perhaps what is needed is nothing less than a denial that sensation is a category ontologically distinct from that of judgement and dispositions to judge: there is no irreducible category of Pure Experience. But Mill, at any rate, questions the irreducible status of sensation no more than Reid did. And he thinks it must follow that—whether or not we *actually* make an inductive inference from sensations to objects beyond sensation—such an inference is, epistemologically speaking, *required*.

Is this too hasty? Is it dogmatism on Reid's part simply to point out that we do form particular beliefs prompted by particular sensations, beliefs which we just do regard as rational? Cannot these specific cognitive dispositions be defended naturalistically, if the general disposition to make enumerative inductions can? But there is a difference. If we are immediately conscious only of states of affairs of one kind (our own sensory states) and on that basis form beliefs about states of affairs of a *quite distinct* kind (states of external physical objects) then some warrant is required. Reid needs to show why such a warrant does not have to rely on inductive inference—even though it licenses a belief in a state of affairs on the basis of immediate consciousness of a *quite distinct* state of affairs. He must call on warrants which are neither deductive nor inductive. And this requires support from ideas in the theory of meaning which had not yet been formed. We shall return to the point.

MATTER AND MIND

Mill sets about the notion of an ‘external’ object in great style:

> What is it we mean, or what is it which leads us to say, that the objects we perceive are external to us, and not a part of our own thoughts? We mean, that there is concerned in our perceptions something which exists when we are not thinking of it; which existed before we had ever thought of it, and would exist if we were annihilated; and further, that there exist things which we never saw, touched, or otherwise perceived, and things which have never been perceived by man. This idea of something which is distinguished from our fleeting impressions by what, in Kantian language, is called Perdurability; something which is fixed and the same, while our impressions vary; something which exists whether we are aware of it or not, and which is always square (or of some other given figure) whether it appears to us square or round—constitutes altogether our idea of external substance. Whoever can assign an origin to this complex conception, has accounted for what we mean by the belief in matter.
>
> (9:178–9)

To assign this origin Mill postulates

> that after having had actual sensations, we are capable of forming the conception of Possible sensations; sensations which we are not feeling at the present moment, but which we might feel, and should feel if certain conditions were present, the nature of which conditions we have, in many cases, learnt by experience.
>
> (9:177)

> These various possibilities are the important thing to me in the world. My present sensations are generally of little importance, and are moreover fugitive: the possibilities, on the contrary, are permanent, which is the character that mainly distinguishes our idea of Substance or Matter from our notion of sensation. These possibilities, which are conditional certainties, need a special name to distinguish them from mere vague possibilities, which experience gives no warrant for reckoning upon. Now, as soon as a distinguishing name is given, though it be only to the same thing regarded in a different aspect, one of the most familiar experiences of our mental nature teaches us, that
> the different name comes to be considered as the name of a different thing.
>
> (9:179–80)

We may speak of *sensation conditionals* of the form, ‘If such and such sensations were to occur, then such and such other sensations would occur with a given degree of probability’. (It need not always be certainty.) They express Mill’s famous ‘Permanent

Possibilities of Sensation'. 'Permanent' is slightly misleading, for there is of course a change in the 'Permanent' possibilities of sensation whenever there is change in the world. Mill also uses other terms—'certified', 'guaranteed'.

We regularly find that whole clusters of sensation conditionals are true together, whenever some other sensory condition obtains. Thus whenever we experience that condition, we are justified in forming all the conditional expectations expressed in that cluster of conditionals. Moreover, as well as finding simultaneous correlations between certified possibilities of sensation, that is, between the truth of any sensation conditional in a set and the truth of any other in the set, we also find 'an Order of succession'. Whenever a given cluster of certified possibilities of sensation obtains, then a certain other cluster follows—a certain other set of sensation conditionals *becomes* true. 'Hence our ideas of causation, power, activity…become connected, not with sensations, but with groups of possibilities of sensation' (9:181).

But even if our reflective concept of matter—as the external cause of sensations—can be explained on psychological principles, it remains open for someone to accept the proposed *origin* for the concept, while also holding that good grounds can be given for thinking it to have instances. He or she will say that a legitimate inference can be made from the existence of the Permanent Possibilities and their correlations to the existence of an external cause of our sensations. It is at just this point that Mill's inductivism comes in. Such an inference would be a case of hypothetical reasoning, to an explanation of experience which transcended all possible data of experience; and that is just what Mill rejects: 'I assume only the tendency, but not the legitimacy of the tendency, to extend all the laws of our own experience to a sphere beyond our experience' (9:187). So the conclusion that matter is the permanent possibility of sensation follows from the combination of the doctrine of the Relativity of Knowledge and inductivism.

If matter is the permanent possibility of sensation, what is mind? Mill considers that 'our knowledge of mind, like that of matter, is entirely relative'. Can the mind then also be resolved into 'a series of feelings, with a background of possibilities of feeling'? He finds in this view a serious difficulty: to remember or expect a state of consciousness is not simply to believe that it has existed or will exist; it is to believe that *I myself* have experienced or will experience that state of consciousness.

> If, therefore, we speak of the Mind as a series of feelings, we are obliged to complete the statement by calling it a series of feelings which is aware of itself as past and future; and we are reduced to the alternative of believing that the Mind, or Ego, is something different from any series of feelings, or possibilities of them, or of accepting the paradox, that something which *ex hypothesi* is but a series of feelings, can be aware of itself as a series.
>
> (9:194)

Mill is unwilling to accept 'the common theory of Mind, as a so-called substance': nevertheless, the self-consciousness involved in memory and expectation drives him to 'ascribe a reality to the Ego—to my own Mind—different from that real existence as a Permanent Possibility, which is the only reality I acknowledge in Matter' (9:208).

If we discount, this conscientious uncertainty about what to say of the self, the

tendency of Mill's analysis is towards the view that all that exist are experiences in a temporal order. Yet he claims, like others before and after him, that this metaphysics is consistent with common-sense realism about the world. Phenomenalism, he thinks, leaves common sense and science untouched. In particular, minds and experiences are still properly to be seen as a part of the natural order.

But are the experiences referred to, in the phenomenalist's analysis, the very same as those referred to in common sense and scientific talk (call this 'naturalistic' talk)? If they are not, then we have yet to be told *what* they are. Then suppose they are the same. In naturalistic talk, we make reference to subjects and their experiences—and also to physical objects and their properties. Psychology, including Mill's psychology, seeks to establish causal correlations among experiences and their physiological antecedents and consequents.

But if phenomenalism is right, only the experiences are real. Mill thinks we are led to that by the very standards of reasoning recognized in a naturalistic 'science of science', or 'system of logic'. If he is right, then the naturalistic vision of the world, which sees minds as part of a larger causal order, is self-undermining. For if we are led to the conclusion, that only states of consciousness are real, *by an application of naturalism's own standards,* then that conclusion has to be understood *on the same level* as the naturalistic affirmation that states of consciousness are themselves part of a larger causal order external to them—and therefore as inconsistent with it. Causal relations cannot exist between fictional entities which are mere markers for *possibilities* of sensation.

So either naturalism undermines itself or there is something wrong with Mill's inductivist analysis of our natural norms of reasoning, or with his endorsement of the doctrine of the Relativity of Knowledge, or both. It is not our business to diagnose the situation further here. But it should not be assumed that Mill's most fundamental tenet—his naturalistic view of the mind—can be safeguarding solely by rejecting inductivism and endorsing the hypothetical method. The result would be a philosophy which postulates the external world as an inference to an hypothetical explanation of pure experience. Something still fails to ring true in that. More is needed: backing for the view mentioned earlier, a view which may be thought of as in the spirit of Thomas Reid, though he did not give it the necessary backing—the view, namely, that there are norms which are neither inductive nor deductive, but which defeasibly warrant experience-based assertions about the physical world.

MORAL FREEDOM

The necessary backing, showing how such defeasible warrants can obtain, could be provided only by a philosophy which treats concepts, and the meanings of expressions in a language, as constituted by rules of use. This conception of concept and meaning is not present in Mill, though it could be reached by a sound progression from his naturalistic analysis of logic, and his rejection of conceptualism, nominalism and realism. Its growth can probably best be dated to the next generation of philosophers after Mill, and to the agenda of problems which they developed (partly at least in response to and reaction against Mill) at the end of the century; thus, to pragmatism, empirio-criticism, as also in

some respects to neo-Kantianism and British idealism. That same conception opens up the possibility of new responses to Mill's problem about the method of inference to the best hypothetical explanation—which was that in cases of genuine hypothesis we cannot be certain that there *is* a single best explanation.

Though the roots of the required conception of concept and meaning date to that period, how best to formulate it is still an open issue. Moreover the most difficult (though not unconnected) question for the naturalist, that of giving an account of reasons, still remains. As we have seen, it stands out as an obstacle for Mill when he needs to account for the authority of fundamental norms of reasoning. And it also stands out when he tries to show how, on the naturalistic view, it is possible for human beings to be morally free.

This was a central issue for Mill. He deals with it as it appears in the classic question of freedom and determinism. His commitment to determinism was complete. But the conclusion drawn by others from that doctrine, that we have (in Mill's phrase) no 'power of self-formation', and hence are not responsible, properly speaking, for our character or our actions, would have destroyed the very centre of his moral convictions. Power to determine one's own purposes and hold to them, responsibility for one's actions, are at the heart of Mill's ideal of life. 'Moral freedom', the ability to bring one's desires under the control of a steady rational purpose, is a condition of self-realization, of having a character in the full sense at all.

So he must show how causally conditioned natural objects can also be rationally autonomous agents. The sketch of a compatibilist solution which he provides in the *System of Logic* is brief but penetrating. He thought it the best chapter in the book. It is certainly a worthy contribution to the great empiricist tradition, which dismisses the problem as a perennially tempting confusion, to be dissolved by careful analysis.

To describe determinism as the doctrine of 'Philosophical Necessity' is, Mill thinks, misleading. Not just because of the general empiricist point that causation is not compulsion but for a more subtle reason; because 'in common use' only causes which are *irresistible*, whose operation is 'supposed too powerful to be counteracted at all' are called necessary:

> There are physical sequences which we call necessary, as death for want of food or air; there are others which, though as much cases of causation as the former, are not said to be necessary, as death from poison, which an antidote, or the use of the stomach-pump, will sometimes avert…human actions are in this last predicament: they are never (except in some cases of mania) ruled by any one motive with such absolute sway, that there is no room for the influence of another.
>
> (8:839)

This is a general distinction, but Mill is right to think it important for the analysis of free action. It can be applied to motives; an action caused by an irresistible motive is plainly not free. Without the distinction between resistible and irresistible causes, determinism turns into fatalism. We lose the sense of our moral freedom, which rests on the conviction that the motives on which we in fact acted were resistible. We fall into the idea that we have no power over our character; no ability to resist motives which we dislike or to

choose to act on those which we admire.

Now incompatibilists will concede that changes in our character may result from behaviour which is itself caused by the wish to change our character. But they will not concede that this is a true case of ‘self-formation’, because they think the wish to change our character is heteronomous: it comes from without. And they think that follows simply from the fact that the wish is determined, ultimately if not proximately, by external circumstances. So Mill has to show that while the wish must indeed be determined, that does not entail heteronomy. It can still be *my* wish.

He cannot answer simply by invoking the distinction between resistible and irresistible motives. For a motive might perfectly well not be irresistible, in that it could be blocked by other motives—yet still be heteronomous. Something has to be added if we are to move from the idea of my motives being resistible, in the sense that they could be trumped by conflicting motives, to the stronger idea that I have the power to resist motives. That idea is the idea of rationality: the ability to recognize and respond to reasons. I act freely if I could have resisted the motive on which I in fact acted *had there been good reason to do so*. A motive which impairs my moral freedom is one that cannot be defeated by a cogent reason for not acting on it. The differ-ence between a heteronomous agent, driven by conflicting motives which are capable of checking each other, and an autonomous agent who himself or herself resists the motive, lies in the fact that the latter responds to, and acts on, reasons.

Acting from good reason is still acting from a motive which is causally determining. What matters is how the motive determines: it must be so related to the facts, as they are believed to stand by the agent, as to constitute a good reason and it must also be the case that the agent acts on it *as* a reason. The same holds for the will to alter our character. It must indeed always be caused, and hence caused ultimately by circumstances we cannot help. But it still satisfies the conditions of moral freedom, if it results from our grasping that there is reason to change ourselves, and not, say, from indoctrination or obsession.

Moral freedom for Mill is the ability to act on good reasons, as autonomy is for Kant; though Mill does not highlight the point as Kant rightly does. And of course it is not, for Mill, transcendental. It is something I may have to a greater or less degree. I am more or less free overall, according to the degree to which I can bring my motives under scrutiny and act on the result of that scrutiny, I can *make* myself more free, by shaping my motives or at least by cultivating the strength of will to overcome them

> A person feels morally free who feels that his habits or his temptations are not his masters, but he theirs: who even in yielding to them knows that he could resist; that were he desirous of altogether throwing them off, there would not be required for that purpose a stronger desire than he knows himself to be capable of feeling…. we must feel that our wish, if not strong enough to alter our character, is strong enough to conquer our character when the two are brought into conflict in any particular case of conduct. And hence it is said with truth, that none but a person of confirmed virtue is completely free.
>
> (8:841)

The person of confirmed virtue is the person who can conquer desires, when there is

reason to do so, by a virtuous habit of willing. One must be careful not to assume that Mill, because he is an empiricist, is in the Humean tradition which holds reason to be a slave of the passions. We have already emphasized the difference between Hume's scepticism about both theoretical and practical reason, and the naturalistic epistemological stance taken in different ways by Reid and Mill. In the practical as in the theoretical case Mill is best understood not as denying the existence of categorical reasons, in the sceptical style of Hume, but as quietly naturalizing them. He takes it that talk of principles of theoretical and practical reason, and of our recognition of such principles, is justified. But the fact remains that he does not explain how it is justified, if nothing is *a priori*.

He does not dramatize the issue, as Kant's Critical philosophy does. And he does not confront the Critical questions: what is it for a reason to exist, what is it to grasp a reason, how can reason be efficacious? But, on his own showing these questions must be answered, in a fashion compatible with naturalism, if we are to make sense of ordinary categories—reasoning, inferring, deliberating, deciding—categories which involve thinking of agents and reasoners as free followers of rationally given norms. For while inference does seem to be a causal process it yet also appears to be something more than, or incommensurable with, a causal process. It seems to involve the *acausal* consciousness of a rule of reason. Precisely the same can be said for the rationalizing relation between motive or deliberation, and free action or choice.

NATURALIZED EPISTEMOLOGY

This Kantian argument, that naturalism cannot account for the rationality of experience, thought and action, was taken up by Mill's idealist successors in Britain, led by T.H.Green. They elevated Hume, who was held to have perceived it, over Mill, who was felt to have hidden his face from it, or been unable to grasp it. And certainly Mill offers no thoroughgoing examination of what, on his own philosophy, the status of fundamental norms of reason is—how they can have objective authority. He merely takes it that they do. The same applies to Reid. Like Reid, Mill assumes that any cognitive disposition which is 'ultimate', original or spontaneous thereby underpins an objective norm. We have seen this in his treatment of beliefs based on memory, as well as beliefs based on induction, and the same applies to his well-known derivation of what is desirable from what is desired 'in theory and in practice'. The similarity between Reid and Mill, on this fundamental point of naturalistic epistemological method—*the appeal to spontaneous dispositions which survive critical reflection*—is easy to miss. It is obscured by the undeniably important disagreement between them in what they actually place on their respective lists of fundamental principles, as also by the intrusion of the controversy between innatist and associationist psychology. But terms like 'ultimate', 'spontaneous', 'natural', etc. need not mean 'innate'—one must not confuse a phenomenon which is important for epistemological method—that of finding a principle naturally obvious—with a particular psychological explanation of its origin.

The divergence between Hume's sceptical naturalism, together with its Kantian and idealist sequels, and the naturalistic epistemology taken for granted by Reid, Mill and

others became a great divide in nineteenth-century philosophy. The most influential philosophers in the heyday of the analytic movement in the twentieth century stand also in the Critical rather than the naturalistic epistemological tradition. More recently, however, that has changed, largely through the influence of Quine. 'Naturalized epistemology' is once more influential. The questions concerning it remain the same. Today, as in Mill's time, one can ask whether there *is* any route open to the naturalist, between Humean scepticism and Kantian idealism.

If there is, it requires a sharper distinction than Mill, or indeed Quine, makes between norms and facts. Mill argued soundly from the naturalistic premiss, that no *factual* statement can be *a priori*. But the same is not true of *normative* statements. For *all* that grounds the objectivity of norms is reflective equilibrium and convergence—as indeed Mill's epistemological method implies. Having recognized this crucial point, one may innocently concede that statements about fundamental norms are—in a way Mill himself could have accepted, that is, a way which requires no transcendental or platonic mystery—*a priori*. Norms constitute the concepts which order our thought. Rationality, grasp of concepts, consists in sensitivity to them; it cannot therefore belong in the realm of the factual, any more than the norms themselves do. If this conception of concept and meaning can be made out, we can endorse Mill's naturalistic view of man.

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CHAPTER 5
Sidgwick

C.A.J.Coady

Unlike John Stuart Mill or Jeremy Bentham, Henry Sidgwick's is hardly a household name in intellectual circles beyond the world of professional philosophy. His standing amongst many contemporary moral philosophers as possibly the greatest nineteenth-century writer on ethics would come as a shock to such householders, as would C.D. Broad's estimate of his book *The Methods of Ethics* as 'one of the English philosophical classics' and 'on the whole the best treatise on moral theory that has ever been written' ([5.15], 143). This high reputation could indeed be disputed, but it is not at all idiosyncratic. It is a reputation that has grown since his own time, and is probably at its peak today, but Sidgwick's intellectual power impressed many of his contemporaries, and immediate successors, as well. 'Pure, white light' was one description offered of his intellectual presence ([5.13], 181), and the adjective 'pure' tells as much about the moral intensity with which he applied his mind to the problems that exercised him as the word 'light' testifies to the clarifying power of his intelligence.

Sidgwick was a typical Victorian in many respects, and, in fact, his life paralleled that of the woman to whom the era owed its name. He was born in the north of England at Skipton on 31 May 1838, less than twelve months after Queen Victoria assumed the throne and he died on 28 August 1900, preceding his monarch by about six months. He was the son of an Anglican clergyman who was the principal of a grammar school in Skipton. His father died when he was three, and a strong influence upon his early life was his second cousin, E.W. Benson, a man who was later to be Archbishop of Canterbury. Benson lived with the Sidgwick family for some years, and eventually (in 1859) married Sidgwick's sister. Benson persuaded Sidgwick's mother to send the boy to Rugby school (where he was himself to be, shortly afterwards, a master) even though Sidgwick's father had been against a public school education for his children. Benson argued that the public schools, and especially Rugby, under the influence of Arnold, no longer had the poor 'moral tone' that Sidgwick senior had feared. Henry Sidgwick later recalled that Benson was 'a great believer in the close and minute study of language that was in his time specially characteristic of Cambridge scholarship' ([5.12], 149) and it is plausible to see this influence at work in Sidgwick's later philosophical writings, though the close attention is not only to language but to the detail of concept and theory. Benson's influence waned after Sidgwick went up to Trinity College, Cambridge in October, 1855. For the first half of his under-graduate career, Sidgwick 'had no other ideal than to be a scholar as like him as possible', but other influences then brought him to doubt many of the moral and, especially, religious certainties that sustained his cousin. These influences included at the global level the writings of Mill, Comte, Spencer, Strauss, Renan, Matthew Arnold, George Eliot and Darwin, and more locally the intense debates that

went on amongst the clever young men in the society known as ‘the Apostles’, which he joined in his second year. Sidgwick described his joining the Apostles as having ‘more effect on my intellectual life than any one thing that happened to me afterwards’. He described the spirit of the group as that of ‘the pursuit of truth with absolute devotion and unreserve by a group of intimate friends’ ([5.30], 134).

THE RELIGIOUS BACKGROUND

Victorian England has been faulted for many things, but moral frivolity is not one of them. In spite of a good deal of hypocrisy about public manners, it was an age that was, in one way or another, obsessed with morality. The leading intellects of the time were particularly concerned with the nature and role of morality in a world in which religion had become problematical. For continental thinkers, like Nietzsche, the crisis in Christianity meant a crisis in morality, but for so many English (indeed British) intellectuals, religious doubts seemed an occasion for consolidating morality, for making it more, not less, firm and central to life. There is a reported comment of George Eliot that puts the matter succinctly. Asked how morality could subsist in the absence of religious faith, she replied that God was ‘inconceivable’, immortality was ‘unbelievable’, but duty none the less remained ‘peremptory and absolute’ ([5.20], 21). In many ways, Sidgwick’s philosophical career could be seen as devoted to the securing of this central position for morality by providing it with the requisite intellectual foundations, which he believed to be available within the intellectual tradition of utilitarianism. Certainly he was concerned to maintain the ‘peremptory’ or demanding power of moral claims over our reasoning on practical matters though he may well have been uncomfortable with Eliot’s reference to absolute duty. Under the influence of John Stuart Mill, and Mill’s interpretation of Comte, he saw this project as part of a scientific endeavour to bring about a comprehensive reform of social life. He understood that he had set himself no easy task and the personal and intellectual honesty that were amongst his most notable attributes would not allow him to disguise this fact from himself or his readers. As we shall see, this strong and confident commitment to honesty and to reason had certain ironic and sad consequences for his final philosophical conclusions. It also created a personal crisis with regard to his Fellowship at Trinity which he felt obliged to resign in 1869, after ten years as a Fellow, because it required a subscription to the 39 Articles of the Church of England, and to these he could no longer in honesty commit himself. This did not prove vocationally disastrous because the College then appointed him to a position that did not require subscription and when the law about subscription was eventually changed he was reappointed a Fellow.

Sidgwick’s honesty, conjoined with his commitment to an ideal of ‘strict scientific impartiality’ ([5.12], 250), led him not only to a persistent scrutiny of his own religious views and those prevailing in the community but to certain general doubts about Christianity that, whilst being characteristic of the time in many respects, were also distinctively his own. These in turn enlivened his interest in the relation of religion and morality and in the need to establish what would now be called ‘the autonomy of ethics’, but they also led him to suspect easy attempts to disentangle morals and religion, and to

an uncomfortable resolution of the original problem.

It would be a mistake to think of Sidgwick as dismissive of the moral and cognitive claims of Christianity or religion, in the fashion of twentieth-century logical positivists, for example, or in the casual fashion of some of his contemporaries. He was persistently interested in a scientific approach to theology, an interest that extended to the vigorous promotion of the work of the Society for Psychical Research, of which he was the first President. He was also as critical of the confident excesses of those who shared his 'scientific' ideal as he was of more conservative thinkers. This can be seen in his comment on rereading Comte and Spencer: 'Have been reading Comte and Spencer, with all my old admiration for their intellectual force and industry and more than my old amazement at their fatuous self-confidence. It does not seem to me that either of them knows what self-criticism means' ([5.30], 421). Sidgwick could not share this self-confidence, partly because of his highly developed critical sense, and partly because of his sense of the deep complexity, even mysteriousness, of the world we live in. In this connection, he quotes Bagehot approvingly: 'Undeniably, this is an odd world, whether it should have been so or no; and all our speculations upon it should begin with some admission of its strangeness and singularity' ([5.30], 395).

Sidgwick never lost his sense of the central importance of religion in human life though he found it difficult to give an account of what that importance amounted to and what its intellectual credentials could be. The gap he detected between the demands of 'scientific' reason and the requirements of faith made him at times sympathetic to the claims of Roman Catholicism. His early mentor, Benson, had struggled against an attraction to Rome and the figure of Cardinal Newman apparently aroused 'a mixture of alarm and fascination' in Benson ([5.21], 3). Sidgwick's correspondence with Cardinal Newman's nephew, J.R. Mozley, is instructive on this and on his complex, and somewhat convoluted, attitude to Christianity and theism. Written in January 1891, the letters express an admiration for Newman's individuality of thought and expression and the fusion of both, but show a certain distaste for Newman's mode of reasoning which Sidgwick thinks to be somewhat 'feminine, in the old traditional sense'. Sidgwick seems to mean that Newman's 'conclusions have always been primarily influenced by his emotions, and only secondarily by the workings of his subtle and ingenious intellect' ([5.30], 507). Leaving aside this dubious, if hoarily traditional, account of feminine thinking, we may note the way that Sidgwick here makes a sharp separation of reason and emotion, and goes on, in a subsequent letter, to attach the value of religion and specifically Christianity to its emotional appeal, particularly its appeal to a certain attitude of optimism that he regards as 'an indispensable creed—not for every one, but for progressive humanity as a whole'. He thinks that no form of optimism has an adequate rational basis, and so cannot himself endorse it since he 'has taken service with Reason' ([5.30], 508). It is tempting to see in Sidgwick's attitude to religion and Christianity another sign of the tension between reason and utility that emerges in his writings on ethics. This is particularly striking in his discussion of the relations between common-sense morality and utilitarianism and in what I discuss below as 'Sidgwick's paradox'. Just as it may be for the best from the point of view of rational utility that the majority continue to practise ordinary morality as if it were self-sufficiently justified and be kept ignorant of the truth of utilitarianism, so it may be practically desirable that

ordinary mortals should adhere to religion without the disturbance of knowing their commitments to be irrational. But more of this later.

PERSONAL CHARACTER AND VIEW OF PHILOSOPHY

Sidgwick was not a man for disciples. Indeed there was a striking contrast between attendances at his Cambridge lectures and those of his Oxford counterpart, the idealist liberal philosopher T.H.Green, which is not altogether explained by the considerable differences between the place of philosophy in the curricula of the two universities. The economist Alfred Marshall had clashed with Sidgwick in 1884 over what seemed to him the latter's 'mania for over-regulation' and had then written Sidgwick a letter claiming that Sidgwick's career had been spoiled by involvement in administration and his devotion to teaching 'a wretched handful of undergraduates' what they needed to know for the Moral Sciences Tripos exams. He compared Sidgwick's intellectual impact unfavourably with T.H.Green's at Oxford: where Sidgwick's classes were attended by a handful of undergraduates taking down what they regarded as useful for examinations, Green's were attended by 'a hundred men—half of them B.A.'s—ignoring examinations, …to hang on the lips of the man who was sincerely anxious to teach them the truth about the universe and human life' ([5.30], 394).

Characteristically, Sidgwick was not offended, but took the opportunity to reflect on what he thought accurate in the criticisms. His reflections help us to locate his view of philosophy and of the intellectual life against some prevailing fashions, and to see where they compare with twentieth-century developments. Sidgwick did not envy Green his audiences because he thought them purchased at a price he was not prepared to pay, namely, the presentation of 'incomplete solutions of the universe…as complete and satisfying' ([5.30], 395).[1] His intellectual temperament was inclined to the admission of uncertainty and the patient dissection of problems; he was ill at ease with declamation and heady simplifications. This makes his work congenial to certain strands in modern analytical philosophy, as does his thoroughgoing professionalism, and his emphatic, though qualified, respect for common sense. These things set him apart from those of his contemporaries (like Green) who were enamoured of Hegel. It is interesting that T.H. Green's moral philosophy is today virtually unread, while Sidgwick is probably more influential than ever.

It should not be assumed, however, that Sidgwick thought of philosophy as a purely piecemeal activity, as a set of skills with no particular output other than the therapeutic ('showing the fly the way out of the fly-bottle' in Wittgenstein's phrase). He viewed philosophy as an attempt at systematic understanding of the world, though he was conscious of the inconclusiveness of many of its achievements, and aware that one of its persistent virtues was the turning of elusive philosophical material into more manageable scientific problems. He would have recognised the truth in J.L.Austin's picture of philosophy as a 'seminal and tumultuous' central sun from time to time throwing off some portion of itself to 'take station as a science, a planet, cool and well regulated, progressing steadily towards a distant final state' ([5.11], 180), though Austin's image tends to obscure the facts that there are great differences between the planetary sciences

with respect to 'cool and well regulated' progress, and, more importantly, that there remain hot and turbulent philosophical aspects to even the most 'well regulated' of them.

Sidgwick's view of philosophy is spelled out in his posthumously published lectures called *Philosophy: its Scope and Relations*. In this book he tries to distinguish philosophy from other disciplines especially the physical sciences, history and sociology. This he attempts to do partly by insisting on the role of philosophy as providing a systematic overview of reality, drawing upon and interpreting the insights of the particular sciences. It is only by aiming at this traditional goal, he thinks, that philosophy can fulfil its 'germinal function' of creating new sciences. He is also critical of certain developments within the special sciences, some of which are as common (and as dubious) today as they were in Sidgwick's day. His criticisms of the sceptical tendencies of some historical and sociological writings, for instance, illustrate some of the ways in which the special sciences can harbour philosophical confusions. Sidgwick emphasizes the 'contradictory state of mind' of the theorist whose most 'fundamental beliefs in ethics, politics, theology, philosophy…drop from him' in the face of acquired historical or prehistorical beliefs to which 'he clings with a passionate conviction which is in singular contrast to the slenderness of the evidence that it is possible to adduce in their support' ([5.8], 166). In the course of the book, he also makes certain important distinctions, which we cannot here pursue fully, within philosophy itself. The most original and interesting claims made by Sidgwick concern the distinction within philosophy between metaphysics and non-metaphysical philosophy. This distinction is not intended as a total rejection, or even a disparagement of metaphysics. He explicitly rejects the idea put forward by 'transcendentalists' that metaphysical speculations such as those about whether the world had a beginning in time are merely 'futile' (or in the later jargon of the logical positivists, 'meaningless') though he agrees that they are distinctive in being beyond empirical verification. He thinks it obvious that such claims must be treated 'realistically' (as we would now say) since they are palpably true or false whether we can determine the matter or not.

On the other hand, it is clear that he thinks some metaphysical claims less defensible than others, and his tone is typical of the commonsensical and analytical tradition of British philosophy, as, for instance, in his comments on Hegel's philosophical account of the tides. Here is Hegel as cited by Sidgwick: 'the moon is the waterless crystal which seeks to complete itself by means of our sea, to quench the thirst of its arid rigidity, and therefore produces ebb and flow' ([5.8], 89). Here is Sidgwick's comment: 'Now I do not propose to discuss the truth of this remarkable contribution to the theory of tides. What I wish to point out is that it appears to be clearly incapable of empirical verification, direct or indirect. The alleged effort of the moon to complete itself and quench its thirst has no connection whatever with any part of the system of laws by which physical science explains the empirical facts of terrestrial and celestial motions' ([5.8], 89). The interest of this passage lies not only in its anticipation of later analytical, pragmatist and logical positivist attitudes to the windy nonsensicalities of Hegelian metaphysics, but in its ironic dryness of tone. Compare William James, writing in 1908, in more direct terms:

> But if Hegel's central thought is easy to catch, his abominable habits of speech make his applications of it to details exceedingly difficult to follow. His passion

> for the slipshod in the way of sentences, his unprincipled playing fast and loose with terms; his dreadful vocabulary, calling what completes a thing its 'negation', for example; his systematic refusal to let you know whether he is talking logic or physics or psychology, his whole deliberately adopted policy of ambiguity or vagueness, in short: all these things make his present-day readers wish to tear their hair—or his—out in desperation. Like Byron's corsair, he has left a name 'to other times, linked with one virtue and a thousand crimes'.
>
> ([5.22], 513).

Sidgwick would probably have applauded the sentiments, though he could never have brought himself to use so abusive a tone.

Sidgwick wrote extensively in a variety of fields from metaphysics to political economy, and I shall later look briefly at some of these other areas. His historical perspective, learning and broad intellectual sympathies are evident in his *Outlines of the History of Ethics for English Readers*. This began life as a long entry on 'Ethics' for the ninth edition of the *Encyclopaedia Britannica* and was produced as a book in 1886. In spite of its modest title and relatively modest length, it is an absorbing piece of philosophical and intellectual history, and throws light upon Sidgwick's own work in moral philosophy. None the less, it is in ethics itself that his claim to fame securely rests, so we must turn to his masterwork, *The Methods of Ethics,* first published in 1874 and revised extensively throughout six editions. As is customary, I shall treat the final, and posthumous, seventh edition (which is basic-ally the sixth with a few minor editorial amendments) as definitive of his outlook, though there is much in the earlier editions that is instructive for a fully balanced view of the work. The basic aim of the book is the examination of three distinctive methods of approaching ethics—the intuitional, the utilitarian and the egoistic. Sidgwick professes not to be advancing an argument for the best method, but it is apparent that he regards both utilitarianism and egoism as more suited to the task of providing a rational or scientific basis for morality than any traditional form of intuitionism, though, as we shall see, his version of utilitarianism itself contains a strong intuitional dose.

COMMON SENSE, UTILITY, AND INTUITION

It is impossible here to summarize further or comment closely upon so large and dense a work, so I shall instead examine in some detail three central philosophical claims of Sidgwick's that are prominent in it. I have chosen them because they are distinctive of his outlook, arise from the intellectual debate of the time and yet remain important for contemporary moral philosophy. All three involve deep tensions, even conflicts, in moral theorizing, two of which Sidgwick thought he had solved but one of which he confessed himself defeated by. The first concerns the relation between utilitarianism and intuitionism; the second concerns what has been called the publicity principle; and the third concerns the clash between the demands of self-interest and morality.

Sidgwick was a convinced utilitarian but he was not a particularly reformist, and certainly not an iconoclastic, utilitarian. He was inclined to see utilitarianism not as

vanquishing other outlooks but as accommodating and explaining what was best in them. Up to a point, he is a strong defender of common sense, and part of the project in *The Methods of Ethics* is to reconcile utilitarianism with what he called common-sense morality. This latter he defined as 'a collection of [such] general rules, as to the validity of which there would be apparent agreement at least among moral persons of our own age and civilisation, and which would cover with approximate completeness the whole of human conduct'. Imposed as a code by the public opinion of a particular community, this would count as that community's positive morality, but 'when regarded as a body of moral truth, warranted to be such by the *consensus* of mankind,—or at least of that portion of mankind which combines adequate intellectual enlightenment with a serious concern for morality—it is more significantly termed the morality of Common Sense' ([5.5], 215). Sidgwick was impressed with the broad adequacy of common-sense morality, though he thought that from an ideal point of view there were certain significant imperfections in it. None the less, he thought that when we reflected on the demands of common-sense morality we would see that various inconsistencies and contradictions within it were eliminable by recourse to the principle of utility whilst, at the same time, the principle made the appeal of the common-sense requirements intelligible and rationally defensible. As he says in the Preface to the sixth edition of *The Methods of Ethics*, 'the reflection on Common Sense Morality which I had gone through, had continually brought home to me its character as a system of rules tending to the promotion of general happiness' ([5.5], xx). Consequently, he asserts that 'The utilitarian must repudiate altogether that temper of rebellion against the established morality, as something purely external and conventional, into which the reflective mind is always apt to fall when it is first convinced that the established rules are not intrinsically reasonable' ([5.5], 475).

He sees much of what he is doing in his writings on ethics as rescuing morality from the charge of irrationality. In this and other of his convictions he is a typical Victorian: unable to believe in traditional, orthodox Christianity and aware that its grip on ordinary people was loosening, he wanted morality detached from religion and made secure by appeal to reason alone. His hope was that the principle of utility would ground ordinary morality in intuitively obvious considerations of rationality. To this end he devotes a considerable part of *The Methods of Ethics* to the justification of traditional virtues on the grounds of their social utility. So, he argues that the various virtues can be grounded in the human goods they characteristically promote, and here he is self-consciously Aristotelian. (He tells us in an autobiographical statement that it was after rereading Aristotle that he decided to emulate his examination of the common morality of his own society.) Some governing moral theory was still needed however because, left entirely to itself, common-sense morality shows a tendency to internal conflict or inconsistency.[2]

Inasmuch as traditional intuitionists like Whewell believed that intuitionism was required to support common-sense morality since basic parts of it would otherwise be undermined by utilitarianism, then Sidgwick's arguments, if successful, seem to make the appeal to intuition against utility unnecessary. None the less, this appearance is, as Sidgwick recognized, somewhat deceptive since there remains the problem of the justification for appealing to the principle of utility in the first place, and here, Sidgwick admits, we must once more have recourse to intuition. Where the intuitionists appealed to

a plurality of intuitions to determine the various duties, virtues and prohibitions of traditional morality, Sidgwick claimed to be able to prove their validity on the basis of their contribution to human pleasure over pain, and almost on that basis alone. But this primal duty cannot itself be so recommended and, he concludes, its truth is known by intuition. So Sidgwick's utilitarianism has itself an intuitionist basis. Moreover, I used the qualification 'almost' above in reference to Sidgwick's basing morality upon the principle of utility, and the qualification is necessary because Sidgwick also recognizes as basic certain formal features of morality that are also revealed by intuition. These include for instance such 'axioms' as a principle of universalizability (as it would now be called) and a principle of temporal indifference which dictates that 'a smaller present good is not to be preferred to a greater future good' ([5.5], 381). If you are unhappy with the appeal to intuition, then Sidgwick can offer you a great reduction in its scope, but he cannot eliminate it altogether.

Sidgwick's compromise is not only distinctive but it poses a problem that continues to confront modern moral philosophers. Contemporary utilitarians are not attracted to Sidgwick's solution because, along with many other philosophers, they are uncomfortable with any appeal to intuition, at least if the intuition is taken to be a guarantee of truth or reliability. A fashionable response is to build one's utilitarianism upon a subjective base. This move is reinforced by the appeal to a distinction between meta-ethics and normative ethics. One's analysis of the moral vocabulary, particularly its fundamental but abstract categories, the so-called 'thin' concepts such as good, bad, right and wrong, are allowed to be specified as the individual chooses, constrained only by such formal limits as that they are terms of commendation or denunciation (or 'discommendation'). There is also a constraint of universalizability, but it is usually seen as delivered by logic or conceptual analysis of the moral vocabulary. The utilitarian has decided that the terms will be given normative content by recourse to the utilitarian principle, and, of course, hopes that this recommendation will have broad appeal. If not, there is nothing more to say to those who choose different material content for the moral terminology. One may try accusing them of irrationality, but since this term itself is essentially evaluative, the manoeuvre is easily dismissed by reminding the utilitarian of his or her own subjectivist meta-ethical commitments. Of course it may not be too clear why an appeal to intuition has anything over an appeal to feeling. If someone disagrees with you about a basic moral matter then the insistence that your view is a matter of rational intuition seems no more or less impressive than the assertion that you feel very strongly about the matter. I think that a good deal here turns upon what more can be said about intuition to contrast it with strong feeling and also what the disputants hold about other areas of human thought. If someone thinks (more or less with Hume) that, in the end, most human cognitive procedures turn upon proclivities of human psychology that are non-rational, then they will not be inclined to isolate ethics from natural or social science, or even from mathematics. If ethics is as much (or as little) a matter of rational understanding as natural science then in the face of this (rough) equality it may matter less whether we think of its foundations or principles in terms of powerful feeling, rational insight, or even some other resort, such as Wittgenstein's 'form of life'.

Another aspect of Sidgwick's treatment of common sense that deserves mention concerns the important allegation that common-sense morality is internally inconsistent,

and hence needs to be supplemented by a consistent, overarching theory. Since it is dubious that common sense is itself a theory of any sort, it is a little unclear what this could mean, and sometimes Sidgwick seems rather to mean that the theory of intuitionism is inconsistent. For the most part, however, his point seems merely to be that common-sense morality does not provide decision procedures to settle complex problems of what would once have been called casuistry. So, for instance, common-sense morality tells us that lying is wrong, but also tells us that we should do no harm to the innocent, and notoriously there can arise circumstances in which (on certain understandings of them) these duties appear to be in conflict. I am a UN 'peacekeeper' in the former Yugoslavia during the civil wars in the early 1990s that resulted from the demise of communism, and I have confidential information that a Bosnian female child is hiding nearby from a troop of Serbian irregulars, known to practise rape and murder against such as her, and they ask whether I know the where-abouts of any Bosnian civilians in the vicinity. If I tell the truth, she is doomed, if I refuse to answer, their suspicions will be dangerously aroused, but if I lie she has a chance of survival. (For Sidgwick's discussion of common sense and 'unveracity' see [5.5], 448–9.)

SIDGWICK'S PARADOX

The second claim concerns what I shall call 'Sidgwick's paradox' since he referred to it himself as paradoxical. The problem is a specific but very special case of the refinements of utilitarian theory required partly by the condition that it be sensitive to the data of common-sense morality but even more by the adaptation of the utilitarian principle itself to the requirements of human nature and circumstance. One such adaptation leads, for instance, to motive utilitarianism where the primary focus of the utility principle is on motives and other human dispositions that can themselves be argued to maximize utility. On a simple (perhaps simple-minded) act of utilitarian analysis it may be best for a group of discreet sadists to torture an orphan child to death in the privacy of their club cellar with no prospect of the victim's sufferings disturbing others or of word of it getting abroad. Yet this indirect version of utilitarianism could argue that the cultivation or further entrenchment of sadistic dispositions is bound to be productive of worse outcomes for society than could be warranted by the short-term gain in the utility of the group here directly affected by the act of torture. Now it seems to me unlikely that this sort of manoeuvre is, in general, going to succeed in showing that such acts are morally wrong, or, even if it did, in explaining *what* is wrong with them. (There is indeed an air of absurdity in the way the explanation takes us away from the specific wrong done to the child and focuses on some general harms that might be produced by the prevalence of such habits in the perpetrators and others.) None the less, I shall not pursue this debate here; I mention it only to illustrate the path taken by indirect forms of utilitarianism as a preliminary to discussing Sidgwick's paradox. The point to be noted is that the dictates of the utility principle, properly understood, are not always what they might at first blush seem. Certain deeds that do not seem to be utility-maximizing may none the less prove to be so if we think more subtly and widely about the matter, but Sidgwick's paradox, though it incorporates this simple reflection, takes us into far more turbulent waters.

The paradox can be briefly stated as the fact that the truth of the utility principle may require that almost no one accept it as true. If the utility principle is true then (almost) no one should believe it, and if it's not true then no one should believe it, so whatever its status no one (or almost no one) should believe it. Put in terms of rationality, the paradox tells us that the most rational way for lives to be conducted is by the utility principle, but this is only possible if (almost) no one conducts their lives by reference to the principle. This paradoxical outcome of the Sidgwick inquiry is the limit case, so to speak, of a general tendency within the utilitarian enterprise to require the existence of dependable moral rules and accompanying behaviour as a background to the occasional beneficial utilitarian violation of them. Given certain empirically plausible assumptions about human nature and the likely effects of making public the utilitarian basis of all morality, it will then quickly emerge, on utilitarian principles, that the rational necessity for violation is something that should not be generally known. If it were to be known then the broad commitment to morality for its own sake, on which wide conformity to moral norms seems in part to rest, might well be undermined, and the overall effect be disastrous from the utilitarian point of view.

Peter Singer, writing in the spirit of Sidgwick, gives as an example the case in which a professor gives a student a higher grade than his work merits 'on the grounds that the student is so depressed over his work that one more poor grade will lead him to abandon his studies altogether, whereas if he can pull out of his depression he will be capable of reaching a satisfactory standard' ([5.31], 166). Singer concludes that this may be the right action but, if so, it would be wrong for the professor to advocate publicly such behaviour because then 'the student would know that the higher grade was undeserved and—quite apart from encouraging other students to feign depression—the higher grade might cheer the student only if he believes that it is merited' ([5.31], 166). Leaving aside the professor's quandaries when the student continues cheerfully to submit inferior work that he now believes to be adequate, we may note that Singer quotes Sidgwick approvingly here as saying that 'the opinion that secrecy may render an action right which would not otherwise be so, should itself be kept comparatively secret' and he thinks it has an air of paradox to maintain that 'it would be right for an individual to do secretly what it is also right for the public code of ethics to condemn' ([5.31], 166). Singer consoles himself with the thought that the paradox does not belong to the secrecy doctrine itself but to the attempt to state it publicly which will be subversive of the public code that the same doctrine says must be supported. In a surprisingly ebullient fashion he goes on to acknowledge that his own public stating is a piece of wrong-doing, but perhaps the cheerful air with which he makes this confession of wickedness is sustained by the belief that only utilitarians will read the book. In any case, the furtive stance can hardly be quarantined to specific violations of public codes, as Singer seems here to show a tendency to believe. Sidgwick, at any rate, is clear that the general acceptance of utilitarianism as the rationale for morality by ordinary people might be a disaster in utilitarian terms. He is explicit that, granted the assumptions mentioned earlier, the truth of utilitarianism must be kept secret by the elite who have discovered it. So he says: 'And thus a Utilitarian may reasonably desire, on Utilitarian principles, that some of his conclusions should be rejected by mankind generally; or even that the vulgar should keep aloof from his system as a whole, in so far as the inevitable indefiniteness and complexity

of its calculations render it likely to lead to bad results in their hands' ([5.5], 490). In Derek Parfit's terminology, utilitarian theory would then be 'self-effacing' ([5.27], 40–3), at least for the vulgar. It would of course be different, according to Sidgwick, in what he calls 'an ideal community of enlightened utilitarians' ([5.5], 490), but he was realistic enough to see this prospect as remote from the real world.

So much for the genesis of the paradox, what about its status? One interesting fact about the puzzle is that it has an interesting formal affinity to a puzzle in epistemology. The traditional epistemologist is interested in whether and how it is rational to trust to the deliverances of our cognitive powers, such as perception, memory and so on. But it is often unclear whose rationality is here at stake. When some complex proof is provided of the rationality of relying upon the senses for knowledge, is the theorist's possession of the proof supposed to show that everyone is rational to trust their senses even if they have never encountered the proof and wouldn't (perhaps) understand it if they did? Or is only the theorist rational to trust the senses or memory?

Perhaps the best thing to say is that the theorist's justification (if correct) shows that the practice is rational but not that the practitioners are rational in following it. There are echoes here of the debates about internalist versus externalist justificatory analyses of knowledge. On an externalist account it is enough to show that the justificatory relation, be it causal relation, reliability connection or whatever, obtains between the practice and what it is supposed to deliver. By contrast, internalist theorists maintain that the putative knower cannot be said to know unless he or she at least has some grip on what the relation is, and perhaps why it justifies the relevant belief. As regards rationality, the externalist can rest content with the discovery that the practice is rationally grounded and the rest of us can get on with doing what we always have done. The internalist is likely to be more missionary about the matter since he or she must be worried by the thought that all the other practitioners are not behaving rationally in trusting their senses, memory or word of others. Their procedures can be rationally justified, but their ignorance of the justification suggests the disturbing thought that *they* are not rationally justified in using them. Yet although the externalist is likely to be less missionary, he or she will have no antipathy to the promulgation of his or her discovery. There is nothing in his or her position that demands that the discovery be withheld from the masses, and it would surely be surprising (to say the least) if this were so. For an externalist, the practitioners may not need an understanding of the rational basis of their cognitive practices in order to be acting rationally but such understanding could hardly make the practitioners' behaviour thereby less rational.

Interesting as this issue is, we have the sense that it doesn't matter a whole lot if the ordinary person has no access to the philosopher's proof, since the ordinary person doesn't usually raise the question of rationality here. From the point of view of the philosopher, it is enough that the rationality of the procedures can be demonstrated. The philosopher is, after all, the one worried about the justificatory question, and he or she, just as much as the ordinary person, has no practical doubts about the general viability of the perceptual and memory practices, nor any alternative to persisting with their use. This is the first point of contrast with morality. The contrast is not perhaps as vast as is often made out, but exists none the less. It is not so vast because ordinary people must use values; they (like the philosopher) must act for this reason or that, and so will not be

paralysed by the failure to have some general rationale for their ethical choices. Yet there remains a contrast, because our resort to values is not as constrained and automatic as our resort to perceptual and memory practices. As Sidgwick himself recognizes in the first chapter of his book, 'Men never ask, "Why should I believe what I see to be true?" but they frequently ask, "Why should I do what I see to be right?"' ([5.5], 5). In putting the question 'How should I live?' at the centre of ethics, Socrates rightly emphasizes that there are deeper level questions about the right way to conduct our lives that every person is free to raise and which present genuine options for action depending upon the answers given. Consequently, the interest of the philosopher's question about the rational justification of our moral practices is inevitably less specialist and confined than the otherwise parallel epistemological questions. When the theorist decides that the utility principle is what justifies the practices, then the answer can hardly be considered irrelevant or unimportant to the questions ordinary people are quite often drawn to ask.

ASSESSING THE PARADOX

None the less, they cannot be told, and we must ask whether this gnostic elitism is logically or morally suspect. Certainly, it violates what, since Kant, has been thought of as a basic requirement of a moral system, namely, the publicity principle. In the second appendix to *Perpetual Peace*, first published in 1795, Kant states this as follows: 'All actions affecting the rights of other human beings are wrong if their maxim is not compatible with being made public' ([5.24], 126). This would clearly rule out Singer's specific case, but also the esoteric secrecy of the utilitarian principle itself which seems to be a maxim for conduct in Kant's sense. If the publicity principle is a logical or conceptual condition for any moral system then this seems fatal to Sidgwickian utilitarianism, but it might be argued that the shoe is on the other foot, since the viability of Sidgwickian utilitarianism shows the publicity principle to be mistaken as such a condition. In any case, attractive as the publicity principle seems to be, there are certain 'local' counter-examples to it. For example, there are good reasons for allowing that the legal authorities should not even bring to prosecution certain cases that qualify as legally severe offences, such as mothers who kill their babies whilst in a state of extreme post-natal depression. But although this may be sound public policy, it may also be sound public policy not to make it public knowledge. Again, it may be good public policy in certain circumstances to deal secretly with terrorist groups, but bad policy to make it known that this is your policy. I am inclined to think that examples like these are acceptable only because they fall under more general maxims that can, and perhaps should, be publicly avowed. I will not try to spell these out here, but principles of mercy and avoidance of futility in punishments are relevant to the first example, and certain broad rules of conflict resolution to the second. What is harder to swallow is precisely what is at issue in the Sidgwick paradox, namely, that the basic principle underpinning the rationality of ethics must itself be kept secret.

One difficulty concerns membership in the elite, and here it is a matter of some astonishment that Sidgwick and other utilitarians seem so little concerned with the consequences of publishing their 'discovery' of the truth of utilitarianism. Sidgwick

seems to have lectured and published his views with no concern for their potentially disastrous consequences upon an audience that could hardly be presumed to be as all-wise, prescient and strong-willed as possession of the dangerous truth requires. But if the easy assumption that their audience will constitute 'an ideal community of enlightened utilitarians' is surprising, it only seems to reflect the hubris involved in the assumption that the theorist is personally worthy of the revelation. After all, capacity to achieve philosophical truth need not correlate with high moral development or the intellectual capacities for calculating consequences that the ideal utilitarian should have. There is a certain aptitude to Bernard Williams's characterization of the outlook as that of the colonial administrator ([5.35], 108–10).[3] The easy assumption by utilitarian theorists that they, and a few of their friends, are uniquely capable of the rationality that would be disastrous if employed by the *hoi polloi* is not so much, or not only, a piece of hubris but a requirement of the theory. After all, if we assume that the principle of utility is the truth that makes morality rational, but that it is a dictate of the principle that *no one* should base their actions upon it, then its supposed truth is entirely insignificant. As Williams has noted, we would then face the conclusion that if utilitarianism is true, then it is better that people should not believe in it, and if it is false it is better that people should not believe in it, so either way no one should believe in it ([5.34], 68). Consequently, the commitment to elitism is the only way to preserve any significant content for the claim that utilitarianism provides for the rationality of morality.

Another way of dramatizing the difficulty inherent in the paradox is to consider what happens to humble theorists who begin to suspect that they may not be members of the elite. If the theorist cannot be certain that he or she is worthy of the revelation, it may be for the best that they take steps to expunge it from their memory, if this is at all possible. Certainly, theorists will have considerable trouble making the distinction, in their own case, between utilitarianism as a theory of justification of the practice of morality, and utilitarianism as a theory of the correct motivation for right action. Once they have realized it provides the former, how can they avoid treating it as an answer, for them, to the latter, even where they have reason to think that this will be for the worst.

In any case, let us suppose that the theorist is personally worthy of the truth, and knows it. How (we might wonder) is he or she to prevent this truth becoming more widely known? One way would be to engage energetically in the refutation of utilitarianism, crusading against it in the cultural journals and the popular press, and advocating the truth of intuitionism. This Sidgwick notably failed to do. Indeed, his character seems to have been so significantly non-utilitarian that his commitments to honesty would have prevented this recourse. Donagan has argued plausibly that Sidgwick's resignation of his Fellowship at Trinity College over the religious test issue illustrates this aspect of his character and thought ([5.17], 459–60). As Sidgwick himself said at the time in correspondence on the matter after reviewing certain general arguments for and against resignation: 'After all, it is odd to be finding subtle reasons for an act of mere honesty: but I am reduced to that by the refusal of my friends to recognise it as such' ([5.30], 201). This fact is of more than biographical interest, because it shows that, for the theorist himself or herself, the split between motivational and justificatory outlooks is impossible to maintain, as is the related distinction of which Sidgwick, and later Smart and Singer, make so much between reasons for acting (on the one hand) and reasons for praising and

blaming (on the other). When the utilitarian claims that it may be right to do some act but also right to condemn it publicly, then we are entitled to ask what sort of attitude utilitarian agents can take towards their own commitment to such an act. They must stand ready to do such acts in spite of having cultivated a strong tendency to condemn them. The difficulties involved here are unwittingly displayed in one of Sidgwick's own comments. Noting that it may be expedient that divergent codes should exist within a society, Sidgwick writes that 'it may conduce most to the general happiness that *A* should do a certain act, and at the same time that *B, C, D* should blame it. The Utilitarian of course cannot really join in the disapproval, but he may think it expedient to leave it unshaken; and at the same time may think it right, if placed in the supposed circumstances, to do the act that is generally disapproved' ([5.5], 491). But the assertion that the utilitarian cannot join in the disapproval is simply wrong if it means that the utilitarian cannot publicly blame the act, though ready to do it himself. After all, that is the point of distinguishing reasons for acting from reasons for blaming. Sidgwick's lapse from the letter of consistency here is a testament to the moral integrity and psychological sanity he possessed but felt obliged by theory to ignore.

There is a related issue here that deserves some attention and it concerns the possible transition from a situation in which the vulgar are incapable of receiving the truth of utilitarianism to one which might qualify as inhabited by an ideal community of enlightened utilitarians. It is unclear in Sidgwick whether this is thought to be a real possibility or not, though several passages suggest that he thought it was. If so, then the set of attitudes involved in the paradox seem to make the transition impossible except by magic. Certainly it is hard to see how it could be effected by reasoning or education.

THE FINAL PUZZLE

The third puzzle might itself be called a paradox. It concerns a kind of contradiction that Sidgwick affects to find at the heart of ethics. He establishes to his own satisfaction that basic intuitions deliver the rational self-evidence of the fundamental utilitarian principle that he calls the Principle of Rational Benevolence. As we have seen, this enjoins us to 'aim at the happiness of other human beings generally', but for present purposes I do not want to challenge its utilitarian basis, since the problem Sidgwick poses is to some extent independent of his formulations. Let us just think of the principle as one that enjoins us to aim sometimes at the happiness of others, even where this course of action conflicts with the promotion of one's own narrowly conceived good. Although Sidgwick thinks that it is rational to act on this principle and to base one's ethic and life upon it, he cannot rid himself of the thought that it is *also* rational to base one's life and ethic upon the Principle of Egoism, which requires an agent to choose the course of action that will most promote his or her good (and for Sidgwick this means his or her pleasure). Yet Sidgwick plausibly believes that these two principles are in conflict; they are, in a sense, logically incompatible, but both, he thinks, are self-evidently true. Opinions will vary about how compelling the case is for either of these principles, and certainly the case for a benevolence or an egoism as demanding and far-reaching as Sidgwick intuits seems to me to be fairly weak. None the less there is a strong case for there being some altruistic

principle at the heart of ethics and this seems likely to be incompatible with any strong version of egoism, and egoism has a long history of appeal as a basic dictate of rationality. (Despite its popularity and longevity, there are, I suspect, serious difficulties in formulating and defending a version of egoism that is at once coherent and ethically challenging.) Supposing however there to be the clash between the egoist and altruistic principles, however refined in detail, then what of Sidgwick's enterprise? He himself sees it as threatened and sees no way of defusing the problem by recourse to the internal logic of the two positions. In so far as he has a solution it consists in the appeal to what he calls a postulate that is required to save the consistency of ethics as a basic department of human thought. This is the postulate of a benign God who reconciles duty and self-interest, or, more antiseptically, a benign Order to the universe in which the reconciliation is achieved.

Does this work? C.D.Broad objects that the two principles remain inconsistent regardless of the existence of God who cannot alter their self-evidence and hence 'something which appeared self-evident to Sidgwick must have been false'. Broad also points out that the postulate might comfort us by showing that it is a matter of 'practical indifference' which of the principles is false, but thinks that this gives us no 'adequate ground' for making the postulate ([5.15], 253).

There are at least two separate elements in the problem, and in Broad's objection, that need to be separated. Firstly, would the existence of a God with the usual attributes of the Christian theistic tradition, benevolently disposed towards human beings, solve the paradox? Secondly, if the answer is 'yes', is this fact sufficient to accept such a God's existence? On the first point, there is a level of understanding the problem at which the answer may well be 'yes', and at which level Broad seems to have missed the point. Call it level A. This is the level at which we may ask whether the actual maximization of an individual's good is always compatible with the maximization of the good of all; or, if there are problems with the concept of maximization here, whether optimizing the individual good is always compatible with optimizing the good of all. What Sidgwick has in mind here is that the sort of God in question will have so arranged the world that individual and communal well-being ultimately harmonize. If so, then there can be no actual clash between action that really promotes one's own good and action that really promotes the good of others. If people acted to achieve what was really their own good they would in fact be acting for what was really the good of others and vice versa. At this level, what happens to Sidgwick's self-evident principles is not that he is wrong about one of them but it doesn't matter which, but rather that they are both true, and possibly self-evident, and it is the appearance of a contradiction between them that is wrong.[4]

But this reconciliation leaves us with a problem about how to conduct our lives here and now that is reminiscent of the shifting relations between justification and motivation that plagued the discussion of the earlier paradox. For consider the agent who is persuaded of the reconciliation achieved at level A. She knows that acting from self-interest and from altruism are ultimately in harmony, but what is she to do now in a situation in which they appear to clash? At this phenomenological level (call it B) it would surely be wrong to leave her free to choose either course of action on the grounds of the perceived reconciliation at level A. If we say that she should rather choose self-interest, in the cheerful hope of the reconciliation offered by God, we have something

like Ayn Rand's picture of ethics, or, at a cruder level still, that of economic rationalism and the 'invisible hand'. If we urge the altruistic road, we have something closer to utilitarianism, but the problem is that neither road is mandated at the motivational level by the reconciliation at the justificatory level. The problem could be resolved if we had a revelation from God that utilitarianism was the way to go, or that common-sense morality embodied (ultimately) the path of reconciliation, but in the absence of this, the problem remains. (Butler, to whom Sidgwick is considerably indebted, seems to have thought that conscience constituted such a revelation.)

Finally, on the second point, Sidgwick does not argue that the Deistic postulate (or some postulate not involving a personal God that serves the same function) should be made because it is comforting, but rather that its viability depends upon certain very general considerations of fundamental epistemology. As he puts it:

> 'Those who hold that the edifice of physical science is really constructed of conclusions logically inferred from self-evident premises, may reasonably demand that any practical judgements claiming philosophic certainty should be based on an equally firm foundation. If on the other hand we find that in our supposed knowledge of the world of nature propositions are commonly taken to be universally true, which yet seem to rest on no other grounds than that we have a strong disposition to accept them, and that they are indispensable to the systematic coherence of our beliefs,—it will be more difficult to reject a similarly supported assumption in ethics, without opening the door to universal scepticism.
>
> ([5.5], 509).

Sidgwick's own employment of self-evidence and intuition, and his general picture of the attempt to produce a 'science of ethics', clearly incline him to the first outlook, but he is well aware of the attractions of the second, and its relevance to the problem he confronts. If what we mean by the rationality of our fundamental cognitive and scientific practices gets back to a deep tendency to accept that they are coherent even where there is no further argument to accept them, then the same grace should be extended to ethics. It is even possible, to return briefly to our earlier reflections on Sidgwick's attitude to religion, that a similar grace could be extended to God.[5]

APPLIED ETHICS

Sidgwick's work in economics is now of principally historical interest, but his political philosophy is more important, though much less influential than his ethics. His views on immigration policy, liberalism and war have all been referred to in recent writings. It is also significant that, although he stands at the beginning of the academic professionalization of philosophy that has been extravagantly praised and equally as extravagantly bewailed in recent years, he saw this as no impediment to involvement, as a philosopher, in issues of broad public concern. The picture of the analytical philosopher as professionally unconcerned with public life and its intellectual problems, and as

having nothing distinctive to add to the public debate, was not his. Here he was at odds (as on many other things) with his contemporary F.H.Bradley who proclaimed in 'My Station and its Duties' in 1876 that 'there cannot be a moral philosophy which will tell us what in particular we are to do, and…it is not the business of philosophy to do so. All philosophy has to do is "to understand what is", and moral philosophy has to understand morals which exist, not to make them or give directions for making them' ([5.14], 193). Sidgwick's view was more nuanced, and would have set him apart from a powerful mood within analytical ethics that really began with G.E.Moore—who once claimed that 'The direct object of Ethics is knowledge and not practice' ([5.25], 20)—and prevailed until the 1970s. Quite apart from his interest in political philosophy and his broad commitment to utilitarianism, he was a member of the Ethical Societies in London and Cambridge which were groups, including academics, professional people and figures in public life, that met regularly to discuss papers read by members on matters of public import. The British groups were modelled on the Societies for Ethical Culture that had been earlier established in the USA and led to the founding of the philosophy journal now known as *Ethics*.

Sidgwick's contributions to these discussions were very much in the spirit of what would now be called 'applied philosophy', and a number of his addresses were collected and published in 1898 (with a second edition in 1909) in the book *Practical Ethics*. In this, Sidgwick discusses specific issues of public concern from a philosophical perspective and also ponders the general question of the appropriate role for philosophy in the discussion of such matters. This is a question that considerably exercises contemporary philosophers and non-philosophers, both those who favour the involvement of philosophers in 'practical ethics' and those who oppose it. Sidgwick's discussion of it is characteristically acute and careful. He states the problem as that of determining 'the proper lines and limits of ethical discussion, having a distinctly practical aim, and carried on among a miscellaneous group of educated persons, who do not belong exclusively to any one religious sect or philosophical school, and possibly may not have gone through any systematic study of philosophy' ([5.9], 5). His suggestion is that such inquiries should avoid attempts to get 'agreement on the first principles of duty or the Summum Bonum' ([5.9], 4), and rather strive to clarify and elucidate that fairly extensive agreement in the details of morality we find already existing 'both among thoughtful persons who profoundly disagree on first principles, and among plain men who do not seriously trouble themselves about first principles' ([5.9], 6). Sidgwick believed that this technique could 'get beyond the platitudes of copybook morality to results which may be really of use in the solution of practical questions' ([5.9], 8). He thought that would lead to the development and refinement of 'middle axioms' of moral thought ([5.9], 8), and, though Sidgwick does not acknowledge that this reference is to a technical term used by late medieval theologians in expounding the nature of the art of casuistry, he later explicitly compares the activity of 'practical ethics' to the work of casuistry, understood as 'the systematic discussion…of difficult and doubtful cases of morals' ([5.9], 17). This comparison is a striking anticipation of very recent writings on the nature of applied ethics, and Sidgwick goes on to offer a partial defence of the older theological casuists against their seventeenth-century detractors that itself anticipates the work of Jonson and Toulmin one hundred years later. Curiously enough, Jonson and Toulmin, in apparent

ignorance of *Practical Ethics*, treat Sidgwick as an outright enemy of casuistry, and the source of many of the difficulties that modern moral philosophers have had in coming to grips with the realities of practical ethics ([5.23], 279–81).

It may of course be that there is some tension between Sidgwick's later views and his enterprise in *The Methods of Ethics*, so it is worth pausing here to wonder at the relevance of Sidgwick's sane comments on the viability of practical ethics to his earlier critique of the inconsistency of common-sense morality. Sidgwick, as we saw, argued in *The Methods of Ethics* that common-sense morality needed somehow to be supplemented by utilitarianism in order to overcome its inconsistencies, at least in the sense that a decision procedure was needed to adjudicate between the differing dictates of ordinary virtues or rules. Yet, it seems that we need no such ultimate appeal for the complex problems confronting practical ethics since casuistic analysis and, at most, reasoned appeal to 'middle axioms' can do the trick. This suggests that the drive in Sidgwick's pure ethics towards a sort of foundationist rationality may well be generated by a non-existent problem, or by the conflating of several different problems. He was right to insist that moral thought and action cannot always rest content with surface instincts and intuitions, whether individual or communal, but the work of reason, though always implicated to some degree in generality and principle, may here be justifiably more piecemeal, pluralistic and circumstantial than the utilitarian model requires. If so, we may also have reason to review the sharp separation of reason and emotion to which the model (and, as we saw, Sidgwick personally) is committed. It is indeed arguable that this might require some adjustment in our understanding of philosophy itself, particularly in relation to the activities of the practical intellect, and here the tension in Sidgwick's thought points towards an area of unresolved current debate.[6]

Several of the other more specific essays in *Practical Ethics* discuss topics that have also recently been subjects of passionate debate amongst contemporary philosophers with an interest in applied philosophy or political ethics. There is an essay on the morality of war ('The Morality of Strife'), on dirty hands in politics ('Public Morality') and on philosophy, science and culture ('The Pursuit of Culture'). Two apparently more remote papers, 'The Ethics of Religious Conformity' and 'Clerical Veracity', in fact canvass issues of professional ethics that are much with us today, and the essay on 'Luxury' is interestingly related to later debates about the role of elites. The final chapter on 'Unreasonable Action' is an excellent discussion in the philosophy of moral psychology of the age-old but currently fashionable topic of akrasia. It is unfortunate that these essays are not better known (*Practical Ethics* has not been reprinted since the early twentieth century) because they are all thought-provoking, and the essays on 'Public Morality', 'The Morality of Strife' and 'Unreasonable Action' are outstandingly good.

In addition to this sort of involvement in public issues, Sidgwick was also energetic in the practical pursuit of various public causes, most notably the higher education of women. He was instrumental in opening up university education at Cambridge for women, and was not only one of the founders of Newnham College (the first women's college established in Cambridge) but contributed a good deal of money to its foundation. He was also heavily involved in university affairs, and served on several government commissions of inquiry.

G.E.Moore attended Sidgwick's lectures and apparently thought them dull, and

Sidgwick, on hearing that Moore was producing a book on ethics, said he thought it would be acute, but expressed the view that Moore's '*acumen*-—which is remarkable to a degree—is in excess of his *insight*' ([5.28], 17).[7] Sidgwick was sharp enough himself, however much his patient capacity to explore every aspect of a question could often inhibit a sparkling style, but above all he craved insight. The aim of his intellectual endeavours had been, he wrote two weeks before his death, 'the solution, or contribution to the solution, of the deepest problems of human life' ([5.30], 33–4). He was disappointed that he had not done more to fulfil it, but his own evaluation of his achievements has proved notably less enthusiastic than posterity's.

NOTES

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1 The quote is actually from Bagehot, but adapted by Sidgwick to express his view of Green's work.

2 The discussion of this issue is bedevilled by a tendency Sidgwick displays to conflate common-sense morality and the philosophical theory of intuitionism; indeed, in his Index to the *Methods of Ethics* the two are explicitly identified. It is better to treat common-sense morality as providing the pre-theoretical data for a theory of morality in the fashion recommended by Rawls and usually followed by Sidgwick. The moral theory should then accommodate the pretheoretical 'facts', mostly by way of explanatory agreement with them, but sometimes by way of new recommendations that are accompanied by an explaining away of the recalcitrant data.

3 In fact, the influence of the English utilitarians upon colonial policy seems to have been more in the direction of Benthamite and openly interventionist policies of change in local practices, customs and laws. It was not marked by Sidgwick's attitude of cautious, if elitist, conservatism towards existing moral attitudes. For an interesting discussion see Stokes [5.32].

4 Derek Parfit thinks ([5.27], 462) that the problem is real, but can be solved in piecemeal fashion if we recognize that in addition to egoism and benevolence there is a third decision principle that may be used to tip the scales, namely, the principle yielded by what he calls the present-aim theory. Roughly, if it is equally rational to follow the dictates of self-interest and of benevolence, but they don't coincide, and we have a strong present desire to follow either benevolence or self-interest, then we have good reason to follow whichever of the two our coolly considered present aims (desires etc.) favour. The success of this tactic depends on what one thinks of the present-aim theory as a theory of rational action and on how it is distinguished from its competitors, but we cannot enter into this complex question here.

5 C.D.Broad thought that something like this was probably Sidgwick's final position with respect to religious belief ([5.16], 109–10). In support he quotes a letter Sidgwick wrote in 1880 to an old friend, Major Carey, in which after asking, 'What guarantee have you for the fundamental beliefs of science except that they are consistent and harmonious with other beliefs that we find ourselves naturally impelled to hold?' he adds, 'This is precisely the relation which I find to exist between Theism and the whole system of my moral beliefs. Duty

to me is as real as the physical world, though not apprehended in the same way; but all my apparent knowledge of duty falls into chaos if my belief in the moral government of the world is conceived to be overthrown' (109).

6 When discussing the nature of philosophy Sidgwick seems unaware of any such tension and keeps very much to the high ground of abstract rationality. So he writes, in *Philosophy, its Scope and Relations*, 'It is commonly felt that an attempt to work out a complete system of duties would inevitably lead us out of Philosophy into Casuistry: and whether Casuistry is a good or a bad thing, it is certainly not Philosophy' ([5.8], 25–6). In this context, he regards moral philosophy as 'primarily concerned with the general principles and methods of moral reasoning, and only with the details of conduct so far as the discussion of them affords instructive examples of general principles and method' ([5.8], 25). Contemporary philosophers are much less confident about this sort of division in every area of thought. For some contemporary views about the role of philosophy in ethics that are, in different ways, sceptical about the high ground see: Walzer [5.33], Williams [5.35], and Jonson and Toulmin [5.23]. For views still seeking a central role for philosophical reason see Donagan [5.18], Gewirth [5.19] and O'Neill [5.26],

7 Schneewind's book [5.28] is a masterly treatment of the background to Sidgwick's ethical thought, and also gives a careful and sympathetic unravelling of what he understands Sidgwick to be doing in *The Methods of Ethics*.

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CHAPTER 6
Comte and positivism

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COMTE'S AIMS

The chief aim of all of Auguste Comte's publications, and the constant mission of his entire working life, was the improvement of human character through the perfecting of human society. He was convinced that the scientific knowledge available in his own lifetime—the first half of the nineteenth century—was rapidly making possible, and in a sense inevitable, the creation of the most suitable society for the 'social regeneration of Western Europe'. Born in Montpellier in 1798, Comte was both literally and intellectually a child of the eighteenth century who became an adult during the Napoleonic aftermath of the French Revolution. In searching for social salvation by means of the application of science to political and economic questions, Comte was a perfectibilist of a sort that he helped to make typical of his period. The set of beliefs about society that perfectibilists of his kind had inherited from the eighteenth century have been well summarized by John Passmore in *The Perfectibility of Man:*

> Man had until that time been a mere child in respect of knowledge and, in consequence, of virtue; he was now at last in a position, as a result of the development of science, to determine how human nature develops and what is the best thing for human beings to do; this new knowledge could be expressed in a form in which all men would find it intelligible; once they knew what it is best to do, men would act accordingly and so would constantly improve their moral, political and physical condition. Provided only, then, that 'sinister interests' did not prevent the communication of knowledge, the development of science was bound to carry with it the constant improvement of the human condition, to a degree which would be, like the growth of science itself, unlimited.
>
> ([6.50], 208)

Comte is most often remembered now as an early practitioner of the history of science, and as an advocate of the application of scientific method to the explanation and prediction of social behaviour and its institutions. His own opinion of his contribution to society was rather more ambitious in its claims. The nature and scope of these claims are most briefly revealed in a letter that Comte wrote two months before his death in 1857:

> he would in the future sign all his circulars 'Le Fondateur de la religion universelle, Grand Prêtre de l'Humanité,' and he let it be known that his being

> would become more sacred than the Catholic pontiff's. The Pope was only a minister, but he, Auguste Comte, who had discovered the fundamental laws of human evolution, was the very personification of the Great Being.
>
> ([6.43], 267)

Comte's formal qualifications for this role were few. He had spent the years 1814–16 enrolled in the École Polytechnique in Paris, and had absorbed the faith in the power and utility of the current physical sciences which the school's highly distinguished staff were noted for instilling in their students. Expelled as a trouble-maker just before graduation, Comte lived by tutoring in mathematics until he became the secretary and, later, 'adopted son' of Comte Henri de Saint-Simon in 1817, a relationship that lasted until the two men quarrelled and separated a year before Saint-Simon's death in 1825. During those years, and up to early middle age, Comte read omnivorously and was influenced, as he reported, by a group of thinkers—Plato, Montesquieu, Hume, Turgot, Condorcet, Kant, Bonald, De Maistre among others—whose widely different views on many topics he pieced together in the thousands of pages that make up his two major philosophical works, the *Cours de philosophie positive* (1830–42, [6.3]) and *Système de politique positive* (1851–4, [6.1]).

In the last fifteen years of his life Comte read and thought little about the serious philosophical and sociological problems that occupied him earlier. Increasingly detached from scientific friends and philosophic debate by his growing confidence that he was a religious seer, bitter and hostile towards his estranged wife, financially dependent in that period on contributions from French and British well-wishers who included, in England, Sir William Molesworth, John Stuart Mill and George Grote, Comte devoted himself, firstly, to the deification of Clothilde de Vaux, the unhappy woman whom he had befriended and loved during the last year of her life and, secondly, to his detailed proposals in *Catéchisme positiviste* (1852) and the *Politique positive* for creating a society worthy of her character. The one person whose intellectual influence Comte refused to acknowledge was Saint-Simon, the hated collaborator whose ideas Comte had shared and extended, and whose career Comte was destined to duplicate in such unfortunate details as poverty, divorce, mental instability, advocacy of the messianic authoritarianism of a new religion of love and the conviction of being a divinely inspired leader. Of the proposal outlined in the *Politique positive* for the Catholic Church to be replaced by a 'corporate hierarchy' of philosophers with spiritual but not secular power, Mill was highly critical. The proposal required us to rely, he said, 'on this spiritual authority as the only security for good government, the sole bulwark against practical oppression'. The remainder of the book Mill went on to characterize, in a much quoted passage, as

> the completest system of spiritual and temporal despotism which ever yet emanated from a human brain, unless possibly that of Ignatius Loyola: a system by which the yoke of general opinion, wielded by an organized body of spiritual teachers and rulers, would be made supreme over every action, and as far as in human possibility, every thought, of every member of the community, as well in the things which regard only himself, as in those which concern the interests of others.
>
> ([6.49], 221)

How, then, had Comte's attempt to regenerate European society, by the application of the method and results of modern science, reached the stage of evoking such a response from a man who had contributed so greatly to the favourable reception of Comte's ideas in Britain? To answer this question is our major task here.

THE LAW OF THREE STAGES

It is best to begin with the problem that troubled Comte: the disharmony he believed to exist between the backward state of the European social systems with which he was familiar and the advanced state of the scientific knowledge to which he had been exposed in the École Polytechnique. During this period its staff included Gaspard Monge, the originator of descriptive geometry; Louis Poisson, still one of the most famous of mathematical physicists; Gay-Lussac as the professor of chemistry; Ampère, as a chief contributor to electrodynamics; Cauchy, a creator of the theory of functions among many other achievements; and Fresnel, the pioneer of optical research. These were some of the men whose work, both theoretical and applied, was transforming the intellectual and material culture of Europe and was, in Saint-Simon's and Comte's view, also making obsolete the political systems within which it was being conducted. In his two early essays 'A Brief Appraisal of European History' (1820) and 'Plan of the Scientific Operations Necessary for Reorganizing Society' (1822), Comte suggested that the partnership of Catholicism and feudalism that had ruled Europe from the eleventh century was approaching its end. The prosperity of nations and the organization of their intellectual life no longer needed either a military society or its theological superstructure. The rise of industry and the positive—or experience-based—sciences could, and would, replace war and metaphysics as the unifying forces of the new social order. The development of this order could be encouraged if scientists transformed the pursuit of politics into a theoretical science with practical applications, a science that used historical laws to explain and, above all, predict the course of our social existence.

This was the state of affairs for which Comte believed that he had discovered both the correct analysis and the remedy. In the 'Plan for Reorganizing Society' he wrote:

> The fundamental law which governs the natural progress of civilization rigorously determines the successive states through which the general development of the human race must pass. On the other hand, this law necessarily results from the instinctive tendency of the human race to perfect itself. Consequently it is as completely independent of our control as are the individual instincts the combination of which produces this permanent tendency.
>
> ([6.13], 146)

The 'instinctive tendency' referred to here is the tendency of human beings to make full use of their genetic capacities by means of a social life that they develop in a lawlike fashion, but of whose orderly sequence they are largely unaware. People have reached their natural goals and satisfied their innate desires by evolving, over a long history, a

social life in several stages. This conclusion about historical stages is found throughout the eighteenth century. From Vico's description of the necessary course of human history to the later multi-stage views of economic advancement held by Turgot, Quesnay, Mirabeau, Smith, Condorcet and Robertson, interest concerning possible regularities of evolutionary succession in human civilization was intense, and schemes of large-scale historical stages were numerous. By the time that Comte 'discovered' his Law of Three Stages he was familiar with the earlier and similar schemes adapted by Condorcet from Turgot's 'Second Discourse on Universal History' (1751) and by Saint-Simon from Condorcet. Turgot had discerned three stages in the history of human intellectual development:

> Before men were conversant with the mutual interconnection of physical effects, nothing was more natural than to suppose that these were produced by intelligent beings, invisible and resembling ourselves. Everything that happened…had its god…
>
> When the philosophers had recognised the absurdity of these fables…the idea struck them to explain the causes of phenomena by way of abstract expressions like *essences* and *faculties:* expressions which in fact explained nothing, and about which men reasoned as if they were *beings*, new gods substituted for the old ones. Following these analogies, *faculties* were proliferated in order to provide a cause for each effect.
>
> It was only much later, through observation of the mechanical action which bodies have upon one another, that men derived from this mechanics other hypotheses which mathematics was able to develop and experiment to verify.
>
> ([6.57], 102)

In Comte's version, Turgot's scheme of three stages becomes a 'great fundamental law' that governs by 'invariable necessity' the entire development of human intelligence in its different fields. Comte's law is that each of our principal conceptions, each branch of our knowledge, passes in turn through three different theoretical stages: the theological, or fictitious; the metaphysical, or abstract; the scientific, or positive. These are three distinct and opposed forms of philosophical thinking of which the first is a necessary point of departure, the second merely transitional, and the third fixed and final. In the theological stage, the human mind, enquiring into the inner nature of things—the origin and purpose of the impressions that affect us—supposes these phenomena to be the result of direct and continuous action by supernatural agents. In the metaphysical stage, which for the most part is only a simple modification of the first, the supernatural agents are replaced by abstract forces, personified abstractions, inherent in everything, and conceived of as capable of generating and explaining all observed phenomena by referring each one to a corresponding force. In the positive stage the human mind attempts to discover, by combining reason and observation, the laws of phenomena: that is, their invariable relations of succession and similarity. The explanation of facts is simply the establishment of a connection between particular phenomena and some general facts whose number tends to diminish with the progress of science. The perfection of the positive system, towards which it tends unceasingly, but which it will probably never

reach, would be the ability to exhibit all the different observable phenomena as particular cases of a single general fact such as gravitation ([6.8], I, 21–2)

In the *Cours*, Comte advances three kinds of evidence in support of his law. The first is that the positive sciences of the present day still show traces of the two earlier stages. The second is that since the starting point in the education of the individual is the same as that of the species, the principal phases of both are the same, and hence, with respect to the more important ideas, each person is a theologian in childhood, a metaphysician in youth and a scientist in adulthood. The third and most important piece of evidence is that in every age human beings have needed theories with which to connect events, but at the outset of their mental development could not possibly have based their theories on the results of observation. Because a scientific theory must be founded on the observation of phenomena, and they in turn require a theory so that we can notice, connect and retain them, the human mind would have been enclosed in a vicious circle, without any means of escape, if it had not been for the spontaneous development of theological conceptions which provided a primitive solution—a solution that was improved only to a limited extent in the metaphysical era. 'The fundamental character of positive philosophy,' Comte writes, 'is that of regarding all phenomena as subject to invariable natural laws whose accurate detection, and reduction to the smallest number possible, is the goal of all our efforts. Because they are completely inaccessible, it is senseless for us to seek what are called 'causes', whether they be first causes or final causes'. Thus positive philosophy eliminates the useless search for the 'generating causes of phenomena', and tries only 'to analyze exactly the circumstances of their production, connecting one to the other by the normal relations of succession and similarity' ([6.3], I, 25–6)

In objecting to the search for 'generating causes'—or indeed causes in general—Comte is giving a rather limited and special use to the term 'causes'; and he is relying on a simple form of the verification principle with which to exclude such causes. In a genuine science, he says, when we try to explain an obscure fact

> we proceed to form a hypothesis, in agreement, as far as possible, with the whole of the data we are in possession of; and the science, thus left free to develop itself, always ends by disclosing new observable consequences, tending to confirm or invalidate, indisputably, the primitive supposition.
>
> ([6.11] I, 243)

However, when we go on to speculate about causes that are unobservable in principle, such as 'chimerical fluids causing planetary motions', we are introducing factors that are 'altogether beyond the limit of our faculties' and must always remain so.

> What scientific use can there be in fantastic notions about fluids and imaginary ethers, which are to account for the phenomena of heat, light, electricity and magnetism?… These fluids are supposed to be invisible, intangible, even imponderable, and to be inseparable from the substances which they actuate. Their very definition shows them to have no place in real science; for the

> question of their existence is not a subject for judgment: it can no more be denied than affirmed: our reason has no grasp of them at all.([6.11], I, 243)

These unobservable causes explain nothing. To use the idea of an unobservable fluid expanding between molecules as an explanation of the expansion of bodies when heated is to use one mystery to account for another. When we employ such fictitious entities there is a serious risk that sooner or later we shall take them to be real. They are simply examples of the metaphysical forces of whose emptiness we have already been warned ([6.11], 1:244–5).

THE CHARACTER AND ORGANIZATION OF THE SCIENCES

Very little of Comte's Law of Three Stages has escaped criticism. In part, Comte encouraged this by his claims concerning its philosophical importance and the major role that he took it to play in his system. True, he emphasized that the different sciences moved through the three stages at different rates and at different times, and that some sciences—mathematics and astronomy, for example—were already in the positive stage whereas physics, chemistry and biology were only on the verge of entering it. Nevertheless, Comte left the status of his law as obscure as had the many previous advocates of such laws of large-scale, inescapable and fixed stages of social evolution. In his later work it became clear that he believed that the law provided the basis of his social reforms: they, after all, were designed to entrench in the new society the methods and outlook of the final, and positivist, stage of intellectual development. It was much less clear whether Comte's law was merely a classification of three types of explanatory theories, and their accompanying social systems, or whether the law was a testable sociological hypothesis about the three historical phases of human thought. The kinds of evidence that Comte himself produced in support of his law, and the fact that he took it to be a truth that he had discovered, indicate that he believed the law to be the most general and basic of all sociological propositions. In this interpretation it has met with many objections. John Stuart Mill produced a number of them in *Auguste Comte and Positivism* (1865). It was unlikely, he thought, that mathematical theorems were ever thought to depend on the intervention of divine or metaphysical forces to make them true. ([6.47], 47) Nor was it necessary for religious belief to be restricted to the theological and metaphysical stages, for a positive scientist can believe that God always rules by means of fixed laws, and this satisfies the chief characteristic of the positivist phase, namely the belief that every event, as part of a 'constant order', is 'the invariable consequent of some antecedent condition'. So Comte might be mistaken in claiming that every event has a purely natural antecedent condition ([6.47], 15). He was certainly mistaken, says Mill, in not recognizing that in every field some conclusions have always been drawn from observation and experience. For that reason, some portion of every discipline must always have been in the positivist phase ([6.47], 51). However, here Mill's complaint is misguided. As early as 1825 Comte had written: 'In truth, man has never been entirely in the theological condition. Some phenomena have always existed, so simple and regular, that, from the first, he could only consider them as subjected to natural laws' ([6.13], 183)

Later critics have rejected the very conception of a law of social or intellectual evolution. Karl Popper, for example, has argued that all such ‘laws’ are simply trends based on past experience and then projected, unjustifiably, into the future. They are summaries of previous events but offer no basis for reliable prediction. Because these ‘laws’ are actually trends, and thus not accompanied by qualifications that identify the conditions under which the generalizations can be applied, unexpected changes in local conditions can alter the trends and make them inapplicable ([6.53], 105–30) So embarrassing counter-examples need to be warded off by various defences: as being survivals from the past, as having skipped over crucial stages, as having been subject to unusual rates of change. These devices, says Popper, are necessary because the trend-statements themselves can give us no clue as to why the past events to which they refer have ceased to occur; and since the trends are supposed to be the fundamental laws of the system there is no additional law available for explaining why they sometimes do not work. Comte, of course, believed that his law was satisfactory, and he spent a great deal of time and energy in working out what he took to be its ramifications within the various sciences. He also thought that the law made necessary the adoption of certain philosophical principles concerning the nature, organization and application of scientific knowledge. As a result of holding these beliefs, Comte could not agree that the Law of Three Stages was defective without also admitting that its supposed consequences might be mistaken. A large portion of his system would then be exposed to threat.

Attached to Comte’s law is a hierarchical classification of the six basic sciences arranged in the order of their decreasing simplicity, generality and abstractness—or in the order of their increasing complexity, specificity and particularity. First is mathematics; it is followed by physics, chemistry, physiology (biology), and last, social physics, for which Comte later invented the name ‘sociology’. Each succeeding science relies on some of the conclusions and laws of the earlier sciences, but the later science cannot be derived from them and they are independent of it. It is correct to refer to the sciences as ‘earlier’ and ‘later’ because their hierarchical order is the approximate order in which they developed historically. It is also the order of their decreasing precision, and thus of the steps by which human beings advanced from the more precise but simple disciplines to the less precise but increasingly complex fields. More significantly, says Comte, this scheme shows us that there can be no rational scientific education, and hence no great improvement of scientific knowledge, until each science is studied with a knowledge of all the sciences on which it is dependent.

> Physical philosophers cannot understand Physics without at least a general knowledge of Astronomy; nor Chemists without Physics and Astronomy; nor Physiologists, without Chemistry, Physics, and Astronomy; nor, above all, the students of Social philosophy, without a general knowledge of all the anterior sciences.
>
> ([6.11], 1:32)

Moreover, the various sciences must be studied in their proper order. Otherwise, the student will not be able to use the indispensable methods and results of the simpler discipline in attempting to master the succeeding and more complex science. For this

reason the practice of sociology will require the longest, most arduous, preparation and the outstanding ability, and disinterestedness, needed to make use of it.

Comte was by nature and practice an inveterate and indefatigable classifier. Nevertheless, he gives two rational grounds for producing his scheme of classification. One is that by exhibiting the objectives, methods and limits of the different sciences, and their interrelations, we can improve the organization of scientific research. For new work, especially that requiring several disciplines, will be suggested by various features of the general scheme and be fitted into it appropriately. We shall not, for example, waste energy in grappling with topics such as psychology for which there is, and can be, no positive science. The other ground is that the scheme aids us to renovate our system of theoretical education; the student learns the general concepts, procedures and conclusions that belong to the scientific method itself while also learning how they are exemplified in the various sciences. For until 'a certain number of general ideas can be acknowledged as a rallying point of social doctrine, the nations will remain in a revolutionary state'. But once 'first principles' are agreed upon, 'appropriate institutions will issue from them…for the causes of disorder will have been arrested by the mere fact of agreement' and a 'normal state of society' will ensue. ([6.11], 1:16). The disorder to which Comte refers was that marked both by the July revolution of 1830 in which the French king, Charles X, was forced to abdicate in the face of middle-class opposition, and by the proletarian riots during the turbulent years of his successor, Louis Philippe, until he abdicated during the February revolution of 1848.

The sociological significance of Comte's law is that he took each of its three stages to be closely intertwined—for he could not have said causally connected—with the three phases into which he divided European history, phases characterized by the relative strength during each period of the temporal and spiritual (religious or philosophical) authorities. Society in the first phase, dominated from the fourth to the fifteenth century by Catholicism and feudalism, was organized, in its economic structure, for war, and in its intellectual structure for the need of a priestly caste, with its theological knowledge, to share power with the nobles of a military court. The latter demanded 'passive obedience' from the common people, and the former required their 'mental submission'. In the second or metaphysical phase, the Protestant subversion of Papal authority replaced blind faith with a limited degree of intellectual freedom and political authority for the educated or the wealthy. At the same time, free cities, the bourgeoisie and science began their development and interacted with the effects of the Protestant Reformation. In consequence, we are now in the modern phase of industrialism, positive science and political revolutionaries seeking legislative, administrative and social power. Our technological and scientific advances must be matched, therefore, by new forms of social and political authority. These new forms are what Comte believes that he, and perhaps he alone, can offer. He does so in his second major work, the *Système de politique positive*, after having described in the *Cours* the scientific method and knowledge that are to culminate in the positivist society.

However, Comte devoted only two introductory chapters (or lessons), and one later chapter, of the entire sixty in the *Cours* to basic problems in the philosophy of science. These include the scientific status of psychology, the nature of scientific explanation and, of course, the character, scope and application of the Law of Three Stages. Comte

rejected the study of psychology because he took it to rely on unverifiable introspection of the intellectual processes and the passions. To this he objected that 'there can be nothing like scientific observation of the passions, except from without, as the stir of the emotions disturbs the observing faculties more or less'. Nor can there be an 'intellectual observation of intellectual processes. The observing and observed organ are here the same, and its action cannot be pure and natural'. The reason, for this, he thinks, is that 'In order to observe, your intellect must pause from activity; yet it is this very activity that you want to observe'. Unless your intellect can pause, it cannot observe. But if it does pause, there is nothing left to observe ([6.11], 1:12). Of this argument John Stuart Mill complained, many years after his initial enthusiasm for Comte's views had waned, that it is 'a fallacy respecting which the only wonder is that it should impose on anyone'. For if we can learn about the mental life of other people only by observing their behaviour, how can we ever interpret it unless we are allowed to use our knowledge of our own feelings and thoughts? We cannot obtain that knowledge merely by observing our own behaviour. In fact, we obtain self-knowledge both by memory and by our ability to attend to 'a considerable number of impressions at once'. Comte's wish to replace introspection with observation of behaviour, including physiological reactions, neglects the impossibility of then correlating that behaviour with what on his own view is our inaccessible mental life.

Mill recognizes that Comte believes that all mental states are produced by—invariably succeed—states of the brain, and hence that the regularities of succession among mental states necessarily depend upon similar regularities among brain states. Nevertheless, even if this is correct, Mill argues, mental regularities cannot be deduced at present from physiological regularities. We are able to investigate the latter only because we have a better knowledge of the former ([6.47], 63–4). Mill could have added what he also knew: that for all Comte's argument shows, the actual relation between mental states and brain states is the reverse of what Comte believes, and that the latter invariably follow on the former. In any case, the fact that one invariably follows on the other does nothing to make the later regularity either impossible to observe or in some way fictitious. The temporal relation, if any, between the two kinds of regularity is irrelevant to their observability—except that if one of them were unobservable in principle we should find it difficult to establish the temporal relationship.

Comte's dismissal of psychology as a genuine science was not based on the scientific evidence available to him, and the rejection led him to neglect describing what Mill did describe in Book VI of *A System of Logic* (1843), the nature of the relationship between psychological and sociological phenomena—between 'the operations of mental life' and the genuine, or irreducible, laws of society of which Comte was the tireless herald. Comte did assert that the explanation of individual human actions could not be logically derived from supposed 'laws of individual life', whether these laws were psychological or otherwise. For individual actions are the outcome of combined biological and social factors that accumulate over time, and thus create the societies to which all actions of individual people owe their existence. Because such factors underlie and produce the psychological features of every person, it is only the fundamental sociological laws that permit us to explain those features. The laws do so by explaining the character, origin and changes of particular types of societies and of civilization taken as a whole. These conclusions, popular throughout the nineteenth century, were one answer to the

widespread demand by thoughtful people during that period for a new scientific certainty to replace their lost religious beliefs. Certainly, the interest of both Comte and Mill in social reform and laws of social change was motivated by their common need to be assured that civilization was proceeding at a reasonable pace on a worthwhile journey. But Mill disagreed with Comte in two important respects: firstly, in believing that psychological laws were a necessary, though not sufficient, condition for the explanation of social phenomena; and secondly, in being convinced that there was not, and could not be, one ultimate law of nature concerning the development of civilization. On this latter point Mill wrote that it is a misconception to suppose

> that the order of succession which we may be able to trace among the different states of society…could ever amount to a law of nature… The succession of states of the human mind and human society cannot have an independent law of its own; it must depend on the psychological and ethological laws [of character formation] which govern the action of circumstances on men and of men on circumstances. ([6.48], 2:914)

In objecting to Comte's belief that there can be a law of social evolution, and that he had formulated it in his Law of Three Stages, F.A.Hayek complained that it is 'a curious feature of the Comtean system that this same law which is supposed to prove the necessity of the new science is at the same time its main and almost sole result' ([6.34], 179) This verdict is somewhat harsh. It is true that Comte formulated few, if any, testable social laws—ordinary laws of the constant concomitance, whether of coexistence or succession, between identifiable social factors. That was not his aim. Instead, he was trying to describe the need for a scientific study of social life, the ways in which the methods of the natural sciences could be used to establish a social science, and the general form that its empirical laws would take as the result of genuinely scientific investigation. Comte did not, and could not correctly, claim to be practising empirical sociology, for that discipline had yet to be created. He believed that the task of the sociologist of the future would be to discover social laws that presupposed the existence of biological laws without being derivable from them—social laws that implied various regularities of national and individual character, including those of mental life. Such laws, he reiterated in the last three volumes (lessons 46–60) of the *Cours*, would take account of two facts: the cumulative effect on people's behaviour of social factors over time; and the way in which social institutions and customs are always parts of a social system and operate as an 'ensemble' of interrelated factors in much the same fashion as do the organs of an animal's body.

Each law of observed phenomena offers us an explanation because every such law connects together under one heading a variety of otherwise disparate facts. Thus the theory of gravitation explains planetary 'attraction' by showing that it conforms to 'the ordinary phenomena which gravity continually produces on the surface of our globe'. The theory brings together

> under one head the whole immense variety of astronomical facts; exhibiting the constant tendency of atoms towards each other in direct proportion to the

> squares of their distances; whilst the general fact itself is a mere extension of one which is perfectly familiar to us, and which we therefore say that we know; the weight of bodies on the surface of the earth. As to what weight and attraction are, we have nothing to do with that, for it is not a matter of knowledge at all. Theologians and metaphysicians may imagine and refine about such questions; but positive philosophy rejects them.
>
> ([6.11], 1:6)

The reason they are rejected, says Comte, is that the greatest minds have been able to define the two properties only in terms of each other, so that terrestrial attraction is only weight and weight is nothing more or less than terrestrial attraction. Thus, according to Comte, phenomena are observed facts, and facts can be either specific events and processes or general laws. Since weight and attraction are not directly observable, they are not verifiable scientific facts; they are to be classified with ether and heat-fluid as imaginary causes. However, Comte does not make this complaint of the Newtonian theory that atoms attract each other as the squares of their distances. Nor does he make it when discussing indirect observations of the earth's size. His failure to do so reveals the difficulties that he creates for his system by not distinguishing between things that are observable only in principle and those that are observable in practice. As a result, he has to rely on common sense for deciding which events and processes are observable in any given field of science. For this reason, he has trouble in distinguishing between metaphysical and scientific entities, and hence between questions that can be given a scientific answer and those for which this is impossible. So his reliance on the possibility of future verification to discriminate scientific hypotheses from metaphysical ones is unsupported, for he gives no developed account of any criterion of scientific verifiability except, as we shall see, to admit entailments that are unobservable but lead to observable consequences. He leaves unanswered the question 'what is to count as an observation in science?' Yet his Law of Three Stages assumes that he can discriminate between the stage of metaphysical explanation and that of positive scientific explanation.

These problems are both a result and a source of Comte's ideas about causes. As early as 1840, William Whewell pointed out that hypotheses about unobservable causes were often essential in scientific enquiry. How, for example, he asked, 'could the phenomena of polarization have been conceived or reasoned upon, except by imagining a polar arrangement of particles, or transverse vibrations, or some equivalent hypothesis?' Causes could not simply be metaphysical entities ([6.59], 2:268). Mill's criticism of Comte on causes was rather different. Comte overlooked the difference, Mill complained, between conditional and unconditional regularities of phenomena. The alternation of night and day is an apparently invariable sequence but it is not a natural law, for it is merely the result of a genuinely invariable regularity, or unconditional sequence, that of the earth's rotation around the sun.

> The succession of night and day is as much an invariable sequence, as the alternate exposure of opposite sides of the earth to the sun. Yet day and night are not the causes of one another; why? Because their sequence, invariable in our experience, is not unconditionally so: those facts only succeed each other,

> provided that the presence and absence of the sun succeed each other.
>
> ([6.47], 57–8)

Unconditional regularities, ones in which the antecedent always will be followed by the consequent 'as long as the present constitution of things endures', are laws of causation. Conditional regularities are those in which, as a mere fact of our experience, 'the antecedent always *has* been followed by the consequent'. They are Comte's laws or regularities of phenomena. They simply record what has happened to date, and thus offer no basis for the explanation, prediction and control of phenomena that is so highly valued in Comte's system ([6.47], 57–8).

HYPOTHESES AND SOCIAL LAWS

Despite his difficulties with the notions of observation, cause, verification and law of nature, Comte was one of the earliest social thinkers to stress the indispensability in social scientific work of the appropriate use of theories and hypotheses. In his essay 'Philosophical Considerations on the Sciences and Savants' (1825), he wrote:

> Unless man connects facts with some explanation, he is naturally incapable not merely of combining and making deductions from them, but even of observing and recollecting them. In a word, it is as impossible to make continuous observations without a theory of some kind, as to construct a positive theory without continuous observations.
>
> ([6.13], 185)

Some years later, in the *Cours,* Comte expanded on this view. He suggested that without the help of conjectures (or imaginative hypothesis) we could use neither deduction nor induction:

> Neither of these methods would help us, even in regard to the simplest phenomena, if we did not begin by anticipating the results, by making a provisional supposition, altogether conjectural in the first instance, with regard to some of the very notions which are the object of the inquiry. Hence the necessary introduction of hypotheses into natural philosophy. The method of approximation employed by geometers first suggested the idea; and without it all discovery of natural laws would be impossible in cases of any degree of complexity; and in all, very slow.
>
> ([6.11], 1:241)

Comte's belief in the importance of hypotheses and theories in scientific work leads him to comment on the relatively small role that observation plays in some astronomical investigation:

> The few incoherent sensations concerned would be, of themselves, very

> insignificant; they could not teach us the figure of the earth, nor the path of a planet. They are combined and rendered serviceable by long-drawn and complex reasonings; so that we might truly say that the
> phenomena, however real, are constructed by our understanding.
>
> ([6.11], 1:151)

So in contrast to his own simpler ideas about the limits of observation, Comte here recognizes the need both for direct observations and for their unobservable entailments, concluding that 'the perpetual necessity of deducing from a small number of direct measures, whether angular or horary, quantities which are not themselves immediately observable, renders the use of abstract mathematics indispensable' ([6.11], 1:151). Of course, this recognition of the necessity of using unobservable quantities makes the exclusion of unobservable metaphysical causes more difficult, for a general criterion that distinguishes one from the other has now to be found. This was the task undertaken much later by the logical positivists of the Vienna Circle, and in England by A.J.Ayer, in the form of a search for a reliable principle of verification that would separate sense from nonsense, and separate theoretically necessary, but fictional, entities from unobservable but actual ones.

'All sciences,' Comte wrote, 'aim at prevision. For the laws established by the observation of phenomena are generally employed to foretell their succession.' This is as true of sociology as it is of chemistry and physics. All sciences use verified conjectures to predict, explain and thus control phenomena ([6.13], 167). However, in the case of sociology Comte qualifies this view in two respects. The first is that the content of such laws, in sociology as in the other sciences, is to be restricted to the succession and co-existence of observable phenomena, whether direct or indirect—to telling us, in the form of an accurate description, how an event or process takes place, but not why it does. We cannot explain why a particular sequence occurs even though we can describe how it takes place. This distinction between the explanatory 'why?' and the descriptive 'how?' is found in the work of a long line of eighteenth-century philosophers, including Berkeley, Hume, Thomas Reid, Dugald Stewart, Thomas Brown, and also in that of the Sicilian physicist Ruggiero Boscovich. At the end of the nineteenth century the distinction featured prominently in the writings of Ernst Mach, the Austrian physicist who was an early advocate of logical positivism. In this group, Comte was forthright in claiming that laws of phenomena give us genuine explanations because all that we can sensibly want to know is how, and not why, something happened.

The other qualification that Comte applies to the laws of sociology is that they must concern large-scale collective events and processes, for it is the general features of an entire society or form of government or economic system, and the types to which they belong, that are the operative factors in the historical growth of human faculties and achievements. 'It is clear,' he says, 'that the social evolution must be more inevitably subject to natural laws, the more compound are the phenomena, and the less perceptible therefore the irregularities which arise from individual instances.' A closely related point is 'that the laws of social dynamics are most recognizable when they relate to the largest societies, in which secondary disturbances have the smallest effect'. As a civilization develops, 'the social movement becomes more distinct and certain with every conquest

over accidental influences'. The result, according to Comte, is that 'these fundamental laws become the more irresistible, and therefore the more appreciable, in proportion to the advancement of the civilization upon which they operate' ([6.11], 2:

In describing this qualification, one of central importance in his system, Comte is led astray, as he often is, by not distinguishing more clearly between a general law and the effects of its operation in any given instance. Thus what is more recognizable, if it is, than the effect produced by a social law operating in a small society is the effect of the law's operation in a large society. Again, it is not the fundamental laws themselves that become more 'irresistible' but their effects in the fields in which they operate. That is, the nature, or content, of the laws does not change; it is the changes in the fields in which they operate that make the laws more recognizable and 'irresistible'. For Comte, the significance for scientific procedure of the distinction between large-scale collective events and 'secondary disturbances' is considerable. 'Astronomers,' he writes,' in commencing their study of the laws of the planetary movements omitted all consideration of the perturbations. After these laws had been discovered, the modifications could be determined' and brought within the scope of the law that applied to the chief movements. But if we had begun by trying 'to account for the irregularities, it is plain that no precise theory could ever have been constructed'.

Comte's conclusion, then, is that, in order to examine the secondary disturbances that affect the rate of social change but do not fundamentally alter it, sociologists must first find the general laws that chiefly control social progress. The counter-influences exerted by secondary factors can then be reduced to the fundamental laws. But how, in Comte's view, do we discover at the beginning which is the 'principal movement' and which the secondary, or accidental, influences? What makes a sociological conjecture a plausible one? To this query Comte offers no response, believing, as he did, that the question has no informative answer other than what he has already said about scientific, and thus sociological, procedure in general: a plausible conjecture is one that not only meets the procedural criteria but takes account of the current state of knowledge within the field. We can only say what makes a particular hypothesis plausible, not what makes hypotheses in general plausible. True, we can exclude certain types. That does not, however, give us a useful characterization of the remainder.

Comte's emphasis on the importance of mass phenomena in sociology largely contributed to a major difficulty in his account of the structure of sociological laws. The difficulty arises from his assumption that, for the most part, sociological laws of the future will be direct generalizations from various sorts of aggregates and collective events. It is to assume, for example, that because the Great Depression of the 1930s was a collective event, each singular causal statement about its causes must imply a generalization about the economic and social causes of depressions in general. Yet this is obviously not true. The fact that our palm tree has been torn up by the roots in a hurricane does not imply that there must be a physical law to the effect that all similar trees are torn up in similar hurricanes. What we are committed to by our singular causal statement is simply this: there are generalizations from which, given appropriate statements of initial conditions, our singular statement is derivable, for these generalizations are physical laws that we can use to explain the effects of certain physical forces, such as hurricanes of a given intensity, on specific types of objects under specifiable conditions. Such laws can

be applied to many kinds of situations, and that of our palm tree is merely one of them. Comte thought that the future laws of sociology would be direct generalizations about forms of government, armed forces, rebellions, nations and all other collectivities whose operations could in some sense be observed directly, or indirectly. Yet it has often been remarked that the operations and composition of such aggregates are the joint outcome of highly varied influences and causes. Hence, if there are any sociological laws to be found concerning these collectivities, whether observable or not, the laws must be quite general and abstract.

THE SOCIAL REFORMER

On the first page of the preface to his second multi-volume work, the *Système de politique positive* (1851–4), Comte says that his philosophical career has been 'homogeneous throughout; the end being clearly aimed at from the first'. He is referring here to his lifelong project to reform the intellectual, social and economic life of European society, and to his intention from the beginning of his career, as his earliest writings show, to develop a social science that would both explain the unhappy state of that society and prescribe the appropriate remedies to eliminate its anarchic condition. Many of the early readers of the *Cours,* such as Mill, Littré and Whewell, were unprepared for the kinds of social prescriptions that Comte issued more and more freely and at ever greater length in his succeeding publications. Comte's history of science and his discussion of its methodology had won their professional admiration; and his claims of the benefits that applied science could bestow on a rejuvenated society, one that embraced the positivist 7Religion of Humanity, had stirred their religious yearnings for individual fulfilment through the pursuit of a worthy common goal, that of a rejuvenated and unified society. In his 'Introductory Remarks' to the first volume of the *Système* or *System of Positive Polity* Comte makes his project of social regeneration quite explicit:

> it becomes every day more evident how hopeless is the task of reconstructing political institutions without the previous remodelling of opinion and of life. To form then a satisfactory synthesis of all human conceptions is the most evident of our social wants: and it is needed equally for the sake of Order and of Progress. During the gradual accomplishment of this great philosophical work, a new moral power will arise spontaneously throughout the West, which, as its influence increases, will lay down a definite basis for the re-organisation of society. It will offer a general system of education for the adoption of all civilised nations, and by this means will supply in every department of public and private life fixed principles of judgment and conduct. Thus the intellectual movement and the social crisis will be brought continually into close connection with each other. Both will combine to prepare the advanced portion of humanity for the acceptance of a true spiritual power. ([6.6], 1:2)

In the fourth and final volume of the *Système* Comte outlines the nature of social reconstruction and true spiritual power, having used the other three volumes to qualify

and amplify the argument of the *Cours*. It is in this last volume that Comte advances his belief that the cultivation and use of the benevolent emotions produces the fullest happiness; that the only moral actions are those performed entirely for the good of other people, and that self-gratifying actions are morally worthless and to be eliminated; that all scientific enquiry is to be pursued and valued only in so far as it fulfils human needs and desires of a practical kind, for disinterested investigation, especially of abstract topics, is morally unwholesome for most people; that useless plants and animals should be destroyed along with the major portion of existing printed material; that the practice of art is the most suitable occupation for human beings since it stimulates their worthwhile emotions; and that these views can best be realized by the concerted action of the working classes and the intellectuals, the latter of whom will later form a priesthood that will lead and maintain the public worship of the Religion of Humanity—that is, the worship of the great and valued dead for their past contributions to human happiness. This priesthood will also be in charge of the educational system that will support the detailed arrangements which Comte laid down for the social and economic tasks to which the various classes of citizens will be assigned according to their ability and qualifications. In brief, the reorganized society will have a theoretical class and a practical class: the former will provide the principles and system of general ideas needed for the guidance of the society; the latter will carry out the administrative and practical measures, such as the distribution of authority and the arrangement of institutions that are needed to fulfil the general plan.

In the early essay, ‘Plan for Reorganizing Society’, Comte remarked on the long span of time that a scientific or social revolution displayed between the announcement of its basic principles and their embodiment in practice. It required a century, he says, for the conception of the elastic force of steam to find a use in machinery, and five centuries for the ‘triumph of Christian doctrines’ to develop into the Catholic-feudal system of western Europe—the system upon which his own proposed two classes are modelled. Hence, the rate of social change depends both on the adoption of clear, well understood policies or principles and on the amount of effort put into carrying them out over a long period. This shows us ‘the absurdity of attempting to improvise a complete plan for reorganizing society down to its smallest details’ ([6.13], 122). Yet this absurdity is what Comte embraces late in the *Système*. There he proposes that school ‘instruction will occupy seven years, during which each pupil remains throughout under the same teacher, teaching, be it added, both sexes, though in separate classes’. Every school will need seven priests and three vicars. Each professor will give two lectures a week for ten months, in addition to a month of examinations. ‘Every school is annexed to the temple of the district, as is the presbytery, the residences of the ten members of the sacerdotal college and of their families’. The upshot of these arrangements is ‘that the spiritual wants of the West may be duly met by a corporation of twenty thousand philosophers, of whom France would have the fourth’ ([6.6], 4:223). It is true that Comte warns us that these numerals will be corrected when better data become available. However, many of the other details will remain, and throughout the volume Comte provides a very large number of fixed and highly specific recommendations.

The philosophical interest of these Utopian schemes is slight, but their presence clearly reveals that the dominant impulse in Comte’s thought is social reform. For him,

philosophical discussions are just a necessary stage in that regenerative process. For that reason, they often form part of his grand system without themselves being systematic or thorough, and often without being advanced or defended by argument. If the distinctive feature of philosophy is, in John Passmore's phrase, 'its being a critical discussion *of* critical discussion', then Comte is a philosopher only on rare occasions. Moreover, he often proceeds to his conclusions without either first- or second-order critical discussion. For instance, in his treatment of astronomy in the *Cours* he begins by asserting that 'astronomical phenomena are the most general, simple, and abstract of all' and that the study of science must begin with them ([6.11], 1:28). However, this claim depends upon the truth of Comte's later and additional belief that in the case of the planets 'we may determine their forms, their distances, their bulk, and their motions, but we can never know anything of their chemical or mineralogical structure; and much less of organized beings living on their surface'. Not only can we 'never learn their internal constitution', and the amount of heat absorbed by their atmospheres, but their mean temperatures are 'for ever excluded from our recognition'. The laws of astronomy must therefore be the laws solely of the geometrical and mechanical features of the heavenly bodies ([6.11], 1:148–9) It is this limitation achieved by tendentious definition that makes astronomical phenomena most general, or simple, and abstract; for knowledge, such as we now have, of the chemical and physical structure of astronomical bodies would convert portions of astronomy into 'celestial' physics and chemistry, thus destroying, for Comte, its generality and abstractness.

Again, in his discussion of intellectual progress Comte says of truth,

> our doctrines never represent the outer world with exact fidelity. Nor is it needful that they should. Truth, in any given case, social or individual, means the degree of exactness in representation possible at the time. For positive logic is but the construction of the simplest hypothesis that will explain the whole of the ascertained facts.
>
> Any superfluous complication, besides causing a waste of labour, would be a downright error, even though a fuller acquaintance of facts might at a later time justify it. In fact, without this rule subjectivity runs wild, and the mind tends toward madness… But in proportion as our observations are extended, we are forced to adopt more complicated theories in order adequately to represent facts. ([6.6], 3:19)

There are two points of immediate interest here. The first is that the notion of 'exactness in representation' is ill prepared to stand unsupported as it does. For Comte, representation or enunciation of facts—whether the facts are statements of observation or statements of a lawlike kind—can have meaning, and thus be scientific, only if they are testable. The construction of simple explanatory hypotheses is an essential part of the process of confirmation that establishes the claim of factual statements to have meaning. But what makes a testable representation, of varying degrees of exactness, a true one rather than merely a meaningful one? On this point Comte is unhelpful. On the second point he is little better. Permitting undue complication of hypotheses has often been criticized for leading us away from the truth, but seldom for allowing, or perhaps

encouraging, the wilder flights of imagination. It is true that unduly complicated hypotheses are sometimes the expression of unchecked imagination although, as Comte himself points out, complex hypotheses are often required. However, what injunctions of simplicity, such as Occam's Razor, are designed to do is to smooth the path to adequate hypotheses, not to constrain imaginative and complex conjectures. Whether they are unnecessarily complex is often impossible to determine until simpler testable ones become available, and even then the nature of the criterion of simplicity may itself be open to debate.

Against such defects in Comte's architectonic method must be set his achievements, near-achievements and fertile errors. His outline of sociology as a new science of social systems, one using empirical data and testable laws to study collective behaviour, combines all three of these characteristics. Before Comte, many writers had advocated the creation of a natural science of politics, but it was Comte who produced a detailed description of its future structure, subject-matter, the scientific procedures appropriate to its topics and the relationship of sociology both to the other sciences in the hierarchy of scientific knowledge and to political action. Social behaviour in the form of interconnected practices, systems and institutions is the cumulative outcome of the historical development of a society in its conformity to the Law of Three Stages, each stage bearing within itself the seeds of the next one. In the case of Europe, Comte thought that each of these intellectual stages was correlated with a distinct type of social system: the theological stage with a theological-military system; the metaphysical stage with a metaphysical-legal system; and the positive stage with a scientific-industrial system. A large portion of the second half of the *Cours*, and also volume three of the *Système*, are devoted to the characteristics, historical development and geographical location of the three systems and their correlated stages. Comte's procedure was to begin with what he took to be the basic general properties of the systems—their types of religion, government, commerce, industry and art, for example—and then to account for either their maintenance or their changes by means of reference to more specific factors and local conditions. He did this because he believed that our knowledge of the three stages and their associated systems was superior to our knowledge of particular institutions and customs. Knowing the Law of Three Stages and their systems we know both the past and present of civilization better than we know the sub-sections that they so strongly influence.

In a general way, we can predict, explain, and thus control, aggregate social behaviour whereas we often cannot do this in cases of individual or sectional or local behaviour and beliefs. Our knowledge of the laws of social wholes, and our ability to observe them, is primary; our information about small-scale phenomena is derivative from that we have on large-scale ones. 'All political action,' Comte says, 'is followed by a real and durable result, when it is exerted in the same direction as the force of civilization, and aims at producing changes which the latter necessitates. On every other hypothesis it exerts no influence or a merely ephemeral one' ([6.13], 148). The phrase 'force of civilization' refers to the Law of Three Stages that 'rigorously determines the successive states through which the general development of the human race must pass'. Because 'this law necessarily results from the instinctive tendency of the human race to perfect itself…it is as completely independent of our control as are the individual instincts the combination

of which produces this permanent tendency' ([6.13], 146). One of the obvious benefits of our knowledge of this rigorous succession, according to Comte, is this:

> When in tracing an institution and a social idea, or a system of institutions and a complete doctrine, from their birth to their present stage, we find that, from a given epoch, their influence has always been either diminishing or increasing, we can foretell with complete certainty the destiny which awaits them… The period of their fall or triumph may even be calculated, within narrow limits, from the extent and rapidity of the variations observed.
>
> ([6.13], 151)

Claims to foreknowledge of the pattern of social history held special appeal for an educated, and largely Christian, audience in the nineteenth century. Many people agreed with Comte—and with such groups as the British Chartists, the young Hegelians and later the Marxists—that industrial capitalism was in an economic, social and moral crisis. An explanation of its sources and 'prevision' of its outcome were constantly called for, and equally often supplied either as a supplement to, or substitute for, Christian eschatology, these various considerations emerge very clearly in Harriet Martineau's preface to her translation into English in 1853 of the *Cours*. 'We are living in a remarkable time,' she wrote, 'when the conflict of opinions renders a firm foundation of knowledge indispensable.' She thought that 'for want of an anchorage for their convictions' a great number of people are now 'alienated for ever from the kind of faith which sufficed for all in an organic period which has passed away'. No new firm and clear conviction had taken its place, and although 'The moral dangers of such a state of fluctuation are fearful in the extreme', Comte's work, she believed, was 'unquestionably the greatest single effort to obviate this kind of danger' ([6.11], 1:xxiii–xxiv). For in his work 'We find ourselves living, not under capricious and arbitrary conditions…but under great, general, invariable laws, which operate on us as a part of the whole'. Martineau concluded that despite Comte's singular and wearisome style with its 'constant repetition' and overloaded sentences, positive philosophy opened boundless prospects. It had established, among many other 'noble truths', that 'The law of progress is conspicuously at work throughout human history' ([6.11], 1:xxx).

COMTE'S INFLUENCE

After Comte's death, when positivism had to make its own way without the guidance of its first 'High Priest of the Religion of Humanity', it exerted influence in several ways. The first, and least significant, was by doctrinal descendants and proselytizing enthusiasts, and by friendly critics. Prominent in the last group was Emile Littré, editor of the *Journal des savants,* and a decade later of the highly regarded *Dictionnaire de la langue française*. In the former two groups were Pierre Lafitte, a mathematics teacher not favoured by Comte as his successor but who afterwards was the Professor of History of Science at the Collège de France, and an English band consisting, among others, of Edward Beasly, Professor of History, University College, London; Frederick Harrison,

the lawyer, philosopher and prolific author; F.S. Marvin, historian and author of *Comte: the Founder of Sociology* (1936); and the Anglican clergyman, and former Oxford tutor, Richard Congreve, who in 1867 founded the London Positivist Society and wrote that 'Positivism is the one idea of my life' ([6.56], 49). Both the British and the French societies founded journals that lasted for several decades, and both societies underwent a long series of internal quarrels and schisms. Nevertheless, the various positivist societies with their small number of members, and a Parisian lending library, kept up a programme of meetings, lectures and courses, in addition to their doctrinal rivalry, until the First World War. They strongly agitated for, and gave firm support to, the establishment of both sociology and the history of science as academic fields of study, and they also campaigned, with some success in France, for a scientific and secular education in schools. However, their more ambitious hopes of arousing popular support for the future Religion of Humanity were never fulfilled.

A second, and more important, influence exerted by positivism on the intellectual life of the nineteenth century was independent of both the organized piety of the positivist societies and the messianic aspirations of Comte himself. Through the early enthusiasm of Mill, a number of eminent and able people in Britain came to read and appreciate the *Cours*. They included not only Grote, Whewell and Molesworth, but also G.H.Lewes, consort of George Eliot, and author of *The Biographical History of Philosophy* (1845–6) which favoured positivism, and of *Comte's Philosophy of the Sciences* (1853); George Eliot herself who was impressed by religious positivism; Henry Sidgwick, the Cambridge philosopher, who later criticized Comte's views; John Morley, editor, biographer of Gladstone and highly successful politician; and John Austin, one of the most influential jurists of the nineteenth century. Of these people only Mill and Lewes were ever substantially influenced by Comte in their work, but the earlier editions of Mill's *A System of Logic* (1843) owed much to Comte's methodology and the later Mill still defended the Law of Three Stages. In France, the historian of science Paul Tannery, an editor of the standard edition of Descartes' *Works* (1897–1910), was said to have believed that Comte's influence on him was stronger than that of any other thinker ([6.56], 133). The philosopher of science Emile Meyerson was a friendly critic of Comte, and in *Identity and Reality* (1908) respectfully criticized Comte's ideas on cause, scientific laws, psychology and physics. Claude Bernard, famous as a physiologist and for his book *An Introduction to the Study of Experimental Medicine* (1865), was thought to have been a disciple of Comte until middle age; after 1865 he became a resolute anti-positivist ([6.56], 15). These three men are merely a small sample of Comte's serious readers in France during the half-century after his death. They, like many other philosophers, scientists and historians, took the reading and study of the *Cours* for granted. They absorbed from it the conceptions that seemed to them valuable and discarded or ignored the remainder. Hardly any of the eminent ones among them, however sympathetic to some of Comte's views, could be described as disciples. In that respect they would have bitterly disappointed Comte's expectations for the future success of his system.

Another and most important way in which Comte's influence made itself prominent was through the young Emile Durkheim, the man who in 1887 was the first person appointed to lecture on sociology in a French university. For a few years Durkheim was a

discriminating enthusiast for Comte's conception of the nature of sociology; he adopted much of Comte's belief in the significance of the collective mind in society as the creator and sustainer of religious and moral attitudes, the guarantor of social stability, and the chief bulwark against the loss of self-esteem by the members and their accompanying alienation from common values. However, even though Durkheim's second book, *The Rules of Sociological Method* (1895), attacks positivist claims on many issues, he later reiterated his debt to Comte and 'continued to recommend the *Cours* as the best possible initiation into the study of sociology' ([6.56], 147). Other sociologists of this period, such as Gabriel Tarde, were similarly both critical and appreciative of Comte's work. Much of their kind of discussion was incorporated into the academic teaching of sociology and anthropology throughout Europe and America, and in that form has continued to influence social science until the present day.

In its devotion to major social reform, positivism found a responsive audience among the early Fabians. Like Durkheim, they rejected the anarchic, irrational, inefficient individualism that they took to be the hallmark of materialistic capitalism. Like Saint-Simon and Comte, they wished to create a scientifically organized society in which, to use Gertrude Himmelfarb's words,

> the parts were arranged, ordered, regulated, planned, so as to make for the most efficient and equitable whole. Such a society could come about only through the conscious effort of intellectuals and 'scientists'…who were prepared to dedicate themselves to the public good and bring their superior reason to bear upon the reorganization of the public order.
>
> ([6.35],359–60)

The Fabian collectivist society of the future would be led and presided over, as were the utopias of Comte and Saint-Simon, by a theoretical class devoted to the social good and the elimination of competitiveness. It would be ascetic and non-materialistic as was positivism, and yet evolutionary rather than revolutionary—and so anti-Marxist. These Fabians were not, of course, religious positivists, but as socialists they claimed the politically conservative Comte as one of their own. Five of the seven authors of *Fabian Essays* (1889) were positivist sympathizers:

> Beatrice Webb (then Beatrice Potter) had been familiar with Comte from her schoolgirl reading of Mill, Harrison, and George Eliot; by 1884 her diary contained frequent references to Comte and excerpts from his writings. Long before he met her, Sidney Webb had heard about Comte at the Zetetical Society and later at the London Positivist Society. He and his friends Sydney Olivier, a fellow clerk in the Colonial Office, and Graham Wallas, a young schoolmaster, were so taken with Comte that they embarked upon a systematic reading of all his works.
>
> ([6–35], 358–9)

These four were not the only Fabians who were sympathetic to positivism. Its project of individual moral reform produced by social regeneration, the latter itself the result of the

application of scientific knowledge and method to a sick society, had widespread appeal in the late nineteenth century. It is an appeal which—however viciously distorted by various communist regimes in the twentieth century—is still with us today.

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CHAPTER 7
Nietzsche

Robin Small

LIFE AND PERSONALITY

Friedrich Wilhelm Nietzsche (1844–1900) is one of those thinkers whose personalities cannot easily be separated from their achievements in philosophy. This is not because his life was an unusually eventful one in outer respects. Rather, it is due to the intensely personal engagement in thinking that is evident throughout his writings. Franz Rosenzweig's description of Nietzsche as 'the first real human being among the philosophers' is a striking testimony to this characteristic; though Rosenzweig was less justified in dismissing the content of Nietzsche's thinking as irrelevant to his real importance.

Nietzsche was born in 1844 in Röcken, a village in Saxony, the son of a Lutheran minister. After the death of his father four years later, the family moved to Naumburg, where Nietzsche attended the local Gymnasium before being sent as a boarder to the famous Pforta school. He emerged as a classical scholar of great promise, moving on to the universities of Bonn and Leipzig, where he attracted the sponsorship of the influential Ritschl. With his assistance, Nietzsche was appointed at the early age of twenty-four to a chair in classical philology at the University of Basel. His early promise in scholarship was soon overshadowed by new developments. Making the acquaintance of Richard Wagner, Nietzsche was drawn into the Wagner circle, which turned his talents to its own purposes. His first book, *The Birth of Tragedy,* published in 1872, created a storm of controversy. It gave great offence to professional colleagues for its championing of the Wagnerian 'artwork of the future', as well for its unconventional approach to scholarship. But Nietzsche had by now largely lost interest in philology; his writings over the next few years, published under the general title *Untimely Meditations,* are essays in cultural criticism, often stimulating and sometimes brilliant, yet marred by a Wagnerian mixture of pomposity and abrasiveness.

Several events now brought about decisive changes in Nietzsche's life. A breakdown in his health led to a temporary separation from the university; a year's leave was spent in Sorrento, working on a new book, *Human, All-Too-Human,* A break with Wagner followed, brought about primarily by Nietzsche's negative reaction to the 1876 Bayreuth festival and to Wagner's new opera *Parsifal,* whose religiosity aroused Nietzsche's lasting hostility. Two years later, renewed illness led to permanent retirement from the university on a modest pension. From this time onward, Nietzsche was a man seemingly always on the move. He established a regular routine: summers spent in Germany or eastern Switzerland, reading widely and making extensive notes which, during winters on the Italian and French Riviera, were turned into a succession of books. After *Human, All*

Too Human, the works in which Nietzsche's mature style is confidently established followed at regular intervals: *Mixed Opinions and Maxims*, *The Wanderer and His Shadow*, *Daybreak* and *The Gay Science*.

This pattern was to last for a decade. Although restless, Nietzsche was at the same time a man of regular habits. Apart from one not very successful trip to Sicily, he tended to return to the same places, neither cultural centres nor tourist spots but smaller cities in which he lived in inexpensive boarding houses. Always intensely health-conscious, Nietzsche suffered from a variety of illnesses, despite a healthy regime of frugal eating and long walks. Although often alone, he was not a recluse but made friends and joined in social activities. Indeed, he retained a certain Naumburg bourgeois character, which surfaces from time to time in his opinions. Nietzsche the person was no bohemian: conventional in dress and manner, he was also courteous and forbearing in responding to sometimes obtuse correspondents, reserving his polemical skills for his writings. As one observer reported after an 1884 encounter in Nice, 'He was extremely friendly, and there is no trace of false pathos or of the prophet about him, as I had rather feared from the recent works'.

The question of Nietzsche's relations with women has excited and frustrated biographers. He always retained unusually close links with his mother and younger sister, despite a few periods of estrangement. Apart from this, there is evidence for only one significant attachment. After his Sicilian expedition of 1882, Nietzsche visited Rome with his friend Paul Rée, a writer on moral psychology. There he met a young Russian girl, Lou von Salomé. An intense emotional period followed, during which the two men conducted a fierce, but unacknowledged, rivalry for Lou's loyalty. The outcome was an estrangement, incited by the hostility of Nietzsche's conservative sister Elisabeth, though also due, in part, to Nietzsche's own conventional side. A disillusioned Nietzsche returned to the Italian Riviera and began work on a new kind of writing, *Thus Spoke Zarathustra*. The successively published parts of this, his best known work, occupied him for several years.

In 1886 Nietzsche returned to the format of *The Gay Science* with his most accomplished book, *Beyond Good and Evil*. The subsequent year produced a bold exploration of moral concepts, *The Genealogy of Morals*. During the autumn of 1888, Nietzsche's letters and writing took on an ominous tone of exaltation, as he worked on a series of works in rapid succession: *Nietzsche Contra Wagner*, a summary of his long campaign against his former friend; *The Antichrist*, a polemic against Christianity; and a remarkable autobiographical essay, *Ecce Homo*. In the early days of 1889, Nietzsche suffered a sudden mental collapse in the streets of Turin, where he was spending the winter. Brought back to Germany by a friend, he was treated in a Jena asylum, but without improvement, and afterwards nursed at home by his mother and sister. Nietzsche never regained mental clarity, and underwent a steady physical decline until his death in 1900. The cause of the catastrophe is unconfirmed, but the initial diagnosis of syphilis seems the likeliest explanation.

WORKS AND STYLES

Nietzsche's style of writing is very varied: hardly two of his books can be put in a given category. Works such as *Human, All Too Human* and *Daybreak* are often described as 'aphoristic', though they are really composed of short essays, often carefully arranged in an overall progression of thought. One philosophical style hardly ever used by Nietzsche is that of extended argument. He gave an indication of his strategy when he wrote: 'I approach deep problems like cold baths: quickly into them and quickly out again' (*The Gay Science*, section 381). Yet Nietzsche returns to these problems again and again, and one can often see patterns in his ways of approaching them: not only continuities, but variations on a theme, developments of a line of thinking, reactions against former approaches, ideas gained from other thinkers, and ventures into new alternatives. The consistencies over the twenty years of his writing life are of style rather than doctrine.

Particularly striking is Nietzsche's use of the aphorism, which serves, as he puts it, 'to say in a few words what other writers say in a book—or do *not* say in a book'. We can take, as a typical example, section 126 of *The Gay Science: 'Mystical explanations*. Mystical explanations are considered deep. The truth is that they are not even superficial.' Setting aside its superfluous title, this is a genuine aphorism, a self-contained thought which nevertheless lends itself to interpretation and elaboration. The 'mystical' is anything that refers to something higher, as when some experience is explained as the voice of God. The 'superficial' is the surface of things, the qualities experienced through the senses. Thus, the opposition invoked is that between appearance and reality. In the metaphysical tradition of Plato, appearance is devalued as in need of explanation by reference to a truer reality. But Nietzsche, who called his thinking an 'inverted Platonism', wants a greater respect for appearance. Science, he suggests, has advanced only in so far as the senses have been trusted; and so we do not need to flee from appearance, but to engage more closely with both inner and outer phenomena; and metaphysical explanations merely distract us from that task. Typically, however, Nietzsche elsewhere takes a different line, praising the courage of those who have repudiated the evidence of the senses, like Parmenides and Plato in metaphysics, and Copernicus in natural science.

Putting Nietzsche's thought into traditional philosophical categories, such as idealism or materialism, rationalism or irrationalism, is a vain exercise. Sometimes he is included in the assortment of thinkers labelled 'existentialists'. This is an arbitrary and in some ways misleading categorization which, with a greater appreciation of Nietzsche's thought, has now gone out of use. One can at most specify certain recognizable philosophical principles for which Nietzsche often expresses support: the idea that the world is one of becoming, not of being, and as a consequence of this, an opposition to any doctrine that posits a reality over and above the world of appearance. An important corollary is the rejection of traditional religion, not only as a metaphysical doctrine but also in its implications for moral concepts. These points are closely linked with Nietzsche's professed admiration of Heraclitus; in his own words:

> The affirmation of passing away *and destroying*, which is the decisive feature of a Dionysian philosophy; saying Yes in opposition and war; *becoming*, along with a radical repudiation of the very concept of *being*—all this is clearly more closely related to me than anything else thought to date. The doctrine of the 'eternal recurrence' that is, of the unconditional and infinitely related circular course of all things—this doctrine of Zarathustra might in the end have been taught already by Heraclitus.
>
> (*Ecce Homo*, 'The Birth of Tragedy', 3)

Nietzsche wants to be an affirmative thinker, a 'yes-sayer'. But the possibility of such an affirmation depends on overcoming a system of concepts that have dominated human thinking. Hence he is, in practice, a critical thinker—indeed, one of the most destructive in the history of philosophy. Nietzsche provides a critique of knowledge, and its concept of truth and objectivity; of morality, and its concepts of good and evil; of philosophy, and its concept of being or reality; and of religion, and its concept of God. In each case, Nietzsche champions the concepts rejected by these systems: he affirms the value of lies, of fate, of semblance and becoming. But his critiques are not external ones; he argues that the highest values *devalue themselves*. To take an example: the will to truth is something we owe to the Christian tradition, which judged the world of appearance as one of untruth, and so posed the task of finding genuine truth. But the determination to follow a line of thought to its end—not a natural human trait, but a capacity acquired with great difficulty—has led to the downfall of those beliefs. We now recognize that our knowledge is based on metaphors; and a metaphor, because it asserts the identity of what is not identical, is really a lie. It is these lies that human beings need to create a world of stable and regular objects, within which they can live.

In his early sketches, Nietzsche supports this view of knowledge by using a vocabulary of rhetoric rather than logic. The basic operation of thought is not unconscious inference, as suggested by some neo-Kantians. Rather, figures of speech provide the model for all thinking: in particular, metonymy and metaphor are its crucial operations. Language, Nietzsche suggests, consists entirely of metaphors; and metaphor, which equates the unequal, is a lie, or perhaps a riddle.

> What, then, is truth? A mobile army of metaphors, metonyms, and anthropomorphisms—in short, a sum of human relations, which have been enhanced, transposed, and embellished poetically and rhetorically, and which after long use seem firm, canonical, and obligatory to a people: truths are illusions about which one has forgotten that this is what they are; metaphors which are worn out and without sensuous power; coins which have lost their pictures and now matter only as metal, no longer as coins.
>
> ('On Truth and Lie in an Extra-Moral Sense')

These ideas about knowledge suit the Heraclitean concept of absolute becoming which, as Nietzsche understands it, implies a process which has no beginning or end, and contains no pauses. 'If there were just one moment of being in the strict sense,' he writes, 'there could be no further becoming.' Yet that is not how we ordinarily understand the world.

Our organs of perception are geared to the conditions of our survival, and they allow us to apprehend only a minute fraction of what happens. Hence we suppose that there are discontinuities and separate things: even the most fleeting process, such as a flash of lightning, is imagined as the activity *of* something. Our language contains philosophical assumptions: 'Every word is a prejudice' (*The Wanderer and His Shadow*, section 55). Because the Indo-European languages contain the distinction between subject and activity, they determine our conceptual bias towards belief in permanent or at least enduring beings, and lead inevitably to belief in the soul and in material substance. The line of thought here is akin to the more recent hypotheses concerning the determining influence of language structure on our ways of seeing the world. But our conditions of life demand such illusions; for absolute becoming makes the world ungraspable. Hence we invent fictions which enable us to make sense of the world, such as things, and hence numbers and formulae. Nietzsche is not proposing any move to a new language: even Zarathustra, who proclaims a 'new speech', still uses German. It seems that we must go on using the only language available to us, while acknowledging that its concepts are inadequate to reality.

INFLUENCES AND REACTIONS

A search for direct influences on Nietzsche is not very rewarding. He did speak of a supposed group of 'new philosophers'; but in reality, Nietzsche had no philosophical associates. Schopenhauer and Wagner are often mentioned as early influences. Nietzsche gained much from both—as thinkers he could react against, primarily in ethical and aesthetic concepts respectively. Schopenhauer was an early passion, and the subject of an 'untimely meditation' which makes no mention of transcendental idealism, pessimism and the doctrine of the will as essence of the world; instead, Schopenhauer's independence and hatred of philosophical obscurantism are celebrated. Emerson was an influence for similar reasons. His essay form, flexible and loosely structured, was very congenial to Nietzsche. Again, the doctrines are hardly important, and the idea of an 'over-soul' common to all thinkers is the opposite of Nietzsche's view. Yet he retained a high opinion of Emerson, and an essay such as 'Self-Reliance', with its forthright rejection of any consistency in belief or action, has a very Nietzschean ring: 'Speak what you think now in hard words; and tomorrow speak what tomorrow thinks in hard words again, even though it contradict everything you said today'. Moreover, the Emersonian emphasis on the will has a direct relation to Nietzsche's later idea of the will to power.

Among philosophers of a more academic kind, Nietzsche's reading was largely in contemporary writers, some not much known even in their day, let alone a century later. Two figures worth attention are the idealists Friedrich Albert Lange and Gustav Teichmüller. In *Beyond Good and Evil*, Nietzsche pays a generous tribute to both thinkers for the courage of their metaphysical thinking—at the same time as he rejects their principal theses. Nietzsche studied Lange's important *History of Materialism* shortly after its publication in 1865, and often returned to it later. It was a fortunate encounter, for the book provides a comprehensive survey of materialist thought, from Democritus to the nineteenth century. Just as valuable is Lange's responsible and fair-minded approach,

which gives full credit to the contributions of the materialist philosophy, while in the end rejecting it in favour of a neo-Kantian idealism. Lange characterises materialism as a conservative force in science, emphasizing facts at the expense of ideas, hypotheses and theories. He recommends a more speculative approach, raising even paradoxical questions. Materialism 'trusts the senses', Lange says, and it pictures the world accordingly. Yet the scientific investigations that arise on this basis undermine philosophical realism. Lange's treatment of perception is like that of Hermann von Helmholtz: when we understand how information received by the senses is transformed by our sensory apparatus, we must conclude that the world as we perceive it is really a product of our organization. This includes our own sense organs, since their status as objects of perception is no different from other things. Nietzsche rejects Lange's argument as incoherent: 'But then our organs would be—the work of our organs! It seems to me that this is a complete *reductio ad absurdum*' (*Beyond Good and Evil*, section 15.) In contrast, he suggests that 'Today we possess science precisely to the extent to which we have learned to *accept* the testimony of the senses—to the extent to which we sharpen them further, arm them, and have learned to think them through to the end.' (*Twilight of the Idols*, '"Reason" in Philosophy', section 2.) This is not realism, but 'sensualism', an affirmation of appearance in its own right, however unstable and contradictory it may be.

In 1882 Nietzsche read a newly published book entitled *Die wirkliche und die scheinbare Welt (The Real and the Apparent World)*, by a former Basel colleague, Gustav Teichmüller. From this work he gathered several concepts of great use for his subsequent thinking. Central to Teichmüller's metaphysical system is the idea of 'perspective'. The defect of dogmatism in all its forms is, he argues, its failure to appreciate that all philosophies are 'protective' or 'perspectival' images of reality from a certain standpoint. The same is true of the knowledge of everyday life, in which we rely on what Teichmüller terms 'semiotic' knowledge, that is, a translation of phenomena into the vocabulary of a particular sense. Even our own mental states are known in this way alone. Each sense has its own 'sign language', and philosophy has been dominated by a bias in favour of sight; we need to overthrow this dictatorship and establish a kind of democracy of the senses and their corresponding concepts. Treating space and time as perspectival concepts, Teichmüller arrives at a conventionalist account, according to which questions about infinity reduce to arbitrary decisions about measurement. Materialism and idealism are alike inadequate, because they remain within their limited perspectives. Teichmüller's own system posits an intellectual intuition of the real self, a timeless subject which, transcending all perspectives, is their ultimate source.

With the exception of this last point, Nietzsche's own view of knowledge takes up many of Teichmüller's themes. His most striking idea is usually referred to as 'perspectivism', though in fact Nietzsche uses the word *Perspektivismus* not for a certain doctrine but for the property of being perspectival, that is, for 'perspectivity'. The assertion that there are only perspectives, without the underpinning supplied by either things-in-themselves or by a 'real' self, implies an opposition to objectivity, or at least to one version of objectivity. Nietzsche says that we need to control our drives 'so that one knows how to employ a *variety* of perspectives and affective interpretations in the service of knowledge'. This leads to a truer conception of objectivity: 'There is *only* a

perspective seeing, *only* a perspective "knowing"; and the *more* affects we allow to speak about one thing, the *more* eyes, different eyes, we can use to observe one thing, the more complete will our "concept" of this thing, our "objectivity" be' (*The Genealogy of Morals*, Third Essay, section 12). Nietzsche often asserts that we are prisoners of our human perspectives, forever unable to see 'around our corner'. Yet he also suggests that artists have the ability to provide us with otherwise unavailable perspectives; and he claims for himself a special talent for 'reversing' perspectives. A condition of this genuine objectivity is an avoidance of 'convictions', that is, of beliefs purporting to possess certainty. 'Convictions are more dangerous enemies of truth than lies,' Nietzsche writes (*Human, All Too Human*, section 483). Avoiding convictions does not imply an ironic withdrawal from engagement and commitment: on the contrary, we should 'live dangerously' in the quest for knowledge, risking ourselves in following an hypothesis as far as it can be taken.

These concerns are crucial in Nietzsche's attitude towards science. Cut off from primary scientific sources by his lack of mathematics, Nietzsche browsed widely among popular science and *Naturphilosophie*, and was aware of current debates—for instance, over the implications of the second law of thermodynamics. Many of these authors were what one might term vulgar Leibnizians, writers opposed to mechanism for its supposed superficiality and soullessness, and often willing to suggest a close link between materialism and the English national character. Nietzsche's approach is free of this tone, and his assessment of materialism is of far more interest.

For Nietzsche, mechanism is first and foremost a *methodology*. Its ideal, he says, is 'to explain, i.e. put into formulae, as much as possible with as little as possible.' ([7.5], 7/3. 158). The best theory is the one which uses the fewest concepts, while encompassing the most natural phenomena. This idea is well known in Ernst Mach's formulation of the 'principle of economy'. But Nietzsche links it with a main theme of his own: the will to power. Scientific theory enables us to exert more control over our environment. More importantly, however, scientific theory is itself a form of power. Mechanism is the most advanced and successful form of science, just because it embodies this scientific imperative in its purest form, nowhere seen more than in *reductionism*, its essential strategy and the key to its greatest successes.

Nietzsche's complaint against materialism is that it has not pushed its own programme far enough. He took the dynamic physics of Boscovich to represent a further step. Whereas Copernicus overcame the belief in the stability of the earth, Boscovich opposed an equally deep prejudice: the notion of material substance. The outcome is a theory in which solid material atoms are replaced with unextended 'points of matter' (in the terminology of Faraday, 'centres of force') whose spatial fields produce all the familiar modes of interaction with other centres: repulsion, cohesion and mutual impenetrability. Boscovich thus eliminates not only the distinction between matter and force but also the distinctions between kinds of force.

Another concept to be eliminated is, Nietzsche considers, that of causality. Materialism eliminates teleology, and uses only causal explanation; yet Nietzsche suggests that efficient causes are not alternatives to final causes, but only disguised versions of them. Scientific formulae establish quantitative equalities (in terms of energy or mass) between states of affairs, which make no mention of cause and effect. Thus, Nietzsche argues,

science should give up any pretence to provide *explanations* of phenomena, and content itself with an accurate description of them. If explanation is turning the unfamiliar into the familiar, then it appeals to what we take to be familiar, the everyday experience of what can be seen and felt, and the even more familiar processes of our own minds, thinking, willing, and so on. However, the seeming certainty of these phenomena is an illusion. Even the simplest experience, the 'I think', turns out on closer examination to contain a number of assumptions, such as the distinctness of the subject from the process of thinking. Summarizing these critiques, Nietzsche writes:

> When I think of my philosophical genealogy, I feel in agreement with the anti-teleological, i.e. Spinozistic movement of our time, but with this difference, that I hold even the 'aim' and 'will' *within us* to be an illusion: similarly with the mechanistic movement (tracing all moral and aesthetic questions back to physiological ones, all physiological to chemical ones, all chemical to mechanical ones) but with this difference, that I do not believe in 'matter' and hold Boscovich to be one of the great turning-points, like Copernicus.
>
> ([7.5], 7/2:164)

Also unusual in Nietzsche's approach to science is his refusal to separate scientific thought from the personality of the scientist. The original founders of science, the materialist thinkers of ancient Greece, were free spirits. Modern scientists are less admirable: unlike the poet Lucretius, they are prosaic minds, who turn science into a routine procedure, relying on measuring and calculating to ensure security. Their materialism is taken as a doctrine, when it should be a provisional hypothesis, allowing us to run ahead of our present knowledge into unknown areas. With this in mind, we cannot separate these ideas from Nietzsche's more obviously imaginative and speculative writings.

THUS SPOKE ZARATHUSTRA

Nietzsche regarded *Thus Spoke Zarathustra* as his most important achievement. The work's subtitle, 'A Book for Everyone and No one', conveys its mixture of accessibility and inaccessibility. In style, it is most obviously modelled on the Bible; and Nietzsche may have gained a hint of the possibilities of Biblical pastiche from Mark Twain's satirical description of the Mormon scriptures. Although the name 'Zarathustra' is borrowed from the ancient Iranian figure, there is no particular relation between Nietzsche's protagonist and the historical Zarathustra. Rather, Nietzsche has chosen a format which allows a dramatic and poetic presentation of ideas which could hardly be expressed in a more conventional manner. Although he had been preparing and making notes for the composition for some time, the actual writing of each instalment was done in a few weeks. This may account for the spontaneity of many passages, but it cannot be denied that the level is uneven. Zarathustra is forceful, poetic, thoughtful and satirical; he can also be rambling and querulous or, worse still, as sentimental as his all-too-legitimate descendant, Kahlil Gibran's best-selling 'Prophet'. Especially in Part Three, the careful

organization of Nietzsche's earlier books is lacking; and the turn to a kind of satirical burlesque in Part Four, while it has some admirers, is seen by most (including, perhaps, its author) as failing to achieve its intentions. Martin Heidegger advised that we ought to read *Thus Spoke Zarathustra* just as rigorously as we read a work of Aristotle—though he added that this does not mean in precisely the same way ([7.40], 70). There is much in this, even though, knowing something of Nietzsche's personal life, we recognize various allusions in the text.

In Part One Zarathustra is introduced as a sage who, weary of his solitary possession of wisdom, descends from a mountain retreat to bring it as a gift to humanity. In a marketplace he announces to an unreceptive audience his message of self-overcoming, the process of transforming oneself into something higher through turning passions into 'virtues'. The aim in this process is what Zarathustra calls the *Übermensch*. (Since some readers are distracted by the overtones of English words like 'superman', recent practice has been to leave the term untranslated.) This idea has often been misinterpreted: it has nothing to do with any evolution of the human species towards a more 'advanced' form. Even taking it as the development of a single person is too literal, since Zarathustra's further discourses specify the problem in terms of forces or impulses *within* the individual. We have no literal vocabulary for these, it seems, and so need to personify them. The *Übermensch* is thus a symbol for higher states of being, as when Nietzsche speaks of 'the invention of gods, heroes, and *Übermenschen* of all kinds' (*The Gay Science*, section 143).

The relation between soul and body is a main theme in Part One. Zarathustra insists that the soul is not separate from and superior to the body. On the contrary, the soul is an instrument of the body, and its characteristics express the state of the body—where 'body' is to be understood as a collection of impulses and drives. Our virtues arise from the body, and are indissolubly linked with the passions that morality usually condemns. Hence those who seek refuge in a world 'beyond' are enemies of life, whose assertions are only symptoms of their own sickness and weariness of life. Zarathustra's scorn for these 'preachers of death' is expressed in a series of fierce denunciations.

Part Two is more poetic, and we now catch glimpses of the higher state, as important themes emerge with greater emphasis. Zarathustra states his task as the 'overcoming of revenge': 'For *that man may be delivered from revenge*, that is for me the bridge to the highest hope, and a rainbow after long storms'. The key to this liberation is the creative will, which, as a 'will to power', is identified as the essence of life itself. Yet Zarathustra notes that one obstacle stands in the way of this otherwise omnipotent power: its own past.

> But now learn this too: the will itself is still a prisoner. Willing liberates; but what is it that puts even the liberator himself in fetters? 'It was'—that is the name of the will's gnashing of teeth and most secret melancholy. Powerless against what has been done, he is an angry spectator of all that is past. The will cannot will backwards; and that he cannot break time and time's covetousness, that is the will's loneliest melancholy.
>
> (*Thus Spake Zarathustra*, Second Part, 'On Redemption')

Because the will cannot will backwards, it suffers from frustration and anger, and *revenge* is its attempt to escape from the predicament. Revenge can be understood at various levels. As a common pattern of social behaviour, it expresses a mixture of motives, ranging from immediate self-preservation to a maintenance of social prestige (*The Wanderer and His Shadow*, section 33). In a narrower sense, revenge is an attempt to redirect one's own pain on to others, under the pretext that their 'guilt' requires them to suffer. From that rationalization in turn derives the whole apparatus of moral thinking and, for that matter, the concept of the individual subject as bearer of moral responsibility. Ultimately, however, revenge is concerned with time: 'This, indeed this alone, is what revenge is: the will's ill-will against time and its "It was"'. It is this alone that accounts for the extraordinary prevalence of revenge, or rather of its intellectual form, the 'spirit of revenge', across the range of human thinking.

Just what is it that makes the past a problem here? Not, it seems, its factual content, but simply its pastness. In that case, whether the events and acts of the past were good or bad, pleasurable or painful, is irrelevant. So is the distinction between actions and mere happenings: one's own past actions, having become past, are as far removed from the power of the will as anything else that has taken place. The past is thus an undifferentiated totality. The solution, if there is one, to the problem of the past must enable us to *affirm* the past as a whole, not just with its pains but with its trivial and meaningless elements. There must, Zarathustra hints, be a way of transforming 'It was' into 'Thus I willed it' and, in turn, into 'Thus I will it; thus shall I will it'. The thought of eternal recurrence, to be considered below, must be seen in that light.

In Part Three of *Thus Spoke Zarathustra*, Nietzsche enters into deeper themes. Peaceful episodes of exalted mystical feeling alternate with stormy scenes of confrontation and struggle, as Zarathustra comes slowly and reluctantly to accept his role as teacher of the eternal recurrence. It is clear that this thought, more than any other, is only for those few who are ready to let it gain power over them. A fourth part of the work changes direction again, with Zarathustra's encounters with the 'higher men' who, in different ways, illustrate the pitfalls in the way of self-overcoming. The intended tone is satirical—but modelled on the ancient satyr plays which followed performances of Greek tragedy. Nietzsche himself was apparently dissatisfied with Part Four since, after having copies privately printed, he withdrew it from circu-lation. Whether *Thus Spoke Zarathustra* can be regarded as a completed work is doubtful. Certainly, many of its themes are left unresolved, not least the one that Nietzsche called the 'fundamental conception' of the book, the thought of eternal return.

ETERNAL RECURRENCE

On his own account, the idea of the eternal return came to Nietzsche quite suddenly, during his summer residence in Switzerland in August 1881. Yet his notebooks of the time reveal a wide reading in popular science and philosophy of nature, including discussions of the idea of recurrence. From the beginning, the idea is sketched out by Nietzsche in several forms. In his notebooks, though not in published works, he sketches an argument using the vocabulary of science. The key to this line of thought is

Nietzsche's finitism. He takes the world to be a finite amount of energy, within a space which is also finite although unbounded. If the world consists of a finite number of 'centres of force', and any state of affairs consists in some configuration of these elements, then the number of possible states of affairs must be finite; or so Nietzsche supposes: critics have pointed out that this is a *non sequitur*, supposing space to be a continuum. But the time within which changes occur is infinite. Nietzsche insists on an infinitude of past time, since a beginning for the world would raise the question of its cause, and perhaps invite a theistic answer. Therefore, after a long but finite period of time, the whole range of possible situations must be exhausted, and some past state will reappear. Such a recurrence of a single total state will lead to the recurrence of the whole sequence of states, in exactly the same order, leading to another complete cycle, and so on into infinity.

This is not a wholly original argument: something similar can be found in earlier philosophers, going back at least as far as Lucretius. With the required premisses, it has the look of a valid demonstration. If we suppose that whatever is possible must occur in an infinite time, that past time is infinite, and that the present state of affairs is a possible one, it follows that this state must already have occurred in the past, not just once but infinitely many times. Similarly, it must occur again infinitely many times in the future. Once a principle of causal determination is added, it follows that the whole course of events leading up to this moment, as well as that following from it, must recur eternally in the same sequence.

As a line of thought, all this is somewhat inconsistent with Nietzsche's expressed views. A vocabulary of static 'states' is at odds with his support of a Heraclitean doctrine of absolute becoming, which allows no standstill, even the most momentary one. Further, the argument relies on a causal determinism stated in terms of necessary relations between 'total states' of the universe. Elsewhere Nietzsche maintains that reality consists not of momentary states related by cause and effect but rather of extended processes which are somehow 'intertwined' or 'entangled' with one another. Causality cannot explain why there should be any change at all, or why change should occupy some finite amount of time, instead of being instantaneous. Nietzsche proposes to explain the finite duration of processes by an inner conflict of forces, a conception bound up with the idea that the will to power is found in physical as well as psychical processes.

In these sketches, the theory of eternal recurrence is arrived at by eliminating two other accounts of the world. The view that becoming continues endlessly into new states of affairs is, Nietzsche argues, excluded by the finitude of the universe. On the other hand, the idea of a final state, one in which all change comes to an end, is refuted by immediate experience. Given an infinitude of past time, such an ending would already have been reached; and, if reached, it would never have given rise to further development, assuming no divine intervention. Since our thinking shows that becoming has not come to an end, a final state must be impossible. This leaves only one possibility: that the same states are repeated again and again, infinitely many times. Now this procedure is not very consistent with Nietzsche's programme for scientific thinking: a theory arrived at by elimination is not a daring hypothesis, or even a particularly imaginative conception. In any case, a scientific theory of eternal recurrence, however valid, does not account for anything in our experience, and so has no value for scientific explanation; it is just a final

consequence of premisses already accepted. We could see all this as an *ad hominem* strategy, arguing with science on its own grounds, and using its own principles of thought. Arguing ideas to their final consequences, even to the point of absurdity is, after all, valued by Nietzsche as a mark of integrity.

In Nietzsche's published works, the idea of eternal recurrence is always presented in a dramatic context of confrontation and challenge. This is especially true of the striking section of *The Gay Science* in which the idea is first introduced:

> What, if some day or night a demon were to steal after you into your loneliest loneliness and say to you: 'this life as you now live it and have lived it, you will have to live once more and innumerable times more; and there will be nothing new in it, but every pain and every joy and every thought and sigh and everything unutterably small and great in your life will have to return to you, all in the same succession and sequence—even this spider and this moonlight between the trees, and even this moment and I myself. The eternal hourglass of existence is turned upside down again and again, and you with it, speck of dust!'
>
> Would you not throw yourself down and gnash your teeth and curse the demon who spoke thus? Or have you once experienced a tremendous moment when you would have answered him: 'You are a god and never have I heard anything more divine.' If this thought gained possession of you, it would change you as you are and perhaps crush you. The question in each and every thing, 'Do you desire this once more and innumerable times more?' would lie upon your actions as the greatest weight. Or how well disposed would you have to become to yourself and to life *to crave nothing more fervently* than this ultimate eternal confirmation and seal?
>
> (*The Gay Science*, section 341)

Here the thought of recurrence is announced, not demonstrated. There is no question of a debate, or even of a choice between acceptance and rejection. Each of us will presumably respond according to the sort of person we are. One possible reaction is a complete collapse. In this respect, the thought is something like the doctrine of eternal punishment; in fact, Nietzsche's depiction of this outcome owes much, surprisingly, to English accounts of Methodist preaching. But the thought is also presented as a power for transformation into a higher state, in which one is able to affirm 'each and every thing' as having a status which is a kind of approach to eternal being, without an imagined escape from the course of becoming.

The element of challenge is just as evident in a powerful chapter of *Thus Spoke Zarathustra* (Third Part, 'On the Vision and the Riddle'). Zarathustra describes an episode in which he confronts his enemy, the dwarflike 'spirit of gravity', and initiates a contest of riddles. He points out a gateway which stands between two lanes, stretching forwards and backwards into an infinite distance. The gateway, at which they come into conflict, has a name: 'Moment'. Zarathustra poses a question: do the lanes contradict one another eternally? The dwarf answers that 'time itself is a circle'—implying that any conflict between past and future is a mere semblance. Angered by the evasion,

Zarathustra retorts with a direct statement of the thought of recurrence: must not everything that runs on these lanes do so again and again? The dwarf, apparently unable to confront this idea, disappears from the scene. A new turn follows, as Zarathustra describes a vision which is also a riddle. A young shepherd is choking on a 'heavy black snake' which has crawled into his throat. The shepherd bites the head off the snake, and leaps up, transfigured: 'one changed, radiant, *laughing*!' What does this mean? The question remains unanswered. Perhaps Nietzsche is unwilling to eliminate the tension and enigmatic character of this situation, or alert to Emerson's suggestion that 'The answer to a riddle is another riddle'.

Some aspects of the theme of eternal recurrence are shared by another main idea of Nietzsche, the 'death of God', first announced in section 125 of *The Gay Science:*

> Have you not heard of that madman who lit a lantern in the bright morning hours, ran to the market place, and cried incessantly, 'I seek God! I seek God!' As many of those who do not believe in God were standing around just then, he provoked much laughter. Why, did he get lost? said one. Did he lose his way like a child? said another. Or is he in hiding? Is he afraid of us? Has he gone on a voyage? or emigrated? Thus they yelled and laughed. The madman jumped into their midst and pierced them with his glances.
>
> 'Whither is God' he cried. 'I shall tell you. *We have killed him*—you and I. All of us are his murderers… God is dead. God remains dead. And we have killed him…. Is not the greatness of this deed too great for us? Must we not ourselves become gods simply to seem worthy of it? There has never been a greater deed; and whoever will be born after us—for the sake of this deed he will be part of a higher history than all history hitherto.'

As in *Thus Spoke Zarathustra,* the message is not received by the marketplace crowd; and the 'madman' acknowledges the failure of his mission. He has come too early, he says.

> This tremendous event is still on its way, still wandering—it has not yet reached the ears of man. Lightning and thunder require time, the light of the stars requires time, deeds require time even after they are done, before they can be seen and heard. This deed is still more distant from them than the most distant stars—*and yet they have done it themselves*.

It must be noted that the message of the death of God is addressed not to believers but to 'those who do not believe in God'. The assumption is that there are no believers in the modern world, or at least in the marketplace, symbol of mass society. When Zarathustra encounters one believer, a hermit who lives apart from society, he refrains from revealing that God is dead; the message is only for those who have brought it about. The hermit is 'untimely' too, and would appear as absurd in the marketplace as the madman. There, support for Christianity is not an error, Nietzsche alleges in *The Antichrist,* but a deliberate lie. 'Everyone knows this, *and yet everything continues as before*.' Nietzsche's target here is those who have abandoned traditional religion yet who assume that morality

can be continued in the same way. ‘They are rid of the Christian God and now believe all the more firmly that they must cling to Christian morality… Christianity is a system, a *whole* view of things thought out together. By breaking one concept out of it, the faith in God, one breaks the whole: nothing necessary remains in one’s hands.’ Nietzsche is insisting on understanding the full implications of disbelief. It puts in doubt not just the explicit content of old beliefs but the standards of knowledge and morality whose foundations they supplied. The madman expresses this as the predicament he and his listeners are in, whether they realize it or not.

As with the thought of eternal recurrence, Nietzsche’s emphasis is on the consequences of the idea, rather than on reasons for supporting it. His atheism does not arise from any critique of arguments for the existence of God. Once we have a psychological account of the origin of belief in God, he argues, ‘a counter-proof that there is no God thereby becomes superfluous’ (*Daybreak*, section 95). Elsewhere his atheism seems to be not a reasoned view but a stipulation. Zarathustra says: ‘If there were gods, how could I endure not to be a god? *Hence* there are no gods.’ His real objection is to the *concept* of God, as a denial of life and, in turn, a symptom of a lack of creative power within individuals and groups.

In this way, the ‘death of God’ is part of a wider theme: what Nietzsche, in his last years of work, termed ‘nihilism’. The collapse of all values, even that of truth, has led to a historical situation of hopelessness. ‘One interpretation has collapsed; but because it was considered *the* interpretation it now seems as if there were no meaning at all in existence, as if everything were in vain’ (*The Will to Power*, section 55). Within philosophy, scepticism and pessimism fit into this picture, as symptoms of decline—ultimately, Nietzsche suggests, owing to physiological causes. But he makes an important distinction between two kinds of nihilism. *Active* nihilism is an expression of strength, while *passive* nihilism is a sign of weakness. Active nihilism finds satisfaction in destroying old illusions, and the will to pursue ideas through ‘to their ultimate consequences’, even to absurdity. This is just the truthfulness that leads to a paradox, by putting the question of its own origin and value, and thus undermining its own validity. Affirmative nihilism represents a preparation for a new phase of creativity. In the symbolic language of *Thus Spoke Zarathustra*, it is the strength of the lion, courageous and defiant, who destroys the authority of every ‘Thou shalt’ and assumes the lonely task of setting up his own values.

NIETZSCHE AS PSYCHOLOGIST

Nietzsche often called himself a ‘psychologist’ rather than a ‘philosopher’. What he meant has little to do with any science of behaviour modelling itself on the physical sciences. In the first section of *Human, All Too Human*, he uses the metaphor of ‘sublimation’, taken from physical chemistry, to express the transformation of lower into higher impulses. (Borrowed by Freud, this expression has become common.) Moral and religious sentiments do not have a higher origin, or give access to any realm of values; their difference from lower impulses is one of degree, not of kind. Crucial to this picture is a rejection of the unity of personality. The self is, in fact, a plurality of forces—

Nietzsche says ‘personlike’ forces, whose relation to one another is a sort of political structure. A healthy and strong personality is one which has a well organized structure amongst its drives and impulses. Despite his talk of the ‘will to power’, Nietzsche regards the will in its usual sense as a fiction. When we analyse the typical ‘act of will’ we find a mixture of various elements: sensations of the ‘before’ and ‘after’ states, of the movement, of the thinking, and above all of the ‘affect of superiority’ associated with an inner commanding. This last is close to synonymous with the will to power. But where that concept comes to the fore is in biology, where it allows Nietzsche to oppose Darwinism, or at least what he takes to be the Darwinist emphasis on the will to live: ‘The physiologists should take heed before they assume self-preservation as the cardinal drive of an organic being. Above all, a living being wants to discharge its energy: life as such is will to power. Self-preservation is only one of its indirect and most frequent consequences’ (*Beyond Good and Evil*, section 13).

For many philosophical questions, it is difficult to separate psychological and metaphysical components in Nietzsche’s approach. His critique of pessimism is an example. Nietzsche argues that it is absurd to make any judgement about the value of the world as a whole, simply because there can be no external measure by which to assess it. If pessimism means that there is more pain than pleasure in life, it implies a hedonism which Nietzsche regards as a superficial psychology. Pleasure and pain are not ‘facts of consciousness’, phenomena whose nature is self-evident, but themselves interpretations, and therefore dependent on context for their meaning. Accordingly, Nietzsche attacks utilitarianism for its uncritical view of pleasure and pain, as well as its appeal to quantitative calculation: ‘What can be counted is worth little’.

Similarly, valuing oneself is entirely dependent on what sort of self this is; despising oneself may represent a higher state. The egoism that Nietzsche advocates is unlike the common version, in that it involves no solicitude for the existing self; that is a sign of weakness, not strength, and a failure in the important task of self-overcoming. Further, the ‘self that such importance is placed upon is a very secondary phenomenon, often merely the product of others’ expectations. The personality that we are aware of in our everyday lives is only the surface of what we are, and the thoughts and motives we attribute to ourselves are only the end-products of the real processes going on within us. A genuine egoism must direct our attention towards the real self, and bring about a transformation of the person. It must be an affirmation of becoming, implying not just change but conflict, contradiction and even destruction. Conflict has to be seen as a positive and creative process, in the spirit of Heraclitus’s statement that ‘War is the father of all things’. Becoming is not just a philosophical concept but something to be affirmed in our lives, by committing ourselves to the process of self-transformation. As Emerson said, ‘Power ceases in the instant of repose’. Affirming becoming means affirming conflict, between individuals and groups of individuals, but also within ourselves.

A constant theme in Nietzsche’s writing, from its earliest period, is his rejection of the freedom of the will and endorsement of a fatalist view of becoming, for which ‘Event and necessary event is a tautology’. But Nietzsche opposes what he calls ‘Turkish fatalism’, which separates human beings from circumstances, and sees them as the passive victims of impersonal, incomprehensible forces. We must realize that we are ourselves a part of nature, and exert as much influence over what is to come as does any other factor. On the

assumption that all things are connected with one another, even our most trivial acts make a difference to the whole course of later events. This notion of *ego fatum* is closely related to another: *amor fati*, often invoked in enthusiastic tones, as Nietzsche asserts that we must not merely accept fate but love it: 'My formula for greatness in a human being is *amor fati:* that one wants nothing to be different, not forward, not backward, not in all eternity' (*Ecce Homo*, 'Why I am So Clever', section 10). Fatalism is not a crushing weight if we 'incorporate' it, so that the force of past and present circumstances is balanced by the same force within ourselves. That there are no goals beyond the process of becoming, no reality above the world of appearance, is to be experienced as a precondition for true freedom.

> For what is freedom? That one has the will to assume responsibility for oneself. That one maintains the distance which separates us. That one becomes more indifferent to difficulties, hardships, privation, even to life itself. That one is prepared to sacrifice human beings for one's cause, not excluding oneself.
>
> (*Twilight of the Idols*, 'Skirmishes of An Untimely Man', section 38)

This responsibility for oneself has nothing in common with the moral responsibility which is a pretext for assigning blame and justifying punishment. It is a function of the strength of will whose typical expression is the ability to make and keep promises—primarily to oneself, not to others. To this 'free spirit', Nietzsche poses the demand: 'Become what you are!' This may suggest a Kantian or Schopenhauerian concept of intelligible character; yet Nietzsche has no belief in an intelligible self, located beyond the realm of becoming.

A REVALUATION OF VALUES

A constant theme in Nietzsche's thought is a radical revaluation of moral conceptions. In *Human, All Too Human*, he introduces a crucial distinction between two kinds of morality. One, the earliest source of these concepts, is the creation of ruling groups and individuals. 'Good and bad is for a long time the same thing as noble and base, master and slave. On the other hand, one does not regard the enemy as evil: he can requite. In Homer the Trojan and Greek are both good. It is not he who does us harm but who is contemptible who counts as bad' (*Human, All Too Human*, section 45). The second kind is that of the subjected and the powerless, the system of moral concepts that rationalizes their lack of power. Nietzsche returns to this theme in *Beyond Good and Evil;* but it is in *The Genealogy of Morals*—the last work he published, and one of his most daring—that the theory is fully elaborated. Each of its three long essays develops a central moral theme in terms of the concept of the will to power. There are two types of morality, 'master morality' and 'slave morality', though Nietzsche adds that 'at times they occur directly alongside each other—even in the same human being, within a *single* soul' (*Beyond Good and Evil*, section 260). In the first case, a ruling group posits its own sense of nobility and superiority as valuable and good. Here 'good' means 'noble', whereas 'bad' means 'common'. In the second case, the weak establish their own values,

in which strength is regarded as 'evil'. At the most fundamental level, the distinction is a 'physiological' one, between active impulses, spontaneous expressions of one's own energy, and the 'reactive' impulses, which by their nature are directed *against* something, an external danger. In fact, the noble are really not much interested in the ignoble; but the weak are preoccupied with the strong. Nietzsche uses the French word *ressentiment* for their attitude. 'The slave revolt in morality begins when *ressentiment* itself becomes creative and gives birth to values: the *ressentiment* of natures that are denied the true reaction, that of action, and compensate themselves with an imaginary revenge.' Christian morality is the most successful instance of such a system. But since the weak lack the power to take revenge directly, their revenge has to be mediated by a long and indirect process of deceitful conceptual manipulation which induces the strong to value respect and pity for the weak, and to condemn their own virtues.

Having laid out this schema, Nietzsche goes on to discuss the concept of responsibility, proposing a prehistory of harsh discipline out of which human beings have acquired the ability to maintain a commitment. Moral conscience is an internalized product of social custom. But like so much of morality, this turns against itself—for its final product is the person whose independence extends to the choice of goals. A further discussion of asceticism brings out the ambiguity which so often appears in Nietzsche's interpretation of moral phenomena. Asceticism can mean either of two very different things. Poverty, humility and chastity can be found in the lives of the great creative spirits; but here they are not valued for their own sakes, only as conditions enabling their activities to flourish most advantageously. This is very different from the attitude of the 'ascetic priest' who is really hostile towards life itself.

Nietzsche's thinking about society is really an extension of his attack on morality. He always emphasizes distinctions and 'order of rank'. He is hostile to socialism, as he understands it, understood as a levelling phenomenon, based on *ressentiment*. It must be remembered that his prototype of the socialist was not Karl Marx but rather Eugen Dühring—ironically, remembered later only as the target of Friedrich Engels's polemical work *Anti-Dühring*. Dühring traces the concept of justice back to the impulse towards revenge. He argues that revenge is given an impersonal and universal form by society, which establishes its own monopoly and takes vengeance out of the hands of individuals. Dühring was also a leading anti-Semite; and Nietzsche perceptively attributes this ideology ('the socialism of fools', as August Bebel called it) to the same underlying impulse. In one way, Nietzsche agrees with Dühring: that a formalist approach cannot account for the concept of justice. But he objects that Dühring has overlooked another class of drives: the active and creative ones. Systems of law are not set up by the weak for their common protection against the strong, or in order to satisfy their reactive feelings. Rather, they are instituted by individuals or groups who are 'active, strong, spontaneous, aggressive.'

CULTURE, ART AND MUSIC

Although its scholarship plays a secondary role to intuition, *The Birth of Tragedy* has been influential for its distinction between the 'Apollonian' and 'Dionysian' strains in

Greek culture. Nietzsche wanted to get away from the classical stereotype of Greek culture, to point to a darker, more violent and uncontrolled side. He traces the origins of tragedy to the trancelike state of the devotees of Dionysus, the god of death and rebirth. In their drunken ecstasies, the distinction between individual and world is eliminated; the truth of existence as a neverending process of creation and destruction is revealed. The original performers of tragedy, Nietzsche suggests, are the chorus, who translate this insight into the visible forms of the Apollonian style, modelled on dream images. The downfall of ancient tragedy, Nietzsche goes on to argue, was brought about by the ascendancy of rationalism, as represented in the figure of Socrates. Access to the sources of tragic wisdom is now blocked, and so the fruitful interaction of the Dionysian and Apollonian becomes impossible.

Having reached this conclusion, *The Birth of Tragedy* turns into an exercise in special pleading for the Wagnerian 'artwork of the future' as a vehicle for national revival. Nietzsche's ideas on aesthetics cannot be separated from the history of his involvement with Richard Wagner. By the time Nietzsche knew him, Wagner's early admiration for the humanistic materialism of Ludwig Feuerbach had given way to a Schopenhauerian pessimism, clearly visible in the operas of his *Ring* cycle, as in *The Birth of Tragedy*. Much of Wagner's influence was bad, especially a pompous tone and indulgence in personal polemic, both of which Nietzsche soon outgrew. In later years, Nietzsche clearly missed the camaraderie he had enjoyed in the Wagner circle, and wistful references to a group of 'new philosophers' appear in such later writings as *Beyond Good and Evil*. Wagner had argued for an art based on *pathos* rather than *ethos*, claiming Beethoven as both the paradigm case and his own immediate precursor. Many of Nietzsche's later reflections on style take the form of attacks on Wagner and a critique of the Wagnerian musical style which is often just a reaction against it. Music remained a preoccupation for Nietzsche, extending to several ventures in musical composition; in comparison, attention to the visual arts is notable by its absence. Perhaps surprisingly, Nietzsche took no interest in the operas of another winter resident of Genoa, Giuseppe Verdi; instead, he expressed admiration for Bizet's *Carmen*, much to the disgust of one reader, the unrepentant Wagnerian Bernard Shaw. Whether Nietzsche would have welcomed the *verismo* of the 1890s is unclear; his hostility to literary naturalism suggests not, and yet the abrupt termination of his development leaves such questions open.

More importantly, however, Nietzsche wanted to become known as a poet. His published works contain not only some light satirical verse but also more serious poetry, so-called 'dithyrambs', a term suggesting the choral hymns of Greek drama; *Thus Spoke Zarathustra* contains many instances of such a poetic prose.

Nietzsche wanted to be thought of as a 'good European', like Goethe, standing above national divisions. He often made derogatory comments about German culture, arguing that the political and military victories of the Prussian Empire had been achieved at the expense of its cultural values, and professing to think more highly of French culture for its *esprit*. The light style of French aphorists such as La Rochefoucauld and Chamfort appealed to him as a model which he emulated with some success. As a humorist he is less skilful, but *The Wagner Case* is a true satire, which conveys serious ideas with a light touch.

INTERPRETATIONS OF NIETZSCHE

Although his books sold poorly when first published, Nietzsche had become a well-known writer by the time he died. His unpublished writings, which included several completed works and a large collection of notebooks, remained under the control of his sister until her death in 1935. The history of their publication is a dramatic and in part scandalous story. Extensive notes from the last years of his work were brought out under the name *The Will to Power*, one of the many titles for works that Nietzsche projected. Whether he would ever have issued anything resembling this book is very doubtful indeed. The value of Nietzsche's notebooks has been the subject of a somewhat sterile controversy amongst commentators, with opinions ranging from summary dismissal to the equally exaggerated view that Nietzsche deliberately withheld his most important ideas. The sudden ending of his working life makes any claim as to what he would have later published speculative.

The control of Nietzsche's writings by his sister, until her death in 1935, had unfortunate effects. Nietzsche's reputation has suffered from her admiration for Adolf Hitler, an honoured guest at the Nietzsche Archiv in Weimar, where he was photographed contemplating a bust of the philosopher. More significantly, the works themselves were often tampered with, passages being removed or even altered to suit the purposes of Elisabeth Förster-Nietzsche. A scholarly edition, begun in the 1930s, was interrupted by the Second World War before it had progressed beyond the earliest writings; not until the 1960s was a collected edition of Nietzsche's writings begun again, under the editorship of two Italian scholars, Giorgio Colli and Mazzino Montinari. This work has continued steadily, to the great benefit of scholarship.

Nietzsche's influence has been strong on artists. Composers such as Richard Strauss and Delius set passages of *Thus Spoke Zarathustra* to music, and Nietzsche's life has inspired such works of fiction as Thomas Mann's *Doctor Faustus*, and was even the subject of a 1977 film entitled *Beyond Good and Evil*, described by one reviewer as 'somewhat disturbingly unpleasant'. In English-speaking countries, appreciation of Nietzsche was slow to come. His admirers were often eccentrics of an intellectual fringe, attracted by his scornful remarks about democracy, socialism and feminism. James Joyce's story 'A Painful Case' gives a cruelly accurate picture of the 'Nietzschean' of this period. A collected English edition of Nietzsche's published works was brought out by these enthusiasts shortly after his death. The translations are of variable quality, with *Thus Spoke Zarathustra* dutifully rendered in a distractingly pseudo-Biblical style. The later translations of Walter Kaufmann and R.J.Hollingdale, covering the same range, are far superior in both reliability and readability.

The 1960s saw a renewal of interest in Nietzsche and, in a slightly arbitrary way, three important works of that time, appearing in different languages yet in close succession, may be singled out. Martin Heidegger's two-volume *Nietzsche* (1961) was really the text of lectures delivered twenty years earlier. Nietzsche is here a figure of historical importance: the last western philosopher of the tradition beginning with Plato, who brings the glorification of the human will to its most explicit form, and whose conception of

nihilism captures accurately the essence of our own historical situation. Gilles Deleuze's *Nietzsche et philosophie* (1962, [7.34]) presents Nietzsche, in a version suited to the French philosophical scene of the time, as an opponent of Hegelian dialectical thought, a philosopher who replaces opposition and contradiction with difference. In Arthur Danto's *Nietzsche as Philosopher* (1965, [7.33]), Nietzsche is something of an analytic philosopher, interested in the problems that have concerned such philosophers: about truth and knowledge, morality and religion. More recently, the 'postmodern movement' in particular is strongly influenced by Nietzsche, as a radical thinker who subverts all established norms. Alexander Nehamas's widely read *Nietzsche: Life as Literature* (1985, [7.50]) is less unorthodox, yet it offers an original interpretation. Nehamas argues that Nietzsche recommends treating one's own life as something like a work of art. By reinterpreting the past, we can overcome the angry frustration of the will confronting the 'stone it cannot move'. All these versions of Nietzsche find support in his writings, as do yet other lines of interpretation. The days when Nietzsche could be put under the 'existentialist' heading are gone.

CONCLUSION

Few philosophers have been as little read during their working lifetimes as Nietzsche. During the century since the ending of his life as a thinker, his reputation has increased steadily. In many ways he seems a twentieth-century rather than nineteenth-century thinker, a prophet of modernism, and even of the social and political changes that began in 1914. He has also remained a source of controversy. Nietzsche has always aroused strong opinions, and been both praised and condemned for the wrong reasons. He was never an academic philosopher, and the entry of his thought into that philosophical sphere has good and bad aspects. Nietzsche would have welcomed the resulting attention, and especially the careful and scrupulous reading of his works. He would have been less pleased at contributing to the academic publishing industry, and at becoming something of an intellectual fashion in some circles. Yet the accessibility of his works ensures that a co-option is not to be looked for. Nietzsche remains the untimely thinker that he wanted to be.

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CHAPTER 8
Dilthey

Michael Lessnoff

INTRODUCTION

Wilhelm Dilthey was born in 1833 near Wiesbaden, and thus lived through the period of Bismarck's creation of a unified German Empire by 'blood and iron'. These turbulent events, however, scarcely perturbed his career, which was wholly that of academic and scholar. For almost forty years he was to hold, successively, four university chairs of philosophy, the first as early as 1866, and culminating (from 1882 to 1905) in that of Berlin. Crucial to Dilthey's philosophical achievement, however, is the fact that he was not a philosopher only, but was equally interested, and distinguished, in the fields of cultural history and biography. Small wonder, then, that Dilthey is famous as the philosopher of the *'Geisteswissenschaften'*—the 'sciences of mind' or (as the term is often translated), the human sciences, or the human studies.

Indeed, the human mind and its products are the beginning and end, the alpha and omega, of Dilthey's philosophy; so much so that it is hardly possible, from his perspective, to draw a definite line between philosophy and psychology. Dilthey's philosophy is above all an epistemology, or theory of knowledge, and human knowledge arises in the human mind. Dilthey's viewpoint here can be interestingly compared with that of Hume. 'It is evident' wrote Hume in the Introduction to his great *Treatise,* 'that all sciences have a relation, greater or less, to human nature [and] are in some measure dependent on the science of MAN; since they lie under the cognisance of men, and are judged of by their powers and faculties'. With this proposition Dilthey was in full agreement, but thereafter the two philosophers sharply part company. Hume, starting from the premiss that all knowledge is a judgement of the human mind, and deducing therefrom the need to understand the operations of the human mind, ended up, somewhat paradoxically, with an account of the mind based on, and assimilated to, our (or its) knowledge of external nature, or natural science. Dilthey arrived at the opposite position. For him the mind is an autonomous realm, with its own principles of operation: correspondingly, knowledge of the mind is the discovery of these inherent principles, not a reading back of the way we know external nature, or natural science. The latter, indeed, are to be understood in a sense derivatively, as the mind's response to the non-mental: to nature as it impinges on human consciousness, and is grasped from the perspective of human life. Dilthey, who, it seems, took the primacy of the human mind more seriously than did Hume, was led by it to a philosophical and epistemological dualism, encapsulated by his famous distinction between two kinds of 'science' (knowledge): the *Geisteswissenschaften* (sciences of the mind, or of the human) and the *Naturwissenschaften* (sciences of nature).

Dilthey fully shared Hume's resolutely *empirical* epistemology (as Hume puts it, none of the sciences can go beyond experience). But he found many reasons to reject the Humean analysis of that experience—to reject, in other words, Hume's psychology, which was accepted by British empiricism generally. In this empiricism, the mind is viewed as the passive recipient of 'impressions' (which it copies in the form of 'ideas'), and as governed by mechanical laws of association of such ideas. To Dilthey (here, doubtless, the heir of Romanticism), this passive and mechanical picture of the mind is false: false, not only of human life as a whole, but even of the 'knowing subject'. (In a well known passage, Dilthey charged that 'no real blood' flows in the veins of the knowing subject 'fabricated' by Locke and Hume—and also Kant.) 'The core of what we call life is instinct, feeling, passions and volitions'; and this 'whole man' must be taken 'as the basis for exploring knowledge and its concepts' ([8.32], 13). Knowledge arises not just in the mind but in 'life'—the life of a feeling, willing, passionate human being. Indeed, the German words *erleben* and *Erlebnis*, used by Dilthey to express the idea of experience in the sense he considered fundamental, are derivatives of the word for life *(das Leben)*. In order to bring out the importance of this for Dilthey, *Erlebnis* is often translated into English as 'lived experience'.

As we saw, Dilthey's epistemology is dualistic, which means that there are two kinds of human experience—external and internal. The difference between them is fundamental. Internal knowledge is the subject's knowledge of itself—of its volitions and cognitions, its reasonings, decisions, values and goals, its mental states and acts in general. In the very having of these states, we are conscious of them, and know them *directly and immediately*. External knowledge also depends on the subjective states and acts of our minds, but it is not knowledge of them. Rather, we experience the external world in relation to our will, and especially in the frustration of our will, or as resistance. As Dilthey put it: 'In the experiences of frustration and resistance the presence of a force is given'—an external force, 'a force [that] is acting upon me' ([8.71], 58). Out of such experiences we construct our picture of the external world. This world, however, is known to us only by inference, not directly, our knowledge of the external world is thus a construction only. We do not know it as we know ourselves, it is fundamentally alien to us. In a way, Dilthey's view of our external knowledge is similar to Kant's: we cannot know things 'in themselves', but only as they appear to us. But he is more radically subjectivist than Kant—Dilthey refused to admit any *a priori* element in our knowledge of external appearances, ascribing it wholly to experience. And his view of our internal knowledge, our knowledge of our minds, is totally un-Kantian, for he held that in this realm we have direct knowledge, by experience, of a reality, of mental things-in-themselves. Kant's distinction between the noumenal (things in themselves) and the phenomenal (things as they appear to us) is replaced by a distinction between internal and external knowledge. It is obvious that this distinction is the root of Dilthey's famous distinction between two kinds of sciences—*Geisteswissenschaften* (sciences of mind or human sciences), and *Naturwissenschaften* (sciences of nature).

Dilthey's interest, as we saw, was primarily in the *Geisteswissenschaften:* he was interested in the *Naturwissenschaften* mainly for the sake of showing that, and how, the *Geisteswissenschaften* must differ from them. What then is the character of the natural sciences? The most fundamental point is that they deal with a world that is, as we have

seen, external and alien to us—a world which impinges on our experience, to be sure, but of whose ultimate, elemental nature we perforce remain ignorant because it is beyond our experience. In Dilthey's own words: our idea of nature is 'a mere shadow cast by a reality which remains hidden from us' ([8.32], 73). The picture of reality constructed by natural science therefore remains always 'hypothetical'—Dilthey referred, in this connection, to the 'groping' towards an adequate theory of nature which was initiated by the philosophers of ancient Greece (and is still continued by physics today) but which can never fully succeed, for 'it is not possible to demonstrate a definite inner objective structure of reality, such that remaining possible structures are excluded' ([8.32], 318). This does not mean, however, that Dilthey considered natural science to be useless or invalid. On the contrary, it is a highly appropriate and fruitful way of conceiving of external nature, from a human standpoint. Science conceptualizes nature in such a way as to facilitate its description in terms of precise, quantitative causal laws. It is thus concerned, in relation to all phenomena, with their typical and quantifiable aspects. In this sense, it is an abstraction from reality, but (in part due to the development of the experimental method) a hugely successful one, giving man mastery over nature: 'Once the causes of change in nature become accessible to our will we can produce the effects we want… A limitless prospect of extending our power over nature has opened up' ([8.36], no). But Dilthey insisted on the distinction between mastery over nature and knowledge of nature-as-such:

> if one…investigates nature insofar as it is the object of intelligence or insofar as it is interwoven with the will as end or means, it remains for the mind only what it is in the mind; whatever it might be in itself is entirely a matter of indifference here. It is enough that the mind can count on nature's lawfulness for the mind's activities in whatever way it encounters nature.
>
> ([8.32], 88)

But scientific laws of nature are also hypothetical, at best probable, never provable by experience; causal necessity (as Hume showed) is likewise a construction beyond experience. In a rather extreme formulation of his position, referring to the scientific world-picture of particles or atoms interacting with one another according to laws, Dilthey commented: 'neither atoms nor laws are real' ([8.32], 319).

Dilthey's conception of the natural sciences is based rather directly on his conception of external knowledge: his conception of the human sciences is based on his conception of internal knowledge, but less directly. Direct, internal knowledge is introspective knowledge, given in the experience of each individual person, of his or her own mental states and acts. Such knowledge is insufficient to constitute the human sciences in general: the latter depend on the presumption of a world of 'other minds' with basically similar contents to our own, revealed in words, deeds, and artefacts. In Dilthey's view, we make this presumption quite unproblematically, and he himself never treated it as a problem. The human world and its doings and makings (what Dilthey called the 'mind-affected world') indubitably exists, and provides the subject-matter of the human sciences. One should perhaps stress the phrase 'mind-*affected* world', in order to avoid misunderstanding of Dilthey's term *Geisteswissenschaften*. Human beings are, as Dilthey

often put it, psycho-physical complexes, not pure minds; and the human sciences deal with what he called *objectifications* of mind (sometimes he used the Hegelian phrase 'objective mind', though not with Hegel's meaning), i.e. the material world as formed by mental activity. Nevertheless the mental aspect is crucial.

The fundamental difference between the *Geisteswissenschaften* and the *Naturwissenschaften* is that, whereas in the latter we construct hypotheses about a world alien to us, in the former we deal with our own world, which we know directly. Thus, Dilthey thought, we can attain to a certainty in our knowledge which is beyond the reach of natural science, and which more than compensates for the much superior precision and generality of scientific laws. The latter can, in a sense, explain *(erklären)* but in a deeper sense the material world must always remain incomprehensible to us. But the human sciences deal with what we can and do understand *(verstehen)*. Dilthey's starting-point here is the individual's understanding of his or her own mental life, of the connections, for example, between one's desires, beliefs and actions. By analogy with this directly understood connection, one can understand the actions of others, as 'expressions' of mind. As Dilthey put it, we understand the mental life of others by re-living or re-experiencing *(nach-erlehen)* that experience. Actions are the most direct but not, Dilthey ultimately believed, the most important expressions of mind from the standpoint of the human sciences: most important are the permanent or lasting expressions—social institutions such as law and religion, human artefacts like the great cathedrals, and—perhaps most important of all—writings and works of art.

Dilthey insisted on a number of crucial differences between the human and natural, or mental and physical worlds. The human world is not a world of strict causal determinism, but one in which individuals are free (within limits) to pursue chosen ends: not a dead and meaningless world, but one in which values are created and recognized; a *historical* world which develops new forms through time, a creative world. Some of these differences are brought out in this graphic contrast of Dilthey's, between a waterfall (a natural phenomenon) and human speech:

> The waterfall is composed of homogeneous falling particles of water; but a single sentence, which is but a noise in the mouth, shakes the whole living society of a continent through a play of motives in absolutely individual units, none of which is comparable with the rest; so different is the ideal motive from any other kind of cause.
>
> ([8.71, 165)

Clearly, Dilthey implies that, if the sentence were treated as nothing more than a noise or succession of noises (which, from the standpoint of natural science, is precisely what it is), the effects produced would be utterly incomprehensible. To understand them, a completely different framework is necessary. Hence the need for a distinctive group of disciplines—the human sciences.

Dilthey's view of the relation between these disciplines differed at different stages of his career. At one, relatively early, stage he considered psychology to be fundamental (not, of course, a psychology modelled on natural science—on this, more below). Later, he came to the view that psychology is not self-sufficient but is as dependent on other

human sciences as they are on it: in particular, he was inclined to stress the importance, for all the human studies, of the interdependence of psychology and history. This, presumably, follows from the element of freedom and creativity which, Dilthey insisted, characterizes human life, making historical development an essential component of it, so that only in history are the potentialities of human psychology—of human nature—revealed. Similarly Dilthey points to a like interdependence between what he calls the two great classes of the human sciences, the historical and the systematic (or generalizing) sciences. Clearly, it was no part of Dilthey's intention to confine the human studies to particularities, and not infrequently he even referred to their discovery of laws (e.g. Grimm's Law in linguistics). Presumably, however, these laws or generalizations do not have the strict deterministic status that Dilthey attributed to the laws of natural science. Indeed, notwithstanding the generalizing aspect of the human sciences, Dilthey regarded their historical aspect as so fundamental that he referred to the epistemology of the human sciences which he sought to develop as a 'critique of historical reason'.

The idea of a 'critique of historical reason', with its obvious Kantian echoes, occurs in a work published in 1883, the *Einleitung in die Geisteswissenschaften (Introduction to the Human Sciences)*, and Dilthey's attempt to formulate it in a fully satisfactory form was to preoccupy him for the rest of his life. That much remained constant, but there are notable inconsistencies in the views Dilthey expressed over the years, and even in a single work. In the *Einleitung*, for example, the distinction between historical and systematic (generalizing) sciences is made, but it is doubtful whether it is actually used in Dilthey's survey and classification of the various 'special' human sciences. This is as follows. First, and most basic, are the sciences that deal with individual human beings—psychology and biography. (But biography is really an aspect of psychology—its historical aspect. It is also, in Dilthey's view, a main component of history proper.) In addition there are two kinds of social science (as we would now call them): sciences of systems of culture, and sciences of external organization of society. By 'systems of culture', Dilthey means complexes of interdependent actions devoted to some particular human purpose (examples are economics, religion and art); by 'external organization of society' he refers to the state and other associations, communities and relations of dominance and dependence (we might call these formal and informal social structures). Both types, Dilthey believed when he wrote the *Einleitung*, are dependent on psychology: their fundamental concepts are psychological concepts. Examples are the concepts of 'need, economy [i.e. thrift], work, value and the like', which are the foundation of political economy; or the 'instinct for sociability' which, Dilthey says, underlies human communal organization. Dilthey says that these concepts are, from the psychological point of view, 'second-rank concepts', i.e. non-basic; but he does not mean by this that they are simply deducible from the basic concepts and laws of individual psychology, as might have been asserted by, for example, John Stuart Mill—rather, they are concepts having to do with *interaction* between individuals, rather than concepts relating to individuals as such. (Dilthey is not very forthcoming about the precise nature of this relationship, which he describes as 'complicated', but he is emphatic that the attempt to elucidate it in terms of deduction and induction is useless—it rests on a wholly inappropriate model borrowed from natural science.)

The above schema may seem to be consistent with Dilthey's distinction between

historical and generalizing sciences, but this is actually doubtful, for in the *Einleitung* Dilthey gives prominence to—he repeats it several times—a different schema of classification involving not two but three elements, and which are said to distinguish not different types of human sciences but different types of *assertion* made within the human sciences generally. The three types of assertion are the particular or historical, the generalizing or theoretical, and—thirdly—the value-judging or prescriptive. It is clear that Dilthey considers that a single human science can, or should, contain all three. Perhaps the difference between historical versus generalizing sciences, and historical versus generalizing elements within a science, is a relatively minor discrepancy. However, the addition of evaluation or prescription is of the greatest importance. Dilthey was, indeed, insistent on the impossibility of separating factual statements and value-judgements in the historical and human sciences—though it is not clear in exactly what sense he believed the value-judgements involved to be scientific. On this puzzling aspect of Dilthey's thinking more will be said below. At any rate, it illustrates an important point, namely, that Dilthey's conception of the range of the human sciences is much wider than the word 'science' might suggest to English speakers. Thus, a list (in a later work by Dilthey) includes not only history, economics, jurisprudence, politics and psychology but also the study of religion, literature, poetry, architecture, music and 'philosophic world views and systems' ([8.36], 170). The earlier *Einleitung* mentions three 'special human sciences' which deserve some com-ment—philosophy, aesthetics and ethics.

Ethics, Dilthey insists, is one of the 'sciences of systems of culture', it is the study of social morality, rather than an 'imperative of personal life', or a 'theory of the righteous life' separate from sociology, a view of ethics that Dilthey attributes to Herbert Spencer. Dilthey's own view appears to be an example—even the most important example —of his general belief in the inseparability of fact and value in the human sciences. In the present case, it makes him an ethical empiricist. Put slightly differently, his view is that values, like knowledge, arise within the context of human life, in experience. We experience them in ourselves, and attribute them to others, as motives and as grounds of judgement. Dilthey rejects the notion of any 'transcendent' ground of moral judgement, higher than human life itself. Nor, it seems, does he wish to make any sharp, qualitative distinction between the 'third person' value-judgements that the human scientist may discover in his subject-matter, and 'first person' value-judgements that he makes *qua* human scientist. When we discuss (below) Dilthey's view of history and the great variability of historical forms, we shall see that his view of ethics gives rise to a serious problem of relativism.

Aesthetics and philosophy are said by Dilthey to be sciences that study, respectively, art and science. The two cases are of interest for different reasons. The case of aesthetics illustrates, again, Dilthey's contention that, in the human sciences, knowledge and evaluation are inseparable and equally indispensable elements. (Some scholars, indeed, believe that Dilthey's whole conception of the human sciences is rooted in his conception of aesthetics.) Equally important, art—especially literature—is for Dilthey itself an expression of the attempt to understand human life. Great art—great literature—by definition abounds in such understanding. This does not mean that art or literature is itself one of the human sciences, because it is not expressed in the systematic form of a

science. Nevertheless, art and the human sciences have in a sense a similar task. The human sciences have much to learn from the arts: ‘None of us would possess more than a meagre part of our present understanding of human conditions, if we had not become used to seeing through the poet’s eyes’ ([8.71], 233). Furthermore, aesthetics must have a special status among the human sciences, being the attempt to understand attempts to understand human life, or expressions thereof taking a particular form. It is not surprising, therefore, that Dilthey attached so much importance to aesthetics, and indeed contributed largely to it.

To call philosophy a human science, as Dilthey does, may seem surprising: it may seem that philosophy has as its subject-matter all reality, not only human activity. Consistently with this, there can of course be historical and other study of human philosophizing (again a field in which Dilthey was himself prominent)—but that is something different. The notion of philosophy as a human science is itself the staking out of a philosophical position, and follows from Dilthey’s oft-repeated, fundamental standpoint, the primacy of *life* (that is, human life). ‘Thought cannot go behind life.’ All speculation about reality, therefore, must actually concern itself with the way in which reality manifests itself in, or appears to, human life. In other words, genuine and valid philosophy must be epistemology or theory of knowledge. It is the attempt to achieve ‘universally valid knowledge’ about human knowing. ‘As such a theory of knowledge it is a science’ ([8.36], 125). Dilthey’s own philosophy certainly takes this form—so it is after all perhaps not so surprising to find him placing philosophy among the human sciences.

Implicit (and explicit) in Dilthey’s philosophical stance is a repudiation of rival philosophical positions. Dilthey’s is an embattled philosophy, and two of his main enemies are metaphysics and positivism. By metaphysics, Dilthey means abstract, schematic doctrines that claim to grasp the structure or essence of reality. Such doctrines he rejects as false to experience, over-simplifications that cannot capture reality’s variety and complexity, manifested especially in history. They are attempts to grasp the meaning of existence, but premature, one-sided attempts. On these grounds Dilthey repudiates, in the *Einleitung*, what he calls the philosophy of history as ‘not a true science’; he is here referring to theories which see history as the unfolding of some masterplan, aiming at some pre-given *telos*, and interpret historical particulars in the light of, hence in subordination to, the supposed plan or *telos*. To Dilthey this is a distortion that fails to take empirical history sufficiently seriously, in all its particularity and multiplicity. An obvious exemplar of this style of theorizing, which Dilthey repudiates, is Hegel. Another is Comte, who from Dilthey’s point of view is a double sinner, author of a metaphysical schematization of history (the Law of the Three Stages), and a metaphysic that is positivist to boot, that is, which sees the application of the positivist method of natural science to all disciplines, including the human sciences, as the historical *telos* (or at least the *telos* of human thought).

Another way in which Dilthey characterizes a metaphysical system is as a *Weltanschauung* or world-view taking, or claiming to take, philosophical form: ‘When a world-view has been raised to a level at which it is grasped and grounded conceptually and thus claims universal validity, we call it metaphysics’ ([8.32], 29). Hegel and Comte, in fact, can stand as exemplars of two of the three great ‘pure types’ of

Weltanschauungen that, Dilthey maintained, have constantly recurred in the history of human thought and culture, namely naturalism (or materialism), and objective idealism. These are two opposed monistic views of the world, the one interpreting everything in terms of matter, the other in terms of mind or spirit. Dilthey's third pure type of *Weltanschauung*, what he calls the idealism of freedom, is dualistic, seeing the mind as independent of physical causality (and superior to it). Dilthey himself might well appear to be an exponent of this third, dualistic *Weltanschauung*, but this categorization could hardly be acceptable to him, given his view that all the *Weltanschauungen* (including, explicitly, the idealism of freedom) are partial, incomplete views of reality, bound to encounter problems they cannot solve. However, metaphysical philosophy is only one of three spheres in which, Dilthey says, *Weltanschauungen* manifest themselves—the others are religion and art, especially 'poetry' (a term which for Dilthey applies to literature generally). Dilthey's view of the historical relation between religious and metaphysical *Weltanschauungen* is reminiscent of Comte: 'The mental law that general ideas can be completed only in conceptual thought…forces the religious *Weltanschauung* to become philosophical' wrote Dilthey in *Das Wesen der Philosophie* (*The Essence of Philosophy*, 1907) ([8.30, 51]) But of course he did not agree that Comte himself, in his positivistic philosophy, had got beyond metaphysics.

Dilthey's famous typology of world-views can stand as an exemplification of his own prescriptions for the carrying on of the human sciences. It results from a wide-ranging historical survey (in this case, of intellectual and cultural history); and it shows forth, in Dilthey's opinion, a constant of human psychology—for the drive to formulate world-views, in the attempt to make sense of the universe, is, he thinks, precisely that. It thus returns us to the twin premisses of Dilthey's philosophy of the human sciences—psychology and history. We must now examine his views on both of these in more detail.

DILTHEY'S VIEW OF PSYCHOLOGY

Dilthey's 'Ideas Concerning a Descriptive and Analytical Psychology' *(Ideen über eine Beschreibende und Zergliedende Psychologie)* was published in 1894. It is a major element of his *oeuvre*, and a major source of his views on the subject, but by no means the only one. It must be supplemented by later writings, including some not published in his lifetime.

In developing his ideas on psychology, Dilthey had to fight a war on three fronts, against Comtean positivism, British empiricism and German neo-Kantianism. Comte's positivism simply denied the validity of any independent science of psychology whatever, on the grounds of its unamenability to investigation by what Comte took to be the necessary method of all science, the 'positive' method of external observation. The neo-Kantians, such as Heinrich Rickert (their most prominent spokesman), drew a sharp distinction between the historical or cultural sciences, which focus on the particular, and natural sciences, which seek general laws. They placed psychology in the latter category, at the same time denying that it could give knowledge of the transcendent 'noumenal' self, or of the realm of *Geist* or spirit. As for the British empiricists, they took psychology to be a natural science like any other—on this point they agreed with the neo-Kantians,

but differed as to whether there is some deeper spiritual reality undiscoverable by natural scientific method. Dilthey took psychology to be a science, but not a natural science, a science precisely of *Geist*.

In the *Ideen*, Dilthey offers two somewhat different arguments against a psychology based on natural scientific method, a project which he often refers to as 'explanatory psychology'. Natural science is hypothetical. More precisely, it breaks reality down into hypothetical elements, postulates laws connecting them and thus explains phenomena. Such a manner of explanation is called by Dilthey 'constructive'—it constructs a picture of reality out of hypothetical elements linked by hypothetical relations. This method works very well in certain areas, notably those dealing with phenomena that are precisely measurable and subject to controlled experiment. Neither of these conditions obtains in psychology. The result is a chaos of competing theories: 'To each group of hypotheses is opposed yet a dozen more… One sees absolutely nothing which can decide the issue of the struggle' ([8.31], 26). Nor can one hope to improve matters by recourse to areas where the natural scientific method is applicable, such as physiology: 'Consciousness cannot go behind itself ([8.31], 75): in other words, the conscious cannot be explained by the non-conscious. Thus, Dilthey concludes, 'Explanatory psychology is not only now unable, but will never be able to elaborate an objective knowledge of the nexus of psychic phenomena'. It is, Dilthey says, 'bankrupt' ([8.31], 49). Fortunately, however, there is no need, in psychology, to postulate hypothetical entities governed by hypothetical laws, and then construct a picture of reality—for in psychology knowledge of reality is given to us directly. Such a psychology will, however, not be explanatory and constructive, but descriptive and analytic.

What exactly does Dilthey mean by a descriptive and analytic psychology? The crucial point, stressed over and over again by Dilthey, is that apprehension of the psychological is the directly lived inner cognition of systematically connected elements constituting a functional unity or whole. It is not simply the individual elements but equally their unity and connectedness that are directly given to us. To designate this unity or connectedness Dilthey used the word *Zusammenhang* (literally, a hanging-together). The word is important, for two reasons: firstly, because it is perhaps the most characteristic and frequently used term in all of Dilthey's writings; secondly, because its translation into English is neither straightforward nor uniform, since it may refer either to a totality of parts (whole, structure) or to connections between elements. This ambiguity is of some consequence in Dilthey's thinking, and can be illustrated by considering the following passages in the *'Ideen'* which show how the term functions in his concept of a descriptive and analytic psychology:

> Hypotheses do not at all play the same role in psychology as in the study of nature. In the latter, all connectedness *[Zusammenhang]* is obtained by means of the formation of hypotheses; in psychology it is precisely the connectedness which is originally given in lived experience.
>
> ([8.31], 28)

> By descriptive psychology I understand the presentation of the components and continua which one finds uniformly throughout all developed modes of human

> psychic life, where the components form a unique nexus which is neither added nor deduced, but rather is concretely lived. This psychology is thus the description and analysis of a nexus which is originally given as life itself… Every connection *[Zusammenhang]* utilized by it can be verified unequivocally by inner perception, and from the fact that each such ensemble can be shown to be a member of a larger whole, not as a result of deduction, but as given originally in life.
>
> ([8.31], 35)

> For psychology the functional system *[Zusammenhang]* is *given from within* by lived experience. Every particular psychological cognition is only an *analysis* of this nexus… Psychic life is a functional system [whose] component parts…exist within individual systems of a particular kind, [which are the source of] problems to psychology. These problems can be resolved only by means of analysis: descriptive psychology must be at the same time an analytic psychology… Analysis separates the component parts which are united in reality.
>
> ([8.31], 56–7; emphases in original)

In brief, Dilthey, in the course of these three passages, moves from asserting the experienced connectedness of psychological items, to asserting that these connections constitute larger wholes or systems, also directly experienced (and the word *Zusammenhang*, translated in the first passage as connectedness, refers in the third passage to the total functional system). Thus Dilthey arrives at his conclusion that psychology should take the form of analysing the elements of given psychic wholes.

The ambiguity of the word *Zusammenhang* is significant primarily because of its bearing on two concepts that are central to Dilthey's philosophy of the human sciences, namely understanding *(Verstehen)* and meaning *(Sinn, Bedeutung)*. Do 'understanding' and 'meaning' turn on relations between connected elements or on relations between parts and wholes? Dilthey gives both answers, and the importance of this will become apparent for the philosophy of social science as elaborated in his later work. But the point is already prefigured in his writing on psychology. Here is one account given by Dilthey of his favoured method of psychological analysis. A state of human consciousness characteristically involves, he says, three elements or modes, namely, representations (of the world), feelings and volitions. Dilthey stresses the interrelation of all three, but especially the role of volitions, in producing action. Analysis, then, must 'define the concepts of goal-positing, motive, relation between ends and means, choice and preference and unravel the relations which exist among these' ([8.31], 70). It is, in other words, a process of relating actions and their outcomes to the motives, goals and volitions which produce them—and corresponds to the (or a) definition of *Verstehen* (understanding) later given by Dilthey: 'Understanding penetrates the observable facts of human history to reach what is not accessible to the senses and yet affects external facts'—for example, values and purposes ([8.36], 172–3) But more often, in the *Ideen*, Dilthey relates *Verstehen* not to such connections but to the grasping of wholes. For example:

> The processes *of the whole psyche* operate together in [lived] experience… In the lived experience a particular occurrence is supported by the totality of psychic life, and the whole of psychic life belongs to immediate experience. The latter already determines the nature of our *understanding (Verstehen)* of ourselves and others… In understanding we proceed from the coherent whole which is livingly given to us in order to make the particular intelligible to us [emphases in original]… Precisely the fact that we live with the consciousness of the coherent whole, makes it possible for us to understand a particular sentence, gesture, or action. All psychological thought preserves this fundamental feature, that the apprehension of the whole makes possible and determines the interpretation of particulars.
>
> ([8–31], 55)

What exactly does Dilthey have in mind when he refers to a psychological (psychic) whole? The answer is twofold, but both aspects relate to the life of the human individual. One is what might be called the individual's personality-structure *(Zusammenhang des Seelenlebens);* the individual is a psychic unity or (in another of Dilthey's phrases) *erworbener seelischer Zusammenhang* (translatable as 'acquired psychic nexus'). This phrase implies the unification of an individual's experience, representations, feelings, purposes and values into a whole that makes one the person one is, and makes one pursue the goals that one pursues. Thus, when Dilthey talks of a 'descriptive and analytic' psychology, he means the description, analysis and classification of such structures. Such a study should cover the entire range of human life, 'from its more humble to its highest possibilities'. But Dilthey was especially interested in the latter—in 'religious genius, historical heroes, creative artists'. Since such outstanding figures are 'motive forces in history and society', psychology 'will become the instrument of the historian, the economist, the politician' ([8.31], 40–1).

In referring to the acquired psychic nexus, Dilthey refers to the enduring values, habits of will, and dominant goals that make it up. But values and goals generate action, and therefore change. Thus the psychic structure is inherently dynamic. It develops over an individual's life. And the individual life is also, according to Dilthey, a systematically connected whole—one that develops through time, and can be understood. The writing of a biography is the attempt at such a coherent understanding of an individual life (autobiography is the individual's attempt at such understanding of his or her own life). Dilthey frequently applies the concept of *meaning* to this understanding of human life; but an ambiguity is detectable, similar to that mentioned above in relation to understanding itself. Is this 'meaning' the relation between an action and its purpose, goal or motive? or does it lie in the coherent relation of parts of a whole (life)? Again, Dilthey gives (or at least suggests) both answers. Thus, his remark that the meaning of a life is the relation between its outer events and 'something inner' ([8.35], 91) suggests the former. But predominantly the latter interpretation is stressed, as in this typical passage:

> What is it that, in the contemplation of one's life, links the parts into a whole and thus makes it comprehensible? It is the fact that understanding involves…

> the categories of…value, purpose and meaning… Looking back at the past in memory we see, in terms of the category of meaning, how the parts of a life are linked together.
>
> ([8.35], 103)

Despite the importance of the concepts of value and purpose, 'only the category of meaning', Dilthey insists, expresses 'the connectedness of life' ([8.35], 104). Again the grasping of meaning is the grasping of a *Zusammenhang*.

The quotation above is also significant for another reason, namely, the reference to memory, for this relates to one of the most characteristic and suggestive, and possibly influential, elements in all of Dilthey's work, namely, the *temporality* of life. To say that a human life is lived through a duration of time may seem banal; but Dilthey was at pains to stress the difference between *lived* time and the abstract time of (say) the physical scientist. Lived time 'is not just a line consisting of parts of equal value… Nowhere [in such a linear continuum] is there anything which "is"'. Indeed, the character of lived time is paradoxical, in that we live *always* in the present, but the present *includes* the past, through memory, and the future, through our plans, hopes and fears.

> Concrete time consists…of the uninterrupted progress of the present, what was present becoming the past and the future becoming the present, [that is], the becoming present of that which a moment ago we still expected, wanted or feared…this is the character of real time… The present is always where we live, strive and remember: in brief, experience the fullness of our reality, [but] the continued effectiveness of the past as a power in the present, gives to what is remembered a peculiar characteristic of 'being present'.
>
> ([8.35], 98–9)

In these passages, where human life is characterized as a continually moving present which contains a (likewise continually moving) past and future, Dilthey is referring to the structure of the life of an individual: but he could equally well be referring to his view of history.

PSYCHOLOGY, HISTORY AND THE HUMAN SCIENCES

Many commentators on Dilthey have remarked on a pronounced change in his thinking about the human sciences in the years after he wrote the *Ideen,* and especially in the last period of his life. In brief, the change discerned is a down-grading of individual psychology, and a corresponding turn to emphasizing the importance of concrete, objective manifestations ('expressions') of mind in history and society, and the interpretation of such expressions. Michael Ermarth, for example, in his *Wilhelm Dilthey: The Critique of Historical Reason,* speaks of Dilthey's thought moving away from subjective acts of experience to intersubjective and mediated contexts of experience, or in other words from the psychological to the cultural and historical ([8.65], 232). There is undeniably much truth in this perception of the trend of Dilthey's thought. He certainly

abandoned his view of psychology as the very foundation of the human sciences, and he at least wavered of one of the cornerstones of his early thinking, namely the certainty of the knowledge afforded by introspection of lived experience. On the other hand, the continuities between the earlier and later phases of his think-ing should not be overlooked. For example, already in the *Ideen,* Dilthey clearly stated the need to study not just the individual psyche but all of human history and culture, in order to arrive at a full description, classification and analysis of the mental. The following passage in the *Ideen* puts the point quite bluntly: 'Man does not apprehend what he is by musing over himself, nor by doing psychological experiments, but rather by history' ([8.31], 62). To understand human psychology, also, we must study the mind's *creations*—in literature and art, but also 'in language, myth, religious ritual, customs, law, and in the external organization of society'—in brief, in all historical processes which are products of the human mind. Recourse to 'the objective products of psychic life' must supplement perception of inner states, is indeed, Dilthey says, of the greatest importance: 'it is an inestimable advantage to have before us stable and enduring formations, to which observation and analysis can always return' ([8.31],81). As for methods, we learn about 'inner processes' of mental life by recourse to such evidence as diaries and letters, the reports of poets on poetical creation and the lives of religious geniuses, such as St Francis, St Bernard and Luther.

It is clear, then, that the theory of mental expressions—certainly the most celebrated idea in Dilthey's 'critique of historical reason', and probably his most admired contribution to philosophy—was already present *in nuce* at a relatively early stage, even if it had to await its fullest and most systematic formulation till much later. And the references (above) to Sts Francis and Bernard, and to Martin Luther, serve as a reminder of another continuity between the earlier and the later work, namely, the pivotal role of biography. Biographies are both source and subject-matter for psychology and history equally. Biography and history, of course, cannot be simply equated, as Dilthey was well aware—he never reduced history to the doings of 'great men', however much he stressed their historical importance. Rather, the point is what might be called the structural homology between history and biography. The individual human life, Dilthey says, is the 'germinal cell' of history, in which 'the specific historical categories arise' ([8.35], 73). The individual life, as we noted above, 'is present in the memory' of the individual; thus 'the sequence of a life is held together by the consciousness of identity…the discrete is linked into continuity'. Likewise, history

> is only possible…through the reconstruction of the course of events in a memory which reproduces…the system of connections and the stages of its development. What memory accomplishes when it surveys the course of a life is achieved in history by linking together the expressions of life which have become part of the objective mind, according to their temporal and dynamic relationships. This is history.
>
> ([8.35], 89)

Just as the individual life is lived always in the present, but a present which includes (memories of) the past, so the present of collective humanity also includes its past—is

historical:

> We are hourly surrounded by the products of history. Whatever characteristics the mind puts into expressions of life are tomorrow, if they persist, history. As time marches on we are surrounded by Roman ruins, cathedrals, and the summer castles of autocrats. History is not something separated from life or divided from the present by distance in time.
>
> ([8.35], 124)

And in another striking passage, Dilthey suggests that the role played by memory in the life of the individual is played, in that of 'nations, communities, of mankind itself by the historian. But for his efforts, their past would mean as little to them as would his to a person without a memory. 'The ruins, the remnants of things past, the expressions of mind in deeds, words, sounds and pictures, of souls who have long since ceased to be' surround us but are in themselves dead and meaningless. The historian 'stands in the midst' of these things: his task is to 'conjure up' the past, by 'interpretation of the remnants that remain' ([8.35], 139). He provides human communities with an essential part of human life.

It may seem from the above quotations as if Dilthey, *qua* historian, was a believer in what could be called 'collective minds' of human communities such as nations. This, however, is at best an oversimplification, at worst misleading. Certainly he accepted the reality of peoples or nations *(Völker)* as significant social and historical entities: this is explicit, for example, in the *Introduction to the Human Sciences* ([8.32], 100). But in that book he immediately went on to reject as mystical any suggestion that these entities are supra-individual organisms, or possess a supra-individual 'folk soul' or 'folk spirit' *(Volksgeist)*. Such notions were unacceptable from Dilthey's fundamentally empirical standpoint: empirically, the only bearer of mind is the individual. The relation between the individual and collective entities like nations was therefore a problem that Dilthey took seriously. He later posed it as follows:

> The question now arises, how can a system which is not produced as such in one mind, and which is therefore not directly experienced nor can be reduced to the lived experience of one person, take shape as a system in the historian's mind from the expressions of persons and statements about them? This presupposes that logical subjects can be formed which are not psychological subjects. There must be a means of delimiting them, there must be a justification for conceiving them as units… And here arises the great problem.
>
> ([8.71], 289)

Dilthey's solution to the problem was to identify the nation or people with the national consciousness of individuals: 'It is…the consciousness of belonging together, of nationality and national feeling, on which the unity of the subject finally rests.' This consciousness is firmly rooted by Dilthey in individual psychology: 'The consciousness of belonging together is conditioned by the same elements that assert themselves in the individual's consciousness of himself ([8.35], 152–3). Yet the consciousness of

belonging together creates a collective entity, which in turn influences the consciousness of individuals: 'The common experiences of a nation, common purposes and memories are real. They are the source of the communally determined purposes of individuals.' It is a commonplace, Dilthey says, that only individuals can experience the satisfaction of realized purposes: yet such satisfaction may come from identification with one's nation. 'An individual wills national ends as his own, experiences the nation's experiences as his own, has memories of such experiences as belonging to himself, is filled with them and carried along by them' ([8.71], 294). A nation, therefore, is not only a reality but a distinctive unity: 'Nations are often relatively self-contained and because of this have their own horizon' ([8.35], 130). By this Dilthey means that they have a characteristic conception of reality and system of values. They are not only (through, for example, state organization) historical agents, but appropriate contexts for the interpretation of individual acts and expressions, which they condition. In this, non-metaphysical sense, the term *Volksgeist* can be accepted.

Much the same may be said about the term *Zeitgeist* (or *Geist des Zeitalters*). The *Zeitalter* (epoch, era or historical period) is in Dilthey's thought an important and undoubted reality, often indeed referred to alongside, and in similar terms to, the people or nation, as a 'structural system' or 'unit of the world of mind'. Dilthey puts it thus:

> The common practices of an epoch become the norm for the activities of individuals who live in it. The society of an epoch has a pattern of interactions which has uniform features. There is an inner affinity in the comprehension of objects. The ways of feeling, the emotions and the impulses which arise from them, are similar to each other. The will, too, chooses uniform goals, strives for related goods… It is the task of historical analysis to discover the consensus which governs the concrete purposes, values and ways of thought of a period.
>
> ([8.36], 198)

The *Zeitgeist* is, once again, an appropriate context for the understanding of such expressions, and vice versa. Thus (to cite an example given by Dilthey), the historian can use the civil law of the 'age of Frederick' to 'understand the spirit of that age; he goes back from the laws to the intentions of the legislature and from there back to the spirit from which they arose', or in other words 'the social values, purposes [etc.] present at a certain time and place and which [thus] expressed themselves' ([8.35], 76). Another example, developed at some length by Dilthey, is Teutonic society in the time of Caesar and Tacitus:

> Here, as in every later period, we find economic life, state and law linked to language, myth, religiousness and poetry… Thus heroic poetry arose from the warlike spirit in the Teutonic age of Tacitus, and this poetry invigorated the warlike spirit. From this same warlike spirit inhumanity arose in the religious sphere, as in the sacrifice of prisoners and the hanging up of their corpses in sacred places. The same spirit then affected the position of the god of war in the world of the gods.
>
> ([8.35], 150–1)

It must be stressed, once again, that for Dilthey the *Zeitgeist* is an empirical generalization, not a deterministic force—for if it were the latter there would, presumably, be no change—no history. Yet historicity is, as we know, central to Dilthey's vision of human life. Thus every 'historical configuration' is 'ephemeral'. But historical change is of course neither random nor total. According to Dilthey it arises (in part at least) from the perceived imperfection inevitable in every age, from man's 'unfulfilled longing' (due, for example, to the social inequalities—'impoverishment of existence' and 'servitude'—said by Dilthey to spring from the power relations that are inseparable from human social life). Thus successive ages are linked in the following way:

> Every age refers back to the preceding one, for the forces developed in the latter continue to be active in it; at the same time it already contains the strivings and creative activities which prepare for the succeeding age. As it arose from the insufficiency of the preceding one so it bears in itself the limits, tension, sufferings, which prepare for the next age.
>
> ([8–35], 156)

Thus Dilthey integrates his conception of the *Zeitgeist* into his concep-tion of historical change in a way that allows for individual freedom and creativity. Although we quoted Dilthey (above) on the historian's task of discovering 'the consensus which governs' the values and conceptions of an epoch, 'governs' is really too strong a word; for almost at once Dilthey adds that the historian must assess 'what the individual has achieved within this context, *and how far his vision and activity may have extended beyond it*' ([8.36], 198, emphases added). History is not a realm governed by scientific causality but of 'action and reaction'. The coherences and structures that the historian seeks and discovers are real but 'can never bind or determine what is new, or may appear in the future'. Historical events and changes can be understood after the event, but not predicted in advance. As Dilthey sums it up, 'History does not cause, it creates'. He adds: 'It creates because the structure of life is at work in the acts of knowing, evaluating, setting of goals, and striving for ends' ([8.65], 308). The concepts of all the human sciences (not only history) reflect this fact. Despite the limits placed on human freedom by the causal necessities of nature (within which humanity exists), the freedom due to the human element is real:

> Surrounded though it is by that structure of objective necessity which nature consists of, freedom flashes forth at innumerable points… Here the actions of the will—in contrast with the mechanical processes of change in nature (which already contains from the start everything which ensues later)—really produce something and achieve true development both in the individual and in humanity as a whole.
>
> ([8.32], 79)

DILTHEY'S HERMENEUTIC TURN

In only the last decade or so of his life, Dilthey elaborated what is probably now the most celebrated aspect of his philosophy of the human sciences, or critique of historical reason—namely, hermeneutics. Not that hermeneutics was by any means a new interest for Dilthey—his first major work, indeed, was a notable biography of Schleiermacher (the 'father of modern hermeneutics'), so that the late 'turn to hermeneutics' was for Dilthey a return to scholarly beginnings. Nevertheless, the innovation was marked, for only in his late phase did hermeneutics become for Dilthey the centre of his philosophy rather than an object of historical study.

Dilthey defined hermeneutics as the 'science' of 'the interpretation of the written records of human existence' ([8.36], 228). Thus, his hermeneutic methodology of the human sciences gives pride of place to a science of linguistic interpretation. This is not to say that Dilthey wished these sciences to take as their object of study only written documents: the latter are only one (though very important) category of the 'expressions of mind' which form their subject-matter. Nevertheless, the hermeneutic emphasis does put a particular slant on the mode of interpreting these expressions: they are to be interpreted, so to say, 'as if they were verbal expressions. This has significant implications for some of the central concepts of Dilthey's philosophy of the human sciences—notably understanding *(Verstehen)* and meaning *(Sinn, Bedeutung)*.

Some of these implications emerge from a consideration of the two typical concerns of hermeneutic technique as it developed prior to Schleiermacher and Dilthey (according to the Dilthey scholar Use Bulhoff). One (dubbed 'philological') was concerned to restore corrupt texts (e.g. classical texts) in which errors had accumulated through repeated copying. Another (called 'theological') aimed at grasping the 'true meaning' of Biblical texts ([8.60], 56). Different though these are, both make sense only given a presumption of *unity* or *coherence* in the texts handled. Errors in corrupt texts become apparent through their failure to 'fit', to 'make sense', in terms of the text as a whole—correction restores the 'fit'; similarly, the exegesis of biblical texts proceeded on the assumption that they are mutually coherent and consistent—it might be described as the enterprise of demonstrating their coherence or unity. Dilthey's hermeneutic methodology of the human sciences bears the marks of this ancestry, in its preoccupation with relations of coherence between *wholes* and *parts*. To be sure, we have already seen a similar preoccupation in Dilthey's earlier work; however, some problematic aspects thereof are thrown into relief by the later hermeneutic emphasis.

Perhaps the best-known element of hermeneutic methodology is the so-called 'hermeneutic circle'. Here is how Dilthey at one point defined it: 'The general difficulty of all interpretation [is that] the whole of a work must be understood from individual words and their combinations, but full understanding of an individual part presupposes understanding of the whole' ([8.36], 259). Another passage elaborates the point. In hermeneutics,

> understanding must try to link words into meaning and the meaning of the parts

> into the structure of the whole given in the sequence of words. Every word is both determined and undetermined. It contains a range of [possible] meanings… In the same way…the whole, which is made up of sentences, is ambiguous within limits, and must be determined from the whole [*sic*—error for parts?]. This determining of determinate-indeterminate particulars is characteristic of hermeneutics.
>
> ([8.36], 231)

In brief, hermeneutics is a procedure in which the parts and whole of a text mutually clarify each other, on the presumption that the whole is a meaningfully coherent relation of parts.

To repeat, this is the *model* for Dilthey's late philosophy of the human sciences which, however, embraces not just texts but also non-linguistic expressions of the human mind. Thus extended, the analogy gives rise to certain problems (or at least issues), of which three sources may be mentioned, (1) Not all 'expressions' express meanings in the same sense as do words and texts; (2) Dilthey applies (or seems to apply) the hermeneutic methodology to a range of expressions much wider than the purely linguistic, but not to *all* expressions; (3) in applying the hermeneutic analogy to the human sciences generally, rather than the exegesis of texts narrowly, Dilthey greatly expands the range of 'wholes' (and parts) relevant to interpretation, understanding and the elucidation of meaning.

Regarding the first of the three points above, Dilthey himself explicitly distinguished several different sorts of 'expressions' relevant to the human sciences. Particularly germane is the distinction between *actions* and so-called *Erlebnisausdrücke* ('expressions of experience'), which are verbal, usually written, accounts. The former are 'expressions' in the sense that they reflect purposes, the pursuit of goals etc., and are in this sense meaningful or have a meaning ([8.97], 65–6). Verbal utterances are no doubt likewise purposeful acts, but they also have a meaning in another sense, that is, words conventionally signify some semantic content. It therefore seems as if the fundamental, or most general, sense in which expressions of mind have a meaning which can be grasped or understood is not the same as the straightforwardly hermeneutic sense. This introduces some ambiguities into Dilthey's terminology in that, alongside the hermeneutic version of meaning and understanding, he continued to make use of the 'pre-hermeneutic' sense. Thus, he remarks on 'the fact that inner states find outward expressions, and that the latter can be understood by going back to the former' (this is the business of the human sciences) ([8.35], 75). But he adds that there are two ways in which 'an outer manifestation is the expression of an inner state, namely, 'by means of an artificial convention' [e.g. as in language], or 'by a natural relationship between expression and what is expressed' (as in non-linguistic expressions such as actions which express, and can be understood as expressing, a purpose). It seems that Dilthey is reluctant to make any sharp distinction between the two cases.

It is arguable that the blurring of this distinction encouraged Dilthey to apply his hermeneutic methodology to a wider range of 'expressions' than may be justified. But how widely did he wish to apply it? It appears (though it is difficult to be certain on this point) that the hermeneutic methodology is *not* coextensive with all acts of understanding

of expressions. Dilthey makes a distinction between 'elementary' and 'higher' understanding. The distinction is not particularly clear, but one aspect of it seems to be that 'elementary' understanding is understanding of a *single* expression, such as 'picking up an object, letting a hammer drop, cutting wood with a saw'—actions which 'indicate the presence of certain purposes' ([8.36], 220). All that is involved in this understanding is 'to spell out the mental content' which constitutes the goal of the action. The implication is that 'higher understanding' goes beyond this, and involves the placing of actions in a wider context. It appears to be Dilthey's view that the hermeneutic methodology is a means to 'higher understanding', and is required, or appropriate, where the understanding of expressions is not straight-forward but problematic ([8.97], 101). Clearly this is liable to be the case in relation to textual records emanating from distant periods or cultures; but it is equally likely to be true wherever 'understanding' has to go beyond the everyday intercourse of participants in a common culture—in other words, to embrace the understanding required of historians and social scientists. It looks, therefore, as if Dilthey considered the range of the hermeneutic methodology to be more or less coextensive with that of the human sciences. It is to apply, that is, to actions (as studied by historians and social scientists), as well as to written material.

From Dilthey's assimilation of these different kinds of expressions arise some problematic implications. One is that he is led, quite explicitly, to detach the understanding of expressions, and their meaning, from the goals and intentions of agents ([8.35], 163). For this there seem to be two slightly different reasons, both however derived from the hermeneutic perspective. One is that the meaning of language (which is the focus of hermeneutic interpretation) is a matter of public conventions, rather than the intentions of language users. The other is that, as we saw, the fundamental tool of hermeneutic interpretation is the 'hermeneutic circle', which rests understanding and the grasping of meaning on the part-whole relation, on the presumption that one is dealing with a coherent whole made up of consistently related parts. Dilthey applies this idea (or analogy) quite universally to the categories of understanding and meaning in the human sciences. For example: 'Meaning means nothing except belonging to a whole' ([8.36], 233); 'The category of meaning designates the relationship, inherent in life, of parts of a life to the whole' ([8.36], 235). Dilthey makes it clear that these definitions follow from an analogy between linguistic meaning and the understanding of life in passages such as the following:

> As words have a meaning *(Bedeutung)* by which they designate something…so on the basis of the determined-undetermined *(bestimmt-unbestimmten)* meaning of the parts of life, its structure *(Zusammenhang)* can be figured out. Meaning is the special kind of relationship which the parts of life have to life as a whole.
>
> ([8.60], 121)

In detaching the meaning and understanding of expressions from the intentions of agents, Dilthey appears to risk an incoherence in his philosophy. For he never abandoned his original insight, on which he based his distinction between natural and human sciences, namely that

> we understand others, their doings and their products in fundamentally the same way as we understand our own. Thus: we cannot understand ourselves and others except by projecting what we have actually experienced into every expression of our own and others' lives. So man becomes the subject-matter of the human studies only when we relate experience, expression and understanding to each other.
>
> ([8.36], 176)

This concept of understanding surely cannot be detached from agents' goals and intentions—rather it seems to require our empathizing with them.

Displacement of understanding of actions and their meaning from agents' intentions to the place of the action in a larger whole raises another problem: how to specify the relevant whole. In the strictly or narrowly hermeneutic case, this problem may not appear to be insoluble; but when a hermeneutic approach is applied to history and the human sciences in general, it becomes acute. We have already taken note (above) of Dilthey's predilection for treating the individual human life as a meaningful unity, in terms of which the meanings of its parts are to be discerned. A similar approach is applied to historical events. But as we shall now see, this—and especially the latter—appears to introduce an intrinsic uncertainty or relativism into Dilthey's central concept of meaning (and hence of understanding, which is the grasping of meaning). Dilthey writes:

> The category of meaning designates the relationship, inherent in life, of parts of a life to the whole. The connections are only established by memory, through which we survey our past… But in what does the particular kind of relationship of parts to a whole in life consist? It is a relationship which is never quite complete. One would have to wait for the end of a life, for only at the hour of death could one survey the whole from which the relationship between the parts could be ascertained. One would have to wait for the end of history to have all the material necessary to determine its meaning… Our view of the meaning of life changes constantly. Every plan for your life expresses a view of the meaning of life.
>
> ([8.36], 235–6)

Some obvious problems arise from this passage. So far as the individual life is concerned, Dilthey vacillates between two points of view: namely, that a human life is a natural unity stretching from birth to death, from which the meaning of its parts derives; and that it is a continually developing and changing unity, with corresponding change in the meaning of parts. Something similar applies to history. 'One would have to wait for the end of history to have all the material necessary to determine its meaning.' But Dilthey elsewhere has explicitly stated that history as a whole has no single meaning, no over-arching *telos* or goal ([8.71], 303). Where then can the historian find the unity needed to discern meaning and permit understanding? Does he or she need to find such a unity? Undoubtedly, historical development continually reveals new connections (as Dilthey might have put it, *Zusammenhänge*) which call for reinterpretation of past events, and the historian's function is a continual analysis and re-analysis of these connections. But a

Zusammenhang, in the sense of structured connection, is not a definable *whole* made up of definable parts. Or to put it another way, to ask the historian to convert a pattern of connections into a meaning-conferring whole seems to give him or her a great deal of latitude in the assignment of meaning. One has to wonder if this is any longer 'science'.

HISTORICISM AND THE PROBLEM OF RELATIVISM: DILTHEY'S SOLUTION

There is one answer given by Dilthey to this problem of the definition of historical wholes, which is of particular interest because, in so far as it does help to solve that particular problem, it immediately raises another. We noted above the importance attached by Dilthey to the concept of the historical period *(Zeitalter)* and its unifying 'spirit': we must now note his view that this constitutes a whole that confers meaning on its parts:

> Everything in an age derives its meaning from the energy which gives it its fundamental tendency… All the expressions of the energy which determines the age are akin to each other. The task of analysis is to find the unity of valuation and purpose in different expressions of life… The context forms the horizon of the age and through it, finally, the meaning of every part in the system of the age is determined.
>
> ([8.35], 156)

For the sake of argument, let us suppose that this particular kind of unity is a more or less objective fact that can be discovered by the scientific historian. If so, we have solved one problem only to raise another—one of which Dilthey was acutely aware, indeed it concerned him deeply. Each age takes its own values, its own world-view, as unproblematically valid—this is even the necessary condition of its creativity—but historiography shows such assumptions to be naive and untenable. The historical study of human life reveals—this indeed is its point, and its glory—the immense variety of expressions of that life, including values and world-views. But the obverse of this is the problem of historical relativism:

> Historical comparison reveals the relativity of all historical convictions. They are all conditioned by…circumstances… Historical consciousness increasingly proves the relativity of every metaphysical or religious doctrine which has emerged in the course of the Ages.
>
> ([8.36], 112)

The same applies to 'values, obligations, norms and goods'. Dilthey writes:

> History does indeed know the positing of something unconditional as value, norm, or good… But historical experience knows only the process of positing… and nothing of their universal validity. By tracing the course of development of

> such unconditional values, goods or norms, it notices that life has produced different ones and that the unconditional positing itself becomes possible only because the horizon of the age is limited… It notices the unsettled conflict among the unconditional positings.
>
> ([8.35], 165)

This state of affairs Dilthey called 'the wound brought about by the knife of historical relativism' ([8.60], 21).

Is the wound so fatal? Does the 'chaos' of conflicting world-views and values mean that none of them can be objectively true, or—worse—that there is no such thing as objective truth in these realms? It might well seem that such sceptical and unsettling conclusions do *not* follow from any amount of historical evidence. But here we must remind ourselves of Dilthey's philosophy of values, which like everything else in his philosophy rests finally on the bedrock of 'life'—values arise *in life*, and there is nothing 'behind' life to which we can appeal. The relativist implications of Dilthey's combination of ethical subjectivism and historicism seem inescapable.

Yet Dilthey sought to escape them, and to assert at least some universal values—even to deduce them as implications of his philosophy of history and the human sciences. These are values of individualism, freedom and creativity. According to Dilthey 'the dignity and value of every individual' is an unconditional value ([8.35], 74); 'the individual is an intrinsic value [which] we can ascertain beyond doubt' ([8.36], 224). Why so? Because says Dilthey, the individual is the ultimate 'subject-matter of understanding'. 'Understanding has always an individual for its object' ([8.71], 276). A philosophy of human sciences which proposes to understand mental life must presuppose the value of the bearer of mental life, the human individual.

Furthermore, Dilthey's philosophy of the human sciences is posited on a conception of mankind as being (unlike nature) free and genuinely creative. A historiography which reveals a multiplicity of values and world-views is a revelation of this freedom and creativity. Revelation of this truth is liberating. Historicism, therefore, continues and even completes the increasing realization of man's potential for freedom and creativity that was earlier carried forward by such episodes as the Renaissance, the Reformation and the Enlightenment:

> The historical consciousness of the finitude of every historical phenomenon… and of the relativity of every kind of faith, is the last step towards the liberation of mankind. With it man achieves the sovereignty to enjoy every experience to the full and surrender himself to it unencumbered, as if there were no system of philosophy or faith to tie him down… The mind becomes sovereign over the cobwebs of dogmatic thought… And in contrast to relativity, the continuity of creative forces asserts itself as the central historical fact.
>
> ([8.35], 167)

Alas, this resolution of the problem hardly seems satisfactory. Dilthey seems to oscillate uneasily between spelling out what he takes to be the moral implications of a humanistic science, and extracting a historicist ethic from its findings. This latter kind of argument

hardly seems open to him, given his denial that history has any necessary *telos* or goal. We surely do not want to put the values of individuality, freedom and creativity at the mercy of unpredictable historical trends. The last quotation cited above bristles with problems. How can Dilthey predict with such confidence the liberating effects of the 'historical consciousness', given his view that history is inherently unpredictable? And suppose his prediction is right—is it really desirable that people become free 'to enjoy *every* experience to the full'? The problem of liberty and its proper limits cannot be solved by invoking history in this way. A historicist ethic is liable to end up with either an arbitrary interpretation of history, or an undiscriminating endorsement of whatever happens. Dilthey, unhappily, falls into the latter trap. Let us fill in some gaps left in the last quotation above. 'The mind' writes Dilthey 'becomes sovereign over the cobwebs of dogmatic thought'. He continues:

> Everything beautiful, everything holy, every sacrifice relived and interpreted, opens perspectives which disclose some part of reality. And equally, we accept the evil, horrible and ugly, as filling a place in the world, as containing some reality which must be justified in the system of things.

Do we? Must it? Surely not.

DILTHEY'S HUMANISM

Dilthey's attempts to solve the problem of relativism led him to an unacceptable conclusion; however, the problem itself is, in part, the obverse of what is perhaps most attractive in his philosophy, namely what may be called his humanism—his passion to understand all the varied and multifarious expressions of the human spirit. Dilthey stressed equally the enormous variety of these expressions, and the fundamental unity of human nature from which they spring. As he put it in a famous remark, for interpretation of the expressions of human life to be necessary—to be a science—there must be something alien about them, something puzzling that sets us a problem of understanding: on the other hand, if they were utterly alien, interpretation and understanding would be impossible. His entire enterprise therefore presupposes a fundamental unity of the human race.

DILTHEY'S INFLUENCE

Dilthey's influence on later thought has undoubtedly been significant, in both philosophy and the social sciences. So far as philosophy is concerned, a recent discussion underlines his relevance to the shaping 'of the dominant Continental movements of phenomenology, existentialism, and hermeneutic philosophy' ([8.87], vii). In Dilthey's relations with Edmund Husserl (the chief creator of phenomenological philosophy) influences in fact ran in both directions. The two men met in the winter of 1905/6, and, according to Husserl's own testimony, thereafter 'the problems pertaining to phenomenology as a

human science…occupied me more than almost all other problems' ([8.87], ix–x). There is no doubting the influence of Dilthey's 'philosophy of life' on Husserl's central concept of the 'life world'. Equally clear is the kinship between some of Dilthey's ideas and those of the existentialism of Martin Heidegger—for example, the key role of time and memory in human life, the conception of man as essentially free and creative, and the corresponding relativity of values. Another existentialist philosopher, Karl Jaspers, explicitly acknowledged Dilthey's influence on his thinking (in his *Allgemeine Psychopathologie,* a work of psychiatry rather than philosophy—nevertheless the influence is likely to have been more general). Dilthey's importance for the hermeneutic movement in philosophy is almost too obvious to mention (a recent review in the *Times Literary Supplement,* 24 July 1992, p. 7, refers to him simply as 'the founder of modern hermeneutics'). But it is perhaps worth pointing out, in this connection, that (for example) Hans-Georg Gadamer's well-known concept of the 'fusion of horizons' seems clearly to be a response to Dilthey's references to the 'closed horizon' of the historical period *(Zeitalter).* Equally obviously, Jürgen Habermas, leading contemporary representative of the 'critical theory' of the Franfurt School, is indebted to Dilthey for his categorization of human knowledge—or rather for two-thirds of it, since Habermas has turned Dilthey's dichotomy into a trichotomy. However, Habermas's category of 'historical-hermeneutic sciences' has an unmistakable Diltheyan ring, while his category of 'empirical-analytic sciences' stemming from a human interest in technical control of nature has much in common with Dilthey's conception of the *Naturwissenschaften.*

Even more important, perhaps, has been Dilthey's influence on social science and psychology, or rather on those within these 'human sciences' who resist their assimilation to the natural sciences. In anglophone psychology Dilthey's influence has not been great (it has been swamped by the behaviourists and Freudians) but in the German-speaking world it has given birth to a movement known as *verstehende Psychologie* and has been influential with a number of psychiatrists, such as Heinz Hartmann and Ludwig Binswanger ([8.60], 160). Cultural anthropology is another field in which significant influence has been attributed to Dilthey—Franz Boas attended his lectures in Berlin, while Ruth Benedict explicitly invokes Dilthey in her *Patterns of Culture* ([8.60], 175). But if Dilthey has been influential within the social sciences, it has been above all by influencing one of the most influential of all social scientists, Max Weber. Marianne Weber, in her famous biography of her husband, informs us that Dilthey was a frequent visitor to the Weber household in Berlin ([8.111], 39) and confirms that Weber based his own concept of *Verstehen,* so central to his sociology, on that of Dilthey ([8.111], 312). Another central concept of Weberian sociology—that of meaning and the meaningful—likewise looks to have a Diltheyan ancestry. However, some care is needed here, and it is perhaps as important to point to the differences as to the similarities in the conceptual schemes of the two men. According to Weber, the subject-matter of the social sciences is 'social action', and by 'action' he means 'all human behaviour when and insofar as the acting individual attaches a subjective meaning to it' ([8.112], 88) In other words, for Weber, the meaning of an action is defined by the agent's motives and intentions: understanding is grasping these motives and intentions. Weber's concept of understanding or *Verstehen,* therefore, seems to derive from the earlier, pre-hermeneutic phase of Dilthey's thought—the later, hermeneutic phase had no influence on him. Nor

did Weber (unlike Dilthey) see any incompatibility between understanding *(Verstehen)* and causal explanation *(Erklären)*—in his view of the social sciences the two must go hand in hand.

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CHAPTER 9
Logic and the philosophy of mathematics in the nineteenth century

John Stillwell

INTRODUCTION

In its history of over two thousand years, mathematics has seldom been disturbed by philosophical disputes. Ever since Plato, who is said to have put the slogan ‘Let no one who is not a geometer enter here’ over the door of his academy, mathematics has been the standard of exact truth against which other philosophical discourse is measured. Descartes’ *Discourse on Method* grew out of his *Geometry*. Spinoza wrote his *Ethics* in the style of Euclid’s *Elements*. And Leibniz dreamed of a *Characteristica Universalis* by means of which ‘we should be able to reason in metaphysics and morals in much the same way as in geometry and analysis’.

Mathematics is not only supremely logical, it is also astonishingly powerful. Here is how it struck Thomas Hobbes, according to Aubrey’s *Brief Lives:*

> He was 40 yeares old before he looked on Geometry; which happened accidentally. Being in a Gentleman’s Library, Euclid’s Elements lay open, and ‘twas the 47 *El. libri* I. He read the Proposition. *By G*——, sayd he (he would now and then sweare an emphaticall Oath by way of emphasis) *this is impossible!* So he reads the Demonstration of it, which referred him back to such a Proposition; which proposition he read. That referred him back to another, which he also read…that at last he was demonstratively convinced of that trueth. This made him in love with Geometry.
>
> ([9.1], 230)

It was this power of mathematics to draw unexpected conclusions, to solve difficult problems, that overcame the occasional philosophical doubts about the validity of its methods.

Up until 1800 the main doubts about mathematics centred on the following issues: the existence of irrational numbers; the use of numbers in geometry; the existence of imaginary numbers; infinite objects and processes.

Irrational numbers were a thorn in the side of the Pythagoreans (c. 500 BC), who believed that the natural numbers 1, 2, 3…were the key to understanding the universe. They found, for example, that musical harmony involved simple natural numbers—halving the length of a vibrating string raised its pitch an octave, reducing its length to 2/3 raised its pitch a fifth, and so on. However, they also found the theorem of

Pythagoras, which implies that the diagonal of the unit square is the square root of 2, $\sqrt{2}$, and then were horrified to discover that $\sqrt{2}$ is *not* a ratio of natural numbers. In their view, this meant $\sqrt{2}$ was not a number at all, and hence numbers were not an adequate measure of geometric quantities.

Rather than abandon geometry, the Greeks developed a geometric system parallel to arithmetic in which lengths were added and multiplied like numbers. It was also possible to *compare* a length such as $\sqrt{2}$ with ratios of natural numbers (rational numbers). That is, one could say whether $m/n < \sqrt{2}$ or $m/n > \sqrt{2}$ for any natural numbers m, n. The geometric meaning of $m/n < \sqrt{2}$ can be seen from the equivalent relation $m < n\sqrt{2}$ which says that the line segment consisting of m units of length is contained in the line segment consisting of n copies of $\sqrt{2}$. This occurs just in case $m^2 < 2n^2$. Thus the geometric relation $m/n < \sqrt{2}$ is in fact equivalent to the natural number relation $m^2 < 2n^2$.

Eudoxus (c. 350 BC) realised that to know the position (> or <) of a length ℓ relative to *arbitrary* rational numbers m/n is to know ℓ with complete precision. Hence calculations in the world of lengths are just as exact as those in the world of natural numbers. If $m/n < \ell$ and $m'/n' < \ell'$, for example, then one can conclude that $m/n + m'/n' < \ell + \ell'$, and in this way one knows all rational numbers less than $\ell + \ell'$. By such arguments, Eudoxus was able to develop a system of calculating with lengths and comparing them with (ratios of) natural numbers. It was preserved in Book V of Euclid's *Elements* and became known as the *theory of proportion*.

Eudoxus also developed a more general method for reasoning about geometric quantities called the *method of exhaustion*. Just as the theory of proportion captures an irrational by comparing it with arbitrary rationals, the method of exhaustion captures a figure of unknown magnitude by comparing it with known ones. Typically, a curve will be compared with polygons, and this may enable the exact determination of areas and volumes of curved figures when the corresponding polygonal ones are known.

For example, Archimedes showed that the area A of the parabolic segment (Figure 1) is 4/3 that of the inscribed triangle Δ_1 by showing

It follows that $A = 4\Delta_1/3$ because any value of A unequal to $4\Delta_1/3$ can be refuted by summing sufficiently many triangles $\Delta_1,\ldots,\Delta_n$. The method 'exhausts all possibilities' except $A = 4\Delta_1/3$ and, more importantly, each incorrect possibility is eliminated by reasoning about the *finite* sum of $\Delta_1,\ldots,\Delta_n$.

The theory of proportions and the method of exhaustion enabled mathematicians to sidestep their first encounter with infinity. It was not necessary to sum infinitely many triangles to determine A, for example; the sum of $\Delta_1,\ldots,\Delta_n$ was *sufficient, provided n was arbitrary*. One might say that infinity is present in the arbitrariness of n, but only 'potentially' so. The Greeks (and most mathematicians until the nineteenth century) drew a sharp distinction between the *potential infinity* which supplies natural numbers one by one, and the *actual infinity* which delivers them all at once. The concept of natural number is in fact potential infinity in a nutshell; the process of beginning with 0 and adding 1 'indefinitely' is what the natural numbers are all about. The idea that this process could ever be completed seems at first as unnatural and uncalled for as a last

natural number.

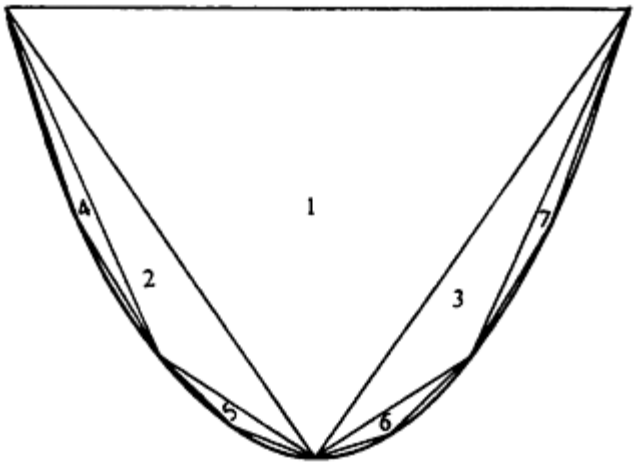

Figure 1

(1) *A* can be approximated arbitrarily closely by a finite sum of inscribed triangles $\Delta_1,\ldots,\Delta_n$ (indicated by their subscripts in Figure 1).
(2) $4\Delta_1/3$ is also approximated arbitrarily closely by such finite sums.

However, the distinction between potential and actual infinity is not so easy to maintain in other cases. Consider the following example. To travel a distance of one kilometer, say, one first has to reach the 0.9 kilometer mark, then the 0.99 kilometer mark, then the 0.999 kilometer mark…, and in general the $1–1/10^n$ kilometer mark for each *n*. One seemingly cannot complete the journey without also completing the infinity of values $1–1/10^n$. A similar example is discussed in Aristotle's *Physics*, 239b, 14, under the name of Zeno's paradox of Achilles and the tortoise. Aristotle refutes it by appealing to the (potentially) infinite divisibility of space and time. The kilometer can be subdivided at 0.9, 0.99, 0.999,…and the time interval required for the journey can be subdivided similarly, so completion of the journey involves only the *potential* infinity of subdivisions.

We do not know the purpose of Zeno (*c.* 450 BC) in formulating his paradoxes, since they are known to us only through Aristotle, who wished to debunk them. Nevertheless, Zeno does seem to have put the fear of infinity into Greek mathematics. It is otherwise hard to understand the rejection of irrational numbers, and the restriction to potential infinity even in cases where actual infinity seems harmless. We now know, in fact, that Archimedes used actual infinity to discover his results on areas and volumes. His original methods were uncovered only in 1906, thanks to some extraordinary detective work by Heiberg ([9.26], 5). By then, it was too late for them to have any effect on mathematical practice.

After the classical era, the next major encounter with infinity was in the seventeenth century. The occasion was the invention of the calculus, a resurgence of Archimedes'

theory of curved figures powered by the new algebraic geometry of Fermat and Descartes. Algebra made an enormous difference to geometry. Whereas Archimedes had to make an ingenious new approach to each new figure—for example, the approach to the parabolic segment using specially placed triangles—calculus dealt with a great variety of figures in the same way, via their equations. That was the whole point. Calculus was a method of *calculating* results, rather than proving them. If pressed, mathematicians could justify their calculations by the method of exhaustion, but it seemed impractical if not unnecessary to do so. Even before the stream of new results reached full flood with Newton and Leibniz (from 1665 onward) Huygens had warned:

> Mathematicians will never have enough time to read all the discoveries in Geometry (a quantity which is increasing from day to day and seems likely in this scientific age to develop to enormous proportions) if they continue to be presented in a rigorous form according to the manner of the ancients.
>
> ([930], 337)

In fact, Huygens was probably the only major mathematician who stuck to the ‘methods of the ancients’. The methods of calculus were so much more powerful and efficient that rigour became secondary. Hobbes and Berkeley wrote scathing attacks on the illogical language of ‘infinitesimals’ used by mathematicians as a substitute for exhaustion, but they could not deny that it got results. And what results! By the middle of the eighteenth century, calculus had solved almost all the problems of classical geometry, and new ones the ancients had not dreamed of. It had also revealed the secrets of the heavens, explaining the motions of the moons and planets with uncanny precision. Apart from a few marginal controversies over such things as the infinite series $1-1+1-1+\ldots$, all the results of calculus stood up to rigorous scrutiny.

The confidence inspired by the success of calculus was infectious. During the eighteenth century, mathematicians pushed their luck even further, using some concepts they did *not* know how to justify. They freely used $\sqrt{-1}$ while calling it ‘imaginary’ or ‘impossible’. They assumed that arbitrary continuous functions were expressible as infinite sums of sine waves. And once again their faith was rewarded, with an avalanche of new discoveries in mathematics and physics by d’Alembert, the Bernoullis, Euler and Lagrange. With this much success, mathematicians could afford to ignore philosophical questions about the meaning and rigour of their work. Only a direct contradiction in the heart of mathematics could give them pause. When it came, all the forgotten fears of irrationality and infinity would come back to the surface.

THE CRISIS IN GEOMETRY

Before 1800, geometry was thought to be part of physics. Its simplest elements—straight lines and circles—were idealizations of the simplest physical curves, constructed by the simplest drawing instruments, the straight edge and compasses. However, what set geometry apart from the rest of physics was its logical structure. It appeared that all properties of straight lines and circles (in the plane) were logical consequences of five

axioms postulated by Euclid in his *Elements* (*c.* 300 BC):

Let the following be postulated

1. To draw a straight line from any point to any point.
2. To produce a finite straight line continuously in a straight line.
3. To describe a circle with any centre and distance.
4. That all right angles are equal to one another.
5. That, if a straight line falling on two straight lines make the interior angles on the same side less than two right angles, the lines, if produced indefinitely, meet on that side on which are the angles less than the two right angles.

([9.27], 154)

Euclid's axioms were physically plausible, at least within the limits of measurement possible before 1800, though of course the fifth axiom could not be tested properly with finite lines. What was more important, in the opinion of most mathematicians and philosophers, was that no alternatives to Euclid's axioms could be *imagined*. In particular, it seemed impossible to imagine either of the following alternatives to axiom 5:

5^+. Two straight lines, if produced indefinitely, meet on *both* sides.

5^-. There are straight lines which fail to meet even though a straight line falling on them makes interior angles on the same side less than two right angles. (Or the following logical equivalent: given a line L and point P not on L there is more than one line through P not meeting L.)

The strongest statement of the *a priori* nature of geometry was made by Kant in his *Critique of Pure Reason*. Kant believed that the fact that we cannot imagine alternatives such as 5^+ and 5^- made Euclid's geometry the only one logically possible or meaningful:

> It is therefore, solely from the human standpoint that we can speak of space, of extended things, etc. If we depart from the subjective condition under which alone we can have outer intuition, namely, liability to be affected by objects, the representation of space stands for nothing whatsoever.
>
> ([9.31], 71)

Kant's philosophy was the high-water mark of intuitive geometry. The tide turned during the nineteenth century when mathematicians became increasingly absorbed with the construction of geometries contradicting Euclid, and later with the reconstruction of Euclidean geometry itself.

These investigations stemmed from dissatisfaction with Euclid's axiom 5, the so-called *parallel axiom*. Gauss, Bolyai and Lobachevsky realized that it was impossible to confirm the parallel axiom by physical experiment, and in fact conceivable that one could *refute* it. This was because the parallel axiom has the consequence that the angle sum (in radians) of any triangle is π. Since perfectly accurate measurement is impossible, one could never be sure that an angle sum measured to be π was in fact equal to π; and conceivably a triangle could be found with angle sum definitely *not* equal to π, i.e.

differing from π by more than experimental error. While no physical refutation of the parallel axiom succeeded at the time (success was not achieved until 1919, as part of the confirmation of general relativity theory) its very possibility was enough to encourage Gauss, Bolyai and Lobachevsky to explore an alternative to Euclidean geometry. Their investigations were made independently, roughly between 1800 and 1830, and reached similar conclusions.

Each of them studied the replacement of the parallel axiom by the axiom 5^{-}. The geometry that results from this replacement is now called *hyperbolic geometry*. It is in some ways more complicated than Euclidean geometry. For example, there are no similar figures of different sizes. There are no squares. Equilateral triangles of different sizes have different angles (always less than the angle $\pi/3$ of a Euclidean equilateral triangle). However, in other ways hyperbolic geometry is extremely elegant and convenient. The fact that equilateral triangles of different sizes have different angles yields an *absolute unit of length*. One could define the unit to be, say, the side of the equilateral triangle with angle $\pi/4$, since there is only one size of equilateral triangle with this angle. Likewise, the fact that the angle sum of a triangle is less than π makes it possible to show that the area of a triangle is proportional to the difference between π and the triangle's angle sum. Thus, in hyperbolic geometry, area can be measured by angles.

These beautiful consequences of axiom 5^{-}, and the non-appearance of any contradictory consequences, convinced Gauss, Bolyai and Lobachevsky that hyperbolic geometry was meaningful and worth pursuing. However, there was no immediate threat to the authority of Euclid and Kant. Gauss was too afraid of controversy to publish his results. Bolyai gave up soon after publication of his work in 1832, discouraged by the lack of response from other mathematicians and troubled by the possibility that contradictions might yet emerge. Lobachevsky published doggedly from the obscurity of Kazan from 1829 until 1856, the year of his death, without any encouragement from the outside world. (Gauss in fact admired Lobachevsky's work, but communicated his feelings only to his friend Schumacher in a letter [9.24].

But in 1855 Gauss died, and his interest in hyperbolic geometry became known to the mathematical world through the release of his unpublished papers. This led to a more widespread interest in hyperbolic geometry, particularly in the light of *differential geometry*, a field also pioneered by Gauss with his book on curved surfaces [9.23], and invigorated by the ideas of Riemann [9.38] on curved space of arbitrary dimensions.

On any smooth surface there are curves called *geodesics* which are 'as straight as possible' and hence can be regarded as the 'lines' of a 'geometry'. On the sphere, for example, the geodesics are the great circles, because a great circle gives the shortest distance between any two points on the sphere. The corresponding 'geometry' is *spherical geometry*, which studies such things as spherical triangles. Spherical geometry had in fact been studied since ancient times because of its applications to astronomy and navigation, but the idea of its being a 'geometry' with theorems contrary to those of Euclidean geometry had not come up, perhaps because its 'lines' are manifestly finite and closed.

However, the curved 'lines' on the sphere can be made straight by projecting the sphere from its centre on to a tangent plane (Figure 2). Admittedly, only half of each spherical 'line' can be seen at a time this way, and spherical distance becomes distorted. However, it does make spherical geometry look like a geometry of genuine lines, and it

raises an interesting question. For which surfaces is there a map to the plane carrying geodesics to straight lines?

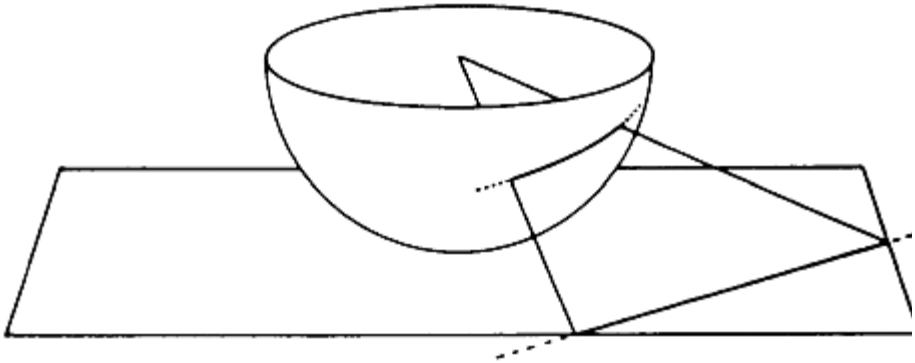

Figure 2

Beltrami [9.2] found the answer in terms of the *curvature* of the surface, a concept introduced in Gauss [9.22]. The surfaces whose geodesics can be mapped to straight lines are precisely those of *constant* curvature. The plane itself is of zero curvature, a sphere has constant positive curvature—which explained the known examples—but there are also surfaces of constant *negative* curvature. The first of these to be discovered was the *pseudosphere,* a trumpet-shaped surface (Figure 3) whose geometry had been investigated by Gauss's student Minding in 1840. Minding even made the pregnant discovery that its triangles are governed by formulas like those for spherical triangles, but with the circular functions sine and cosine replaced by their hyperbolic analogues sinh and cosh (hence the name 'pseudosphere'). The same formulas had already been found to hold in hyperbolic geometry by Lobachevsky [9.34].

Unfortunately the pseudosphere cannot be regarded as a complete

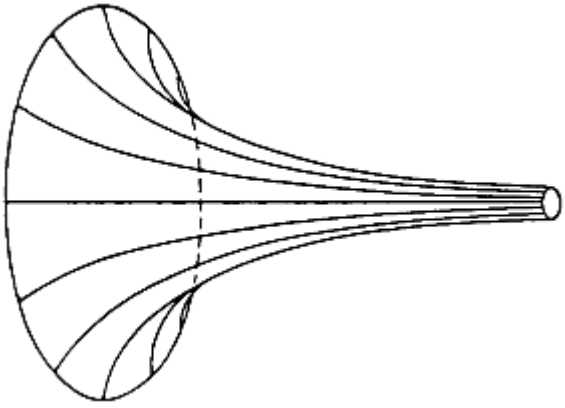

Figure 3

realization of hyperbolic geometry, because ‘lines’ on the pseudosphere do not extend indefinitely. The rim of the trumpet is an impassable boundary, beyond which the pseudosphere cannot be extended because its curvature becomes undefined there. In 1868 Beltrami [9.3] saw a way round this difficulty with his mapping of geodesics to straight lines. The pseudosphere is mapped on to a portion of the disc (Figure 4) and the line segments representing its geodesics have a natural exten

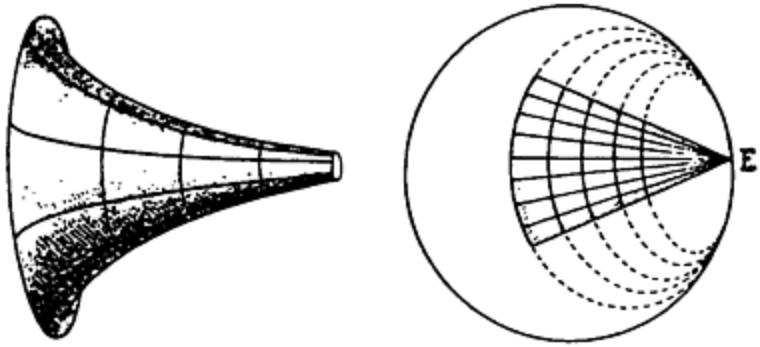

Figure 4

sion to the whole interior of the disc. (The boundary of the disc is infinitely far away, in the sense of distance on the pseudosphere. In particular, the point *E* represents the infinitely distant end of the trumpet.) Thus the whole interior of the disc has a geometry, inherited from the pseudosphere, and it is the *complete* hyperbolic geometry of Gauss, Bolyai and Lobachevsky. The validity of the hyperbolic parallel axiom 5^- is particularly clear, as Figure 5 shows.

Beltrami had found what we now call a *model* of hyperbolic geometry—an interpretation of the terms ‘point’, ‘line’, etc. within Euclidean geometry under which the axioms 1, 2, 3, 4, 5^- are satisfied.

It follows that the Gauss-Bolyai-Lobachevsky axioms *cannot lead to a contradiction*, unless there is a contradiction in Euclidean geometry itself. This was Beltrami’s great contribution to the philosophy of geometry. As he put it (rather modestly) in his 1868 paper:

> In recent times the mathematical public has begun to take an interest in some new concepts which seem destined, if they prevail, to change profoundly the whole complexion of classical geometry.
>
> These concepts are not particularly recent. The master Gauss grasped them at the beginning of his scientific career, and although his writings do not contain an explicit exposition, his letters confirm that he had always cultivated them and attest to his full support for the doctrine of *Lobachevsky*.
>
> …we have sought, to the extent of our ability, to convince ourselves of the results of *Lobachevsky’s* doctrine; then, following the tradition of scientific research, we have tried to find a real substrate for this doctrine, rather than

admit the necessity for a new order of entities and concepts. We believe we have attained this goal for the planar part of the doctrine.

(Beltrami 1868 in [9.17], 533)

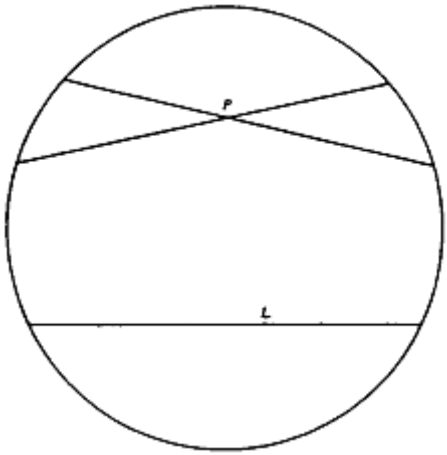

Figure 5

Beltrami's model showed that Euclid's axioms 1, 2, 3, 4, 5 are not the only logical possibility. It was therefore admissible to doubt that they were true of physical space.

If Euclid's geometry was not about physical space, what *was* it about?

ARITHMETIZATION

With the discovery of non-Euclidean geometry the nature and existence of geometric objects was called into question. It was time to take up an option which had been available for two centuries, but held back out of respect for the Greek tradition of separating the concepts of number and length—the *arithmetization* of geometry. Around 1630, Fermat and Descartes independently discovered the method of co-ordinates which makes it possible to describe curves by equations in variables x and y. Given two lines OX and OY in the plane (Figure 6), any point P is determined by its distances x and y from them. (It is convenient, though not necessary, to take OX and OY to be perpendicular, and to let y and x be the perpendicular distances from P to them.) As P traverses a curve in the plane, x and y enter a certain relationship, which Fermat and Descartes found they could easily describe in many important cases.

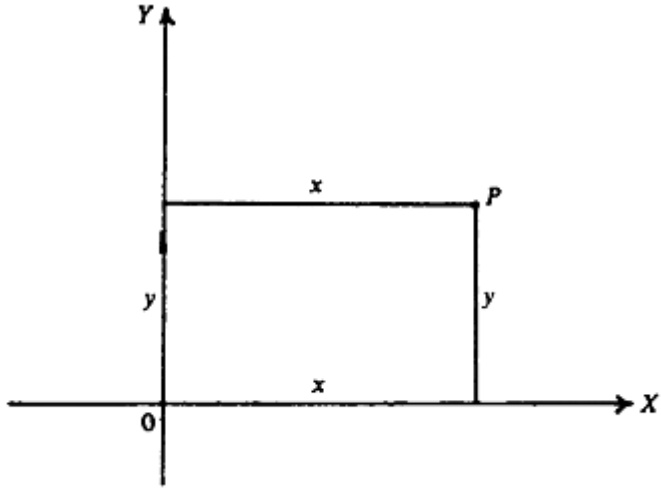

Figure 6

For example, if *P* describes the straight line passing through *O* and equidistant from *OX* and *OY*, then $y=x$. More generally, any straight line is described by an equation of the form

$$ax + by + c = 0$$ where *a*, *b*, *c* are constants,

and which we now call a *linear* equation for that reason. Conversely, any such equation (provided *a*, *b* are not both zero) represents a straight line, so there is a correspondence between lines and linear equations.

Linear equations are recognizable algebraically as those in which *x* and *y* occur to the first power. The next simplest equations, called *quadratic*, include terms in x^2, y^2 and xy as well as linear terms. Fermat and Descartes discovered that the curves described by quadratic equations are precisely the *conic sections* (ellipses, parabolas, hyperbolas), which had been studied by the Greeks, particularly by Apollonius, *c*. 200 BC. Apollonius even knew the relationship between *x* and *y* for a conic section, but he expressed it in words (taking about half a page!) and not as an equation. Lacking algebraic notation, the Greeks could hardly form the idea of equations, let alone manipulate them so as to be able to recognize the curves they described. Fermat and Descartes had the advantage of a well developed notation and technique for algebra, thanks to the efforts of their compatriot Viète (1540–1603) and the Italians del Ferro, Tartaglia, Cardano,

Ferrari and Bombelli in the sixteenth century. In turn, Descartes' *Geometry* (1637, [9.15]) made a big impression on Newton, who carried the analysis of equations beyond the range of classical geometry with a classification of *cubic* curves [9.37]. Thus by the end of the seventeenth century it was well established that curves could be studied by algebra, at least the curves expressed by *polynomial* equations, i.e. equations formed by applying arithmetic operations to *x* and *y*.

However, these developments did not prompt any reassessment of the nature of curves. No one said that curves were equations. Moreover, the variables *x* and *y* were regarded as

lengths rather than numbers. Thanks to Eudoxus' theory of proportions (see Introduction above), *x* and *y* could be regarded as lengths while only arithmetic operations were applied to them, so the Greek segregation of geometry from number remained in force. The inadequacies of the theory of proportions (and indeed the theory of numbers) were not exposed until questions about *curves in general* began to be asked in the eighteenth century. Perhaps the turning point was Gauss's proof of the fundamental theorem of algebra [9.22].

The exact statement proved by Gauss does not concern us here (the modern equivalent is that any polynomial equation has a solution in the complex numbers). The point of interest is the following statement *assumed* by Gauss in his proof. If K_1 and K_2 are curves inside a circle, and the endpoints A_1, B_1 of K_1 separate the endpoints A_2, B_2 of K_2 on the circle (Figure 7), then K_1 and K_2 have a common point. The only justification Gauss offered for this statement was that 'no one, to my knowledge, has ever doubted it'. This was probably true, but

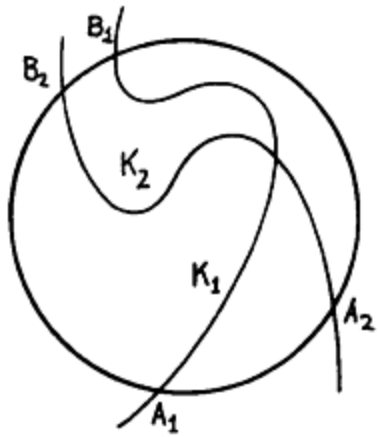

Figure 7

nevertheless a poor excuse, particularly since Gauss was well aware of gaps in previous attempts to prove the fundamental theorem, and at pains to point them out. Quite likely, the only reason the statement had never been doubted is that it had never previously been used in a mathematical proof. Gauss's proof was probably the first *existence proof* in the history of mathematics—one where the existence of a point was proved without a means of constructing it—and probably the first to use *topological* reasoning. The basic concept of topology, namely *continuity*, had not even been defined in 1799, and Gauss's claim is not easy to prove even when the notion of continuous curve has been made clear.

It seems that Gauss realised the seriousness of the gap in his proof, because in 1816 he offered another proof of the fundamental theorem of algebra in which the role of continuity was minimized. In his second proof he assumed only that if *p(x)* is a polynomial such that $p(a) < 0 < p(b)$ for some real numbers *a* and *b* then *p(c)*=0 for some *c* between *a* and *b*. This assumption, known as the *intermediate value theorem* (for

polynomials) can be viewed as a special case of the assumption in the first proof, namely, where K_1 is part of OX and K_2 is part of the curve $y=p(x)$ (Figure 8).

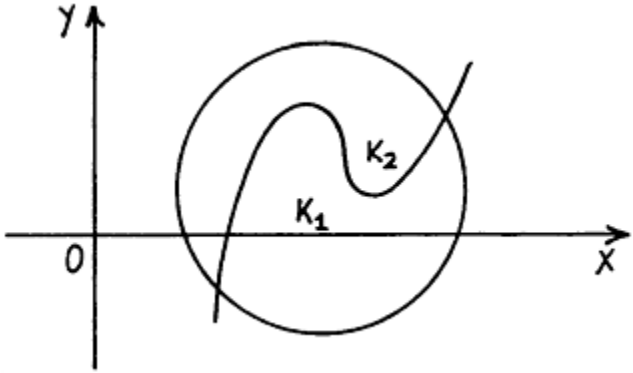

Figure 8

The intermediate value theorem is needed even to show the existence of $\sqrt[n]{2}$, which is the value for which $p(x) = x^n - 2$ becomes zero between, say, x=1 and x=2. Thus any proof of the fundamental theorem of algebra involves the intermediate value theorem, at least implicitly.

This point was recognized by Bolzano in 1817 [9.5], immediately after the appearance of Gauss's proof. Bolzano gave a proof of the continuity of polynomial curves $y=p(x)$, and attempted a proof of the intermediate value theorem for arbitrary continuous curves $y= f(x)$. His definition of continuity was essentially the modern one:

> a function fx varies according to the law of continuity for all values of x inside or outside certain limits means just that: if x is some such value, the difference $f(x+\omega) - fx$ can be made smaller than any given quantity provided ω can be taken as small as we please.
>
> (Bolzano 1817 in [9.17], 565)

However, his proof of the intermediate value theorem assumes the following *least upper bound* property of real numbers:

> whenever a certain property M belongs to all values of a variable quantity i which are smaller than a given value and yet not for all values in general, then there is always some *greatest* value u, for which it can be asserted that all $i<u$ possess property M
>
> ([9.17], 565)

Actually, the value u is *greatest lower bound* of the values *not* having property M. It is now more usual to consider the equivalent least upper bound property: every bounded set

of real numbers has a least upper bound. Bolzano was unable to prove this property rigorously because he did not have a definition of real number. Nevertheless, identifying the property was an important step. It set a requirement that any future definition of real number would have to meet, and was the first indication that further clarification of geometric concepts would depend on clarification of the concept of number.

WHAT IS A REAL NUMBER

In 1858, the last student of Gauss, Richard Dedekind, found himself teaching elementary calculus at the Polytechnic School in Zurich. He later wrote:

> In discussing the notion of the approach of a variable magnitude to a fixed limiting value, and especially in proving the theorem that every magnitude which grows continually, but not beyond all limits, must approach a limiting value, I had recourse to geometric evidences. Even now such resort to geometric intuition… I regard as exceedingly useful… But that this form of introduction into the differential calculus can make no claim to being scientific, no one will deny.
>
> ([9.14], 1)

Dedekind, too, had glimpsed the elusive least upper bound property. He was determined to capture it.

> I made the fixed resolve to keep meditating on the question until I should find a purely arithmetic and perfectly rigorous foundation for the principles of infinitesimal analysis. The statement is so frequently made that the differential calculus deals with continuous magnitude, and yet an explanation of this continuity is nowhere given; even the most rigorous expositions of the differential calculus do not base their proofs on continuity…they either appeal to geometric notions…or depend upon theorems which are never established in a purely arithmetic manner. Among these, for example, belongs the above-mentioned theorem, and a more careful investigation convinced me that this theorem, or any one equivalent to it, can be regarded in some way as a sufficient basis for infinitesimal analysis
>
> ([9.14], 7)

Having seen clearly what the difficulty was: ‘It then only remained to discover its true origin in the elements of arithmetic and thus at the same time to secure a real definition of the essence of continuity. I succeeded Nov. 24, 1858’ ([9.14], 2).

What then was Dedekind’s definition that captured the essence of continuity? In a nutshell, it was what Eudoxus would have said if he had believed in actual infinity. Like Eudoxus, Dedekind determined a length by comparison with rational numbers, but, unlike Eudoxus, Dedekind considered the totality of rational numbers to be an actual object—a *set*—and he declared the length being determined to be a *number*.

The length $\sqrt{2}$, for example, is greater than a positive rational m/n if and only if $2n^2>m^2$, as we observed in the Introduction above. This gives a numerical *process* for comparing m/n with $\sqrt{2}$, essentially Eudoxus' theory of proportions. Dedekind sought a numerical *object* he could identify with $\sqrt{2}$, and found it in the *completed outcome* of the comparison process, namely the pair of sets of positive rationals $\{m/n : 2n^2 < m^2\}$ and $\{m/n : 2n^2 > m^2\}$

In general, Dedekind defined a *real number* to be a partition of the rationals into two sets A_1, A_2 such that each member of A_1 is less than every member of A_2. He called such a partition a *cut*. Each rational number r itself produces a cut, or rather two cuts (one with r the maximum member of A_1, the other with r the minimum member of A_2), so the rationals are naturally absorbed into this more comprehensive concept of number. The real numbers also inherit natural operations of sum, product, etc. from the rational numbers. For example, if α is the cut (A_1, A_2) and (β is the cut (B_1, B_2) then $\alpha + \beta$ is the cut (C_1, C_2), where C_1 is the set of sums a_1+b_1 where a_1 is in A_1 (i.e. $a_1 < \alpha$) and b_1 is in B_1 (i.e. $b_1 < \beta$), and C_2 consists of the rationals not in C_1. In this way it becomes possible to prove results such as $\sqrt{2}\sqrt{3} = \sqrt{6}$, which Dedekind believed had not been proved rigorously before. (It would, however, have been possible to prove $\sqrt{2}\sqrt{3} = \sqrt{6}$ rigorously for *lengths* $\sqrt{2}$, $\sqrt{3}$, $\sqrt{6}$ by the theory of proportions.)

Finally, it was easy to prove the least upper bound property. If a real quantity α grows continually but not beyond a limit β say, consider the set L1 of all rationals belonging to lower sets A_1 of values of α. Then if L_2 is the set of rationals not in L_1 (in particular L_2 includes the rationals greater than β) it is easily seen that (L_1, L_2) is a cut and it is the least upper bound of the variable quantity α.

The least upper bound property is one of several equivalent statements of what Dedekind called the *continuity* of the real numbers (nowadays called the *completeness* of the real numbers). Another is that there is *no gap*, that is, no partition of the real numbers into sets A_1, A_2 with each member of A_1 less than every member of A_2, no maximum member of A_1 and no minimum member of A_2. This property is an almost immediate consequence of Dedekind's definition, which essentially *fills* each gap in the rational numbers by a real number.

As Dedekind pointed out, the continuity of the real numbers enables them to serve as a model of points on the line. Thus the key step in the arithmetization of geometry was finally achieved. With the *line* defined as the set of real numbers x, it is natural to define the *plane* as the set of ordered pairs of real numbers, (x, y), and then curves can be defined by equations in x and y. This programme was completed in the *Grundlagen der Geometrie* of Hilbert (1899, [9.26]). Incidentally, the pair (x, y) is also used as a concrete representative of the complex number $x + y\sqrt{-1}$, thus giving a meaning to 'imaginary' numbers (see Introduction above).

In the meantime, several other definitions of real number had been proposed, notably by Meray [9.32], Weierstrass [9.29] and Cantor [9.9]. Weierstrass [9.37] also gave the

first rigorous proofs of the fundamental theorems on continuous functions, in particular the intermediate value theorem anticipated by Bolzano [9.5]. Meray, Weierstrass and Cantor all defined real numbers as sets of convergent infinite sequences—definitely a more complicated approach than Dedekind's, but one more suited to modern analysis, where convergent sequences (of objects which are not necessarily numbers) are the stock in trade. All these definitions are equivalent, as it happens, so it does not matter which one is used to define the line.

The important question is whether it is necessary to accept completed infinities to arithmetize the concept of line. With hindsight, one can see how the cut defining $\sqrt{2}$, say, might be explained away as a potential infinity (see the next section). But can the infinity of real numbers be regarded as merely potential? This was one of the profound questions answered by Cantor in the next episode of our story—the development of set theory.

SETS

Cantor, like Dedekind, was drawn into accepting actual infinities in order to clarify the meaning of points on the line. In Cantor's case the problem was more technical (though with a pedigree going back to the Pythagorean investigation of vibrating strings), concerning the points of discontinuity of infinite sums of sine waves [9.9]. He found that such a set of points could be very complicated. So complicated, in fact, that an operation he used to 'thin' the set could be repeated infinitely often without removing all of it. He therefore decided to apply his thinning operation 'more than an infinite number of times', or rather, to continue applying it after the first infinity of applications was complete. The implication was, of course, that this infinity of operations was *actual*.

To count the number of applications of the thinning operation, Cantor [9.11] introduced *ordinal numbers*, a generalization of natural numbers to infinity and beyond. The first infinite ordinal number, following the complete series 0, 1, 2, 3,…, is called ω. It is followed by $\omega + 1, \omega + 2, \omega + 3$,…, and this second infinity of ordinal numbers is followed by a number called $\omega \cdot 2$. Any ordinal number α, like a natural number, has a successor $\alpha + 1$. Cantor [9.11] called this the 'first principle of generation' of ordinal numbers. He also introduced a second principle, which generates, ω, $\omega \cdot 2$ and further ordinals by wholesale actualization of infinities:

> If any definite succession of defined whole real [i.e. ordinal] numbers exists, for which there is no largest, then a new number is created, by means of this second principle of generation, which is thought of as the *limit* of these numbers, i.e. it is defined as the next number larger than all of them.
>
> ([9.11], 196)

In calling his ordinal numbers whole *real* numbers Cantor wished to stress their reality, i.e. the reality of infinite sets, rather than any analogy with the real numbers (which is *reell* in German and not the word *real* used by Cantor). There is a much better analogy with the natural numbers, of course, though it is striking that the ordinals share the least

upper bound property with the real numbers. The relationship between the ordinals and the real numbers was in fact an unsolved problem of Cantor's set theory, the *continuum problem*, and it remains today one of the great mysteries of mathematics. As will become clearer below, the real numbers are generated by a principle which is possibly even more powerful than Cantor's second principle of generation for ordinal numbers.

Cantor's investigation of sets of real numbers led him to another generalization of the concept of natural number, the concept of *cardinal number*. Two sets *A* and *B* are said to have the *same* cardinal number if there is a *one-to-one correspondence* or *pairing* between the members of *A* and the members of *B*. The cardinal number of a finite set *A* is simply the (natural) number of members of *A*, because if *A* has, say, seventeen members then any set *B* whose members can be paired with the members of *A* will also have seventeen members. The set of all natural numbers has an infinite cardinal number which Cantor called $\aleph_0$

Cantor found that many seemingly 'larger' × sets can be put in one-to-one correspondence with the natural numbers, and hence also have cardinal number $\aleph_0$. One such set is the rational numbers. Another, as Cantor [9.10], found, is the *algebraic numbers*. A number is called algebraic if it is the solution of an equation

$$(*)\quad a_n x^n + a_{n-1}x^{n-1} + \cdots + a_1 x + a_0 = 0$$

where a_0, a_1,..., a_n are integers. Cantor observed that if each such equation is assigned the 'height'

$$h = |a_0| + |a_1| + \cdots + |a_n| + n$$

then there are only finitely many equations with height *h* less than a given natural number *i*. It is therefore possible to make a (potentially infinite) list consisting of all equations of height $\leqslant 1$, then all equations of height $\leqslant 2$, then all equations of height $\leqslant 3$..., thus obtaining a list of all equations (*), in which each equation has some natural number position *j*. This puts the equations (*) in one-to-one correspondence with the natural numbers *j*. Finally, if each equation is replaced by the (finite) list of its solutions we get a list of all algebraic numbers, on which each algebraic number appears at some natural number position *k*.

The listing of the algebraic numbers is a very strong result, since it includes listings of many other sets, in particular the integers and the rational numbers. It follows that all these sets have cardinal number $\aleph_0$. However, it does not follow that the set of all real numbers has cardinal number $\aleph_0$. It was already known, from the work of Liouville [9.33], that certain real numbers are not algebraic. Cantor [9.10] discovered the more dramatic result that *almost all* real numbers are not algebraic. He showed that the cardinal number of the reals is not $\aleph_0$, by showing that the reals cannot be paired with the natural numbers. This result is known as the *non-denumerability* or *uncountability* of the set of real numbers.

Non-denumerability was so unprecedented that Cantor initially attempted to downplay

it as far as possible, calling his paper 'On a Property of the Collection of All Real Algebraic Numbers' and using non-denumerability only to give a new proof of Liouville's result. (The algebraic numbers have cardinal number $\aleph_0$, the reals do not, so not all reals are algebraic, QED.) He soon realized, however, that non-denumerability was the gateway to a new world. It revealed the existence of cardinal numbers beyond $\aleph_0$, so mathematics was able to distinguish different kinds of infinity. It also showed that the real numbers could not be explained away as a potential infinity. For what is a potential infinity but one whose members can be paired with the natural numbers?

As pointed out in the Introduction above, the natural numbers 0, 1, 2,…are the epitome of a potential infinity—a list which includes any given member, if carried sufficiently far. The non-denumerability of the reals means that any proposed listing of real numbers is doomed to incompleteness—certain numbers (depending on the list, of course) will never appear on it, no matter how long the list is continued.

In 1891 [9.12] Cantor gave a second proof of non-denumerability which makes the futility of listing real numbers crystal clear. Suppose that x_1, x_2, x_3,… is a list of real numbers, and let x_i be expanded as a decimal up to and including the ith decimal place. For example, the list may begin like this: $x_1 = 17.7\ldots, x_2 = 0.16\ldots, x_3 = 2.131\ldots, x_4 = 0.7474\ldots, x_5 = 11.11312\ldots$ No matter how the list continues, a number x *not on it* may be constructed by making x different from x_1 in the first decimal place, different from x_2 in the second decimal place, different from x_3 in the third decimal place…, and so on. An explicit way to do this (which avoids getting an expansion which is ultimately all 9s or all 0s, and hence expressible in two ways) is to let the ith decimal place of x be 1 if the ith decimal place of x_i, is *not* 1, and otherwise let it be 2. Thus no list includes all the real numbers.

Since the number x is constructed from the sequence of digits along the diagonal of the list, this technique came to be known as the *diagonal argument*. It was actually used before Cantor by du Bois Reymond [9.16], though in a less transparent way. Cantor [9.12] was the first to see that the diagonal argument was not simply a trick with numbers but actually a fundamental insight into the relationship between sets and their subsets, showing that *any set has more subsets than members*. This yields the astonishing conclusion that *there is no largest set*.

To apply the diagonal argument in the general case let S be any set, and let S_X be a sub-set paired with element x. (You may like to think of S_x laid out in a 'row' beside element x, which is in a 'column' of the members of S.) Then one sub-set of S which is not among the sets S_X is the 'diagonal sub-set' D defined as follows:

x belongs to D if and only if x does not belong to S_X.

This ensures that D is different from each S_x, with respect to the element x in fact, and hence there are more sub-sets of S than members of S. The operation of forming all sub-sets of a given set is called the *power set* operation. This is the operation, mentioned above, which is possibly more powerful than the second principle of generation of ordinal numbers. While the generation of ordinal numbers admits a larger number only when

there is some way of 'approaching' it, the power set operation creates a new set without offering any means of approach.

In the case where *S* is the set of natural numbers it is easy to show (though a little technical) that the power set of *S* has the same cardinal number as the set of real numbers. Thus the continuum problem, which asks how big an ordinal number is required to count the real numbers, is about the size of the power set of the natural members.

WHAT IS A NATURAL NUMBER?

With the help of the set concept, Dedekind had reduced the concept of real number to the concept of rational number, as explained on pp. 255–7. Since relations between rational numbers are equivalent to relations between natural numbers, this meant that all the concepts of geometry and analysis were definable in terms of sets and the natural numbers 0, 1, 2, 3,… Most mathematicians felt that this was as solid a foundation as it was necessary or possible to have. After all, statements about the natural numbers were not contested (the way the parallel axiom, or the intermediate value theorem had been, for example) and no simpler concept than natural number seemed likely as a basis for mathematics.

In taking this view, mathematicians tended to overlook the fact that the foundation was not just the natural numbers, but natural numbers *and* sets. Sets were unavoidable, as experience with the real numbers made clear, so if there was a simpler basis for mathematics than natural numbers and sets it had to be just sets.

The first to grasp this possibility was Gottlob Frege, who developed a definition of natural numbers in terms of sets, or more precisely in terms of *properties,* in his 1884 book *Die Grundlagen der Arithmetik* [9.19]. There is a subtle but important difference between sets and properties (or *concepts,* as Frege called them). Corresponding to each set *S* there is the property of belonging to *S,* and for each property *P* there is the *extension of P,* consisting of all things with property *P* (or of all things *which fall under concept P,* as Frege put it). However, the extension of a property can have paradoxical behaviour if one assumes it to be a set (see pp. 266–8). This was not known in 1884, so there is no distinction between sets and extensions of properties in the *Grundlagen*. To make a distinction possible, and at the same time to give a concise description of Frege's original idea, we shall use the term *class* for the extension of a property.

Frege began with a highly entertaining demolition of previous attempts to define the notion of number, then opened his own investigation by defining what it means for two classes to have the same number. Like Cantor, he said that this is the case when there is a one-to-one correspondence between their members, though he pointed out that for finite classes this criterion had already been given by Hume (*A Treatise of Human Nature,* Book I, part III, section I). Note that it is not necessary to use the number 1 to define one-to-one correspondence. A relation $\phi(x, y)$ between the elements *x* of a class *X* and the elements *y* of a class *Y* is a one-to-one correspondence if

for each *x* in *X* there is a *y* in *Y* such that $\phi(x, y)$,

for each y in Y there is an x in X such that $\phi(x, y)$,
if $x \neq x'$ and $\phi(x, y)$ and $\phi(x', y')$ then $y \neq y'$,
if $y \neq y'$ and $\phi(x, y)$ and $\phi(x', y')$ then $x \neq x'$

The *number of a class X* may then be defined as the property of admitting a one-to-one correspondence with *X*, i.e. the class of all classes that admit a one-to-one correspondence with *X* ([9.19], 79).

Frege spent some time discussing the numbers 0 and 1. Any contradictory property serves to define a class with number 0, and Frege used the property 'not identical with itself'. Thus 0 is the class of classes admitting a one-to-one correspondence with the (empty) class of things not identical with themselves. The concept of the empty class was novel, and Frege felt he would have to overcome some resistance to the idea:

> Some may find it shocking that I should speak of a concept in this connection. They will object, very likely, that it contains a contradiction and is reminiscent of our old friends the square circle and the wooden iron. Now I believe that these old friends are not so black as they are painted. To be of any use is, I admit, the last thing we should expect of them; but at the same time, they cannot do any harm, if only we do not assume that there is anything that falls under them.
>
> ([9.19], 87).

Frege proceeded to show that the empty class is not only harmless, but wonderfully fertile, by pulling the natural numbers out of it, one by one. First

> 1 is the number which belongs to the concept 'identical with 0'.
>
> ([9.19], 90)

That is, 1 is the class of classes which admit one-to-one correspondence with the class whose member is 0. Then to define *n+1*,

> we shall choose the concept 'number of the series of natural numbers ending with *n*'.
>
> ([9.19], 92)

That is, *n+1* is the class of classes which admit one-to-one correspondence with the class whose members are 0, 1,…, n. Admittedly, there is something to be proved before we know that 'the series of natural numbers ending with *n*' is well defined. However, this was a matter of pure logic, which Frege already understood. As we shall see in the next section, he had laid the foundations of mathematical logic in 1879.

Thus Frege's work in 1884 was essentially the last step in a reduction of mathematics to pure logic, the previous steps being the definition of the real numbers in terms of rationals and the arithmetization of geometry and analysis. This stunning achievement

went unnoticed at the time, even by Frege himself. Strange as it may seem, Frege rejected the arithmetization of geometry, so he missed the opportunity to extend his ideas beyond the field of number. When Hilbert's *Grundlagen der Geometrie* [9.28] appeared in 1899, Frege wrote him several long letters ([9.20], 34) protesting against Hilbert's definitions of 'point' and 'line' and insisting on spatial intuition as the source of geometric axioms. He seemed oblivious to all that had happened in geometry since Kant. The opportunity Frege missed was taken up by Bertrand Russell (with due credit to Frege) only after the turn of the century.

WHAT IS LOGIC?

Logic has been a part of mathematics since ancient times, but until the nineteenth century it was the least understood part. In mathematics there was no 'theory' of logic the way there was a theory of numbers, for example, no attempt to analyse the content of logic and to describe it completely. It is true that Leibniz and others had dreamed of making logic as exact and mechanical as calculation, but little progress resulted from these speculations. The proper understanding of logic arose from the attempt to understand the foundations of mathematics, and eventually encompassed it.

The first important, though small, step was taken by George Boole. In his *Mathematical Analysis of Logic* (1847, [9.6]) and *The Laws of Thought* (1854, [9.7]) he introduced a logic of classes which is now known as Boolean algebra. In a deliberate imitation of algebraic notation, he used *x, y, z,*…to denote classes, and let xy, $x+y$ *and* $x-y$ denote intersection, union and relative complement respectively. Since a thing belongs to

> *xy* if and only if it belongs to *x and* to *y*, to $x+y$ if and only if it belongs to *x or* to *y*, to $x-y$ if and only if it belongs to *x and not* to *y*,

the algebra of Boole's product, sum and difference reflects the logic of 'and', 'or' and 'not', or *propositional logic* as it is now called. This algebra is not exactly the same as ordinary algebra—for example, $x^2 = x$ for any class x—but it was near enough for Boole to venture the opinion that

> There is not only a close analogy between the operations of the mind in general reasoning and its operations in the particular science of Algebra, but there is to a considerable extent an exact agreement in the laws by which the two classes of operations are conducted.
>
> ([9.7], 6)

He was correct in thinking that his algebra was similar to ordinary algebra in its operations and laws, but quite mistaken in thinking that such an algebra could reflect 'general reasoning'. If thought was really as simple as Boole's algebra we should not be able to grasp very much mathematics, not even the concept of number, as Frege realized in 1879. By reflecting on this difficulty, Frege was able to discover a vastly more

powerful system of logic.

The difference between Boole and Frege was that Boole was looking for a mathematics of logic, whereas Frege was looking for a logic of mathematics. Boole's search was less fruitful, because the mathematics of his time contained a reflection of only a small part of logic—the logic of 'and', 'or' and 'not'. We can now see that Frege made a better choice, but still it is astounding that he was able to succeed so completely at his first attempt.

Frege's logical system came to life fully grown in his *Begriffsschrift (Concept Writing)* of 1879 [9.18]. Unlike the *Grundlagen* of 1884, the *Begriffsschrift* is not a masterpiece of clear and persuasive writing; in particular, most of its logical content is expressed in a strange, labyrinthine symbolism of Frege's own invention. Frege believed that the structure of deduction is best revealed by displaying it in a two-dimensional, treelike form. He managed to overcome his printer's objections to this typographical nightmare, but apparently forgot that readers, too, prefer symbols to follow one another in a sequence. Fortunately it is now possible to translate the *Begriffsschrift* into a widely accepted notation, and I shall do so in what follows.

The first difference one sees between Frege and Boole is that Frege regards the laws of logic not as algebraic identities but as *theorems* derivable from *axioms* by certain *rules of inference.* In the part of Frege's logic that coincides with Boole's, namely prepositional logic, the difference shows itself as follows. Instead of Boole's 'and', 'or' and 'not', Frege uses 'if…then' and 'not', which we shall denote by $\rightarrow$ and ~ respectively. This difference is not really important, since 'and', 'or', 'not' are expressible in terms of 'if… then', 'not' and vice versa, but 'if…then' and 'not' more naturally reflect the processes of deduction. In terms of $\rightarrow$, ~, Frege's axioms are:

1
$$a \rightarrow (b \rightarrow a).$$
2
$$c \rightarrow (b \rightarrow a)) \rightarrow ((c \rightarrow b) \rightarrow (c \rightarrow a)).$$
3
$$(d \rightarrow (b \rightarrow a)) \rightarrow (b \rightarrow (d \rightarrow a)).$$
4
$$(b \rightarrow a) \rightarrow ((\sim a) \rightarrow (\sim b)).$$
5
$$(\sim\sim a) \rightarrow a.$$
6
$$a \rightarrow (\sim\sim a).$$

It is one of the expository defects of the *Begriffsschrift* that Frege does not announce his axioms. He does say, at the beginning of his section II, that 'a small number of laws' (the axioms) 'contain all of them' (the theorems), but the reader finds the axioms only by searching through a long series of sample derivations. His rules of inference have to be found the same way; they are

Modus ponens: from theorems *B* and *B* $B \to A$ *A* derive the theorem *A* (for any formulae *A, B*). *Substitution:* from theorem *A* derive the result of substituting, for each occurrence of a variable *x* in *A*, a formula $\phi(x)$.

Since it is very easy to confuse a rule of inference with a theorem of logic—for example, *modus ponens* can be confused with the theorem $b \to ((b \to a) \to a)$—Frege let his readers down badly by not making these rules explicit in section II. It seems clear that he did understand the difference between a theorem and a rule of inference. In his section I he discusses the idea of a 'mode of inference' and mentions *modus ponens* in particular. However, this was not clear enough for the logicians of his time, and they were still confused thirty years later (see, for example, the indiscriminate mixture of axioms, rules of inference and rules for the construction of formulae in Whitehead and Russell's *Principia Mathematica*, vol. I, part I, section A*1 [9.41]).

Frege offers no explanation for his claim that all laws of logic are consequences of his axioms. In fact for prepositional logic this is not difficult to prove, though proofs did not appear until around 1920. The claim is much more remarkable for his system as a whole, which is a logic of properties and relations now known as *predicate logic*. (Here 'predicate' is used as a synonym for 'relation', and a property is a special case of a relation.) The consideration of relations is the second, and major, difference between Frege and Boole.

As we know from his analysis of the concept of number (pp. 261–3 above), Frege recognized that reasoning about properties and relations was fundamental to mathematics. He therefore decided to build the formulae of his logic from atomic formulae such as

P(x) '*x* has property P'
R(x, y) '*x* and *y* are in relation *R*'

etc. All mathematical statements can be built from such atomic formulae with the help of the equality sign, =, the universal quantifiers, $\forall x$ ('for all x'), $\forall y$ ('for all y'), etc., and the connectives $\to$, ~ of prepositional logic. The task then was to find all the laws of this logic. Frege claimed that they could be obtained as theorems from the prepositional axioms 1–6, plus the following rules and axioms specific to predicate logic.

$\to$ *introduction rules:* from theorem *A(x)* derive $\forall$; from theorem $\forall x A(x)$ derive $B \to A(x)$ (when *x* does not occur in *B*). *Axioms:*

7 $B \to \forall x A(x)$, where f is any formula
8 $c=c$
9 $(c = d) \to (f(c) \to f(d))$, where c is any letter not in f.

Quite amazingly, he was right! However, this is a deep theorem, first proved by Gödel [9.25], and it is doubtful that Frege fully understood the meaning of his claim, let alone knew why it was true. It was enough that he had captured logic in a system, of axioms

and rules of inference—proving theorems *about* such a system was a task for a later generation of logicians.

A FEW CLOUDS ON THE HORIZON

In the last decades of the nineteenth century, mathematicians enjoyed a period of satisfaction with the foundations of their discipline, rather like that enjoyed by their colleagues in physics (before the discovery of relativistic and quantum effects). Geometry and analysis had been reduced to the theory of real numbers, the real numbers had been reduced to sets of natural numbers, and nearly everybody was satisfied with the natural numbers. If Frege's work had been generally known the satisfaction could have been even greater (despite Frege's personal objection to the arithmetization of geometry), because everything was wrapped up in his logic of classes. However, few were granted a glimpse of this mathematical heaven, because Frege remained in obscurity until the turn of the century. Then his logic became generally known only because Bertrand Russell found something wrong with it.

The background to Russell's discovery was this. In 1891 [9.12] Cantor introduced the general diagonal argument which shows that any set *S* has more sub-sets than members, as we saw on pp. 257–61 above. This obviously implies that there is no largest set, but it has a more serious implication: *there is no set of all sets*. If there were, it would be the largest set, by definition, yet the set of its sub-sets would be larger. Thus it is contradictory to suppose that the class of all sets is itself a set. This was the first of the so-called 'paradoxes' of set theory. A similar paradox, involving the class of all ordinal numbers, was published by Burali-Forti in 1897 [9.8]. Cantor did not discuss the paradoxes in print, but he suggested a possible resolution of them in a letter to Dedekind in 1899.

> a multiplicity can be such that the assumption that *all* of its elements 'are together' leads to a contradiction… If on the other hand the totality of elements of a multiplicity can be thought of without contradiction as 'being together', so that they can be gathered together into '*one* thing', I call it a *consistent multiplicity* or a 'set'.
>
> ([9.13], 14).

In other words, to avoid contradictions, some classes should not be regarded as sets. This in fact is the solution favoured today, but at the time it was not clear how to recognize the inconsistent sets. Russell's contribution was an analysis of the 'set of all sets' which made its inconsistency more obvious.

Recall from pp. 257–61 how the diagonal construction is applied to a set *S*, with members *x* and sub-sets S_x paired with the members. One constructs the diagonal sub-set *D* of members *x* such that *x* does not belong to S_x. Then *D* differs from each S_x with respect to *x*.

Now if *S* is the set of *all* sets *x*, then each subset *y* of *S* is also a member of *S* and we can pair *y* (as a sub-set) with *itself* (as a member). The diagonal set *D* then consists of all

sets *y* such that *y* does not belong to *y*. Consequently, *D* differs from each set *y* with respect to the member *y: y* belongs to *D* if and only if *y* does not belong to *y*. But *D* is itself a member *y* of the set *S* of all sets, so *D* has the contradictory property of being different from itself.

This is how Russell came to discover the inconsistency of the set *D* whose members are the sets that do not belong to themselves. Of course, its inconsistency is obvious once one has thought of it. Each of the two possibilities

(1) *D* belongs to *D,*
(2) *D* does not belong to *D,*

implies the other. However, it is not easy to see how to prevent logic from being infected by such inconsistencies, and for this reason Russell's discovery was a severe blow to Frege (see Russell [9.39], Frege [9.21]). Most of the classes Frege used to define numbers were inconsistent when regarded as sets, but if the logic of sets did not apply to them, what did? Evidently logic would have to be overhauled, taking the properties of sets into account, if inconsistencies were to be avoided.

Even if the paradoxical sets were successfully excluded, how could one be sure that inconsistencies would not later arise in 'indispensable' parts of mathematics, such as arithmetic and analysis? In view of the trouble arising from the diagonal construction, one had to be suspicious of any field in which it was applicable, such as the theory of real numbers.

Drastic cures for these ills were proposed by several mathematicians, especially those who had not gone along with set theory in the first place. Kronecker refused to accept completed infinities, and even denied the existence of irrational numbers. Poincaré and Borel opposed the use of 'self-referential' definitions. However, Hilbert probably spoke for the majority when he urged the construction of foundations to save as much as possible of set-theoretic mathematics. In 1900 [9.29] he presented a list of twenty-three problems to the mathematical community as tasks for the coming century. The first two were concerned with foundations, and focused on the real numbers:

1 *The continuum problem:* decide whether each infinite set of real numbers admits a one-to-one correspondence either with the set of natural numbers, or with the set of all real numbers.

2 *The consistency of arithmetic:* prove that no contradiction can arise from the axioms of arithmetic. (These axioms are essentially the basic properties of +, × and < normally assumed for real numbers, together with the least upper bound property.)

These two problems effectively exposed the two greatest difficulties in the nineteenth-century reduction of mathematics to logic. Firstly, the set concept was not clear. Between the simplest infinite set (the set of natural numbers) and the set of all its sub-sets (equivalently, the set of real numbers) was a gulf whose size and general nature was not understood. Secondly, it was not clear that mathematical concepts were correctly captured by axioms. The consequences of a given set of axioms were difficult to foresee

and they could conceivably include contradictions.

The answers to Hilbert's problems 1 and 2 obtained so far do not boil down to a simple yes or no. They reveal many aspects of the foundations of mathematics not anticipated in the nineteenth century. The picture is no longer as simple as it once seemed, nevertheless the general outline remains intact.

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CHAPTER 10
Philosophy of biology in the nineteenth century

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THE PHILOSOPHY OF BIOLOGY

The emergence of biology as a unified subject

Students of history and of biology share a common delight: as they study the details of any subject, they find a fascinating diversity of cases which far exceeds any preconceived expectations. But that is not their sole delight. Some will also see unifying themes therein, with coincidences that beg for explanation and leitmotifs which please the aesthete. Some scholars choose to stress the diversity, perhaps even the perversity, to be found in events in history (or, in biology, of living forms). Other scholars may feel happier following the motto *e pluribus unum*.

There is no right or wrong to it, that one is a unifier and another a divider of forms. We ascribe these differences in scientific or philosophical temperament to individual style or taste: some like a tidy story and others prefer a wealth of detail. Nor is this a matter of respect or lack of it for detailed facts. A grand unifier may study facts painstakingly while trying to unify (perhaps bending the facts, or perhaps ruefully admitting failure) while the person with a predilection for detail may believe in it only in principle, leaving it to others to dig them up and record them. Those who grant that details are important may do so either to prove that they fit into a grand scheme or to disprove that very point.

This difference is, perhaps not unsurprisingly, more than a matter of style. It is also an issue of substance in the nineteenth century, both in history and in biology. It became a topical question whether there is meaning in unfolding events: whether history exhibits fundamental laws, and whether there is a grand design to explain adaptation among living things. Do some things just happen, or is everything determined by a deep plan? Philosophers and scientists alike were on both sides of this celebrated debate, and on each side there are examples of intellectuals of both temperaments. But the issue of substance was not merely a matter of temperament, it was a matter of doctrine, of theory and of the future direction of thought.

The main issue of substance which animates the philosophy of biology in the nineteenth century has its root in the seventeenth, in the difficulties faced by Galileo's mechanical conception of the universe. This conception of a world ruled by mathematical laws of motion, or mechanics, became the central feature of the so-called scientific revolution of the seventeenth century. It was proposed by Galileo consciously in opposition to the Scholastic conception of the universe, which was dismissed with Ptolemaic astronomy as false. Galileo proposed that it was superseded by the new Copernican solar system, and proposed his new mechanics to replace the older physics of

the scholastics.

The subsequent success of the mechanical conception of the universe cannot be equated with the success of any one of the mechanical systems proposed to describe motion. Galileo's laws were followed in turn by those of Descartes, Huygens, Newton, d'Alembert, Euler, Lagrange, Poisson, Laplace, Fresnel, Hamilton, Maxwell. At the end of the period we are studying there followed entirely new mechanical systems from Einstein (relativistic laws of motion) and Schrödinger and others (quantum mechanics). The accepted laws of motion keep changing, sometimes in matters of detail and at others in more fundamental ways, but the general idea of a mechanical universe conjoins consistently with any of them.

What is common to all the mechanical conceptions of the universe following Galileo is what they seemed to exclude: certain aspects of the universe which were readily understood as far back as in Aristotle's or even in Plato's accounts of the world seemed to be incomprehensible within a thoroughgoing mechanistic scheme. The existence of forms, the prevalence of purposes and the realm of morality seemed to lie entirely beyond the mechanical conception of the universe. If we regard mechanics as forming the basis of a new comprehensive philosophy to rival the old Scholastic philosophies (as modified from those of Plato and Aristotle), then form, purpose and morality had to be understood somehow as part of the new mechanical conception. But how? There is no ready explanation for the existence of any of these three. To resolve this difficulty there were two basic ways to proceed: with ingenuity we could develop mechanical models to reproduce the effect of forms, purposes and morality artificially; or we could devise a conception of the world in which form, purpose and morality are quite real, and wherein mechanics has a diminished role to play in our understanding.

A thoroughgoing mechanist could dismiss forms as residing in the eye of the beholder, or (invoking the medieval doctrine of nominalism) as residing in the act of naming. Purposes could be denied to all animals, and restricted to the human psyche, within which can also be located the free will, allowing us the luxury as moral beings, apparently denied to animals, of being naughty (domesticated animals being interesting exceptions). In this convoluted way the problems posed by forms, by purposes and by morality can be reduced to the mystery of the human mind. But having done so, we have only artificially isolated the recalcitrant Scholastic phenomena without having thus made any attempt at solving the problems posed for mechanists. The thoroughgoing mechanist such as Descartes who throws all recalcitrant Scholastic phenomena into the category of mind is no better off as a mechanist than the one who, like La Mettrie, regards all these phenomena as external, and explicable in material terms, without saying exactly how.

Interaction between two substances is ruled out by Spinoza's powerful argument that a substance is by definition autonomous, and hence cannot be affected by anything which is independent of it. The mechanical conception of the universe seemed to leave us with no option but to adopt one of these two alternatives: some form of materialism, or some form of idealism; we have either to seek an extension of mechanism to model and recreate the effect of the recalcitrant Scholastic phenomena or to subsume all material phenomena under the realm of ideas in a modified form.

A titanic debate was touched off between Newton and Leibniz just prior to the latter's death, which is found recorded in the Leibniz-Clarke correspondence [10.1]. Clarke, as

Newton's voice, describes a material world which is governed by mathematical laws, but which has many physical features for which there are no mathematical laws governing them. Newton's own view was that God acted upon the world from time to time to preserve it in its required form (the solar system, for instance, was unstable according to Newton, and continues without signs of collapse because God holds the planets constantly within their orbits). Leibniz, on the other hand, proposed a fully rationalist conception of the universe, in which everything and every event is determined by the Principle of Sufficient Reason. The world according to Leibniz consists of a community of spirits (monads) each of which is completely determined in itself by its own nature. Each interacts successfully with other monads (or appears to do so, since any monad's experiences of other monads are completely predetermined by its own nature) only because of the pre-established harmony by which God has established an order among all things (monads).

If we neglect the references to God, either because we no longer believe in any, or for those who still continue to do so because we want to restrict ourselves to natural phenomena, then the choice for us lies between these two schemes: Firstly, a world in which some things just exist and some events just happen without natural cause, and they have no natural explanation (Newton). Secondly, a world which is fully determined in its smallest detail, and in which everything and every event within it is determined by a Grand Design which pre-establishes an otherwise inexplicable harmony (Leibniz).

These two points of view—one materialist and the other idealist, one indeterministic and the other deterministic, one antithetical to Scholasticism and the other friendly to some of its features, one seeking to understand what can be understood only in terms of the laws of matter and motion, and the other seeking to understand everything in terms of a pre-established rational order—are not the only two possible ways to approach the subject. But they did seem to many to offer the two most reasonable alternatives. In biology in the nineteenth century, however, are to be found some new ideas which cut across these extremes. They resolved some of the difficulties which were raised within Galileo's mechanical conception of the universe.

Thoroughgoing mechanists who avoided the relegation of all recalcitrant Scholastic phenomena to the mind, but accepted instead that forms and purposes were to be found among the phenomena (in short, materialists), had to find a way to understand form, purpose and morality in a material world governed by mechanical laws. A lively discussion between materialists and their opponents characterizes what we may identify in retrospect as the condition of biology as it coalesced into a subject in the nineteenth century.

Biology or the science of life arose as a unified subject among the discussions between French materialists and their opponents in the last years of the eighteenth century. Buffon, La Mettrie, Lamarck and their free-thinking contemporaries conceived a unified science of life, or of biology. Such was the need for recognizing this new subject that it was quickly taken up by many scholars of different persuasion across the scientific world. There is no doubt of course that the unity of biology was strengthened by the remarkable but later developments in cytology, genetics and evolutionary theory all of which cut across earlier divisions within the previously known sciences of living things. The prior unification of the sciences of life depends on this: form and purpose are to be found

among all living things on earth, and barely outside of them. The need for a unified science of life arises out of the need to find mechanical models for these two categories of recalcitrant Scholastic phenomena, all of which seem to be found in and about living things. These issues are central to 'Modern Philosophy' as this is taught in universities to this day. If we take that as our cue, we may say confidently that the unification of biology was a philosophical attempt to solve some central problems of modern philosophy.

On mechanism and vitalism

The schism in modern thought between the thoroughgoing mechanists and those who sought to put mechanism in its proper (and diminished) place in the grand idealist scheme begins with the clash between Newton and Leibniz. Unlike the seventeenth century, the eighteenth marks a deepening separation between natural philosophy and moral philosophy. By the nineteenth century this division became established. The word 'philosopher' came to be reserved for an apologist for idealism or perhaps an opponent of thoroughgoing mechanism in any form, and the expression 'scientist' came into use for the thoroughgoing mechanist who followed the experimental method of investigation. These two professions came to inhabit different parts of the university, and came to adopt different curricula, and thus and only so were able to keep the peace.

The mechanists adhered to three things: some form of the laws of motion to understand everything in the world; a conception of scientific method as experimental and inductive; and a healthy scepticism about Scholastic issues which were dismissed as superstitious.

It is an unfortunate fact that heated debates between scientists on the question of how to accommodate form and purpose within mechanism often led them to accuse one another of becoming unscientific. Two schools of thought exist within the group of thoroughgoing mechanists early in the nineteenth century concerning how to accommodate purpose in nature. One group sought to explain it by a special life force (attached to a kind of fluid, vital matter); another group hoped to explain it entirely in terms of other known forms of matter and force, such as the magnetic, the electric, the chemical, etc. The first sought to identify all living forms by an ingredient common to them, and the other sought to understand life in terms of organization (of the organism) from ordinary or inert matter. In principle either of these ploys might have been true (or of course neither might be true). As it happens, by the end of the nineteenth century the odds had swung in favour of the latter point of view, and in the twentieth century, whatever a scientist accepts she will regard vitalism as an intellectual oddity. Nevertheless, in the nineteenth century it would be premature to describe vitalism as unscientific as is done all too often today.

One of the unfortunate terminological ambiguities of this debate lies in the description of the opponents of vitalism as 'mechanists'. In a certain sense, a vitalist is also a mechanist who happens to believe in an additional element with a force much like magnetic or electric forces as they were conceived at the end of the eighteenth century. The mechanists were, therefore, not necessarily the only mechanists in that conflict of opinion, if by mechanics we mean the well known laws of motion accepted at the time as governing all matter.

Galvani's experimental and theoretical contributions were regarded as unscientific by

Volta late in the eighteenth century, but we may wish to differ in our assessment today. Perhaps Galvani was not correct in arguing that since the severed leg of a frog had been separated from its organisation (i.e. within the previously live frog) its twitching when probed by two metal prongs shows that there resides in the severed limb of the frog the principle of living matter. Perhaps Volta was right that this was not even a credible argument. But if it had not been for Galvani's argument, would Volta have sought to show that the twitch in the severed leg of a frog arose from the ordinary metals separated by the ordinary acidic fluid therein? Would he have otherwise looked for an apparatus to duplicate his model of a schematic form of a frog's leg being probed by two metal prongs, by inventing the voltaic pile? And would we have discovered current electricity, or the decomposition of water by electrolysis, or any of those remarkable things in physics and chemistry which followed Volta's invention of the pile and the discovery of the electric current?

Moreover, the methods used by vitalists could be and often were thoroughly experimental. Bichat made an excellent case for vitalism by conducting detailed studies of anatomical phenomena. Perhaps it is this more than anything else which led Claude Bernard, the great physiologist and methodologist, to recognize some fifty years later that while the experimental method needs preconceived ideas, it needs also a healthy scepticism (see pp. 292–5 below). Between the time of Bichat and Bernard, the tide seem to have swung against vitalism in physiology, though the full demise of vitalism had to await the twentieth century. The debate between vitalists and mechanists is a fine example of a thoroughly scientific controversy, in which experimental results and good arguments played an important role in the eventual outcome. As the difficulties for vitalism mounted and those for mechanists diminished, the tide of opinion swung against the vitalists. It is frequently but not invariably true that predominance of opinion among experts is a good gauge of the strength of the case made for and against the opinion, and in this instance the correlation seems to be quite good.

The factors which led to the decline of vitalism in the nineteenth century lay both within and without biology. In physics, there was an eighteenth-century consensus that the various forces of nature were distinct, and that each of them emanated from a characteristic and dis-tinct type of matter. For example, physicists thought they had discovered electric fluids which supported electric forces, and magnetic fluids which supported magnetic forces, and caloric, which induced heat. This is quite compatible with a living material supporting a life force. But in the nineteenth century the growing experimental confirmation of the interchangeability of forces (or the unity of all force, later redefined and identified as 'energy') came to undermine the vitalist idea of a special force shared by all and only living things. Within biology, arguments leading to the demise of mechanism had much to do with the rise and predominance of physiology as opposed to anatomy in the study of form. The close connection between physiological function and evolution in Darwin's account eventually made vitalism an outsider to science as Darwin's views, and their improved descendants, came to occupy centre stage in biology.

Although vitalism had its share of friends and opponents in the nineteenth century, it was only after Darwin's conception of evolution by natural selection was grasped that vitalism came to fall in favour very generally. The heated debate over the merits of

Darwin's theory of evolution by natural selection, however, was not between two versions of mechanism as was the case between the vitalists and the so-called mechanists. The issue debated by Darwin was the very different one philosophers had raised as the problem of design. He provided us with a mechanistic alternative to a grand design, or a pre-established harmony, or to some form of idealism. If we regard the French materialists' location of forms and purposes in matter as basically correct (in contradistinction to interactionists who find them in the mind), then we may say that Darwin's theory of evolution by natural selection solves the mind-matter problem (or the mind-body problem) of the Cartesian philosopher.

On biology as a development of the science of Galileo

When Leibniz proposed his idea of a divinely pre-established harmony, he had in mind the extraordinary coincidence that two monads which 'interact' have complementary experiences. In his account, two monads have two aspects of the same world. Each monad determines its own inner nature, and two 'interacting' monads might well have not been co-ordinated, and thus they may fail to 'interact' at all. (They may not possess aspects of the *same* world.) But in creating the universe, God created the best of all possible universes, and thus created a universe in which everything which exists and every event within each monad is there for a reason: were anything other than as it is, this would have been a different possible universe and therefore a universe inferior to this one. This being the best of all possible universes it determines for us what there is in every minutest detail—a determinism as complete as can be imagined—based on the assumption that anything else would not have sufficient reason to exist.

It is a remarkable fact of the history of ideas that Leibniz, the author of modern determinism (i.e. the Law of Sufficient Reason), was forgotten as its true author by the early part of the nineteenth century. Instead, the determinism invented by Leibniz is attributed to Newtonian mechanics. Perhaps it is not so surprising that this is so, after all. As Koyré expresses it:

> the world-clock made by the Divine Artifex was much better than Newton had thought it could be. Every progress of Newtonian science brought new force for Leibniz's contention: the moving force of the universe, its *vis viva* did not decrease; the world-clock needed neither rewinding nor mending.
>
> The Divine Artifex had therefore less and less to do in the world. He did not even need to conserve it, as the world, more and more, became able to dispense with this service.
>
> Thus the energetic God of Newton who actually 'ran' the universe according to his free will and decision, became in quick succession, a conservative power, an *intelligentia supermundana,* a 'Dieu fainéant'.
>
> Laplace, who, a hundred years after Newton, brought the New Cosmology to its final perfection, told Napoleon, who asked him about the role of God in his *System of the World:* 'Sire, je n'ai pas eu besoin de cette hypothèse.' But it was

> not Laplace's *System*, it was the world described in it that no longer needed the hypothesis God.
>
> ([10.4], 276)

But if Leibniz's determinism had taken over the Newtonian system of the world, it was not by providing mechanism with a new pre-established harmony. Laplace's determinism is one in which the particles at a given time, with their positions and momenta, determine once and for all the future and past states of the world; but this is not any explanation for the existence of forms or purposes (real or apparent) other than in the form of an unencashable promissory note.

The positions taken on these issues by scientists in the nineteenth century are varied and complex. The variety spans many intermediate forms between the two extremes which are represented here as mechanism and teleology. In the nineteenth century, both philosophers and scientists had become determinists. Only the form of determinism separated the two. The mechanists had come to adopt *physical determinism*, a determinism by mechanical forces alone, whereas the philosopher followed Leibniz in seeing in the system (or harmony) of the world such things as forms, their essences, purposes and purposeful beings (spirits). All of these were found by the philosopher in a simple 'common-sense' examination of the world. The pre-established harmony that was once postulated between minds or monads was now postulated to explain the adaptation of life forms. In this manner the pre-established harmony came to be regarded as a grand design in which physical organisms were adapted one to another. Even the description of development in an organism, in the work of von Baer, for instance, shows allegiance to both a mechanical perspective and a ideological perspective, tempting some modern commentators to call it 'teleomechanism', though this term would also apply to theologically inclined strict mechanists of the period as well (e.g. the geologist Hutton).

William Paley likened a living organism to a watch: if we were accidentally to find a watch, would we not postulate a watchmaker? The wonderful way in which all of the parts of the watch fit together allows us to infer that there must have been a watchmaker. In much the same way, the extraordinary manner in which living forms are adapted to their very particular surroundings, and often unable to survive in certain very slightly changed surroundings, suggests a designer. But it is not the existence of a designer which is the problem, but of a design or a plan. Many mechanists were faithful believers. They might still find a pre-established harmony to be unpalatable, given the success of modern mechanical science.

The existence of forms on earth had thus taken a particular twist late in the eighteenth and early in the nineteenth century: the fact that Scholastic forms are evident among phenomena is embarrassing enough for modern science. But the extraordinary coincidence that the various forms were uniquely fitted or adapted to their surroundings made them a double embarrassment to a mechanist. In order to respond to this challenge, Lamarck proposed his theory of evolution, in which all living forms metamorphose into other forms as they strive to make best use of the environment. Over the ages, thus, the various forms come to fit their surroundings with all the appearance of design, without a designer. (Other precursors of evolutionary theory and/or metamorphosis, include David Hume, Erasmus Darwin and Goethe.)

There were two difficulties with Lamarckian evolution: the concept of 'striving' was still a difficulty for a thoroughgoing mechanist. But this was not such a difficulty if one were also the kind of thoroughgoing mechanist who might be called a 'vitalist'. A more fundamental difficulty than that was a methodological flaw which arose in the usual defence of its main thesis. We turn to this difficulty of the theory of evolution, which was solved by Darwin.

Darwin's reconciliation of scientific metaphysics and method

Newtonian mechanism was not merely a set of ever-changing mathematical laws of motion; it came also with a distinctive method. Newton espoused an experimental method, which was both championed and practised with great success in many fields of science, old and new. The success of modern science was attributed to the adoption of Newton's experimental method, which enjoined a close study of the facts and a repudiation of all hypotheses. If we study the great debate between evolutionists before Darwin and their opponents concerning evolution, we find however that it is their opponents who were clearly scientific in their treatment of phenomena.

The celebrated debate in 1830 in the French Academy between Geoffrey St Hilaire, who defended Lamarck, and Cuvier, who ridiculed evolutionary theory, was a clear defeat for the evolutionists. Cuvier was a remarkable comparative anatomist. He had minutely studied the skeletal structure of a great many animals. On the basis of measurements he was able to establish ratios between skeletal limbs of a great variety of species. The minute and exhaustive studies of bones allowed him to reconstruct entire skeletons from a few fossil bones, sometimes from a single bone. Cuvier came to be regarded as the Newton of comparative anatomy, for such were his accomplishments in that subject.

In 1812, Cuvier had come forward boldly to assert that a study of the fossil record for different ages revealed that the earth had entirely different species from time to time inhabiting it. This evidence, he claimed, was compatible only with the catastrophic destruction of species and subsequent creation of a new collection of living forms during successive ages on earth. The facts he collected left him no other choice that he could imagine but cycles of destruction and special creation.

The evolutionists (e.g. Lamarck or his follower Geoffrey St Hilaire) could not challenge Cuvier's claims about the existence of these very different species in successive ages on earth. Cuvier's scientific method was too rigorous to allow that counter-attack. His techniques continue to be useful in palaeontology and comparative anatomy even today.

The best that an evolutionist could do was to suggest a possible mapping between species in one age and the next to show how one set of species might have metamorphosed into an entirely different one in the intervening period between two fossilizations. But so far apart were the species in different ages that the suggested pathway from one form extant in one age to one extant in another was sometimes fantastic. Evolutionists seemed to be dreaming up their models of change, where the hard-nosed scientist who studied the established facts would be fully on the side of Cuvier, the consummate observer of minute and detailed facts about anatomy in different

species.

For a philosopher of biology this debate is instructive not only because we now admire an idea that was once regarded as an unscientific speculation. It is also instructive because it is a clash of opinion between an ingenious metaphysical solution to a dilemma of Newtonian mechanics and a rigorous application of Newtonian method. The facts are, as they were then known, clearly investigated by Cuvier in a scientific manner. The evolutionist, on the contrary, appears to be a dreamer, a myth maker. The Lamarckian hypothesis defended by Geoffrey St Hilaire seems to be methodologically flawed, because it is an hypothesis (of the kind that Newton would not feign), and not an experimentally established statement, such as Cuvier's.

This clash of opinion is of seminal importance. Lyell formulated a 'uniformitarian' geology in contradistinction to Cuvier's catastrophic theory of the history of the earth. This clash changed the way in which uniformitarians and evolutionists approached their subject. The vicious attack on evolutionism on methodological grounds made subsequent uniformitarians and evolutionists nervous for decades about proposing hypotheses.

Darwin would not publish until he had investigated a great many particulars, perhaps more than absolutely necessary for the purpose of promulgating or defending their views. Darwin himself, whose evolutionary theory was of a different kind altogether, nevertheless immersed himself in the study of minute details of living things before coming forward with his views, which made his work both immensely richer and much less accessible to contemporaries than it might have been. Some controversies following Darwin's writing may be attributed to a lack of understanding of its main features, which were sometimes not clear to everyone, so great was the mountain of factual evidence in which it was lost. But an echo of Cuvier's earlier critique remains to this day: the fossil record, they say, is too incomplete to warrant evolutionary theory. The case for evolution cannot be made with so many gaps in the evidence. In the methodological developments of the nineteenth century it became evident that this demand is too great to make of any theory. Suffice it to say that the fossil record cannot support Cuvier's view either. If evolution is fantastic, then repeated extinction and creation are equally fantastic, without further evidence.

The critical feature of the evolutionary theory of Geoffrey St Hilaire and Lamarck which made it unsatisfactory is that this form of evolution did not allow for the extinction of species. Darwin's theory of evolution by natural selection does. The fossil record from one age to the next may be very different; and it may be futile to seek a one-to-one correlation between a species in one age and its descendants in another. Darwin suggests that even if most species in an age become extinct, a few which survive will produce all the variations which populate the next age. To take a popular example, it would be futile to look for an evolved successor today to every dinosaur which once roamed the earth. But there may well be one form *(archaeopteryx)* from which have evolved all the birds of today. Cuvier believed in mass extinction during the ice ages, and Lamarck in no extinction but only evolution. Darwin's theory is successful because it allows for almost complete extinction, and for evolution as well. Darwin's theory of evolution by natural selection postulates that there is a large amount of small variation in offspring. His proposal of blind variation combined with natural selection resolved the scientific and metaphysical issue of how form and purpose may arise—or may seem to do so—in a

material and mechanistic universe.

In one theory, he was able to defend the mechanistic conception of the world in a manner which was compatible with detailed study of fact. Newtonian method and Newtonian metaphysics were reconciled, and a major philosophical problem for Galileo's science was solved.

There is nowadays some confusion about the form of gradualism which is necessarily entailed by Darwin's theory and a form of catastrophism which is compatible with it: Darwin's theory is often described as gradualist in the sense that there are no catastrophes in the history of the earth. This form of gradualism is not appropriately attributed to Darwinian theory. The hypothesis that the extinction of a very large number of dinosaur species in a very short period of time by the catastrophic event of a meteor striking the earth is certainly not a critique of Darwinian theory. But the evolution of subsequent life-forms would be described by a Darwinian as descent from the surviving life-forms then extant, and this evolution would be gradual in the specific sense that the evolution would depend on small variation within species and their differential advantages. Whereas Lyell's geology denied the assumption that there are regular catastrophes, Darwin's theory describes how to do without periodic bursts of creation *de novo*. On Darwin's account, the evolution of species does not show leaps of creation, though it may well undergo rapid destruction of species in what may be described as catastrophes.

Two of the three Scholastic phenomena which could not be fitted into mechanistic theory were reconciled with it in Darwin's model. Forms (species) were described as mutable, but apparent at a given time; and the appearance of a great purpose or a grand design was also feigned in nature by the almost adaptive character of living forms which had been naturally selected in their environment in competition with variations which become extinct.

Continuing issues in the philosophy of biology

After Darwin successfully promulgated his theory of evolution by natural selection, an entirely new set of issues in the philosophy of biology came to light which were only dimly realized before.

Form and species

One of these issues concerns the classical idea of form. There may be a certain sense in which the mechanical conception of the universe challenged the idea of forms as the basis of all knowledge. Certainly, in some subjects in which mechanics was successful, forms ceased to play an important role. Many were the subjects, however, which resisted the advent of mechanical theories. The study of form in animals, plants and minerals (particularly crystals) left forms as a fundamental category for our knowledge.

In classifying species of plants, for instance, Linnaeus and Buffon provided rival schemata. Buffon's nominalist scheme was more general and philosophical, whereas that of Linnaeus, which stressed the essential qualities of species, was found much more useful in the practice of classification. Whichever system of classification one adopts, it is necessary for the practising natural historian, in order to classify things according to

their form, to presuppose that each species *has* a characteristic form, which may be captured in a typical specimen. Abnormal individuals may be found, of course, but the natural historian had to guard against choosing one of them as a specimen, which difficulty prompted Buffon's doubts about essential properties. An elaborate methodology had been developed to pursue natural history to respond to these concerns, the recounting of which falls outside the scope of this essay.

Darwin's theory of evolution by natural selection undermines the theoretical basis for this enterprise. Species, according to Darwin are not fixed but constantly changing. The normal situation is an abundance of variety in offspring. Thus in any species the characteristic form is not one but a multiplicity. Are there such things as species at all? (This is not quite the traditional problem of natural kinds and realism, though perhaps related to it.)

Darwin did not deny that an examination of the flora and fauna around the earth would yield a knowledge of identifiably different species. As a young man he delighted in collecting beetles. He did not need to be reminded that identifying forms is what makes the practice of natural history possible. His claim is a historical one: Darwin envisaged living organisms as belonging to a single tree. As the branches fanned out, some lines would come to an end (the forms would become extinct) but some would continue to flourish and would produce numerous varieties. Given a cross section of time the tree would project on a plane the characteristic grouping together of living things into species, genera, etc. as we find these in our records. But there are two provisos: Firstly, there are always some variations, and these are the source of evolutionary change. Secondly, over time, we recognize that species are mutable, and organisms from one species will be seen to have a common ancestry (and therefore share formal similarity) with the most remote of living organisms if only we are willing to go back far enough on the tree of life.

Darwin's theory eats its cake and has it, too. Species have characteristic properties more often than not, because the process of natural selection may well isolate a form of life as a species. This is what makes Linnaean natural history possible. But within any species there are many small variations, which will, in the course of time, speciate. Because species change in this manner, each existing variation has equal right to be regarded as characteristic of the species—or better still, it is the variety which characterizes the species. So Buffon is perhaps right after all in denying the existence of essences to living forms.

This conception of mutability challenged the idea of 'sorts' or 'kinds' as fundamental to our understanding of living organisms. In the theory of collections or aggregates or classes, it is possible to take any aggregate and regard it as a class. If any collection is a class, is there anything special about a species considered as a class? Is there some way in which it is natural, and not artificial?

From the old conception of morphology, it is only their form which binds similar organisms into a species. But when we consider Darwinian evolution, a species must be understood as a class of organisms which share the ability to generate common offspring. Thus we find in Darwinian theory a criterion for describing a class, when it is a species, as a natural kind. There are no doubt difficulties with this. For one thing, inability to generate offspring may be due to separation in time or by geography, which leaves it an open question whether two separated groups belong to the same species when they do not

generate common offspring, even though we may suppose that they could. On the other hand some combinations of animals may have only sterile offspring, or have offspring which are sterile after one or two or more generations. For all these and still more reasons the notion of a species has become both richer and more troublesome since Darwin. The criterion of form or essence to identify specimens, however practical and useful, is usually undermined by the existence of variety, and has been seriously undermined as a fundamental tool of biological thought.

Quite recently, this issue has been raised again under the slogan 'species as individuals', i.e. the idea that any one species is not a class of objects similar in some respect but an organic unity. This twentieth-century discussion seems to contribute little to what Darwin had already considered apart from obscuring the perfectly good notions of class and of individual. The theory of classes allows any collection to be also considered as an individual if we so wish; one might even wish to say that that is its whole point. Considering a species as an organic unity does not deprive it of its status as a class of organisms, any more than the class of cells within an organism is denied status as a class because they are all part of one organism. In both cases the defining property of the relevant class may be a historical one. All (or almost all) the living cells in the body of Georg Cantor have the property of having descended from one fertilized egg from his parents. They form a class none the less, as defined by that property, and Georg Cantor was an individual all the same.

History and determinism

Another fundamental issue of interest to philosophers to emerge from evolutionary theory is the conception of an 'open' history. Darwin's account of evolution included an idea of small variation in great abundance which has been variously described as 'blind' and 'random'. The inability of the environment, or of the organism, to direct the variation in the offspring is a very fundamental feature of Darwinian evolutionary theory. In order to distinguish the first view which was proposed by Darwin from a theory which allows organisms to have offspring which inherit the good acquired characteristics of the parent, the latter is often called 'Lamarckian'. Darwin himself vacillated between giving Lamarckian and what we may wish to call Darwinian accounts of adaptation. Climate-induced or environment-induced variation would be a third variety, which we may wish to call Lyellian evolution, to commemorate Lyell's views on it in his *Principles of Geology*.

What is interesting from a philosophical perspective about Darwin's distinctive theory (even if he sometimes used other theories also) is that in his account there is an element of chance in the evolution of species which cannot be eliminated. A chance event here and now could have a profound influence upon the course of the future history of life on earth. Indeed, the entire history of life is a history of many chance events which produce the appearance of a pre-established harmony (or what is more neutrally called 'adaptation').

It may seem at first that this is a peculiarity of biology that it raises chance to such an important level of fundamental principle, though we have seen it repeated latterly in thermodynamics and quantum mechanics. Although Darwin was not technically a

statistician, his conception of the biosphere was a fundamentally statistical one. His theory gave the statistical view, itself adumbrated earlier in the nineteenth century, considerable scope for development, although this development had to await the 'new synthesis' of Darwinian theory of selective fitness with Mendel's theory of genetic inheritance, and Waismann's theory of the eternal or at any rate long-living germ line.

Among nineteenth-century philosophers, Peirce is perhaps the only philosopher to adopt this indeterminist consequence of Darwinian evolution. There are many philosophical problems concerning indeterminism, statistics and probability, and chance that are of interest to a philosopher of biology, though only in forms evident in the twentieth century.

Methodology

When Darwin wrote his *Origin of Species*, there was almost universal agreement that any scientific theory, to be successful, must describe the world as fully deterministic. The indeterministic theory of Darwin with a prominent place for chance within it creates a methodological difficulty. Whether it is a methodologically satisfactory theory or not can be asked while assuming that a theory must fit the model of theories in physics as then conceived. In the nineteenth century this was not as great an enigma as it became in the twentieth, when methodologists frequently worried about the methodological status and explication of Darwinian evolutionary theory.

In the nineteenth century, and indeed to this day, the central methodological difficulty raised about Darwin's theory of evolution by natural selection is that the record of facts (i.e. fossils) is incomplete. Darwin's theory may be described for that reason as unfounded, or poorly founded. Alternatively we may dismiss the methodology which demands so much of Darwinian theory or of any other, for that matter, as an unrealistic methodology to adopt.

Compared to methodologies propounded in the nineteenth century, theories of method in the twentieth are much more varied and much less demanding. Foundationalism is in doubt today more than ever. It would be a mistake, however, to think that Darwin's theory had a great deal to do with this change. All the evidence seems to suggest, rather, that methodology has developed more in response to problems in mathematics and in physics, and less in response to those in biology, even though the present scepticism concerning foundations fits Darwinian science extremely well.

Although the influence on methodology of reflections upon the development of evolutionary theory is minimal, the same is not true for reflections on the content of evolutionary theory. Darwin was among those who realized that his theory implied that all life including human life has evolutionary origins. In his *Evolution of the Emotions in Animals and Man*, Darwin sought to extend his theory explicitly to human feeling. We also know from his diaries that he regarded human intelligence and some critical ideas to have been inherited, too. In fact a case can be made that Darwin was a follower of Whewell until he became a Darwinian in 1839 when he realized that a substitute for what Whewell had called fundamental ideas (which are not derived from experience) could be understood as having been inherited from our simian ancestry [10.3]. An evolutionary epistemology promises to be one of the most fundamental and profound philosophical

consequences of Darwinian evolutionary theory, though what it is exactly remains undecided.

Morality

The mechanical conception of the universe still fails to accommodate one class of Scholastic phenomena, concerning morality. Where evolutionary epistemology is clearly an interesting subject with much to teach us, evolutionary morality is, like a mechanistic conception of purposes in the seventeenth century, still enigmatic. Whereas Darwin's account shows how to do without a grand design, and how to explain the existence of forms among living organisms, there is in evolutionary theory as yet no satisfactory theory of the existence of morality.

There is of course ample room to account for the fact of the existence of mores among groups of people. Just as we can study different animals to study their mating, nesting or feeding behaviour, so too we can observe humans in different groups and study them moralizing. This might lead us to think that we have an evolutionary understanding of morality if we have some explanations of how they come to acquire their moralizing habits, but that would be a mistake. The characteristic feature of morality is not that we behave in some way, or moralize in some way, but that we regard some behaviour as immoral or wrong even as we practise it. What needs to be understood is how it comes about that some things are wrong, or immoral, and not just why we so regard them.

The understanding of morality from an evolutionary perspective certainly had a controversial and well publicized attempt in the nineteenth century. One of Darwin's most ardent admirers, Herbert Spencer, proposed a doctrine called Social Darwinism. In this doctrine the lesson for us from competing living forms as Nature evolves (red in tooth and claw), is that the fittest survive, and the weak perish. Applied to the social sphere it led to what was roundly attacked as an amoral and callous view of human society. Its popularity with some despicable political movements in the twentieth century (e.g. with the National Socialists, or Nazis) has left many intellectuals with a horror of social theoretical biologists.

But the issue of morality is squarely one which remains unresolved within the Galilean revolution, and, however distasteful and misguided Spencer's Social Darwinism, one must give him and other intellectuals of the nineteenth century credit for recognizing this as a fundamental difficulty of modern science which needs to be addressed. Indeed it is because an entire society under the Nazis, in the name of their entire society, espousing Social Darwinist slogans, was so immoral as to practise systematic murder and genocide that we have to ask not only how individual immorality is possible but also how collective immorality is possible. No account of how actual mores are acquired or propagated can explain this.

As opposed to Spencer, who tried to extract a morality from the natural course of events as he interpreted them, G.E.Moore argued early in the twentieth century that any attempt to derive a claim that something must be so based on the claim that it is so, is a fallacy (what he called the Naturalistic Fallacy). His argument is that of whatever is described as a fact we may still ask meaningfully whether it is good that it is so. Since we can always meaningfully ask that question, we cannot identify the meaning of 'good'

with what is the case. Moore's argument purports to make the realm of morality (and of norms and prescriptions generally according to later philosophers) independent of the realm of nature. How it may have come about that these realms are independent is a difficulty for naturalists.

The situation at the turn of the twentieth century was that naturalism in ethics was opposed to normativism, and the matter was unresolved, and so it remains to this day.

METHODOLOGY OF BIOLOGY

Origins of the subject and of some terms

Whether there was any philosophy of biology in the nineteenth century is debatable: there is as good reason to deny it as to assert it. The expressions 'philosophy of science' and 'philosophy of biology' were invented in the nineteenth century by William Whewell. Were we to rely on that alone we would have to allow that there is such a subject by 1840. But if we were to seek practising philosophers of biology, none comes to mind, at least none who would self-consciously describe any of their work as belonging to such a field. The name invented by Whewell for this field came to designate something which clearly exists only in the latter half of the twentieth century, with some writings of T.Goudge and J.H.Woodger. Later, the writings of D.Hull, still later followed by a host of interesting writers on the subject (Ghiselin, Ruse, Wimsatt, Sober), all of whom would be happy to describe their relevant works as belonging to the philosophy of biology.

To a modern historian of the philosophy of biology in the nineteenth century this creates an interesting question of choice: lacking a clearly defined field in the nineteenth century, one could dismiss it as non-existent. This implies that there is no philosophy of biology until concerns arising out of logical empiricism (a unique intellectual movement of the twentieth century) led to the birth of this subject. But this would belie the fact that many of the issues taken up today did arise earlier, as we have seen, however different the context in which they arose in the nineteenth century.

The strategy which suggests itself is to pick out issues in the philosophy of biology today and to seek to present these very issues as they once emerged or developed in the nineteenth century. This is the strategy which has been adopted in this chapter. The obvious difficulty with this strategy is that it may be prone to anachronism: how do we prevent our criteria of choice of issue from imposing our own concerns for those of the past? To a certain extent this is unavoidable. In writing a history of philosophy in the nineteenth century, or in writing a history of the subject of history, there would be a generally accepted sense *at the time in the period being studied* that some things were within the field, even if today they were to be classified as belonging elsewhere. Issues in psychology or in sociology, for instance, which arose in the early part of the nineteenth century would have to be classified as part of philosophy because they were so regarded then. In this sense we cannot find a bench mark or a criterion of what would have been part of the philosophy of biology in the nineteenth century as seen by a contemporary then. But to be forewarned was to be forearmed.

The issues of the philosophy of biology may be divided into two kinds:

methodological, and substantive. There is, as I shall soon suggest, an overlap there as well.

The substantive questions within nineteenth-century biology which are of concern to philosophers of biology today may be classified into three categories: those connected with problems of evolutionary theory and related developments; those connected with the problem of reduction of life sciences to physics and chemistry; and those related to the understanding of human beings in the light of modern biology. There are of course a host of issues which may fit within or across these categories. All these issues were already controversial in the latter part of the eighteenth century and continue to attract interest to the present day, and some of them have been sketched in the first section above.

In studying the methodology of biology in the nineteenth century one could include the commentators on science (Whewell, Bernard) or those involved in the practice of scientific research who exhibit or are obliged to pronounce upon method (Cuvier, Pasteur, Darwin): the discussion of methodology in the practice of scientific research is generally a sign of a clash between defenders of different theoretical perspectives, all of whom attempt to use methodological considerations to buttress their respective cases.

The second kind of methodological pronouncement is usually controversial, because it is made in the interests of controversy. The substantive issues in biology which stand out today as worth discussing are just those that were once the subject of controversy. Practical methodology is therefore closely bound up with the same substantive issues that we have identified as part of the philosophy of biology in the nineteenth century.

There may also be a connection between the writings of abstract methodology and the controversies of the nineteenth century: Whewell's work may be related to the controversies arising from substantive issues in physics (empiricism versus *a, priori* knowledge, for instance) and Bernard's from those in medicine (anatomical as opposed to physiological considerations in medical research). Nevertheless, the form of these self-consciously written methodological tracts differs from the others: the former must be taken literally as methodologies. The others are more casual and less systematic remarks uttered in the interests of other argumentation. We may sometimes disregard the methodological apologia and prefer instead to analyse the science in action. For this reason there has been included, in the section below, a brief account of two methodological treatises of the nineteenth century of particular interest to the philosophy of biology.

Since the unification of biology is an important part of the story recounted here, perhaps some comments are in order about each of the subjects of history, philosophy and biology as they are found in the nineteenth century. The first two of these subjects trace their origin to an era which is at least as early as that of the ancient Greeks—Herodotus and Socrates respectively being cited as their originators. (The words were invented then, but it is always possible to suggest that there were predecessors in or around ancient Greece, or in another civilization prior to the Socratic invention of the word.) Philosophical history, a particularly influential conception of time and events in human history, seems to be an especially noteworthy product of the nineteenth century (Hegel, Comte, Marx). It is an open question which will not be taken up here what direct or indirect influence philosophical history might have had on biology.

Unlike philosophy and history, biology is a comparative beginner. It is recognized as a

unitary and integral subject worthy of a separate designation for the first time only late in the eighteenth century. Many of the fields which are now part of biology as we understand it have a hoary history: zoology, botany, physiology, anatomy, as well as hosts of sub-disciplines like ornithology, entomology. They were well developed subjects for a long time before they came to be regarded as component parts of a single subject identified as the science of life, or of biology. It is an interesting fact about this new subject, biology, that there is a philosophy of it according to us. In contrast, we would find a philosophy of entomology or of botany to be unnecessary without further argument. It seems that there is a unity to biology which warrants a philosophy of it. Perhaps the thesis that the unity of biology is a unity of philosophical approach, prompted by the fundamental problems of modern philosophy, is not the whole story. But if it is part of the story, it still makes philosophy much more central to the development of biology, and vice versa, than is generally supposed.

Two important methodological treatises

The origin of the expression 'philosophy of science' may be traced to Whewell, who proposed it in his book *Philosophy of the Inductive Sciences, Founded upon Their History* (1840). Book IX is entitled 'The Philosophy of Biology', which is part of the philosophy of science.

> The advances which have, during these last three centuries, been made in the physical sciences;—in Astronomy, in Physics, in Chemistry, in Natural History, in Physiology;—these are allowed to be real, to be great, to be striking: may it not be then that these steps of progress have in them something alike?—that in each advancing movement there is some common process, some common principle?

Then a little later he says, 'if we can, by attending to the past history of science, discover something of this common element and common process in all discoveries, we shall have a *Philosophy of Science*' ([10.5], vi). In the opening section of Book I, philosophy of science is said to offer nothing less than a complete insight into 'the essence and conditions of all knowledge, and an exposition of the best methods of the discovery of all truths'.

It is evident that a philosophy of science would include at least a methodology, and an informed analysis of the history of science to exhibit that methodology. In addition it would have to exhibit an insight into all real knowledge—a tall order indeed. Whewell's own writings are remarkable for the insight he exhibits into diverse subjects and their history, which few have matched.

But when we turn to his account of the philosophy of biology, the reading is disappointing (but no more than Mill, Comte or Spencer). There he lists five schools of biological thought, and a cursory account of some developments in physiology. We do not find any especially remarkable insight into the essence and conditions of biological knowledge, or even of the particular methods which may have made them successful. Instead, we find that when he can he applies the paraphernalia of a philosophy arrived at

from the study of physics and mathematics to biology—his conception of a fundamental idea not derived from experience, for instance, is inspired by Kant's conception of *a priori* synthetic judgement, introduced to show how mathematical knowledge is possible.

Searching for a nineteenth-century figure who actually studied what Whewell may have called the essence and conditions of biological knowledge and who reflected upon the process of discovery to extract some insight from it, we find only one book which merits our attention, Claude Bernard's classic, *An Introduction to the Study of Experimental Medicine* (1865).

Claude Bernard was one of the great physiologists of his day. His most memorable achievement perhaps was the discovery of the internal environment of animals, which allows for an explanation of the comparative autonomy of some animals even though they remain in constant interaction with environment. He had also made numerous and brilliant discoveries in physiology before that, such as the function of the pancreas, animal glycogenesis, experimental production of diabetes, the existence of vasomotor nerves, which are mentioned among other discoveries in Paul Bert's introductory eulogy ([10.2], v-xii).

Claude Bernard's work does not address biology as an integral subject. He deals exclusively with physiology, and mentions anatomy. But his work is so centrally in philosophy of biology as we now understand it that it cannot be left out of account.

Bernard argues forcefully for the need to study not just form as in comparative anatomy but function as well. And he suggests that in order to do so it is necessary not just to observe organisms but to experiment with them. What, we may ask, is the difference between observation and experiment?

Bernard provides us with one of the most lucid and brilliant accounts of experimentation and experimental reasoning ever given. He begins by distinguishing the process of experimentation from that of observation. We take observation to be a passive gathering of facts, where in experiments there is an intervention into the process being studied, 'a variation or disturbance that an investigator brings into the conditions of natural phenomena' ([10.2], 5). But in distinguishing an observation from an experiment and both from experimental reasoning, he notes that the objective of an experiment is to understand a phenomenon from a perspective under our own control, 'to reason experimentally, we must usually have an idea and afterwards induce or produce facts, i.e. observations, to control our preconceived idea'. ([10.2], 20).

Bernard's account of the experimental method in observations as well as in experimentation is anything but passive. 'Of necessity, we experiment with a preconceived idea. An experimenter's mind must be active, i.e. it must question nature, and must put all manner of queries to it according to the various hypotheses which suggest themselves.' And his account of the experimental method is this:

> the metaphysician, the scholastic, and the experimenter all work with an *a, priori* idea. The difference is that the scholastic imposes his idea as the absolute truth which he has found, and from which he then deduces consequences by logic alone. The more modest experimenter, on the other hand, states an idea as a question, as an interpretative, more or less probable anticipation of nature, from which he deduces consequences which, moment by moment, he confronts

with reality by means of experiment.

([10.2], 27)

Bernard's brief for a study of experimental medicine is an attempt to bring science to bear on a subject which he saw then as

> still in the shades of empiricism and suffers the consequences of its backward condition. We see it still more or less mingled with religion and with the supernatural. Superstition and the marvellous play a great part in it. Sorcerers, somnambulists, healers by some virtue of a gift from Heaven, are held as the equal of physicians. Medical personality is held above science by the physicians themselves; they seek their authority in tradition, in doctrines or in medical tact. This is the clearest of proofs that the experimental method has by no means come into its own in medicine.
>
> ([10.2], 45)

The conception of experimental medicine proposed by Bernard suggests that experimentation has exactly the same character whether we experiment on inorganic chemicals or on living tissue. Thus he argues that there is just one method for the study of all living and non-living things, which is in direct contrast to the claims of some vitalists that living organisms provide exception to the general rules governing the study of dead (non-living) matter.

While Bernard argued forcefully and lucidly for the unity of experimental method, he also pointed out that living objects must be treated differently from inorganic things.

> So far we have been explaining experimental conditions applicable to both living and inorganic bodies; for living bodies the difference consists merely in the greater complexity of the phenomena…. But in the behaviour of living bodies we must call the reader's attention to their very special interdependence; in the study of vital functions, if we neglected the physiological point of view, even if we experimented most skilfully, we should be led to most false ideas and the most erroneous deductions.
>
> ([10.2], 87)

Living organisms must be treated as a harmonious whole. And in this manner he argues for the need to do not only comparative anatomy but experimental medicine as well.

The greatness of Bernard's suggestions lies not only in the profound changes that he foresaw and helped advance in the profession of theoretical medicine but also his genuine contributions to methodology, or to the philosophy of science as this subject had been conceived by Whewell. Bernard's analysis of the sceptical doubt which is used by the experimenter without letting it get out of control, his defence of the need for preconceived ideas together with the injunction that we must be ready to abandon them as soon as nature turns recalcitrant—all these are so remarkable in capturing the essence of scientific method that it is one of the few books on methodology which continues to be read as profitably now as when it was first printed.

Compared to Bernard's brilliant work, there is nothing else of interest in the nineteenth century, and perhaps even since then, in the form of a sustained methodological treatise on the topic of experimental method in biology.

NOTE

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CHAPTER 11
The separation of psychology from philosophy

Studies in the sciences of mind 1815–1879

Edward S.Reed

> An age which demands free inquiry, pushed without fear or compromise to its legitimate conclusions, turns up an Epicurus or a Hobbes. In one which likes to put up at a half-way house, there will be no lack of a Dugald Stewart or a Mackintosh, to provide it with comfortable entertainment.
>
> Thomas Love Peacock, 'The epicier' (1836)

THE IMPOSSIBLE SCIENCE

Traditional metaphysics

The consensus of European opinion during and immediately after the Napoleonic era was that psychology as a science was impossible. This was not the position of a few retrograde thinkers but was the thoughtfully articulated opinion of the best placed academic thinkers. Much of what we now think of as psychology and philosophy emerged from attempts to overcome these well developed arguments against the possibilities of a scientific psychology.

There is an important terminological shift during this time as well. In Locke's day, the English terms 'natural philosophy' and 'moral philosophy' were used in parallel to mean, roughly, what we would now call natural science as versus social science. By the middle of the eighteenth century a host of other terms were being used to denote all or part of 'moral philosophy', such as the Latin 'psychologia' (both empirical and rational) and the pseudo-Greek 'pneumatology'. Within Scottish philosophy the phrases 'intellectual powers' and 'active powers' of the mind gained some currency. By the turn of the century, however, the word 'metaphysics' was increasingly used to denote much of what we would now call psychology (although terms like 'moral philosophy' were still common as well). Around 1815, the linguistically sophisticated poet Shelley wrote that 'Metaphysics is a word which has been so long applied to denote an inquiry into the phenomena of mind that it would justly be presumptuous to employ another [although] etymologically considered it is very ill adapted to express the science of mind' (Shelley also spoke of Kant as a 'psychologist'). At about this time Maine de Biran and Schopenhauer were using this term in a similar way, and a generation later one finds the young Charles Darwin also using 'metaphysics' to refer to psychological inquiry.

As Napoleon swept across Europe academic theorists increasingly argued that 'metaphysics' (psychology) was not a science, or at least that it could not be an empirical science in the same way that physics or chemistry could. The two most important sources of this broad consensus were literally situated at opposite ends of the continent: Immanuel Kant in East Prussia and Thomas Reid in Scotland. It is no exaggeration to say that these were the two most influential psychologists between the French Revolutions of 1789 and 1830. Their views on psychology were widely taught, analysed and discussed. I shall call the position that emerged under this influence 'traditional European metaphysics'. Ironically, traditional metaphysics is *not* a position to which either Reid or Kant would have subscribed; nevertheless, it is a set of views which arose in large part because of the influence of Reidian and Kantian arguments.

Neither Kant nor Reid was against the study of psychology—on the contrary, both were acute practitioners of this discipline. Nevertheless, they both had strong reasons for attacking any pretensions put forward for treating psychology as a science. Kant and Reid took Newtonian mechanics to be the model empirical science; arguing that explanations in terms of patterns of efficient causality conforming to empirically determinable laws are essential to real science. Both Kant and Reid presumed such laws would be expressed mathematically, and that controlled experimentation (perhaps mixed with observational modelling as in astronomy) was the proper method for deriving the laws.

Kant argued that the various claims about the nature of the human mind or soul are impossible to evaluate in this scientific manner. He attacked the 'rational psychology' then popular in Germany for claiming to be able to prove such propositions as 'the soul is unitary and simple'. Instead, as Kant showed in the antinomies of his first *Critique*, diametrically opposing views of the soul could be sustained with equal rational force. In his 'anthropology' Kant endorsed a kind of natural historical model for psychology, using observational techniques to illustrate how different people(s) have developed, and how they react in diverse situations. Kant's 'critique' was a novel discipline, or method, intended to undercut all pretensions to a science of metaphysics beyond this sort of observational procedure.

Reid's attack on psychology as science had a different origin from Kant's, but ended up in much the same place. Responding to what he called the 'way of ideas'—and in particular to what we would see as Lockean psychology—Reid objected to what he saw as an inadequate appreciation of the difficulties of accounting for intentional psychological states on the basis of sensory data. Reid argued that psychological capacities, such as the ability to perceive external objects (which Reid saw as central to all mental powers), could not be explained as causal outcomes of physical stimuli affecting the mind or the body. He tried to show that all such accounts either violated the concept of efficient causality, or were not explanatory, or both. The causal effects of, for example, light on the retina are one thing, and the sensory awareness of light (visual sensations) another thing, and the visual perception of objects yet a third thing. The widespread claim, originating in Descartes and running through Locke, the *philosophes* and beyond, that the first caused the second which caused the third, were simply what we would now call category errors—because physical stimuli cannot be the efficient causes of mental states, nor can sensory (non-intentional) states be the causes of perceptual (intentional) states. Reid occasionally flirted with Berkeleian semiotic explanations of the

stimulus-to-sensation transition, and also dabbled with occasionalist interpretations of the sensation-to-perception transition. But, in his mature works on *The Intellectual Powers* and *The Active Powers*, he most often argued that these transitions cannot be causal and simply do not fit available models of explanation.

Reid did not argue against the distinctions among the concepts of stimulus, sensation and perception; on the contrary, it was Reid who sharpened these three concepts into modern form—thus setting the stage for many a nineteenth-century dispute. However, Reid strongly stated that explanation of the causal interrelationships among these three kinds of events was not possible, and he objected to claims that such interrelationships had to conform to patterns of cause and effect. For Reid the ultimate fact in psychology was ideological: God had so arranged our bodies and minds that upon receipt of a certain stimulus, our bodies felt a given sensation, and our minds conceived a particular perceptual belief. In an intriguing parallel with Kant's *Critique of Judgement,* Reid argued that the relationships among the various animal and conscious properties of ourselves is a part-whole relationship, contrived by a deity with the purpose of adapting us to the rest of his creation. Like Kant, Reid argued the need for a descriptive psychology, to elucidate the modes of this adaptation of self to world, but denied even the possibility of an experimental, causally based psychological science.

Both Reid and Kant left open a path to what we nowadays call, often disparagingly, a faculty psychology. Through natural history, anthropological observation, intuitive introspection, and other sciences' knowledge of creation, a descriptive psychology might be developed. Such a psychology would provide a taxonomy of mental capacities ('faculties'). This taxonomy could be correlated with medical or physiological knowledge of our bodies' capacities, although no causal explanation of the linkage could be given. Both Kant and Reid were willing to say, for example, that vision begins in the eye, but neither was willing to characterize the events in the eye or brain as efficient causes of vision. Although Reid and Kant left open the possibility of a faculty psychology, neither of them argued for such a psychology. In fact, both Reid and Kant were careful to warn against reifying descriptions of phenomena into substances or forms. None the less, and perhaps because Reid and Kant had left little for psychologically minded inquirers to *do*, their followers did often move in the direction of reifying psychological phenomena into faculties.

Victor Cousin: exemplary traditional metaphysician

The career of Victor Cousin (1792–1867) illustrates many of the features of what I am labelling the traditional European metaphysics of the first part of the nineteenth century. A proponent of an increasingly modified 'Scottish common-sense philosophy', Cousin was influential across the entire continent, and in America as well, especially through his writings in the history of philosophy. Alternately stymied and helped by political events in post-Napoleonic France, Cousin ultimately became the Minister of Education under Thiers in 1840, exerting a direct and powerful influence on higher education in France for the next generation.

Cousin taught primarily at the École Normale, where he began his lecturing career in 1813. In 1815, the premier exponent of Scottish philosophy in France, Royer-Collard,

chose Cousin as his substitute, a post he held until 1820. During this period, Cousin became interested in German idealism, especially the work of Schelling and Hegel, and he visited Hegel and others in the German-speaking countries. Thus was begun what Cousin called his 'eclecticism'—a philosophy which proposed to integrate the best of all previous philosophies. (It is an interesting and unsolved question why Cousin eagerly sought connec-tions between Scottish philosophy and Hegel's ideas, whereas Dugald Stewart at the same time professed to be completely baffled by Hegel.)

Cousin attacked the French Lockeans, from Condillac down to the ideologues, in a way reminiscent of Reid's critique. Reid argued that the Lockean (really Cartesian, but Cousin downplayed this) 'way of ideas' led to materialism. That is, argued Cousin, the notion that mental states are 'ideas' which are the effects of physical causes (stimuli and the impressions they make on our bodies and brains) makes no sense except on the kind of materialist interpretation given to it by Diderot or, worse, d'Holbach.

Cousin promoted these ideas in his lectures on eighteenth-century philosophy, and also in a separate volume, *The Elements of Psychology*, an immensely popular chapter-by-chapter duel with Locke's *Essay*. Although Cousin here endorsed Reid's critique of Locke, he was unable to articulate a complete and coherent version of Reid's alternative to Lockean epistemology. In particular, Cousin's account of Reid's theory of perception as direct (not based on either ideas or sensations) was very muddled, in ways that prefigure William Hamilton's disastrous version of Scottish philosophy. Most importantly, Cousin (who was followed in this by Hamilton, Mansel and others) tied Reid's everyday concept of perception into an almost mystical concept of intuitions of realities. Responding to Locke's attack on enthusiasm (*Essay*, IV, xix) Cousin endorsed what he took the Scottish school to be saying as a 'spontaneous intuition of truth by reason, as independent as possible of the personality and of the senses, of induction and demonstration'. Thus the common sense of the Scottish enlightenment became the enthusiastic intuition of nineteenth-century orthdoxy. What for Reid had been tied into the senses, based on experience, and not on reason, Cousin twisted into a quasi-mystical access to truth, with an eye towards religious and moral orthodoxy. It was to be his greatest contribution.

The success of traditional metaphysics—what Kant and Reid saw as an impossible science—was really quite impressive. Fichte and many others in German-speaking countries developed post-Kantian taxonomies of powers of the soul, and began to speculate about the mechanics of the soul as well. In France Reid's influence on Royer-Collard and Kant's on Maine de Biran defeated Lockean psychology even before Napoleon had met his Waterloo. Dugald Stewart's influence in Scotland (and around the continent as well) at this time was immense. In *The Encyclopaedia Britannica* of the 1820s, in the curriculum of faraway Harvard College, and all around Europe, in Paris, Naples, Vienna and elsewhere something like this metaphysical or faculty psychology was at the centre of the philosophy curriculum. The concert of European ideas about the mind was every bit as broad and strong as the concert of reactionary powers that ruled the European nations rigidly from 1815 to 1830. After 1830 the unity of support for traditional metaphysics began to erode, under the influence of new philosophical positions, and especially with developments in physiological and experimental analyses of neural and mental phenomena. Nevertheless, thanks to Cousin's eclecticism,

traditional metaphysics was still very much alive up to 1848. Although disagreeing about much else, the French-speaking, German-speaking and English-speaking proponents of traditional metaphysics increasingly endorsed psychological theories which made room for Cousin's intuitionism, a kind of sanctimonious transcendentalism which would have disturbed Kant and Reid. Nevertheless, this kind of intuitive psychology found a home in a broad array of writers: the right Hegelians, Cousin and his French followers, Whewell in England, Hamilton and his followers throughout Britain and the United States. Indeed, it is almost impossible to find a textbook of 'moral philosophy' or 'metaphysics' from this period that does not promulgate something akin to Cousin's intuitionism. James Mill's *Analysis* is a conspicuous and important exception to this rule, but it is probably not completely representative of the views of those who opposed traditional metaphysics, as I shall now explain.

Frankenstein's science: an alternative psychology

Try as they might, Metternich and his allies in reaction could not completely eradicate progressive thinking. Similarly, although the set curriculum of most academic institutions and texts followed a kind of popularized Reidian or Kantian psychology, there was at the same time a widespread, if non-academically-based, alternative psychology. To a great degree this oppositionist psychology was what might be dubbed a 'fluid materialist' position. This psychology had its roots in Franklin's two-fluid theory of electricity, and its branches in Mesmer's animal magnetism, Galvani's and Volta's exciting work on electric phenomena in animal tissues, and in Boscovich's reconceptualization of physical force. Increasingly, some thinkers were led to speculate that an understanding of electricity—or perhaps some other, subtler, fluid within the nerves—would unlock the secrets of life and mind.

Priestley was perhaps the earliest proponent of this materialist psychology—and was soundly attacked first by Kant and then by a mob organized by the British authorities to drive him out of the country. Above all it was Priestley who placed associationism (derived from Hartley) at the centre of materialist psychology, launching a tradition of psychologists and physiologists looking for associations among neural processes and pathways. Priestley however shied away from serious neurophysiological analysis of the mind (and called Hartley's attempt at such an analysis a failure). Thus it was Erasmus Darwin's *Zoonomia* (many editions and translations from 1792 to 1812) that properly launched a fluid materialist psychology. This text, which appears to have been widely influential across Europe, treated sensory impressions as the fluidic activity of nerves when impressed by stimuli, and went on to develop an elaborate associationist mechanism for psychological processes. In addition, Darwin here and elsewhere speculated about the possibility that electricity is the key to understanding not only neural processes but even life itself. For example, he reported on the experiments of Aldini (Galvani's nephew) in which dead flesh is 'reanimated' by the use of electricity.

A glimpse of the ideas involved in this oppositionist psychology is afforded by Mary Shelley's novel *Frankenstein.* First published in 1818, this novel emerged from Shelley's attempts to think through the implications of Darwin's psychology. Victor Frankenstein is a scientist in the mould of the elder Darwin: 'I was led to examine,' this character says,

'the cause and progress of th[e] decay [of living tissue]' and such studies helped him succeed 'in discovering the cause of generation and life'. But not only is life science capable of being studied causally, so is psychology. Mary Shelley follows Hartley and Darwin carefully in her description of how Frankenstein's android, abandoned by its creator, would develop psychologically. In the creature's original state, 'no distinct ideas occupied my mind; all was confused'. What confused the creature was a bewildering array of sensations. But some of the sensations were more pleasurable than others, and these captivated the creature's mind. The most powerful feelings were elicited by the creature's witnessing scenes of social intercourse among the family members upon whom it is spying: seeing the ageing father playing music for his daughter, the creature 'felt sensations of a peculiar and overpowering nature: they were a mixture of pain and pleasure, such as I had never before experienced'.

Shelley follows the materialist psychology of her day in seeing both language and morals as emerging from the association of weaker feelings with these powerfully strong sensations of social origin. 'I perceived,' says the android, 'that the words they spoke sometimes produced pleasure or pain, smiles or sadness, in the minds and countenances of the hearers. This was indeed a godlike science, and I ardently desired to become acquainted with it.' Such acquaintance is made by the creature's straining to associate names of familiar objects and people with their referents. Like her mentors, Hartley and Darwin, Mary Shelley did not try to explain how a creature limited in its experience to sensations could come to perceive the significance of such a thing as a pained countenance. She understood that even simple objects can have multiple names (such as the boy in the family being called alternately 'Felix, brother, or son') but was able to convince herself that the bewildering associations of sound and sense could nevertheless be worked out by a naive listener. But some associations are not so simple: the android discovers that it can hear the sounds of some words, even though it does not grasp their reference, words 'such as good, dearest, unhappy'.

To understand such words, the materialist psychologists argued, required experience with people and their ways. Here is the beginning of the great nineteenth-century conflict between an experiential, or empiricist, psychology and a nativist one. The standard metaphysics asserted that knowledge of good and evil, right and wrong was not based on experience, and certainly not based on the sensations of pain and pleasure; on the contrary, writers like Fichte, de Biran and Stewart held that we each have a kind of direct intuitive apprehension of right and wrong. Reid had warned that the Hutchesonian concept of 'moral sense' was incoherent—that an apprehension of good and evil could never be obtained by mere sensation. Reid's own response to this was to argue that morals were empirical (he spoke of moral judgements and moral perceptions, based on experience and intuitive—God-given—standards of conduct). Although this view influenced American thinkers, especially Thomas Jefferson, it appears to have been abandoned in nineteenth-century Europe even by followers of the 'Scottish school'. In its place was substituted the traditional metaphysicians' assertion of an innate, intuitive, apprehension of right and wrong.

The metaphysical mainstream shied away from Reid's empirical ethics for reasons well understood by the materialists, and well illustrated in the narrative of *Frankenstein*. If moral evaluation derives from experience, then certain repeated patterns of association

might generate moral monsters: people who get pleasure from and justify acts which the rest of us judge to be evil. At first, when his experience derives primarily from reading history, the android 'felt the greatest ardour for virtue arising within me, and abhorrence for vice' but these terms, as the android explains, should be understood only as 'relative…to pleasure and pain alone'. Hence, when it emerges that human beings cannot stand even to look at him, and that even his creator finds him horrific, the android develops an inverted morals: what destroys humans will destroy all his greatest pains, and is therefore the greatest good.

Contemporary critics detested this point of Shelley's book, and attacked her for promulgating a false morals, or an amoral position. 'Our taste and our judgment alike revolt at this kind of writing' said the *Quarterly Review*, 'and the greater the ability with which it may be executed the worse it is—it inculcates no lesson of conduct, manners or morality.' A psychology that treated humans as natural objects, that did not assume that humans were creatures with a transcendent soul—as did the traditional metaphysics—would end up offering a scenario of mental and moral development that looked frighteningly like the one in Shelley's novel. To make psychology into a science could threaten the moral fibre of society.

The suppression of psychology as a natural science

In evaluating the conflict between traditional metaphysics and the materialist psychological tradition, the modern reader should keep in mind that this battle often went well beyond the realm of ideas. Especially after the defeat of Napoleon, State and religious authorities (often the same people, and almost always the same bureaucracies) exerted enormous efforts to prevent dissemination of ideas like those of Erasmus Darwin and Mary Shelley. Censorship, the use of informers and highly active secret police forces were the norm in all European countries from 1815 to 1830. The authorities were on the lookout for fluidic psychology, in order to crush what they saw as 'pantheism', 'atheism' and 'materialism'—all assumed to be enemies of the status quo. A number of historians have argued that it was the emerging sciences of phrenology and mesmerism that were specifically under attack. I would argue that proponents of these ideas were attacked only in so far as they were seen as overlapping with the fluidic materialists. Once the second generation of Mesmerists gave up Mesmer's claims concerning the physical force supposedly at the root of mesmeric phenomena, once the second generation of phrenologists adopted a moderate nativism (especially in Calvinist Scotland), they were widely accepted.

In contrast to mesmerists or phrenologists, those who propounded the idea of studying life and mind within the framework of natural science were zealously prosecuted, even in the most 'liberal' of European states at this time, Great Britain. One of the most important cases of such repression is that of William Lawrence (1783–1867), a distinguished but radical surgeon (soon to be an editor of the insurgent medical periodical *The Lancet*, and later Surgeon to Queen Victoria). Lawrence was a follower of Bichat who believed that research on electricity and other physical forces would ultimately reveal the connection between neural structure and mental function, giving us a kind of natural science of the soul. Doctors should rejoice in this, Lawrence believed, because it

means that insanity is not a disease of the soul (only treatable, if at all, by moral suasion) but a physiological disorder, perhaps curable by medicine. In 1819 Lawrence prepared to publish a work explaining these ideas, his *Lectures on Physiology, Zoology, and the Natural History of Man*. After a brief period of publication, there was an orchestrated campaign against this book for blasphemy. Leading figures in the medical establishment asked the Royal College of Surgeons to force Lawrence to expunge the blasphemies and to desist from lecturing. Lawrence withdrew the book and lost his lectureship.

One of William Lawrence's patients, the husband of the author of Frankenstein, had even worse problems with State suppression of his philosophical and psychological ideas. In 1813 Percy Shelley had 250 copies printed of the first of his great dramatic poems, *Queen Mab*. Directly influenced by Erasmus Darwin's poetry as well as his theories, this poem included extensive prose notes, amounting to a series of essays on such forbidden topics as republicanism, atheism and materialist psychology. Shelley was explicit in his psychology in these essays, where Mary in her novel could only be implicit. He argued explicitly for treating humans as part of nature, and for seeing psychology, morals and politics, as sciences seeking causal laws: 'Were the doctrine of necessity false, the human mind would no longer be a legitimate object of science; from like causes it would be vain that we should expect like effects', but this is never true. A true psychology would see motives as nothing more than complex causes, and lawful patterns of cause and effect would then be discerned. Where we seem to see action without causes, he said, 'these are the effects of causes with which we are unacquainted.' This psychology would 'introduce a great change into established notions of morality…there is neither good nor evil in the universe, otherwise than as the events to which we apply these epithets have relation to our own mode of being'.

Shelley was always acute at seeing the implications of his philosophical ideas. One implication he took pleasure in emphasizing was that this new moral psychology would desanctify marriage, and legitimate divorce—an implication chosen to annoy his orthodox readers. Marriages, far from being made in heaven, are natural relationships, 'the worthiness [of which should be] estimated by the quantity of pleasurable sensation it is calculated to produce…. the connection of the sexes is so long sacred [only] as it contributes to the comfort of the parties, and is naturally dissolved when its evils are greater than its benefits'. Much of Shelley's more serious discussions of the implications of his psychology revolved around his vegetarianism, expounded at great length in the notes to the poem. Like Feuerbach and then the German materialists of forty years later, Shelley argued that the intake of food was a key ingredient in a person's constitution, and that proper diet was a basis not only for good physical and mental health but for the formation of progressive characters, capable of educating and reforming the world. Historians of philosophy have often noted, usually with scorn, Feuerbach's extreme materialist phase, with his claim that 'man ist was man isst' (people are what they eat)—but historians would be better advised to try to explain the widespread appeal of this doctrine throughout the middle of the nineteenth century than to make fun of it.

Shelley was attacked for both seditious and blasphemous libel, and his book banned. This was one of a series of events, which included the use of government spies to follow him and his friends and to read his correspondence, that ultimately led to Shelley's self-imposed exile from what he saw as a ruthless and tyrannical government. Shelley tried in

various ways to have the ideas in this book, or even parts of the book, published and/or reviewed with varying success. Finally, again, several pirated editions began appearing, including one from Richard Carlile, an important 'working-class' publisher and fighter for a free press. Bans and trials continued to be stimulated by this book, but the text was out of the bag. *Queen Mab* quickly became known as 'the Chartist's Bible'. Many a cobbler and cordwainer cut their philosophical teeth on Shelley's ideas, and his quotations from d'Holbach, Voltaire, Drummond, E.Darwin and Spinoza.

The battle between traditional metaphysics and psychology as a natural science was thus not an even one. The former had access to publication, pulpit and professorships; the latter risked prosecution, imprisonment, loss of positions and banishment. The rapid success and proliferation of materialist ideas across Europe in the wake of 1848 suggests that ideas like the first Darwin's and Shelley's were much more widely known and discussed than the printed records—especially the printed records of philosophical works which tended to be academically and ecclesiastically respectable publications—might suggest. Historians of philosophy need to know much more about what radical surgeons and poets were thinking and saying. It will not be easy to find out what these heterodox thinkers were saying because of the widespread use of police spies and informers, which inhibited people even in private correspondence, much less in publication. It is imperative that historians recognize that the decades following Waterloo imposed the tightest censorship ever seen across most of the European continent.

Here is one example of the mischief this severe censorship has caused to historians of ideas. It is widely believed that Spinozist ideas—especially those relating to pantheism and to psychophysical isomorphism—arose from theological discussions sparked by such 'left Hegelians' as Feuerbach and Strauss in the 1830s and 1840s. Supposedly the first 'serious' writing on Spinoza in nineteenth century England was G.H.Lewes's in the early 1840s, followed by the unpublished translation of *The Ethics* by Marian Evans (later 'George Eliot' and Lewes's spouse). But Lewes acknowledged hearing of Spinoza from discussions with Leigh Hunt in the 1830s. Leigh Hunt was one of Shelley's key literary contacts, and probably knew of Shelley's translation of Spinoza's *Tractatus*. Perhaps Spinoza's ideas, interpreted through the lens of a materialist psychology, influenced philosophical opinion in London well before reaching the 'broad reading public' or the conservatives in Oxford and Cambridge. (A similar story could be told of the dissemination of Spinoza's ideas in France in part via the writings of the radical poet Heinrich Heine.)

The iron grip of the concert of Europe began to be loosened in the 1830s. As we shall see in the next section, there was a corresponding increase in objections to traditional metaphysics in the years between 1830 and 1848. It is possible that some of these ideas were previously censored ones finally seeing the light of day, and it is also possible that some of these ideas were genuinely novel. Without extensive and careful research that includes examination of unpublished documents, and information about non-academic circles (such as working-class reading groups which were common in all the major British cities, and even in some continental cities as well, from 1820 on), it will be difficult to determine the path taken by novel ideas at this time.

THE BREAKDOWN OF THE OF EUROPEAN IDEAS

Emergent naturalism

Despite its widespread popularity, and despite the very real boost it received from the authorities, secular and sacred, traditional metaphysics was a relatively unstable theory for psychology. It is one thing to state that the analysis of the soul goes beyond the boundaries of the natural world, for the soul is a transcendental entity—but it is another thing to produce various analyses of psychological states, all the while protesting that certain modes of explanation do not apply. For example, Reid's denial that sensory impressions can or should be treated as the causes and sensory states as the effects of a single process simply had to strike any independent-minded physiologist as wrongheaded.

The rise of associationist psychological theories after 1820 should be seen in the context of attempts to naturalize aspects of traditional metaphysics. In particular, the associationists were dissatisfied with what they saw as overly general statements about 'laws' and 'dispositions' of the human mind. They wanted these replaced by what we would now call psychological mechanisms. This conflict is well illustrated in the different estimations of the state of psychology offered by Dugald Stewart and his erstwhile student, James Mill. Stewart's *Dissertation exhibiting a general view of the Progress of Metaphysical, Ethical, and Political Philosophy since the revival of letters in Europe* (which was prefaced to the fourth edition of the *Encyclopaedia Britannica* in 1819) offered a strong defence of traditional metaphysics. For example, in writing about John Gregory's essay of advice to physicians, Stewart explained that Gregory correctly emphasizes 'the laws of the union of the mind and the body and the mutual influence they have upon one another'. Stewart went on to caution, however, that

> it is only the *laws* which regulate the union between mind and body…which are here pointed out as proper objects of philosophical curiosity; for as to any *hypothesis* concerning the *manner* in which the union is carried on, this most sagacious writer was well aware, that they are not more unfavorable to the improvement of logic and of ethics, than to a skilful and judicious exercise of the healing art. (425)

Making a sense

One of the specific ways in which traditional metaphysics responded to the Kantian and Reidian arguments against scientific psychology was to invent a new sense. What Kant termed the 'scandal of philosophy'—and it is important to remember that by 'philosophy' he meant something closer to what we mean by 'science' than modern philosophy—was the inability to prove the existence of the external world. Reid was content to avoid proof in this matter, and merely to assert the plausibility of the existence of objects as an assumption on which science should be based. Here Kant went well beyond Reid and

investigated how such a proof might be developed, ultimately offering his transcendental arguments to make such a proof. The empirical world of causal interactions, of space and time, Kant asserted, could be proved to exist only if one assumed that the human soul *qua* transcendental creature participated in the construction of these phenomena. Thus Kant was what he chose to call a transcendental idealist but an empirical realist. The phenomenal world could be proved to be real, but only by hypothesizing a transcendentally active mind.

Naturally Kant's conclusions were resisted by many thinkers (whether his arguments were understood by these thinkers is a separate question). Just as Kant chose to make causality, space and time the central test issues of his work, so did the traditional metaphysicians who resisted Kant's transcendental idealism. In the first three decades of the nineteenth century several non-transcendental schematisms were offered to explain how knowledge of causality and space and time might be veridical. One group of arguments revolved around refining and extending the previously inchoate notion of a 'movement' or 'muscle sense'. A second group of arguments revolved around a novel idea of a 'sense of effort' or some sort of direct intuition of personal activity. Maine de Biran and Schopenhauer are the most important thinkers of the second group (some might put Fichte in this group as well). Destutt de Tracy and some of his followers in France, along with Thomas Brown, James Mill and their followers in Britain, make up the important members of the first group. (And there is some reason to suspect that Brown was heavily influenced by de Tracy.) It was the promoters of this new sense who did the most to set the stage for mid-nineteenth-century associationism.

What both these groups of thinkers held in common was the notion that non-transcendental forms of mental activity could be invoked to prove that our knowledge of the external world is reasonably veridical. The crudest form of their idea is the doctrine of 'resistance': that children learn the difference between themselves and the world by coming up against things that resist their actions as they move around. (Berkeley actually anticipated this part of the argument in several passages of his *Three Dialogues*.) Whether this resistance is detected through sense inputs deriving from muscular activity or from something preventing the proper carrying out of an action as willed, the cognitive result might be the same: knowledge of something that is external to, and undetermined by, myself.

Where the two groups of theorists diverge most sharply is on the nature of causation. The second group of theorists offers a kind of output-based theory, by emphasis in the mental output causing action. In contrast to the input-based theorists of muscle sense, these output theorists typically suggested that the human mind has a kind of direct, intuitive knowledge of its own causal power. Both Maine de Biran and Schopenhauer make this supposed intuition central to their metaphysics, arguing that it is through knowledge of our causal powers that we know ourselves as Kantian noumena, not merely as phenomena. Neither a transcendental schematism nor empirical associations need be invoked, these theorists claimed, to explain how we know this one species of causality, because it is known via a special kind of direct access.

This very dichotomy between input- and output-based theorizing raised the question as to what, exactly, is a sense? Could one call the direct intuition of personal causal powers a sense? Even Locke had decided to call such mental facts 'reflection' as opposed to

sense experience. In reflection there is no sense organ, aside from the cerebrum, and perhaps not even the brain is necessary for a person to detect his or her own mental activity, or so de Biran seems to have argued on occasion, unlike Schopenhauer. The idea of a muscle or a movement sense also raised a host of questions about what should count as a sense. If there is a separate sense based on our capacity to detect changes of tension in muscles, then how does one distinguish this sense from touch? E.H.Weber, in his seminal experiments on somesthesis in the early 1830s, argued that the only proper way to draw the distinction was to study touch in a completely passive hand or body part. But as early as the 1810s physiologists like Steinbuch in Germany, Bichat in France and Charles Bell in Scotland were exploring the possibility that muscles themselves, as well as skin, were sensitive organs.

In contrast to Weber, Charles Bell in his Bridgewater treatise on *The Hand* emphasized the co-ordination between movement and perception (as, later, did Weber's student, Lotze). It is striking that Bell's early concept of a nervous circle and complex co-ordination between activity and perception was among his least influential ideas. For nearly a century after Bell and Weber, research on touch meant research on the sensitivity of immobilized skin (in which the normal exploratory processes of touch are eliminated), and research on action meant studies of reflex functioning (in which the normal sensory adjustments of bodily parts are eliminated). The contrast between the widely accepted conception of the senses as passive channels of impressions and the natural activity of animals and people is still a fundamental tension in psychological theory.

While the output theorists offered a strong challenge to Kant's claim that noumena are unknowable, the input theorists' challenge was to Kant's doctrine of perception as resting on a transcendental schematism. In particular, associationist psychologists tried to develop intricate models of how sensitivity to muscular motion might provide them with the 'missing information'—just what they needed to explain how external objects are perceived in space and time. The model for how to do this was supplied by a Scottish traditional metaphysician who broke explicitly from Reid, and exerted enormous influence on the Mills and later associationists, Thomas Brown.

Thomas Brown (1778–1820) was the successor to Dugald Stewart in the Chair of Moral Philosophy in Edinburgh. He made his name as a young scholar by defending Hume's theory of causation when Hume was still a bogeyman in Scotland, and by attacking Erasmus Darwin's materialist psychology, and, a little later, phrenology. Brown's lectures on *The Philosophy of the Human Mind* (1820) were exactly that, his lecture notes, published posthumously and widely disseminated in Great Britain, France and the United States. (Brown preferred to spend his energies in the composition of bad poetry.) Although typically categorized as a follower of Reid, Brown was not, and explicitly acknowledged his deviations from Reid's philosophical positions. Brown did not think, as did Reid, that what we perceive are the external objects themselves.

> It is evident, that…the real object of sense is not the distant object, but that which acts immediately upon the organs,—the light itself, not the sun which beams it on us…. The reference to the distant sun…is the effect of another principle of our intellectual nature [than perception],—the principle of association, or suggestion…without which, indeed, our mere transient

sensations would be comparatively of little value.

(1.242)

For Reid the object of sense is always the distant object, and our sensations are different things entirely than our perceptions, so no amount of suggestion or association could turn them into perceptions.

One implication of Brown's sensationalism is that the young child will have to learn to distinguish self from non-self based only on sensations. A Reidian might acknowledge that learning is involved here, but the learning would be based on the Reidian assumption that even babies perceive external objects. It was Brown, above all others, who bequeathed to nineteenth century-century psychology one of its central problems: how can an infant come to perceive objects as external from and independent of itself, and how can it do so on the basis merely of sensations? 'There will be, in the first momentary state,' Brown explains, 'no separation of self and the sensation,—no little proposition formed in the mind, I feel, or I am conscious of a feeling; but the feeling and the sentient I, will, for the moment, be the same.' As Brown understood, once one accepts sensationalism, it is clear that in a childhood state 'we know as little of our bodily frame, as of th[e] material universe.' Luckily 'our muscular frame, is not merely a part of the living machinery of motion, but is also truly an organ of sense. When I move my arm, without resistance, I am conscious of a certain feeling; when the motion is impeded, by the presence of an external body, I am conscious of a different feeling' which arises only in part from touch. The other component of this difference in feeling is muscular, and it is from this that we get sensations of solidity—without muscle sense, touch would be nothing more than painful or pleasant feelings.

Having abandoned Reidian perception of real objects for sensationalism, Brown added this important new sensation: the feeling of solidity. It is from this, through intricate patterns of association, that he and his many associationist descendants chose to explain the origin of our perception of the external world. But in addition to a new sensation, Brown also brought in a new faculty, memory. To explain how feelings of solidity begin to be associated into perceptions of externality, Brown appealed to the infants' knowledge of a succession—'a feeling which necessarily, involves the notion of divisibility or series of parts, that is so essential a constituent of our more complex notion of matter [which notion is] that which has parts, and that which resists our efforts to grasp it'. Brown then elaborated this idea by imagining what sensations would be available to a baby feeling any object. There would be simultaneous feelings if more than one finger or body part touched the object. There would also be successive feelings as the hands moved over objects. And the pleasant or unpleasant feelings of touch would be correlated with different feelings of solidity, again both successively and simultaneously. Out of this successive series of feelings of hardness, Brown carefully constructed the idea of length, and from this he then constructed the idea of space. The infant, at first feeling its own fingers as they move, will come to associate the sensation of contact between fingertip and, say, palm, with a sequence of muscular feelings (this example comes from Hartley). This will be perceived, Brown claimed, as a certain distance. The next finger movement and contact, or the next hand movement and contact with a body part will be a different distance, and so on. Variants of this model of the perception of the external world are

found in numerous thinkers over the next century. Brown's was a crude theory, with many obvious difficulties. For example, if succession—time—can be detected at birth, why not space? Or, another example, how can babies decide that the feelings of solidity underneath their bottoms come from objects different from those in their fingers or hands, since the former are always co-present with the latter? Despite its crudeness, Brown's associationist empiricism had enormous popularity and influence—indeed, variants of this theory are still taught today.

Motor theories of mind

In addition to his important role in bringing associationism, sensationism and empiricism together, Brown also adumbrated a theory of perception that was widely influential, even among non-empiricists. Although he did not use this term (it is a twentieth-century neologism), Brown's 'motor theory of perception' was the basis for much later thinking about spatial perception and cognition. Reid had argued that perception (of external objects) was a fundamentally different psychological process from sensation (awareness of states of feeling). Following Brown, most nineteenth-century thinkers made a very different use of Reid's distinction between sensation and perception: sensations were to be turned into perceptions, via processes of association, memory and, later, judgement. Indeed, Brown asserted that 'Perception…is only another name…for the result of certain associations and inferences that flow from more general principles of the mind.' Brown essentially wanted to eliminate 'perception' as referring to either a special class of mental states or a specifiable psychological process, beyond that of association among sensations, a position that John Stuart Mill was to adopt without acknowledgement.

Brown is very explicit about his rejection of Reid's distinction, and his belief that sensations of muscular movement are the basis of all our knowledge of the external world.

> [I]n that state of acquired knowledge, long after the first elementary feelings in infancy, in which modified state alone, the phenomena of the mind can become to us objects of reflective analysis, certain feelings are referred by us to an external material cause. The feelings themselves, as primarily excited, are termed sensations, and when followed by the reference to an external cause, receive the name perceptions, which marks nothing more in addition to the primary sensations than this very reference. But what is the reference itself, in consequence of which the new name is given? It is the suggestion of some extended resisting object, the presence of which had before been found to be attended with that particular sensation, which is now again referred to it. (353)

Brown goes on to make it clear that this 'suggestion' involves the association of any sensation (visual, tactile, auditory, etc.) with a muscular sensation—the feeling of resistance to our action—so that perception as such (knowledge of external objects) would be impossible without the muscular sense. 'In all but one class of our sensations, then, it is evident that what Dr Reid calls perception, as the operation of a peculiar mental faculty, is nothing more than a suggestion of memory or association.' Furthermore,

Brown argues that even feelings of resistance are not so much perceptions in Reid's sense as a kind of 'intuitive belief in the externality of the causes of our feelings of muscular motion.

James Mill codified, organized, and extended Brown's theory. (In explaining Brown's ideas I have doubtless given the impression that Brown's theory was clear and organized, but in fact it is buried amidst hundreds of pages of rather turgid prose.) Mill enunciated what he considered to be several principles of association, and importantly introduced the concept of a *fused* sensation. By this he meant an association of two or more sensations that, through repetition and/or intensity, comes to be felt as a single sensation. This concept of a fused sensation he applied to many cases of our perception of external objects, arguing that our apparently visual awareness of external things, for example, is based upon a fusion of visual with muscular and tactile sensations.

What is most striking about these muscular sensations is that we never seem to be conscious of them. Unlike smells and sights, we never appear to have the kind of feelings hypothesized by Brown and the elder Mill. James Mill suggests that feelings of rest, discomfort and stretching might be instances of muscle sensations, but he is aware that 'there are some muscles of the body in constant and vehement action, as the heart, of the feelings attendant upon the action of which we seem to have no cognisance at all'. Still, 'this is no argument' against their existence, and the lack of consciousness can be explained by habitual inattention. As late as 1869, when he was editing his father's book for republication, Stuart Mill spoke of this as 'the paradox… of…feelings which are not felt'. And, indeed, Stuart Mill realized this important inconsistency within associationist sensationalism. Supposedly all our knowledge derives from sensations, and supposedly sensations are the simplest modes of feeling, and supposedly feelings are simple mental (conscious) states. But associationist accounts of how sensations become perceptions all require that many of our sensations go unnoticed. This applies to vision and other sense modalities as well as to muscular sense; for example, we are rarely conscious (if ever) of the changing hues of visible objects as we change position with respect to them and the light source, although these sensations are supposedly the basis of our seeing the colour of the objects in the first place.

Alexander Bain (1818–1903) is typically treated as an associationist follower of the Mills, who developed a more empirically based account of perception and volition. However, Bain in fact modified Brown's and the Mills' theory into something much closer to a modern motor theory of perception. Recognizing some of the problems of the sensory associationism found in Brown and James Mill, Bain emphasized not so much muscle sense as motor activity. Bain focused his thinking on the spontaneous activity of animals and infants, not on their receptivity to impressions, muscular and otherwise. He was perhaps the first scientist after Whytt to emphasize the importance of overall muscle tone and the permanent closure of sphincter muscles as evidence of a psychologically important fact.

Bain's is thus the first true motor theory of perception, emphasizing that perception itself is dependent upon prior motor activities. It is only as a consequence of our activity that muscular feelings arise, and it is only because of these muscular feelings that we perceive external objects. To use another anachronistic term, muscular sensations are, for Bain, 'response-produced sensations'. In addition to Brown's notion that muscle sense

gave us information about resistance, Bain claimed two more kinds of information for muscular feelings: feelings of effort (as in effort of attention), and feelings of the rate of muscular contraction (a kind of effort of bodily attention). From his motor theory of perception, Bain derived his conception of what a belief is. A belief is not only a mental state for Bain but also a state of preparedness to act. In fact, what a belief is is that upon which one is prepared to act.

Another important motor theorist of the mind was William Carpenter (1813–85). A distinguished comparative anatomist and student of the 'Philosophical Anatomist' Robert Grant, Carpenter was turned down for the Chair of Medicine at Edinburgh in 1842 for his Unitarian beliefs. In 1844 he was so widely suspected of having penned *The Vestiges of Creation*—an infamous evolutionist tract—that he had to issue a denial. (Later he befriended the true author of that work, Robert Chambers, the Scots polymath.) Carpenter explicitly saw his work in neuropsychology as modernizing and improving upon Gall's conception of brain and mental science. Like most serious phrenologists, Carpenter was a strong moral crusader (Carpenter was especially associated with the crusade against drinking alcohol) but, unlike the phrenologists, Carpenter followed Hartley (the Unitarian hero) and not the Scots philosophers (the Presbyterian heroes).

Whereas earlier writers (like Erasmus Darwin and James Mill) had emphasized the need to bring Hartley's associationism up to date, Carpenter attempted to bring Hartley's approach to volition and to moral judgement into mid-nineteenth-century science. His most important writing on the mind is his *Mental Physiology* (1874), which grew out of a large section on the topic in his earlier (and very influential) *Human Physiology*, which went through a number of editions in the 1840s and 1850s. In many ways, Carpenter was a transitional figure. Carpenter even called his work 'physiological metaphysics' on occasion, and his emphasis on 'character' and its formation as central to psychology echoes the writings of Gall, Spurzheim and Combe as well as the ideas of Hartley.

Whereas Bain used the motor theory of mind epistemologically, Carpenter tended to use it ontologically. He regarded 'all the physical forces of the universe as the direct manifestation of the Mental force of the Deity'. Just as Lotze made an analogy between God's creation of the cosmos and our soul's ordering of the mental 'microcosmos', so Carpenter found the idea that our notion of power derives from something like Bain's motor sense an interesting parallel to his speculations on the 'correlation of natural forces'. 'It is to me very interesting to find the two lines of argument—the one starting from the correlation of the Physical, Vital, and Mental forces…the other from our own subjective consciousness' as running together.

In particular, Carpenter found one important parallel between the Deity and our souls in his concept of volition. Although God receives information from the entire universe, and must act (if she is truly omniscient) on the basis of all the relevant information, her acts are not constrained by this information. The same is true with our souls or wills, which receive all relevant information, but may act in independence of incoming impressions. Like Bain, Carpenter saw that any activity would produce new impressions, but, unlike Bain, Carpenter distinguished between impressions that simply activated nerve channels in the spine or brain in a reflex-like fashion and impressions that required conscious deliberation prior to action. These latter were cases of free action, Carpenter insisted. Despite this emphasis on free action, he also noted that a great deal of habitual

action did not require such deliberation, and could be handled ‘automatically’ (Hartley’s ‘secondary involuntary acts’). Just as God designed the universe to act on its own most of the time, so our minds are capable of allowing our bodies to act automatically in many instances, on the basis of what Carpenter dubbed ‘unconscious cerebration’. This concept of ‘unconscious cerebration’ requires there to be reflex-like mechanisms that are both cerebral and unconscious which Carpenter called ‘cerebral reflexes’.

Carpenter’s application of this concept of cerebral reflex (a concept he credited to Thomas Laycock) was unusual and important: he used it to explain Braid’s results with hypnosis, and other examples of what are now called ‘dissociated states’. If hypnotists can distract a person’s conscious attention, or cause them to relax that conscious attention, then hypnotists may be able to engage habitual cerebral reflexes that otherwise would not be activated. For example, a hypnotist might arrange for a person to believe that the solid tennis-ball-sized object in front of him or her was an apple, when in reality it was an onion. And, if their automatism were truly activated, the person might well bite into the ‘apple’ even though they would never do so when normally conscious. In other words, Carpenter distinguished two forms of ‘ideomotor action’. In the first, one’s idea is conscious and freely deliberated, which is ordinary voluntary behaviour; in the second, the idea arrives from some source other than deliberation, nevertheless setting off the ‘cerebral reflexes’ so that an action follows. Carpenter suggested that this second kind of ideo-motor activity might be invoked to explain many of the ‘spiritualist’ phenomena then in vogue, such as messages on Ouija boards. Thus Brown’s ‘suggestion’ was transmogrified into Carpenter’s concept of ‘suggestibility’: that some people are especially susceptible to this second kind of ideo-motor action, and that they themselves can act out an unconscious idea, or be made to act out such an idea by a properly trained hypnotist. This theory of suggestibility was to have a great impact on the classical era of psychoanalysis, through Charcot and Binet to Breuer and Freud.

THE BRIEF LIFE OF NATURAL METAPHYSICS

The traditional metaphysics which reigned throughout the Western world between 1815 and 1830 did not give way all of a sudden to one or even a few different theories. Instead, thinkers chipped away at a number of exposed places on the edifice of the traditional theory. If those who invoked a new sense—whether muscular-based or innervation-based—were right, then many of the traditional claims about the possibility of proving the validity of our knowledge of the external world could be shown to be wrong, based as they were on an inadequate inventory of our sensory experience. Similarly, many of the traditionalists’ critiques of associationism could be shown to miss the mark, if associations could include associations to sensations of muscular effort. These various assaults on traditional metaphysics challenged its epistemological and/or psychological assumptions.

Alternatively, some thinkers challenged the traditional views on ontological grounds. This was decidedly riskier, because the challenger could always be accused of materialism or atheism. As a matter of fact, several of these challengers were so attacked, and many of them were also criticized for being ‘Spinozists’ (a term that still connoted

materialist atheism to the orthodox, and usually warranted the attentions of the secret police). Nevertheless, it was clear to many that the traditional view was highly susceptible at just this point: once one has assembled sufficient facts to map out laws relating psychological and bodily states, it would seem appropriate to suggest hypotheses relating these two realms of phenomena, despite the ban on such suggestions from the orthodox.

To illustrate some of the more important ontological critiques of traditional metaphysics, I have chosen three of the more important early challengers. The first, Schopenhauer, is typically classified as a philosopher; the second, Johannes Müller, as a physiologist; and the third, Fechner, as a psychologist. Each of these thinkers, in his own way, challenged the traditional metaphysical consensus, and offered an alternative ontology in its place.

Arthur Schopenhauer (1788–1860) was the heir of a well-to-do merchant family of Danzig (Gdansk), and the son of a well known woman novelist with whom he was unable to get along. All his life he was an ardent Anglophile (he read the London *Times* daily) and was almost certainly better informed about English-language philosophical trends than any of his German contemporaries. Although aware of some of the British attempts to rectify Kant's epistemology 'by dint of muscle', Schopenhauer chose to improve upon Kant (perhaps the only modern philosopher for whom Schopenhauer showed real respect) in a completely different way.

Unlike Kant, Schopenhauer resolutely refused to supernaturalize noumena. He treated our consciousness of self as direct access to the real, noumenal self. What writers like Erasmus Darwin and Brown vaguely referred to as a sense of effort Schopenhauer saw not as a form of sensory experience but as a direct knowledge of our noumenal being. Although direct and personal, this knowledge is limited primarily to the fact that the noumenon exists. This self or noumenal existence Schopenhauer labelled 'will', although he acknowledged that it bears only a metaphorical resemblance to the phenomenal will as experienced in our activity. Indeed, in his major work, *The World as Will and Representation* (1819 and later editions) Schopenhauer was quite explicit that one cannot even be certain whether your will and mine are two things or one, or whether there is any more than one 'will' in the entire universe.

Although our direct experience of the will is limited, our experience of the phenomenal world which reflects will is not, and offers Schopenhauer many insights into the distribution and nature of will. In his *The Will in Nature* (1836) Schopenhauer noted that evidences of will can be seen in both the anatomy and the behaviour of plants and animals. He considered the emphasis of Linnaean botany on the sexual organs of flowers to be consistent with the idea that the noumenal will of beings like plants can manifest itself in specifically different anatomies. And Schopenhauer considered many forms of behaviour, especially aggressive and sexual behaviour, as phenomenal representations of a noumenal will. Instead of being attacked for his heterodox ideas, Schopenhauer was simply ignored for most of his life, despite the great vigour and clarity with which he wrote. It was only in 1852 that Fortlage devoted some space to Schopenhauer in his history of German philosophy, which led to a discussion of Schopenhauer in *The Westminster Review* of 1853. (At that time this periodical was edited by Marian Evans, not yet 'George Eliot', but already a close friend of both Spencer and Lewes.) From all

accounts, this British publication of 1853 put Schopenhauer on the intellectual map, and his uniquely pessimistic ontology became as important in the 1850s and 1860s as Hegel's objective idealism had been in the preceding two decades.

Despite the suddenness and intensity of the new-found interest in Schopenhauer, his was a philosophy to be condemned by all but a very few. Not even the thoughtful reviewer of the *Westminster* could resist attacking Schopenhauer's beliefs. The same reviewer who understood and was willing to state that '[a]ccording to the consistent Kantis[t], physical theology, with its high priests Durham and Paley, is but an amiable absurdity, based on an illegitimate extension of the law of cause and effect to an object which lies beyond its jurisdiction'—was by no means willing to consider Schopenhauer's main ideas with equanimity. The review ends with a strong caveat: 'those who construe any of our remarks into an acceptance of such a system of ultrapessimism have totally misapprehended our meaning'. Schopenhauer is labelled 'genial, eccentric, audacious, and, let us add, terrible' and 'We only wish we could see among the philosophers of modern Germany a writer of equal power, comprehensiveness, ingenuity, and erudition, ranged on a side more in harmony with our own feelings and conviction than that adopted by this misanthropic sage of Frankfort'. Many writers were to attempt to fit this request, most especially those associated with the rise of modern psychology, such as Helmholtz and Wundt.

Not all critics of traditional metaphysics were as outspoken as Schopenhauer. One of the most effective and influential critics of early nineteenth-century thought, Johannes Müller (1801–58) has long been seen as a conservative. This view of Müller is an inheritance from his students' time. Müller perhaps has had the oddest misfortune of any scientist: to be so eclipsed by his students (among them Helmholtz and Du Bois Reymond) that his views are rarely evaluated on their own.

Müller's physiology was a unique combination of the best of German *Naturphilosophie* with Müller's own interpretation of Spinoza. Although he explicitly renounced Spinoza's metaphysics, it is unclear whether he genuinely meant to distance himself from Spinoza or from the troubles associated with being a Spinozist. In any event, much of Müller's philosophy in his tremendously influential *Handbuch der Physiologie des Menschen (Elements of Human Physiology)* (1834–40) reflects a careful assimilation of specific doctrines of Spinoza's *Ethics* into nineteenth-century life science.

For psychology, Müller's most important contribution was his doctrine of specific nerve energies: that each sensory nerve produces its own unique sensory (subjective) quality. Müller considered this doctrine an updating of Spinoza's notion that our perceptual ideas are, literally, mental reflections of states of our bodies. It is only because our nerves are material, and set into motion by other material causes, that the specific ideas we get from them can constitute experience of the world:

> The immediate objects of the perception of our senses are merely particular states induced in the nerves and felt as sensations… but inasmuch as the nerves…are material bodies…they make known to the sensorium, by virtue of changes produced in them by external causes, not merely their own condition, but also properties and changes of condition of external bodies. The information thus obtained by the senses concerning external nature, varies in each sense,

having a relation to the qualities or energies of the nerve.

Müller, like Shelley (whom he never read) and Spinoza (whom both read), believed that every natural occurrence exists as an effect of a series of causes, and that one can 'work backwards' from effect to cause, given enough knowledge. Our nervous systems, Müller claimed, are built with such knowledge that when they feel their own states they also learn something of the external world. The former (internally oriented) aspect of feeling is sensation (in Reid's sense) and embodies Müller's specific energies hypothesis; the latter (externally oriented) aspect of feeling is perception, which Müller saw as based on the former.

Unlike Reid and Kant, Müller argued that it is possible to explain how perception emerges from sensation. Once we know what kinds of changes occur in each sensory nerve we can offer hypotheses as to how these changes can be interpreted as the effects of specific causes, and thus how knowledge of the changes constitutes knowledge of the causes. This is strikingly like the theory found in Schopenhauer's *Four-fold Root* (1817) and Descartes' *Optics* (1637) for that matter, although it is unclear whether Müller was directly influenced by those works. Where Müller differed from both Schopenhauer and Descartes was in his insistence that the nervous system—and all animate matter—embodied a non-physical force, a vital principle. This vital principle, Müller believed, acted differently from ordinary physical matter, and could in fact cause ordinary physical matter to behave in ways inexplicable by the laws of physics or chemistry.

It is instructive to note that traditional metaphysics would have had a considerable basis on which to criticize Müller. Take, for example, his well known account of voluntary action: 'The primitive fibres of all the voluntary nerves being at their central extremity spread out in the brain to receive the influence of the will, we may compare them, as they lay side by side in the organ of the mind, to the keys of a pianoforte on which our thoughts play or strike'. Both Kant and Reid would have blanched at the calm with which Müller proposed to spatialize the mind, and to locate it within a particular region of space as well.

With Johannes Müller we have a scientist whose particular conceptual innovations—the specific nerve energies hypothesis and the motor keyboard—dominated later thinking long after his ontological views were in disrepute. This can be contrasted with Schopenhauer, whose own knowledge of botany and zoology is now obviously woefully out of date but whose metaphysical views keep resurfacing around different areas of modern science. Gustav Fechner (1801–87) offers a third prospect: someone whose main work is almost totally unknown, and who is nowadays revered for an innovation he himself considered a rather minor incident in a busy career.

Fechner, like Müller, offered a kind of Spinozist metaphysics. But, whereas Müller emphasized Spinoza's quasi-pantheism, Fechner emphasized Spinoza's views on substance, in particular his 'dual aspect' theory of mind and body. Fechner combined this dual aspect metaphysics with a kind of generalized atomism, in which he claimed to be able to show in particular how both electricity and mental force were constituted atomically. Fechner argued that the modern physical world view showed only one side of the universe, the mechanistic side, the interplay of the atoms according to laws of physical mechanism. But another side of the universe existed, the subjective, living side,

the mental atoms. Fechner went so far as to speak of a 'day view' (which acknowledged life and mind) and a 'night view' (which did not).

Fechner had come to his atomistic views as a professor of physics in Leipzig. The atomism and invocation of hypothetical forces found throughout the works of such figures as Müller, Fechner and Lotze was very much of a piece with contemporary trends in the physical sciences. When the new generation of physical theorists emerged—with Helmholtz, Hertz and Du Bois Reymond at their head, much of what counted as 'scientific positivism' was aimed at eliminating these hypothetical atomistic and dynamic concepts, in psychology as well as in physics. Wundt and other early self-styled experimental psychologists did not abandon Fechner's dual aspect theory—on the contrary, they built upon it. However, the first generation of self-styled experimental psychologists wanted nothing to do with the *ontological* theories of their predecessors. The dynamical and atomistic theories of Hartley, Erasmus Darwin, Herbart, Fechner and Lotze were strongly opposed. Thus, two opposite trends began to emerge: psychological theorists began increasingly to postulate unconscious processes (see pp. 328–35 below) and yet these same theorists claimed to want a psychological science that clung close to phenomena, and criticized earlier psychologists for their unfounded ontological assertions.

In Fechner's case, his psychology was intimately tied to his ontological theorizing. Fechner's protracted experimentation on subjective after-images in vision damaged his eyes in 1839 and led to what appears to have been an hysterical illness, including some sort of psychosomatic blindness, which forced him to resign his position. In 1843 Fechner regained his ability to see while walking in his garden, and claimed to have seen the souls of the plants there, according to his book of that title (1848). Three years later he published his account of the differences between the day-view and night-view, and also his theory of life after death in his *Zend-Avesta,* the appendix to which inaugurated psychophysics as a sub-discipline of psychology.

Basing his speculation on Helmholtz's recent account of the conservation of forces, Fechner argued that both physical and mental forces must be conserved in the universe. In particular, if physical force was to be conserved, then there would have to be a lawful relation between psychological and physical states. This study of the quantitative relationship between stimulus energy and sensations Fechner derived by generalizing Weber's work and called 'outer psychophysics'. Of more interest to Fechner was 'inner psychophysics', which would be the study of the relation between mental events (sensation) and their neurophysiological correlates—but Fechner's claims to be able to analyse these relations were almost universally dismissed as mere speculation, in contrast to his psychophysical techniques which were both emulated and modified.

Fechner argued that physical laws were of linear form, whereas the psychophysical laws were not, but few nineteenth-century thinkers were wiling to accept non-linear relationships as 'simple' enough to be lawful. The difference between the souls of animals and plants is that the former have brain structures that allow more complex psychophysical interrelations. And not only are plants ensouled according to Fechner, but so is the earth—a sort of nineteenth-century 'Gaia' hypothesis. The earth responds to physical stimuli with the most intricate vibrations and adjustments conceivable, Fechner noted, although it lacks a brain and hence lacks some of the more complex

psychophysical relationships. However, we who live upon the earth are part of it, and we contribute to its life and mind as if we were its sense organs, at least as long as we live. Moreover, when we die, our perceptions and memories do not die with us but find some echo in the myriad subtle adjustments of the earth to physical stimuli, and so there is a form of life after death. It is 'inner psychophysics' which explains these relationships among physical states (neural or earthly) and mental states—and it is Fechner's inner psychophysics which had no life after his death.

R.H.Lotze: last of the traditional metaphysicians?

Traditional metaphysics died out for two reasons. Firstly, it was institutionally ill-adapted for the increasingly professionalized and specialized academia that emerged all around Europe at first slowly after 1848, and then more rapidly after 1871. Secondly, as professionalization increased so did secularization, and appeals to either authority or intuition, which both tacitly and explicitly had guided the work of Cousin, Stewart and others, could no longer succeed. Ultimately, agnosticism replaced transcendentalism among professional elites, and traditional metaphysics was replaced by what was typically called scientific positivism. This scientific positivism in its purest forms always maintained that the true nature of either matter, the soul or the deity were unknowable. In this regard scientific positivism should be distinguished from Comtean positivism, and even from Spencerian positivism, as both of those thinkers imagined that they had more knowledge of the transcendental—of what Spencer chose inconsistently to call 'the unknowable'—than was allowed by the agnostics.

The success of scientific positivism in the latter part of the nineteenth century may be attributed to its allowing for extended scientific activity without provoking any direct conflict with religious doctrine. Thus it was an ideology well suited to developments in a Europe increasingly reliant upon scientific advances. However, scientific positivism was far better suited to maintaining rapprochement between physical science and religious orthodoxy than between biological or, especially, psychological science and mainstream religious beliefs. It is one thing for a Mach or a Hertz to deny that physics can understand what matter or forces are, beyond describing the laws of their phenomena; it is quite another for psychologists to limit their science to mapping mental phenomena, and to proscribe the search for how the brain is the mind.

The parallel with Darwin is here very striking. The scientific positivists (including Darwin's 'bulldog' Huxley) argued that Darwinian results spoke neither for nor against belief in God. They took this to be just another instance of their agnosticism. How can one know, they argued, that the causes and effects lumped into the term 'natural selection' do not have, as some sort of hidden or transcendent cause, a deity? Darwin repeatedly resisted this sort of argument, and for good reason. One of the key rationales for his theory was a critique of teleological biology, of the argument from design. In numerous ways Darwin showed that the hypothesis of design might be treated as a scientific hypothesis, and that many facts undermined it as a scientific hypothesis; facts that were better explained by Darwin's theory of natural selection. Perhaps the best known instance of this sort of discussion in Darwin is the conclusion to his *Variation of Animals and Plants Under Domestication*. Here Darwin was confronting the well

developed design arguments of the noted botanist (and good friend of Darwin) Asa Gray. Gray proposed that even though evolution proceeded by natural selection, divine design might play a role through the biasing or channelling of genetic variation. Instead of chance, a deity might guide variation in certain directions, so as to pre-adapt animals and species to the rigours of new environments. Neither Darwin nor Gray argued that such an hypothesis was unacceptable because it touched on the actions of the unknowable deity. On the contrary, they examined the implications of this 'guided variation' hypothesis, and Darwin was able to show that none of the predictions which followed from this hypothesis were borne out.

Like Darwin, many psychologists of this era were inclined to try and specify how brain states caused mental states, or the reverse. For example, Johannes Müller unabashedly suggested that the soul plays on the motor cortex as if it were a piano keyboard. But does it? Darwin was able to show that God does not design animals as people design clocks. Could a psychologist show that the soul does not move the body the way people move objects? An attempt at doing just this was made by R.H.Lotze (1817–81), one of Müller's most cogent critics. Although Lotze criticizes Müller, he cannot bring himself completely to abandon teleological thinking in psychology, or even a deity acting in the world. In many ways Lotze is a transitional figure, illustrating a way out of traditional metaphysics that was never to be completed.

Lotze is transitional in a second sense. He was not a specialist, although he did become a professional academic. Trained originally in medicine, he studied with both founders of psychophysics, Weber and Fechner, at Leipzig (where they taught physics). Indeed, while he was teaching medicine and philosophy at Leipzig in the early 1840s he also acted as Fechner's physician. In 1844 Lotze was called to take Herbart's chair of philosophy at Göttingen, and in 1881 he was called to the prestigious Philosophy Chair in Berlin, but died soon thereafter. He made his name in the 1840s with physiological works attacking Müllerian vitalism, but then proceeded in the 1850s to attack the emerging materialism from a position strikingly at variance with that of the ultimately more succesful dual aspect theorists.

Lotze's attack on vitalism was very straightforward. The idea of special powers or forces could be used to prevent inquiry and to encourage sloppy thinking. Lotze here relied on Weber and Fechner's concept of a science (based on physics): science as the establishment of quantitative laws relating phenomena. There is no 'life force' but there are special and interesting phenomena of life, which must be analyzed and reduced to lawful arrangements.

Up to this point Lotze's arguments were not particularly unique, although he was among the earliest to make them against Müller and what he saw as Schellingian or Romantic biology. Where Lotze's own views set him apart is in the next stage of his thinking, summarized in his *Medizinische Psychologie (Medical Psychology)* of 1852. Lotze now argued that the mind/body problem was resolvable through his view of science. Both mind and matter could be treated as phenomena emanating from a single set of forces (not substances). Lotze pointed out that it is changes in forces acting upon us that make us believe in matter (resistance) and, he claimed, it is changes in a certain kind of force that make us believe in mental states as well. Later, in his *Metaphysic*, Lotze went so far as to claim that

> We might…speak of the soul as a definite mass at every moment when it produces an effect measurable by the movement of a corporeal mass. And in doing so we should be taking none of its immateriality from it; for with bodies also it is not the case that they are first masses and then…produce effects; but according to the degree of their effects they are called masses of a certain magnitude.
>
> (Book III, chapter 5)

While Lotze's theory of the soul as possessing equivocal mass did not catch on, one of the implications he drew from this theory did indeed catch on and continues to influence psychological theorizing. This was Lotze's theory of 'local signs.' From his theory of the soul, Lotze argued that the soul cannot be influenced by the spatial layout of the nervous system but only by its intensity of activity at any given point. Following Müller's early localizationism, Lotze argued that cerebral activity in different locations did, as Müller suggested, produce different mental states (for example, activity in one region of cortex generates visual sensations, in another region auditory sensations). But all the soul could know of this activity was its intensity, the locus of that intensity, and changes in intensity at that locus. The soul could not directly intuit layouts of varied intensity in the nervous system. Knowledge of the locus of activity was the 'local sign' of a mental state, which would co-exist with knowledge of the intensity of that state, and all changes in intensity of that state. Associationists like Steinbuch in Germany and Brown or James Mill in Scotland had made somewhat similar arguments, claiming that the soul's activation of muscles would provide it with information about bodily loci that would be correlated with sensory input, but Lotze's theory was not associationistic (except in the sense that it invoked an innate association) and focuses on central activity, not a response-produces-sensory-activity cycle. Lotze also emphasized that the mental processes involved here are unconscious, thus blocking introspective analyses of these ideas, and promoting his kind of speculative physiology.

Lotze's 'local signs' theory in various forms (some much more associationist and empiricist than his) has exerted considerable influence in sensory physiology ever since its enunciation. Interestingly, Lotze's other critique of Müller, also based on his theory of the soul, has been rather influential but much less well acknowledged. In his *magnum opus, Microcosmos,* Lotze took on the ideological view of the soul, although he did not completely eliminate it. He argued:

> We deceive ourselves, when with a favourite simile we compare the body to a ship—the soul to its steersman. For the latter knows, or at least may know, the construction of that which he directs… Far from possessing this comparatively perfect insight into the working of the machine, the soul, on the contrary, is like a subordinate workman, who knows indeed how to turn one end of a winch… but understands nothing whatever of the internal transference of movements by means of which a completed product is turned out.

Explicitly attacking Müller's analogy of the motor cortex to piano keyboard, Lotze added

that the soul simply would not know what the notes were, nor where they were. The soul 'is ignorant of the relative situation of these notes, it knows not that this and not another note corresponds to the particular movement which it intends to make'. Astonishingly, this important argument remained essentially unheard for nearly a century, although it has recently been taken up in discussions of motor control.

Lotze followed this argument up by asking what sort of information the soul might have about movement, and in doing so he anticipated James's theory that the willing of movements derives from memories of movements. 'We bend our arm, not by giving a particular impetus to each of its several nerves, but by renewing in ourselves the image of the feeling which we experienced in a similar position'. Thus for Lotze the soul can act within itself, calling up a memory, or noticing a local sign, but it cannot act on the body. Instead, the soul's internal actions simply cause correlated bodily movements. There is an appeal here to something halfway between Leibniz's pre-established harmony and James's doctrine of ideo-motor action. Somehow the soul's own actions lead to appropriate bodily actions, and the way this happens is that an idea of action causes the bodily effects. The soul 'does not itself carry out the operation, but in a manner unknown to it the vital mechanism executes it commands'. Thanks to the doctrine of local signs the soul can also learn about the body's pattern of responses to stimuli: even when the body is acting on its own, the soul can keep apprised of changes of activity at different loci and register the feelings involved in particular actions.

Lotze thus stands as the source of two very different developments in psychological science. On the one hand, students of motor and sensory physiology began at this time their quest for locating pathways and correlations of local activity, without concern for the question as to what the soul was willing or perceiving in those activities. Studies of how localized stimulation of cortex generate specific movement patterns are good examples of trying to examine how the 'vital mechanism' translates mental cause into bodily effect. The *assumption* that the central activity is tantamount to a 'command' of the soul was, following Lotze, still made, even though there could now be no question of mental content in that command. What would be the mental content of an efferent pattern exciting contraction in a muscle unknown to the mover? On the other hand, students of ideo-motor behavior could analyse patterns of mental activity, asking questions about cause and effect among ideas (for example, what causes an *idée fixe* and/ or its accompanying obsessive behaviour?) without concern for the neurophysiological substrate of this activity. Lotze's influence among practising psychologists and neurophysiologists, although not acknowledged, seems to have been considerable.

THE THREE UNCONSCIOUSNESSES AND HOW THEY GREW

From the study of mind to the analysis of the unconscious

The idea of unconscious mental processes, or even of *the* unconscious as some sort of an entity, was by no means original with Freud. On the contrary, many thinkers at the turn of the nineteenth century were pondering the nature of the unconscious. However, the unconscious of the 'romantics'—especially that of Schelling and *Naturphilosophie*,

which so influenced German literature—was as much ontological as psychological. In a theory so inchoate as to defy easy description, many of these Romanticists equated the physical forces (fluids?) of electricity and magnetism with irrational urges and vague feelings, some of oneness with nature, others of a far less ethereal longing for oneness. Despite his loathing for Schelling and Fichte, it is clear that Schopenhauer's very carnal will emerged as a coherent ontological response to the irrationalism these writers were parading as a successor philosophy to the Kantian critique. (Probably Maine de Biran's metaphysics has a similar background.)

With philosophers, speculative physicists, Brunonian doctors, mesmerists and animal magnetizers claiming to have an analysis of the unconscious and its role in human life, is it any wonder that the Church-vetted professors of philosophy blanched at the idea of a scientific psychology? Traditional metaphysics's repeated emphasis on introspection as the sole safe method of proceeding in the philosophy of mind or moral philosophy was an attempt to create a boundary between what they saw as sober science and unsafe speculation. The use of physiological methodologies—which we now see as a harbinger of a true, progressive psychology—was equated with these worrisomely unsafe ideas about the irrational nature of the human soul.

Mainstream psychological theory 1815–30 was thus committed to the existence of an individual soul, from which all mental phenomena were to be derived. Evidence of the existence and nature of mental and moral phenomena was to be based on introspection. Nevertheless, even introspection raised some difficult questions about how wisely and well God had made our souls. The phenomena of sleep and drunkenness showed obvious ways in which the mind could be made to wander down dark pathways. And the claims of the mesmerists to produce a kind of 'magnetic sleep' were also worrisome: could physical agencies produce trance-like states? And, if *physical* agencies were uninvolved in mesmerism, then did that mean that some *psychological* force—ultimately to be called 'suggestion'—was operative?

At least three separate strands emerged at this time for the understanding of what we would now call unconscious mental states. In the first line of thought, the unconscious continued to be treated ontologically, and was associated with Kant's noumena. I call this the *supernatural unconscious.* On this theory, actions that people make without consciousness, or against their conscious ideas, are treated as being caused by forces that cannot be observed (are not phenomenal but noumenal). Others refused to treat the unconscious as qualitatively different from other natural mental phenomena. (Although some were willing to invent hypothetical natural forces as explanations, such as the Odilic force theory of the 1840s.)

There were two kinds of theories of what I shall call the *natural unconscious*. The first form of the natural unconscious theory focused on the concept of unconscious ideas or mental states: inferring from introspection that a particular mental state 'had to' have occurred even though introspection did not reveal the idea. The second form of this natural unconscious theory postulated the existence of a whole unconscious mind, separated off from the conscious one. The contrast is important. Herbart, for example, hypothesized unconscious ideas and to a large degree invented the modern concept of a threshold to explain when ideas 'came into consciousness'. But Herbart emphasized ideas only, he did not speculate on the existence of an entire unconscious mind, or part of the

mind.

The third kind of theory of the unconscious was the most radically different from its predecessors. Whereas something like the notion of unconscious ideas can be found in Leibniz, and whereas Stahlians and others (like Whytt) had been willing to postulate parts of the soul not easily accessible to rational consciousness, all these prior theories of the unconscious had treated it as in opposition to the conscious soul. In particular, these theorists tended to treat the conscious soul as the rational soul of Christian dogmatics, and the unconscious as irrational, and certainly as incapable of rational thought. Indeed, where theorists had been inclined to see rational activity of an unconscious sort, they had unanimously attributed it to *God's mind*, not to the individuals. For example, Whytt had argued that the 'sensitive soul' in the spinal cord was capable of feeling noxious stimuli and acting in whatever way would remove the potential danger to the organism (he had in mind the capacity of a spinal frog to wipe away an acid-soaked tissue placed on its skin). But Whytt emphasized the great difference between this and the rational soul we know through consciousness, which can feel and think many different things. All Whytt's sensitive soul can do is whatever God has arranged for it to do to preserve our bodies and maintain a harmony among the parts of our organism. Prior to Whytt, Malebranche had argued that such phenomena are in fact instances of *God's* thinking, not of our thinking. What Whytt had seen as a God-given ability of the spinal cord to relate stimuli lawfully to responses via a kind of unconscious feeling Malebranche saw as an instance of God's feeling and acting to enable us to preserve our bodies.

As of 1830, the unconscious was considered to be either a supernatural or a natural source of irrational forces; if and when rational but non-conscious acts occurred, they were attributed not to the individual but to his or her maker. John Stuart Mill changed all this by hypothesizing a rational unconscious mind. He had to make such an unusual hypothesis in order to save the associationist psychology which his father had championed, and which he hoped to make the basis of all social thought.

A logical unconscious

The nineteenth century thus saw the rise of what appears to be a radically novel concept of the unconscious, which I shall call the *logical unconscious.* In this conception, there are non-conscious mental processes which are identical with, or at least resemble, the process of drawing inferences and making judgements. The logical unconscious emerged in the writings of John Stuart Mill as he engaged simultaneously in defending and improving his father's associationism and developing a general logical theory consistent with this new improved psychology. Although historians have tended to locate the doctrine of 'unconscious inference' in the 1850s and 1860s in Germany (especially in the work of Helmholtz and his erstwhile assistant Wundt), Mill's *Logic* is probably the source of this doctrine, and we know that it was read and used by these and other prominent German psychologists. (It is also possible that Mill's defences of associationism against Bailey, published in 1842–3 and reprinted in 1859, were utilized by these German thinkers.)

The proponents of the logical unconscious often appealed to earlier ideas, especially Leibniz's notion of *petites perceptions,* as inspiring their thinking. But the resemblance is

superficial, as it does not take into account the difference between the already accepted notion of an irrational unconscious and this newer unusual idea of a rational unconscious. These differences will be clarified after I outline Mill's important innovation and its influence.

In working on what was to become his *System of Logic*, John Stuart Mill faced a set of problems that had yet to be addressed within the kind of associationistic psychology championed by James Mill. In particular, the epistemological context of the younger Mill's work made it imperative for him to identify the sources of our knowledge of truths. One of the passages in the *Logic* known to have been written near the outset of John Stuart Mill's work, and which remained essentially unchanged through eight editions, is the following comment from section 4 of the Introduction: 'Truths are known to us in two ways: some are known directly, and of themselves; some through the medium of other truths. The former are the subject of Intuition or Consciousness; the latter, of Inference.' By focusing on the nature of how truths are known, Mill changed the status of sensations in associationistic epistemology. For Hartley, Condillac, James Mill and others, what we call sensations formed the basis of all knowledge, including knowledge of truths, but no sharp line was drawn between sensations as a truth of consciousness and other truths, called inferences by the younger Mill.

The consequences of Mill's distinction here are of profound importance for psychology. If Mill's distinction is taken as a basis for theorizing, then the first step in any account of a psychological process is to discover what are the intuitions available to subjects. Once a complete list of these intuitions is made, then any other putative knowledge must be inferential—either false or true inference. There are foreshadowings of Mill's distinction in Berkeley's concept of minimum sensibles, and in Hume's basic impressions—but neither in these nor in other cases was the issue one of truth or inference, as Mill made it to be. Logic, for Mill, is the study of the inferences we make from truths already known (as he says at the end of this section of the introduction). This is the source of Mill's psychologism, his belief that logic cannot be distinguished as a special science without the results of a special branch of psychology: the psychology of sensations.

John Stuart Mill's careful attempt to distinguish between sensations and inferences comes in response to the Scottish common-sense psychologists and their emphasis on intuition, or what many of them preferred to call 'consciousness' (a term which the younger Mill used, perhaps grudgingly, in a similar way). But there is an important inversion here: in Thomas Reid's epistemology the truths of intuition are not identical with sensations. On the contrary, Reid invented the modern distinction between sensation and perception largely so that he might attribute truth to *perceptions*. Put simply, Reid was less interested in whether or not my sensation of the colour red is true than in whether my perception of this rose as an existing object (which happens to be red) is true. Reid argued that what are true in consciousness are things like my perception of the rose as well as any sensations of colour or scent I might have. This distinction between two aspects of consciousness—sensation and perception—was considerably muddled by the 1830s, when Mill was working on his *Logic*. As was shown above, Thomas Brown essentially subverted Reid's distinction, resulting in a theory that relied entirely on sensations and associations. William Hamilton, the last great proponent of 'Scottish

philosophy' also never understood Reid on this point, and obfuscated the matter greatly with a number of secondary and subsidiary definitions about sub-species of sensation and perception (see his *Notes* to his edition of Reid). Stuart Mill's confusion concerning what should count as a truth of consciousness is thus understandable, as he may have been attempting to contrast Hamilton's (or Thomas Brown's) thinking with the associationist views of James Mill.

In this context, the younger Mill's attack on Samuel Bailey's critique of Berkeley is very significant. Mill wrote his essays on Bailey just as the *Logic* was being completed (1842–3), and he clearly welcomed the opportunity to rethink these basic issues about consciousness and inference. Yet Bailey, unlike other nineteenth-century 'common-sense' philosophers, *did* understand Reid's distinction between sensation and perception (although Bailey used different terminology from Reid's). Therefore it ought to be interesting to see how Mill replied to a Reidian attack on some of Mill's fundamental assumptions. Bailey, like Reid, argued that 'the perception of outness is a component part of the sensation' (of vision or touch) (p. 31); Bailey also argued that 'we cannot explain…why…these tactual and muscular sensations are not felt without a perception of different distances' just as Reid argued that we could never explain why perceptions (beliefs in objects) accompanied sensations.

Starting from this Reidian basis, Bailey proceeded to demolish Berkeley's theory of vision, as interpreted by associationists like Condillac and James Mill. In that theory, visual sensations are supposed to become associated with tactile sensations in such a way that the perception of distance is achieved, or appears to the subject to be achieved, by means of sight. Bailey's argument is straightforward: firstly, if one assumes that no sensations (visual, tactile or other) contain information about outness, then outness can never be the result of the association of these sensations. In particular, Bailey pointed out that when we touch objects at different distances we have a variety of tactile sensations as well as perceptions of outness; yet, when we see things at different distances, no matter how hard we try, none of these tactile sensations comes to consciousness. Secondly, if one assumes, as Berkeley did, that touch contains information about depth and outness, and that touch 'teaches' vision, what is to stop Bailey from arguing that vision itself contains information about outness (as James later did)? Once again, when we look around we do not become conscious of tactile sensations suggesting outness or associating with visual ones, we simply see outness, a psychological fact, encompassing both visual sensation and perception.

Mill's critique of Bailey started with an attack on the sensation-perception distinction. Following Brown and James Mill, Stuart Mill argued that 'The sense of sight informs us of nothing originally, except light and colours, and a certain arrangement of light and colours'. Mill needed to start here, because these lights and colours (visual sensations) are the intuitive truths on which all knowledge, for Mill, was based. Yet Bailey had already anticipated this line of attack, noting that there was no empirical evidence for this claim about what we 'originally see' (or what might better be called our visual sensations). As Bailey put it, 'it is certainly true that we see by means of rays directed endwise to the eye, but it is equally true that we do not see the rays themselves either endwise or sideway: we simply see the object'. The evidence for Mill's claim about basic intuitive truths in sight comes from his analysis of the physiological optics of the eye, not

from the evidence of consciousness nor from empirical evidence about what people see—at best, only geometers and opticians see rays of light.

Once one accepts Mill's starting place, then the rest of his argument follows: that there are 'two powers' of vision, original (intuitive) and acquired (inferential). From here it is a short step to Mill's theory of perception, with its striking echo of his *Logic* in Stuart Mill's edition of James Mill's *Analysis and Sensations:*

> [T]he information obtained through the eye consists of two things—sensations, and inferences from those sensations: that the sensations are merely colours variously arranged, and changes of colour; that all else is inference, the work of the intellect, not of the eye; or if, in compliance with common usage, we ascribe it to the eye, we must say that the eye does it not by an original, but by an acquired power—a power which the eye exercises, through, and by means of, the reasoning or inferring faculty.

The familiarity of Mill's theory of perception should not be allowed to obscure the novelty and strangeness of his argument: the original powers of the eye, according to Mill, are such as cannot be known through consciousness, because we never do see only light, colours and their changes. Thus, the original powers of a perceptual system are supposed to do two contradictory things: firstly, they are supposed to provide one with the basic intuitive truths on which to build knowledge of the world; and, secondly, they are supposed to be inaccessible to intuition, because of their involvement with complex associations and inferences. For Bailey and other Reidians, the very definition of a sensation or an intuitive truth was something that could be known through intuition or consciousness. Mill had seemed to adopt this definition at the outset of his *Logic*. But, when pushed into justifying his theory of perception, Mill abandoned this basic tenet, suggesting instead that sensations can be known only through inference. Later, in his *Examination of William Hamilton's Philosophy*, Mill adopted Carpenter's term 'unconscious cerebration' and also made explicit his reliance on physiological 'facts' for specifying the basic sensations of vision and the other sensory modalities. (Peirce read this as a licence to cut free from introspective psychology altogether, and combined it with Bain's definition of belief as whatever we are prepared to act on—consciously or not—and invented pragmatism.)

It is amusing to see Mill criticizing Bailey for carelessness in distinguishing between 'what the eye tells us directly, and what it teaches by way of inference'. If Mill were right, then the eye could tell us nothing directly, because it is only through inference that we can know our basic visual intuitions. The rest of Mill's attack on Bailey consisted in trying to show that Bailey had begged the question by using a word like 'perception' when he should have said 'judgement' or 'inference'. But of course it was Mill who begged the question here, refusing to allow Bailey the very distinction on which he built his theory. Bailey repeatedly looked for evidence in consciousness—as Mill told him he should—of the visual and tactile sensations out of which Brown, and the Mills, claimed depth perception was built. Finding no such evidence, Bailey concluded that their theory was wrong.

Mill responded that the evidence of consciousness is irrelevant: after all, the original

intuitions of both touch and vision can be unavailable to consciousness, at least on Mill's definitions. This is where Bailey's second argument comes into play. Bailey repeatedly asked how the association of a tactile sensation with a visual sensation can yield information about outness if neither of the sensations contain such information. Mill actually agreed with this point, but hastened to add that the process involved is more like that of an inference or a judgement than that of mere association. Mill used his chemical analogy to good effect here, arguing that the 'association' of several chemicals often yields a distinctively new entity. In addition to unconscious intuitions, Mill was willing to postulate unconscious inferences.

Prior to the 1830s the idea of unconscious intuitions or sensations was a rarity, and the idea of an unconscious inference was unheard of. The interaction of Scottish philosophy with Millian associationism produced a greater precision of language in reference to sensations and perceptions, and introduced a whole series of concepts that soon became ubiquitous in nineteenth-century psychology: original powers of perception, as versus acquired; concept of basic sensations; the concept of unconscious sensory states; the concept of unconscious judgements. Reid's attack on the concept of the association of ideas led to a progressive clarity among associationists, up to and including the elder Mill, who clearly meant association of *sensations* to be the basic law of his system, even when his language slipped into older terminology. The younger Mill, in attempting to extend associationism into logic and epistemology, was careful to distinguish sensations from perceptions, and took the radical step of divorcing sensations from introspective psychology. Henceforth, sensations could be 'analysed' by inference from physiological data about what 'must be' the basic sensory qualities of a given system. Once this decompositional analysis was accomplished, then an analysis of the inferences needed to get knowledge of the world from this sensory basis could proceed.

Epistemology was cut free from introspection—because, after Mill, the elements of introspective awareness ('sensations') were to be analysed in the first place physiologically and, only after this, psychologically. What had begun as the younger Mill's attempt to defend and extend his father's introspective associationist psychology now placed 'the evidence of consciousness' a distant second in importance. The Frankenstein psychology with its explanation of all of the mind in terms of sensation-based associative processses feared by early nineteenth-century orthodoxy now took a central place in the middle of the century—but as an unconscious, not a conscious process. Mill believed in a psychologistic programme of building 'logic' (epistemology and theory of science) on the foundations of physiological psychology. This approach was to reach its high point in the work of Hermann von Helmholtz, who saw his work in physiological optics and acoustics as prolegomena to any future epistemologies.

INTERLUDE: 1848 AND ALL THAT

The remarkable increase of interest in scientific psychology in the 1850s and 1860s has been almost universally interpreted as the emergence of an experimentally oriented, scientifically grounded discipline of psychology out of what had been a more philosophical psychology. Turner expresses this consensus well when he writes that, in

German universities,

> [U]ntil the last half of the nineteenth century psychology did not exist as an independent discipline, but rather as a subfield of general philosophy. The philosophers who offered lectures in the field readily incorporated experimental physiological results that came to their attention, but they normally developed their psychological views and systems mainly through logical, metaphysical, introspective, or purely experiential considerations…. Beginning in the late 1850s…the older tradition of philosophical psychology began to give place to a new tradition that stressed experimental results and physiological considerations.

As with all myths, there is some element of truth here. In Germany, 'professors of philosophy' often worked extensively in psychology. Herbart, Fries and Lotze are three important examples. But the odd thing about these thinkers is that they do not really fit our twentieth-century conception of a philosopher. As a consequence, they figure far more prominently in histories of psychology than in histories of philosophy. We should not be fooled by the label 'philosophy' applied to these thinkers' professorial positions, because there is no reason to assume that that word meant in the 1830s and 1840s what it means now. Indeed, the Philosophy Chair at Göttingen was held successively by Herbart, Lotze and G.E.Müller. No one would even attempt to make the case that the last-named ranks as a philosopher in the modern sense of the term, and the case for the first two is not much better. Modern historians are nearly unanimous in agreeing that not a single major philosopher of this period was to be found teaching philosophy in an academic position with the conspicuous exception of Hegel. Nor should it be forgotten that many of the most important contributions to scientific psychology came from academics who held chairs in physics, like Fechner and the Webers, or in medicine and physiology, like Johannes Müller.

Although intellectuals based in academia had to conform to the ideological standards of Church and State or risk loss of their livelihoods, this was of course not true of independent intellectuals like medical doctors, industrialists, mechanics or parsons. Thus the pressure of arguments from heterodox psychologies became increasingly great until, with the significant social and political changes wrought by 1848, the whole structure of traditional metaphysics was exploded. It no longer became possible to write about the mind in complete ignorance of current physiology and experimentation; or, to be more precise, any pretensions to scientific status in discussions of the mind required acknowledgement of the 'Frankenstein' psychology which had heretofore largely been excluded from the polite company of academic discourse. The ritualistic denunciations of materialism and atheism that pepper the works of traditional metaphysicians (especially their textbooks) became replaced by argumentation. The unthinkable was being thought: metaphysicians were questioning what the role of embodiment might be in psychology. Far from being a marginal doctrine—one that stigmatized its professor as an atheist—Spinoza's dual aspect theory gradually began to win adherents from many different intellectual backgrounds until, by 1880, it had become the dominant position among scientists concerned with the nervous system and the mind.

Attacks upon materialism are common throughout psychological writings in the 1850s and 1860s, from the popular essays of Helmholtz to the positivistic quasi-idealism of the late John Stuart Mill. The flavour of many of these attacks is captured in some remarks in a lecture given by Oliver Wendell Holmes, Sr (the doctor) to the Harvard Phi Beta Kappa Graduates in 1870. The lecture began with a statement that simply could not have been uttered at Harvard a decade earlier: 'The flow of thought is, like breathing, essentially mechanical and necessary, but incidentally capable of being modified to a greater or lesser extent by conscious effort.' Such Shelleyan determinism and apparent materialism would have horrified earlier audiences at such an institution had they been allowed to be spoken. (And, in all probability, Holmes's comments did cause some stir.) But Holmes is no materialist and he repeatedly made clear in his lecture that medical science can and should be indifferent to the conflict between 'materialism' and 'spiritualism'. In other words, the scientific study of the phenomena of thought and action should be divorced from these metaphysical interpretative disagreements. Yet Holmes could not resist showing that he is on the side of the angels, and he ends his lecture making fun of the kind of 'vulgar materialism' promulgated by Büchner and others. Can a human person be reduced to what he or she eats and drinks? No, said the good doctor, 'It is not in this direction that materialism is to be feared: we do not find Hamlet and Faust, right and wrong, the valor of men and the purity of women, by testing for albumen, or examining fibres in microscopes'. After 1848, the bourgeoisie discovered that their morals need not be corrupted by advances in the sciences of human nature—so long as certain 'interpretations' of those sciences were kept at bay.

The 'psychology as a natural science' defended by James had its origins in this spirited demarcation of the transcendental from the natural. The scientists living in a post-1848 world insisted that traditional metaphysics had lost the battle: science had nothing to say about transcendental concerns. 'Systems' as such were now the enemy, because any and all philosophical systems smacked of ideology, and strong ideologies in any form (whether that of the backward-looking peasant or aristocrat or the progressive ideology of the new working class) could upset the status quo. The positivism that swept across Europe was by no means Comte's positivist system but was instead a general anti-systemic bias, which itself proved to be more biased against heterodox than against orthodox ideologies. The defeat of the high orthodoxy of traditional metaphysics was thus used primarily as a cudgel against the heterodox: if science could say nothing of the soul, then it certainly could not affirm the materiality of that transcendental creature. We should thus remain 'agnostic'—to use a term coined by T.H.Huxley to capture just this philosophical suspension of belief.

Kant and Reid had of course tried out their version of agnosticism almost a century earlier, and it proved to be a highly unstable position, as we have seen. Similarly the widely touted scientific agnosticism of the late 1800s also succumbed to its own internal contradictions. On the one hand, psychologists like Wundt could not be constrained from at least formulating hypotheses about the nature of mental activities and states. Wundt offered a form of voluntarism that was a sort of optimistic version of Schopenhauer's world as will. On the other hand, philosophers—and especially the emerging school of neo-Kantians—refused to allow scientists to debar transcendental arguments. The neo-Kantians specialized in turning the agnostic arguments of Helmholtz into a basis for anti-

materialist metaphysical theorizing, as the following passage from Lange's extremely influential *History of Materialism* attests:

> this matter, with everything that is formed from it, is only an abstraction from [our mental representations.] The struggle between Body and Mind is ended in favour of the latter…. For while it always remained an insurmountable difficulty for materialism to explain how conscious sensations could come about from material motion, yet it is, on the other hand, by no means difficult to conceive that our whole idea of matter and its movements is the result of an organization of purely intellectual dispositions to sensations. Accordingly, Helmholtz is entirely right when he resolves the activity of sense into a kind of inference.

THE DEVELOPMENT OF A POSITIVE PSYCHOLOGY

Institutional confusion: theoretical convergence

The evaluation of intellectual trends in the decade or two following 1848 is decidedly tricky. This period is one in which modern institutional and disciplinary boundaries began to emerge, so it is ridiculously easy to miss important patterns simply by not knowing where to look. Although academic positions become increasingly important during this period, it is conspicuous that many of the great scientists and philosophers of Europe at this time worked outside of academia. Prussia perhaps led the way into institutionalizing and dividing up intellectual work along more or less modern lines. But even in Prussia in the 1850s and 1860s it is not always easy to see where to look for philosophical and psychological activities. For example, the linguistics of Paul, Steinthal and others emerged as a fully-fledged discipline in these decades, with its own professorships and journals. But this ostensibly specialist discipline of linguistics was to later influence an important professor of philosophy, Wilhelm Wundt, who made historical and comparative studies of language and gesture the entry-way into his brand of empirical social psychology.

There are signs that an historical and comparative approach to psychology was broadly influential across Europe in these decades after the 'springtime of the peoples' and well before the self-consciously historicist arguments of Dilthey and others in the *fin-de-siècle* period. This historicism was less an emulation of Hegelian ideas—which were in ill repute at this time—than an emulation of *Comte's* method. It is not widely appreciated that Comte's attempt to account for all of intellectual activity through a kind of linear growth and reorganization model spawned numerous attempts to deploy such a model in other areas. Moreover, Comte's and positivism's suspicions of hypothetical entities such as forces and atoms was strongly reinforced by developments in physics, which seemed to be pointing away from the usefulness of positing such entities behind the phenomena.

Several powerful thinkers tried to amalgamate this positivistic interpretation of scientific laws as merely patterns in phenomena with an historical method for deriving the data of human behaviour. A number of the contributors to historical linguistics took

approaches along these lines. Even more relevant for the present account was the work of two thinkers who self-consciously tried to create a psychology out of historical materials and positivist hubris, Hyppolite Taine (1828–93) and Thomas Henry Buckle (1825–62).

Both Taine and Buckle argued explicitly that psychological laws could be derived only from historical materials, not from experimental methods. History was said to reveal patterns of behaviour across different situations which, when properly analysed, would yield true laws of human nature. In contrast, Taine and Buckle criticized laboratory-based or introspective-based psychology for its narrow foundation, and its inability to generalize its results. Taine's monumental *History of English Literature* (1861) tried to analyse the human mind using evidence from one nation's history and literary productions. In his remarkable preface to this work, Taine justifies this procedure as being one that is still capable of yielding generalizable results. Buckle's maddeningly rambling but often insightful *History of Civilization in England* (1857) is similarly nationalist in intended scope (but Buckle cannot resist a number of continental excursions). Both Taine and Buckle see human nature as a product of nature and culture, a product arrived at through a particular historical progression.

G.H.Lewes

Looking back over a career which involved four decades' study of philosophy and literature, Taine wrote, 'All I have been doing for the past forty years has been psychology, applied or pure.' But what *was* psychology in the 1850s and 1860s when Taine first made a name for himself? In those years no one anywhere in Europe could make a living teaching, studying or researching psychology. Yet serious psychology in these decades was being done by a greater assortment of people than ever before: philosophers and doctors but also physiologists, journalists, literary writers, spiritualists, phrenologists, mesmerists and more. The career of G.H.Lewes (1817–78) is doubly instructive concerning the institutional fluidity of psychology in the two decades following 1848. Firstly, Lewes was an important thinker whose considerable body of work repays careful study. More so than in Bain's much better known writings, Lewes strove to integrate contemporary trends in philosophy, psychology and physiology. He was especially important for showing how contemporary German physiological thought could be integrated with British evolutionism and associationism. Secondly, Lewes was a prolific and effective popularizer. His texts on physiology influenced both Sechenov and Pavlov, as well as countless British scientists. And in his often reprinted biography of Goethe and his equally popular history of philosophy Lewes gave several generations of English-speaking readers their first introduction to recent German and French schools of thought, including both Hegel's and Comte's ideas.

Despite the demonstrably pivotal position he played in mid-nineteenth-century philosophical psychology, Lewes is nowadays almost invisible in the history of philosophy, and a mere footnote to histories of psychology. Boring devotes only a passing mention to Lewes, seeing him as an evolutionary associationist of less influence than Spencer. More recent histories of psychology either echo Boring or remain silent. Spencer himself credited Lewes with arousing his interest in philosophy (and Spencer almost never acknowledged any form of intellectual indebtedness) so it may be useful to

pay more attention to his contribution.

One problem with estimating Lewes's importance is the institutional oddness of the intellectual world of 1840–70 when viewed from the confines of modern academe. Lewes was never anything like a professor or a teacher, nor even more than an amateur physiologist (albeit an amateur who had made it a point to do laboratory work with the likes of Liebig—which perhaps doesn't quite fit our idea of an 'amateur' either). Like Spencer, Lewes was primarily a journalist. He was not merely a contributor to the thriving intellectual journals of Victorian Britain but an editor and founder of several important periodicals, including *The Leader*, *The Westminster Review* and *The Fortnightly Review*. He was also an influential adviser at the birth of both *Nature* and *Mind*, two of the first 'academic' journals of importance in Britain.

Lewes's interests were always broad, and he made real contributions to drama, literature and biography (his biography of Goethe was the first complete one in any language) as well as in science and philosophy. Lewes's career offers an image of an altogether different kind of intellectual world from the one that has developed since the 1870s. This is why his work does not fit straightforwardly into any single disciplinary history. But this is just my point: historians of philosophy and psychology cannot assume that the boundaries of their discipline are or were clear, and they certainly should not impose a contemporary view of those boundaries on to the history of their disciplines.

Lewes was among the first nineteenth-century philosophers to discuss Spinoza and Hegel in Britain. Lewes's interest in Spinoza was kindled in the 1830s through conversations with Leigh Hunt (who had learned about Spinoza's ideas from Shelley twenty years earlier) and perhaps through reading Heine's work. Lewes's article on Spinoza in 1843 (printed in *The Westminster Review* and also as a pamphlet) proclaimed Spinoza to be a pantheist predecessor of Strauss and Feuerbach. Lewes especially emphasized the doctrine of Spinoza's that came to have great influence on psychology—the idea that spirit and body are merely two aspects of one thing, ourselves, and that the soul is our 'idea' of our bodily self.

But it was Lewes's visit to Paris in 1842, where he met both Cousin and Comte, that stimulated his most fruitful transmission of European ideas to Britain. Within a year Lewes was publishing enthusiastic accounts of positivism, and discussing plans with Bain and Mill to translate Comte's *Cours* (in the event these plans fell through, but Lewes was later influential in arranging Harriet Martineau's edition of Comte a decade later). It was at this time (1842–6) that Mill himself was most under Comte's influence, and considered that his own *Logic* represented something like a positivist philosophy of science. (A spectacular example of how badly our present disciplinary boundaries apply to the last century is the Mill-Comte correspondence of 1842–3, which is dominated by arguments over whether phrenology is a scientific approach to the study of mind.)

Lewes later revisited Comte in 1846, when Comte's great love, Clotilde de Vaux, was dying, and Lewes was probably the first British 'Comtean' to turn away from the man and his increasingly eccentric ideas, focusing instead on a doctrine, ultimately called 'positivism'.

Lewes's *Biographical History of Philosophy* appeared in 1845–6, including substantial discussions of German philosophy, especially that of Spinoza, Kant and Hegel, and ending with what can only be called a paean to Comte (later toned down and changed

into a positivist credo). This book was as popular as any philosophy text had ever been in Great Britain and the United States. Thus, despite being widely repeated in histories of the subject, the claims of the Oxford Hegelians that they brought German philosophy to Britain (after Coleridge's failed attempt) are simply false by more than a decade. It is also interesting to see that this popular text championed positivism a few years before 1850.

After 1848, Lewes was heavily involved for a time in political journalism (he founded *The Leader* with Leigh Hunt's son, Thornton) and in promoting the career of Marian Evans ('George Eliot'), his spouse. None the less, he also found time to write his first popular book on physiological psychology, followed by a series of increasingly technical works. His popular writings, especially *The Physiology of Common Life* (1859–60) promoted the kind of everyday materialist physiology found especially in Moleschott and Büchner but eschewed their anti-idealist metaphysics. Instead, Lewes's positivist views allowed him to remain rather agnostic concerning *how* sensations and feelings accompanied such everyday physiological acts as eating and focus on what Lewes saw to be facts: the correlations of feeling with physiological processes and bodily activity. This invention of a half-Spinozist, half-positivist physiology of mind was Lewes's master stroke. Before the century was out this position would come to dominate physiology and psychology all across Europe.

Lewes did not remain satisfied with this agnostic position, how-ever. In his multi-volume and partially posthumous *Problems of Life and Mind* (1874–9) Lewes broke with the positivists' anti-metaphysical stance to suggest what he called a 'metempirical' philosophy—a binding of philosophical inquiry to scientific findings. Variants of this position became the dominant credo among late Victorian scientists like Huxley, Tyndall and Clifford, all of whom were friends of Lewes's.

P*roblems of Life and Mind* is a self-consciously magisterial attempt to survey various lines of thought about psychology, and to offer a particular programme of research as a 'most promising' course to follow. The treatise is in three parts: a general philosophy of science as applied to psychology (*The Foundations of a Creed* in two volumes); a study of mind-brain from a dual aspect point of view, emphasizing the physiology of everyday life *(The Physical Basis of Mind);* and a sketch of a general psychology, describing its scope and limits (*The Study of Psychology* in two volumes). Lewes did not live to finish this last part, and George Eliot put the manuscript through the press—surely the only psychology text ever edited by a major novelist!

Despite its excessive length, there is also much that is not included in *Problems*. Lewes seems to have been unmoved by the rising tide of experimentalism among continental psychologists. He was familiar with Fechner and Wundt but saw them as marginal figures. Here Lewes's book was less prescient than that other great text of 1874, Brentano's *Empirical Psychology,* which acknowledged Wundt's importance, if only to take issue with his concept of inner observation. Lewes (like Lotze) was more of a physiological than an experimental psychologist. He was more at home in his extensive analysis of the reflex functions of the spinal cord than in worrying about Weber fractions, or the differences between introspection and inner observation.

Lewes's work on spinal function (much of it based on his own replications and extensions of experiments by Whytt, Müller, Hall, and others, all of them using amphibians vivisected in his own amateur laboratory) exemplified a crucial transition in

psychological thinking. For Lewes, spinal reflexes are part of psychology, and issues relating to sensation and even consciousness within the spinal column must be addressed. Lewes berated Huxley for misconstruing the psychological issues raised by studies on reflexes in the latter's important 'On the Hypothesis that Animals are Automata' (1872–4). Lewes regarded as very wrongheaded this attempt to treat the marvellous adaptive properties of the spinal reflexes as involving absolutely no psychological processes. On the basis of behavioural evidence from many experiments, Lewes concluded that the spinal column mediates many complex and specifically adaptive behaviours, showing striking resemblance to at least some of the behaviour (and consciousness?) of intact animals. According to Lewes, to treat the spinal cord as a reflex mechanism and the brain as a source of mind requires giving exclusive weight to introspective evidence. However, because introspective evidence is, by its nature, not open to public verification and replication, there can be no conclusive test to show the insentience of the spinal cord.

The trend in British neurophysiology was towards viewing the brain as a complex—and psychologically rich—reflex apparatus. This view achieved dominance with David Ferrier and Hughlings Jackson. In contrast, Lewes always insisted in treating spinal processes as including a psychological component (for example of sensation). Whether in the spine or in the brain, Lewes felt that an animate response was not just the mechanical effect of a stimulus but included an irreducible psychological factor, such as we would now describe as information processing steps. This emphasis on the psychologically active, dynamic nature of the lower parts of the central nervous system was submerged in later neurophysiology. Although later neurophysiologists acknowledge the role that muscle stretch receptors play in eliciting reflex responses, they simply do not address the question of what sorts of sensations might be elicited at the same time.

Lewes's work was in many ways outdated by the time it was published. With Lewes's help the journal *Mind* had begun appearing in 1876, and *Brain* a year later. Wundt's laboratory was already active, and psychological laboratories were even beginning to appear in America, where Peirce had begun to study the psychophysics of colour sensations. The study of the physiology (or psychology) of everyday life was being abandoned by specialists who were increasingly focusing on their own pieces in the puzzle of the human mind: experimental psychologists looking at sensations and reaction times, experimental physiologists analysing motor pathways, medical psychologists working with case studies in hysteria, epilepsy and other disorders. Lewes's death helped to increase this trend toward specialization, as he left money to found a studentship in physiology, explicitly on the German model, a bequest which did much to stimulate the improvement of British work in reductionist physiology over the next twenty years. Ironically, the greatest proponent of a non-psychological analysis of spinal function (combined with a dualistic interpretation of the brain/ mind), C.S.Sherrington, was one of three Nobel-Prize-winning physiologists whose studies were underwritten by Lewes's bequest. It would take more than half a century for another philosopher to appear with a comparable amount of physiological and psychological expertise and an interest in trying to understand behaviour and mind (Merleau-Ponty).

The positivism that dominated Europe by 1879 was much more Lewesian and Helmholtzian than Comtean. With regard to psychology and the study of mind, most so-called positivists were quasi-Spinozists. There was a continent-wide embracing of dual

aspect theory that began shortly after 1848 and achieved remarkable hegemony by 1879. It is striking that two of the leading British positivists (in the sense of early proponents of Comte), Lewes and Frederic Pollock, were among the earliest to publish extensively on Spinoza in English. Like Helmholtz, Lewes also attacked the remnants of a *Naturphilosophie* that insisted on finding hidden forces behind psychological as well as physical phenomena.

CONCLUSION

The year following Lewes's death, 1879, is often, if somewhat arbitrarily, treated as the year in which psychology as an experimental science was born. In that year, Wundt's laboratory became officially supported and active at Leipzig. Within the decade a host of more flexible and ultimately more influential experimentalists' careers were launched. By 1890 the most important of these scientists' careers were well established: G.E.Müller in Berlin, Alfred Binet in Paris and Francis Galton in England. These three researchers alone spun out streams of studies on a bewildering variety of topics, from sensory processes to reaction times, from individual differences to memory and cognition. William James's *Principles of Psychology* was essentially written over the course of this decade, and published in pieces alongside these experimentalists' work in the many new professional journals that were appearing. James's book represents two watersheds—the last great work strongly claimed by both psychologists and philosophers. Professionalization and separation was winning out.

Typically, the story is told that psychology as a professional discipline emerged from philosophy, as part of this professionalization, but this is only half right. It is equally the case that philosophy emerged from psychology. In the same decade that Galton, Binet and G.E. Müller (among others) were launching experimental psychology, replacing Mill's and Helmholtz's physiological epistemology with a kind of Lewesian positivism wedded to experimental methodologies, the 'neo-Kantians' were attacking 'psychologism' in epistemology, and Frege and Peirce were beginning their struggle to de-psychologize logic.

Psychology thus became a science unlike any other: a science without any ontological commitments, perpetually stuck within the anti-ontological climate of the 1870s. While chemistry and physics went on to mature out of this phase—leading to the great developments of 1900–10 (physical atoms, electrons, photons, the first quantum theory)—psychology maintained a deep aversion to all ontological theorizing. Ultimately, this led to that combination of behaviourism and 'operationalism' which dominated so much thinking about 'the mind' in the twentieth century.

At the same time as psychology abandoned ontology, philosophers abandoned the natural world. Afraid of a psychologism which threatened to eliminate first philosophy as a 'pure' intellectual discipline, a host of philosophical schools rediscovered transcendence, a trend very much in evidence even in the self-proclaimed anti-metaphysical scientists, such as Du Bois Reymond, whose famous 'ignorabimus' neatly carves out a place for the transcendent. Transcendental arguments in epistemology, metaphysics, and above all in logic, were offered to establish a 'pure philosophy'

untainted with any odour of quotidian reality. Some transcendentalists saw their salvation in the allegedly pure logical structure of language, others in the transcendental ideal structure at the heart of experience, still others in reviving Kant's method of transcendental argumentation.

The plea offered by James and countless others in the last quarter of the nineteenth century was that we should treat psychology as just another natural science, like chemistry. This plea misses a fundamental point. Unlike chemistry, psychology is about how we think (among other things). And a science of how we think should eventually tell us how to think, at least in the sense that it ought to reveal the laws and causes of good versus bad thinking. Were such a science to emerge it would be, at least in some sense, the queen of the sciences. By century's end, James doubted whether any such science had emerged, as he stated forthrightly at the outset of his *Talks to Teachers.* In contrast to James, Wundt, the self-proclaimed founder of experimental psychology, thus insisted on clearly demarcating the content of such a psychology. One could have an experimental science of sensation and response, but not an experimental science of cognition and thought. The study of cognition and other intentional states could be naturalistic, descriptive, historical and comparative, but never experimental and nomothetic. Wundtian experimental psychology, under the strong influence of the later Mill and the German agnostics, was itself definitely anti-psychologistic! Nevertheless, psychologism, in the sense of a master science telling us how we ought to think, was a strong presence throughout the latter part of the nineteenth century. It required an odd mixture of Platonism (in Frege) and neo-Kantianism (in Peirce and Wittgenstein) to eradicate psychologism in logic. And it required the very different geniuses of Russell and Husserl to eradicate psychologism in early twentieth-century philosophy. The fact that psychologism has returned, in the guise of artificial intelligence and cognitive science, suggests that the Victorian agnostics, like Kant and Reid, were unable to make their anti-metaphysical claims stick. It is intriguing that this oscillation between naturalism and anti-psychologism seems yet again to be pro-ducing new disciplines. If history is any guide, this cycle should continue.

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CHAPTER 12
American pragmatism

Peirce

Cheryl Misak

INTRODUCTION

Charles Sanders Peirce (1839–1914), one of America's greatest philosophers, mathematicians, and logicians, was a difficult and not altogether pleasant character. That, combined with what the establishment regarded as moral lapses, resulted in the fact that he was thwarted in his attempts to obtain a permanent academic post and died a malnourished and impoverished outcast. He was dismissed from his brief stint at Johns Hopkins University, dismissed from his service with the US Coast Survey (a job handed to him by his father, its superintendent), and ostracized by his alma mater—Harvard University.

Despite this grim life, Peirce was the founder of pragmatism, semiotics, and a theory of truth and knowledge that is still popular today. He was a serious student of the history of philosophy and of science and he was generous in acknowledging the influence of others. One of the most important influences is Kant, of whom the young Peirce was a 'passionate devotee' ([12.1], 4:2).[1] It is from Kant, for instance, that Peirce inherits a quest for the categories, a penchant for the notion of continuity and a desire to develop an 'architectonic' system. But there is also a strong gust of medieval philosophy blowing throughout his work, Duns Scotus in particular. It is from here that Peirce gets his Scholastic realism, which is set against the nominalism and individualism of the British empiricists. But there is also a clear affinity between Peirce and those empiricists. For instance, Peirce credits Berkeley's arguments that all meaningful language be matched with sensory experience as the precursor of pragmatism: 'Berkeley on the whole has more right to be considered the introducer of pragmatism into philosophy than any other one man, though I was more explicit in enunciating it (letter to William James, 1903 ([12.12], 2:425)).

The volume and breadth of Peirce's work is staggering. But because he was unsuccessful in securing a permanent academic position, most of it went unpublished in his time. It lies in a huge bulk of manuscripts and scraps. His best known papers are those of the 1870s series in *Popular Science Monthly* called 'Illustrations of the Logic of Science'. These include 'How To Make Our Ideas Clear' and 'The Fixation of Belief'. His Lowell Lectures in 1898 and 1903 and his Harvard Pragmatism Lectures in 1903 also contain essential material. But much of what is important is only now being published in the definitive chronological edition.

THE PRAGMATIC MAXIM[2]

The 'spirit' of pragmatism is captured in the following maxim: 'we must look to the upshot of our concepts in order rightly to apprehend them' ([12.1], 5:4) There is, Peirce argues, a connection between knowing the meaning of a sentence or hypothesis and knowing what to expect if it is true. If a sentence has no consequences (if there isn't anything one could expect would be the case if it were true) then it lacks an important dimension. It lacks a property that we would have had to get right if we were to know what it means. Pragmatism labels such a hypothesis defective. Understanding requires knowledge of consequences and a sentence is legitimate only if it has consequences.

This criterion of legitimacy permeates Peirce's work. Not only does he disparage certain philosophical positions as pragmatically meaningless, but he argues that if we focus on the consequences of '*H* is true', 'the probability of *H* is *n*', '*x* is real', etc., we will adopt the best accounts of truth, probability, reality, etc. So the pragmatic maxim serves as a standard for determining which expressions are 'metaphysical rubbish' or 'gibberish' ([12.1], 8:191) and it serves as a methodological principle for formulating philosophical theories.

In 'How To Make Our Ideas Clear', Peirce publicly unveils pragmatism and sets out the maxim as follows:

> Consider what effects, which might conceivably have practical bearings, we conceive the object of our conception to have. Then, our conception of these is the whole of our conception of the object.
>
> ([12.2], 3:266)

Peirce suggests in this paper that knowing the meaning of an expression is exhausted by knowing its 'practical' effects, which he characterizes as 'effects, direct or indirect, upon our senses' ([12.2], 3:266). These effects can be described by conditionals of the sort: if you were to do *A*, you would observe *B*. He says:

> we come down to what is tangible and practical, as the root of every real distinction of thought, no matter how subtile *[sic]* it may be; and there is no distinction of meaning so fine as to consist in anything but a possible difference of practice.
>
> ([12.2], 3:265)

As an example of how the pragmatic maxim operates, Peirce examines the meaning of 'this diamond is hard'. He says that it means that if you try to scratch it, you will find that 'it will not be scratched by many other substances'. ([12.2], 3:266).

Notice that the consequence in this example is formulated as an indicative conditional, as a matter of what *will* happen. Peirce sees that if he formulates consequences in this manner, it makes little sense to describe a diamond which is in fact never scratched as being hard. He seems to be content with this conclusion in 'How To Make Our Ideas

Clear'. But when he considers the matter later, he always insists on a subjunctive formulation. He chides himself for making the nominalist suggestion that habits, dispositions or 'would-bes' are not real. A 'Scholastic realism' about dispositions and subjunctive conditionals must be adopted: a disposition is more than the total of its realizations and a subjunctive conditional is determinately correct or incorrect, whether or not the antecedent is fulfilled. The consequences which concern pragmatism are those which would occur under certain conditions, not those which will actually occur. His considered view about the unscratched diamond is that 'it is a real fact that it *would* resist pressure' ([12.1], 8:208).

This was not Peirce's only amendment to the pragmatic maxim. In his struggle to arrive at a suitable criterion of understanding and meaning, he sometimes suggested one very similar to the criterion we find later in logical positivism. The positivists' criterion effectively restricted knowledge to that which physical science is about; we can have knowledge only of that which is directly observable or verifiable. Anything else—metaphysics, for example—is literally meaningless. But Peirce is concerned with a much broader account of what is involved in linguistic competence and altered his maxim in order to make it more generous.

For one thing, Peirce himself inclined toward metaphysics and he does not want to do away with it altogether. In metaphysics 'one finds those questions that at first seem to offer no handle for reason's clutch, but which readily yield to logical analysis' ([12.1], 6:463). Metaphysics, 'in its present condition' is 'a puny, rickety, and scrofulous science' ([12.1], 6:6). But it need not be so, for many of its hypotheses are meaningful and important. It is the job of the pragmatic maxim to sweep 'all metaphysical rubbish out of one's house. Each abstraction is either pronounced to be gibberish or is provided with a plain, practical definition' ([12.1], 8:191).

Secondly, Peirce frequently claims that the pragmatic maxim captures only *a part* of what it is to know the meaning of an expression. In order to grasp a term, he argues, a threefold competence is required. The interpreter must be able to (1) pick out what objects the term refers to; that is, know Mill's 'denotation', Hamilton's 'extension' or 'breadth'; (2) give a definition of the term; that is, know Mill's 'connotation', Hamilton's 'intention' or 'depth'; (3) know what to expect if hypotheses containing the term are true; that is, know the consequences of hypotheses containing the term.

Whereas his predecessors identified the first two sources of meaning, Peirce thinks that his contribution was to locate the important third source. He takes his three aspects of understanding to spell out completely what someone must be able to do if she grasps a concept or knows the meaning of an expression.

But none the less, the pragmatic maxim is supposed to be a criterion for meaning identity. Peirce argues that a purported difference which makes no practical difference is spurious; if two hypotheses have the same set of subjunctive conditional consequences, then they express the same content. It is pointless to suggest that they differ in denotation or connotation.

Thirdly, Peirce at times tries to divert the pragmatist's gaze from sensory experience. His account of experience is very generous: any belief that is compelling, surprising, impinging, unchosen, involuntary or forceful is a perception. And such beliefs need not arise from the senses.

He takes there to be two kinds of experience—'ideal' and 'real'. The latter is sensory experience and the former includes experience in which 'operations upon diagrams, whether external or imaginary, take the place of the experiments upon real things that one performs in chemical and physical research' ([12.1], 4:530).

These diagrammatic experiments or thought experiments figure in mathematical and deductive inquiry. They involve 'experimenting upon [an] image in the imagination, and of observing the result so as to discover unnoticed and hidden relations among the parts' ([12.1], 3:363). The mathematician, for instance, draws subsidiary lines in geometry or makes transformations in algebraic formulae and then observes the results: 'his hypotheses are creatures of his own imagination; but he discovers in them relations which surprise him sometimes'. ([12.1], 5:567). Since surprise is the force of experience, the upshot of such reasoning counts as experience.

What this means is that Peirce, unlike his verificationist predecessors (Hume, Comte) and successors (the logical positivists), wants all hypotheses to be exposed to the pragmatic maxim; he does not exempt formal (or what are now called 'analytic') sentences. Logical and mathematical hypotheses can meet the criterion because there is a kind of experience relevant to them. And some metaphysical hypotheses meet the criterion as well. They must have consequences, Peirce argues, for ordinary, everyday, experience, by contrast with experiences in technical experimental contexts and by contrast with experiences in diagrammatic contexts.

TRUTH AND REALITY

Peirce applies the pragmatic maxim to the metaphysical debate on the nature of truth and reality. The philosopher must look to our everyday practices and see what account of truth would be best suited for them: 'We must not begin by talking of pure ideas,—vagabond thoughts that tramp the public roads without any human habitation,—but must begin with men and their conversation' ([12.1], 8:112).

The correspondence theory, he argues, lacks such human habitation. It holds that a true hypothesis is one which is in agreement with an unknowable 'thing-in-itself'. But:

> You only puzzle yourself by talking of this metaphysical 'truth' and metaphysical 'falsity' that you know nothing about. All you have any dealings with are your doubts and beliefs… If your terms 'truth' and 'falsity' are taken in such senses as to be definable in terms of doubt and belief and the course of experience…well and good: in that case, you are only talking about doubt and belief. But if by truth and falsity you mean something not definable in terms of doubt and belief in any way, then you are talking of entities of whose existence you can know nothing, and which Ockham's razor would clean shave off. Your problems would be greatly simplified, if, instead of saying that you want to know the 'Truth', you were simply to say that you want to attain a state of belief unassailable by doubt.
>
> ([12.1], 5:416).

Peirce's argument here is that if one offered an account of 'H is true' in terms of its consequences for doubt, belief and perceptual disappointment, one would be offering a pragmatic elucidation of truth. And that, if it were a correct specification of the consequences, would be a satisfactory account of truth. But a definition of truth which makes no reference to belief, doubt and experience is an empty definition of truth. It is useful only to those who have never encountered the notion.

Peirce sometimes states this objection to the correspondence theory by labelling it a 'transcendental' account of truth ([12.1], 5:572). Such accounts regard truth 'as the subject of metaphysics exclusively'—spurious metaphysics, not pragmatically legitimate metaphysics. On the correspondence definition, truth transcends experience; it has no consequences for inquiry. He says:

> The *Ding an sich*…can neither be indicated nor found. Consequently, no proposition can refer to it, and nothing true or false can be predicated of it. Therefore, all references to it must be thrown out as meaningless surplusage.
>
> ([12.1], 5:525)

If we look at the experience of inquirers which seems most relevant to truth—the evidence they have for and against hypotheses—the correspondence theory is speechless. For on that account, there is an unbridgeable gap between what we can have evidence for and the inaccessible reality. We could have the best possible evidence for an hypothesis and yet that hypothesis might fail to be true. The correspondence theory does not tell us what we can expect of a true hypothesis and so it is not capable of guiding us in our actions and inquiries. If truth is the aim of inquiry, then on the correspondence construal, enquirers are left completely in the dark as to how they should conduct their investigations. The aim is not, Peirce says, 'readily comprehensible' ([12.1], 1:578). How could anyone aim for a sort of truth that transcends experience? How could an enquirer develop a means for achieving that aim?

In anticipation of certain kinds of naturalized epistemologies, Peirce focuses on what he thinks the transcendentalist has lost sight of—the link between truth and inquiry. The pragmatic account deals with the common experience that constitutes inquiry, and so it offers a conception of truth that can be a guide for inquiry.

On Peirce's view, 'A true proposition is a proposition belief in which would never lead to…disappointment' ([12.1], 5:569). This is an account of what we can expect from a true belief: if we were to inquire into *H*, we would find that *H* would encounter no recalcitrant experience. We can predict that if we were diligently to inquire about *H*, *H* would not, in the end, be overturned by experience. An alternative way of making the point is to say that we would expect the following: if inquiry with respect to *H* were to be pursued as far as it could fruitfully go (i.e. far enough so that the hypothesis would no longer be improved upon), *H* would be believed (it would not be doubted). For if *H* would be believed after such a prolonged inquiry, then *H* would not have been overturned by experience; it would not have been put into doubt. A true belief is a permanently settled belief.

Peirce's view of reality is connected to his view of truth. The consequence of a thing's being real is that the hypothesis asserting its reality would be, if inquiry relevant to it

were pursued, perfectly stable or doubt-resistant. For a consequence of a thing's being real is that, if we were to inquire into issues for which it is relevant, it would in the long run force itself on our attention. The pragmatic view is that reality is the 'object' of true beliefs—it is what true beliefs are about. Reality is what beliefs in the final opinion would fix on.

This account of reality, Peirce argues, fulfils the definition of reality as that which is independent of whatever 'you, I, or any number of men' think. We have seen that Peirce is a realist about subjunctives. What would be believed to be real is thus independent of what is believed to be real at any particular time. The real 'is that which, sooner or later, information and reasoning would result in, and which is therefore independent of the vagaries of you and me' ([12.2], 2:239) Peirce thinks that this makes reality 'objective'. ([12.2], 3:29).

He makes the same point about truth. What would be ascertained to be true would be so ascertained whatever anyone here and now thinks. A hypothesis may be believed, then doubted and then believed again, but this does not affect whether it would be believed at the end of a prolonged inquiry. Independently of whatever any 'definite' group of inquirers may think about the truth-value of *H*, *H* either would be or would not be a member of the final opinion (12.1], 5:565). Thus the truth-value of *H* is an objective matter—it does not depend on what anyone at any particular point happens to think.

SEMIOTICS

Peirce was a pioneer in semiotics. Not only is he responsible for the distinction between type ('human' as a general term) and token ('human' as applied to various objects), but he developed a complex map of signs which covers sixty-six classes, from which sprout 59,049 varieties.

His theory of signs has interpretation at its centre. For Peirce holds that the sign-referent relation is not able, on its own, to uphold a complete account of representation. Representation is triadic: it involves a sign, an object and an interpreter. Each aspect of this representation relation corresponds to one of the elements in Peirce's division of signs into icons, indices and symbols. And in each of these, one or another aspect of linguistic competence is most prominent.

Icons are signs that exhibit their objects by virtue of similarity or resemblance. A portrait is an icon of the person it portrays and a map is an icon of a certain geographical area. Peirce argues that the meaning of iconic signs lies mostly in their connotation; what makes a painting or a map an icon is that its qualities or attributes resemble the qualities or attributes of its object.

Indices are signs that indicate their objects in a causal manner; an index 'signifies its object solely by virtue of being really connected with it' ([12.1], 3:360). A symptom is an index of a disease and smoke is an index of fire. The essential quality of an index is its ability to compel attention. A pointing finger, a knock on the door or a demonstrative pronoun, such as 'there' or 'that', draws attention to its object by getting the interpreter to focus on the object. So an index, by being object-directed, has its denotation or extension as its 'most prominent feature' ([12.1], 8:119). An index picks out or indicates its object;

it points to ‘that, that and that’ as its extension.

A symbol is a word, hypothesis or argument which depends on a conventional or habitual rule; a symbol is a sign ‘because it is used and understood as such’ ([12.1], 2:307) Symbols have ‘principle’ or pragmatic meaning; they have ‘intellectual purport’.

Peirce contrasts pragmatic meaning with ‘internal’ meaning (which he relates to icons and connotation) and with ‘external’ meaning (which he relates to indices and denotation). He suggests that the pragmatic meaning of symbols has to do with a ‘purpose’ ([12.1], 8:119). A symbol has pragmatic meaning because if the utterer knows how interpreters habitually interpret a sign, she can use the sign to cause a specific effect in the interpreter. And Peirce calls this effect the ‘interpretant’ of the sign. If, for instance, I write ‘dog’, I intend the sign to cause a certain effect in the interpreter (perhaps I want the interpreter to think of a dog) whereas if I write ‘odg’, I do not, as ‘odg’ is not a conventional sign. Or if I assert ‘That bridge has a loose plank’, I might want the interpreter to be careful when crossing the bridge. Peirce characterizes an assertion as the attempt to produce a disposition in an interpreter; it is ‘the deliberate exercise, in uttering the proposition, of a force tending to determine a belief in it in the mind of an interpreter’ ([12.4], 4:249).

Notice that if pragmatic meaning is about this sort of practical consequence, it is no longer about ‘effects, direct or indirect, upon our senses’. Pragmatic meaning, rather, involves consequences for action or thought. In 1905 we find Peirce offering this version of the pragmatic maxim: ‘The entire intellectual purport of any symbol consists in the total of all general modes of rational conduct which, conditionally upon all the possible different circumstances and desires, would ensue upon the acceptance of the symbol’ ([12.1], 5:438). ‘Rational conduct’, although Peirce thinks that it will eventually manifest itself in a modification of the interpreter’s disposition to behave, includes the conduct of one’s thought.

This twist in the pragmatic maxim—that the acceptance of a hypothesis must have effects on an interpreter’s train of thought—coincides with a development in the early 1900s in Peirce’s theory of signs. That development is a theory of interpretants and Peirce at times locates pragmatic meaning within this theory.

He distinguishes three types of interpretants. The ‘immediate’ interpretant is the fitness of a sign to be understood in a certain way; the ‘dynamical’ interpretant is the actual effect a sign has on an interpreter, and the ‘final’ interpretant is the effect which eventually would be decided to be the correct interpretation. Pragmatic meaning, Peirce says, lies in a kind of dynamical interpretant: the ‘ultimate logical interpretant’. A sign, Peirce argues, sparks a subsequent sign, or a logical interpretant, in the mind of the interpreter, and since the logical interpretant is itself a sign, an infinite chain of interpretation, development, or thought, is begun. Peirce stops the regress by introducing the notion of an ‘ultimate logical interpretant’ or a ‘habit-change’. He follows Alexander Bain in taking a belief to be a habit or disposition to behave. And so this new habit is a belief or a modification of the interpreter’s tendencies towards action. The pragmatic meaning of an expression, according to Peirce’s theory of signs, is the action (which includes the action of subsequent thought, and which ends in a disposition to behave) that arises after an interpreter accepts it.

THEORY OF INQUIRY

The notion of inquiry occupies a central place in Peirce's thought. For the most part, his income was from employment in the United States Coast and Geodetic Survey, where he made numerous and significant contributions. Philosophy, he insisted, must get along with other branches of inquiry. The following motto 'deserves to be inscribed upon every wall of the city of philosophy: Do not block the path of inquiry' ([12.1] 1:135).

Peirce characterizes inquiry as the struggle to rid ourselves of doubt and achieve a state of belief. An inquirer has a body of settled belief; a set of beliefs which are, in fact, not doubted. These beliefs, however, are susceptible to doubt, if it is prompted by some 'positive reason', such as a surprising experience ([12.1], 5:51). We have seen that Peirce takes experience to be that which impinges upon us—experience, he says, teaches us 'by practical jokes, mostly cruel' ([12.1], 5:51). When experience conflicts with an inquirer's belief, doubt is immediately sparked. And doubt 'essentially involves a struggle to escape' ([12.1], 5:372 n.2). Inquiry is that struggle to regain belief. The path of inquiry is as follows: belief…surprise…doubt…inquiry… belief….

Peirce does not take these points to be mere observations about human psychology; he thinks that psychology should be kept out of logic and the theory of inquiry. Doubt and belief, although they do have psychological aspects, such as making the inquirer feel comfortable or uncomfortable, are best thought of in terms of habits. A 'belief-habit' manifests itself in an expectation: if we believe *H*, then we habitually expect the consequences or the predictions we derive from *H* to come about when the appropriate occasion arises. Thus inquirers are thrown into doubt when a recalcitrant experience upsets or disrupts a belief or expectation. There are three stances an inquirer may have with respect to a hypothesis: believe it, believe its negation or consider the matter open to inquiry. Only in the third stance are we left without a habit of expectation and thus it is agnosticism which is the undesirable state. That is, doubting whether an hypothesis is true is not equivalent to believing that it is false, rather, it is not knowing what to believe. What is wrong with this state is that it leads to paralysis of action. An inquirer has some end in view, and two different and inconsistent lines of action present themselves, bringing the inquirer to a halt: 'he waits at the fork for an indication, and kicks his heels… A true doubt is accordingly a doubt which really interferes with the smooth working of the belief-habit' ([12.1], 5:510). Doubt arises because of not knowing how to act. And action can include action in diagrammatic and thought experiments.

Peirce's theory of inquiry has a certain kind of empiricism at its core. Inquirers aim for beliefs that fit with experience. When we replace a belief which has come into doubt, that new belief stands up better than the old one. So we accept it, act on it and think that it is true. But we know very well that it eventually might be overthrown and shown to be false by experience. Peirce adds the more contentious claim that what we aim for is permanently settled beliefs. When we have beliefs that would for ever withstand the tests of experience and argument, he holds that there is no point of refusing to confer upon them the title 'true'. Only a spurious desire for transcendental metaphysics will make one want to distinguish perfectly good beliefs from true beliefs.

A problem faces Peirce here. If beliefs could be settled by a religious authority, or by a charismatic guru or by astrology, so that they were permanently resistant to doubt, there seems to be, on his account, no reason for criticizing them. Peirce considers different methods of fixing belief and suggests that it is hard *really* to end the irritation of doubt.

The method of tenacity, or holding on to your beliefs come what may, will not work, Peirce says, because doubt will be sparked when one notices that the opinions of others differ from one's own. Beliefs produced by the method of authority (fixing beliefs according to the dictates of a State, religion, etc.) will similarly be subject to doubt when one notices that those in other States or religions believe different things. Beliefs produced by the *a priori* method (adopting beliefs which are agreeable to reason) will eventually be doubted when it is seen that what the experts take as being agreeable to reason shifts like a pendulum and is really a matter of intellectual taste. None of these methods will produce permanently settled belief because they have a self-destructive design; the beliefs settled by them eventually would be assailed by doubt.

The agent of destruction which Peirce sees in each of the specious methods seems to be a purported fact about our psychological makeup: if an inquirer believes an hypothesis, and notices that other inquirers do not believe it, that first inquirer will be thrown into doubt. This impulse, Peirce says, is 'too strong in man to be suppressed, without danger of destroying the human species' ([12.2], 3:250). If this psychological hypothesis expresses a universal fact about us, then the unsatisfactory methods will indeed prove unreliable in the long run. They will not produce permanently settled belief and we should refrain from using them.[3]

There are two other cornerstones to Peirce's theory of inquiry: critical commonsensism and fallibilism. Critical commonsensism is a position about how we ought to regard those beliefs which are settled. It holds that there are many things which inquirers do not doubt and that inquiry must start with a background of beliefs which are not doubted. A body of settled belief is presupposed for the operation of inquiry in that there has to be something settled for surprise to stir up.

This doctrine arose as a response to Peirce's conception of Descartes' project—a systematic attempt to bring into doubt all hypotheses about which error is conceivable. Peirce argued that such doubts would be 'paper' doubts. They are not genuine and they cannot motivate inquiry. The mere possibility of being mistaken with respect to what one believes is never a reason to revise those beliefs. Any of our beliefs might be false, but it would be absurd to doubt them all because of this. If we did, we would not possess a body of stable belief by which to judge new evidence and hypotheses, and hence, we would block the path of inquiry. We can doubt one belief and inquire, but we cannot doubt all of our beliefs and inquire. Peirce's point against Descartes is that if we were to set the requirements on knowledge as high as Descartes does, we would have nothing left to go on. He says,

> there is but one state of mind from which you can 'set out', namely, the very state of mind in which you actually find yourself at the time you do 'set out'—a state in which you are laden with an immense mass of cognition already formed, of which you cannot divest yourself if you would… Do you call it doubting to write down on a piece of paper that you doubt? If so, doubt has nothing to do

with any serious business.

([12.1], 5:416)

So Peirce is not concerned with sceptical questions about foundations for certainty, and his arguments are not addressed to those who are.

But he is also a 'contrite fallibilist', holding that all our beliefs can be doubted; that is, that none of them are certain. There is a tension here: how can it be that all our beliefs are fallible, or subject to doubt, but, nevertheless, some of our beliefs must not be doubted if inquiry is to be possible?

Peirce's reconciliation of fallibilism with critical commonsensism is made in terms of his notion of truth. He thinks that many of our beliefs are indeed those which would be included in the final opinion, but since we cannot know for any given belief whether or not it would be in that opinion, we cannot know that it is true. That is, we do not know if the antecedent of this subjunctive conditional is fulfilled: 'if inquiry were pursued as far as it could fruitfully go, then *H* would be believed'. Inquiry may or may not have been pursued far enough with respect to *H*, and so we cannot have certainty with respect to any belief.

But the uncertainty or fallibility that in principle accompanies every one of our beliefs does not mean that we should doubt our settled beliefs. 'Practically speaking', he says, many things are 'substantially certain' ([12.1], 1:152); we do not doubt them. While 'it is possible that twice two is not four…it would be difficult to imagine a greater folly than to attach any serious importance to such a doubt' ([12.1], 7:108).

But substantial certainty is different from the 'absolute certainty' which would result from knowing that we have permanently settled belief. We may have this settled opinion about many questions, but we must not infer that we 'perfectly know when we know'. Again, we cannot know that any given hypothesis is permanently settled upon or true—we cannot have absolute certainty. Nevertheless, in every state of intellectual development and information, there are things that seem to us sure 'so that even though we tell ourselves that we are not sure, we cannot clearly see how we fail of being so' ([12.1], 4:64). Practi-cally, we must treat some hypotheses as certain. Settled beliefs must be regarded as infallible, in the sense that the inquirer does not doubt them for the purposes of inquiry; science has 'established truths' to be used as premisses in further deliberation ([12.1], 1:635). In this sense, we do not doubt what we believe, but in another sense, each of our beliefs can, or could, be doubted.

Peirce's theory of inquiry provides the key to understanding his view of the growth of knowledge and the progress of science. His position is that science 'is not standing upon the bedrock of fact. It is walking upon a bog, and can only say, this ground seems to hold for the present. Here I will stay till it begins to give way' ([12.1], 5:589).

Accepted hypotheses and theories are stable until they are upset by experience. They are as good as they can be, given the state of evidence, technology, argument, etc. Knowledge is rebuilt bit by bit when experience forces inquirers to revise their beliefs. The rebuilding principle requires modification of our beliefs in the light of recalcitrant experience and Peirce argues that we cannot help but adopt this principle. We do have some reason to believe that, in rebuilding, we are in some sense getting closer to the truth. For the new beliefs will get along with experience better than the old ones. True beliefs

are those which would, in the end, get along with experience and one explanation of our beliefs achieving more and more fit with experience is that a good number of them are true. A good number of them would be permanently doubt-resistant.

But Peirce's picture is not one of placing indubitable building blocks upon each other as we progress towards the truth. Rather, the picture is one of doubt (recalcitrant experience) forcing us to inquire until we reach another tentative doubt-resistant belief. The ground upon which inquiry walks is tenuous and it is only the danger of losing our footing that makes us go forward. Doubt and uncertainty provide the motive for inquiry. All our beliefs are fallible and when an agent accepts a belief, she does so with the knowledge that it might very well prove to succumb to surprise. But if the agent knows that the belief is the result of a method which takes experience seriously, then she is warranted in accepting it, asserting it and acting upon it.

In addition, Peirce's theory of inquiry invokes two regulative hopes; assumptions, such that, without making them, the participants in a practice could make no sense of that practice. We must, Peirce says, hope or assume that the community will continue indefinitely and we must hope that there would be, if inquiry were pursued far enough, a final settled answer to 'the particular questions with which our inquiries are busied' ([12.1], 6:610). He says,

> a reasonable disputant disputes because he hopes, or at least, goes upon the assumption that the dispute will come to something; that is to say, that both parties will at length find themselves forced to a common belief which will be definitive and final. For otherwise, why dispute?
>
> ([12.1], 2:29)

Inquiry is the asking of questions, and a presupposition of inquiry is that the questioner hopes for an answer. We have, Peirce says, some ground for this hope because all sorts of questions that seemed at one time to be completely resistant to resolution have been resolved.

LOGIC: DEDUCTION, INDUCTION, ABDUCTION

Peirce described himself first and foremost as a logician and despaired that the current state of philosophy in America was such that most found formal logic to be too difficult. He classified inference into three types: deduction, induction and abduction (which he also called retroduction or hypothesis) and made significant contributions to the study, of each. Indeed, the very study of abduction, what is today known as inference to the best explanation, is due to Peirce.

Peirce's contributions to deductive logic are very impressive, although today it is Frege, not Peirce, who is regarded as bringing modern logic into the world. Peirce developed a logic of relations and quantifiers independently of, and at roughly the same time as, Frege, discovered the Sheffer Stroke twenty years before Sheffer, and invented a notation (utilizing normal forms) very similar to the one still in use. In mathematics, he anticipated Dedekind on the difference between finite and infinite sets and independently

developed arguments about infinity similar to Cantor's. Unfortunately, setting out the background to these developments and adequately characterizing them is beyond the scope of this chapter (See Dauben [12.6], Putnam [12.13] and Dipert [12.7]).

Peirce is also known for his work on induction. Some see in his writing an anticipation of Reichenbach's probabilistic response to Hume's scepticism about induction while others see an anticipation of the Neyman-Pearson confidence interval approach to testing statistical hypotheses (see Ayer [12.5], Lenz [12.9], Levi [12.10] and Hacking [12.8]).

Peirce called the sort of inference which concludes that all *A*s are *B*s because there are no known instances to the contrary 'crude induction'. It assumes that future experience will not be 'utterly at variance' with past experience ([12.1], 7:756). This is, Peirce says, the only kind of induction in which we are able to infer the truth of a universal generalization. Its flaw is that 'it is liable at any moment to be utterly shattered by a single experience' ([12.1], 7:157).

The problem of induction, as Hume characterizes it, is about crude induction; it is about the legitimacy of concluding that all *A*s are *B*s or the next *A* will be a *B* from the fact that all observed *A*s have been *B*s. Peirce assumes that Hume's problem is straightforwardly settled by fallibilism and critical commonsensism. We do, and should, believe that, say, the sun will rise tomorrow, yet it is by no means certain that it will. To show that induction is valid, we need not show that we can be certain about the correctness of the conclusion of a crude inductive inference. Fallibilism holds that this is a pipe dream. What we have to show, rather, is that induction is a reliable method in inquiry.

Peirce holds that it is a mistake, anyway, to think that all inductive reasoning is aimed at conclusions which are universal generalizations. The strongest sort of induction is 'quantitative induction' and it deals with statistical ratios. For instance:

> *Case:* These beans have been randomly taken from this bag
> *Result:* Two-thirds of these beans are white
> *Rule:* Therefore two-thirds of the beans in the bag are white

That is, one can argue that if, in a random sampling of some group of *S*s, a certain proportion *r/n* has the character *P*, the same proportion *r/n* of the Ss have *P*. One concludes from an observed relative frequency in a randomly drawn sample a hypothesis about the relative frequency in the population.

Peirce is concerned with how inductive inference forms a part of the scientific method; how inductive inferences can fulfil their role as the testing ground for hypotheses. Quantitative induction can be seen as a kind of experiment. We ask what the probability is that a member of the experimental class of the Ss will have the character *P*. The experimenter then obtains a fair sample of Ss and draws from it at random. The value of the proportion of Ss sampled that are *P* approximates the value of the probability in question. When we test, we infer that if a sample passes the test, the entire population would pass the test. Or we infer that if 10 per cent of the sample has a certain feature, then 10 per cent of the population has that feature.

Peirce took the three types of inference to form the scientific method. The role played by induction is to test hypotheses. The job of abductive inference is to provide

hypotheses for this testing. Peirce's settled view on abduction is that it is 'where we find some very curious circumstance, which would be explained by the supposition that it was a case of a certain general rule, and thereupon adopt that supposition' ([12.2], 3:326). The form it takes is:

> The surprising fact, C, is observed; But if *A* were true, C would be a matter of course. Hence, there is reason to suspect that *A* is true.
>
> ([12.1], 5:189)

Peirce argued with Paul Carus about when an explanation is called for. Carus claimed that irregularity demands an explanation and Peirce disagreed. Nobody, he says, is 'surprised that the trees in a forest do not form a regular pattern, or asks for any explanation of such a fact' ([12.1], 189). Peirce suggests that irregularity is 'the overwhelmingly preponderant rule of experience, and regularity only the strange exception'. A mere irregularity, where no definite regularity is expected, he says, creates no surprise; it excites no curiosity. And it is a surprise or an anomaly that throws us into doubt or demands an inquiry to explain the phenomenon. It is an *unexpected* regularity or the breach of an existing regularity that makes a demand for explanation. It is the interruption of a habit of expectation (a belief) that calls for an explanation.

Abduction is 'the process of forming an explanatory hypothesis' ([12.1], 5:171) for such regularities. These hypotheses, however, are merely conjectures; we must 'hold ourselves ready to throw them overboard at a moment's notice from experience' ([12.1], 1:634). For an abductive inference 'commits us to nothing. It merely causes a hypothesis to be set down upon our docket of cases to be tried' ([12.1], 5:602).

So the first stage of inquiry is arriving at a conjecture or an explanatory hypothesis. Peirce argued that abduction and induction are 'ampliative' and deduction is 'explicative'. In explicative inference, the conclusion follows from the premisses necessarily; in ampliative inference, the conclusion amplifies rather than explicates what is stated in the premisses. He argues that ampliative inference is the only kind that can introduce new ideas into our body of belief. Being a form of ampliative inference, abduction allows us to infer, or at least conjecture, from the known to the unknown. We can infer a hypothesis to explain why we observed what we did.

The second stage is to deduce consequences or predictions from the hypothesis. The 'purpose' of deduction is 'that of collecting consequents of the hypothesis'. The third stage is that of 'ascertaining how far those consequents accord with Experience' ([12.3], 841:44). By induction we test the hypothesis: if it passes, it is added to our body of belief.

Peirce sees that the validity of abductive inference is hard to characterize. Its conclusion is not even asserted to be true, for it is a mere conjecture. He says:

> The hypothesis which it problematically concludes is frequently utterly wrong in itself, and even the method need not ever lead to the truth; for it may be that the features of the phenomena which it aims to explain have no rational explanation at all. Its only justification is that its method is the only way in which there can be any hope of attaining a rational explanation.
>
> ([12.1], 2:777)

He argues that the reason we are justified in making abductive inferences is that, if we are to have any knowledge at all, we must make them. A logician, Peirce says, should have two goals—he or she should 'bring out the amount and kind of *security*…of each kind of reasoning' and should bring out the 'uberty, or value in productiveness, of each kind'. ([12.1], 8:384) Abduction is such that 'though its *security* is low, its *uberty* is high'. ([12.1], 8:388). It is the other two kinds of inference to which the notions of security and validity more aptly apply.

THE CATEGORIES

Peirce expended a great deal of intellectual energy engaging in a project which absorbed Aristotle and Kant—the categories. Peirce's ubiquitous classificatory scheme—the categories of firstness, secondness, and thirdness—is designed to cover any object of thought. It is a classificatory scheme that takes each category to be an 'independent and distinct element of the triune Reality' ([12.1] 5:431). The doctrine is extremely complex, vague and difficult to understand, and, like pragmatism, it permeates Peirce's work.

Peirce had three methods for arriving at his list of categories. The first and earliest one is found in the 1867 'On a New List of Categories'. The project is a Kantian one—to find out what 'is' or 'has being' by 'reducing the manifold of sense impressions to unity' via an analysis of the proposition. The second method is an argument from phenomenology, which 'ascertains and studies the kinds of elements universally present in the phenomenon' or 'whatever is present at any time to the mind in any way'. ([12.1], 1:186). Both of these methods aim to show that everything that we experience or identify, i.e. anything that 'is', has an element of each of the three categories in it, and that we do not experience anything that goes beyond the three categories.

Both the Kantian and the phenomenological derivations of the categories rest on the Aristotelian/Scholastic method of analysis of prescission. This method separates or distinguishes different elements of a concept so that, although we cannot imagine a situation in which one of them is actually isolated, we can tell that the elements are distinct. We can 'suppose' one without the other, for we can, by attending to one feature and neglecting others, isolate features of phenomena which are not in fact separable. We can, for instance, suppose space without colour even though colourless space is not imaginable. Prescission, however, is not reciprocal, as it is a matter of discerning a logical priority of notions. Hence, we cannot prescind colour from space—we cannot suppose colour without spatial extension.

With respect to the categories, Peirce argues that we can abstract or prescind certain notions from experience and classify them as belonging to one or another of the categories. We can prescind firstness from secondness and we can prescind both from thirdness, but we cannot prescind in the other direction.

So the categories are designed to describe the general features of each of the classes of elements that come before the mind or are experienced. Each class is distinct, but its members cannot stand in isolation. Each of the categories is present in everything we experience, but there are many cases in which one or the other of the categories is emphasized or predominant: 'although they are so inextricably mixed together that no

one can be isolated, yet it is manifest that their characters are quite disparate' ([12.1], 1:284). And the list of three is all that is needed.

Perhaps the easiest way to set out Peirce's doctrine of categories is to concentrate on his third derivation, that which rests on the logic of relations. (This method, however, is discussed by Peirce as being part of phenomenology.) Here the categories are represented by *n*-place relations. Peirce argued that all relations fall into one of three fundamental classes: monadic, dyadic and triadic. Each is irreducible to the others, and all predicates with more than three places are reducible to triadic ones. For instance, '*a* is red' is monadic, '*a* hit *b*' is dyadic and '*a* gives *b* to *c*' is triadic. A four-place predicate such as '*a* put *b* between *c* and *d*' is reducible to two three-place ones: '*a* put *b* in spot *e*'; 'spot *e* is between *c* and *d*'. 'Gives', on the other hand, is not reducible to '*a* put *b* down' and '*c* picked *b* up', as the latter set fails to express the intention of *a* that *c* should have *b*.

The results of each of the three ways of inquiring into the ultimate categories merge. Here is a brief description of those results, one which does not undertake the intimidating task of sorting out the relationships between all of the things that supposedly manifest each category.

The third category involves a medium or connecting link between two things; irreducibly triadic action is such that an event *A* produces an event *B* as a means to the production of an event *C*. Thirdness is characteristically manifested in psychological concepts. For instance, Peirce argues that representation is such that an interpreting thought mediates between sign and object. (One route to Peirce's claim that all experience is a matter of thirdness is via his argument that everything that we experience is of the nature of a sign or representation. There is no experience independent of our representation of it.) Similarly, we cannot grasp what it is for *a* to give *b* to *c* without the notion of intention mediating between *a* putting *b* down and *c* picking up *b*. There must be an intention to give on *a*'s part and a realization of that intention on *b*'s part. Peirce also says that law and necessity manifest thirdness. A law, or a necessary connection, mediates between the action of one thing upon another, making it more than an accident that they behaved in the way in which they did. Continuity and generality are other instances of thirdness.

We can cognitively isolate secondness as the duality of action and reaction without any mediating force. It is brute existence and hence is the modality of actuality. It is found (by prescission) most clearly in the notions of struggle, action/reaction, cause/effect, and brute force. The second category is one 'which the rough and tumble of life renders most familiarly prominent. We are continually bumping up against hard fact' ([12.1], 1:324). For

> We can make no effort where we experience no resistance, no reaction. The sense of effort is a two-sided sense, revealing at once a something within and another something without. There is binarity in the idea of brute force; it is its principal ingredient.
>
> ([12.1], 2:84)

A First is a simple monadic element. Peirce says that it suggests spontaneity, and it is real 'regardless of anything else'. In virtue of its very nature, it is indescribable; it can only be

grasped by prescission:

> It cannot be articulately thought: assert it, and it has already lost its characteristic innocence; for assertion always implies a denial of something else. Stop to think of it, and it has flown!…that is first, present, immediate, fresh, new, initiative, original, spontaneous, free, vivid, conscious, and evanescent. Only, remember that every description of it must be false to it.
>
> ([12.1], 1:357)

These 'qualities of feeling' are mere possibilities:

> I do not mean the sense of actually experiencing these feelings… that is something that involves these qualities as an element of it. But I mean the qualities themselves which, in themselves, are mere may-bes, not necessarily realized.
>
> ([12.1], 1:287)

So the first category is that of possibility.

One upshot of Peirce's doctrine of categories is that he thinks that reality comes in three grades. He is a 'realist' with respect to all of the categories—possibility, actuality and generality are real. He insists that 'the *will he's*, the actually *is's*, and the *have beens* are not the sum of the reals—they only cover actuality. There are besides *would be's* and *can be's* that are real' ([12.1], 8:216). And his 'Scholastic realism' has it that laws or thirds are real; they are not mere mental constructions.

Peirce takes nominalism—the doctrine that '*laws* and general *types* are figments of the mind' ([12.1], 1:16)—to be pernicious. He says, 'the property, the character, the predicate, *hardness*, is not invented by men, as the word is, but is really and truly in the hard things and is one in them all, as a description of habit, disposition, or behavior' ([12.1], 1:27 n.1).

Peirce thinks that the fact that we can predict things ought to convince us of realism about generals. Realism explains prediction, for, on that theory, laws and dispositions have causal efficacy: 'if there is any *would be* at all, there is more or less causation; for that is all that I mean by causation' ([12.1], 8:225 n.10). If a prediction has a tendency to be fulfilled, it must be the case that future events have a tendency to conform to a general rule. Peirce concludes that some laws or generals are real. Laws and dispositions mediate between possibility (Firstness) and actuality (Secondness)—it is the law that makes the possible actual, for laws or general patterns cause their instances.

But Peirce does not think that possibilities and generals actually exist; universals or generals are not 'things'. The realm of existence is the second category, and so possibilities and generals are real but not existent.

METAPHYSICS

The doctrine of categories is not Peirce's only metaphysical venture. But the briefest

sketch of these metaphysical positions, which seem to be in a different spirit from the inquiry-directed pragmatic epistemology described in the first six sections, is all that space allows.

Peirce was set against determinism or necessitarianism, which he took to be the position that 'every single fact in the universe is precisely determined by law' ([12.1], 6:36). His 'Tychism', on the other hand, had it that there is absolute chance in the universe—there is spontaneous deviation from the laws of nature. Peirce took a corollory of Tychism to be that physical laws are statistical, something which physics now takes for granted.

Tychism is tied to Peirce's view of evolutionary cosmology, for Tychism has it that there is a tendency toward diversification in the universe. Laws, Peirce argued, evolved from nothing or from 'pure possibility'. The starting point 'was not a state of pure abstract being. On the contrary it was a state of just nothing at all, not even a state of emptiness, for even emptiness is something' ([12.1], 6:215). He usually says that it was pure Firstness. Recall that spontaneity is paradigmatic of Firstness. It is a state which has no existing things (Secondness), compulsion (Secondness), or law (Thirdness): it is a state of pure chance or possibility.

From this state of possibility came accidental 'flashes' ([12.1], 1:412) which, again accidentally, reacted with one another. That is, Secondness emerged. And from these reactions arose a habit-taking tendency or Thirdness. Peirce says that it is the nature of habit ever to strengthen itself and, thus, laws came into being. Evolution is the process of growth; the world becomes more and more rational and law-bound.

This view is connected to Peirce's claims that our ultimate aim or *summum bonum* is the perfection of 'concrete reasonableness' (see [12.1], 5:3). He was fond of saying that ethics is prior to science and that logic is normative. These claims cover a variety of theses, most of which are compatible with the work on logic canvassed above. For instance, sometimes he means the following: 'Logic is a normative science; that is to say, it is a science of what is requisite in order to attain a certain aim' ([12.3], 432:1)—the aim of getting doubt-resistant beliefs. And sometimes he means that logic is critical and involves self-controlled thought, just as morals involves self-controlled conduct (see [12.3], 453). But sometimes, especially towards the end of his life, he means that logic must rest on an inquiry into the ultimate good. It seems to him 'that the logician ought to recognize what our ultimate aim is. It would seem to be the business of the moralist to find this out, and that the logician has to accept the teaching of ethics in this regard' ([12.1], 1:611).

As commentators have long noted, the attempt to base logic on an ultimate aim of something like perfect rationality seems to be in contradiction to the bulk of his work on logic. That work attempts to offer a naturalistic, non-psychological account of logic. Logic, on that naturalistic view, is intimately tied to the scientific method and to getting beliefs which would not be overturned by recalcitrant experience.

Another of Peirce's metaphysical doctrines is 'Synechism', which has it that the notion of continuity is the key to philosophy. Sometimes he says that 'Synechism is not an ultimate and absolute metaphysical doctrine; it is a regulative principle of logic prescribing what sort of hypothesis is fit to be entertained and examined' ([12.1, 6:173). But at other times he presents it as highly metaphysical.

Like Aristotle, Peirce holds that a continuous series is not a collection of discrete points. A continuous series is rather a possibility of endless further determination. A continuum has no existing parts but only a potential for being divided into parts. The infinite number of points on a continuous line are really places at which a point could be located, they are merely possibles or Firsts rather than actuals or Seconds. Continuity itself is an instance of Thirdness; it is a kind of ultimate mediation. For a continuous series is a path where we can always find one thing between two others. Peirce characteristically tries to link up this example of Thirdness with others, most particularly laws and generality.

Another metaphysical debate which Peirce joined is the debate about reality. Sometimes he writes of reality not in the way described above, where reality is the object of perfectly stable beliefs. Instead, he places his view of reality within the idealism-materialism debate and sides for a kind of idealism. Reality, he says, is nothing but 'effete mind'—'what we call matter is not completely dead, but is merely mind hidebound with habits' ([12.1], 6:158). It is unclear whether this idealism can be reconciled with the view of reality elucidated within Peirce's account of truth. And it is unclear whether idealism, along with the other metaphysical doctrines touched upon here, can pass the pragmatic test, which requires metaphysical theories to have consequences for practice.[4]

INFLUENCE

The pragmatic theory of truth is very popular these days. Some of the current brands are not the one Peirce himself offered but closer to those of William James and John Dewey, both of whom acknowledged their debt to Peirce. (In the 1900s Peirce renamed his doctrine 'pragmaticism' to distinguish it from the positions of James, Schiller, etc. He thought that this new name was 'ugly enough to be safe from kidnappers' ([12.1], 5:414).)

Richard Rorty's pragmatism, for instance, while having affinities with Peirce's, has it that the notion of truth is metaphysical and ought to be abandoned. Peirce, on the other hand, thinks that truth is not only a sensible notion, but, given that it is what inquirers aim for, it is essential for inquiry. W.V.O.Quine (in some moods), Hilary Putnam and Jürgen Habermas are more clearly the inheritors of Peircean pragmatism.

Another area where Peirce's influence is still felt is in the field of semiotics, where many of his distinctions, classifications and terminology still reign. He had influence in the field of logic, but he was a Boolean and that school was eventually edged out of the mainstream by the Fregeans. Schröder adopted Peirce's notation, and some well known results are written in it.[5] And Whitehead seems to have learnt quantification from Peirce. But despite the quantity and quality of his work in formal logic and statistical inference, he is probably best remembered in logic for introducing abductive inference, something which by its very nature cannot be formalized.

Unfortunately, Peirce's lack of success in securing an academic position, his rather abrasive personality and his penchant for cumbersome terminology combined to render his views pretty much inaccessible during his own lifetime. He died penniless and

unappreciated. It has been only recently that his work has found the interest it deserves and the excavation it requires.

NOTES

1 References to Peirce's *Collected Papers*, are by volume and paragraph number; to the new *Chronological Edition* and to *The New Elements of Mathematics*, by volume and page number.

2 Some of the material in this and other sections is taken from my *Truth and the End of Inquiry: A Peircean Account of Truth* [12.11]. It is reproduced here by kind permission of Oxford University Press.

3 The psychological hypothesis, however, seems to be false. My suggestion as to how to resolve the difficulty is that Peirce is best read as holding that being responsive to evidence is one of the 'essentials of belief, without which it would not be belief' ([12.3], 673:11). Thus, the aim of inquiry is to get beliefs which are not merely fixed, but which are fixed in such a way that they fit with and respond to the evidence. See [12.11].

4 Peirce did argue against some kinds of idealism on pragmatic grounds: 'Very well; an idealist…is lounging down Regent Street…when some drunken fellow unexpectedly…lets fly his fist and knocks him in the eye. What has become of his philosophical reflections now?' ([12.1], 5:539).

5 For instance, Löwenheim's theorem and Zermelo's axioms: see Putnam [12.13].

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CHAPTER 13
American pragmatism

James

J.E.Tiles

THE BERKELEY LECTURE

Pragmatism was introduced to society in a lecture given by William James[1] to the Philosophical Union at the University of California in Berkeley on 26 August 1898.[2] In his lecture James acknowledged that this brainchild was that of his friend Charles S.Peirce, and that Peirce had first introduced him to it in the early 1870s ([13.11], 410). The child had not been appropriately christened—James indicated a preference for 'practicalism'—and needed 'to be expressed more broadly than Mr. Peirce expresse[d] it', but it offered 'the clue or compass' by which James believed 'we may keep our feet' on 'the trail of truth' (412).

James began his exposition of the principle with a formulation drawn from an 1878 article, 'How To Make Our Ideas Clear' ([13.36], 5:388–410) in which Peirce had first allowed his progeny to appear in public, although not under the name 'pragmatism'. To attain clearness in our thoughts about some object we need to consider the effects of 'a conceivably practical kind which the object may involve' and reckon our conception of these effects to be the whole of our conception of the object, 'so far as that conception has positive significance at all' ([13.11], 411). Peirce had formulated his principle with a view to its application in science and in the metaphysics of science and had consequently illustrated its application with the concepts 'hardness,' 'weight', 'force' and 'reality' in his 1878 article. But he had not hesitated to apply the principle also to the theological dispute over transubstantiation ([13.36], 5:401).

In the Berkeley lecture James drew his illustrations mainly from philosophical theology. Some of the traditional attributes of God—aseity, simplicity, felicity—could be judged by Peirce's principle to be 'meaningless and verbal' ([13.11], 425). 'What the word "God" means is just those passive and active experiences of your life' (428). Compare this to Peirce: 'The idea which the word 'force' excites in our minds has no other function than to affect our actions, and these actions can have no reference to force otherwise than through its effects' ([13.36], 5:405). And as Peirce had insisted that the dispute over transubstantiation was empty unless it could be referred to a difference in sensible effects, James urged that such disputes as that between monists and pluralists were barren unless definite practical consequences turned on the outcome.

Although James suggested that the principle needed to be 'expressed more broadly' it is not easy to see from his lecture alone how, or how far, he thought it necessary to deviate from Peirce's understanding of the principle. He offered as his preferred

formulation, ‘the effective meaning of any philosophic proposition can always be brought down to some particular consequence, in our future practical experience, whether active or passive’ ([13.11], 412). The important point is not that he shifted the formulation from concepts to propositions—he was not grinding the axe which Frege, Russell and Wittgenstein were about to add to the logician’s tool kit—the stress, rather, was to be placed on the word ‘particular’.

Peirce had formulated his doctrine in the context of a conception of practice as a complex of habits, that is as *general* patterns of responding to experience. James cited Peirce’s doctrine that the function of thinking is to produce habits of action (411), but where for Peirce ‘what a thing means is simply what habits it involves’, for James the meaning of a proposition had its bearing on conduct through foretelling some particular turn in our experience. Differences in ‘sensible effects’ were differences in sensory experiences rather than (as for Peirce) differences in habits of response to sensory experience (see [13.36], 5:494). James glossed his preferred formulation with the words, ‘the point lying rather in the fact that the experience must be particular, than in the fact that it must be active’ ([13.11], 412). He thereby departed in a significant way from Peirce, who rejected as a candidate for meaning ‘any unity among our sensations which has no reference to how we act’. For, having tied meaning to habits, Peirce tied the identity of a habit to ‘how it might lead us to act, not merely under such circumstances as are likely to arise, but under such as might possibly occur, no matter how improbable they may be’ ([13.36] 5:400).

How this difference affected the way the two men applied the pragmatist principle can be seen in their respective treatments of the concept of God. Apart from reservations about the wording, Peirce would have endorsed James’s claim that, ‘the principle of practicalism says that the very meaning of the conception of God lies in those differences which must be made in our experience if the conception be true’ ([13.11], 424). James indicated the sort of thing he meant here by ‘differences in our experience’: ‘conversations with the unseen, voices and visions, responses to prayer, changes of heart, deliverances from fear, inflowings of help, assurances of support, whenever certain persons set their own internal attitude in certain appropriate ways’ (428). When in 1908 Peirce offered what he called ‘A Neglected Argument for the Reality of God’ he made it clear that his understanding of ‘experience’ placed far more stress on what a believer was prepared to do than on what happens to a believer: ‘to be deliberately and thoroughly prepared to shape one’s conduct into conformity with a proposition is neither more nor less than the state of mind called Believing that proposition’ ([13.36], 6:467).

Another sign that James and Peirce were moving in significantly different directions occurred at the end of James’s Berkeley lecture, when he commended Peirce’s principle for expressing the ‘English spirit in philosophy’ and heaped scorn on the ‘ponderous artificialities of Kant’ ([13.11] 436). James concluded by urging that ‘the true line of philosophic progress lies not so much *through* Kant as *round* him to the point where we now stand’ (437).[3] Important elements of Peirce’s philosophy—his doctrine that a thought has meaning only through its connection to subsequent thoughts ([3.36], 2:289) and his stress on habits—had taken shape in (come *‘through’*) a Kantian framework.

In the course of a long review of an edition of the works of Bishop Berkeley published in 1871, Peirce had appealed to what with hindsight may be seen as an early formulation

of his principle. ‘Do things fulfil the same function practically? Then let them be signified by the same word. Do they not? Then let them be distinguished’ ([13.36], 8:33). The main thrust of this article, however, was to trace the character of British philosophy back to Scotus and Occam and to condemn the nominalism of late Scholasticism, which had persisted and flourished in the works of Hobbes, Locke and Berkeley. Peirce continued to define his position partly through his opposition to nominalism, which he conceived to encompass the main currents of British empiricism, although he acknowledged that in the early 1870s his ‘ideas were acquiring an English accent’ ([13.36], 5:13). He could not have been entirely pleased at James’s move to enlist his brainchild in the ranks of ‘the English-speaking philosophers’ ([13.11], 434).

In time Peirce felt constrained to dissociate himself from the movement which was initiated by James’s lecture and its subsequent publication and dissemination. He saw James as ‘pushing the method to such extremes as must tend to give us pause’ ([13.36], 5:3) and claimed that ‘the most prominent parts’ of the doctrine James was presenting were ‘opposed to sound logic’ ([13.36], 6:482). It was not his child but a changeling which his friend was sponsoring and Peirce moved to rename his doctrine ‘pragmaticism’—a name ugly enough, as he put it, to keep it safe from kidnappers ([13.36], 5:414).

MIND AS GOAL-DIRECTED

The philosophic distance between James and Peirce not only reveals how remarkable was the genuine respect and admiration each expressed for the other,[4] it raises the question of what it was they had in common, which made it possible for James to appropriate anything of philosophic significance from his friend. The answer lies in the conception of mind as goal-directed, which James and Peirce accepted in different forms. This placed both men in opposition to the tradition of conceiving the essence of mind as lying in its capacity to represent objects in such a way that the adequacy of the representation is independent of its capacity to direct our action and help us to anticipate consequences.

In his *Principles of Psychology* James took ‘*the pursuance of future ends and the choice of means for their attainment* [to be] *the mark and criterion of the presence of mentality* in a phenomenon’ ([13.1], I:8). Consistent with this criterion, a concept for James was ‘really nothing but a teleological instrument. *This whole function of conceiving, of fixing, and holding fast to meanings, has no significance apart from the fact that the conceiver is a creature with partial purposes and private ends*’ (482). Peirce had advanced his ‘pragmatist’ principle in 1878 in the context of a doctrine that thought was directed to the attainment of belief, where belief was a form of habit. Both men treated thought as teleological—although they differed over the character of its *telos*—and were thus attracted to the notion that meaning should be explained in functional terms within a framework of goals and instruments.

Their differences over the *telos* of thought turned, we have seen, on the question of whether it should be conceived as particular (sensory experience) or general (habits of response). There were other differences, more concerned with what should be emphasized, which obscured the nature of the conflict between their different

metaphysical outlooks. Peirce tended to speak from the standpoint of 'the community of those who enquired' and of its long-term direction. James did not reject this standpoint, although it is not easy to say how far he would have agreed with Peirce about its character or importance, for he tended to speak from the standpoint of individuals and their short-term achievements, a tendency which can be observed already in his early work.

He had, for example, published a version of his views of concepts in 1879, where he contended that essential qualities were nothing more than those of most *worth* 'relative to the temporary interests of the conceiver' ([13.1], 86–8), and he quoted at length from this article in his *Principles of Psychology* ([13.1], II:335n.). Peirce would have accepted the contention which James added in his 1890 treatment of essential qualities,

> the only reason why *for the chemist* [water] is H-O-H primarily, and only secondarily the other things, is that *for his purpose of deduction and compendious definition* the H-O-H aspect of it is the more useful one to bear in mind. (334n.)

But Peirce would not have been comfortable with the suggestion that the chemist's interest was merely one of many ephemeral human interests with no claim to special privilege.

Science for Peirce was a historical project which works to eliminate what is limited, arbitrary and accidental in the perspectives of individuals, and what is partial in the interests, which drive them to inquire ([13.36], 8:12). The definition given by chemists is not to be accepted as expressing *the* essence of water, since this definition may require improvement, but it has an authority over definitions which select other properties of water in that it has arisen out of a context of inquiry in which private ends and partial purposes have become—if not completely, at least *more*—public and impartial. James would not have disputed this, but he said little that highlighted it and much that tended to obscure it.

THE ANALYSIS OF TRUTH

This difference in emphasis contributed in large measure to the differences the two men had over the treatment of truth. According to James, applying the pragmatist principle to truth results in the question, 'What concrete difference will its [an idea or belief] being true make in any one's actual life?' ([13.12], 97). The answer was that ideas we call 'true' are those which we can 'assimilate, validate, corroborate and verify'. All of these words were interpreted in conformity with the doctrine that ideas and beliefs function as instruments. Where they do not interfere with the use of existing cognitive resources we are free to assimilate them to our existing stock of ideas. Where they serve to guide our thought and action in a manner which is 'progressive, harmonious, satisfactory', they are treated as validated, corroborated or verified (35). '"The true", to put it very briefly, is only the expedient in the way of our thinking, just as "the right is only the expedient in the way of our behaving"' (106). As a consequence truth became a property of an idea or

an opinion, belief or statement on the occasion of our determining the instrumental value of an idea, opinion, etc.

By 1907, when James published this treatment of truth in a book titled *Pragmatism*, 'pragmatism' had become the name of a movement, which was stirring up considerable controversy, and the centre of dispute was the application of the pragmatist principle to the concept of truth. James's vivid and robust advocacy attracted attention, and inspired two stalwart allies—F.C.S.Schiller at Oxford and John Dewey at Columbia—as well as numerous hostile critics. But his failure to express himself with sufficient care and precision, left his cause exposed to apparently easy refutation.

The general problem he faced can be appreciated by exploring the analogy with instruments. Instruments prove useful for certain purposes in specified circumstances, and when these purposes are superseded or circumstances change they are set aside. In calling an idea or belief 'true', however, we seem to be making a claim with some kind of finality about its worth, a claim which is independent of purpose and circumstance.

By appealing to a notion of science as an unending progressive enterprise, Peirce had been able to apply his understanding of the pragmatist principle to the concept of truth in such a way as to finesse this difficulty. Truth, Peirce held, was to be found in 'the opinion which is fated to be ultimately agreed to by all who investigate' ([13.36], 5:407). It is easy enough to recast this formulation to remove the apparent requirement that there be some point in the future where ultimate agreement is reached: to say an idea, belief, etc. is true is to say that no cause for its rejection or substantial modification will arise for as long as investigation might continue. Since reasons for rejecting an idea or belief include the discovery that its worth depends on special circumstances (which can be eliminated from its formulation) or partial purposes (which admit of being enlarged), Peirce's analysis of truth was able at least to address the finality and independence which appear to be implicit in a claim that something is true.

It was, of course, an important part of Peirce's position—his 'fallibilism'—that we would never be in a position to determine whether an idea or belief was true; the most we could ever say would be that so far we have encountered no reason to reject or modify the idea or belief in question. Even before he pushed pragmatism into the limelight, James had characterized this fallibilist outlook as the '*empiricist*' form of dogmatism and contrasted it favourably with 'the *absolutist* way of believing in truth' ([13.3], 12). Absolutists claim to be able not only to attain truth but to know when it has been attained; empiricists claim it is possible for humans to attain truth but not to know infallibly when they have attained it. This meant that in one sense of the word, 'truth' designated an ideal towards which we would have to strive indefinitely, and in *Pragmatism* James explicitly acknowledged that 'truth' did function, as Peirce insisted, as the name of an ideal. 'The 'absolutely' true, meaning what no farther experience will ever alter, is that ideal vanishing-point towards which we imagine that all our temporary truths will some day converge' ([13.12], 106–7). He did not suggest that what we imagine here was a form of delusion or even a pious fancy; he accepted this rather as a satisfactory account of the meaning of 'absolute truth'.

> On the one hand there will stand reality, on the other an account of it which it proves impossible to better or alter. If the impossibility prove permanent, the

> truth of the account will be absolute. Other content of truth than this I can find nowhere.
>
> (120)

But James had little interest in what was not immediate. The second sentence to follow the last but one of the above quotations ([13.12], 106–7) reads, 'Meanwhile we have to live to-day by what truth we can get to-day, and be ready to-morrow to call it falsehood'.

Peirce rejected any suggestion that it might be permissible to speak of truth as mutable ([13.36], 6:485). To be sure we can and do change our minds about what we take to be true. There are, moreover, ideas and beliefs which, prior to certain dates, were not even entertained by human beings, let alone subjected to verification. This does not, Peirce held, justify saying that beliefs or ideas become true or may cease to be true. One can see, nevertheless, why James wanted to stress what happens today and might happen tomorrow: the long term, even on Peirce's account, is not constituted independently of what is done here and now. (Or, if it should turn out that we are thoroughly benighted in respect to some matter, the long-term truth of that matter is still not independent of what is done at particular times in the future.)

It may, however, have been a tactical mistake to apply the word 'true' and its cognates to what we embrace at particular times, even if that brought a special dignity to what James regarded as crucial to the concept of truth. It might have been wiser to adopt the course which Dewey eventually adopted: cease to use 'truth', following James's preferred gloss, as 'a collective name for [the current results of] the verification-process' ([13.12], 104)[5] and instead allow that 'whatever we will not find reason to correct, so long as we go on enquiring' is an adequate account of what we mean by 'truth'.

James may not have been open to such counsel. He preferred at crucial points to place severe strains on the ordinary meanings of words in order to secure the attention of his audience, even at the risk of being misunderstood. The interpolation made in the quotation in the previous paragraph points to a further example of this. The official statement of James's doctrine held that the truth of an idea (belief, etc.) is 'the process… of its verifying itself ([13.12], 97). This is not the way the word 'truth' is commonly used. Events in which ideas, beliefs, etc. are validated by experience are known collectively as 'verification'; 'truth' is applied as a collective noun for whatever can successfully undergo verification. Within a few pages James acknowledged the strain his definition was placing on our habits of usage. We allow to pass as true a great many ideas and beliefs ('the overwhelmingly large number of truths we live by' (99)) which we do not even attempt to verify. These are not 'abortive' truths; indirect verification—evidence that other people expect experience to bear out the utility of these beliefs—allows us to count them as truths. 'Truth lives, in fact, for the most part on a credit system', although 'beliefs verified concretely by *somebody*' are what preserves this cognitive economy from collapse

A few pages further James appropriated the scholastic distinction between habit and act and acknowledged that to be worthy to be counted a 'truth', a belief does not have to be actually *(in actu)* guiding our practice, just as a person does not have to be lifting weights to be reckoned strong. 'All such qualities sink to the status of 'habits' between their times of exercise; and similarly truth becomes a habit of certain of our ideas and beliefs in their

intervals of rest from their verifying activities' (106). So why define truth as a process if, within James's pragmatism, truth can have a sense in which it applies not to the process of verification but to what is able to withstand the process? What James appears to be doing with his definition is drawing attention to what he believed to be crucial, just as his frequent use of financial metaphors ('cash basis', 'cash value') called attention to the same need of a practical foundation for our cognitive practices. But calling truth a process made it easier for opponents to suggest that the doctrine was riddled with confusion, just as financial metaphors and words like 'expedient' allowed opponents to insinuate that behind James's doctrine were crass commercial values.[6]

ANTI-REALISM

Although expressing the doctrine of truth with more care might have enabled James to go some distance toward placating Peirce, it is not clear that this would have resolved all of their differences over the concept of truth. There remains James's fondness for the claim that 'Truth is *made*' ([13.12], 104) as opposed to 'discovered' and the evidence that not all of what he meant by this is contained in the claim that truth arises out of the process of verification (and re-verification). Part of this claim appears to have been intended by James to reflect the degrees of freedom which we have in fashioning representations able to function cognitively as instruments. What truths we embrace here and now (and hence in the long run) depend on how we carve out and carve up the objects of our experience in order to fashion representations. And how we do that is a function of our purposes (121, 206).

Having come to his philosophy *through* Kant, Peirce would not have found alien the idea that objects, and our classifications of them, are in important respects the products of our cognitive activity. But this raises the question whether (within whatever constraints might be imposed by our cognitive constitution) we can adopt different systems of representation, systems which would if adopted lead subsequent enquiry in such different directions that we could not plausibly regard them as taking us to the same 'final opinion', the same 'truth'. This is one way to read the implications of James's doctrines that our means of representation are instruments serving concrete purposes and that truth is made. This implication, however, requires that it makes sense to suppose that we are free at one or another stage in our history to adopt one set of purposes, to which one set of cognitive instruments would be well adapted, and eschew another set of purposes, to which a different set of cognitive instruments would be better suited. If the thought of making such a choice is coherent, we would not be able to say that the beliefs framed in one system were more true than those of the other because beliefs in each system would be established as true through serving a different set of purposes.

The issue in other words is how much freedom does a pragmatist doctrine of truth leave us? It needs to be emphasized that no pragmatist suggested that our freedom is in any sense absolute. We are constrained in what we do by what our environment will permit us to do—by what means it affords for realizing our goals. We do not even have absolute mastery over the most immaterial of our cognitive instruments, 'We can no more play fast and loose with these abstract relations than we can do so with our sense-

experience. They coerce us; we must treat them consistently, whether or not we like the results' (101). But it remains possible to ask whether it would make sense to say that long-term truth might not be uniquely determined, because at crucial stages we might make choices that would lead to one long-term truth rather another. Did James allow this when he said 'absolute truth will have to be made…incidental to the growth of a mass of verification-experience' (107)?

There seems little doubt that Peirce assumed there would be what is now called 'convergence' if scientific enquiry were indefinitely prolonged. Phrased to avoid the implication that there will be a time when scientific enquiry is complete, this means that should there emerge two or more ways of treating a phenomenon scientifically, the task of reconciling and integrating these theories will not remain impossible indefinitely. Does Peirce's assumption that enquiry will converge amount to anything more than an article of faith?

For one important alliance of anti-pragmatists, Peirce's assumption needs no defence. According to the opponents whom James addresses as 'rationalists' (as well as most philosophers who nowadays profess to be 'realists') representations of the world can be advanced independently of, indeed *'have nothing to do with[,] our practical interests or personal reasons'* (109). There has to be convergence amongst the descriptions offered by all who seek an adequate representation of *the* world; two representations could not fail to be reconciled unless there were two different worlds. Truth resides in the one ideal representation regardless of whether anyone will ever ascertain it. For James, 'There never was a more exquisite example of an idea abstracted from the concretes of experience and then used to oppose and negate what it was abstracted from' (109). But having tied truth to 'practical interests or personal reasons' did James have any grounds for the expectation that our 'verification-experience' will converge?

Although James did not address this specific question, his instrumentalism does appear to have definite anti-realist implications. His admonition against thinking that reality is 'literally' made of ether, atoms or electrons (103) does not appear to reflect mere caution regarding the ultimate utility of theories phrased in these terms. He claimed that 'The term "energy" doesn't even pretend to stand for anything "objective". It is only a way of measuring the surface of phenomena so as to string their changes on a simple formula' (103). Peirce's response to this is likely to have been that if the concept of energy continues adequately to guide our interactions with what James here calls 'the surface of phenomena' there is no point in denying that the term stands for something objective. Any object represented in an opinion which continues to be accepted by all who investigate is by Peirce's criterion real and objective.

James accepted that in choosing our 'man-made formulas we cannot be capricious with impunity' (104), but, consistent with his sympathy for nominalism, he suggested there was a certain latitude in our choice. This expectation may well have been linked to the way he wanted to tie truth not only to 'practical interests' but also to 'personal reasons'. Dewey viewed this appeal to the personal with some suspicion. He was content if it was to be analysed and defined in biological and ethical (social) terms, but not if it were (as in the humanism of F.C. S.Schiller) treated as 'ultimate and unanalyzable, the metaphysically real', in order to underwrite a 'pluralistic, voluntaristic idealism' ([13.18], 325–6).

Peirce for his part would have accepted the link to practical interests; these were written into the pragmatist principle. Those who enquire are looking for practical guidance for establishing stable habits of action, and realists and rationalists are mistaken in offering an account of truth which pretends otherwise. Peirce, however, would not have included 'personal reasons' alongside 'practical interests'; these generate the limitations and partialities which scientific enquiry is supposed to eliminate from our representations. The purpose of science includes transcending the personal at least in the sense linked to individualism.[7] If convergence involved an article of faith for Peirce, what rested on faith was the belief that it is possible for humans to transcend the personal in this sense. It was not a matter of faith that science should converge; if our enquiries do not converge it will be because we have not conducted our enquiries in the right spirit.

THE RIGHT TO BELIEVE

That one might rest science on faith of this sort—on a set of beliefs regarding the possibility and supreme worth of working towards a common goal, which is specified only schematically—was endorsed by James even before he publicly adopted Peirce's principle as his protégé. In the title essay (first published in 1896) of a collection, *The Will to Believe,* dedicated 'to my old friend Charles Sanders Peirce', James had defended the right[8] to believe in facts where belief might well be something needed to help create the fact ([13.3], 25). The actuality of pragmatism's truth is indeed dependent in this way on the beliefs of those who enquire and the cognitive posture, which pragmatists thus require of scientists, would be scorned by those—James cites (T.H.) Huxley and (W.K.) Clifford—who insist we must not 'believe anything upon insufficient evidence' (7–8). James was not at this point advancing the doctrine that truth is made—'in our dealings with objective nature we obviously are recorders, not makers, of truth' (20)—but he insisted on the status of truth as an object of common endeavour, 'Our belief in truth itself…that there is a truth, and that our minds and it are made for each other,—what is it but a passionate affirmation of desire, in which our social system backs us up?' (9). To insist that we as individuals have sufficient grounds for believing in the attainability of truth, before taking steps to attain it, could well, James argued, stand in the way of our attaining it (24–5).

Thus the issue James took with Huxley and Clifford was over their suggestion that a belief system could be based entirely on intellec-tual grounds without resting at any point on commitment or, as James put it, on our 'passional tendencies and volitions' (11). Not only does 'our passional nature' influence our beliefs, there are cases in which this influence 'must be regarded both as inevitable and as a lawful determinant of our choice' (19). What Huxley and Clifford were doing, James insinuated, was foisting on others the predilections of their own particular 'passional natures' under the pretence of having put all emotional involvement aside.

'The Will to Believe' although pre-pragmatic in some respects was read as a document of the movement.[9] Thus its attack on Clifford contributed to the accusation that pragmatism encouraged people to believe whatever would prove convenient or would lead to success measured in terms of personal satisfaction. For James had quoted Clifford

as claiming, ‘Belief is desecrated when given to unproved and unquestioned statements for the solace and private pleasure of the believer’ (8). And in *Pragmatism* James said a number of things, which taken on their own might also be interpreted as embracing precisely what Clifford condemned.

In the final chapter James declared that ‘On pragmatistic principles, if the hypothesis of God works satisfactorily in the widest sense of the word, it is true’ ([13.12], 143). Earlier he had quoted from a Christian Science leaflet and said of it, ‘beyond doubt such a confession of faith has pragmatically an emotional value’ (74). A page later the mystical teachings of Swami Vivekananda were said to be ‘a religion which, emotionally considered, has a high pragmatic value’. Clearly ‘works satisfactorily in the widest sense’ was meant to *include* ‘generates emotional security’ but if James’s audience failed to bring to bear other things which James had said about the constraints operating on belief (to be discussed here shortly) they were likely to carry away the impression that the solace or personal satisfaction offered by a belief were meant to be a sufficient touchstone of its truth.

If James had taken steps to forestall this impression, he might have stressed that the primary consequences by which a belief or idea was to be tested were those bound up in what Dewey referred to as the ‘intent of the idea’. What Dewey meant to convey by this phrase was that included in the conventions which determine the commonly accepted meaning of an idea or belief are quite specific conditions for the correct application of the words which are used to convey it. Dewey thereby implied a criticism of James for his illustrative example argued that the fatal consequences of drinking a liquid to test the idea that it is a poison are very good indicators that the idea is true, and it is these consequences which are relevant to the question of its truth, not the bad consequences of a painful death ([13.18], 320). By impli-cation the emotional consequences of believing something were not to be treated as relevant to its truth.

James might well have replied that beliefs function in multiple ways and, while accepting that he should not neglect the ‘intent of an idea’, he clearly would have resisted excluding the functions of solace and satisfaction in deciding how well they work. The account, which he gave in his Berkeley lecture ([13.11], 415–24) and reproduced verbatim in *Pragmatism* ([13.12], 51–6), of the pragmatic difference between materialism and belief in God, rested entirely on the reassurance which could be derived from the way the notion of God ‘guarantees an ideal order that shall be permanently preserved… This need of an eternal moral order is one of the deepest needs of our breast’, because it sustained hope where the ‘materialist’ outlook meant ‘the cutting off of ultimate hopes’ ([13.12], 55). These needs were not universal but present in ‘superior minds’, while their absence was a sign of ‘the more shallow man’ (56).

This account of the pragmatic meaning of belief in ‘God’ was said by James to have been deliberately phrased in terms of future consequences. He argued that if the universe had no future, if this were its absolutely last moment, it might well be that the ‘materialist’ and the ‘spiritualist’ hypotheses were equivalent and there be nothing, pragmatically speaking, in the choice between them ([13.11], 414; [13.12], 50). But in referring to future consequences James clearly had in mind our attitudes towards the indefinite future long after any of our actions (perhaps the actions of any human beings) have determinable practical consequences. In response Dewey claimed that this account

of the meaning of 'God' involved a considerable departure from what would appear to be sanctioned by Peirce's principle. If consistently applied, Peirce's principle would 'simply abolish the meaning of an antecedent power which will perpetuate eternally some existence' ([13.18], 315). Dewey protested at what he saw as the 'unpragmatic' procedure of determining the (emotional) 'value of a conception whose own inherent significance pragmatism has not first determined' (316).

James, however, read the pragmatist principle as allowing consequences to be spelled out not only in terms of how we act but also in terms of how we feel. This was underscored when later he claimed that almost from the outset he had thought his argument that the spiritualist hypothesis served only to guarantee an ideal order was flawed. This was because, James believed, there would be for people an important difference if they could regard the universe as containing 'a being who will [at every moment does] inwardly recognize them and judge them sympathetically' ([13.12], 269n.). James's retraction here leaves no doubt of the importance of private conscious experience in the system of values by which he intended to judge whether beliefs worked. He reinforced his claim about the need for God's sympathy and recognition of our inner experience by means of a thought experiment involving a soulless robot woman who behaved in a way indistinguishable from 'an animated maiden'. 'Pragmatically…belief in the automatic sweetheart would not *work*', because such a creature would not satisfy a man's craving for 'inward sympathy and recognition, love and admiration' (ibid.) Our consciousness requires recognition (by God) and men require conscious recognition (by women) of their qualities. Beliefs that fail to satisfy these requirements do not work.

But this is not to say that the satisfaction of such needs was sufficient by itself to underwrite the truths of beliefs. James made it abundantly clear in 'The Will to Believe' that he did not think we could adopt just any belief at will, simply because it offered personal satisfaction or solace. For any historically situated individual only certain hypotheses were 'live' and only certain choices between believing and not believing were in addition sufficiently important and unavoidable to be 'genuine' ([13.3], 2–4)

The point about the need for new beliefs to cohere with existing beliefs, on which James placed considerable stress in his account of truth in *Pragmatism*, was already prominent in this article. Here it indicated how historical and cultural factors, along with empirical and logical constraints, circumscribe the proper sphere of will and emotion in determining belief. We cannot pick and choose beliefs to suit our tastes. We cannot, after all, just by willing, believe that we are well when 'roaring with rheumatism' or that the sum of two one-dollar bills in our pocket is a hundred ([13.3], 5). But the logical and empirical constraints which hold us to one or another of certain complexes of belief should not be expected to determine for us precisely one complex worthy of belief.

Other of James's examples illustrate well the cultural and historical factors which close off some options and open others to the will and emotions—which, in other words, make an hypothesis live and genuine for some people, dead or spurious for others. In the late nineteenth century belief in the Mahdi may have been among the mind's possibilities for an Arab, but not for a North American (2). Whatever the force of the argument known as Pascal's wager, the option to heed or ignore its conclusion, 'take holy water, and have masses said', is not alive for someone, e.g. Turk or Protestant Christian, who has no pre-existing tendency to believe in masses and holy water (6).[10]

PLURALISM

The shadow cast in James's discussion, here and in *Pragmatism*, by the notion of belief systems as to a large degree mutually impermeable cultural entities gives his development of pragmatism a flavour which has become very familiar nearly a century later. There appears to be a tendency in James's discussion towards what is now known as 'pluralism' (identified in some quarters with 'postmodernism'), that is resistance to the principle that we should expect one system of beliefs to prove superior to all others. There may be a number of viable systems no one of which can ever be declared superior to the others. (In more radical versions pluralism merges with relativism: no system of belief can ever be declared superior to any other.)

It is this tendency in James which allows some recent writers to enlist pragmatism in the pluralist ranks. Whether this tendency is actually present in James or is merely a superficial appearance, which would evaporate under careful reading, it is clear that it is not pragmatism as such which brings pluralism in its train. Peirce expected applications of the pragmatist principle, including those to the concepts of truth and settled belief, to generate in due course a single authoritative system. He wrote consistently as though there was a single preferred method of stabilizing belief, directed at a single objective, with a single expected outcome. And there is nothing in this which is inconsistent with his pragmatist principle.

Nevertheless it should be acknowledged that fallibilism (which, although not the whole, is an essential part of pragmatism) and the undermining of 'rationalist' or cognitivist conceptions of truth, together 'create a space for pluralism. If, as James put it ([13.3], 13), we cannot rely on anything to click inside us when we grasp the truth and thus should remain open to the possibility that our most strongly held beliefs may need to be revised, who can (ever) claim to be in possession of the one truth?

If, as the opponents of pragmatism insist, truth is a two-term relation of 'agreement' or 'correspondence' which obtains between our representations (whether these be conceived as physical entities or as mental states) and the world, it is difficult to allow that there might be more than one relation of agreement. Once this 'rationalist' conception is set aside and it is accepted that 'agreement' has to rest on the functional role which a representation plays in some active intervention in the world ([13.12], 95–7, 216–17), what constitutes 'agreement' has to be taken as relative to the ends served by the intervention. Whether or not there is one truth (towards which we all can work) then depends on whether there is a single end to some of our interventions—for example those interventions which constitute our scientific enquiries—one that gives a special authority to those representations which serve well the unitary end of those particular endeavours.

In other words pragmatists can acknowledge one truth only if they assume (as Peirce assumed) that there is some one end to which (regardless of whatever other ends we might have) our representations (theories) must serve. It is by no means as easy to specify such an end as it might at first appear. Notions in common use nowadays in analytic philosophy of science, such as 'empirical adequacy', do not sufficiently specify an end. What counts as empirically adequate knowledge in different contexts depends on why

one wants to know.

Although James characterized himself as a ‘pluralist’, it is not clear whether he stood so far from Peirce as to have been prepared to embrace pluralism about truth. The difficulty determining where James stood on this matter arises because the monists, against whom James defined his ‘pluralism’, were not concerned about this sort of question.

James repeatedly took up the issue of ‘the one and the many’ to illustrate the application of the pragmatist principle.[11] His interest in the question arose from a long-running dispute, which he had with his friend and colleague, the idealist philosopher Josiah Royce. The issue was ostensibly whether the universe was one or many, and in applying the pragmatist solvent, which in this case required spelling out the consequences of the world being one ([13.12], 65–6), James first had to distinguish several senses in which the world could be said to be one. Did this mean spatio-temporally unified, causally unified, subsumed under a single genus, and so on? It was clearly not worth while applying the pragmatist principle to all eight of the possible senses identified in *Pragmatism*, but even for the more interesting cases James concentrated less on what difference it made to say ‘one’ or ‘many’ and a good deal more on how we should respond to the issue if we wish to be properly pragmatic about it.

One of the more important issues which James flushed out of the unruly undergrowth disputed by monists and pluralists was ‘Does the world have a unity of purpose?’ Empirically minded pluralists observe different and often conflicting purposes in the world. The most they would concede, James suggested, was that ‘our world is incompletely unified ideologically and is still trying to get its unification better organized’ ([13.12], 70). Idealists sought a unification and reconciliation of this manifold in a single ‘purpose that every detail of the universe subserves’ so that ‘all evil in the universe is but instrumental to its greater perfection’ (70).

Although James accepted this as a legitimate hypothesis, albeit one which it was risky to dogmatize, he clearly viewed the long-suffering and complacent attitudes towards evil, which it encouraged, with profound distaste. His discussion at this point alludes to an earlier chapter where he castigated as ‘a little ghastly…the satisfaction with which a pure but unreal system will fill a rationalist mind’ ([13.12], 18). With a rare display of social concern, James cited personal experiences of oppressed working men, gleaned from a book by a radical (‘anarchistic writer’), Morrison I.Swift, as examples of what his friends Royce and F.H.Bradley (‘and a whole host of guileless thoroughfed thinkers’) treated as conditions of the perfection of the eternal order (21).

But while James could thus ridicule the idea of an already existing unifying purpose to the universe, he did not appear to reject the thought that ‘our world is…still trying to get its unification better organized’. Still less did he reject the idea that human beings should conceive their cognitive efforts as contributing towards a single goal, and suggest instead that they might expect it to fragment into multiple irreconcilable goals. Although in general James resisted antecedently existing unities, he was prepared to tolerate such unities as ends towards which things might move: ‘If such an hypothesis were legitimate, total oneness would appear at the end of things rather than at their origin. In other words the notion of the “Absolute” would have to be replaced by that of the “Ultimate”’ ([13.12], 78). This statement implies a far greater tolerance of Peirce’s

conception of truth as the end of enquiry than is harboured by more recent pluralists.

James's response to another of the issues covered by the 'monism/ pluralism' blanket is also instructive in this connection. Idealist philosophers not only claimed that the Absolute secured for the world a ideological unity, they also claimed that it provided the world with 'an *all-enveloping noetic unity*' (71). In response to this 'hypothesis' James recalled how he had already credited the omniscience of God with the pragmatic value of sustaining conceptually (for the satisfaction of our emotional needs) an eternal moral order. This monist hypothesis was otherwise on a par with that of the pluralist, according to whom 'there is no point of view, no focus of information extant, from which the entire content of the universe is visible at once' (72).

James was clearly prepared to recognize cognitive value (the grasp of some truths) in viewpoints which did not comprehend the whole. Idealists by contrast commonly argued that to grasp the truth of anything one had to appreciate its interrelations to every other truth, and hence truth was accessible only to an infinite all-comprehending intellect. James reckoned it possible for '[e]verything to get known by *some* knower…but the knowers in the end be irreducibly many, and the greatest knower of them all may yet not know the whole of everything' (72). In this picture-puzzle universe known only through a multitude of overlapping pieces, there is room for the possibility that the pieces might not go together to make one big picture but instead conflict irreconcilably so that the totality would have to be treated as several pictures of distinct realities. And this possibility remains delicately counter-balancing the possibility of an ultimate truth.

PRAGMATIST REALITY

It may well be that this balancing act was the only stable position for James to adopt given what he said about the extent to which truth is made and what he took to be the implications of this for the concept of reality. James expressed the opinion ([13.12], 117) that his British ally, F.C.S.Schiller, had, in advancing 'humanism' (which was Schiller's preferred label for his own philosophic position), pressed to misleading extremes the claim that truth is made. In 'making' our truths, James emphasized, we have to take account of reality in three different aspects. Sensations are forced upon us; certain relations between our sensations (some of them fixed and essential) are facts; and we are also constrained by what we have previously taken as truths (117–18). Within these constraints we still have a certain amount of freedom, for example to attend to some sensations and ignore others, and may 'read the same facts differently' depending on our interests (118).

James happily embraced the doctrine that there is always a human contribution to human knowledge, that is to say our representations of reality will always reflect our interests and limitations—and that representing reality in a way wholly independent of human thinking is at best an 'ideal limit of our minds' (119). If 'humanism' labelled the doctrine that our beliefs about reality will always contain human elements, James was prepared to recognize it as part of pragmatism. We encounter fresh experience with a set of beliefs which determine what we notice. What we notice determines what we do and this in turn determines what we experience. So 'altho the stubborn fact remains that there

is a sensible flux, what is true of it seems from first to last to be largely a matter of our own creation' (122). And if we add to this the thought that our actions and descriptions are themselves additions to reality (123), we will come to see ourselves as qualitative growth points in reality itself.

James's rationalist opponents were, as he saw them, committed to a reality *'ready-made and complete from all eternity'*. Reality for a pragmatist on the other hand is *'still in the making'* awaiting *'part of its complexion from the future'* (123). Pragmatists held there was one edition of the universe, unfinished but growing 'especially in places where thinking beings are at work', while the rationalists held out for a universe in many editions, 'one real one, the infinite folio, or *édition de luxe*, eternally complete' and many finite, distorted error-ridden editions (124). Although the image of one edition as opposed to many pointed numerically in the wrong direction, James saw this as another version of the opposition between the monist (rationalist, many edition) outlook and the pluralist (pragmatist, single edition) outlook. But even here the apparent commitment to unity suggested by the image of a single (growing) pragmatist edition was balanced within a page by an expression of agnosticism: 'For pluralistic pragmatism, truth grows up inside of all the finite experiences. They lean on each other, but the whole of them, *if such a whole there be*, leans on nothing' (125, emphasis added).

James contended (124) that this issue was not entirely a question of the theory of knowledge. The issue indeed turns in part on how we locate human experience and cognition within reality. If these phenomena—together with the events, the outcomes of which depend on the fact that humans think one way rather than another—are treated without qualification as natural events, it is difficult to resist the claim that reality itself is characterized by growth. In practice epistemology is commonly undertaken with one or both of two fundamental Cartesian presuppositions in place, presuppositions which are seldom made consciously or explicitly. Firstly, human experience and cognition, which shape human representations of reality, are treated as transparent, unaffected by history or culture. Secondly, human thinking is treated as something which occurs outside (beyond, at the margin of) natural events. It is because our thought processes are thus on the one hand not part of nature and on the other known introspectively so that those which are clear and distinct may be taken as transparently true, that human thinking is not regarded as a part of what humans aspire to know. It is hardly surprising in the light of these presuppositions that James's contention that our ways of representing reality always reflect our interests and particular perspectives met with hostility and his contention that our efforts to represent the world are themselves developments of the world met with incomprehension.[12]

When disputes touch these presuppositions (as in debates between pragmatists and 'new realists' shortly after James's death as well as in more recent literature),[13] it is claimed that objectivity in knowledge requires us to suspend all our special (i.e. practical) interests just as objectivity requires us to suspend all personal involvement in judging legal and ethical questions. The notion of objective knowledge, moreover, precludes us from claiming knowledge of anything which our own activity affects (interferes with). In aspiring to know, we aspire to represent things as they are in themselves independently of us. The idea that our own activities (let alone the perspectives shaped by our interests) contribute in important ways to the objects which we aspire to know counts as scientific

heresy. The humanist claim about the inevitable human influence on our representations and the pragmatist claim about the inevitable influence of our actions on the objects we aspire to know completely undermine, it is argued, objectivity as we understand it.

The Cartesian presuppositions also appear clothed as a preference for logic over psychology. When Bertrand Russell criticized James, he observed how 'Most philosophies are determined by their initial questions and by the facts which habitually fill the imagination of the philosopher' ([13.28], 104). Pragmatists, he contended, were preoccupied with 'psychical facts'. Where the scientifically minded think of the facts and the theologically minded think of God, pragmatists worry about scientific *theories* and about *belief in* God—signs in Russell's view that what filled the imaginations of pragmatists were 'psychological' phenomena (104). This led pragmatists, Russell contended, to confuse what *is* true with what is *thought to be* true (111). It is the former question which, he insisted, should be addressed.

Characterizing one's opponents as preoccupied with psychology came to be a familiar pattern of criticism in the early decades of this century. There were no doubt serious errors which deserved the stigma that was attached by means of the label 'psychologism'. But the stigma also served to silence or marginalize those who, like James, wished to treat human experience as a part of nature. It in effect placed their concerns on the mental side of the familiar body-mind dualism. Interests, satisfactions and perspectives could all be treated as belonging to the way the world appears to subjects, to features of their mental representations of things. Interests, satisfactions and above all the limitations of historically situated perspectives did not consequently need to be located in the natural (physical, material) world. Logic could (and did in the early decades of the twentieth century) divorce itself from all these psychological conditions—as well as eventually from judgement, belief and even inference—and concentrate on how truth could be distributed over the structure of representations, a structure conceived of as abstracted entirely from human thought processes.

To sustain the pursuit of the question 'what is true?' without becoming entangled in the question 'what is thought to be true?' Russell had to insist not only that (as Peirce had insisted) science could pursue a unitary goal of truth but that it could rest its findings on a body of indisputable truths, in respect to which a fallibilist outlook would be unnecessary and inappropriate. Russell clearly operated with a conception of science as seeking a kind of satisfaction—'theoretic satisfaction' (108)—which was quite independent of any other kind of utility which might be derived from holding a belief. To achieve this satisfaction, he held, the empirical ('inductive') sciences tried to make all their statements agree as far as possible with observed facts.

The 'old inductive philosophy, as exemplified in Mill's logic' presupposed 'that there are truths of fact prior to the whole inductive procedure' (104–5). In the empiricist tradition, which Russell represented, the most secure of these truths of fact were given in sense experience. But, as Russell appreciated, James had sought to loosen the tie between truth and facts. Facts are indeed given to us in sense experience, but they are not truths; truths are what we say about facts (106) and, as noted above, James allows there to be latitude in how we respond to what is given in experience. Russell insisted that the meaning of 'truth' (what can be expected to be in the mind of a person employing the word 'truth', [13.28], 109–10) was tied to facts in the same way as the 'theoretic

satisfaction' sought in science. Pragmatists would in the end, therefore, be forced to recognize cases of 'plain matters of fact' about which there would simply be no doubt (134) and hence presumably no latitude in how we should respond to them.

Pragmatism, however, had begun as a principle for achieving clarity about what we can possibly mean by terms such as 'true' and 'truth'. It recognized no obligation to remain faithful to what ordinary people meant by such terms. Pragmatists could moreover question the soundness of Russell's inference that our ordinary conception of truth would underwrite a class of statements as representing 'plain matters of fact'. To arrive at such a class Russell had to select statements whose implications were severely restricted. Russell's candidates (bare reports of sense data) may well have seemed unquestionably authoritative, but only at the price of being uncommonly powerless to guide our practical affairs. Russell, of course, had professed more interest in what could be regarded as a matter of fact than in what might offer practical guidance, but ordinary people are as much interested in the latter as in the former. If Russell's path to determinate matters of fact led away from anything of practical consequence, it is not clear that ordinary usage would be prepared to follow Russell.

One might apply the pragmatist principle in the fashion of James and inquire what broader consequences turned on the specific dispute between James and Russell over whether certain of 'the facts' of experience could or should be represented as uniquely authoritative 'truths'. Russell's doctrine had the effect of securing, at the crucial point where experience impinges on our minds, a cognitive relationship to reality in which the mind has no alternative but to reflect passively what is given to it. The logical structure of our thought can then be relied upon to determine how the mind must conform if it is to possess a true, more comprehensive representation of reality. Russell thereby indicates the logical-empiricist route to the ready-made reality which James had opposed in the rationalist (idealist) philosophies popular in his day.

By stressing that there are degrees of freedom even at the experiential interface between human minds and the world in which they are situated, James encouraged a picture of the mind as functioning actively rather than passively. He also stood as an obstacle to the total dominance of the conception of reality as something which imposes on us, requiring conformity from our minds and leaving no room for development in which we might play an essential part. Long before he became associated with pragmatism James had rejected any outlook which entailed determinism and denied human beings the capacity to act freely.[14] The libertarian or voluntaristic position which James favoured may not have followed strictly from pragmatic principles, but pragmatism, even when conceived narrowly as a method for gaining clarity through spelling out practical consequences, rests on a conception of human beings as active and of their cognitive activities as making a difference to the world, rather than merely reflecting the way it is.

THE FORTUNES OF PRAGMATISM

James's reply to Russell ([13.12], 312–19) concentrated on rebutting what James took to be perverse misinterpretations of his position found elsewhere. He did not engage Russell

directly over the issue of whether statements we choose to make about sensory experience could or should be treated as ‘plain matters of fact’. He did remark on what he saw as the excessive ‘abstractionism’ in Russell’s procedure. These, as it transpired, were the two most prominent features of the philosophy, logical empiricism, which during the 1930s came to eclipse pragmatism. It was accepted (widely, but not universally) that the possibility of empirical knowledge rested on sensory experience, which provided us with a class of statements which expressed ‘plain matters of fact’. These were commonly taken to be observation statements reporting particular experiences, and more general statements (including scientific theories) which did not express plain matters of fact had to answer to such ‘truths’. They did so through a structure represented abstractly in the new (mathematical) logic, which Russell had helped to shape, and which held out the promise of a sharp distinction between the empirical content of statements (where they rest on indisputable fact) and the conventions governing the uses of words.

In 1951 W.V.O.Quine challenged ‘two dogmas of empiricism’: one the belief that we can sharply distinguish between synthetic statements, those with determinate empirical content, and analytic statements, those true in virtue of the conventions governing language; and the other the belief that the empirical content of statements could be reduced to (represented entirely in terms of) the observation state-ments which they entailed. During the reign of these dogmas, pragmatism, although it had able supporters, was avoided by anyone who did not wish to appear out of fashion. Once the hold of the two dogmas had been broken, it became possible to speak without pejorative overtones of the work of Quine and Donald Davidson as continuations of the pragmatist tradition[15] and possible to proclaim a revival of that tradition. But the pragmatism of Peirce, James and Dewey consisted in more than the denial of Quine’s two dogmas. It is far from clear yet whether the current modest fashion for pragmatism will lay sufficient stress on mind as goal-directed, on intellectual clarity as tied to practical outcome, on truth as the long-term product of our enquiries and on human experience as a natural phenomenon, for it to count as a continuation of the tradition rather than a transmogrification into something all its founders would have regarded as quite alien.

NOTES

I am grateful to Ron Bontekoe, John Hodges and Mary Tiles for helping me to eliminate infelicities from the penultimate draft of this chapter.

1 Biographical note: William James was born in New York City in 1842, the eldest child of Mary Walsh and Henry James Sr. His independently wealthy father established a reputation as a man of letters and a somewhat eccentric theologian. The oldest of William’s three brothers was the novelist Henry James, Jr, and his only sister Alice has recently been acclaimed for the diaries which she left. After considering a career as a painter, James took a medical degree at Harvard in 1869 and in 1872 began a teaching career at Harvard which moved from physiology through psychology (1875) to philosophy (1879). He was appointed professor of philosophy in 1885, retired in 1907 and died in 1910. For a chapter-length account of James’s life and career, see [13.25].

2 The lecture, titled ‘Philosophical Conceptions and Practical Results’, appeared as the lead

article in the *University Chronicle* for September 1898 and as a separately published pamphlet circulated by the Philosophical Union and by James himself ([13.19], 285). Within a year James's address had been discussed by Dickinson Miller in the *Philosophical Review* and pragmatism had been the subject of an address (published in *Mind* in October 1900) by William Caldwell at the American Psychological Association ([13.19], 293).

3 It is ironic that critics have detected distinctively Kantian elements in James's thought. Kuklick ([13.22], 273–4) finds that James became more Kantian as his thought developed up to his death twelve years after delivering his lecture at Berkeley. Henri Bergson ([13.15], 257) remarked on the Kantianism of James's doctrines in an introduction to a French translation of James's *Pragmatism* published in 1911.

4 See Peirce ([13.36], 6:182–4) for a moving tribute to James.

5 Dewey [13.33] recommended 'warranted assertibility' instead of 'truth'.

6 Dewey ([13.18], 330) expressed frustration with this common misunderstanding. 'No misconception of the instrumental logic has been more persistent than the belief that it makes knowledge merely a means to a practical end, or to the satisfaction of practical needs—practical being taken to signify some quite definite utilities of a material or bread-and-butter type…. I again affirm that the term 'pragmatic' means only the rule of referring all thinking, all reflective considerations, to consequences for final meaning and test. Nothing is said about the nature of the consequences; they may be aesthetic, or moral, or political, or religious in quality—anything you please.'

7 Individualism was for Peirce one of the 'daughters of nominalism' ([13.36], 8:38).

8 James referred to his thesis in terms of 'right' rather than 'will' and in various places expressed regret over his choice of title ([13.12], 124; see note to 124.13 on 164).

9 Russell regarded it as foundation of the pragmatist theory of truth ([13.28], 89–97, 113). Peirce's complaint ([13.36], 5:3) that James had pushed the pragmatic principle to unwelcome extremes mentioned this article together with the Berkeley lecture.

10 James places this latter claim within an objection to Pascal and to the idea of exercising volitional control over our beliefs. He thus did not immediately endorse it, but he did nothing to rebut the claim that, without a pre-existing tendency, masses and holy water will do nothing to 'stupefy [one's] scruples' as Pascal was quoted as saying ([13.3], 6). Later James credited Pascal's argument with being 'a regular *clincher*, and…*the last stroke* needed to make our faith in masses and holy water complete' (11, emphasis added).

11 E.g. in the Berkeley lecture ([13.11, 430ff.), in a chapter of *Pragmatism* ([13.12, 63ff.) and in a chapter of the book *Some Problems of Philosophy*, on which he was at work when he died in 1910 ([13.13], 61ff.).

12 Peirce's earliest published work had begun with a rejection of Cartesianism epistemology and all of those, who subsequently enlisted under the banner of pragmatism, who repudiated Cartesian dualism. For James's doctrine of 'neutral monism', his doctrine of a 'primal stuff' consisting of 'pure experience', see [13.10], chapters 1 and 2.

13 The New Realist manifesto and Dewey's dispute with a representative of the group are reprinted in [13.34]. More recent articulations of the presuppositions are to be found in [13.38], chapter 2 and [13.35], chapters 1, 2, 6 and 8.

14 During the period between receiving his medical degree and beginning his teaching career James suffered from severe depression in which determinism appeared to him a very real threat to his moral interests. His diary for 30 April 1870 records how he was helped over this crisis by reading the French philosopher Charles Renouvier and also records a resolve which sheds light on his doctrine of a will/right to believe, 'My first act of free will shall be to believe in free will' ([13.25, 43).

15 For an example of such a reading of the continuity of the tradition see Murphy, [13.24]. This posthumously published textbook was seen through the press by Richard Rorty, who has been the prime mover behind the respectability which pragmatism has recently re-acquired. See [13.37].

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CHAPTER 14
Green, Bosanquet and the philosophy of coherence

Gerald F.Gaus

INTRODUCTION

Along with F.H.Bradley (chapter 15), T.H.Green and Bernard Bosanquet were the chief figures in what is commonly called British idealism. Bradley is widely regarded as the most eminent philosopher of the three; his *Ethical Studies*, published in 1876, was the first in-depth presentation of idealist ethics, including an account of the individual's relation to society (Nicholson, [14.45], 6). But after this initial work, Bradley had little more to say about ethics;[1] the development of the moral, and especially the political, philosophy of British idealism was carried on by Green and his followers, particularly Bosanquet.

Though he published little in his lifetime, Green (1836–82) had enormous influence through his teaching at Oxford. Green was appointed tutor in philosophy at Balliol in 1866 and in 1878 became White's Professor of Philosophy, a post he held until his death in 1882. Green's influence on his students apparently stemmed as much from his moral earnestness and the religious implications of idealism as from his philosophy, prompting C.D.Broad's jibe that he turned more undergraduates into prigs than Sidgwick ever made into philosophers ([14.20], 144).[2] As was the case with many of the British idealists, Green was a political and social reformer, being especially influential in educational reform (Gordon and White, [14.33]). Both of his major works were published after his death. Parts of his *Prolegomena to Ethics* were in a final form prior to his death; his main contribution to political philosophy was his *Lectures on the Principles of Political Obligation*, edited by R.L.Nettleship.

Green, while sometimes dismissed as a philosopher, is almost always treated nowadays with sympathy; Bosanquet (1840–1923) cuts a much less sympathetic figure. In his many published works, he presented a more systematic—and apparently much harsher and more Hegelian—version of Green's philosophy. Not only was he more obviously Hegelian, but Bosanquet seemed inevitably attracted to statements of his views that were most likely to outrage traditional English liberals, speaking, for example, of 'the confluence of selves' ([14.16], 107) and insisting that the moral person composing society is more real than what we call individual persons ([14.14], 145). Thus, the most famous attack on Bosanquet, L.T.Hobhouse's *Metaphysical Theory of the State*, charges that Bosanquet's theory is deeply illiberal: it is unable to account for the 'irreducible' separateness of selves and ultimately endorses a sort of State worship ([14.37], 62; Freeden, [14.29], 35). Yet Hobhouse absolves Green from his most serious charges;

indeed, Hobhouse claimed that his own theory was the true successor to Green's ([14.38], chapters 7–8; [14.39], chapters 5–6). Whereas Hobhouse can be called a 'Left Greenian', arguing in support of something like a welfare state, Bosanquet can be understood as a 'right Greenian' (Collini, [14.24], 107–8). Bosanquet spent very little of his life inside academia, the most important exception being his tenure as professor of philosophy at St Andrews University from 1903 to 1908. Most of his life was devoted to the Charity Organization Society (COS), which objected to State provision of welfare such as outdoor relief to the poor. Bosanquet and the COS insisted that such 'mechanical' measures are typically failures that produce dependency; in so far as the poor should be assisted, it must be accomplished through charity focusing on the detailed needs of each recipient—thus pointing to the importance of private social work. This separated Bosanquet from the 'new liberals' (who endorsed the welfare state), reinforcing the erroneous perception that Bosanquet was a Tory; throughout his life he was an active political liberal and reformer.[3]

The problem of the relation of Green's and Bosanquet's idealisms to their liberal politics can be resolved into three more specific questions. Firstly, in what ways are the political and moral views of Green and Bosanquet affected by their idealism? Though almost invariably referred to as the 'British idealists', the relation of their philosophy (logic, epistemology and metaphysics) to their moral and political theory remains, I think, obscure. Secondly, are their moral and political views liberal or, as is often charged, statist and illiberal? Thirdly, our answers to these questions should enlighten us on a third: is Bosanquet a *bona fide* follower of Green, or was Hobhouse right that he perverted Green's teachings?

EPISTEMOLOGY AND METAPHYSICS

Philosophy and coherence

Bosanquet called his major work in political philosophy *The Philosophical Theory of the State;* as I have said, Hobhouse's critique was entitled *The Metaphysical Theory of the State,* suggesting that Bosanquet understood philosophy as essentially metaphysics. Yet this is not quite right. In the first paragraph of the *Philosophical Theory of the State,* Bosanquet explains what he means by a 'philosophical theory': 'a philosophical treatment is the study of something as a whole and for its own sake' ([14.14], 1). Later on he tells us that philosophy aims to establish 'degrees of value, degrees of reality, degrees of completeness and coherence' ([14.14], 47). For Bosanquet, as for Green, philosophy in its various guises aims at completion and harmony: epistemology, metaphysics, philosophical ethics and political philosophy are all manifestations of philosophy's search for coherence and completion.

Reason and knowledge

Given this, it is most helpful to start from the perspective of epistemology. Coherence is the basic demand of reason itself. In contrast to, say, Hobbes, reason is not understood as

essentially calculative—a matter of 'reckoning, that is, adding and subtracting, of the consequences of general names agreed upon for the marking and signifying of thoughts' (Hobbes, [14.34], 26). The 'inherent nature of reason', argues Bosanquet, is 'the absolute demand for totality and consistency' ([14.11], 8). It cannot be overemphasized that reason is a demand or, as Bosanquet says elsewhere, an 'impulse' ([14.13]:130). Logic 'is merely the same as the impulse to the whole' ([14.11], 7). That reason is an impulse driving us to expand and systematize our experiences allows us to make sense of Bosanquet's otherwise obscure remark that 'it is a strict fundamental truth that love is the mainspring of logic' ([14.15], 341); both are expressions of the unifying and expanding impulse.[4]

To obtain knowledge, then, is to bring unity to our particular experiences, 'through which phenomena become the connected system called the world of experience' (Green [14.1], 15). We are thus led to a coherence theory of knowledge; to know that *p* is for *p* to be related to, and to cohere with, the rest of one's beliefs or experiences. We need, though, to be careful here, for coherence goes considerably beyond requirements of formal consistency (Bosanquet [14.6], 2, chapter VII). Most importantly, coherence includes connectedness among beliefs and a richness of content ([14.15], 146); one who obtains consistency by compartmentalizing his or her system so that some beliefs are never related to others, or by impoverishing his or her experience (so that there is less that can conflict with the rest) to that extent falls short of the ideal of coherence. The fully coherent system would have to be complete, i.e., contain all true propositions.

Knowers and the known

Except for their insistence on the affective nature of reason, Green's and Bosanquet's epistemology is not terribly different from contemporary coherence theories of knowledge. The great gulf separating classical idealism from contemporary philosophy is the relation of the theory of knowledge to truth.[5] One contemporary view, endorsed by Laurence Bonjour, is to combine a coherence theory of knowledge with a correspondence theory of truth. He writes:

> [O]ur concern is with coherence theories of *empirical justification* and not coherence theories *of truth;* the latter hold that truth is to be simply *identified* with coherence…. The classical idealist proponents of coherence theories in fact generally held views of both these sorts and unfortunately failed for the most part to distinguish them. And this sort of confusion is abetted by views which use the phrase 'theory of truth' to mean a theory of the *criteria,* of truth, that is, a theory of the standards or rules which should be appealed to in deciding or judging whether something is true; if, as is virtually always the case, such a theory is meant to be an account of the criteria which can be used to arrive at a rational or warranted judgment of truth or falsity, then a coherence theory of truth in that sense would seem to be indiscernible from what is here called a coherence theory of justification, and is quite distinct from a coherence theory of the very nature or meaning of truth. But if these confusions are avoided, it is clear that coherence theories of empirical justification are both distinct from and

> initially a good deal more plausible than coherence theories of the very nature or meaning of empirical truth and moreover that there is no manifest absurdity in combining a coherence theory of justification with a *correspondence* theory of truth.
>
> ([14.18], 88)

Now whatever other philosophical errors the classical idealists committed (and no doubt there were many), confusing coherence theories of justification (or, as they might say, understanding) with coherence theories of truth was not one of them. Indeed, it is the apparent implausibility of a Bonjour-like proposal that, for Green, makes it necessary to embrace a coherence theory of truth. In the *Prolegomena*, having analysed our understanding of nature in terms of systematizing the objects of consciousness, Green writes:

> Now that which the understanding thus presents to itself consists, as we have seen, in certain relations regarded as forming a single system. The next question, then, will be whether understanding can be held to 'make nature' in the further sense that it is the source, or at any rate a condition, of there being these relations. If it cannot, we are left in the awkward position of having to suppose that, while the conception of nature on the one side, and that of the order itself on the other, are of different and independent origin, there is yet some unaccountable pre-established harmony through which there comes to be such an order corresponding to our conception of it.
>
> ([14.1], 22–3)

For Green, to suppose that our understanding was achieved through coherence but that truth consisted in the correspondence of our beliefs with a pre-existing nature would make it utterly mysterious how pursuit of coherence reveals the truth about nature; only by supposing an established harmony between our reason and nature could this be so, but such a harmony is an implausibly strong assumption. The core idealist conviction is that, having replaced a representational theory of knowledge with a coherence account, this account can be maintained only by characterizing truth itself in terms of coherence.[6] It is not simply that justified belief is a matter of coherence, but the very essence of truth is coherence and completeness. 'The truth is the whole' ([14.6], 2:204).

Idealism guarantees that the truth—what nature is really like—is the coherent whole since nature is ultimately mind-dependent; nature is constituted by the unifying and completing force of mind. That being so, what the coherent mind knows *is* nature. But, of course, actual individual minds disagree about what nature is like; if each personal mind constituted its own nature, there would be as many natures as there are minds. Moreover, it would be obscure what scientific discovery could amount to; science searches for what exists but is yet not known. To avoid such difficulties reality cannot be dependent upon individual minds; hence we are led from personal idealism to Absolute idealism. Though Green is sometimes called a personal and not an Absolute idealist, this is surely wrong, for Green's idea of an 'Eternal Consciousness' is straightforwardly Hegelian:

> That there is one spiritual self-conscious being, of which all that is real is the activity or expression; that we are related to this spiritual being, not merely as parts of the world which is its expression, but as partakers in some inchoate measure of the self-consciousness through which it at once constitutes and distinguishes itself from the world; that this participation is the source of morality and religion; this is what we take as to be the vital truth which Hegel had to teach.
>
> ([14.2], 146)[7]

The Eternal Consciousness—which Green identifies with God—is an all-inclusive consciousness; it is the mind upon which reality rests. Green apparently conceives of finite minds as somehow participating in the Eternal Consciousness—coming to consciousness of the relations in the Eternal Consciousness. The growth of our knowledge is, then, our increasing awareness of the Eternal Consciousness ([14.1], 75).

Though much more developed, Bosanquet's theory of the Absolute is not, I think, fundamentally different.[8] For Bosanquet, the Absolute is the perfection of mind's pursuit of coherence; it is the complete and harmonious mind. Or, rather, it is the systematization and completion of finite minds.[9] 'The general formula of the Absolute', Bosanquet wrote, is 'the transmutation and rearrangement of particular experiences, and also the contents of individual minds, by inclusion in a more complete whole of experience' ([14.15], 373). And being the more complete and more harmonious mind, it is ultimate reality, since reality is mind-dependent. A recurring theme in Bosanquet's philosophy is that the more harmonious and complete is the more real, a position that follows easily enough from the coherence view of knowledge combined with Absolute idealism. The upshot of this, of course, is that finite (i.e., personal) minds are incomplete and contradictory, and so less real. Though not as relentless as Bosanquet in insisting on this point, Green's idealism based on the Eternal Consciousness too identifies the real with 'everything' ([14.1], 27).

Idealist metaphysics, ethics and politics

On the account I have sketched, it is misguided to understand Green's and Bosanquet's idealism as primarily a metaphysical theory, i.e., a theory about the nature of reality. Rather, their philosophy is based on (1) a conception of reason as a unifying, affective, force, (2) a coherence theory of knowledge or understanding, according to which knowledge is a system of relations, and so to know something is to relate it to our other beliefs; (3) an Absolute idealism, which was understood as the most plausible concomitant of (1) and (2).[10] None of these elements is fundamental in the sense of being the basic doctrine from which the others are derived. On my account, the epistemological project leads to the metaphysical; that is, I believe that the former is the best way to explain the motivation behind the latter. But certainly the metaphysics in no way derives from the accounts of reason and knowledge (recall here Bonjour's position). All three doctrines are manifestations of the overarching notion of coherence, the real key to understanding the idealism of Green and Bosanquet.

Understanding the philosophy of the British idealists in this way allows us to approach an old question in a new light: do their moral and political philosophies derive from their

metaphysics? My answer should not be surprising: talk of ‘derivation’ is misleading. Their accounts of the self, moral perfection, the common good, general will and the State are all applications of the ideal of coherence. This is not to say they are unrelated to the other elements of their philosophy; the analysis of reason, knowledge and reality lends plausibility to, and helps justify, their moral and political doctrines. In true coherentist fashion, the various doctrines are mutually reinforcing and justifying.[11] It is, then, fruitless to look for any single doctrine from which the rest follow.

THE SELF AND ITS PERFECTION

The self as a system of content

Having stressed that point, it also must be acknowledged that Bosanquet’s and Green’s analyses of selfhood are applications of their accounts of mind. If ‘the peculiarity of mind, for us, is to be a world of experience working itself out towards harmony and completeness’ (Bosanquet [14.15], 193), the same applies to selfhood; the self is an organization of content striving for coherence and completion (Bosanquet [14.11], 48; [14.15], 242). To say this is to emphasize that selfhood is not understood as being constituted by an abstract entity or pure ego (Green [14.1], 103–4; Bosanquet [14.10], 55); for Bosanquet and Green the self is not something apart from ‘feelings, desires and thoughts’ (Green [14.1], 104), but their unification and systematization. Bosanquet made much of the contrast to J.S.Mill, for whom true individuality consisted in the cultivation of ‘an inner self, to be cherished by enclosing it’ ([14.14], 57). This, Bosanquet admonished, was to get things precisely wrong; it locates individuality in a core of essentially empty privateness rather than an expansion of feelings, interests and experiences. ‘Individuality is essentially a positive conception…. Its essence lies in the richness and completeness of a self’ ([14.15], 69; [14.10], 89).[12]

On one side, then, Bosanquet and Green rejected ‘formal’ accounts of the self in terms of an abstract ego. However, they also criticized Humean or associationist accounts, which located the self (or, rather, failed to) in a series of contents. No mere succession of desires, feelings and thoughts could constitute a self; though the self is ‘not something apart from feelings, desires and thoughts’, it is not just simply them: it is ‘that which unites them’ (Green [14.1], 104; [14.4], 339–41).[13] This, though, immediately threatens to lead back towards positing a ‘mysterious abstract entity which you call the self ([14.1], 104) that is different from, but unites, the feelings, desires and ideas that form the content of the self. In responding to this problem, I would suggest, Green and Bosanquet display their most important divergence, one which, we shall see, has significant consequences for their ethics and political philosophy.

Green’s proposal has two elements. Firstly (and with this Bosanquet agrees), he stresses that the self cannot be a mere succession of thoughts, feelings and desires, but must form an organized system. Here Green’s epistemology and metaphysics do come into play. For to understand an experience is to relate it to the rest of one’s experiences, and for something to be real is for it to be located in such a web of understanding. This allows Green to turn the tables on Hume:

> If we are told that the Ego or self is an abstraction from the facts of our inner experience—something which we 'accustom ourselves to suppose' as the basis or substratum for these, but which exists only logically, not really,—it is a fair rejoinder, that these so-called facts, our particular feelings, desires, and thoughts, are abstractions, if considered otherwise than as united in an agent who is an object to himself.
>
> ([14.1], 104; see Thomas [14.56], 177)

Green introduces here the second element of his reply: not only must desires, feelings and thoughts be systematized for them to be real and not abstract but the system must be self-conscious—one must be able to be an object to oneself. For Green such consciousness is absolutely fundamental to selfhood; indeed, his account of selfhood is essentially an account of self-consciousness, of an agent who is able to grasp his system of desires as 'an object to himself.

Though both elements are present in Bosanquet's theory of the self, there is a marked stress on the organizational aspect and a deemphasising of self-consciousness. Bosanquet too rejects associationist views of the self: 'In mind…the higher stage of association is organization. The characteristic of organization is control by a general scheme, as opposed to juxtaposition of units' ([14.14] 152). In his *Psychology of the Moral Self* Bosanquet developed his account of the organization of the self in depth. 'The psychical elements of the mind are so grouped and interconnected', he wrote, 'as to constitute what are technically known as Appercipient masses or systems' ([14.10], 42).[14] Such a system, Bosanquet writes, is a

> set of ideas, bound together by a common rule or scheme, which dictates the point of view from which perception will take place, so far as the system in question is active. And without some 'apperception', some point of view in the mind which enables the new-comer to be classed, there cannot be perception at all. The eye only sees what it brings with it the power of seeing…. A child calls an orange a 'ball'; a Polynesian calls a horse a 'pig'. These are the nearest 'heads' or rules under which the new perception can be brought.
>
> ([14.14], 155)

A person organizes experience in terms of these 'schemes of attention'; as different situations arise, one mass will arise to prominence in consciousness, leaving the others inert ([14.14], 162). The self,[15] then, is a multiplicity of such systems. However, because one appercipient mass forces the others from consciousness, the self is always imperfectly coherent; inconsistencies and contradictions are hidden because different systems do not rise to consciousness at the same time.

Note that, though consciousness is a necessary element of this theory, it does not have the dominant role that Green ascribes to a person who can grasp his system of desires as 'an object to himself. In contrast to Green, Bosanquet makes a great deal of the extent to which 'an adult mind contains an immense structure of automatic machinery' ([14.15], 181); the automatic, and so unconscious, aspect of selfhood always looms large in

Bosanquet's theory. The idea of an 'I' who unites desires into a system is replaced by the theory of appercipient mass. Self-consciousness now seems to be more a recognizer than a forger of unity.[16]

Self-perfection

Perhaps not quite. Bosanquet certainly recognizes that the self strives for greater coherence. Our nature as self-conscious beings is, he says, to strive for harmony and unity ([14.11], 193–4; [14.16], 189). Indeed, he classifies himself and Green as 'Perfectionists' ([14.16], 208ff.). Their account of self-perfection can be analysed into four claims.

The good

Green and Bosanquet accept the Hegelian critique of Kant: his doctrine of the 'Good Will' is 'ultimately an empty abstraction, an idea of nothing in particular to be done' ([14.4], 154). The first step in rectifying this over-formality is an account of the good: the good, says, Green, satisfies desire ([14.1], 178). The argument, though, quickly takes an Aristotelian turn, stressing the pursuit of perfection, or the development of capacities, as the basis of self-satisfaction:

> The reason and will of man have their common ground in that characteristic of being an object to himself…. It is thus that he not merely desires but seeks to satisfy himself in gaining the objects of his desire; presents to himself a certain state of himself, which is the gratification of the desire he seeks to reach; in short wills. It is thus, again, that he has an impulse to make himself what he has the possibility of becoming but actually is not, and hence not merely, like the plant or animal, undergoes a process of development but seeks to, and does, develop himself.
>
> ([14.1], 182)

This impulse to develop, Green goes on to say, is an impulse to realize one's capacities. Thus Green ultimately holds that a person's good is identified with the development of his capacities, especially the intellectual. Both Green and Bosanquet maintain that individuals have natural capacities for intellectual, social and artistic endeavours (including handicrafts),[18] the cultivation of which is the ground of self-perfection.

Self-satisfaction and coherence

Thus far the impulse to develop is not moralized; it is, says Green, 'the source, according to the direction it takes, both of vice and virtue' ([14.1], 183). Some attempts at self-satisfaction are 'self-defeating', as 'is the quest for self-satisfaction in the life of the voluptuary' (183). The self, we have seen, is a system of content, and reason is an impulse towards completion and unity. Applied to the development of our capacities, this leads to the idea that self-satisfaction—as opposed to the satisfaction of discrete desires

or capacities—requires the development of our capacities into a coherent whole. 'The state of mind in question…is that in which the impulse towards self-satisfaction sets itself upon an object which represents the self as a whole, as free from contradiction or at its maximum of being, and triumphs over the alien and partial will, the tendency to narrower tracks of indulgence' ([14.14], 132). Green's view is much the same, though as always he stresses the role of self-consciousness as crucial, in this instance its role in distinguishing mere desires from those that are self-satisfying ([14.4], 304). In any event, this distinction allows Green and Bosanquet to identify capacities as good or evil in terms of their ability to be integrated into a coherent system of developed capacities. A person developing capacities that cannot be integrated into the whole, such as the voluptuary, can satisfy some of his or her desires, but cannot find self-satisfaction.

An obvious rejoinder presents itself: if a self is organized around only voluptuary interests, coherence can be obtained and, it would seem, self-satisfaction too. But this will not do. As we have seen, coherence goes beyond mere consistency to include fullness of content. Consequently, Bosanquet analyses selfishness as an effort to seek coherence through narrowing rather than expanding the self ([14.10], 97). This path to coherence is ultimately self-defeating. Since reason is an impulse to coherence and completion, seeking coherence through narrowing is irrational, or, as Bosanquet says in his sometimes colourful way, it 'involves stupidity' ([14.13], 232).[19] Remember here that reason is an impulse; such stupidity thus seeks to block our rational impulse towards coherence. Consequently, the success of the narrowing strategy is always illusory:

> It is the narrowness of a man's mind that makes him do wrong. He desires more than he can deal with; indeed he aspires to be self-complete. But what he can make his own, as a set of values which do not conflict, is little. And of what is extruded something refuses to be suppressed and forms the nucleus of rebellion. Thus the good we are able to aim at is narrow and distorted, and more than that, the elements of the good which our narrowness forces us to reject lie in ambush to conflict with the good we recognise, itself poor and narrow and so weakened for the struggle.
>
> ([14.13] 107; see also [14.14], 135–7)

This is Bosanquet's description of the 'bad self or evil will'. The 'good will', then, is determined by 'the connected system of values, that is to say, as much of it as we can appreciate' ([14.13], 133). The Kantian concept of the good will is thus transformed into a will determined by reason in the sense of a coherent system of capacities or values.[20]

Diversity

It may appear to follow from this that the impulse towards self-satisfaction would lead to the development of essentially similar selves. We all seem committed to essentially the same project: the harmonization of as many capacities or values as possible. This, though, is precisely the view Green and Bosanquet reject (see Green [14.1], 201). As Bosanquet puts it, 'It takes all sorts to make a world' ([14.15], 37). Individual quests for self-satisfaction lead to the development of diverse personalities, and this for at least three

reasons. Firstly, individual natures differ: people are born with different capacities, some excelling in intellectual pursuits, some in the arts, some in crafts and so forth. Given these different starting points, the quest for coherence leads us in different directions.[21] Secondly, Green ([14.2] 3–19; [14.1], 201, 256) and especially Bosanquet recognized that external circumstances can profoundly influence the course of one's self-development. Bosanquet repeatedly stressed that 'The soul or self is formed by the requirements of its surroundings; that is, the universe so far as it has contact with it' ([14.11], 91).[22] Our different circumstances thus lead us to develop our capacities in different directions. Lastly, even apart from differences in individual natures and circumstances, the very richness of human possibilities means that, if we are to cultivate our capacities at all, we must specialize: 'in the development of human nature, which we take to be the ultimate standard of life, no one individual can cover the whole ground' ([14.14], 164).

Our inherent imperfection

If no one individual can cover the full ground of human nature, no one can attain absolute perfection—a coherent self encompassing all values. As Bosanquet would say, our finite nature limits us, absolute perfection is impossible; at one point Bosanquet goes so far as to declare that 'man is a self-contradictory being, in an environment to which he can never be adapted' ([14.12], 300). The best we can accomplish is a narrow, imperfect coherence. And since a narrow coherence is the root of evil, 'evil and suffering must be permanent in the world' (300). In one of his rare criticisms of Green, Bosanquet charges that Green underestimated the gap 'between human experience and perfection' ([14.16], 165). And it is, I think, true that the gap between the human condition and perfection is a much more important theme in Bosanquet than in Green.[23] To be sure, Green is explicit that we cannot have an adequate conception of what perfection would look like, since we have not as yet obtained it: '[o]f what ultimate well-being may be, therefore, we are unable to say anything but that it must be the complete fulfillment of capacities.' Yet Green goes on to insist that 'the idea that there is such an ultimate well-being may be the guiding idea of our lives', and so we judge a particular person's life on the basis of how closely it approaches 'the end in which alone he can find satisfaction for himself' ([14.1], 256).

In all this there is at least a suggestion that we do not fall hopelessly short of perfection. Yet the difference between Green and Bosanquet here is a matter of nuance. Green too accepts that the individual has absolute limitations on the possibility for self-realization; the 'dream' that these can be done away with is 'the frenzy of philosophy' ([14.2], 86). In true idealist fashion Green insists that 'the whole can never be fully seen in the parts' (86). True perfection can exist only in the overall coherent system of values, which no individual life can fully express.

SOCIETY, THE COMMON GOOD AND THE GENERAL WILL

Society as an organic whole

An individual's pursuit of perfection requires participation in social life. This is obviously true, of course, in the perfectly straightforward sense that society 'supplies all the higher content' to one's conception of oneself, 'all those objects of a man's personal interest, in living for which he lives for his own satisfaction, except such as are derived from his purely animal nature' (Green [14.1], 201). More fundamentally, Green and Bosanquet follow Hegel in insisting that 'it is through the action of society that the individual comes at once to practically conceive his personality—his nature of an object to himself—and to conceive the same personality as belonging to others' (Green [14.1]). It is only through 'some practical recognition of personality by another, of an "I" by a "Thou" and a "Thou" by an "I"' (Green [14.1], 210) that consciousness of personality arises (see Bosanquet [14.10], 49–50).

All this, though, is commonplace. Of much more interest is that reason—the impulse to coherence—leads us to participate in a more inclusive scheme of value, which covers the ground of human nature more fully than can any single life. One who pursues perfection must, as I have said, develop only some of the many capacities inherent in human nature; no matter how successful one is in doing so, one ultimately realizes that one's perfection is really imperfect, i.e., partial and incomplete. It is here that our impulse to unite values into a coherent scheme leads us into social life. As Bosanquet understands it, 'our imperfection [i.e., partiality] enables us to better stand for something which is to have its due stress in the whole' ([14.11], 61). But the overall system, encompassing these many partial excellences, more closely approaches perfection than any single element. The different partial perfections of others thus complement and complete one's own; the 'ultimate coherence of all excellences' ([14.15, 379) is better manifested in a complex social life that unites and harmonizes the diverse partial excellences of individuals. Consequently, the same principle that unifies the self also explains the unity of the self with others ([14.15], 315).

This allows us to make sense of the much-abused claim that society is an organism. Bosanquet quite clearly did not mean that, just as the end of all the body parts is the survival of the organism, we should all make service to society our end ([14.15], 9). The idea, rather, is that organic unity is a mode of organization based on interlocking and complementary differences, the totality of which is in some way more complete than any of the elements. Often Bosanquet called such a unity a 'world' or a 'cosmos':

> A world or a cosmos is a system of members, such that every member, being *ex hypothesi* distinct, nevertheless contributes to the unity of the whole in virtue of the peculiarities which constitute its distinctness. And the important point for us at present is the distinction between a world and a class. It takes all sorts to make a world; a class is essentially of one sort only.
>
> ([14.11] 37)

So understood, the idea that society is an organism is not illiberal. It stresses that co-operative systems based on diverse individual aims and capacities can accomplish more than can any single individual alone, something a student of the market should not find troubling, at least so long as, in Bosanquet's words, every member remains 'distinct'. It is here, perhaps, that Bosanquet gets into difficulty. Recall that according to Bosanquet's theory of appercipient masses, a self is composed of a number of such systems (pp. 414–16). This suggests a three-level theory of coherence: (1) each appercipient system is unified by a leading idea, and so organizes an aspect of experience or personality; (2) the individual self is an organization of these appercipient systems; and (3) a social group is an organization of individual selves. The problem is that the second level of coherence tends to get squeezed out, leading to an account of social unity in terms of simply (1) and (3). Bosanquet acknowledges that

> in some examples…there seems little reason to distinguish the correlation of dispositions within one person from the correlation of the same dispositions if dispersed among different persons. If I am my own gardener, or my own critic, or my own doctor, does the relation of the answering dispositions within my being differ absolutely and altogether from what takes place when gardener and master, critic and author, patient and doctor, are different persons?… If we consider my unity with myself at different times as the limiting case, we shall find it very hard to establish a difference in principle between the unity of what we call one mind and that of all the 'minds' which enter into a single social experience.
>
> ([14.14], 165–6)[24]

Though Bosanquet insists that 'there is no suggestion that selfhood is a trivial or unreal thing' ([14.15], 298), one could well be excused for thinking he may be suggesting just that. The difficulty, at least on the view I have been developing here, is that Bosanquet's theory of the self puts such great weight on the principle of coherence, while relatively so much less on self-consciousness. To the extent selfhood is to be accounted for simply in terms of coherence, there is indeed a pressure for this middle level of coherence (the self) to evaporate as first level unities (the appercipient masses) form larger systems, be they within the same human or across a number of people.

Green avoids these difficulties by always insisting on a person's self-consciousness as the fundamental unifying factor.[25] Green too believes that 'it is human society as a whole that we must look upon as the organism in which the capacities of the human soul are unfolded' ([14.1] 295). And, Green also believes that our excellences are complementary and interlocking (pp. 420–1). However, as we have seen, Green puts great stress on each individual as a centre of self-consciousness. Hence, even while insisting that perfection must occur in an organic society, Green can immediately add that 'Human society is indeed a society of self-determined persons. There can be no progress of society which is not a development of capacities on the part of persons composing it, as ends in themselves' ([14.1], 295). The individual self is in no danger of evaporating in Green's account of the organic whole. This becomes even clearer when we examine his theory of the common good.

Green's theory of the common good

Green begins his section of the *Prolegomena* on 'reason as the source of the idea of a common good' by claiming that a 'distinctive social interest on our part is a primary fact'.

> Now the self of which a man thus forecasts the fulfillment, is not an abstract or empty self. It is a self already affected by manifold interests, among which are interests in other persons. These are not merely interests dependent on other persons for the means to their gratification, but interests in the good of those persons, interests which cannot be satisfied without the consciousness that those other persons are satisfied. The man cannot contemplate himself as in a better state, or on the way to the best, without contemplating others, not merely as a means to that better state, but as sharing it with him.
>
> ([14.1], 210)

It is, Green claims, 'an ultimate fact of human history that out of sympathies of animal origin, through their presence in a self-conscious soul, there arise interests as of a person in persons' ([14.1], 212). Note the contrast to Bosanquet. Though both insist that reason leads us from our own perfection narrowly conceived to a concern with perfection in others, for Green this is crucially an interest in the perfection *of other persons*, not simply in the perfection of the capacities of human nature. It is not trivial that while Bosanquet claims that 'the development of human nature' is 'the ultimate standard of life' ([14.14], 164), Green insists that 'our ultimate standard of worth is an ideal of *personal* worth' ([14.1], 193). For Bosanquet, society is an intermeshing of developed capacities or values; for Green it is an intermeshing development of persons.

Those who uphold Green's liberalism while insisting upon Bosanquet's illiberalism are apt to stress just this point (e.g., Morrow, [14.43], 94). Two problems, however, confront this 'liberal' aspect of Green's theory. Firstly, Green can certainly say, as he does, that '[a]ll values are relative to value for, of, or in a person' in the sense that '[t]o speak of any progress or improvement or development of a nation or society or mankind, except as relative to some greater worth of persons, is to use words without meaning' ([14.1], 193). Yet this worth of persons cannot be 'ultimate'. As Bosanquet was fond of stressing, 'some particular personality becomes important by what it embodies' ([14.15], 22). Our value as persons derives ultimately from our contribution to the overall system of value (and this opens up the rather unsettling possibility that some persons may be in 'surplusage', i.e., those who make no unique contribution to the whole; Bosanquet [14.15], 116). The value must ultimately reside in the whole rather than the parts. To be sure, in contrast to Bosanquet's, in Green's theory the development of *persons* as opposed to capacities or values is essential for perfection of the whole, but this leads to the second problem. In order to extend the principle of coherent, intermeshing, personal development to the social order, Green postulates a distinctive interest of people in each other's perfection: the perfection of personality becomes the crucial value in the overall scheme of things. To the extent that this interest really is claimed to be a 'primary fact', it

invites Sidgwick's rejoinder that it is not 'justified by anything we know about the essential sociality of ordinary human beings' (Sidgwick [14.54], 57). In contrast, Bosanquet's theory supposes no additional social impulse; just as reason leads to the systematization of interests and values within a self, it leads to a social organic unity.

According to Green, then, the common good includes the good of all: it is the harmonious realization of all our individual perfections.[26] That which promotes the common good can be willed by all, and so the common good provides the substantive element that was lacking in Kantian ethics. Reason is realized in one's idea of 'self-perfection, by acting as a member of a social organization, in which each contributes to the better well-being of all the rest' ([14.5], 16). In addition, the theory of the common good provides an account of the motivation to be moral; since our good includes the good of others, the pursuit of our own good necessarily involves the common good, and so the good of others. 'The only reason why a man should not be used by other men as a means to their ends is that he should use himself as a means to an end which is really his and theirs at once' ([14.5] 120).

Upon reflection, however, the extent to which Green has provided substance to the Kantian moral ideal may seem fairly modest; a standard criticism is that the idea of the common good is at best vague and at worst empty (see Nicholson [14.45], 71–80). The crux of Green's reply is given in the previous paragraph: we achieve self-perfection by *'acting as a member of a social organization'*. The cultivation of one's capacities is a social activity not just because it involves the perfection of others but because it relies on the 'institutions of civil life' which give 'reality to these capacities, as enabling them to be really exercised' ([14.5], 16). This leads Green to endorse a theory of one's station and its duties:

> The idea, unexpressed and inexpressible, of some absolute and all-embracing end is, no doubt, the source of…devotion, but it can only take effect in the fulfillment in which it finds but a restricted utterance. It is in fact only so far as we are members of a society, of which we can conceive the common good as our own, that the idea has any practical hold on us at all, and this very membership implies confinement in our individual realisation of the idea. Each has primarily to fulfill the duties of his station. His capacity for action beyond the range of those duties is definitely bounded, and within it is definitely bounded also his sphere of personal interests, his character, his *realised* possibility.
>
> ([14.1], 192; see also 341–2)

Green thus understands a social order as a harmonious—or at least largely harmonious—integration of social roles, such that each person's roles allow one to organize one's capacities while contributing to the satisfaction of others (Thomas [14.56], 302). This does not commit Green to a rigid conservatism; room remains for adjusting social roles to render them more coherent, which includes making them more inclusive (indeed, as we will see, that is a crucial function of the State; [14.56], 292). But it certainly does mean that one's possibilities for self-perfection are very much sensitive to the social structure and roles available. Moreover, Green is quite clear that, while an actual system of stations

and duties is necessary for self-perfection, it also confines avenues for development.

Bosanquet's theory of the general will

Bosanquet endorses both the doctrines of (1) the common good and (2) my station and its duties. 'The individual', said Bosanquet, 'has his nature communicated to him as he is summoned to fit himself for rendering a distinctive service to the common good' ([14.14], 290; see also [14.17], 113). Bosanquet acknowledges that he follows Green very closely on such matters, but believed that his exploration of the psychological foundations of the general will was one his important contributions ([14.14], viii).

Green himself suggested the link between the common good and the general will in his *Lectures on the Principles of Political Obligation*, where he remarked that 'the truth' latent in Rousseau's doctrine of the general will is that 'an interest in the common good is the ground of political society' ([14.5], 70). Following Rousseau, Bosanquet characterizes the general will as the will of the entire society so far as it aims at the common good ([14.14], 99). But just what sort of 'will' can a whole society share? Bosanquet believes that the key to the answer is in Plato's political philosophy:

> The central idea is this: that every class of persons in the community—the statesman, the soldier, the workman—has a certain distinctive type of mind which fits its members for their functions, and that the community essentially consists in the working of these types of mind in their connection with one another, which connection constitutes their subordination to the common good.
>
> ([14.14], 6)

This brings us back to Bosanquet's theory of social unity and appercipient masses. 'Every individual mind, so far as it thinks and acts in definite schemes or contexts, is a structure of appercipient systems or organized dispositions' ([14.14], 161). Now, Bosanquet goes on to argue, those participating in the same social institution or social group—those who share a common life—possess similar appercipient systems; their minds are similarly organized, and it is this which constitutes their common mind and will ([14.14], 161–2).

> Not only may the systems of appercipient masses be *compared* to organizations of persons; they actually constitute their common mind and will. To say that certain persons have common interests means in this or that respect their minds are similarly organized, that they will react in the same or correlative ways upon given presentations. It is this identity of mental organization which is the psychological justification for the doctrine of the General Will.
>
> ([14.10], 129; see Chapman [14.22], 129–30)

So those who share common interests share similar mental organization, and it is this shared mental organization that is articulated by the general will. Note that at this point Bosanquet depends not simply on coherence—on a fitting together of different minds into a broader unity—but on similarity of organization. 'All mutual intelligence', Bosanquet claims, 'depends upon the fact that individuals cover each other in some degree' ([14.15],

116n.); social organization thus depends on the similarity or repetition of selves. It is not entirely clear how this principle of social life as based on similarity of organization coheres with that of organic unity,[27] but it does at least allow Bosanquet to argue that a general will is necessarily limited to a community sharing a common life. '[T]he common life shared by the members of a community involves a common element in their ideas, not merely in their notions of things about them, though this is very important, but more especially in the dominant or organizing ideas which rule their minds' ([14.16], 260). Consequently, those sharing no common life—such as mankind as a whole—cannot possess a general will ([14.12], 271–301).

The general will, Bosanquet claimed, is our 'real will', which can be contrasted to our 'actual will'. This distinction, which drives most liberals to distraction (e.g., Berlin [14.19], 133; Hobhouse [14.37], 44ff.)[28] follows easily enough from Bosanquet's analyses of self, the common good and reality. The self, we saw, is a system of desires, interests and beliefs, which reason seeks to make harmonious. Of course, actual selves are shot with contradictions 'through and through' ([14.14], 111). As we saw, appercipient systems tend to crowd each other out; that which is conscious displaces the others, making it very difficult to render the entire system coherent.

> In order to obtain a full statement of what we will, what we want at any moment must at least be corrected and amended by what we want at other moments; and this cannot be done without also correcting and amending it so as to harmonize with what others want, which involves the application of the same process to them. But when any considerable degree of such correction had been gone through, our own will would return to us in a shape in which we should not know it again, although every detail would be a necessary inference from the whole and resolutions which we actually cherish…. Such a process of harmonization and adjusting a mass of data to bring them into rational shape is what is meant by criticism.
>
> ([14.14], 111)

Thus Bosanquet's first claim is that a fully coherent self and will, which took into account our interest in the common good, would be very different from a self and will that had not undergone this process of rational reconstruction. The second claim, that the former is more real than the latter follows directly from the idealist claim that the criterion of reality is coherence—that with greater coherence is more real.

THE STATE

Bosanquet: the general will and the state

Most readers share Hobhouse's conviction that Bosanquet's theory of the general will justifies authoritarianism. If (1) the general will is our real will and if (2) the government interprets the general will, then (3) when the government tells us what to do it is really only informing us what we really want to do. And if (4) the government forces us to do as

it instructs it is only forcing us to do what we really want to do. 'Thus it is that we can speak, without a contradiction, of being forced to be free' ([14.14], 118–19).[29] But this is to misrepresent Bosanquet's theory; the problem lies in step (2), the idea that the government interprets the general will (see Nicholson [14.45], 214–15).

To be sure the *State* does represent, at least partially, the real will ([14.14], 141). But the State is not the government. The State 'includes the entire hierarchy of institutions by which life is determined, from the family to the trade, and from the trade to the Church and the University' (140). Such institutions are systems of similarly and correlatively organized minds; the State is a system of those systems; its aim is unified coherence among these institutions.

> It is plain that unless, on the whole, a working harmony were maintained between the different groups which form society, life could not go on. And it is for this reason that the State, as the widest grouping whose members are effectively united by a common experience [and, so a general will], is necessarily the one community which has absolute power to ensure, by force if need be, at least sufficient adjustment of the claims of all other groups to make life possible. Assuming, indeed, that all the groupings are organs of a single pervading life, we find it impossible that there should ultimately be irreconcilable opposition between them.
>
> ([14.14] 158)

But, as should be clear by now, no one individual, indeed no group of individuals, can be conscious of the system of intelligence that constitutes society. That would be for a part to fully know the whole, a claim that runs counter to almost every aspect of Bosanquet's philosophy. Consequently, Bosanquet is suspicious of claims by individuals that they know the general will. He is thus a harsh critic of Rousseau's attempt to uncover the general will through direct democracy; in the end, all Rousseau's method reveals is the 'will of all'.

> [T]he very core of the common good represented by the life of the modern Nation-State is its profound and complex organization, which makes it greater than the conscious momentary will of any individual. By reducing the machinery for the expression of the common good to the isolated and unassisted judgments of the members of the whole body of citizens, Rousseau is ensuring the exact reverse of what he professes to aim at. He is appealing from the organized life, institutions, and selected capacity of a nation to that nation regarded as an aggregate of isolated individuals.
>
> ([14.14], 109)

Bosanquet is thus hesitant about endorsing state policies intended to articulate the general will: 'our life is probably more rational than our opinions' ([14.16], 218). This does not mean that Bosanquet opposes the reform of institutions,[30] but it does imply that such reform is best worked out by the participants who engage in the common life that comprises those institutions. Moreover, Bosanquet is very impressed by the way in which

inadequate knowledge of institutions and ways of life leads to reforms with deleterious consequences, such as poor relief that produces dependency ([14.7]: 3ff., 45ff.; [14.17], 103–16). To be sure, Bosanquet does not embrace what he calls 'administrative nihilism', i.e., refusal ever to employ conscious policy to further the common good ([14.17], 301; [14.9], 358–83; [14.14], xxxvi). The 'distinctive sphere' of State agency 'is rightly described as the hindrance of hindrances of good life' ([14.14], xxxii). However, Bosanquet was an adamant critic of economic socialism, precisely because it sought to impose a conscious plan on society. In contrast to economic individual-ism, economic socialism, he charged, seeks to substitute a mechanical, contrived, unity for the organic unity of society. 'I confess that I believe modern Economic Socialism to rest *in part* on this ineradicable confusion. "We want a good life; let us make a law that there shall be a general good life"' ([14.9], 316, 330).

Green's new liberal tendencies

In most respects Bosanquet is a faithful disciple of Green, and this applies to political philosophy. But three thematic differences—differences in emphasis rather than sharp divergences of principle—point their political theories in somewhat different directions.

The stress on individual rights

The first has been emphasized throughout this chapter: Green makes much more of individuals as self-conscious pursuers of their perfection, and puts somewhat less weight on institutions as weaving an only partially conscious unity. Let me stress once again that is a matter of emphasis; Green too believes that the State is a 'society of societies', and that its main task is to adjust the various claims of the societies to produce 'harmonious social relations' ([14.5], 110, 112). But Green's account quickly focuses on the State as 'an institution in which all rights are harmoniously maintained' ([14.5]:130). Because the self-conscious pursuit of individual perfection looms so large in Green's work, he gives more prominence to a theory of individual rights, reinforcing the view that he is a more devoted liberal. But we need to be cautious here, for Green's conception of individual rights is not particularly close to those prominent in contemporary political theory. For him 'A right is a power claimed and recognized as contributory to a common good' ([14.5], 79).[32] Today readers are apt to think of rights along the lines suggested by Ronald Dworkin, as claims that protect individuals by trumping society's collective goals ([14.28], xi). Green seems to have precisely the opposite view: 'a right against society, as such, is impossible' (no). The core supposition of the Dworkinian theory of rights—that the social and individual good regularly conflict—is precisely the view that Green (and Bosanquet) reject. 'The principle which it is here sought to maintain is that the perfection of human character—a perfection of individuals which is also that of society, and of society which is also that of individuals—is for man the only object of absolute or intrinsic value' (Green [14.1], 266–7).

The criticism of actual States

A State that is to harmonize individual rights must ensure that the structure of rights is such that all are able to contribute to the common good. Now, and here Bosanquet explicitly disagrees ([14.14], ix, 269–70), Green believed that in the States of his time the lower classes were effectively precluded from participating in the common good. The idea of civil society as 'founded on the idea of there being a common good' is, he insists, unrealized 'in relation to the less favoured members of society'; indeed social life is a 'war' ([14.1], 263). Consequently, those at the bottom of the economic order have inadequate opportunity for self-development. Even more fundamentally, Green indicates that class differences themselves prevent common understanding in society ([14.2], 42). For Green, then, the actual States of his era do not adequately articulate the idea of the State as rationalizer (i.e., harmonizer) of rights; of the most defective instances, such as Imperial Russia, he says that we count them as States 'only by a sort of courtesy' ([14.5], 103). This drives Green to a more reformist position than we find in Bosanquet's *political* philosophy.

Consciousness of the common good

Our inability adequately to grasp the common good is not a dominant theme of Green, unlike Bosanquet, and this, of course, opens up more possibilities for State action. To be sure, Green insists that the law cannot make a person moral:

> that the law cannot make men good—that its business is to set them free to make themselves good—I quite agree. The question is, how these truisms are to be applied. I am no advocate of beneficent despotism. No tendency, inconsistent with the recognised principles of English legislation, lurks under my use of the phrases 'constructive Liberals' or 'organic reforms'…. As instances of what I mean by 'organic social reforms' I should specify compulsory education, restraint on the power of settling real estate and on freedom of contract in certain respects, specially in respect of Game, between Landlord and Tenant, the inspection of dwelling houses, [and] the compulsory provision of them in some cases.
>
> ([14.5], 345n.)[33]

So Green's 'constructive' programme was by no means radical; and he certainly was no socialist ([14.5], 163–78, 313–17). As is well known, both Green and Bosanquet stress that self-development requires private property rights.[34] Still, Green can soundly claim the title of 'constructive Liberal' as he allows that the State, and especially local government, can have sufficient insight into the common good to justify political reforms (cf. Harris [14.35]). This is the aspect of Green's political theory upon which Hobhouse builds; Hobhouse insists that the State does have the capacity to regulate public life for the better pursuit of the common good.[35] Again, whereas Bosanquet is apt to stress the unconscious nature of the general will, Green consistently gives a greater role to the

conscious apprehension of perfection.

CONCLUSION

Bosanquet developed and systematized Green's idealism (Nicholson [14.45], 4). But development and systematization do not mean that he merely repeats what Green says at greater length. Bosanquet carries the principle of coherence and unity further, explaining social unity without appeal to a primary social interest. Moreover, his theory of appercipient mass provides a psychological interpretation of social unity and the general will far more sophisticated than anything we find in Green. Yet it was the theory of appercipient mass and his relentless pursuit of the idealist theme of coherence that yielded his thin account of selfhood. Green is not, as many have said, a Kantian, but his Absolute idealism is not as developed as Bosanquet's; it is perhaps for this very reason that Green has a thicker account of selfhood. It is this difference, rather than ones in their political philosophies or actual political proposals, that grounds the intuition that Green has a stronger claim to a place in the liberal pantheon.

NOTES

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1 A second edition of *Ethical Studies* was published after Bradley's death.
2 See further Richter [14.51].
3 For helpful accounts of Bosanquet's relation to the 'new liberals', see Collini [14.24], Clarke [14.23], Freeden [14.29], Gaus [14.31], Vincent and Plant [14.58].
4 For a useful overview of Bosanquet's logic, see Passmore ([14.48], 86–7).
5 If knowledge is justified true belief, it may be argued that a coherence theory of knowledge implies a coherence theory of truth. For a development of this suggestion, see Davidson [14.27]. If one finds this terminology confusing, one can substitute 'coherence theory of justified belief' for 'coherence theory of knowledge' in what follows.
6 Richard Rorty ([14.53], 299) holds that this was the great mistake of idealism. Having rejected a representational account of knowledge, the idealists still wanted to say that in some sense our understanding of nature was true to nature's understanding of herself, that we were justified in believing not only what coheres with our concepts but that this reveals what is *true*, i.e. what nature is *really* like.
7 See also Quinton [14.50]; Crossley [14.26], Thomas ([14.56], 141–5). Cf. Milne [14.40], chapter V.
8 Cf. John Morrow's claim [14.42] that whereas Green's metaphysics is 'immanentist', Bosanquet's is 'transcendentist'. See also Geoffrey Thomas's argument that Green's theory is a 'personal' idealism, to be contrasted to the social idealism of Bosanquet and Bradley ([14.56], 142).

9 Precisely in what sense the Absolute is ‘composed’ of finite minds, and whether we can be said to be ‘members’ of it is problematic. See Bosanquet ([14.16], 98ff.). But note his remark that ‘the Absolute needs us and our conduct just as we need it’ (222).
10 Admittedly, this judgement of plausibility depends on a certain religious disposition, at which we are apt to smile today. But those smiles fade a bit when we contemplate Rorty’s diagnosis [14.53] of *our* epistemological theories about how we know nature as it really is.
11 Consequently, if as Thomas argues (and I believe he is right), Green’s ethics does not *require* ‘the full-blown metaphysics’ ([14.56, 150), it still may be the case that the ethics derives justification from the rest of the system.
12 Bosanquet is referring here to both individuality and originality. I have elsewhere argued that Bosanquet’s contrast between his view and J.S.Mill’s is overdrawn. See Gaus ([14.31], 15ff.).
13 For an excellent account of Green’s criticism of Hume’s theory of the self, see Thomas ([14.56], 173ff.).
14 For one of the best accounts of Bosanquet’s theory of the appercipient mass, see Chapman ([14.22], 128ff.).
15 Bosanquet speaks here of ‘mind’.
16 ‘The consciousness in a particular human self of the identity of its own experiences is merely, as I understand the argument, a case of apprehension of the whole’ (Bosanquet [14.16], 155). Understood as a gloss on Bosanquet’s argument, this seems correct; what is somewhat surprising is that the ‘argument’ referred to here is Green’s, which Bosanquet is intending to explicate.
17 This is an abbreviated account; see Gaus ([14.31], chapters 1 and 2).
18 For this last, see Bosanquet ([14.14], x; [14.13], 219).
19 See his discussion of the aphorism: ‘We are not hard enough on stupidity’ ([14.13], 213).
20 These are essentially the same. As Bosanquet remarks, ‘Value is the power to satisfy’ ([14.15], 297).
21 David L.Norton ([14.47], 54–5) disputes this concerning Green. I criticize Norton’s interpretation in Gaus [14.31], 20–2.
22 Bosanquet, indeed, makes so much of the way in which the mind is a product of nature he sometimes gives the impression of being more a materialist than an idealist. See Passmore ([14.48], 88–9).
23 Though, oddly enough, their positions are reversed when analysing the state; Green insists that actual states are further from the ideal. See pp. 429–31 above.
24 As Thomas points out ([14.56], 221), this view has certain similarities to Derek Parfit’s.
25 H.A.Prichard ([14.49], 73) argued that Green too denied the distinction between persons. For a criticism of Prichard, see Gaus ([14.31], 61–4), Nicholson ([14.45], 64ff.).
26 For an excellent account of Green’s theory of the common good, see Nicholson ([14.45], 54–82.
27 Cf. Bosanquet’s insistence that ‘Nevertheless, upon a scrutiny of the true operative nature of social unity, we find that repetition and similarity are but superficial characteristics of it. What holds society together, we find, are correlative differences; the relation which expresses itself on a large scale in Aristotle’s axiom “No State can be composed of similars”’ ([14.16], 249). See Bosanquet’s distinction between an association and an organization ([14.14], chapter VII; [14.16], 261).
28 For an unusually thorough and judicious account of Bosanquet’s theory of the general will, and the place of his doctrine of the real will in it, see Nicholson ([14.45], 189–230).
29 In this chapter I have not examined the theory of positive freedom. Compared to other

aspects of British idealism, this has received extensive treatment. The best account of Green's theory of freedom is Nicholson ([14.45], 116–31). See also Weinstein [14.59]; Simhony [14.55], Norman ([14.46], 26–53), Milne ([14.41], 146ff.); Roberts [14.52].

30 Again, care is called for here. Bosanquet considered himself a radical, and was prepared to accept social legislation to alleviate evils. (Muirhead [14.44], 48, 134).

31 Not that Bosanquet disagrees ([14.12], 274).

32 On Green's theory of rights, see Cacoullos [14.21], Nicholson ([14.45], 83–95).

33 Letter to W.V.Harcourt, 1973, quoted in Harris and Morrow's notes to Green's 'Liberal Legislation and Freedom of Contract' [14.5]. See also Nicholson ([14.45], 159).

34 See Green ([14.1], 201; [14.5], 163ff.), Bosanquet ([14.14], 281–2; [14.17], 308–18). This has led to Marxist-inspired criticisms of Green, such as Green-garten [14.34]. For a discussion, see Morrow [14.42].

35 For the importance of this theme in the development of the 'new liberalism', see Gaus ([14.32], 21–3). Collini doubts whether Green's idealism actually strongly supported new liberal collectivism ([14.24], 44–6).

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CHAPTER 15
Bradley

T.L.S.Sprigge

INTRODUCTORY

F.H.Bradley (1846–1924) was a fellow of Merton College, Oxford, for all his adult life. Though his personality and life are interesting, information about them is not required for an understanding of his philosophy. Suffice it to say that he was widely acknowledged as the most important British philosopher of his time.

His thought represents the climax of the late nineteenth-century reaction in Britain against British empiricism and utilitarianism, and turning towards the great German masters, Kant and more especially Hegel. Bradley's pages are shot through with negative remarks on this tradition, exhibiting a particular hostility to J.S.Mill, contrasting here with the much more balanced criticisms in the work of such other main figures of the absolute idealist reaction against it as T.H.Green (1836–82) and Bernard Bosanquet (1848–1923). Yet Bradley, despite himself, often develops his idealism in ways closer to the British empiricist tradition than do these other thinkers. This was, indeed, a point made against some of his work by Bernard Bosanquet, who mostly held very similar views.

Apart from a number of articles on introspective psychology (included in *Collected Essays*, 1935, posthumously published) Bradley's main works are *Ethical Studies* (1876; second edition 1927, [15.4]); *The Principles of Logic* 1883; second edition 1922, [15.3]); *Appearance and Reality: A Metaphysical Essay* (1893; second edition 1897, [15.1]). In each case the second edition includes important new material. We will give some account of each of these works, respectively on ethics, logic and metaphysics. References will also be made to the important late collection of essays, reprinted from journals, called *Essays in Truth and Reality* (1914, [15.2]).

ETHICAL STUDIES

In *Ethical Studies*, his first major work, Bradley speaks as one bringing to a benightedly provincial 'England' the news of a philosophy from overseas possessing a depth of insight largely unfamiliar to his compatriots.

The work is concerned with what it is to be moral and with the character of the ordinary man's moral consciousness. Sometimes Bradley implies that his is only a phenomenological clarification of how ordinary decent people, rightly or wrongly, think and feel. However, he clearly supports the ordinary man against what he considers the distorted accounts of morality of many philosophers. (Bradley, of course, uses 'man' for

'person' like most writers of his time. It seems better, in this exposition of his thought, to follow him here than give him an air of false up-to-date-ness by employing a less sexist terminology.)

The first chapter concerns moral responsibility and free will. Philosophers are divided into two main schools, determinists or necessitarians and free-will-ists. Neither makes sense of the notion of moral responsibility. If it was settled by the causal process of the world, even before I was born, what kind of man I was to be and how I would act, how can I ever be blamed for anything I do? Equally, if what I do is due in part to the exercise of a contra-causal free will, this seems no more than the intervention of sheer chance into the procession of phenomena. I can hardly be held responsible for doing things where there is no explanation of the fact that I acted thus.

Each theory, thinks Bradley, trades on the defects of the other, as the wrongly supposed only alternative to it. (In his treatment of the law of excluded middle in *Principles of Logic* he points out how easy it is to say '*P* or not-*P*', where not-*P*, *as it is being understood*, is not the only alternative to *P*.)

To resolve matters Bradley considers how the ordinary man would react to precise predictions of his own behaviour in some important, situations. He would certainly dislike the idea that some super-scientist might have been able to predict, on the basis of general laws, perhaps in advance of his birth or emergence from infancy, just how he would behave. But he does not dislike the fact that a friend, knowing his character, correctly predicts that he would behave well in an emergency. (And, if his friend predicts correctly that he would behave badly, it is the fact that he is a bad man, and that his friend knows it, which disturbs him, not the fact of prediction as such.) Indeed, the good man would be offended if the decency of his behaviour could not be predicted.

The fact is, argues Bradley, that we do not mind prediction which is based on a knowledge of oneself as a unitary personality. What one objects to is the idea that there could be predictions in which one's own self seems to be bypassed, because appeal is made to general laws of nature, whether physical or distinctively psychological, (for example, laws of the association of ideas or, in our own day, reinforcement theory of a Skinnerian type) couched in impersonal terms which take no account of one's individuality.

Bradley interprets this as showing that the ordinary man conceives himself as what, in the technical language of Hegelian philosophy, may be called a concrete universal. His behaviour, in so far as it really springs from him, is a manifestation of how that universal manifests itself in that particular situation. Increasing familiarity with the character of that universal which constitutes another's self will increase my power to predict his behaviour, but I will not be doing so on the basis of laws which apply to other people, still less to inanimate nature. That, at least, is the opinion of the ordinary man, and Bradley evidently endorses it.

We must pause for some explanation of the concept of a concrete universal, developed by Bradley, Bosanquet and others under the stimulus of Hegel.

An abstract universal is some common feature humans have found in many different things. It is abstract because this common feature is not an independent reality which could exist on its own and because, as an abstraction, it plays no real role in explaining why the things which exemplify it are as they are. You do not explain why a box is of the

shape it is simply by pointing out that one can apply the general idea *cube* to it. If the idea of a human being is simply that of an abstract universal, then you cannot really explain anything about an individual human being by reference to it, for it is simply a non-explanatory registration of similarities. Moreover, the thin idea of what a human being is which we reach by dropping everything which individuates one person from another is far from that full idea (whose object is a concrete universal) of what it is to be a human which involves grasping something of the rich and varied potentialities there are in human nature.

A concrete universal is, like an abstract universal, something identically one and the same in a whole lot of particular things or events. But it is such that the specific nature of these things or events is just what it needs to be if the universal is to insert itself into history at that point. Moreover, to conceive a universal as concrete is to grasp something of the rich variety of its possible instances.

The thesis is not really that some universals are abstract, others concrete, but rather that the idea of abstract universals belongs to an inadequate view of the world better replaced by that of concrete universals.

The notion of a concrete universal (so we may feel) possesses rather an excess of 'open texture' so that its use is extended from time to time in ways which suit an author's present enthusiasms. Thus there is a concrete universal where many individuals with a common characteristic (of some complexity, usually) each owe their possession of it, and what is more their possession of some specific determination of it, to their relation to another of its instances. Humanity is a concrete universal because we are each human through being born of humans and owe our particular form of humanity to them in both physical and environmental ways. (A Martian with no blood relationship to us—even if anatomically akin to us—would not be an instance of the same concrete universal.)

On the face of it, humanity conceived in this way as a concrete universal is not a totality made up of human beings but an identical characteristic present in each of us, in a distinctive form, in virtue of the causal relations between its instances. However, proponents of the concrete universal usually take the totality of its instances as itself the universal in question, arguing that it is a kind of whole which is present in each of its parts. Maybe an insistence on such distinctions is an attempt to transform the notion of a concrete universal into something belonging to another conceptual scheme, and we should learn how to play the relevant conceptual tune rather by ear than by analysis.

At any rate for Bradley's plain man the self is a concrete universal and a man is responsible for what he does in so far as his behaviour is a manifestation (however regrettable a one) of that universal which he is. As for why that particular concrete universal has emerged in connection with that particular human organism, we cannot pursue Bradley's not very decisive answer here beyond remarking that it is built up gradually in childhood by the creative response of itself in an undeveloped version to the challenges of life as they occur.

We can now move on to the key questions of the book. Firstly, why should I be moral? Secondly, what is it to be moral?

Firstly, insists Bradley, it would betray morality to suppose that there was some extrinsic reason for being moral. However, we can give sense to the question if we realize that all action is ultimately motivated by an urge to self-realization and that we can

properly ask whether moral behaviour is an adequate form of self-realization or is even perhaps identical therewith.

Self-realization is another difficult concept. Put at its most metaphysical, it is the urge of the concrete universal, which is one's self, to be exemplified in as full and rich a fashion as possible in each of its particulars, i.e. each particular psychological state one lives through, and each action one performs. More informally, it is the urge to live so that one can feel as much as possible in everything that one does that one is really being oneself in doing it, hence living in a way such that one can be satisfied with the image of oneself as so living.

Secondly, granted there is good cause to be moral, doing so must realize the self. But what is it to be moral? Bradley now examines a series of representative answers to this question, and tests their adequacy by the test of the extent to which they show how moral life is a form of (or perhaps the same as) self-realization.

The first answer he considers is hedonism: the good life is one in the course of which one achieves as much pleasure as possible (understand henceforth: and minimum of pain, however these two are balanced).

Bradley has a series of objections to this as a human ideal; some deeply metaphysical, some more matter of fact.

(1) *(a)* Whatever amount of pleasure I achieve in any situation, a bit more, not too painful effort, could have brought me more; so I can never achieve the end of the maximization of pleasure, *(b)* Or, looked at in another way, whatever amount of pleasure I achieve, I could never have achieved more, for I always did what so far as my insight went (something I cannot determine for myself) would maximize my pleasure. (Bradley assumes that the hedonist's conception of the good life is derived from a hedonistic account of actual motivation.)

(2) I can never say to myself I *have now achieved the maximum of pleasure in my life*, for my success in this is not settled till I die and then I am no longer here to be gratified at my success.

(3) The self as an abiding entity rather than a mere flux wants an abiding satisfaction, a state in which it can say *here am I presently in achievement of my goal*. It is not, of course, that it wants a goal such that, having once reached it, it can simply halt there for ever without further effort, but it does want a state in which it can say *here I am presently in possession of what I looked for, and if am careful, can continue in its enjoyment throughout my life*. But a series of passing pleasures can never constitute such a satisfying state.

Moreover, the concrete universal, which is the self, feels itself to be in some sense *an infinite whole*, not in what Hegel called the bad sense of 'infinite', namely an uncompletable series, but in the sense of something which has a certain sort of completeness from which nothing is missing. (Hegelians would surely have thought the Einsteinian universe infinite in a good sense in contrast to the bad infinite of a Newtonian or Democritean space which stretches on indefinitely.)

But surely the relevant form of hedonism for discussion in the nineteenth century is utilitarianism, in particular as advocated by J.S.Mill, and it is this which is really the object of Bradley's attack.[1] Here, of course, the goal is the maximization of the pleasure (understand: and minimization of the pain) of all sentient creatures. And surely this is a

genuinely moral goal.

But it was worth examining the simpler egoistic form of hedonism, thinks Bradley, for we there find in a simpler form the faults which are, for the most part, still present writ large in utilitarianism with its goal of the maximization of the pleasure of sentients.

(1) *(a)* Whatever we do we could have produced more pleasure for ourselves and others. (There seems nothing corresponding to *(b)*.
(2) Much the same applies.
(3) If the maximization of pleasure provides no adequate satisfaction for the individual, we should not foist it on the human race, or the animal realm.

Finally, utilitarianism has the peculiar fault of trying to derive its universalistic ethic from a an egoistic hedonistic psychology. But this is a complete *non sequitur*. Because each man desires his own maximal pleasure, and thus finds it good, he should recognize (so Mill seems to argue in chapter IV of *Utilitarianism*) that the maximal pleasure of all is the good of all, and that each should therefore desire this. But this is like arguing that since every pig at a trough 'desires his own food, and somehow as a consequence seems to desire the food of all' that 'by parity of reasoning it should follow that each pig desiring his own pleasure, desires also the pleasure of all' ([15.4], 113).

The main argument against hedonism, whether individualist or universalist, is that trying to maximize pleasures is no proper end for man since no self can find itself realized in having maximized pleasure either for itself or for others. For the pleasures of different times form no real totality, since they never exist together, and can never constitute a state of affairs of which we can say: 'Here I have that which I was seeking.'

Bradley now turns to the sharply opposed moral theory of Kant. This he calls the ideal of duty for duty's sake. Here the good is identified with sheer rationality, in fact, simply with living a life which exemplifies the law of non-contradiction. One is to behave only in a way which one could will universalized without contradiction.

This marks an advance on pleasure for pleasure's sake in its emphasis on the contrast between two aspects of the human being, the good self and the bad self, and the identification of morality with control of the latter by the former. It also rightly conceives the self as a universal rather than as a series of 'perishing particulars'. But it is only an abstract universal with a purely formal purpose, to live without self-contradiction, and this can give no real satisfaction; for our sensuous selves do not enter into the self-realization of the universal but simply remain in sulky opposition to it. Moreover, the injunction to live without self-contradiction is really quite empty and either allows or forbids everything equally. One should keep a promise because promise-breaking universalized would destroy the very institution on which it depends. But so equally would universal charity towards the poor, for it would leave no poverty to be alleviated.

The inadequacies of pleasure for pleasure's sake and of duty for duty's sake show the need for a concept of morality which will provide unitary satisfaction both to sensuous appetite, that is to our nature as a series of particular desires, and to reason, the universal aspect of the personality.

This is provided by the Hegelian notion of morality which Bradley calls the ethic of 'my station and its duties'. Here the community plays the role of concrete universal with individual people as its instances realizing themselves as such. Because the community is

historical and concrete, the requirements it puts upon the individual are determined not by some remote logical abstraction with no appeal for flesh and blood but by the needs of a role in the world which provide a satisfying life for the real empirical man. The good self is no longer depicted as at war with the natural man, while the bad self is simply such propensities as need control if one is to enjoy the satisfactions proper to a social being.

Bradley speaks rhapsodically (to a degree for which he himself apologizes) in favour of this social ethic. But in the end he admits that it is not the whole truth. For this there are a number of reasons.

The great recommendation of my station and its duties is that it achieves a reconciliation of the *ought* and the *is*. That is, the *ought* no longer comes as a demand from some other world in which the I of this world can find no satisfaction but as a demand from precisely that in this world which can most satisfy. However, even this ethic does not quite live up to its pretensions.

(1) My community may not be adequate even for my good self, let alone for my bad self. For *(a)* It may be itself in a rotten state and my goodness may involve recognizing this, *(b)* Even the best community cannot be morally adequate throughout, (c) There are miseries no absorption in my community can stem, *(d)* My community may demand sacrifices frustrating self-realization. In short, self-realization in the faithful carrying out of my station and its duties cannot be complete.

(2) Since society is in progress, there is always some call to criticize the demands and practices of one's own community by reference to some more ultimate human ideal which one dimly feels in contrast to it.

(3) My station and its duties cannot be the whole good for man. There are values which may take us beyond social life in our community for example the development of our artistic and intellectual powers.

These limitations push us on to what Bradley calls ideal morality. The basic injunction here is to realize everywhere the best self, and our idea of our best self, though it must arise from the ideals we learn in the family and in life in the community, may develop beyond it to take account of values learnt from other societies or based on internal criticisms of our own society.

The good self as thus conceived has these main aspects:

1 The ideal self of my currently socially recognized stations and its duties;
2 A social self which goes beyond this and which divides into *(a)* a social self going beyond, or divergent from, my currently recognized station and its duties and *(b)* a non-social self devoted to such ideals as the fullest possible realization through my activity of truth and beauty.

So is morality simply the same as self-realization? No, it is self-realization in respect of our will. External results are not part of morality. Of course, a will which does not express itself in genuine action is nothing, but success or failure as determined by forces outside us may help or hinder our self-realization but not that aspect of it which belongs to morality. Morality is 'the realization of the self as the good will'.

This good self is especially concerned with more or less permanent objects with which it identifies itself, in whose presence or known flourishing it finds itself affirmed—such as my family, my Church, my nation, some great social or cultural enterprise. Such felt

self-affirmation in such things is neither natural appetite (the satisfaction of passing bodily needs) nor lust (craving for savoured pleasures).

How can I come to concern myself with anything other than the satisfaction of my own appetites? My ability to do so originates in my identification in childhood with my mother or nurse (or whoever plays these roles). Unwelcome as some of their demands may be, I feel their will not as something alien but as pertaining to my own more stable self. Thus the good self originates as obedience to dear ones in whose satisfaction I feel myself affirmed, develops, as the ideal of conduct thus set before me, matures through the expectations of society and my own criticism of these in the light of the ideal's own promptings, and may continue into self-affirmation through the knowledge that an impersonal goal is being reached, perhaps quite remote from my own private interests.

But what is the origin of the bad self? (For we are born neither good nor bad.) Its material is simply the variety of impulses, appetites and moods which do not fit in with the good self approved by our loved ones. However, you are neither good nor bad till you know both and experience their contradiction. And you can know both only because you feel genuinely affirmed in both. Only the person who knows evil can be good, and only the person who wills evil can know it. But you must not only know both but know their clash, as a universal whose self-consciousness lies in its ability to separate itself from both and choose (but not by indeterministic free will).

As one becomes a genuine moral agent the chaos of impulses opposed to the unified good self becomes a bad self with its own unity (though what unifies them is solely their common negation of the good). Moral responsibility arises when there is both a good self and a bad self in which one can consciously affirm oneself.

And now the final question is broached: Why can I realize myself only properly in the good self, granted I feel myself genuinely affirmed in both good and evil?

The self, being a universal, realizes itself in the good self which is a genuine system or universal. The bad self stands in opposition to this with no principle of unity organizing it except that negative property of being opposed to the good self. Thus the bad self is a mere collection (like the only self acknowledged by pleasure for pleasure's sake) and thus the ultimate self, which is a concrete universal, cannot realize itself therein, and, when it tries to do so, is false to its very essence.

The book ends with 'Concluding Remarks' on the relation between morality and religion. Religion is not the same as morality. Matthew Arnold wrote mere claptrap when he said that religion was morality tinted with emotion—for the emotion has to be religious.

The distinction between morality and religion is that religion asserts that the good self is not merely something we should strive to realize but that somehow the good self alone is ultimately real, is indeed identical with God or the fundamental reality of the universe, while the bad self is somehow unreal and, just for that reason, must be suppressed. And because only the good is ultimately real, the often despairing struggles of morality give way to the calm activity of faith.

Bradley here broaches the absolute idealism he will develop more fully in later works for which we are all aspects of a unitary spiritual Absolute.

> If we know the whole, it can only be because the whole knows itself in us,

> because the whole is self or mind, which is and knows, knows and is, the identity and correlation of subject and object.
>
> ([15.4], 324n.)

This idealism is here treated as the essential truth of Christianity. Later Bradley no longer conceives his metaphysical idealism as so close to Christianity, and at times speaks of the Christian religion in a distinctly negative way. This was doubtless partly the result of a change in his metaphysics, but it was probably more due to his increasing sense that Christian tradition, by its emphasis on preparation for a hereafter, detracted from concern with the possibilities of human fulfilment in the present life. (Bradley thought the question of a life after death was of very secondary importance ethically; a bare possibility with little bearing on what really matters, the realization of eternal values, grounded in the Absolute, in our daily life and in society.)

Religion thus interpreted resolves the contradiction endemic to ethics conceived without it. For, so Bradley rather puzzlingly holds, there is something incoherent in the very idea of a good which is not realized. One is inclined to object that there is no incoherence in the proposition that things are not as they ought to be. In *Appearance and Reality* Bradley does, indeed, say that one cannot simply take it for granted that the non-contradictory nature of the real precludes it from being overall and ultimately bad, but, by rather tortuous reasoning, he does in the end reach this conclusion, and seems always to have found it inviting and natural (see [15.1], 132–3). Thus he seems always to have inclined to see a clash between ideals and sense of fact as a source of unease essentially akin to that which we feel in embracing a logical contradiction and which we have the same necessary nisus to remove, not only in practice but in our conception of how things are.

In spite of the Christian language invoked in this rather passionately written chapter, Bradley already distances himself from any commitment to Christian sacraments as anything other than optional aids to morality and spirituality. ‘We maintain that neither church-going, meditation, nor prayer, except so far as it reacts on practice and subserves that, is religious at all’ ([15.4], 337). In fact, ‘[y]ou can have true religion without sacraments or public worship, and again both without clergymen’ ([15.4], 339).

The object of true Christian faith, then, is a universal will, present as identically the same, though in a state of difference from itself, both in the individual and in the community and, indeed, in the world as a whole and such that all that appears to conflict with it is an unreality which we must grasp as such by overcoming it.

There is some kinship here with the religion of mankind promoted at that time by the Comtian positivists. However no such deification of mankind will do so long as humanity is supposed a mere collection of resembling particulars, rather than as a genuine concrete universal identically yet differently present in us all. ‘Unless there is a real identity in men, the Inasmuch as ye did it to the least of these’ becomes an absurdity’ (original note 2 to [15.4] 334–5). In stressing the common essence present in us all, Bradley’s position chimes in somewhat with the ethical thought of Schopenhauer. But, from his more Hegelian perspective, he must have thought that Schopenhauer paid insufficient attention to the difference which is essential to the identity. We must have a sense of the different roles we each have to play in the scheme of things. For the concrete universal of humanity

at large is articulated into a system of distinct roles, each grounding partly different duties, as well as those which spring from the sheer identity of the common essence. Moreover, from a religious point of view, it is the ideal self, rather than one's whole chaotic personality, which is identical with the ultimate single reality present in all things. If there is some incoherence in looking at things in this way, that is, none the less, the religious way of experiencing the world ([15.4], 322). Metaphysically, this presumably means that it is only our ideal self which gives us a clue as to how things would look if we could see them as a whole.

THE PRINCIPLES OF LOGIC

In *The Principles of Logic* Bradley presents an account of judgement, that is, of what it is to think that something is the case, and a principle of inference, of what it is to move rationally from one judgement to another.

Like *Ethical Studies* much of it is concerned to present an account of these matters which will serve as a corrective to the indigenous empiricist tradition. Yet the work is less Hegelian than the previous one, and (though Bradley was scarcely aware of this) much nearer to his empiricist forebears. He does, however, draw on a range of German thinkers not very familiar, probably, to most British readers.

The biggest contrast with empiricism is Bradley's continued insistence on the reality of universals (*qua* concrete) and the inadequacy of the concept of mere resemblance between particulars to explain that real identity-in-difference between them which is the basis of predication and of inference. A related theme is the unsatisfactory nature of purely psychological accounts of thought and reasoning.

Bradley is sometimes praised, in this connection, as an early opponent of psychologism, that is, of the treatment of judgement, inference, truth, meaning, the laws of logic and so forth as psychological processes to be studied empirically. Gottlob Frege is regarded as the great saviour of modern thought from the errors of such psychologism, and there is a risk that people may suppose that the main merit of *Principles of Logic* is that of a less lucid attack upon the same thing.

That Bradley was in important respects a critic of psychologism is true. Thus he expressly says that in 'England at all events we have lived too long in the psychological attitude' (see [15.3], 2; 197–9). He believed that the empiricist treatment of thought by James Mill, Bain, J.S.Mill, and others was wrongheaded in treating it as a mere succession of empirical events. None the less, for him (as for Edmund Husserl) judgement and inference were activities of conscious minds, though logic is concerned rather with their assertive content and validity than with their empirical occurrence.

Bradley begins his account of judgement by criticizing a number of theories including most of the typically empiricist views. Thus he objects to the Lockean view that judgement is the joining of ideas, on the ground that if all the mind does is join its own ideas it could not think about anything beyond them. The theory also mistakenly assumes that judgement always involves two ideas. This it clearly does not, for example when it simply affirms the existence of something. It is truer to say that there is always just one idea, our total idea of the state of affairs we believe to be real.

Hume thought that belief consisted in vivacious ideas, but such an account is patently inadequate. Imagination, even when recognized by itself as such, can be very vivacious. In general, empiricists, like Berkeley and Hume, identify judgement with the formation of images, failing to explain what it is for the mind to take these images as representations of something beyond.

After criticizing various inadequate views of judgement Bradley moves towards his own account of judgement as the abstraction of a universal (or concept) from the sensory flux of its own contents and ascription of this universal to reality as that exists beyond one's own private experience in a manner inexplicable as any mere manipulation of my own images.

Bradley develops this view by insisting that we distinguish a psychological and a logical sense of the word 'idea'. Ideas in the first sense are unrepeatable events in time; ideas in the second sense are concepts or meanings which can be embodied in successive ideas in the psychological sense but to which much of their character as mental phenomena is irrelevant.

The importance of Bradley's distinction between these two senses of 'idea' has been widely recognized. More likely to be questioned is his particular view about the nature of the logical idea as a repeatable character or universal which is an *abstracted part* of the total character or *whatness* of the mental ideas which embody it, applied as a predicate to a reality beyond itself.

It will be seen that Bradley was really at one with the empiricist tradition in holding that the fullest sort of judgement involves imagery. (He always regarded merely verbal judgements as secondary to ones carried by thought stuff with more sensuous fullness.) The difference, as he saw it, was that he conceives the mind as actively utilizing a repeatable part of the character of the imagery to characterize a world beyond its own ideas. For surely we could not refer our ideas to a reality beyond the contents of our own consciousness if we had no awareness of that reality except through our ideas of it. Conceptual thought presupposes non-conceptual awareness of something other than concepts. Unless we encounter something other than concepts we cannot think of our concepts as applying to anything (see [15.3], 50).

This pre-conceptual awareness cannot be directed on any particular finite reality since, as Bradley sees it, we need concepts to distinguish any distinct part or feature of reality from others. So the pre-conceptual basis of judgement must be a primordial direction of the mind on reality at large, this being the ultimate subject to which all ideas are ascribed as predicates. Certainly, with the aid of our ideas, we can pick out a particular part or feature of reality as the subject of our thought, but as picked out by ideas it belongs strictly to the predicate rather than the subject of judgement. Bradley spoke in his later work on thought of a special subject of judgement, chosen by our ideas as that which is to be characterized more specifically, but the ultimate subject remains reality at large.

But how does the mind manage to direct itself upon a reality not constituted by ideas? It does so because it is intrinsically continuous with, indeed somehow identical with, a larger reality beyond itself and it feels itself as being such. This is not an opinion in the sense of a judgement using ideas or concepts but the necessary pre-conceptual background of conceptual thinking.

Thus at the root of thought is a feeling of continuity with a larger whole of which our

present state of mind is just a fragment. Our thoughts are an effort to apply ideas to this whole which will carry us beyond this mere dumb acquaintance. (At the level of ordinary thought and experience this larger whole presents itself to us spatio-temporally as a physical world. As metaphysicians, or in moments of illumination, we may become aware of it in a manner which leads to a more spiritual characterization of its nature.)

Bradley says in his initial statements that it is the reality presented in the perceptual manifold, as experienced immediately quite apart from any ideas we form of it, which is the subject of which we predicate our ideas. But, as he makes clearer in the second edition, it is not presented only by the perceptually given but by anything else thus directly presented or experienced.

There are intriguing similarities and contrasts in Bradley's position here and that of Bertrand Russell, who was influenced by Bradley in his own treatment of definite descriptions (talking of the King of France where Bradley talks of the King of Utopia) as belonging logically to the predicate (and in his related account of existential statements). For Russell propositions which can be grasped without acquaintance with the particulars with which they are ostensibly concerned are parasitic upon propositions about particulars which can be grasped only by those acquainted with them. Bradley is even more insistent that a kind of acquaintance, which goes beyond its specification in terms of universals, is required if we are to think of something. But for him the reality with which we have this pre-conceptual acquaintance is always the same, namely the one sensible reality which we encounter non-conceptually through sense experience. Not that the thought had failed to occur to him that we may have a pre-conceptual encounter with particular bits of reality, which we can refer to by such words as 'this' and 'here'; indeed he makes suggestions in this connection which may well have influenced Russell. But, although thinking of our ability to locate particular bits of reality by our direct pre-conceptual awareness of them is quite useful at a rather superficial level of analysis it will not, as Bradley sees it, ultimately do. In the end it is always simply reality, *tout court*, rather than some particular bit of reality which is the subject of predication (see [15.3], 50).

This account of judgement strongly suggests the view that a judgement is true if and only if the idea (in the logical sense) which functions as its predicate is a universal actually found in the reality to which it ascribes it. For what else can we be doing in ascribing the character we abstract from our imagery to a reality beyond but supposing that it is actually found there as an actual feature of that reality? And in what other sense could our judgement be true than that it is in fact present there?

Such an account of truth is not far off from the Scholastic view that in true thinking an essence *objectively* exemplified in the mind is recognized to be the *essence formally* exemplified by that reality beyond on to which the mind is directed. And, though Bradley never presents this explicitly as his account of truth, it seems to be frequently presupposed in what he has to say as to how various different sorts of judgement must be taken if they are to give genuine truth about reality.

Admittedly such a view of truth could apply only to judgements the content of which is imaginatively realized in a fairly full manner. However, for one who thinks, as Bradley does, in effect, that other judgements are a kind of substitute for these, their truth will consist in the truth of the more imaginatively fulfilled judgements for which they

substitute.

This certainly seems to be the view of truth most obviously implied by Bradley's theory of judgement as we have so far considered it. However, while commentators usually allow that there are traces of a correspondence view of truth in the first edition of *Principles of Logic* they usually take him as having rejected this in his later writings in favour of a coherence view. Though *Appearance and Reality* is relevant here, the main sources for Bradley's supposed coherence view of truth are some of the essays collected in *Essays in Truth and Reality*, first published in 1914, consisting largely of essays published in journals (mainly *Mind*) from 1904 to 1911 (though one goes back to 1899). Of these the most important is chapter VII, 'On Truth and Coherence'. He there sets out to argue, as against expressions of the contrary view by G.F.Stout and Russell, that there are no immediately certain facts delivered to us either in perception or in memory and that every such judgement, like all other judgements, is subject to the test of includability within a total system of acceptable beliefs. This test includes not merely coherence but also comprehensiveness ([15.2], 202; 223–6).

These two requirements have, indeed, a common source, according to Bradley, for, he holds, there is always incoherence in any body of thought which stops short of the whole truth. However, in practice we have to treat them as two distinct criteria which our thought must satisfy if it is to be true. Taken together these criteria constitute the notion of membership of a judgement in a system (see [15.2], 241).

Thus if a judgement as to what I am perceiving, or a memory judgement as to what I perceived in the past, cannot fit into the main body of my knowledge (that is, my current system of beliefs) it will be quite proper for me to reject it, and put a different interpretation on my experience.

The standard criticism of coherence as a criterion of truth is that you can have a coherent system of false propositions. But when it is realized that the test was meant to be used, along with that of comprehensiveness, only on judgements which someone is inclined to affirm, the force of the criticism is largely blunted. Thus taken it bids us accept only judgements which cohere with the largest body of other beliefs which will continue to solicit us however encyclopaedic our concerns become.

The difference between Bradley's position and that of the coherence view of textbooks may go deeper still. For he sometimes says that it is not only with other judgements that a judgement must cohere to be true, but also with experience (i.e. or e.g. sense experience). Such, at least, seems to be his meaning when he says that the 'idea of system demands the inclusion of all possible material'.

It must be emphasized, in any case, that the idea that somehow thought can remove itself from its basis in experience and discover how things are in some quite *a priori* fashion is firmly rejected by Bradley (see [15.2], 203). What Bradley denies, then, is (not that our knowledge or belief system arises from experience and is continually subject to testing thereby, but) that it is based on some hard data supplied by perception which cannot be rejected. It has been observed that Bradley's view, especially as developed in this particular essay, has some affinity to currently influential views of W.V.O.Quine's.

Bradley himself was not unaware, it seems, of a conflict in his thought between a view which makes truth a feature of a system of ideas considered in its own right, and one which makes it turn on its relation to something else. For his final answer to the question

'what is truth?' (reached by the intermediate suggestion that truth is what completely satisfies the intellect) seems to be that '[t]ruth is an ideal expression of the Universe' ([15.2], 223) and this seems designed to meet this very difficulty.

Not that the answer is an easy one to grasp. What Bradley seems to mean is that the Absolute, as somehow present in all its parts, is striving within each part to develop itself into the whole, with the result that the thought pertaining to any part has an initial tendency to develop into ideas which capture something of its total character. Since the whole is coherent and comprehensive this urge takes the form of a nisus towards a coherent and comprehensive system of ideas which will reproduce the character of the Absolute to whatever extent it satisfies itself. However, the ideas do not form a completely closed-off world, for the intellectual part of reality to which they pertain is continually fed by experience stemming from the other parts.

However obscure the notion that reality is working itself out within the intellect of each of us may be, it is apparently Bradley's attempt to combine the view that truth consists in ideas which capture something of the essence of the reality of which they are predicated with the view that it consists in the satisfaction of having ideas which are coherent and comprehensive. For if the reality we are thinking about is expressing itself in the way we think of it, then our system of thoughts can best reach a correct characterization of what they are about by satisfying the internal criteria it imposes on itself.

Besides this general account of judgement Bradley provides an interesting account of the different types of judgement, categorical, hypothetical, negative and so forth. However the main topic of *Principles of Logic*, pursued in Books 2 and 3, is the nature of inference. The central thesis is that inference consists in 'ideal experiment' in the form of synthesis and analysis. Typically this consists in synthesizing the ideas we have of things into some more comprehensive idea of a whole to which they must or may belong and finding through analysis that the whole or its constituents, as thereby presented in idea, consequently possess certain characteristics, or relations to each other, which must or would belong to these as they exist in external fact. 'Reasoning thus depends on the identity of a content inside a mental experiment with that content outside' ([15.3], 436).

In his account of judgement Bradley had already insisted that to think of all judgements as subject-predicate in the Aristotelian sense was a misconception which foundered on existential and relational judgements. (Though Russell held that the Bradleyan treatment of relations depends upon that assumption, his own way out of it owes much to Bradley.) This challenge to tradition is continued in his account of inference in an elaborate critique of the doctrine that all reasoning is syllogistic. (He has received some credit for this from modern logicians who would not, however, go along with his associated view that the criteria of valid inference can never be purely formal.)

One of the main themes is the impossibility of reducing all valid inferences to the syllogistic form except perhaps by an act of torture which distorts their significance. Bradley shows carefully how various sorts of inference cannot be thus treated, in particular those which turn on the meaning of relational expressions. Thus inference cannot be reduced to the application of a limited set of standard rules nor can it become such simply by the addition of some extra rules not recognized by traditional logic. Such an aspiration turns on the wholly mistaken view that the validity of inference is

determined solely by the form and never by the content of premisses and conclusion. Such rules as there are, are only general guides not formulas to be followed mechanically (Bradley associates this with a similar point about moral rules).

There is much that is of continuing importance in Bradley's treatment of inference and of related themes, though it is often clumsy in comparison with the treatment that modern symbolism makes possible.

APPEARANCE AND REALITY

We must now turn to Bradley's metaphysical position as advanced in *Appearance and Reality* and developed further in *Essays in Truth and Reality*.

Bradley sets out in this work to show that all ordinary things are unreal, such as physical things, space, time, causation and even the self (which is treated with distinctly less respect than in *Ethical Studies*). Though unreal, however, he insists that these things can properly be said to exist.

What can be meant by saying that tables, space, time or ourselves are unreal, though they certainly exist? Bradley, it would seem, has two things in mind which he does not clearly distinguish, though he would probably say that in the end they come to the same. In the first sense, to say of certain things that they exist but are unreal is to say that, though the concept of such things, and the postulation of their existence, is an effective, indeed indispensable, tool through which thought can deal with the world, so that we must go on speaking of there being such things, there is an incoherence in our concept of them, which means that thought which postulates them cannot possess that final truth as to how things really are which metaphysics seeks.

The second sense in which he seems to think of such existing things as unreal is that though they are so to speak *there*, we conceive of them as having a degree of independent existence when they are really only abstractions from a more concrete totality. Common-sense examples of things which exist but are unreal in something like this sense might be shadows and the surfaces of three-dimensional objects and their merely two-dimensional shapes.

While we may listen patiently to an idealist who tells us that the physical world is unreal in the first sense, it is harder for him to persuade us that we, and even our passing thoughts, are so. In the latter case emphasis on the second sense of 'unreal' renders his thought more promising.

However, Bradley himself would say that in so far as a thing is a mere abstraction from some more concrete whole (of whose nature we take inadequate account) what we have in mind when we speak of it as existing is bound to be somewhat incoherent. So the second sense will be a case of the first.

Bradley marshals a large array of arguments to show that the things mentioned are unreal. Physical things are unreal, because we can form no conception of them which distinguishes between those of their 'properties' which genuinely inhere in *them* and those which are a matter of their effects on an observer. Yet the very idea of a physical thing is of something to which this distinction applies. Moreover, the space and time within which they supposedly exist are riddled with paradoxical contradictions which Bradley exhibits with glee. So whatever aspect of reality it is with which we are really

dealing when we think of the physical, it cannot in its true nature answer to properly physical predicates. We ourselves are similarly contradictory and unreal. Whatever is doing what is known as 'our' thinking cannot really be a self or person as such thought conceives it, for there are too many incoherences in the idea of a person for this to be so. (These turn particularly on the matter of personal identity over time.)

The detailed contradictions present in all our concepts are largely instances of one very basic contradiction involved in all our thought, a contradiction inherent in the very idea of a world of distinct things standing in distinct relations to each other.

We (that is eventually the Absolute masquerading as ourselves) cannot help thinking in terms of there being lots of individual things in the world. Equally, we cannot help thinking of these individual things as standing in a variety of relations to each other. But the idea of things held together by relations is radically incoherent, essential tool for dealing with the world though it is.

For if the relations between things are themselves things, then they require themselves to be related to the original things, and those relations must again be related to these relations and what they relate, and so on in an endless incoherent regress.

Should we then say that the relations are not things? But if not things, what are they? Unless something can be said about them they had better not claim to figure in any ultimately true account of the world. Perhaps then they are aspects of the things they relate. But if the relation between *A* and *B* is an aspect of either *A* or of *B,* or separately of each of them, they do nothing to connect *A* and *B*. *R* as in *A* is just there in *A,* and has nothing to do with *B.* Perhaps then they are aspects of *AB,* the unity of *A* and *B.* But if *A* and *B* are a unity to which the relation *R* belongs, then it seems it is not through *R* that they are brought together.

This is by no means an adequate account of Bradley's famous, and often correctly or incorrectly controverted, argument but gives a hint of his style of reasoning in this connection.

Some of the criticism of it certainly misses the point. It is said that Bradley thinks of relations as things, but that they are not things but how things stand to each other. But this misses the point that Bradley asks us what they can be if they are not things, and claims to dispose of them whether we conceive of them as things in any proper sense or not. But probably critics are right, that Bradley's arguments can be answered if we bring our full conceptual resources to bear on them.

The Bradleyan reply would be that this is not surprising, since our concepts incorporate all sorts of devices for disguising their basic incoherence. They would not work if there were not such devices. But to appeal to these devices is to lose sight of the underlying insight to which these seemingly rather sophistical arguments are trying to lead us.

That fundamental insight is that when we think of a thing first independently of how it stands to other things, and then as an element of a situation in which other things figure, there is really a *gestalt* switch between two incompatible ways of conceiving the situation. They are incompatible because when we envisage something as a detail in a larger whole it takes on not just characteristics additional to those we envisaged it as possessing when we think of it in isolation (or in something closer to isolation) but characteristics incompatible with this. An angel seen as a detail in a large painting looks different from when it is looked at alone. Our friend presents himself differently to us

when we learn about his or her family background. These are not merely different ways of registering the world in our mind; they are different conceptions of what is really there.

But we cannot choose either to envisage the thing in comparative isolation or as a detail in a larger situation. For, on the one hand, the very concept of a thing is of something which can be conceived without reference to other things as a separate unit in its own right, while equally we cannot avoid enriching our concept of every individual thing we postulate by envisaging it simply as a detail in some larger whole. (We may be prepared to say that some of our things, like two-dimensional objects, are mere abstractions from some larger whole, but we cannot say it of every single thing, or else we have no proper things left. Yet every single thing, the universe apart, does figure in a larger whole.)

The concept of a relation is that of something which connects things without making them simply aspects of a larger whole in which they lose their separate identities. The proposition *'A* is *R* to *B'* allows us to take up two incompatible stances, turn and turn about, as suits our convenience: that of *A* as a thing in its own right and that of *A* as an abstraction along with *B* from some larger whole. Since the proposition is thus an attempt to synthesize two incompatible views it cannot be the literal truth about anything.

It should be evident that these reflections lead by inevitable steps to the view that the only real thing is the universe and that everything else is a mere aspect of it. (The only but unthinkable alternative is that real things exist in total isolation from one another; Leibniz tended to this view though incoherently invoking God to provide a semblance of a single cosmos.)

To arrive at his final conclusion that the only reality is the Absolute, and that everything else is a mere abstraction from it, Bradley has to show that the universe merits this title in virtue of its mental or spiritual nature.

This he does by arguing that when we really press the matter there is nothing which we can form any clear idea of as existing apart from some mental process or activity. Either we tacitly envisage it as presented to some mental state, and in effect a component of that state, or as itself a mental state.

So in the end—for reasons quite separate from the argument concerning relations—we can accept only mental realities as genuinely real. The physical world, for example, must be conceived as existing only as presentation to perception or thought, or perhaps as experiencing itself.

But if the only finite realities which can pass this test of clear conceivability are mental, it follows that the universe is a single reality from which the indefinite number of mental states which so to speak supply its stuff are mere abstractions. But the only conceivable thing from which these mental states can be abstractions must be itself some sort of cosmic mental state or form of consciousness. This cannot change through time, but must rather eternally include all those mental states which appear to themselves to pertain to beings living at different times. That it is not changing in time follows from the fact that past and future and present can only appear to be related to each other because they are all abstractions from something embracing all times, and therefore itself timeless.

Critics such as Bertrand Russell and G.E.Moore were long thought to have put paid to Bradley's metaphysical system. (A more insightful critic was William James.) Upon the

whole, they missed the real thrust of it and thought that it was rebutted by exhibiting certain confusions or sophistries in its presentation. Anyone who knows anything of the Hindu tradition, especially Vedanta. (though Bradley showed no interest in this), will realize that views like Bradley's are not too eccentric to be the basis of a whole culture. Perhaps western philosophy will turn again to an outlook more like Bradley's. It must stand, at the least, as one of the great possible visions of the world open to humanity. Historically, however, it gave way soon after its completion to different styles of philosophizing in which Moore, Russell and Wittgenstein were key figures. A.N.Whitehead, however, continued, to some considerable extent along the path laid out by Bradley (envisioning a world composed solely of experience and unified in God), though he sought to do greater justice to the scientific view of things.

NOTES

1 The thinker who did most to clarify the relations between psychological hedonism, and ethical hedonism in its two versions, egoistic and universalistic, was Henry Sidgwick in his *Methods of Ethics*, London: Macmillan, 1874, with further revised editions. Although in various controversies Bradley exhibits the utmost contempt for Sidgwick I have to a limited extent made use of Sidgwick's terminology in expounding Bradley.

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Glossary

analytic *and* synthetic—an analytic statement is true in virtue of the meanings of the words in it, e.g. 'Bachelors are unmarried males'. A synthetic statement is true not in virtue of the meanings of the words used, e.g. 'Some bachelors are rich'.

a posteriori—based on experience.

a priori—not based on experience.

***cause, efficient**—a translation of *causa efficient*, a term which was used by medieval philosophers. The term goes back to Aristotle, who stated that an 'efficient' cause is a source of change or of coming to rest (*Physics*, II, 3). So, for example, a man who gives advice is an efficient cause, and a father is the efficient cause of his child.

***cause, final**—a term that renders the Latin *causa finalis*. 'Final' does not mean here last or ultimate, as when one speaks of a 'final curtain'. Rather, a final cause is that *for the sake of which* something is done. The term goes back to Aristotle, who said that a final cause is an end: e.g. health is the final cause of taking a walk (*Physics*, II, 3).

coherence theory of truth—the view that a true statement is that which coheres, or is most consistent, with the system of accepted statements. deduction—a form of argument in which if the premisses are true then the conclusion must also be true.

definition per genus et differentiam—a form of definition in which a word is defined by locating the thing to which it refers in a class of things *(genus)* sharing some common features, and then by indicating those features which distinguish the thing from others in that class.

***determinism**—a term covering a wide variety of views, which have in common the thesis that every event or every state of affairs belonging to a certain class is determined by certain factors, in the sense that given these factors the event must occur or the state of affairs must hold. In the past philosophers readily accepted the idea that determinism held in the natural world; but many of them were reluctant to believe that it also held in the sphere of human actions. They believed that (whatever might be the case in the natural world) the will was free, in the sense that, whenever a human agent chooses to do something, that agent could always have chosen to do otherwise.

empiricism—the theory that all knowledge is based on experience.

***fatalism—**a form of determinism (q.v.) according to which what will happen, will happen, and there is nothing that humans can do to alter the course of events. Although all fatalists are determinists, not all determinists are fatalists.

hedonism—the view that pleasure is the only intrinsically valuable thing.

***idealism—**there are three main types of philosophical idealism, all of which have in common the thesis that the external world—the world of physical things—is in some way a product of mind, (1) The first historically was Berkeleian idealism. Bishop Berkeley (1685–1753) argued that a material object consists of nothing but ideas, either in the mind of God or in the mind of conscious beings such as ourselves. (2) 'Transcendental idealism' was a term used by Kant (1724–1804) to refer to his view

that the spatial and temporal properties of things have no existence apart from our minds. (3) 'Objective' or 'absolute' idealism, first expounded by Hegel (1770–1831), is distinguished by the fact that it is a kind of monism, asserting that everything that exists is a form of the one 'absolute mind'.

***induction—**an inductive argument is an argument in which, from the proposition that all observed members of a certain class have a certain property, one proceeds to the conclusion that all members of the class have this property.

law of excluded middle—the principle that every proposition is true or not true.

law of non-contradiction—the principle (sometimes also called the *law of contradiction*) that a proposition and its negation cannot both be true.

libertarian—one who denies the truth of determinism (q.v.), believing that there are some human acts which are not causally determined.

logical positivists—those who subscribe to the verification principle (q.v.).

materialism—the theory that reality is all material. The mind is therefore not something immaterial.

nominalism—the view that general terms are just words applying to particular things.

phenomenalism—the doctrine that a physical object is, as J.S.Mill put it, 'the permanent possibility of sensation'.

reductio ad absurdum—a mode of argument in which a view is shown to have an absurd implication and is therefore to be rejected.

***universals**—it has been argued that universal terms, such as 'triangle', can have meaning only if there exist in some way entities which are called 'universals', e.g. the triangle as such, or triangularity.

utilitarianism—the view that a right act is that which maximizes the general happiness.

utility, the principle of—as formulated by J.S.Mill it is the view that 'happiness is desirable, and the only thing desirable as an end; all other things being only desirable as means to that end'.

***verification principle—**also called the *principle of verifiability*. This term has two senses. (1) It can refer to a criterion of meaning; according to this, a proposition is factually significant if, and only if, it can be verified in principle. (2) The term can also be applied to a theory of the nature of meaning; this states that the meaning of a proposition is the method of verifying it.

* Explanations adapted from *Routledge History of Philosophy*, Vol. IV.

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Continental Philosophy in the 20th Century

Volume VIII

Kearney

Routledge History of Philosophy

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Routledge History of Philosophy, Volume VIII

Continental philosophy, as it has emerged in the twentieth century, is less a seamless fabric than a patchwork of diverse strands. Phenomenology, hermeneutics, existentialism, structuralism, critical theory, deconstruction—these are some of the salient movements which have developed in continental Europe between 1900 and the 1990s, though their influence is by no means confined to geographical location. Continental thought has proved highly exportable, circulating far beyond the frontiers of Europe to provoke strong responses in the intellectual world at large.

The fourteen articles in this volume outline and assess some of the issues and experiments of continental philosophy. The first five span the twin movements of phenomenology and existentialism, running from Husserl and Heidegger to Sartre, Merleau-Ponty and Levinas. Subsequent essays deal with specific currents of continental thought in such areas as science, Marxism, linguistics, politics, aesthetics, feminism and hermeneutics. A final chapter on postmodernism highlights the manner in which so many concerns of continental thought culminate in a radical anti-foundationalism.

This volume provides a broad, scholarly introduction to this period for students of philosophy and related disciplines, as well as some original interpretations of these authors. It includes a glossary of technical terms and a chronological table of philosophical, scientific and other cultural events.

Richard Kearney is a Professor of Philosophy at University College, Dublin and a Visiting Professor at Boston College. He is the author of *Poetics of Modernity* (1994), *Poetics of Imagining* (1991), *The Wake of Imagination* (1988), *Modern Movements in European Philosophy* (1986) and *Dialogues with Contemporary Continental Thinkers* (1984).

Routledge History of Philosophy

General editors—G.H.R.Parkinson and S.G.Shanker

The *Routledge History of Philosophy* provides a chronological survey of the history of Western philosophy, from its beginnings in the sixth century BC to the present time. It discusses all major philosophical developments in depth. Most space is allocated to those individuals who, by common consent, are regarded as great philosophers. But lesser figures have not been neglected, and together the ten volumes of the *History* include basic and critical information about every significant philosophy of the past and present. These philosophers are clearly situated within the cultural and, in particular, the scientific context of their time.

The *History* is intended not only for the specialist, but also for the student and the general reader. Each chapter is by an acknowledged authority in the field. The chapters are written in an accessible style and a glossary of technical terms is provided in each volume.

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Volume VIII

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13	**Deconstruction and Derrida** *Simon Critchley and Timothy Mooney*	365
14	**Postmodernist theory: Lyotard, Baudrillard and others** *Thomas Docherty*	392
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General editors' preface

The history of philosophy, as its name implies, represents a union of two very different disciplines, each of which imposes severe constraints upon the other. As an exercise in the history of ideas, it demands that one acquire a 'period eye': a thorough understanding of how the thinkers whom it studies viewed the problems which they sought to resolve, the conceptual frameworks in which they addressed these issues, their assumptions and objectives, their blind spots and miscues. But as an exercise in philosophy, we are engaged in much more than simply a descriptive task. There is a crucial aspect to our efforts: we are looking for the cogency as much as the development of an argument, for its bearing on questions which continue to preoccupy us as much as the impact which it may have had on the evolution of philosophical thought.

The history of philosophy thus requires a delicate balancing act from its practitioners. We read these writings with the full benefit of hindsight. We can see why the minor contributions remained minor and where the grand systems broke down: sometimes as a result of internal pressures, sometimes because of a failure to overcome an insuperable obstacle, sometimes because of a dramatic technological or sociological change, and, quite often, because of nothing more than a shift in intellectual fashion or interests. Yet, because of our continuing philosophical concern with many of the same problems, we cannot afford to look dispassionately at these works. We want to know what lessons are to be learnt from the inconsequential or the glorious failures; many times we want to plead for a contemporary relevance in the overlooked theory or to reconsider whether the 'glorious failure' was indeed such or simply ahead of its time: perhaps even ahead of its author.

We find ourselves, therefore, much like the mythical 'radical translator' who has so fascinated modern philosophers, trying to understand author's ideas in their and their culture's eyes, and at the same time, in our own. It can be a formidable task. Many times we fail in the historical undertaking because our philosophical interests are so strong, or lose sight of the latter because we are so enthralled by the former. But the nature of philosophy is such that we are compelled to master both techniques. For learning about the history of philosophy is not just a challenging and engaging pastime: it is an essential element in learning about the nature of philosophy—in grasping how philosophy is intimately connected with and yet distinct from both history and science.

The *Routledge History of Philosophy* provides a chronological survey of the history of Western philosophy, from its beginnings up to the present time. Its aim is to discuss all major philosophical developments in depth, and, with this in mind, most space has been allocated to those individuals who, by common consent, are regarded as great philosophers. But lesser figures have not been neglected, and it is hoped that the reader will be able to find, in the ten volumes of the *History,* at least basic information about any significant philosopher of the past or present.

Philosophical thinking does not occur in isolation from other human activities, and this

History tries to situate philosophers within the cultural, and in particular the scientific, context of their time. Some philosophers, indeed, would regard philosophy as merely ancillary to the natural sciences; but even if this view is rejected, it can hardly be denied that the sciences have had a great influence on what is now regarded as philosophy, and it is important that this influence should be set forth clearly. Not that these volumes are intended to provide a mere record of the factors that influenced philosophical thinking; philosophy is a discipline with its own standards of argument, and the presentation of the ways in which these arguments have developed is the main concern of this *History*.

In speaking of 'what is now regarded as philosophy', we may have given the impression that there now exists a single view of what philosophy is. This is certainly not the case; on the contrary, there exist serious differences of opinion, among those who call themselves philosophers, about the nature of their subject. These differences are reflected in the existence at the present time of two main schools of thought, usually described as 'analytic' and 'continental' philosophy respectively. It is not our intention, as general editors of this *History,* to take sides in this dispute. Our attitude is one of tolerance, and our hope is that these volumes will contribute to an understanding of how philosophers have reached the positions which they now occupy.

One final comment. Philosophy has long been a highly technical subject, with its own specialized vocabulary. This *History* is intended not only for the specialist but also for the general reader. To this end, we have tried to ensure that each chapter is written in an accessible style; and since technicalities are unavoidable, a glossary of technical terms is provided in each volume. In this way these volumes will, we hope, contribute to a wider understanding of a subject which is of the highest importance to all thinking people.

G.H.R.Parkinson
S.G.Shanker

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Chronology

Mara Rainwater, University College Dublin

Unless otherwise specified, the dates assigned to books or articles are the dates of publication, and the dates assigned to musical or stage works are those of first performance. The titles of works not written in English have been translated, unless they are better known in their original form.

	Continental philosophy: roots and dialogue	**The arts**
1755	Rousseau, *Discourse on the Origin of Inequality*	
1756		Voltaire, 'Poem on the Disaster at Lisbon' (1755 earthquake)
1759	Hamann, *Socratic Memorabilia*	Sterne, *Tristram Shandy* Voltaire, *Candide*
1762	Rousseau, *Emile* Rousseau, *The Social Contract*	Diderot, *Rameau's Nephew*
1764		Voltaire, *Philosophical Dictionary*
1765		
1766		Lessing, *Laöcoon* *'Sturm und Drang'* Movement to 1787 (Goethe, Schiller, Herder)
1772	Herder, *On the Origin of Language*	
1774		Goethe, *The Sorrows of Young Werther*
1779		Lessing, *Nathan the Wise*
1781	Kant, *Critique of Pure Reason* ('A' edition)	Schiller, *The Robbers*
1783	Kant, *Prolegomena to any Future Metaphysics*	
1784	Herder, *Outlines of the Philosophy of the History of Mankind* (4 vols, 1784–91) Kant, 'Idea for a Universal History'	Beaumarchais, *The Marriage of Figaro*
1785	Kant, *Foundations of the Metaphysics of Morals*	
1787	Jacobi, 'On the Transcendental Idealism' Kant, *Critique of Pure Reason* ('B'	Mozart, *Don Giovanni* Schiller, *Don Carlos*

edition)

Science and technology	Politics	
Magnesium discovered (Davy)	War between French and British in North America Lisbon earthquake kills 35,000	1755
	Seven Years War in Europe (1756–63)	1756
	French defeated in Quebec by British	1759
	Catherine II (The Great); Tsarina 1762–96	1762
Spinning jenny (Hargreaves)		1764
Condensing steam engine (Watt)	Joseph II of Austria; Holy Roman Emperor until 1790	1765
Hydrogen discovered (Cavendish)		1766
Nitrogen discovered (Rutherford)	Poland partitioned among Russia, Prussia, and Austria	1772
Oxygen (Priestly and Scheele)	Louis XVI; King of France (to 1792)	1774
First cast-iron bridge at Coalbrookdale, Shropshire	Spain joins French and Americans against Britain	1779
	British surrender to French and American forces at Yorktown, Virginia	1781
First successful hot-air balloon (Montgolfier brothers)	Treaty of Paris ending American War of Independence	1783
		1784
Power loom (Cartwright)	Frederick the Great establishes League of German Princes against Joseph II of Austria	1785
	French Assembly dismissed for refusal to introduce financial reforms	1787

	Continental philosophy: roots and dialogue	The arts
1788	Kant, *Critique of Practical Reason*	Goethe, *Egmont*
1789		Blake, *Songs of Innocence*
1790	Kant, *Critique of Judgment*	
1791		Mozart, *The Magic Flute*
1792	Fichte, *Attempt at a Critique of All Revelation* Wollstonecraft, *Vindication of the Rights of Women*	
1793		
1794	Condorcet, *Sketch for a Historical Picture of the Human Mind* Fichte, Jena *Wissenschaftslehre*	Blake, *Songs of Experience*
1795	Schelling, *Philosophical Letters on Dogmatism*	Goethe, *Wilhelm Meister's*

	and Criticism von Humboldt, *On Thought and Language*	*Apprenticeship* Schiller, On *the Aesthetic Education of Mankind*
1796		
1797	Kant, *Metaphysics of Morals* Schelling, *Ideas for a Philosophy of Nature*	Goethe and Schiller, *Ballads* Hölderlin, *Hyperion*
1798		Wordsworth and Coleridge, *Lyrical Ballads*
1799	Schleiermacher, 'On Religion' von Humboldt, *Aesthetic Essays*	Goya, *Los Caprichos* Schiller, *Wallenstein's Death* Schlegel, *Lucinde*
1800	Fichte, *The Vocation of Man* Schelling, *System of Transcendental Idealism* Schleiermacher translates Plato into German (1800–28)	Beethoven, *First Symphony* Novalis, *Hymn to the Night*
1802		Mme. de Stael, *Delphine* Novalis, *Heinrich von Ofterdingen*
1804		Schiller, *Wilhelm Tell*
1807	Hegel, *Phenomenology of Spirit* (Jena)	Beethoven, *Fourth Symphony*

Science and technology	**Politics**	
	First convicts shipped from Britain to Australia	1788
Theory of Combustion (Lavoisier)	Storming of the Bastille, Paris; the French Revolution begins	1789
		1790
Metric system proposed by France	Louis XVI and family captured; he affirms new French Constitution	1791
	France declared a Republic; Austria and Prussia unite against France	1792
Cotton gin (Whitney)	Louis XVI and Marie Antoinette executed; Reign of Terror under Robespierre	1793
	Danton and Robespierre executed; ends Reign of Terror	1794
	France makes peace with Spain and Prussia	1795
Lithography invented (Senefelder) Laplace, *System of the World*	Napoleon Bonaparte leads French army to conquer Italy	1796

		1797
Malthus, *Essay on the Principle of Population*	French occupy Rome, Switzerland, Egypt; Vinegar Hill Rebellion in Ireland for separation from Britain	1798
	Napoleon rules France as Consulate until 1804	1799
First electric battery (Volta)		1800
	Bonaparte created First Consul for life	1802
Steam locomotive (Trevithick)	Napoleon crowns self Emperor 'Napoleon I' and the First Empire begins	1804
The *Clermont,* first steamship (Fulton)	British abolish slave trade throughout their empire	1807

	Continental philosophy: roots and dialogue	**The arts**
1808		Goethe, *Faust* (Pt I)
1809	Schelling, *Philosophical Inquiries into the Nature of Human Freedom*	Chateaubriand, *Les Martyrs*
1811		
1812	Hegel, *Science of Logic* (3 vols, 1812–16)	
1813	Schopenhauer, *On the Fourfold Root of the Principle of Sufficient Reason*	
1814		Goya, *Executions of 3rd May*
1815	de Tracy, *Elements of Ideology* (4 vols, 1801–15) Schopenhauer, *On Vision and Colours*	
1817	Hegel, *Encyclopedia of the Philosophical Sciences*	
1818	Schopenhauer, *The World as Will and Representation*	Grillparzer, *Sappho*
1820		Lamartine, *Meditations*
1821	Hegel, *Philosophy of Right* Schleiermacher, *The Christian Faith* (2 vols)	De Quincey, *Confessions of an Opium Eater* Heine, *Poems*
1822		
1825	Saint-Simon, *The New Christianity*	
1826		Hölderlin, *Lyrical Poems*
1827		
1830	Comte, *Positive Philosophy* (6 vols, 1830–42) Feuerbach, *Thoughts Concerning Death and Immortality*	Berlioz, *Symphonie Fantastique* Stendhal, *The Red and the Black*

1831		
1832	Goethe, *Faust* (Pt II)	
1837Bolzano, *Scientific Writings* (4 vols)	Balzac, *Lost Illusions* (1837–43)	

Science and technology	**Politics**	
	French occupy Spain; Joseph Bonaparte becomes King of Spain	1808
		1809
Avogadro's Molecular Hypothesis	Luddite riots in England against mechanization in the textile industry	1811
	500,000 of Napoleon's army die in retreat from Moscow	1812
	Coalition of Austria, Prussia, Russia, Britain and Sweden invades France	1813
Laplace, *A Philosophical Essay on Probabilities*	Treaty of Paris ends Napoleonic Wars; Napoleon abdicates and is exiled to Elba; Congress of Vienna	1814
	Napoleon escapes Elba; marches on Paris; Battle of Waterloo; Napoleon exiled to St Helena	1815
Kaleidoscope (Brewster)		1817
	Aix-la-Chapelle: France joins great powers in Quintuple Alliance	1818
Electromagnetism (Oersted)	Liberal revolutions in Spain, Portugal, and Italy	1820
		1821
Camera (Niepce)		1822
Electromagnet (Sturgeon)	In Russia, Decembrist Rising against Tsar	1825
Laws of Electromagnetism (Ampère) First permanent photograph (Niepce)		1826
Ohm's Law of Electromagnetic Conduction		1827
Lyell, *Principles of Geology* (3 vols)	Paris July Revolution Charles X overthrown; Louis-Philippe King (to 1848)	1830
Electromagnetic induction (Faraday and Henry)	Mazzini forms 'Young Italy' movement; Polish revolution crushed by Russians	1831
	Reform Act passed in Britain	1832

	Continental philosophy: roots and dialogue	The arts
1839	Feuerbach, *Towards a Critique of Hegelian Philosophy*	
1841	Feuerbach, *The Essence of Christianity* Proudhon, *What Is Property*?	Emerson, *Essays* (1841–4) Turner, *Snowstorm—Steamboat off a Harbour's Mouth*
1842		Gogol, *Dead Souls* G.Sand, *Consuelo*
1843	Feuerbach, *Provisional Theses* Kierkegaard, *Fear and Trembling* Kierkegaard, *Repetition* Kierkegaard, *Either/Or* Marx, *Critique of Hegel's Philosophy of Right*	Ruskin, *Modern Painters*
1844	Kierkegaard, *The Concept of Dread* Marx, *The Paris Manuscripts* Stirner, *The Ego and Its Own*	Chateaubriand, *Life of Rancé*
1845	Marx, *Theses on Feuerbach* Marx and Engels, *The Holy Family*	Gautier, *España*
1846	Kierkegaard, *Concluding Unscientific Postscript* Marx and Engels, *The German Ideology*	Michelet, *The People*
1848	Marx and Engels, *Communist Manifesto*	
1851	Proudhon, *General Idea of the Revolution in the 19th Century*	Sainte-Beuve, *Lundis*
1852		Grimm, German Dictionary (vol. 1, 1852–4)
1854		Nerval, *Aurélia*
1855		Transformation of Paris by Haussmann
1857	Marx, drafts *Grundrisse*	Flaubert, *Madame Bovary* Baudelaire, *Les Fleurs du mal*
1859		
1862	Brentano, *On the Manifold Sense of Being in Aristotle*	Hugo, *Les Misérables* Turgenev, *Fathers and Sons*
1863	Proudhon, *On the Federal Principle*	Salon des Refusés—Paris Tolstoy, *War and Peace* (1863–9)

Science and technology	Politics	
Vulcanized rubber (Goodyear) Ozone discovered (Schönbein)	Opium War between China and Britain	1839
		1841
'Doppler Effect' predicted the apparent change in wavelength when the observer and wave source are in relative motion (C.Doppler)	Hong Kong ceded to Britain	1842
	Natal becomes British colony	1843
		1844
		1845
Planet Neptune discovered (Galle) Sewing machine (Howe)	Potato famine in Ireland (a million dead by 1851)	1846
	Revolutions throughout Europe Louis-Philippe abdicates in Paris	1848
	Bakunin imprisoned by Tsar (1851–7)	1851
Gyroscope (L.Foucault)		1852
	Crimean War: France, Britain, and Turkey against Russia (to 1856)	1854
Celluloid (Parkes) Conversion process for steel (Bessemer)		1855
	Indian mutiny (Lucknow) against Britain	1857
Darwin, *The Origin of Species* Internal combustion engine (Lenoir)		1859
Rapid repeat-fire gun (Gatling)	Bismarck becomes Prime Minister in Prussia	1862
	French occupation of Mexico City Lincoln emancipates slaves	1863

Continental philosophy: roots and dialogue	The arts
1864	Dostoyevsky, *Notes from Underground*
1865Taine, *Philosophy of Art*	Wagner, *Tristan and Isolde*
1866	Dostoyevsky, *Crime and Punishment*

1867	Marx, *Das Kapital*	Ibsen, *Peer Gynt*
1869		Wagner, *Ring Series* produced 1869–76
1870	Dilthey, *The Life of Schleiermacher*	Rosetti, *Poems*
1871		Zola, *Rougon-Macquart Series*
1873	Nietzsche, *Untimely Meditations* Stumpf, *On the Psychological Origin of the Idea of Space*	Rimbaud, *A Season in Hell*
1874	Brentano, *Psychology from an Empirical Standpoint*	First Impressionist Exhibition in Paris
1876		Turgenev, *Virgin Soil*
1877		Rodin, *Age of Bronze*
1879	Frege, *The Foundations of Arithmetic*	Ibsen, *A Doll's House*
1880		French Symbolist Movement (1880–95) Mallarmé, Verlaine
1882	Nietzsche, *The Gay Science*	Wagner, *Parsifal*
1883	Dilthey, *Introduction to the Human Sciences* Mach, *The Science of Mechanics*	
1885		Cézanne, *Mont S.Victoire* Van Gogh, *The Potato-Eaters* Van Gogh, *The Sunflowers*
1886	Nietzsche, *Beyond Good and Evil*	Pointillism (Seurat, Signac, Luce)
1887	Husserl, *On the Concept of Number: A Psychological Analysis* Nietzsche, *On the Genealogy of Morals*	Strindberg, *The Father*

Science and technology	**Politics**	
Maxwell's Electromagnetic Theory of Light	Marx founds First International in London; Bakunin challenges his leadership	1864
	End of American Civil War; Lincoln assassinated	1865
Dynamite invented (Nobel)	Treaty of Paris ends Austro-Prussian War	1866
Typewriter (Scholes)	Prussian leadership of North German Confederation	1867
Periodic arrangement of elements (Mendeleev)		1869
	Kingdom of Italy annexes Papal States French Third Republic begins	1870

Darwin, 'The Descent of Man'	Paris Commune crushed German Empire declared by Wilhelm I	1871
	First Republic of Spain (to 1874)	1873
		1874
Telephone (Bell)	Britain and France take joint control of Egypt's finances	1876
Phonograph (Edison)	Queen Victoria as Empress of India	1877
Incandescent lamp (Edison)	Irish Land League under Parnell	1879
	Boers revolt against British control in South Africa	1880
	Triple Alliance: Germany, Austria, Italy (to 1914)	1882
	Health insurance introduced in Germany	1883
First rabies innoculation (Pasteur) Electric transformer (Stanley)	French protectorate over Indochina	1885
Electromagnetic waves discovered (Hertz)	Gladstone's Irish Home Rule Bill defeated in Parliament	1886
Gramophone (Berliner) Motor car engine (Daimler and Benz)	Italy and Ethiopia at war	1887

	Continental philosophy: roots and dialogue	**The arts**
1888	Natorp, *Introduction to the Psychology of Critical Method*	
1889	Bergson, *Time and Free Will*	Hauptmann, *Before Sunrise*
1890	Frazer, *The Golden Bough* Guyau, *The Origin of the Idea of Time*	Van Gogh, *Road with Cypress Trees*
1891	Husserl, *Philosophy of Arithmetic*	Gauguin leaves France for Tahiti
1893	Durkheim, *The Division of Labour in Society* Mach, *Popular Scientific Lectures*	*Art Nouveau* in architecture: Horta's 'Tassel House' (Brussels)
1894	Husserl, *Psychological Studies on Elementary Logic*	Monet, *Rouen Cathedral Series* Wilde, *Salomé,* with Beardsley illustrations
1895	Freud, *Studies on Hysteria*	Munch, *The Cry*
1896	Bergson, *Matter and Memory* Santayana, *The Sense of Beauty*	
1897	Durkheim, *Suicide*	
1898		

1899		Tolstoy, *Resurrection*
1900	Freud, *The Interpretation of Dreams* Husserl, *Logical Investigations* (vol. 1)	Chekhov, *Uncle Vanya* Mahler, *Fourth Symphony* Sibelius, *Finlandia*
1901	Husserl, *Logical Investigations* (vol. 2)	T.Mann, *Buddenbrooks* Strindberg, *The Dance of Death*
1902	Croce, *Aesthetics as a Science of Expression and General Linguistics* Poincaré, *Science and Hypothesis*	Gide, *The Immoralist* Monet, *Waterloo Bridge*
1903		Schoenberg begins teaching in Vienna Salon d'Automne in Paris
1904	Duhem, *The Aim and Structure of Physical Theory* (1904–6) Meinong, *On the Theory of the Object*	Isadora Duncan performs in Berlin Puccini, *Madame Butterfly*

Science and technology	**Politics**	
Kodak camera (Eastman) Pneumatic tyre (Boyd)	Wilhelm II German Emperor (to 1918)	1888
	French collapse of Panama Canal Company in financial scandal	1889
Rotogravure process (Klic)		1890
Cinema history: Edison patents the Kinetoscope and Kinetograph		1891
	French protectorate over Ivory Coast	1893
	Dreyfus Affair in France Nicholas II last Russian Tsar (to 1918)	1894
Marconi's wireless (radio) Discovery of X-Ray (Roentgen) Edison patents Kinetophone for sound		1895
Radioactivity discovered (Becquerel) 'Cinematographie' in France (Lumière)	France annexes Madagascar Boundaries of Siam (Thailand) settled by British and French	1896
Diesel engine (Diesel) Discovery of electron (Thomson)		1897
Radium discovered (P. & M.Curie)	Treaty of Paris: Cuban independence from Spain	1898
Tape recorder (Poulsen)	First Hague Peace Conference to settle international disputes	1899
Max Planck's Quantum Theory	German Navy Law begins arms	1900

	increase with Britain Boxer Rebellion in China	
	Increasing terrorist activity in Russia	1901
Radio-Telephone invented (Fessenden)		1902
Wright Brothers first aeroplane flight	Bolshevik-Menshevik split Emmeline Pankhurst forms Women's Social and Political Union	1903
Diode (Fleming)	Entente-Cordiale between France and Britain	1904

	Continental philosophy: roots and dialogue	**The arts**
1905	Mach, *Knowledge and Error* Weber, *The Protestant Ethic and the Spirit of Capitalism*	Matisse, *Woman with a Hat* (Fauvism) German artists (Kirchner, Bleyl) form *Die Brücke* (The Bridge) Debussy, *La Mer*
1906	Santayana, *The Life of Reason*	
1907	Bergson, *Creative Evolution* Husserl, *The Idea of Phenomenology* W.James, *Pragmatism*	Picasso, *Les Demoiselles d'Avignon* Stefan George, *The Seventh Ring*
1908	Poincaré, *Science and Method*	Brancusi's sculpture, *The Kiss*
1909	Croce, *Pragmatic Philosophy* W.James, *A Pluralistic Universe*	Diaghilev and Fokine, *Ballets Russes* in Paris Marinetti, *Futurist Manifesto*
1910	Husserl, *Philosophy as a Rigorous Science* (1910–11) Russell and Whitehead, *Principia Mathematica* (3 vols, 1910–13)	Rilke, *The Notebooks of Malte Laurids Brigge* Stravinsky, *The Firebird* for Diaghilev
1911	Bergson, 'Philosophical Intuition'	German Expressionism: *Der Blaue Reiter* (Blue Rider) group, 1911–14 (Klee, Marc, Kandinsky)
1912	Durkheim, *The Elementary Forms of Religious Life*	Duchamp, *Nude Descending a Staircase* Nijinsky performs *Afternoon of a Fawn* for Diaghilev's company
1913	Husserl, *Ideas, General Introduction to Pure Phenomenology* Jung, *Psychology of the Unconscious* R.Luxemburg, *The Accumulation of Capital*	Apollinaire, *Alcools* Proust, *Remembrance of Things Past* Stravinsky, *Rites of Spring*

	Unamuno, *The Tragic Sense of Life*	
1914	Ortega y Gasset, *Meditations on Quijote*	Joyce, *Dubliners*
1915		D.W.Griffith, *Birth of a Nation* Kafka, *The Metamorphosis* Pound begins *Cantos*
1916	Gentile, *General Theory of Spirit as Pure Act* Saussure, *Course in General Linguistics* Scheler, *Formalism in Ethics*	Dada Movement in Zurich (Arp, Tzara)
1917	Lenin, *State and Revolution*	Satie, *Parade* for *Ballets Russes* Picasso, designs costumes for *Parade*
1918	Masaryk, *The New Europe*	Tzara, *Dada Manifesto* Malevich, *White Square on a White Background*

Science and technology	**Politics**	
Einstein's Special Theory of Relativity	St Petersburg 'Bloody Sunday': troops fire on crowd resulting in general strike and revolt	1905
Triode (DeForest)	First Russian Duma meets but is dissolved	1906
	Second Hague Peace Conference	1907
	Austria annexes Bosnia-Herzegovina	1908
Henry Ford begins 'Assembly-Line' production Peary reaches North Pole	Old-age pensions introduced in Britain	1909
	Suffragette movement increases demands	1910
Combine harvester (Holt) Amundsen reaches South Pole	German-French confrontation in Morocco Manchu Dynasty falls to Sun Yat-sen	1911
	French protectorate in Morocco	1912
Atomic Number (Moseley) Bohr's Model of the Atom	Third Irish Home Rule Bill defeated	1913
Tank (Swinton)	Archduke Franz Ferdinand of Austria assassinated in Sarajevo First World War begins	1914
Einstein publishes *General Theory of Relativity*	Sinking of the *Lusitania*	1915
	Easter Rising in Ireland suppressed German offensive on Western Front	1916
	October Revolution in Russia;	1917

Automatic rifle (Browning)	Armistice ending First World War	1918

	Continental philosophy: roots and dialogue	**The arts**
1919	Wittgenstein, *Tractatus Logico-Philosophicus*	*Bauhaus* Architecture and Design (1919–33): Kandinsky, Albers, Klee; Wieve, *The Cabinet of Dr. Caligari;* German Expressionist films (1919–30)
1920	Freud, *Beyond the Pleasure Principle*	
1921	Mach, *The Principles of Physical Optics* Rosenzweig, *The Star of Redemption*	Pirandello, *Six Characters in Search of an Author* Man Ray, *Rayographs*
1922	Bergson, *Duration and Simultaneity*	Eliot, *The Waste Land* Joyce, *Ulysses*
1923	Buber, *I and Thou* Cassirer, *The Philosophy of Symbolic Forms* (3 vols, 1923–9) Korsch, *Marxism and Philosophy* Lukács, *History and Class Consciousness*	Le Corbusier, *Vers une architecture* Rilke, *Duino Elegies* Yeats receives Nobel Prize
1924	N.Hartmann, *Ethics*	A.Breton, *Surrealist Manifesto* T.Mann, *The Magic Mountain* Schoenberg, 12-tone *Suite for Piano*
1925		Eisenstein, *Battleship Potemkin*
1926	Scheler, *Forms of Knowledge*	Lang, *Metropolis*
1927	Heidegger, *Being and Time* Santayana, *Realms of Being* (4 vols, 1927–40)	Artaud & Vitrac, Théâtre Alfred Jarry V.Woolf, *To the Lighthouse*
1928	Bachelard, *The New Scientific Spirit*	Brecht & Weill, *The Threepenny Opera*
1929	Dewey, *Experience and Nature* Heidegger, *What is Metaphysics?* Heidegger, *Kant and the Problem of Metaphysics* Husserl, *Formal and Transcendental Logic* Mannheim, *Ideology and Utopia* Piaget, *The Child's Concept of the World* Volosinov, *Marxism and the*	Bakhtin, *Problems of Dostoyevsky's Poetics* Rivera, *Workers of the Revolution* Vertov, *Man with a Movie Camera*

	Philosophy of Language	
1930	Freud, *Civilization and Its Discontents* Ortega y Gasset, *The Revolt of the Masses*	Buñuel & Dali, Surrealist film, *L'Age d'or* Empson, *Seven Types of Ambiguity*

Science and technology	**Politics**	
Discovery of proton (Rutherford)	Treaty of Versailles sets reparations Rosa Luxemburg murdered in Germany Mussolini's fascist movement in Italy League of Nations founded	1919
	Weimar Republic in Germany Civil War in Ireland	1920
	Irish Free State established	1921
	March on Rome by Mussolini	1922
	Hitler imprisoned after abortive Munich 'putsch'	1923
Wave nature of electron (de Broglie)	Lenin dies; succeeded by Stalin	1924
First working television (Baird)		1925
Rocket (liquid) fuel (Goddard) Schrödinger's Wave Mechanics	Germany admitted to League of Nations	1926
Heisenberg's 'Uncertainty Principle' that position and momentum of a body cannot be simultaneously determined; First transatlantic flight (Lindbergh)	Civil War in China: Communists against Nationalists	1927
	Kellogg-Briand Pact: Major powers renounce war	1928
Zworykin's electronic television system adopted as standard	Collapse of Wall Street leads to worldwide economic depression	1929
Jet engine (Whittle)	London Naval Conference: failure to agree on arms limitation	1930

Continental philosophy: roots and dialogue	**The arts**

1931	Husserl, *Cartesian Meditations* Jaspers, *Man in the Modern Age*	Gide, *Oedipus* Ravel, *Piano Concerto for the Left Hand*
1932	Bergson, *Two Sources of Morality and Religion* Maritain, *The Degrees of Knowledge*	Céline, *Journey to the End of Night*
1933	Kojève, Paris Seminars on Hegel's *Phenomenology* (1933–9)	Malraux, *The Human Condition*
1934		René Char, *The Hammer without a Master* H.Miller, *Tropic of Cancer* Webern, *Concerto for Nine Instruments*
1935	Berdyaev, *The Fate of Man in the Modern World* Marcel, *Being and Having*	Canetti, *Auto-da-Fé*
1936	W.Benjamin, 'The Work of Art in the Age of Mechanical Reproduction' Husserl, *Crisis of European Sciences and Transcendental Phenomenology*	International Surrealist Exhibition
1937	C.Caudwell, *Illusion and Reality*	Picasso, *Guernica* J.Renoir, *The Grand Illusion*
1938	Bachelard, *The Psychoanalysis of Fire* Husserl Archives established at Louvain	Artaud, *The Theatre and Its Double* Beckett, *Murphy* Brecht, *Mother Courage* Sartre, *Nausea*
1939	Sartre, *Sketch for a Theory of Emotions*	Joyce, *Finnegans Wake* Saurraute, *Tropisms*
1940	Marcel, *Creative Fidelity* Sartre, *Psychology of Imagination*	Picasso, *Woman Dressing Her Hair*
1941	Bultmann, *The New Testament and Mythology* Marcuse, *Reason and Revolution* Whorf, *Language, Thought and Reality* (1941–56)	*Maltese Falcon;* cinematic style *(film noir)* influenced by Cain, Hammett, Chandler
1942	Merleau-Ponty, *The Structure of Comportment*	Anouilh, *Antigone* Camus, *Myth of Sisyphus* Camus, *The Outsider*
1943	Hjelmslev, *Prolegomena to a Theory of Language* Sartre, *Being and Nothingness*	Musil, *The Man Without Qualities* Sartre, *The Flies*

Science and technology	Politics	
Pauli's predicts massless neutrino Gödel's Incompleteness Theorum claiming the unprovability of mathematical first principles	Britain abandons gold standard Japanese aggression in Manchuria	1931
Neutron discovered (Chadwick)	Geneva Disarmament Conference	1932
	Hitler appointed Chancellor by von Hindenburg; Reichstag burned; Germany withdraws from League of Nations	1933
	Hitler becomes Führer Stalin purges Communist Party	1934
Radar discovered (Watson-Watt)	Hitler renounces Treaty of Versailles Mao Tse-tung: The Long March	1935
	Spanish Civil War (1936–9) Germany reoccupies Rhineland	1936
		1937
	Anschluss: Hitler annexes Austria Munich Pact: Germany, Italy, Britain, and France	1938
Electron microscope (Zworykin)	Second World War begins Germany invades Poland	1939
Plutonium discovered (Seaborg)	Nazi occupation of Paris Trotsky assassinated in Mexico Japan joins Axis Powers	1940
	Germany invades Russia; Leningrad siege Pearl Harbor bombed by Japan; American entry into Second World War	1941
	Battle of Stalingrad; Germany defeated Rommel defeated by Allies in North Africa	1942
	Italian government surrenders	1943

	Continental philosophy: roots and dialogue	The arts
1944	Adorno and Horkheimer, *Dialectic of Enlightenment* Marcel, *Homo Viator*	Bartok, *Violin Concerto* Eliot, *Four Quartets* Sartre, *No Exit*
1945	Bataille, On *Nietzsche* Merleau-Ponty, *Phenomenology of Perception*	Broch, *The Death of Virgil* Sartre, *Roads to Freedom;* vol. 1—*The Age of Reason;* vol. 2—*The Reprieve*

1946	Collingwood, *The Idea of History* Sartre, *Existentialism and Humanism*	Italian Neo-Realism in film (1946–54) De Sica, Fellini, Rossellini, Visconti Rossellini, *Rome Open City*
1947	de Beauvoir, *Ethics of Ambiguity* Gramsci, *Letters from Prison* Heidegger, 'Letter on Humanism' Horkheimer, *Eclipse of Reason* Levinas, *Existence and Existents*	Pollock, *Full Fathom Five* Camus, *The Plague*
1948	Adorno, *Philosophy of Modern Music* Gramsci, *Prison Notebooks* (6 vols, 1948–51) Merleau-Ponty, *Sense and Non-Sense*	René Char, *Fury and Mystery* De Sica, *Bicycle Thieves* Orwell, *1984* R.Strauss, *Four Last Songs*
1949	de Beauvoir, *The Second Sex* S.Weil, *The Need for Roots*	Genet, *Death-watch* Sartre, *Iron in the Soul* (vol. 3 of trilogy *Roads to Freedom*)
1950	Austin, *How to Do Things with Words* Marcel, *The Mystery of Being*	Blanchot, *The Space of Literature* Ionesco, *The Bald Soprano*
1951	Adorno, *Minima Moralia* Arendt, *The Origins of Totalitarianism* Camus, *The Rebel*	Beckett, *Molloy; Malone Dies* Dali, *Christ of St. John of the Cross*
1952	Goldmann, *The Human Sciences and Philosophy*	Boulez, *Structures* Buñuel, *El*
1953	Barthes, *Writing Degree Zero* Dufrenne, *The Phenomenology of Aesthetic Experience* Heidegger, *Introduction to Metaphysics* Lacan, 'Rome Discourse' ('Function of Language in Psychoanalysis') Lacan, *Seminar I* (1953–78:XXVI Seminars) Wittgenstein, *Philosophical Investigations*	Beckett, *Waiting for Godot* Milosz, *The Usurpers*
1954	Heidegger, *Discourse on Thinking*	Balthus, *Nude Playing with a Cat* Fellini, *La Strada*

Science and technology	**Politics**	
Automatic digital computer (Aikin)	Allied Normandy Landing Paris and Brussels liberated	1944

	Atomic Bomb on Hiroshima and Nagasaki Mussolini assassinated Hitler suicide Yalta Conference	1945
Electronic computer (Eckert & Mauchly)	UN replaces League of Nations Nuremburg trials French Indo-China War begins	1946
Polaroid camera (Land)	Marshall Aid Program for Europe UN approves partition of Palestine	1947
Xerography invented (Carlson) Long-playing record (Goldmark) Transistor (Bardeen, Brattain, Schockley)	Soviet blockage of West Berlin State of Israel declared	1948
von Neumann, 'Recent Theories of Turbulence'	Germany divided: Federal Republic and German Democratic Republic Mao Tse-tung Communist victory in China	1949
Einstein's Unified Field Theory Turing, 'Computing Machinery and Intelligence'	Korean War begins	1950
	West Germany admitted to the Council of Europe Schuman Plan proposes Coal and Steel Community	1951
	European Coal and Steel Community implemented	1952
Crick & Watson's Double Helix Theory for DNA	Stalin dies	1953
Solar battery (Fuller, Pearson)	French defeat at Dien Bien Phu	1954

	Continental philosophy: roots and dialogue	**The arts**
1955	Canguilhem, *The Formation of the Concept of Reflex in the XVII and XVIII Centuries* de Chardin, *The Phenomenon of Man* Lévi-Strauss, *Tristes Tropiques* Marcuse, *Eros and Civilization* Merleau-Ponty, *Adventures of the Dialectic*	Béjart choreography, *Symphony for a Lone Man*
1956		Durrenmatt, *The Visit* Camus, *The Fall*

1957	Barthes, *Mythologies* Bataille, *Eroticism* Chomsky, *Syntactic Structures*	Stockhausen, *Gruppen (for three spatially arranged orchestras)* Bergman, *The Seventh Seal*
1958	Arendt, *The Human Condition* Lévi-Strauss, *Structural Anthropology* Winch, *The Idea of a Social Science and Its Relationship to Philosophy*	Beckett, *Krapp's Last Tape* Primo Levi, *If This Is a Man*
1959	Bloch, *The Principle of Hope*	French 'New Wave' *(Nouvelle Vague)* in film, 1959–64 Goddard, *Breathless* Truffaut, *The 400 Blows* Duras, *Hiroshima Mon Amour*
1960	Gadamer, *Truth and Method* Ingarden, *The Literary Work of Art* Merleau-Ponty, *Signs* Ricoeur, *The Symbolism of Evil*	Fellini, *La Dolce Vita* Penderecki, *Threnody to the Victims of Hiroshima*
1961	Fanon, *The Wretched of the Earth* Heidegger, *Neitzsche* (2 vols) Levinas, *Totality and Infinity*	Miró, *Blue II* Robbe-Grillet, *Last Year in Marienbad*
1962	S.Breton, *Essence and Existence* Deleuze, *Neitzsche and Philosophy* Derrida, *Husserl's* Origin of Geometry	Fellini, *8½* Solzhenitsyn, *One Day in the Life of Ivan Denisovitch* Warhol, *Campbells Soup Cans 200*
1963	Arendt, *On Revolution* Habermas, *Theory and Praxis* Richardson, *Through Phenomenology to Thought*	Paul Celan, *Die Niemandsrose (The No One's Rose)* G.Grass, Dog *Years*
1964	Barthes, *Elements of Semiology* Lacan, *Seminar XI; The Four Fundamental Concepts of Psychoanalysis* Lévi-Strauss, *The Raw and the Cooked* Marcuse, *One-Dimensional Man*	Pasolini, *The Gospel According to St. Matthew*

Science and technology	**Politics**	
The Contraceptive Pill (Pincus) Antiproton (Segré, Chamberlain)	Warsaw Pact for Eastern Bloc	1955
Discovery of neutrino predicted by Pauli in 1931 Videotape recording (Poniatoff)	Hungarian uprising crushed by Soviets	1956
Sputnik launched (USSR)	Treaty of Rome establishes Common Market (EEC)	1957

Radiation belts surrounding the earth (Van Allen) Space race escalates with launch of *Explorer 1* (US)	De Gaulle elected first President of French Fifth Republic	1958
Luna space probes (USSR) enter solar orbit; photograph far side of the moon	Fidel Castro overthrows Batista government in Cuba	1959
Laser (Maiman) *Pioneer 5* (US): first deep-space probe	EFTA (European Free Trade Assn)	1960
First 'Cosmonaut' in space *Vostok 1* (USSR)	Berlin Wall constructed	1961
Mariner 2 (US): first successful flybys of Venus	Algeria gains independence from France Cuban Missile Crisis	1962
Quasars discovered (Matthews & Sandage)	John F.Kennedy assassinated	1963
Mariner 4 (US): first successful flybys of Mars	US enters Vietnam War in support of South Vietnam	1964

	Continental philosophy: roots and dialogue	**The arts**
1965	Althusser, *For Marx* Bachelard, *The Poetics of Space* Foucault, *Discipline and Punish* Foucault, *Madness and Civilization* Ricoeur, *Freud and Philosophy: An Essay on Interpretation*	Postmodernist architecture (1965–85) Venturi, Jencks H.Miller, *The Rosy Crucifixion* S.Plath, *Ariel*
1966	Adorno, *Negative Dialectics* Beneviste, *Problems in General Linguistics* Chomsky, *Cartesian Linguistics* Foucault, *The Order of Things* Greimas, *Structural Semantics* Lacan, *Ecrits* Macherey, *A Theory of Literary Production*	China's Cultural Revolution; Red Guard formed Moravia, *The Lie*
1967	Derrida, *Speech and Phenomena* Derrida, *Of Grammatology* Derrida, *Writing and Difference* Horkheimer, *Critique of Instrumental Reason* Jauss, *Toward an Aesthetic of Reception*	Garcia-Marquez, *One Hundred Years of Solitude* Kundera, *The Joke*
1968	Althusser and Balibar, *Reading* Capital	Berio, *Sinfonia*

	Dumézil, *Myth and Epic* (2 vols, 1968–71) Habermas, *Knowledge and Human Interests*	C.Metz, *Film Language: Semiotics of the Cinema* (1968–72) Solzhenitsyn, *Cancer Ward*
1969	Blanchot, *Infinite Conversation* S.Breton, *Philosophy and Mathematics in Proclus* Foucault, *The Archaeology of Knowledge* Kristeva, *Semeiotiké* Ricoeur, *The Conflict of Interpretations: Essays in Hermeneutics* Serres, *Hermès* (vols 1–5, 1969–80)	Beckett receives the Nobel Prize
1970	Barthes, *S/Z* Kuhn, *The Structure of Scientific Revolutions*	
1971	de Man, *Blindness and Insight* Habermas, *Legitimation Crisis* Hassan, *The Postmodern Turn* Lefort, *Elements of a Critique of Bureaucracy* Rawls, *A Theory of justice*	Tarkovsky, *Solaris*

Science and technology	**Politics**	
Gabor's Holography using laser	Malcolm X assassinated	1965
Surveyor 1 (US): probe returns with detailed photographs of lunar surface	UN imposes economic sanctions on Rhodesia	1966
Pulsars discovered (Cambridge) *Venera 4* (USSR): first successful entry of Venus atmosphere	Six-Day Arab-Israeli War France vetoes British application to enter Common Market	1967
	Paris Riots N.Ireland Civil Rights Movement Soviet troops to Czechoslovakia to halt reforms (Prague Spring)	1968
Astronauts land on moon (US)	British troops to Northern Ireland	1969
Venera 7 (USSR): first probe to survive Venusian surface	US announces invasion of Cambodia	1970
EMI Scanner (Hounsfield)	Independence of East Pakistan as Bangladesh Communist China joins UN—Taiwan expelled	1971

	Continental philosophy: roots and dialogue	The arts
1972	Baudrillard, *For a Critique of the Political Economy of the Sign* Bourdieu, *Outline of a Theory of Practice* Deleuze and Guattari, *Anti-Oedipus* Derrida, *Dissemination* Genette, *Figures III: Narrative Discourse* Girard, *Violence and the Sacred* S.Kofman, *Nietzsche and Metaphor* Marcuse, *Counter-revolution and Revolt*	Bertolucci, *Last Tango in Paris* Heinrich Böll receives Nobel Prize
1973	Apel, *Towards a Transformation of Philosophy* Bataille, *Inner Experiences* Bloom, *The Anxiety of Influence* Geertz, *The Interpretation of Cultures* Jay, *The Dialectical Imagination*	Calvino, *The Castle of Crossed Destinies* Solzhenitsyn, *Gulag Archipelago* (3 vols, 1973–8)
1974	Derrida, *Glas* Irigaray, *Speculum of the Other Woman* Kristeva, *Revolution in Poetic Language*	D.Lessing, *The Memoirs of a Survivor*
1975	Barthes, *The Pleasure of the Text* Castoriadis, *The Social Imaginary* Cixous and Clément, *The Newly Born Woman* Feyerabend, *Against Method* G.Hartman, *The Fate of Reading* Patočka, *Heretical Essays* Ricoeur, *The Rule of Metaphor* Steiner, *After Babel*	Havel, *Audience*
1976	Dufrenne, *Aesthetics and Philosophy* (2 vols) Eco, *A Theory of Semiotics* Foucault, *The History of Sexuality* (3 vols, 1976–84) Gadamer, *Philosophical Hermeneutics* Iser, *The Act of Reading: A Theory of*	Twyla Tharp choreographs *Push Comes to Shove* for Baryshnikov

	Aesthetic Response	
1977	Derrida, *Limited, Inc.* Irigaray, *This Sex Which Is Not One*	*Nouveaux Philosophes* Movement (Levy, Benoist, and Glucksmann) Stockhausen, *Licht* Cycle
1978	Castoriadis, *Crossroads in the Labyrinth* Derrida, *Truth in Painting* Lefort, *The Forms of History* Marcuse, *The Aesthetic Dimension*	

Science and technology	**Politics**	
Apollo Lunar Rover used on lunar surface (US)	Britain takes over direct rule in Northern Ireland	1972
Mars 6 (USSR): first probe to enter Martian atmosphere	Britain, Ireland, and Denmark join EC Paris Peace Settlement ending Vietnam War Oil crisis—OPEC Nations restrict supply	1973
	Former Portuguese colonies gain independence (Angola, Mozambique) Watergate Scandal	1974
First international docking in space: *Apollo 18* (US) and *Soyuz 19* (USSR)	General Franco dies in Spain S.Vietnam surrenders to N.Vietnam	1975
Mandelbrot's Fractal Geometry claims mathematical order exists in apparently random phenomena	Mao Tse-tung dies	1976
Prigogine awarded Nobel Prize	Czech 'Charta 77' Movement	1977
Feigenbaum, 'Quantitative Universality for a Class of Non-Linear Transformations'	UN Peace Force to Lebanon	1978

	Continental philosophy: roots and dialogue	**The arts**
1979	Baudrillard, *Seduction* de Man, *Allegories of Reading* Lyotard, *The Postmodern Condition* Lyotard, *Just Gaming (Au Juste)*	Fassbinder, *Lili Marlene*
1980	Kristeva, *Powers of Horror* Le Doeuff, *The Philosophical Imaginary* Olsen, *Silences*	Balthus, *Sleeping Nude* Eco, *The Name of the Rose* Kundera, *The Book of*

	Rorty, *Philosophy and the Mirror of Nature* Vattimo, *Adventure of Difference* R.Williams, *Problems in Culture and Materialism*	*Laughter and Forgetting*
1981	Baudrillard, *Simulations* Habermas, *Theory of Communicative Action* (2 vols) Jameson, *The Political Unconscious: Narrative as a Socially Symbolic Act* MacIntyre, *After Virtue*	Rushdie, *Midnight's Children*
1982	Girard, *The Scapegoat (Le Boucémissaire)* Rorty, *The Consequences of Pragmatism*	Herzog, *Fitzcarraldo* Garcia-Marquez receives Nobel Prize
1983	Habermas, *Moral Consciousness and Communicative Action* Lyotard, *The Differend* Ricoeur, *Time and Narrative* (3 vols, 1983–5) Said, *The World, the Text, and the Critic*	Murdoch, *The Philosopher's Pupil* Rushdie, *Shame*
1984	Eco, *Semiotics and the Philosophy of Language* Giddens, *The Constitution of Society: Outline of a Theory of Structuration* Parfit, *Reasons and Persons* Prigogine and Staengers, *Order out of Chaos*	Kundera, *The Unbearable Lightness of Being*
1985	Benhabib, *Critique, Norm and Utopia* Habermas, *The Philosphical Discourse of Modernity* Havel, *The Power of the Powerless* Honneth, *The Critique of Power* Taminiaux, *Dialectic and Difference* Vattimo, *The End of Modernity*	
1986	de Certeau, *Heterologies* Dworkin, *Law's Empire*	Eco, *Foucault's Pendulum* Magris, *Danube*

Science and technology	**Politics**	
	First direct elections for European Parliament held in all nine member states	1979
Voyager Spacecraft flies by Saturn	Lech Walesa: Solidarity trade union confronts Communist government in Poland	1980
First US Space Shuttle flight	Greece accepted as tenth member of Common Market	1981

	British force reoccupies Falklands	1982
	Indira Ghandi assassinated	1983
Hao Bai-Lin, *Chaos* (first attempt to collect the scientific literature on chaos and complexity)	Chernenko becomes leader of Soviet Communist Party Reagan re-elected by landslide in US elections	1984
	Gorbachev succeeds Chernenko in Soviet Union Spain and Portugal join Common Market	1985
Challenger (US) Space Shuttle explodes on take-off Chernobyl nuclear disaster in USSR	Philippine President Marcos overthrown	1986

	Continental philosophy: roots and dialogue	**The arts**
1987	Derrida, *Psyché: Inventions of the Other* Derrida, *The Post Card* Derrida, *Schibboleth*	Calvino, *The Literature Machine* Vargas-Llosa, *The Storyteller*
1988	S.Breton, *Poetics of the Sensible* Habermas, *Postmetaphysical Thinking* Lyotard, *The Inhuman* Vattimo, *The Transparent Society*	
1989	C.Taylor, *Sources of the Self*	C.J.Cela receives Nobel Prize
1990	Nussbaum, *Love's Knowledge: Essays on Philosophy and Literature* Ricoeur, *Oneself as Another*	Kristeva, *Les Samuraïs*
1991	Derrida, *Given Time/Counterfeit Money* Jameson, *Postmodernism, or the Cultural Logic of Late Capitalism* Kristeva, *Strangers to Ourselves* Rorty, *Philosophical Papers* Said, *Musical Elaborations*	Enzensberger, *Europe in Ruins* Murdoch, *Message to the Planet*
1992	Benhabib, *Situating the Self* Habermas, *Facticity and Validity* Honneth, *The Struggle for Recognition* Murdoch, *Metaphysics as a Guide to Morals* Ricoeur, *Lectures I and II* (1991–2)	Jordan, *The Crying Game* Koslowski, *Imagine Europe* Schmidt/Cohn-Bendit, *Heimat Babylon*
1993	Derrida, *Spectres of Marx* Derrida, *Khôra* S.Kofman, *Explosion 2*	G.Grass, *Novemberland*

Lyotard, *The Postmodern Contradiction*
J.-L.Nancy, *The Sense of the World*
Levinas, *God, Death and Time*

Science and technology	**Politics**	
Minsky's 'Mental Kollectivs': *The Society of Mind*	USSR and US agree to cut nuclear arsenals and reduce nuclear missiles	1987
Neurocomputing (Anderson and Rosenfeld)	Lockerbie: Terrorist sabotage of a jumbo jet kills 270	1988
Prigogine/Grégoire, *Exploring Complexity*	Fall of Berlin Wall Havel elected Czech President	1989
Santa Fe Institute studies on chaos, entropy and complexity	Nelson Mandela freed after 27 years imprisoned in South Africa Saddam Hussein annexes Kuwait	1990
	Soviet Union dissolved Gulf War drives Iraq from Kuwait	1991
S.Kauffman, *Origins of Order: Self-Organization and Selection in Evolution*	Break-up of Yugoslavia Croats, Serbs, Bosnians at war	1992
	Ratification of Maastricht Treaty on European Union	1993

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Introduction

Richard Kearney

Continental philosophy, as it has emerged in the twentieth century, is less a seamless fabric than a patchwork of diverse strands. Phenomenology, hermeneutics, existentialism, structuralism, critical theory, deconstruction—these are some of the salient movements which have developed in continental Europe between 1900 and the 1990s, though their influence is by no means confined to their area of origin. Continental thought has proved highly exportable, circulating far beyond the frontiers of Europe to provoke strong responses in the intellectual world at large.

It is worth recalling at the outset that the term 'continental' philosophy was coined not by European thinkers themselves but by academic philosophy departments in the Anglo-American world eager to differentiate it from 'analytic' thought. It was initially more a label of convention than a category corresponding to a given essence of thought. But whatever the origin or accuracy of the distinction, what became known as 'continental philosophy' has managed to exert a decisive impact on contemporary thought over the decades—an impact which exceeds the specialized discipline of academic philosophy and embraces such diverse fields as sociology, political science, literary theory, theology, art history, feminism and a variety of cultural studies.

Some view this protean character of continental thought as a defect—a sign that it cannot be rigorous or reliable. If it can be applied to anything in general it must be saying nothing in particular! More an art *(Kunst)* than a science *(Wissenschaft)*! More an exercise in poetic intuition than ratiocinative inquiry! What these objections tend to ignore, however, is that most founding fathers of continental thought were committed to a view of philosophy as science and saw themselves as guided by a basic notion of critical reason. Edmund Husserl, for instance, spoke of phenomenology as a 'rigorous science', while his disciple Heidegger regarded it as a transcendental science of thecategories of Being. Even Sartre, the combative pioneer of French existentialism, sought to apply phenomenology to an historical 'critique of dialectical reason'.

Similar scruples operate in other major currents of continental thought. Ferdinand de Saussure, founder of structuralism, spoke of semiology as a 'science of signs'; and the works of such disciples as Lévi-Strauss, Foucault, Althusser, Lacan or the early Barthes were each marked by a determination to apply the structural model of language to a variety of disciplines (anthropology, historiography, historical materialism, psychoanalysis, sociology). One even finds critical theory and hermeneutics combining philosophical inquiry with other human sciences—with Paul Ricoeur calling for a creative dialogue between a historical 'understanding' *(Verstehen)* alert to the contingencies of human circumstance, and scientific 'explanation' *(Erklären)* committed to goals of universal objectivity. Many continental thinkers have sought to redefine and reinterpret reason, but few would claim to jettison it altogether.

Perhaps the most persistent feature of continental philosophy, through all its multiple mutations, is a commitment to the *questioning of foundations*. From phenomenology to deconstruction, one encounters the persuasion that the old foundationalist arguments no longer suffice. Meaning is not some metaphysical essence or substance; it is a task of intersubjective and intertextual relations. Truth cannot be grounded on a given system of being (realism) or mind (idealism); it must be radically rethought as an interplay of differences (perspectives, *Abschattungen,* intentionalities, situations, structures, signifiers, etc.). Continental philosophy thus finds itself renouncing the metaphysical quest for absolute grounds, even if some of its proponents—Husserl in particular—found this renunciation vexed and regrettable. Kant's claim to 'lay the foundation of knowledge', Hegel's appeal to Absolute Spirit, Kierkegaard's recourse to a Transcendent Deity, Marx's call for a Total Science, are largely superseded (albeit often reinterpreted) by continental thinkers in the twentieth century.

But if metaphysical foundationalism is one adversary, positivism is another. Reductionist attempts to explain away *meaning* in terms of *facts* are invariably resisted by phenomenologists, existentialists, critical theorists and postmodernists. Philosophical questioning, they argue, requires the specific methodology of a human science *(Geisteswissen-schaft);* and while remaining in critical dialogue with the empiricometric procedures of natural sciences *(Naturwissenschaft),* it must not be *reduced* to the latter. Both methods are valid. It is the effort to confound or conflate them that leads to misunderstanding.

This is not to suggest that the critique of positivism is an exclusively continental concern. Analytic thinkers inspired by the laterWittgenstein, Ryle, Davidson or Dummett, show equal resolve in disentangling such category mistakes. But the reasons for doing so are different in each case. Generally speaking, analytic thinkers seek to avoid such error in the interests of clarity, evidence, verification and coherence; continentals appear more impelled by ontological scruples to keep thought open to 'irreducibles' and 'undecidables'—that is, to questions which surpass the limits of 'pure reason'—questions of being and nothing, of transcendence and difference, of alterity and historicity.

The reference to Kant here is perhaps useful. Continental philosophers have often tended to privilege the moral and aesthetic questioning of the Second and Third *Critiques* over the strictly epistemological reading of the First. This is not to say that they ignore the First but that they read it in a particular way. For example, while both analytic and continental thinkers share a common commitment to Kant's *transcendental aesthetic,* (the origination of all experience in sensible time and space), the former tend to show preference for the *transcendental analytic* (dealing with objective categories of understanding), whereas the latter incline more towards the 'limit ideas' of World, Soul and Freedom contained in the *transcendental dialectic*. To put this more succinctly, continental thought is on balance more likely than analytic thought to bypass the confines of pure reason, venturing into the liminal areas of noumenal experience and dialectic. Indeed Husserl's repudiation of the Kantian distinction between phenomenal and noumenal in his *Logical Investigations* (1900–1) already signalled this direction. Continental philosophy, it could be said, favours dialectical and practical reason over 'pure' reason. It holds that *being* is ultimately irreducible to *verification, meaning* to *evidence, truth* to *coherence, time* to *measurement, paradox* to *problem*.

This raises the controversial subject of style. Continental philosophy is marked by distinctive signatures of thinking and writing. Its practitioners would claim, for instance, that extraordinary questions of experience cannot always be expressed in ordinary language. Ideas of 'dialectical' reason (as both Kant and Hegel realized in their different ways) cannot be translated into categories of 'pure' reason. And the attendant *surplus of meaning* requires that standard criteria of correspondence and coherence have to be occasionally transgressed. This is by no means unprecedented in philosophy. As Heidegger points out in his introduction to *Being and Time,* Aristotle's innovative use of language to express his discovery of being was far from transparent to his original Greek readers. This line of reasoning could be construed as an 'anything goes' argument; but there is more to it than that. A certain experimental *style de pensée* is the risk certain philosophers are prepared to take in order to say the unsayable (or, in Beckett's ludic phrase, to 'eff the ineffable'). Adorno, Heidegger, Merleau-Ponty, Lacan, Levinas, Derrida, Kristeva—each has his or her own inimitable voices.

Finally, it must be acknowledged that continental philosophy does not arise in a vacuum. True to its conviction that thought is always *situated,* the predominant mood of such philosophy, from existentialism to postmodernism, is one deeply committed to moral and political questions. Thinking is no longer regarded as some neutral exercise in cognition but an intervention in the 'lived world' of history and society. This responsiveness of ideas to the *Lebenswelt* was, in the case of modern continental thought, radically informed by the experience of two world wars on European soil—and the corresponding horrors of Auschwitz and the Gulag. Husserl was one of the first to register this sense of breakdown and disorientation when, fleeing from Nazi Germany, he called for a fundamental rethinking of the western intellectual tradition. And most continental philosophers after him have shared this persuasion, advancing forms of inquiry that are increasingly exploratory, tentative, iconoclastic, *engagé*. Critical theorists from Horkheimer to Habermas, existentialists from Merleau-Ponty to de Beauvoir, structuralists from Barthes to Foucault, not to mention postmodernist thinkers like Lyotard and Vattimo, all demonstrate a keen preoccupation with social and political issues. The common challenge is to start all over again, seeking alternative modes of questioning. Totalizing Archimedean principles are renounced. Meaning and value are to be reinterpreted from first to last. Recurrent crises call for perpetual revision. And it is perhaps this urgency to respond to the trauma of historical change that has compelled so many continentals to abandon the metaphysical obsession with foundations in favour of post-metaphysical experiments of thought.

The fourteen essays in this volume outline and assess some of these experiments. The first five span the twin movements of phenomenology and existentialism, running from Husserl and Heidegger to Sartre, Merleau-Ponty and Levinas. Subsequent essays deal with specific currents of continental thought in such areas as science, Marxism, linguistics, politics, aesthetics, feminism and hermeneutics, while a final essay on postmodernism highlights the manner in which so many concerns of continental thought culminate in a radical anti-foundation-alism. Each study speaks for itself; but I wish to thank the contributors, drawn from six different countries, for their co-operation and collegiality in putting this volume together. It has been a gratifying reminder that for all the controversies surrounding continental philosophy, it remains a forum of debate where

critical intelligence, scholarly expertise and a passionate commitment to the burning issues of our time are still alive and well.

CHAPTER 1
The beginnings of phenomenology

Husserl and his predecessors

Richard Cobb-Stevens

Edmund Husserl was the founder of phenomenology, one of the principal movements of twentieth-century philosophy. His principal contribution to philosophy was his development of the concept of intentionality. He reasserted and revitalized the premodern thesis that our cognitional acts are intentional, i.e., that they reach out beyond sensa to things in the world. When we think or speak about things, and when we perceive them, we deal with those things and not with mental intermediaries. Intentionality is our openness to the world, our transcending mode of being. Husserl also developed the implications of this fundamental thesis. He repudiated Locke's interpretation of 'mind' as an inner space set off from the rest of nature, and he rejected Kant's distinction between phenomena and things-in-themselves. He also rejected the view that the task of philosophy is to guarantee that our concepts and theories somehow mirror the world.

These themes brought a sense of liberation to many philosophers who by the early decades of the twentieth century had become weary of the insoluble problems generated by the modern account of cognition. Husserl's analysis of signs and semantic systems had a similar effect in the fields of linguistics and logic which had been dominated by associationist and psychologistic accounts of the production of meaning. His interpretation of the complementarity of pre-scientific and scientific modes of rationality contributed to the demise of positivism and inspired new and fruitful approaches in the social sciences. His theories of time and ego-identity provided much-needed correctives to reductionist tendencies in psychology. Finally, his balanced interpretation of the interplay between historical horizons and the drive fortruth offers a reasonable alternative to the contemporary tendency to regard all truths as relativized by their historical conditions.

It is unfortunate that Husserl's writings had little influence on the development of the tradition of analytic philosophy, the other major movement of twentieth-century philosophy. Husserl himself engaged in spirited but amicable debate with Gottlob Frege, who is generally considered to be the proximate founder of analytic philosophy. However, such exchanges became increasingly rare among their followers who have tended on the whole to ignore one another's works. This breakdown of communication was due in part to an early misunderstanding. Frege thought that Husserl was a proponent of psychologism, i.e., the view that numbers, propositions and logical laws are reducible to mental states. Frege's critique of Husserl's alleged psychologism was decisive for a whole generation of analytic philosophers whose goal was to defend rationality from relativism by detaching logic and semantics from all dependence on what they took to be

irremediably subjective intuitions. On the other hand, Frege's decision to divorce logical analysis entirely from cognitive intuition alienated philosophers within the phenomenological tradition who saw in this strategy only a revival of Hobbes's preference for an exclusively calculative rationality. Ironically, Husserl's critique of psychologism was in fact more coherent and more complete than that of Frege and his followers, for he showed how propositions are grounded in cognitive intuitions without thereby being reduced to merely subjective phenomena. In recent years both phenomenological and analytic traditions have found themselves increasingly vulnerable to contemporary forms of historicism and relativism. This situation has had the felicitous effect of encouraging within both traditions a reappraisal of the reasons for their mutual distrust. Considerable progress has been made of late in restoring a climate conducive to renewed dialogue.

In the judgment of many, the originality of Husserl's thought and the rigour of his analyses guarantee him a place among the greatest of philosophers. However, his writings tend to be excessively abstruse and technical. As a result, his readership has generally been limited to professional philosophers. By contrast, Martin Heidegger's more evocative philosophical style and Jean-Paul Sartre's literary brilliance assured for the subsequent phenomenological tradition a wider audience and an unusually immediate cultural influence. This is not to say that these thinkers were merely commentators on Husserl (indeed, many regard Heidegger as a more profound and original thinker), but only that they often succeeded in communicating the basic insights of Husserl's phenomenology more clearly and forcefully than did Husserl himself. There is another reason why Husserl's writings often failed to convey to his readers the full force of his criticism of the modernepistemological perspective. It seems clear, in retrospect, that he was not sufficiently sensitive to the gravitational pull that the language of modern philosophy exercised on his thought. He explicitly modified the senses of such key modern terms as 'presentation', 'content', 'immanence', 'subjectivity', 'phenomenon', but he never completely jettisoned the lexicon of modern philosophy. Indeed, he always maintained a conservative stance with regard to innovative philosophic language, preferring to take familiar terms to their limits rather than to introduce unusual metaphors and neologisms. He therefore failed to appreciate the extent to which the familiar linguistic matrix of modern philosophy conceals a long history of accumulated premises which determine the kinds of questions that readers would bring to his texts. His goal was to call those premises into question, but his philosophical vocabulary tended too often to reinforce them. It is unfortunate, too, that Husserl seems to have had little first-hand familiarity with ancient and medieval philosophic texts. He was always more at home with the traditions of British empiricism and Kantian criticism. Had he been more attuned to the weight of words in the development of philosophic concepts, and better informed about the ancient and medieval traditions, his breakthrough would no doubt have been less plagued by ambiguities and less subject to misinterpretations.

Husserl was born in Prossnitz, a town then located in Austria. He took courses in mathematics at the universities of Leipzig, Berlin and Vienna. In Berlin, he studied with the renowned mathematicians Leopold Kronecker and Karl Weierstrauss, and also attended occasional lectures in philosophy by Wilhelm Wundt. He received his Ph.D. in 1882 from the University of Vienna for a dissertation entitled 'Contributions to the

Theory of the Calculus of Variations'. After a year in Berlin as assistant to Weierstrauss, he returned to Vienna to study philosophy with Franz Brentano, who had recently resigned his chair of philosophy. In 1886, on Brentano's recommendation, Husserl went to Halle to work with Karl Stumpf, who supervised the thesis submitted for his *Habilitation,* a study of the concept of number. From 1887 to 1928, Husserl held teaching positions at Halle, Göttingen, and Freiburg im Breisgau.

As a Jew, Husserl was increasingly the subject of harassment during his retirement years in Freiburg. It must have been an especially cruel blow to have found himself denied access to the library of the university he had served so well. After his death in 1938, Husserl's unpublished manuscripts were saved from destruction by Hermann Van Breda, a Belgian priest and philosopher, who also arranged for Husserl's wife and daughter to be sheltered in a Belgian convent during the occupation. Van Breda subsequently founded the Husserl Archives at Louvain.

Husserl was a person of high moral character and of impeccable intellectual integrity. He looked upon philosophy as a vocation, and felt personally called upon to defend reason against the various forms of relativism prevalent in his day. However, his was never a merely defensive or narrowly conservative project. Indeed, he often expressed admiration for the sceptical tradition in philosophy, and thought that Hume's radical critique of presuppositions made him the greatest of modern philosophers. He also rejected the arrogance and chauvinism of those who claimed that philosophy had achieved its culmination in German thought and expression. Philosophy, he argued, cannot be the exclusive property of any single culture or language, for the emergence of the philosophic spirit introduced a new mode of teleology characterized by the complementary traits of universality and infinity. The telos of philosophy is universal in that it strives to attain an identical truth which is valid for all who are no longer blinded by traditions, and infinite in that this goal of truth can never be fully realized and thus remains always a regulative idea. By reason of its universality, therefore, philosophy cannot be limited to a particular period or people, and by reason of its infinity philosophy remains always an unending process ([1.33], 286; [1.89], 151–60).

During his lifetime Husserl published several books and also left an extraordinary number of manuscripts, lecture notes and working papers. Both the published works and the unpublished materials contain many repetitive passages, tantalizingly unfinished descriptions, and agonizing reappraisals of earlier positions. As a result, it is often difficult to co-ordinate earlier and later works, or even to be sure of the direction ultimately taken by his thought. Husserl would not be entirely displeased by this situation, for he concluded finally that there can be no totalizing syntheses. We must strive for objectivity, and hope for progress towards that goal, but we must also acknowledge all the while that the goal of truth functions always as 'the idea of an infinite task' ([1.33], 291).

EARLY WORKS: INFLUENCE OF FREGE BRENTANO, HERBART, STUMPF AND LOTZE

Husserl's first published work, *Philosophy of Arithmetic* (1891), was a revised version of

his earlier analysis of the concept of number. Adopting a distinction first made by Brentano, Husserl distinguishes between intuitive presentation and symbolic intention of numbers. He describes how our primitive intuitions about numbers and their interrelationships are based upon the experiences of counting, comparing and collecting, and how we think in symbols of more complex numbers for whichthere can be no such authenticating intuitions. Unfortunately, he makes several remarks which give the impression that he conflated numbers and their presentations. For example, he refers to the unity of a number as a psychic relation, and claims that understanding the concept of a number requires reflection on its presentation in relevant acts of collective combination. In 1894, Frege called attention to these compromising remarks in a critical review of Husserl's book. He objected that Husserl's analysis blurs the distinction between subjective and objective domains, and concluded that his work was a typical example of psychologism ([1.65], 200–1). While Frege's critique finds some justification in Husserl's text, this extreme conclusion is unwarranted. Frege was inclined to regard as psychologistic any attempt to relate the status of numbers to the activities of counting and collecting. Hence, he was not likely to be attuned to the nuances of Husserl's intention which was surely not to collapse the objectivity of numbers into their acts of presentation but rather to describe just how their objectivity manifests itself to us. At any rate, Husserl later distinguished clearly between numbers and their presentations, and between the concept of number and the concept of collective combination ([1.35], 784; [1.86], 24). Frege also criticized Husserl for holding the view that numbers are totalities (determinate multitudes) comprised of mere 'somethings' having no specific content and yet somehow differing from one another. However, this is a caricature of Husserl's position, for he clearly maintains that objects are always identified by way of their features. His point is simply that, once we have identified objects to be counted, we prescind from the determinate content of those objects in the instance numbering them.

It took some time, however, for Husserl to clarify the ambiguities generated by his continued dependence on the linguistic and conceptual framework of the empiricist tradition, which was the remote forerunner of late nineteenth-century psychologism. In his essay 'Psychological Studies in the Elements of Logic' (1894), he makes the unequivocal claim that our cognitive intuitions truly present the things intended by our speech acts. Moreover, he distinguishes clearly between mental acts and their contents, a distinction that had been blurred by the empiricist notion of a mental 'process', which in effect reduces cognitive acts to the mere having of associatively modified impressions. Nevertheless, he constantly uses the term 'contents' in an ambiguous fashion, sometimes to refer to ill-defined mental representations and sometimes to refer to things in the world in so far as they are known. Hence he does not yet make it clear that the intended objects of both our signitive and intuitive acts are, ordinarily at least, things in the world rather than mental substitutes ([1.40], 126–42; [1.122], 34–8).

These ambiguities testify to the influence of Brentano on the earlyHusserl. Brentano rejected the empiricists' reduction of mental acts to associative reactions, reaffirmed at least vaguely the medieval distinction between acts and contents, and retrieved in part the ancient thesis that cognitive acts reach out to the intended objects themselves. He is therefore rightly celebrated for having revived the theory of intentionality. However, his interpretation of this notion intermingled modern and premodern themes. His early

writings described intentional contents in ways that evoke the modern notion that impressions and ideas function as intra-mental substitutes for inaccessible real objects of reference. He said, for example, that every intentional experience 'contains something as its object within itself, and referred also to this 'immanent objectivity' as the 'intentional in-existence of an object' ([1.45], 88–9).

Although Brentano explicitly related his account of intentionality to the scholastic tradition, and traced its origin to Aristotle's books on the soul, he unfortunately tended to read the modern interpretation of immanence into the medieval theme of *esse intentionale*. It is true that the Scholastics used the term 'intentional' (and more frequently the term 'objective') to refer to the mode of being had by things known, in so far as they are present in the knower. The point of the medieval distinction between intentional (objective) being and real being was to clarify Aristotle's claim that the knower 'is somehow' the form of the thing known, without thereby entering into physical identity with the thing. It was thought that the intentional object ('inner word', 'formal concept', 'expressed species') functions as a unique sort of intermediary, i.e., as a transparent sign through which the mind is related to reality ([1.101], 62 n. 3). Although this emphasis on the mediating function of formal concepts may well have prepared the way for the modern thesis that to know is to have a representation of something (its 'idea' or 'concept') within the mind's interiority, the medieval thinkers themselves clearly maintained that the intentional object is the very thing itself, considered as known (Aquinas, *De Veritate,* iv, 2 ad 3).

Aristotle does not seem to have thought it necessary to postulate any intermediary, however special, between intellect and thing known. Indeed, he suggests that the intellect must itself be free of formal structure, and hence empty of content, so that it can become the forms of all things. The intellect, says Aristotle, possesses the same son of adaptability as the human hand. It takes on the forms of things in the way that the human hand grasps tools (Aristotle, *De Anima,* 423a 1–3; [1.90], 132–7). Thus, the intellect operates within the realm of nature itself rather than within some subjective enclosure. Its mode of being is its transcending function. Aristotle further describes a thing's form as its sortal feature, its 'look' *(eidos)*. The look is *what* we know when we know *this* particular thing. Although there is a difference between intuiting an individual *qua* individual (the primary substance), and intuiting its species-look (the secondary substance), these modes of intuition are complementary and interdependent. We grasp the species-look both as a surplus whose sense exceeds the particularity of this instance and as a condition for the manifestation of the particular (Aristotle, *Metaphysics,* 1042a 17–49). Aristotle also emphasizes the continuity between perception and predication. Predicative discourse gives syntactical articulation to the inarticulate nuances of intuition (Aristotle, *On Interpretation,* 16b 25–6). Judging is therefore directed primarily upon things and their perceived features, not upon propositions as such.

Brentano revived the Aristotelian notion that the intellect's intentional targets are things in the world, but he imagined the intellect's grasp of forms as taking place within the mind's inner space. He therefore concluded that the intellect could never effectively reach those targets. Brentano also subscribed wholeheartedly to the modern interpretation of perception. He claimed that our perceptions yield merely subjective appearances, and he appealed to physical causality alone in order to account for the relationship between

these appearances and real objects. Corresponding to perceived colours, he claimed, there are only the 'vibrations' which emanate from the interaction of atoms, molecules and forces. A thing's true being, therefore, is its hidden quantifiable reality accessible only to the methods of the natural sciences. Perceived objects do not exist really outside of us; they are *mere* phenomena ([1.45], 9–10). In his later works, Brentano nevertheless claimed that linguistic references are ordinarily directed upon transcendent real entities, rather than upon mental contents. However, there is no indication that this new position entailed a critique of the empiricist account of intuition. Everything suggests a compromise: we refer to real things, but we see only phenomena. Moreover, Brentano adopted the modern interpretation of the relationship between assertive and predicative moments of judgment. Judgment, he says, is an act of acceptance or denial directed upon some presentation. This definition implies that judging is not primarily directed upon things and their perceived features, but upon intra-mental or ideal contents ([1.45], 198–9).

Dallas Willard's historical research has demonstrated how the influence of Johann Friedrich Herbart, Karl Stumpf and Hermann Lotze helped Husserl to make a more decisive break with the empiricist tradition than that achieved by Brentano ([1.122], 30–4). Herbart defined 'apperception' as the 'awareness of what is going on in us', and subsequently distinguished clearly between awareness of the activity of thinking and awareness of its content ([1.72], v, 43). Stumpf, to whom Husserl dedicated his *Logical Investigations,* held that second-order representations (such as the idea of a causal nexus) may arise out of first-order representations, and that the former are not reducible to associative manipulations of the latter. In short, he held that we somehow perceive causal connections ([1.112], 5). Lotze broke away even more completely from the empiricist position. Whereas Hume had claimed that the impression of the mind's transition (which accounts for the idea of necessary connection) is reducible to the process of transition itself, Lotze asserted unequivocally that ideas of relations depend on a reflexive awareness of the mind's transitions. Moreover, he drew a distinction between the object of the reflexive act (a second-order mental content) and the relationship represented as obtaining between the transcendent objects of the first-order impressions ([1.78], 537–8). Willard points out that these distinctions are unthinkable within the context of the usual empiricist account of cognition. There is no way, for example, of reducing Lotze's relating activities to the mere having of automatic transitional processes, or of reducing his second-order contents to faded and less forceful copies of impressions. On the other hand, these authors continue to interpret mental activities as purely inner psychological happenings, and they do not explicitly call into question the empiricist description of mind as a theatre of representations. Hence, their modifications of the Humean account do not constitute a full fledged revival of the premodern notion of cognition. None the less, once the distinction between activity and content had been re-established, and once the notion of irreducible second-order operations and contents had been elaborated, the stage was set for a comprehensive reappraisal of the modern thesis that the terminus of our knowing is located within the mind's inner space.

LOGICAL INVESTIGATIONS

Husserl was the first to challenge the modern position squarely. During the period from 1894 to 1900, further reflection on the incoherence of psychologism and on the need for a new foundation for logic led him to make a more decisive break with the modern epistemological model for mind. There is no evidence that he engaged during these years in any prolonged study of medieval or later scholastic literature on the topic of cognition, or that he was markedly influenced by a reading of the relevant texts of Aristotle. Yet he was able to achieve what amounts to a reconstruction of the premodern notion of the intentional continuity between mind and nature. His reflections during this period culminated in the publication of his greatest work, *Logical Investigations* (1900–1). This book begins with a series of prolegomena which make a powerful critique of the tenets of psychologism. The rest of the work develops a more positive account of how our cognitive acts have the capacity to yield access to objective truths. Its six investi-gations are devoted to the following related topics: signs and signification, universals and particulars, parts and wholes, logical grammar, intentionality, evidence and truth.

In the prolegomena, Husserl demonstrates the incoherence of trying to reduce the objectivity of numbers, propositions, and truth itself to subjective states or activities. Like Frege, he calls attention to the self-contradiction involved in every attempt to defend the thesis that truth is reducible to our acceptance of it. One cannot coherently propose a theory that subjectivizes truth and then go on to make objective claims for that theory. To make any statement whatsoever, including a statement in defence of relativism, is to make a claim that something is the case independently of one's making that claim. Like Frege, Husserl also contends that the principles of logic cannot be regarded as provisional generalizations because inductively derived laws could never serve as standards for adjudicating between valid and invalid arguments. It would make no sense to criticize some individual's thinking as illogical or inconsistent on the basis of inductive generalizations about how thinking occurs. The idiosyncratic thinking in question might legitimately be characterized as unusual, but not as invalid. Husserl holds that psychologism also fails to account for the kind of evidence belonging to principles of logic, such as the laws of the syllogism. He criticizes John Stuart Mill's description of logical laws as inductive generalizations on the grounds that the evidence for logical laws is absolutely certain rather than merely probable and provisional ([1.35], 187–96). This sort of argument would be unacceptable to Frege, who insisted that any appeal to evidence blurs the distinction between a proposition's truth and its being recognized as true. According to Frege, a proposition is simply true or false in itself. He argued that genetic accounts of how people come to think of propositions as true are irrelevant to the issue of truth ([1.64], vi; [1.66], 133; [1.86], 32–8). Husserl contends, on the contrary, that there is no reason why an appeal to evidence should email the reduction of truth to its recognition. When the objective truth of a proposition makes itself manifest to the seeker of truth, it does not thereby become subjective.

The first investigation opens with a discussion of two kinds of signs: indications and expressions. Indications either stand for what they signify (a flag as the sign of a nation) or point to the existence of some absent reality (smoke as a sign of fire). In both cases, association provides the link between sign and signified. As opposed to indications, linguistic expressions introduce a stratum of meaning. Their use requires acts of interpretation on the part of speakers and listeners. A speaker's words ordinarily

accomplish three functions: they express meanings, refer to objects, and 'intimate' to a listener the intellectual activity of the speaker. Husserl observes that the 'intimating' function of expression is a kind of indication, in the sense that spoken or written words are indices of the existence of the speaker's hidden and therefore 'absent' thoughts. He adds that many philosophical errors arise from the failure to distinguish properly between indication and expression. He takes Mill's account of naming as an example. Mill held that proper names denote but do not connote. They point to an object without in any way presenting or conveying information about the object. Proper names, he added, are like the distinctive chalk-marks made by the robber (of a popular tale) on a house that he intended to plunder at a later hour. Husserl observes that this comparison unfortunately suggests that proper names function only as indications. It is true that when the robber later sees the chalk-marks, he recalls by association his earlier thought 'This is the house I must rob'. But in relation to its object a name does not function as an indication or signal. An indication always motivates belief in the existence of whatever it indicates. However, a names does not similarly entail the existence of the object named ([1.35], 295–8). Named objects may be real, ideal, imaginary or even impossible. Thus, meaningful reference to an object does not perforce entail the existence of the object. The context of its use determines the kind of ontological commitment entailed by a linguistic expression. Husserl thus elegantly avoids the paradoxes that Bertrand Russell later discovered were implicit in Mill's view that names are like purely indexical signs.

The second investigation makes a convincing critique of the empiricist reduction of universals to blurred particulars. Husserl contends that recognition of some particular feature requires a grasp of the primitive relationship between species and instances. We could not discern a distinctive particular feature as such (e.g., this particular red) if we did not also intuit the corresponding universal (the species, Red). The two modes of intuition are interdependent. We grasp the particular feature as an instance of a range of similar instances in which the species is realized, and we grasp the identity of the species as the condition for the possibility of identifying the particular as such an instance.

The third investigation deals with the relationships between parts and wholes. Husserl first distinguishes between independent parts, or 'pieces', and non-independent parts, or 'moments'. Pieces are parts that are separable from their wholes. Moments are parts that are so interrelated with one another, or with their wholes, that they cannot be given separately. We learn to recognize the various relationships between parts and wholes by attempting successfully or unsuccessfully to vary these relationships in imagination. For example, we may conclude that the colour of a thing is inseparable from its surface (or extension) because we cannot successfully imagine eliminating one without also eliminating the other.

The fourth investigation discusses the relationship between grammar and logic. Husserl contends that grammatical laws governing distinctions between complete and incomplete expressions, and senseless and absurd expressions, are grounded in ontological structures. Laws governing the compounding of meanings are also similarly grounded in the way things are. All such rules have their origins in the interplay of parts and wholes given in perception. Husserl acknowledges that various languages may organize perceptual part-whole complexes differently. He suggests, however, that a study of the different ways in which various languages accomplish this task will reveal common categorial structures

concealed by empirical differences ([1.35], 526; [1.100], 206).

In the fifth investigation, Husserl objects to the above-mentioned expressions that Brentano had used to describe the status of intentional objects ('immanent objectivity', 'intentional in-existence'). He points out that these phrases suggest that the intentional object enters into consciousness as a component of the flux of experience and that it functions within the enclosure of the mind as a substitute for the object of reference. Husserl insists, on the contrary, that the intentional object and the object of reference are one and the same: 'It need only be said to be acknowledged that the intentional object of a presentation is the same as its actual object…it is absurd to distinguish between them' ([1.35], 595). He thus affirms unequivocally that our intentional acts target things in the world. Husserl also clarifies the relationship between intentional contents and intentional objects. He says that the term 'intentional content' may legitimately be interpreted in the following ways: (1) as the intentional object (either the object *tout court,* or the object considered as it is intended); (2) as that feature (the act's 'matter') in virtue of which the act achieves determinate reference; (3) as the 'intentional essence' of the act, i.e., the 'matter' combined with its 'quality'. The term 'quality' refers in this context to the type of intentional act, e.g., question, wish, statement, etc. ([1.35], 578–80, 589, 657; [1.54], 26–36). These distinctions are consistent with Husserl's claim, in the first investigation, that propositions are related to the acts in which they are expressed in a manner comparable to the way in which species are related to their instances. Considered as an intentional essence, the intentional content (matter and quality) is an ideal proposition that is independent of particular intentional acts. Taken as instantiated, the matter and quality are non-independent 'moments' of a particular act ([1.35], 330).

Many commentators have rejected this thesis on the grounds that it seems to commit Husserl to the questionable view that ideal propositions may somehow be particularized as moments of individualintentional acts. John Drummond has called attention to two passages that suggest that Husserl eventually modified his position. A note in the second edition (1913) strongly implies that the intentional content should not be regarded as a particularized feature of the intentional act ([1.35], 576; [1.54], 26–36, 39–42). Moreover, in *Ideas Pertaining to a Pure Phenomenology and to a Phenomenological Philosophy* (1913), Husserl adds that what he had formerly taken to be a property of acts was really a property of the 'meant as such' ([1.41], 308; [1.54], 41). In other words, Husserl finally identifies intentional matter and intentional object (in the sense of the 'object considered as it is intended'). This is an important statement, for it effectively eliminates any residue of the medieval notion that we must postulate some son of intermediary content in between intentional acts and their objects.

Husserl agrees with Brentano that we must distinguish between predication and judgmental assent. However, he disagrees with Brentano's view that judgment is the acceptance or rejection of a neutralized presentation. According to Husserl, judgment is an assertive attitude which pervades the achievement of predication. This attitude is determined by anticipated or concomitantly experienced intuitions of things and their features, rather than by some sort of appraisal of the sense of the sentence. Husserl also agrees with Frege, as opposed to Brentano, that judgment is always a positive attitude, even when the content to which it assents includes a negation. In the context of discourse, assertoric statements make truth claims by reason of their form, not by reason of their

predicative content as such, nor by reason of some tacit prefixed existential proposition ([1.35], 612–16). He thus firmly rejects the modern view that judgments are appraisals of nominalized propositional contents. In our straightforward dealings with the world, we are ordinarily preoccupied with things and their properties, rather than with what we are saying. Our speech is guided not by a scan of meanings but rather by anticipated or achieved intuitions of the essential structures of things. It follows that we need not postulate mediating structures (ideas or concepts) between words and things, nor do we need to speculate about a 'place' in which they dwell. To know something is simply to possess its form, to intuit it through its essence, i.e., its intelligible structure. Speech acts express meanings as ideal objects, but meanings are not grasped as such in the instance of articulation.

Husserl also develops more in detail the guiding metaphor of his account of intentionality. He contrasts the 'emptiness' of symbolic intentions with the 'fullness' of intuitive presentations. An empty act is directed toward an object in its absence. A fulfilling act registers its presence. Symbolic intentions may be either nominal (simple) or propositional (complex). A nominal act is single-rayed and directed towards a whole. A propositional act is multi-rayed, since it articulates discrete parts within a complex object. Intuitive presentations may be either perceptual or categorial.

These distinctions prepare the way for a discussion of truth in the sixth investigation. According to Husserl, the experience of truth occurs when we recognize the identity of an object in the transition from empty intention to fulfilling intuition ([1.35], 621–4, 765–70). This description displaces the problem of truth from its traditional locus in the judgment, since the identity-synthesis may occur both in nominal and propositional contexts. Truth is achieved on the pre-predicative level in the identity-synthesis of an empty nominal intention and its correlative perceptual intuition. If judgments achieve truth in a comparable sense, it is not by reason of their propositional structure but by reason of a parallel intuitive fulfillment of their emptily intended objects ([1.76], 68).

The sixth investigation also offers a more extensive critique of the restrictive account of intuition proposed by British empiricism. Husserl approaches this issue indirectly by first criticizing the interpretation that the empiricist tradition had given to the role of those components of a proposition that belong to its categorial form, e.g., prepositions, conjunctions, cases and the copula. According to Locke and Hume, these syntactical operators refer to intra-mental processes rather than to aspects of the world. Husserl dismisses this thesis on the grounds that, when we use such expressions, we are directed towards things rather than towards inner processes. For example, if we say 'This paper is white', it is because we find that the property 'white' belongs to the paper. Hence we surely use the term 'is' in such a sentence to refer to the objective situation rather than to some inner psychological happening. Besides syntactical terms, he adds, there are other formal components of propositions that cannot find their fulfillment in ordinary simple intuitions. Nouns, verbs and even adjectival expressions introduce senses which cannot be fulfilled by simple intuitions: 'The intention of the word "white" only partially coincides with the colour-aspect of the appearing object; a surplus of meaning remains over, a form which finds nothing in the appearance itself to confirm it' ([1.35], 775). Husserl concludes that we must acknowledge the role of nonsensuous or 'categorial' intuitions which function in conjunction with simple perceptions and which bring the

formal components of predication to intuitive fulfillment. The fulfilling intuition of any expression describing a particular thus involves the intuition of formal senses that exceed what is intuited in the simple perception of the particular. These expressions refer to particular things by way of accidental or essential descriptive features whose surplus senses function as conditions for the manifestation of the particulars as such ([1.114], 70–1). Categorial intuition is therefore the first step in the process of discernment of essences, for to grasp the essence of some thing or situation is first of all to grasp its sortal property, i.e., its specific form. Translated into Aristotelian terms, intuition of the looks of things (secondary substances) is the condition for the presentation of particulars (primary substances).

THE TRANSCENDENTAL TURN

During the period from 1900 to 1913, Husserl developed more fully his criticism of the modern account of cognition. He spelled out his new position in a series of five lectures which introduce the theme of transcendental phenomenology for the first time. Given in Göttingen in 1907 and later published as *The Idea of Phenomenology,* these lectures are devoted to a clarification of the notions of immanence and transcendence. According to Husserl, modern descriptions of the relationship between immanence and transcendence tend to invoke two complementary themes: inside versus outside and accessibility versus inaccessibility. When immanence is described as an enclosure containing mental processes and impressions, transcendence is correspondingly defined as whatever remains outside of that enclosure. When immanence is described as a region of indubitable givenness, transcendence is defined as a region populated by unknowable things-in-themselves. Most epistemologies combine these two senses of the relationship between immanence and transcendence. They first conflate mental acts and their contents by describing both as 'contained' within the mind's psychic processes. They then construe the enigma of cognition as a problem of how to establish a connection between intra-mental representations and extra-mental things. The 'unspoken assumption' of these theories is that our cognitive processes are devoid of intentional import. This, according to Husserl, is the 'fatal mistake' of modern philosophy. Husserl praises Hume for acknowledging that this way of formulating the problem would in the end lead only to scepticism, but he adds that Hume's scepticism is itself riddled with contradictions. On the one hand, Hume degrades to the status of fictions everything that transcends impressions and ideas. On the other hand, he ascribes to the processes of mind the same sort of reality as the transcendent things that we would reach if we could somehow break out of the circle of immanence. Husserl concludes that whenever philosophers ask about the possibility of cognition in a way that implies that 'cognition is a thing apart from its object', or that 'cognition is given but the object of cognition is not given', they introduce an inappropriate notion of transcendence, which in turn entails an inappropriate interpretation of immanence ([1.34], 27–30).

According to Husserl, philosophy needs to adopt a new way of thinking and a new critique of reason: 'philosophy lies in a wholly new dimension. It needs an entirely new point of departure and an entirely new method distinguishing it in principle from any

"natural" science' ([1.34], 19). He therefore proposes a new and radical method which requires the bracketing *(epoche)* or suspension of natural convictions: 'At the outset of the critique of cognition the entire world of nature, physical and psychological, as well as one's own human self together with all the sciences which have to do with these objective matters, *are put into question'* ([1.34], 22). Husserl immediately distinguishes his new method from Descartes' doubt. Descartes' goal was to establish certitude about the existence of the thinking self and transcendent things. Husserl has no interest in such a project. His goal is simply to uncover the essence of cognition. He points out that Descartes failed to grasp the essence of cognition because he defined himself, *qua,* inquirer, as a 'thinking thing' having the same status as the transcendent *things* whose existence he had called into doubt ([1.34], 5–7). The purpose of the new method is to free us from this incoherent interpretation of transcendence, and consequently to enable us to redefine both transcendence and immanence. When we bracket everything within the realm of transcendence (as it is understood by Descartes and Hume), we in fact exclude nothing more than the incoherent interpretation of transcendent being as a region situated beyond the range of our knowledge. In so far as the mind's 'inside' is interpreted as having the same sort of ontological status, it too must be bracketed. This approach permits us to redefine immanence, in a broader sense, as the zone of all manifestation, wherein both immanent objects (considered now, in a narrower sense, as reflectively intuited experiences) and their intentional correlates (transcendent things) appear to us. Immanent and transcendent objects are now distinguished in terms of their different styles of appearing, rather than by appeal to the difference between intra-mental appearance and extra-mental being.

In the first volume of *Ideas,* Husserl describes this broader field of immanence as a realm of transcendental consciousness. He distinguishes in this work between the 'natural attitude', in which we are preoccupied by things in the world, and the 'phenomenological attitude', in which we reflect on the intentions at work in the natural attitude and on the objective correlates of those intentions. We achieve the latter transcendental point of view by suspending our natural attitude of belief in the reality of things and the world. Husserl emphasizes once again that the purpose of this procedure is not to call natural convictions into doubt but rather to achieve a distance that will enable us to reflect upon them. He adds that the method may also be called 'reduction', for it 'leads back' from lived acts and attitudes to reflective consideration of those acts and attitudes. After the reduction, we no longer live in our intentions. We step back from them in order to reflect on them in their full concreteness. For example, we step back from our participation in the positing of things as real, but continue to maintain that positing as something upon which we reflect. We also maintain our contact with things. The same things in the world are still there for our consideration, but the change in focus initiated by the reduction now permits us to appreciate them precisely *as* intended objects. We now notice them as perceived, as judged, as posited, as doubted, as imagined. Husserl calls any object so considered a *noema,* and he calls the correlative intention a *noesis* ([1.41], 214; [1.54], 46–56, 256–7).

Many commentators equate the phenomenological reduction with the reflective turn of consciousness away from things and facts towards concepts and propositions. They contend that the purpose of the reduction is to orient philosophical analysis towards

semantic issues. Proponents of this view find striking similarities between Husserl's concept of the *noema* and Frege's concept of 'sense' *(Sinn)*. They hold that both Fregean senses and Husserlian noemata ordinarily serve as intermediaries between our linguistic expressions and their referents ([1.61], 680–7). Frege claimed that the sense conveyed by an expression shapes or determines its reference. Certain passages from *Ideas* seem to assign an analogous role to the noema. For example, in one passage Husserl speaks enigmatically of a 'determinable X' that functions as a centre for the noematic contents which present an object in diverse ways ([1.41], 313–14, 320–2). Proponents of the Fregean interpretation of the noema suggest that Husserl meant to say that the noematic 'X' functions like the sense conveyed by a demonstrative pronoun. It identifies the object of reference not through its properties but as the bearer of properties ([1.95], 195–219). On this interpretation, the role of the phenomenological reduction is to disclose the semantic entities through which intentional direction to objects is achieved.

Robert Sokolowski points out that this interpretation fails to take into account the later Husserl's remarks, in *Formal and Transcendental Logic* (1929), on the difference between the kind of reflection that yields access to propositions and the properly philosophical reflection made possible by the reduction ([1.31, 110–27; [1.100], 45–7). Husserl makes it clear in this work that there is nothing specifically philosophical about propositional reflection, i.e., the reflective turn away from the 'ontological' realms of things and facts towards the 'apophantic' realm of concepts and propositions. This shift in focus occurs quite naturally whenever we reflect on what we ourselves or others have said, in such a way as to take what has been said as a mere supposition or proposal, i.e., as a proposition. It also occurs regularly in the context of scientific inquiry. Scientific verification requires a constant oscillation between investigation of facts and reflection on propositions. Both ordinary and scientific forms of prepositional reflection take place within the natural attitude, and therefore do not require the phenomenological reduction as their condition.

What then is the difference between prepositional reflection and philosophical reflection? Prepositional reflection turns our attention from things and facts to concepts and propositions. Philosophical reflection focuses on the correlation between intentional acts and attitudes *(noeses)* and the ways in which things are presented *(noemata)*. It considers things and facts as the correlates of the attitude of straightforward involvement in the world, and it considers propositions as the correlates of the intentional attitude of prepositional reflection. We may therefore conclude that, for Husserl, the noema is simply the object itself, considered under the reduction *as* presented. It follows that the 'determinable X' is not a semantic entity that functions as a medium of reference. It is the intentional object itself considered as an identity genuinely given in each of its presentations ([1.54], 181–91).

Husserl's description of the relationship between the ontological and apophantic domains reinforces his thesis that concepts and propositions do not function as mental intermediaries. Concepts and propositions emerge only when we shift from an ontological to an apophantic focus. Hence, they do not serve as mediating entities that somehow link speech acts to their intentional referents. As we have seen, Husserl explicitly rejected Locke's view that concepts are mental representations, and implicitly rejected the medieval view that concepts are transparent media of reference. Moreover,

he never claimed, as does Frege, that concepts and propositions belong to a 'third realm' (the first realm is the outer world of physical things; the second realm is the inner world of psychic processes) that functions as a non-subjective medium of reference. Robert Sokolowski suggests that the tendency to regard concepts and propositions as reified intermediaries is probably due to a confusion between object-oriented and reflective stances of consciousness. We enjoy a marginal awareness of what we are saying in the process of saying it. However, we do not at that moment objectify what we are saying as a proposition, for our consciousness remains directed towards the world. We can, none the less, easily shift back and forth between ontological and prepositional attitudes. The very mobility of our consciousness inculcates a forgetfulness of the change in attitude requisite for the manifestation of concepts and propositions. Concepts and propositions then easily come to be thought of as having a status analogous to things and facts. We thus come to think of them as separate entities situated in some psychic or semantic realm. For those who are looking for a solution to the modern epistemological problem of establishing a link between our speech acts and their targets, it is then perfectly natural to assign this mediating role to concepts and propositions. According to Husserl, however, there is no such need for mediation. Our consciousness is intentional by its very nature ([1.101],110–11; [1.106], 451–63).

This does not mean, of course, that there is no mediating role for language. Husserl draws a distinction between genuinely thoughtful speech and routine linguistic performances. He observes that when we speak, we ordinarily focus upon what we see, or anticipate seeing, and only marginally upon what we are saying. Though marginal, our consciousness of the meanings of linguistic expressions testifies to a familiarity with a vast network of culturally established distinctions and nuances whose ultimate justification lies in the intuitive disclosure of the looks of things. Once in command of the standardized senses of words, we need no longer focus on those senses. When we speak about things, we let ourselves be guided only by our categorial intuitions. Our choice of words is governed directly by the looks of the things we struggle to describe. Sometimes we simply repeat standard formulae. We then fail to exercise the potential for clarity or distinctness provided by the linguistic code. Sometimes we are more conscious of making linguistic choices. At such moments, we shift our focus away from things towards the senses of words ([1.31], 56–60). Husserl thus suggests that our ability to shift back and forth easily between these orientations accounts for the interdependence of intuitive and linguistic discriminations. Finding the appropriate word, therefore, is not just a matter of familiarity with the rules of a language-game. An exclusively pragmatic account of linguistic use amounts to a nominalism that rejects any link between predicates and the intuited forms of things. Thoughtful speech is the product of an artful integration of seeing and saying. Mastery of an extensive linguistic repertoire makes for more nuanced perceptions, which in turn call for more nuanced linguistic options.

In the first volume of *Ideas,* Husserl takes up again the effort to redefine the notions of immanence and transcendence. He attempts to bring the reader gradually to the realization that the new dimension revealed by the reduction is not a region comparable to other regions of being. He first defines a region of being as a specific domain of objects (e.g., the regions 'material thing' and 'culture') whose unity is determined by some maximally broad genus. He notes that empirical sciences which deal with a given

region of being ought to be grounded in a corresponding science of essences which he calls a 'regional ontology'. The task of a regional ontology is to specify the essences that structure all objects in its domain, and to spell out the hierarchically ordered relationships between them. In addition to the various regional ontologies, Husserl proposes that there should be a new science, called 'formal ontology', devoted to the study of the fundamental categories that govern the relations and arrangements between objects in any region whatsoever. He then criticizes the thesis, common to most epistemological accounts, that consciousness is confined within a psychic region, opposed to the region of things. Whenever consciousness is described in this manner, there is a tendency, he argues, to reduce intentionality to representation within the enclosure of the mind. Repeating the themes developed earlier in *The Idea of Phenomenology,* he then describes the transcendence of things as a mode of givenness within immanence, now more broadly understood as the range of intentionality's transcending power. He again stresses that the reduction does not exclude anything that is genuinely given. Finally, he points out that this new dimension of immanence cannot coherently be understood as situated within the co-ordinates of a pre-given world. Even the horizon of the world is given as such within the sphere of immanence. Unlike all other regions, therefore, the transcendental domain is absolute and all-inclusive. It has no perimeters, no outside. Husserl thus takes the metaphor of 'region' to its limits, in order to demonstrate that it is, in fact, incoherent to think of immanence as a sector within a broader whole. Any attempt to conceive of a dimension of being beyond the zone of possible consciousness is nonsensical. Consciousness and being belong together. Their ranges are co-extensive. There can be no outside for a being whose mode of being is to be open to all things.

EGO AND WORLD

One of the most controversial theses of Husserl's transcendental phenomenology is his claim that both ego and world may be considered as noemata by the transcendental inquirer. He frequently distinguishes between the ego considered as part of the world and the transcendental ego for whom the world itself is a *noema*. He contends that our capacity to function as transcendental subjects permits us to achieve a reflective distance from our own natural way of being in the world, and therefore to understand that way of being more fully. Husserl develops these themes in *Ideas II, Cartesian Meditations,* and in a manuscript published posthumously under the title *The Crisis of European Sciences and Transcendental Phenomenology*.

I*deas II* introduces the theme of the human ego in an oblique fashion by first describing the role of corporeal orientation and intellectual perspective in the presentation of things. Things appear to us in quite different ways, depending on the condition of our sense organs, on variations in our kinesthetic orientation, and especially on whether we take a pragmatic or theoretical attitude towards them. Husserl situates his analysis within the context of an understanding of nature that has been substantially affected by modern science. The contemporary sense of nature, he contends, is the intentional correlate of an attitude which he describes as both 'doxic' and 'theoretical'. It is doxic because it is permeated by an unthematic belief in the existence of its objects; it is theoretical because

it prescinds from the practical, aesthetic and ethical features of its objects. While ordinary experience does not constantly maintain an exclusively theoretical stance, none the less the influence of science has generated the everyday conviction that the true sense of the thing is what remains when we bracket the useful, the beautiful and the good ([1.5], 1–11; [1.89], 39–40). Further analysis of the presentation of things reveals that the full sense of their objectivity is dependent upon a recognition of intersubjectivity. For example, a sense of relatively fixed spatial positions is essential to our sense of objectivity. It would surely be difficult to develop this notion from an exclusively private perspective. We manage eventually to locate ourselves within a public system of co-ordinates by first recognizing that one individual's 'here' may be another's 'there', and then agreeing upon some convention for relating all positions to a stable network of places. This is a typical example of phenomenological analysis. Husserl's goal is always to unpack the layers of meaning sedimented in the senses of various types of objects, and thus to reveal the intentional acts and attitudes tacitly at work in the presentation of these objects.

In *Cartesian Meditations* (1931), Husserl continues his analysis of intersubjectivity by introducing a modification of the bracketing technique that he calls 'reduction to the sphere of ownness'. He proposes to abstract from everything in our experience that testifies to the presence of others. The purpose of this strategy is not to describe the production of meaning by a subjectivity actually cut off from others and the world, or to assure us that we are really in contact with other people. Despite its title, *Cartesian Meditations* is not motivated by any such epistemological concern. On the contrary, Husserl's purpose is simply to uncover the contribution of the sense that there are other selves to the individual's sense of self and of world. Phenomenological analysis is a reconstruction, not a creation of meaning.

In his *Lectures on the Phenomenology of Inner Time-Consciousness* (1928), Husserl claims that a second-order reflection reveals a level of time-consciousness that accounts for the identity of the transcendental ego. He first distinguishes between transcendent temporal objects, such as musical performances or public lectures, and immanent temporal objects, such as our perceptions of these events. He then points out that the perception of a temporal object may itself be taken as temporal object. Whenever we perceive the elapsing of a speaker's words into the past, we also experience the fading of our perceptions of those words into the past. We thus learn to situate transcendent happenings within the context of objective time, and also to locate our perceptions of those events within the horizon of immanent time. Finally, he claims that reflection on the correlation between the flux of immanent temporal objects and our experience of that flux reveals that we are conscious of a deeper level of time which accounts for our sense of the temporal flow of our intentional acts. We experience this primal flux as the basic form within which all experience occurs. This form is composed not of the basic temporal phases (past, present and future), but of the conditions for their possibility, i.e., a primal impression, 'retention' of the just-past, and 'protention' of the just-about-to-be. Awareness of the concatenation of these components makes it possible for us to experience our own intentional life as temporal, and to grasp intentional objects as the same again throughout their successive presentations ([1.14], 378–82; [1.46], 298–326; [1.100], 138–68).

ESSENCES

Husserl claims that we are sometimes able to discern the essential structures of things. In *Experience and Judgment,* he distinguishes between the grasp of empirical universals and the fully-fledged intuition of essences. A preliminary awareness of empirical universals occurs when we make the transition from merely associative judgments, which express perceived likenesses among things, to those judgments which explicitly identify particulars as instances of some category. Once we have discerned what is the same among many individuals, we may then thematize the universal itself and begin to make scientific judgments about it. The goal of science is to specify ever more completely the characteristics of such empirical universals. According to Husserl, however, science never fully realizes this ideal, for it is impossible to achieve a truly exhaustive and definitive determination of all of the features of any empirical universal. The determination of every empirical concept is 'always in progress, always being further fashioned, and also refashioned' ([1.35], 116; [1.36], nos 80–98; [1.100], 58–62).

We make the transition from the grasp of an empirical universal to the intuition of an essence when we move from the perceptual to the imaginary mode of consciousness by submitting the universal to a process of 'free variation' designed to reveal an invariant structure. Husserl describes this technique as follows. We attempt to imagine successively the subtraction of one after another of the various features of the object under consideration. In this way we eventually isolate those invariant features without which the object in question wouldcease to be what it is. We need not consider every conceivable variation. Indeed, in most cases it would be impossible to carry out an exhaustive survey of every possibility. What matters is that the manner of variation should be such that not only do we have the sense that the process could go on indefinitely, but also that it would in fact be fruitless to continue. As Husserl puts it, the process of variation should have a character of 'exemplary arbitrariness' ([1.36], no. 87b). Eidetic intuition is therefore a product of method. As Husserl puts it: 'The inward evidence on which all knowledge ultimately reposes is no gift of nature, appearing together with the idea of states of affairs without any methodically artful set-up' ([1.35], 63; [1.110].

Husserl does not, like some contemporary philosophers, extend the method of free variation to the consideration of improbable scenarios imagined as taking place within possible worlds. His imaginative variations, like Aristotle's, are generally guided and limited by our ordinary intuitions of things in this world. Moreover, he never attempts to provide anything like a clear-cut rule for deciding when the process of 'free variation' ought to come to an end. He tells us only that there comes a point in any enquiry when it is reasonable to conclude that there are no further pertinent questions to be asked. It is then imprudent or even pathological to consider additional alternative possibilities. In short, discernment of essences requires both method and judgment. A sense of the mean between extremes is as necessary in intellectual enquiry as it is in practical affairs.

Husserl claims, moreover, that the kind of certainty that we should assign to the results of this procedure varies in proportion to the type of access that we have to the objects

under investigation. Our apperceptive access to the basic structures of consciousness yields a different son of evidence than is available in our perceptions of things in the world. Ordinary perceptions are perspectival and therefore necessarily incomplete. However, the philosophic recognition that all such perceptions are perspectival is not itself perspectival or incomplete in the same fashion. Ordinary perceptions are perspectives in the sense that they present only one side of their objects at a time. Philosophic descriptions of the structure of perception are 'perspectives' in the sense that they are influenced by historically conditioned questions and methods. Husserl suggests that it is just as inappropriate to blur these differences by asserting that all forms of cognition are similarly perspectival, as it is to look for mathematical certitudes in the ethical and political domains.

Husserl at first held that the relative immediacy of access to the structures of cognition provided by our tacit awareness of intentional performances makes for apodictic certainty. He eventually acknowledged, however, that even the privileged access of consciousness to its own structures does not guarantee the perfect accuracy of reflective descriptions of those structures. Given the oblique and unthematic character of our tacit awareness of intentional acts and attitudes, and given the distorting influence of prevalent philosophic categories, our reflective descriptions are often vague and confused. Indeed, the history of philosophy testifies convincingly to the fact that no philosophic reflection can dissipate all vagueness. In any case, Husserl adds, philosophic differences are never settled by sweeping refutations, but rather by the elaboration of strategic distinctions that reveal the partial, vague or confused character of opposing positions. This is why philosophy must be a co-operative effort of a community of investigators.

LIFE-WORLD AND HISTORY

Husserl's later works are largely devoted to the themes of life-world and history. He hoped that his phenomenological analyses of these topics would serve as correctives to the naturalism and historicism which he recognized as two of the most powerful themes of modernity. Naturalism is a philosophic position consequent upon the mathematization of nature achieved by the new scientific method at the beginning of the modern era. Its thesis is that the entire realm of nature, including human nature, is comprised only of entities and processes susceptible of such quantitative analysis. Historicism may be defined as the tendency to regard the conceptual systems of both the natural and the human sciences as world views whose presuppositions are determined by contingent historical transformations.

Husserl traces the drift of modern science towards reductionism to Galileo's failure to relate scientific truths adequately to their sources in the life-world, the pre-scientific world in which we live. He calls attention, in particular, to the ambiguous implications of Galileo's bold decision to overcome the obstacle which perceived qualities presented to calculative rationality by treating them as subjective indices of objective quantities. This decision had the effect of concealing the priority of perceived over mathematical objects. Husserl contends that two factors contributed to this concealment ([1.33], 21–60; [1.89], 162–7).

In the first place, he observes, we must not forget that Galileo was heir to a relatively advanced tradition of 'pure geometry', which by reason of its very advances had already lost contact with the fundamental insights on which it was first constructed. Geometry most likely had its origins in the invention of practical techniques of surveying and measuring. Its ideal figures were thus first derived by abstraction and progressive idealization from the perceived forms of things. Once having acquired the notion of a field of pure 'limit-shapes', mathematical praxis was able to achieve an exactness and a freedom that is denied to us in empirical praxis. This ideal geometry was subsequently translated into applied geometry in the field of astronomy, where it became possible to calculate 'with compelling necessity' the relative positions and even the existence of events that were never accessible to direct empirical measurement. This achievement constituted a partial fulfillment of the dream of the ancient Pythagoreans who had observed the functional dependency of the pitch of a tone on the length of a vibrating string which produced it, and had therefore evoked the possibility of a generalized theory of correlations between perceived properties and measurable changes in geometrical properties. All of this, Husserl speculates, inclined Galileo to bracket the problem of the original derivation of geometry from the perceived qualities of things, and to interpret such qualities as merely subjective indicators of the true quantitative being of the world ([1.33], 29).

In the second place, Husserl continues, we must take into account the 'portentous' influence on Galileo's thinking of the new algebraic formalization of geometry. The development of algebra in effect liberated geometry from all intuited actuality and even from the concept of number. Although it was only with Descartes' invention of analytic geometry that the full implications of this move would be realized, Galileo had already clearly understood that Euclid's geometry could now be interpreted as a general logic of discovery rather than as a theory limited to the realm of pure shapes ([1.33], 44–6). Husserl's argument may be confirmed by considering the role of Galileo's diagrams for his theorems about uniformly accelerated bodies. It is clear that the lines and angles of these diagrams no longer refer literally to spatial shapes created by geometric relations between linear magnitudes but rather to a sequence of ratios between time and velocity. Galileo therefore implicitly considered such 'geometric' diagrams as expressive of relationships among any magnitudes whatever. Although this realization contributed significantly to the advance of modern physics, it also initiated a process of further alienation of scientific method from its roots in the perceived world. Unlike traditional geometry, which requires insight into the reasons for every step in its demonstrations, algebra lends itself to the development of techniques of calculation which no longer demand such comprehension but require instead only the blind implementation of procedural rules.

Galileo himself continued to employ the more traditional geometrical style of demonstration, and hence demanded of his readers conscious insight into the point of each transition. Nevertheless, his method took modernity further along the road towards the reductionist interpretation of reason as an adaptive power whose operations are mechanistic processes devoid of intuitive insight. Husserl cites as an example of this account of reason the tendency of some twentieth-century logicians to conflate computing procedures with authentic deductions, and even to interpret the rules

governing such procedures as a genuine logic ([1.37], 117). He concludes that the great discovery of modernity, i.e., the emancipation of mathematics from the constraints imposed by the intuition of Euclidean shapes, was both an advance and a setback. On the one hand, freedom from servitude to intuited forms would give to the geometer a greater potential for mastery over nature. On the other hand, it also further promoted the modern forgetfulness of the priority of insight into perceived structures over technical virtuosity. This forgetfulness would eventually lead to a bracketing of those acts and attitudes of the human spirit that render scientific and other modes of cognition possible. Naturalism forgets the role of the inquiring subject whose intentional acts remain inaccessible to empirical observation.

Husserl calls attention to the irony implicit in this history of modernity. He observes that it is unlikely that Galileo was ever aware of the hidden 'motivation' of his project. The seeds of reductionism and even of scepticism were, of course, already present in Hobbes's rationalistic exaltation of the power of reckoning. Hobbes had dismissed the whole sphere of pre-scientific experience and discourse. Whatever cannot be quantified he assigned to the realm of illusion. Moreover, Hobbes clearly regarded reason's calculus as an outgrowth of our biological drives and needs. For a long time, however, the success of the new sciences obscured the implications of this naturalism. Hobbes thought that calculative procedures could succeed where the ancient and medieval quest for essences had failed. Reckoning would reveal the hidden structures of reality. It required a genius such as Hume, says Husserl, to take the naturalism initiated by Hobbes to its logical conclusions. Hume realized that if cognitive intuition cannot break out of the circle of impressions and ideas, there is no justification for supposing that reckoning can yield any less fanciful results. The fundamental categories requisite for a mathematicized version of nature must somehow be derivable from information provided by the manifold of impressions. According to Hobbes, however, sensory impressions yield only illusions. It follows that scientific theories too are productions of fancy. This realization is the key to Hume's scepticism: 'Hume goes on to the end. All categories of objectivity—the scientific ones through which an objective extra-psychic world is thought in scientific life, and the pre-scientific ones through which it is thought in everyday life—are fictions' ([1.33], no. 23). Scientific descriptions are useful fictions, but they nevertheless remain fictions. The high hopes of modernity thus culminated finally in a thoroughgoing pragmatism. It seems clear in retrospect that the hidden intent of Galileo's fatefuldecision, and indeed of the entire project of modernity, was to give up on truth and settle for power.

Husserl therefore thought that the most urgent task of philosophy was to restore confidence in the rationality of our ordinary intuitions about the life-world. We must demonstrate how scientific accounts of nature are always dependent upon the evidences of ordinary experience, and show how the success of Galileo's method in some areas does not justify an unlimited application in all fields of enquiry. Phenomenological analysis reveals, for example, that human acts have a conscious dimension that cannot be reduced to quantifiable processes, or explained as a product of causal sequences. This is especially true of the procedures of scientific discovery which require a disciplined detachment from biological needs and environmental stimuli. In short, the acts prerequisite for the emergence of things as empirical objects cannot coherently be taken

as exclusively empirical processes.

Husserl also makes some interesting remarks on the implications of his own method of historical interpretation, as exemplified in the above analysis of the unintended project concealed by Galileo's manifest intentions and accomplishments. He observes that whenever we engage in an historical analysis of this type we always find ourselves in a sort of circle. We can only understand the past in the light of the present, and yet the present has meaning only in the light of the past. 'Relative clarification' in one direction brings about 'some elucidation' in the other, and vice versa. There is no tone of pessimism in Husserl's description of this methodological predicament ([1.33], 58). He suggests that his 'zigzag' method of historical interpretation makes it possible to achieve ever more comprehensive historical understanding, but he never claims that it will yield definitive truths. He does not lament this situation. He simply calls attention to the kind of truth that is available to historical interpretation.

These remarks suggest that, in his later works at least, Husserl was sensitive to the hermeneutic circle implicit in all human enquiry. His comments on the historicity of the life-world confirm this impression. Although he sometimes describes the life-world as a horizon of experience common to human beings in every historical epoch, at other times he speaks of multiple life-worlds and hints that every life-world is conditioned by layered sedimentations of meaning produced by forgotten cultural achievements. He even goes so far as to say that we must look for truth 'not as falsely absolutized, but rather, in each case, as within its horizons' ([1.20], 279). This passage suggests that all evidence is subject to correction by further evidence. Husserl adds, moreover, that it is in accordance with the nature of a horizon that 'it leaves open the possibility that conflicting experiences may supervene and lead to corrections in the form of a determining as otherwise or else in the form of a complete striking out (as illusion)' ([1.20], 281; [1.110], 50).

Husserl's reflections on these issues did not cause him to repudiate the original project of phenomenology. Indeed, in the same passages which call attention to the role of intentional horizons he constantly reaffirms the phenomenological goal of uncovering and 'explicating' the sedimented senses of these horizons. Husserl therefore apparently saw no conflict between this goal and his properly hermeneutic discovery that all inquiry takes place within an historical context. Jacques Derrida contends that this attitude indicates that the entire enterprise of phenomenology was founded on an uncontrolled presupposition. Husserl tacitly took for granted the trans-historical validity of the ideal of universal truth, even though his own historical interpretation established that commitment to this ideal is an historically conditioned attitude. His description of this ideal as a regulative idea effectively exempted him from the task of justifying it ([1.51], 154). It seems more likely, however, that Husserl always understood that the ideal of universal truth functions more as a moral imperative than as a demonstrable or self-evident principle. He was convinced that our experience of the world yields enough intelligibility and direction to encourage the expectation that further investigation will yield further progress in truth. However, his choice of the Kantian notion of a regulative idea to describe the telos of philosophy suggests that he regarded the expectation of progress in truth as a postulate of rationality rather than as a metaphysical principle.

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CHAPTER 2
Philosophy of existence 1

Heidegger

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At the very outset and up to the end, the long philosophical journey of Martin Heidegger (1889–1976) remained oriented by a single question, the question of Being, the *Seinsfrage*. This does not mean, however, that the question preserved the same meaning or ruled an identical field of investigation throughout the whole journey. Indeed, Heidegger himself repeatedly claimed that at some point a turn *(Kehre)* occurred in his thought. Moreover, thanks to the current publication of his entire *corpus (Gesamtausgabe),* it is now possible to draw a fair picture of the vicissitudes of the journey. For the purpose of this chapter, I propose to divide Heidegger's work into two phases. The first covers publications and lecture courses devoted to setting out the project of what Heidegger, at that time, called 'fundamental ontology'. The later phase covers writings which are all characterized by a meditation on the history of Being. Whereas the project of fundamental ontology aimed at completing metaphysics as the science of Being, the later meditation consistently aimed at overcoming metaphysics.

FUNDAMENTAL ONTOLOGY

After a few years of study in theology the young Heidegger, who first wanted to become a Catholic priest, had decided for reasons both personal and theoretical to dedicate his life to philosophy.

At the turn of the century, the burning area for philosophical research in Germany was logic. Two major trends were in conflict as far as the approach to the basic problems of epistemology and the philosophy of science is concerned. On the one hand under the influence of British empiricism, John Stuart Mill predominantly, many German scholars in those fields were convinced that the foundations of knowledge in general were strictly empirical. Accordingly they were looking for the roots of all cognitive principles in observable facts such as those which are investigated by psychology taken as an empirical science. On the other hand, in a reaction against empiricism, several scholars were attempting to revive in the disciplines at stake the transcendental orientation of Kant's criticism. In the history of ideas this conflict is known as the quarrel about *psychologism* between empiricism and transcendentalism. Whereas the former claims that thinking and knowing are a matter of facts occuring in the mind, the latter claims that thought and knowledge, however much they may depend on facts, could not exist without the help of a transcendental *cogito*. In 1900–1 a book appeared which had a decisive

influence in the quarrel: Edmund Husserl's *Logical Investigations*. Like neo-Kantianism, the book was a refutation of all empiricist reductionism. But unlike neo-Kantianism it vindicated a new and original method which was altogether intuitive and a priori: phenomenology.

Heidegger's early writings were contributions to the new phenomenological trend. His doctoral dissertation (1914) was entitled *The Doctrine of Judgment in Psychologism*. His *Habilitationsschrift* (1916), *The Theory of Categories and Meaning in Duns Scotus* was inspired by Husserl's idea of a pure a priori grammar. Heidegger's genuine project emerged after these academic exercises, when he came to realize that he was less interested in logic for its own sake than in the link between logic and ontology or even in the ontological foundation of the logical. Indeed he repeatedly claimed that the influence on him of the *Logical Investigations* was at that time on a footing with the impact of a book by one of Husserl's masters, Brentano's dissertation *On the Manifold Meaning of Being in Aristotle* (1862). Brentano showed that in Aristotle the Being of beings is expressed in at least four basic ways: as substance *(ousia),* as potentiality *(dunamis)* and actuality *(energeia),* as truth *(alētheia),* according to the categories such as quality, quantity, relation and so on. While meditating upon this manifoldness in the meanings of Being, Heidegger raised the following question: is there a unique focus of intelligibility which illuminates these various meanings, a common source for understanding them, and how and where is it to be found? Such is the *Seinsfrage,* the question of Being.

The reappropriation of Husserl and Aristotle

On the basis of his early dissertations, Heidegger was already convinced that the phenomenological method was to be his way to address the question. When he became Husserl's personal assistant at the University of Freiburg-im-Breisgau, thereby gaining the opportunity to become familiar with all aspects of phenomenological research, he came to realize that the work of his master provided him not only with a method but also with basic discoveries thanks to which he was able to transform his ontological question into a genuine field of investigation. On the basis of the posthumous publication of several drafts and lecture courses, it is now possible to draw a fair picture of Heidegger's early attempts to articulate his own field of ontological investigations thanks to a peculiar retrieval or reappropriation of both Aristotle and Husserl. It could even be demonstrated that Heidegger's project of fundamental ontology is the outcome of an overlapping of what he considered to be the basic discoveries of Husserl with what he took to be the basic discoveries of Aristotle. This means that, with the help of Husserl's teaching, Heidegger was able to find in Aristotle's teaching an authentic phenomenology while, with the help of Aristotle's teaching, he discovered the possibility of transforming phenomenology into a field of ontological investigation. This ontological overlapping of Aristotle and Husserl is already noticeable in the short manuscript *Phenomenological Interpretations of Aristotle* [2.27] that Heidegger wrote in the autumn of 1922 at the request of P.Natorp in order to support his application for a teaching position at the University of Marburg. The overlapping pervades the teaching of Heidegger from the time of his appointment at Marburg until the publication of *Being and Time*.

Heidegger credited Husserl with three basic discoveries useful for articulating his own

field of investigation. The first discovery is *intentionality*. According to Husserl, intentionality is the very structure of consciousness in all its modes (perception, imagination, conceptualization, judgment, reasoning and so on). In every form of consciousness there is a specific relatedness between a specific way of intending and a specific correlate which has its way of appearing *qua* intended. Already in the 1922 manuscript, Heidegger makes clear that for him this structural relatedness is much more than a basic feature of consciousness. It is the fundamental character of the very life of each human being. *De facto,* or factically, the life of an existing human being is essentially *related*. In Heidegger's language of that time, this means that such relatedness is an ontological character of 'factical life'. This is why he writes:

> the complete intentionality (the relatedness to, that towards which there is a relation, the accomplishment of the self-relating, the temporalism of it, the preservation of temporalisation) is nothing but the intentionality of the object which has the ontological character of factical life. Intentionality, merely taken as relatedness to, is the first phenomenal character, proximally noticeable of the fundamental mobility of life, that is of care. ([2.27], 17)

Whereas Husserl's discovery of intentionality was confined within the limits of a theory of consciousness, i.e., within the framework of a theory of knowledge, Heidegger's peculiar retrieval of the discovery results very early in another philosophical project aiming at an ontology of factical life, or of facticity. Along with this alteration, the new philosophical project entails an alteration in the very notion of logic. In Husserl, logic was another name for the theory of knowledge, i.e., of the basic categories making cognition possible. As a result of the shift from consciousness to factical life, logic becomes a name for the investigation of the ways in which factical life expresses and understands itself as a result of specific categories.

This second shift is at the core of Heidegger's reinterpretation of what he viewed as the second major discovery of Husserl, i.e., the doctrine of *categorial intuition*. According to this doctrine, the meaning of human discourse *(Rede)* depends on a complex set of structures, forms and basic concepts which are all of an ideal nature. In spite of the fact that, precisely because they are ideal, these idealities are in a position of excess or surplus *vis-à-vis* any sensuous content given to sensible perception, they are none the less, claims Husserl in the sixth *Logical Investigation,* offered to an intuition or insight that is no longer sensible, but ideal: the so-called *categorial intuition*.

Among the categorial intuitions mentioned by Husserl, one stood out as having a decisive relevance for the project to which Heidegger had subscribed from the outset: the problem of the *meaning of Being*. Indeed in the context of the sixth *Logical Investigation* Husserl was developing a twofold thesis about Being. First, he stated, in agreement with Kant, that 'Being is not a real predicate'. Second, he maintained, in contradistinction to Kant, that 'Being' is given to categorial intuition. Heidegger took advantage of this double thesis and transformed it for his own ontological purpose. 'Being is not a real predicate' meant for both Kant and Husserl that it is not to be found among the predicates which define the quiddity or *realitas* of beings: what they are. This thesis turned out to mean for Heidegger that Being is not in any sense a being. In other words the thesis

amounted to stating a difference between beings and Being, an ontico-ontological difference. Likewise, the thesis according to which 'Being' is given to a categorial intuition, which in Husserl was an element of his transcendental logic, turned out to mean for Heidegger that in its factical life the human being has an understanding of Being. In other words, factical life interprets itself in terms of Being. This is to say that the ontology of those factical beings who understand Being is an hermeneutics, or a theory of interpretation.

But, by the same token, Husserl's twofold thesis about Being, thus reappropriated in an ontological framework, induced Heidegger to search in the *de facto* life of the human being for the unique ground for an intelligibility of the various meanings of Being. It induced him to search for the focus of intelligibility within what he was to call, a little later, the human *Dasein*.

In this search, Heidegger availed himself of a third discovery made by Husserl: the discovery of the a priori, a word with an obvious temporal connotation. Husserl often claimed that time consciousness was the most fundamental consideration of his phenomenology. In order for consciousness to be intentional at all, it has to be temporal. This means for Husserl that in order to be able to intend any intentional correlate, consciousness has to be a 'living present', a present which constantly articulates the 'retention' of what is just past with the anticipation (or 'protention') of what is going to happen. Heidegger, who was to edit in 1928 Husserl's *The Phenomenology of Internal Time-consciousness,* took advantage of this third discovery. His ontology of human *Dasein* aims at demonstrating that temporality is the only horizon within which we understand the meanings of Being. This is condensed in the very title of his masterwork of 1927, *Being and Time* [2.2, 2.45], a book in which the three Husserlian discoveries operate in a peculiar way along with an Aristotelian inspiration. The link between this inspiration and Husserl's legacy is already noticeable in the fact that Heidegger, in his Introduction, characterizes the phenomenological method at work in the book by using the very language of Aristotle.

What Heidegger discovered very early, as he puts it in a later survey of his 'way to phenomenology' is that 'what occurs for the phenomenology of the acts of consciousness is thought more originally by Aristotle and in all Greek thinking and existence as *alētheia' (On Time and Being* [2.70], 78). In its traditional definition, truth is an adequation between the mind and the real, and it occurs in a specific place: the predicative judgment. In one way, Husserl's phenomenology contributed to overcoming the classical notion of truth. For Husserl indeed, prior to the so-called *adequatio intellectus ad rem* (of the mind to the thing), the touchstone of truth is *evidence,* i.e., the self-manifestation of the object *qua* phenomenon to intentionality. Moreover, Husserl claimed that the locus of truth is in no way restricted to the predicative judgment: it is intentionality itself, or consciousness in all its forms. Heidegger took advantage of this breakthrough in his phenomenological interpretation of Aristotle. As far as truth is concerned, the Greek philosopher, he claims, is more original than Husserl on two accounts: first because he understands truth as the unconceal-ment of beings for an unconcealing being, the human being; second because this unconcealing, instead of being restricted to consciousness, is attributed by him to the human comportment as such, more precisely to the human way of being. In other words, for Aristotle, claims Heidegger,

alētheia, or truth, is a matter of *bios,* of life or of existence. It is in the context of this phenomenological reading of Aristotle that Heidegger was led to replace the words 'factical life' by the key word *Dasein* in order to characterize the human way of being. In German the word is both a verb meaning 'to be present', or to exist, and a noun meaning 'presence', or existence. Moreover, *da* the prefix of the word, means both *there* and *then;* it points to a place and time for something to happen. Heidegger's use of the word to characterize the human way of being is an attempt to suggest that the concrete existence of a human being is a phenomenon which is *there,* thrown into a place and a time in which an unconcealment happens.

But in addition to a concept of truth in terms of existence, Heidegger also discovered in Aristotle a concrete analysis of human existence as an unconcealing way of being. The ontological reappropriation of Husserl's discovery of intentionality taught him that human existence as such is a *relatedness to*. The reappropriation of Husserl's discovery of categorial intuition taught him that human existence, in its relatedness to, understands Being. Likewise, the appropriation of Husserl's discovery of the a priori taught him that time is at the core of the understanding of Being. Since those three ontological reappropriations were oriented by a single question—where is the source for the understanding of Being to be found?—they all required an analysis of *Dasein* as the being who understands Being. In other words they required an analysis of *Dasein's* way of being, i.e., for an ontology of *Dasein*. And here Heidegger discovered very early that Aristotle's description of human comportment paved the way to the ontology of *Dasein* that he was attempting to articulate. His lecture courses of the Marburg period demonstrate that, in his view, the *Nicomachean Ethics* was such an ontology. It is in such terms that Heidegger deals with Aristotle's *Ethics* in the introduction to his celebrated lecture course of 1924–5 on Plato's *Sophist* [2.29], which had a deep influence on those who originally heard it, including Hannah Arendt, Hans-Georg Gadamer and Hans Jonas.

The *Nicomachean Ethics* scrutinizes the dianoetic excellences or intellectual virtues and establishes them in a hierarchy. According to Aristotle these virtues have two levels: the lower are the deliberative excellences, the higher are the epistemic excellences. At the lower level two deliberative virtues take place: *technē* and *phronēsis*. In Greek *technē* means art, in the sense of knowhow. Heidegger insists that in Aristotle *technē* is an intellectual excellence because it is a matter of truth, of *alētheia* as unconcealment. It is a peculiar way of disclosing, or discovering, what is required for a specific comportment: the productive comportment called *poiēsis*. In other words, it is a way of knowing truth, or even of being in truth, linked with a peculiar way of being: the production of such and such a work or result. However, claims Heidegger, the reason why Aristotle puts *technē* on the lowest rank among the deliberative excellences is to be understood in terms of an ontology of *Dasein.* Indeed, in the productive way of being which is ruled by *technē, Dasein* is busy with, and concerned by, products or results out there. To that extent the pair *technē-poiēsis* suffers an ontological deficiency. To be sure, the principle for the productive activity informed by an unconcealing knowhow is *within* the agent, hence within the *Dasein* and of the same nature as *Dasein* itself: it is the model conceived by the agent and held in view by him. But the telos or end of productive activity is in no way within *Dasein* or of its nature: it occurs *outside* of *Dasein*.

This ontological deficiency, claims Heidegger, is no longer the case in the second

deliberative excellence, namely *phronēsis,* also conceived by Aristotle as a peculiar way of disclosing, or of being in truth, adjusted to a specific comportment or active way of being. This active way of being is no longer *poiēsis* but *praxis,* i.e., action in the sense of the conduct by an individual of his or her own life. *Phronēsis* discloses to *Dasein* the potentiality of its own existence. Here again, according to Heidegger, the reason why Aristotle puts *phronēsis* on the highest level among the deliberative excellences is to be understood in terms of an ontology of *Dasein*. Indeed neither the principle of *phronēsis* nor its goal falls outside the human being. The principle here is a prior option of the *Dasein* for well-doing, while the end is the very way of being of *Dasein,* its own *praxis*. *Phronēsis* is nothing but the resoluteness to exist in the highest possible manner.

Thus understood in ontological terms, Aristotle's distinction between the *technē-poiēsis* and the *phronēsis-praxis* distinctions allowed Heidegger to set up the framework of his own ontology of *Dasein,* as a being who understands Being. This ontology, which was to be developed in *Being and Time,* describes the existence of *Dasein* in terms of a tension between an everyday way of Being in which the *Dasein* is not authentically who it is, and an authentic way of Being in which *Dasein* is properly itself. The description shows that in everydayness *Dasein* cannot be its ownmost Being, because it lives in a condition of preoccupation or concern for ends to be attained by a variety of means or tools, a condition which is enlightened by a specific circumspection about surroundings. To that extent everydayness is ruled by *Das Man,* the 'They'. In it everybody is nobody, because such a condition never confronts *Dasein's* own existence. This description is the outcome of a peculiar reappropriation of Aristotle's doctrine concerning *technē* and *poiēsis*. On the other hand, the analytic of *Dasein* shows that *Dasein* authentically becomes a Self by confronting its ownmost potentiality for Being. It does so by accepting existence in its finitude, as a Being-unto-death. This description, with the exception of the emphasis put on anxiety, is again the result of a peculiar reappropriation of Aristotle's analysis of *phronēsis* and *praxis*. Aristotle indeed insists that *phronēsis,* as a dianoetic virtue, has its proper realm in the perishable. On the other hand, Heidegger occasionally suggested when he was teaching Aristotle that the latter's concept of *phronēsis* somehow anticipates the notion of conscience *(Gewissen)*. And conscience in Heidegger's analytic of *Dasein* is the phenomenon in which *Dasein* listens to a call from it own depths summoning it to confront its finitude.

But the Aristotelian inspiration in Heidegger's ontology of *Dasein* is not restricted to *technē* and *phronēsis*. It also includes a peculiar reappropriation of Aristotle's doctrine of the epistemic virtues. In the *Nicomachean Ethics* these virtues are *epistēmē* (science) and *sophia* (wisdom). Both are adjusted to *theoria,* i.e., to a purely contemplative attitude, which bears upon a realm which is no longer perishable, a realm which is forever what it is and how it is. For Aristotle that realm is higher than the realm of human affairs precisely because it is not perishable as they are. And in his view it is at this level only, specifically at the level of *sophia,* that a true concern with Being can take place, as a contemplation of the ontological structure of the totality of beings and of the prime mover which is the principle for all movements of *physis* (nature). Heidegger insists, in his Marburg lectures, that, according to Aristotle, the contemplation of that immutable realm is the most authentic way of being that a mortal can attain, because as long as such contemplation lasts, the mortal spectator lives in the proximity of the divine.

According to Heidegger's teaching in the Marburg period, there is in the Aristotelian concept of *sophia* an equivocation between ontology as the science of the Being of beings and theology as the science of the divine. There is also an indeterminacy, because for Aristotle the only meaning of Being is limited to what he calls *ousia,* i.e., in Heidegger's interpretation, presence in the sense of presence-at-hand *(Vorhandenheit)*. This meaning of Being, Heidegger says, is adjusted to nature, but it is not relevant as far as the Being of *Dasein* is concerned. Moreover, considering presence as the only meaning of Being amounts to understanding Being in the light of a temporality in which only the present is important. This temporality, considered as a succession of present moments, is in fact the concept of time that Aristotle develops in his *Physics*. Heidegger raised objections to the predominance of this concept. In the case of the Being of *Dasein,* putting the emphasis only on the present is one-sided and misleading. In order for *Dasein* to be authentically present, it has to retrieve who it was as thrown in its own Being as well as to anticipate its own end. Whereas the temporality of nature is ruled by the exclusive privilege of the present, the temporality of *Dasein* not only is determined by a triad, in which three *ec-stasis*—past, present, and future—co-operate, but also is ruled by the privilege of the future.

Accordingly, Heidegger, who agrees with Aristotle in considering the contemplation *(theoria)* of Being as the authentic accomplishment of *Dasein,* reorients that contemplation exclusively towards the finite being of *Dasein* and its finite temporality. As a result, fundamental ontology claims to be able to overcome both the onto-theological equivocation and the ontological indeterminacy which characterized the ancient ontology and its legacy. The overcoming includes a deconstruction *(Destruktion)* of the ancient concepts along with a reversal of the old hierarchy between the perishable and the immutable. This deconstruction aims at demonstrating that for the most part the basic concepts of ancient philosophy and consequently of the entire western tradition of metaphysics—concepts such as matter *(hulē)* and form *(morphē),* potentiality *(dunamis)* and actuality *(energeia),* idea *(eidos),* substance *(hupokeimenon),* and so on—find their phenomenal origin in the activity of production, an activity which in order to be possible at all presupposes the permanence of nature, and liberates its products from their link to the producer to bestow on them a permanence similar to the natural one. Consequently these ontological concepts, instead of being coined after the authentic ontological experience that *Dasein* has of its own Being, were coined in the inauthentic framework of everydayness. In such a framework *Dasein,* while coping with entities which are ready-to-hand, pays attention to a meaning of Being—presence-at-hand *(Vorhandenheit)*—which is not adjusted to finite existence as its own way of Being. In other words, the genealogy carried out by deconstruction aims at showing that Greek ontology, in its concern for the eternal features of nature, was mistaken in believing that the contemplation of those features allowed the philosopher to go beyond the finitude and reach the proximity of the divine. Quite the contrary; it remained trapped within everydayness. Here appears the *reversal:* the so-called overcoming of finitude was a falling away from it. The falling away from the authentic towards the inauthentic explains the predominance of the notion of presence-at-hand in traditional ontology.

As a result of this reversal, the notion of transcendence, which traditionally defined the position of the divine above the lower realm of immanence, was transformed by

Heidegger to designate the process through which the *Dasein* goes beyond beings towards Being: only the *Dasein* properly transcends, and it transcends beings towards Being.

The articulation of the project

Heidegger's project, inspired by a singular appropriation of Husserl and Aristotle, of fundamental ontology, designed as a reply to the question of the meaning of Being, included two tasks which provide the structure of *Being and Time* [2.2; 2.45].

The first part of the treatise was supposed to be devoted to 'the interpretation of *Dasein* in terms of temporality, and the explication of time as the transcendental horizon for the question of Being' (pp. 39; 63). The book, which came out in 1927, announced three divisions of Part One: (1) 'the preparatory fundamental analysis of *Dasein*'; (2) '*Dasein* and temporality' *(Zeitlichkeit);* (3) 'time and Being' (pp. 39; 64). The third division never appeared.

Part Two of the treatise was supposed to deal with the 'basic features of a phenomenological destruction of the history of ontology, with the problematic of Temporality *[Temporalität]* as our clue' (pp. 39; 63). This part, which also never appeared, was designed to have three divisions: the first one dealing with Kant's doctrine of schematism, the second with the ontological foundation of Descartes' *cogito sum,* the third with Aristotle's essay on time.

The published portion of Part One (which made Heidegger instantly famous) proceeded in two steps, corresponding to divisions one and two. If Part One starts with an analysis of *Dasein,* it is because the leading question of the meaning of Being rebounds as it were on the one who poses it. Indeed *Dasein* is the only being for whom Being is a question or an issue. If such analysis has to be fundamental, it is because, instead of restricting itself to the teachings of disciplines such as anthropology, psychology or biology, it must treat *Dasein* as a being for whom Being itself is the question, and not 'what is man?', 'what is mind?' or 'what is life?' If such analysis is preparatory, however, it is because it is carried out not for its own sake but in order to provide an answer to the question of the meaning of Being.

But even leaving aside the problem of what is prepared by it, the analysis of *Dasein* is not governed at all by the traditional question 'what?' Instead of addressing the question 'what is *Dasein*?' the analysis has to address the question 'who is *Dasein*?' Indeed the question 'what?' is not adjusted to *Dasein* for the reason that, in its *de facto* existence, *Dasein* is such that its very essence lies in its 'to be' *(Zusein),* or in its 'existence', a word which indicates an openness to a task, a possibility, and which is allotted by Heidegger solely to *Dasein* in order to avoid any confusion with the traditional use of *existentia* as equally valid for designating the Being of any entity whatsoever. In Heidegger's terminology the meaning of the word *existentia,* in its traditional use, is 'presence-at-hand', and is appropriate only to entities which are precisely *not* of *Dasein's* character. *Dasein* is thus the only entity in which existence has a priority over essence. Moreover if the question 'what?' has to be replaced by the question 'who?', it is because there is no *Dasein* in general, because an individual *Dasein* is not a special instance of some genus. *Dasein* as an entity for which Being is an issue in its very Being, is 'in each case

mine' (pp. 42; 67–8). As an entity which is its own possibility or existence and which is in each case mine, *Dasein,* in its very Being, can win or lose itself. 'Mineness' grounds either *authenticity* or *inauthenticity*. The German words, *Eigentlichkeit* and *Uneigentlichkeit,* have no moral connotation. *Eigentlichkeit* designates a condition in which someone is its own Being; *Uneigentlichkeit* refers to a condition in which someone is not properly its own Being.

As a result of the priority of existence over essence, the fundamental analysis of *Dasein* has to treat it from the existentiality of its existence. The access to the basic characters of that existentiality is given in the condition in which *Dasein* is 'proximally and for the most part'—everydayness. These basic characters of existentiality are called *existentialia*.

Because mineness grounds either authenticity or inauthenticity, all existentialia have an authentic and inauthentic modality. They all have a transcendental status, which means that they are a priori conditions of possibility for *Dasein's* existence. They are factors or items of a constitutive state of *Dasein* that Heidegger calls 'being-in-the-world'.

Being-in-the-world is the primordial phenomenon which has to be analysed in order to uncover the *existentialia*. Though the phenomenon is unitary, it is possible to look at it in three ways, by putting the emphasis on the 'world' as such, or on the 'being-in' as such, or on the one 'who' is in the world.

The world is neither the total amount of entities composing what is usually called the universe nor a framework for those entities. It is neither a global container nor an addition of contents. It is not nature. In order for nature to appear, a world is presupposed. The world must be understood a priori in terms of existentiality. Properly speaking, only *Dasein* is in the world, and there would be no world without *Dasein* intimately open to it. And since *Dasein* is not present-at-hand but existing, the world is not a global presence-at-hand that constantly encircles *Dasein*. Because *Dasein's* existence is its own 'can be' or possibility, the world which is at issue in the phrase 'being-in-the-world' must be described in terms of possibility, but a possibility which is already given. It is an *existentiale*.

If we take as clue our everyday way of Being, we must admit that our comportment is characterized as a concern with an environment. Within that concern we do not merely observe things present-at-hand. Instead we are constantly busy dealing with entities of a pragmatic nature endowed with a pragmatic meaning that we understand. Each of these entities is essentially 'something in-order-to', it is an instrument adjusted to this or that purpose. None of those entities is isolated. They are all interrelated, and in order for them to appear as 'in-order-to', they all presuppose as backdrop a context of involvement, with which we are familar. Such involvement is that 'wherein' we understand our ways and that 'for which' we let entities be encountered and used. But the involvement presupposed by our everyday concern itself refers to a deeper a priori which is the very relatedness of *Dasein* to its own potentiality for Being. This ultimate 'for the sake of which' is not a possibility within the world, it is the world itself as *Dasein's* own potentiality. World is another name for Being as that for the sake of which *Dasein* is transcending.

Similarly 'Being-in' has to be understood in terms of existentiality. And since existence as such is a disclosing process, the 'Being-in' is better captured as a lighting or

as an openness than as an insertion. Three existentialia constitute the 'Being-in': disposition, comprehension and discourse.

Disposition *(Befindlichkeit)* is the state in which *Dasein* finds itself. That *Dasein* essentially finds itself in some state is revealed by the moods or humours making manifest how one is. In terms of existentiality, moods reveal that *Dasein* has been delivered over to the Being is has to be. Heidegger calls 'thrownness' the facticity of being delivered over to Being. Hence disposition discloses *Dasein* in its thrownness.

Comprehension *(Verstehen)* is also to be conceived in terms of existentiality. In order to comprehend or understand the significance of the utensils it deals with in everydayness, *Dasein* has to project itself upon this or that possibility. In any act of understanding, there is some projection. But the *de facto* projections pervading *Dasein's* ordinary comportment have their ontological foundation in *Dasein's* projection upon its own 'can be'. As an *existentiale,* comprehension discloses *Dasein* itself in its own potentiality-for-Being.

'Discourse is existentially equiprimordial with disposition and comprehension' (161). The German word for discourse is *Rede,* which is Heidegger's translation of the Greek *logos*. In terms of existentiality, discourse is the disclosing articulation of the intelligibility of Being-in-the-world.

The reply to the question '"who" is in the world?' shows that *Dasein* in its everyday mode of Being is not properly a Self. Most of the time it loses itself in what it is busy with. In other words it understands itself in terms of what is ready-to-hand within the world. On the other hand it essentially belongs to *Dasein* to be with other *Daseins*. But here again the everyday mode of Being-with-one-another is such that *Dasein* is absorbed in the neutrality of the 'They' *(das Man),* instead of confronting its own *Dasein*. In both cases the inauthentic prevails over the authentic. Heidegger calls 'fallenness' the tendency *Dasein* has to forget its own Self or to move away from it. Fallenness is an *existentiale*. As a result of such a tendency, all the *existentialia* have two modalities: an authentic and an inauthentic one. For example, discourse in its inauthentic form is idle talk. Likewise comprehension in its inauthentic form is curiosity.

We can readily see that a temporal connotation is involved in the description of all these items. Already pre-given as a 'wherein', the world is a past. But as constantly anticipated as a 'for which', it is a future as well.

A temporal dimension is also involved in the three interconnected modes of disclosure which constitute 'Being-in'. Since disposition discloses the facticity of *Dasein's* thrownness, it reveals that it belongs to existence to have already been. It is also obvious in the case of comprehension as a project: if *Dasein* itself is a project, this means that structurally it throws itself forwards in the direction of a future. Discourse as an *existentiale* also shows a temporal dimension. By articulating 'Being-in-the-world' it expresses both the thrownness and the self-projection of *Dasein*.

Likewise, if the ontological answer to the question 'who?' has to be expressed in terms of a tension between authenticity and inauthenticity, the answer itself either emphasizes a future or, concerning the rule of the 'They' and of the everyday equipment, the predominance of what is currently the case.

Once Being-in-the-world is analysed in its constitutive items, there must be a synthetic return to the unitary character of the phenomenon. Heidegger characterizes the

ontological unity of *Dasein's* Being-in-the-world with a single word, *Sorge,* usually translated by the word 'care'. Care is the transcendental structure at the root of all the existential features mentioned so far. Care, as the ontological unifying structure of *Dasein,* is revealed in the fundamental disposition of anxiety, thanks to which *Dasein* realizes that it is already thrown in the world, that it has to be its own Being, and that it is thus thrown and projecting itself in a condition of proximity to inner-worldly beings whose Being is not its own Being. In the experience of anxiety the three intercon-nected dimensions of care are disclosed: facticity, possibility, fallenness among other beings.

This is a turning point in the existential analytic: it opens the way to the second division of Part One: *Dasein* and temporality.

The phenomenon of care is now manifest in its unity. However, the question remains: what about its totality? A phenomenon appears as a whole when its limits are made visible. Hence the problem is: what are the limits of care as the basic structure of existence? Clearly the limits of existence are birth and death. If we consider both limits as terms of a process which is not intrinsically determined by them, then we might say that, as soon as we exist, birth is over and that until we cease to exist, death is not there. But this view does not fit with *Dasein's* mode of Being: a project which is thrown. Precisely because *Dasein's* project is thrown, birth is not a mere moment which is over as soon as *Dasein* exists. *Dasein* cannot be who it is without having been thrown in the world with the limited possibilities which from the outset condition its Being. Likewise death is not the other external limit of existence. Existence as a project includes in itself, i.e., in its potentiality, its own end. This means that *Dasein's* death is not restricted to its Being-at-the-end. It is rather a manner of Being that *Dasein* takes over as soon as it is. It thoroughly permeates existence. It makes *Dasein's* project essentially finite and turns it into a Being-towards-the-end.

Because of such finitude, a negative feature, a negativity determines care in relation to both thrownness and project. What about the third dimension of care, i.e., the proximity with other beings? Is it also determined by negativity? The answer is ambiguous. It can be if and only if *Dasein* resolutely takes over its own mortality. But for the most part, because the proximity with other beings entails a predominance of pragmatic preoccupation over care, *Dasein* covers up its own finitude and thinks of death as a contingent event occurring to everybody and to nobody. They die, I don't.

This description allows us to understand how temporality is the ground of the ontological constitution of *Dasein*. According to ordinary views and a philosophical tradition going back to Aristotle, time is an unlimited sequence of moments, including the moments which once were but no longer are, those which are not yet and the one which is now. The sequence is considered to be irreversible and measurable. Heidegger claims that such a concept of time was shaped not on the basis of a phenomenal analysis of *Dasein* but on the basis of the experience of nature. Instead, the original concept of time has to be articulated in conformity with the ontological constitution of *Dasein*. A clue for the articulation is provided by the structure of care: Being-ahead-of-itself and already-being-in-a-world as well as falling and Being-alongside entities within-the-world. This structure points to the originary time. The 'Being-ahead-of-itself' indicates an anticipatory dimension. Since such anticipation is already there, it includes a retrieval of what and who the *Dasein* already is or has been. The anticipation is *Dasein's* future. It is the

existential future, whereas the retrieval is *Dasein's* existential past. Finally, the proximity with other beings points towards *Dasein's* present. Since that proximity is properly finite if and only if *Dasein* resolutely takes over its own Being-towards-the-end, the existential present can only be the instantaneous vision *(Augenblick)* by *Dasein* of the situation of its finite existence. Such vision includes a glimpse of the difference between the mode of Being called existence and modes of Being such as readiness-to-hand and presence-at-hand.

Heidegger claims that the foundation of care on the triadic structure of existential time is not at all a philosophical construct. It is ontically or pre-ontologically revealed to each one in the phenomenon of conscience *(Gewissen),* a phenomenon which is not itself moral in the first place, and demands a description in terms of existentiality. A specific call belongs to the phenomenon of conscience. The structure of such a call reveals a temporal foundation. The call is addressed to a fallen *Dasein* currently captivated by entities in-the-world. The call comes from *Dasein* itself in its facticity, a condition in which *Dasein* as thrown is in the mode of having been. And the message of the call is addressed to *Dasein* again in its ownmost potentiality-for-Being, i.e., in the mode of a future.

Heidegger insists that 'the primordial meaning of existentiality is the future' (324). However, neither the existential future (anticipation) nor the existential past (retrieval) nor the existential present (instant of vision) has the traditional character of a discrete entity. Because the existential future is a coming-to-oneself, it is a dimension and not at all a not-yet-present moment nor a sequence of not-yet-present moments. In Heidegger's language it is an *ecstasis*. Likewise the existential past and the existential present. The word *ecstasis,* which in Greek means 'standing outside', is used by Heidegger in order to emphasize a connotation of stretching towards, or openness to. With this Heidegger associates the notion of horizon. The horizon is that to which each *ecstasis* is open in a specific way. Existential temporality is ecstatico-horizontal. Now, because the *ecstases* are interconnected under the primacy of the future, because they belong together intrinsically, temporality is an ecstatic unity of future, past and present. Such unity has itself a horizon which is the condition of possibility of the world as existential and of *Dasein's* transcendence.

Because of its existentiality, temporality is essentially finite, instead of being an infinite sequence wherein existence would take place. It is the very process through which an intrinsically finite mode of Being opens itself to its own potentiality for Being and to other modes of Being. For the same reason, it is not enough to say that *Dasein's* existence is temporal. Rather, *Dasein temporalizes*. Genuine time is temporalization and even self-temporalization. In its ownmost Being, *Dasein* exists in such a way that it runs ahead towards its own end *(Vorlaufen),* retrieves its own thrownness *(Wiederholung),* and renders present its own situation *(Gegenwärtigung)*.

In the light of all this, it turns out that common time, as an infinite sequence, is derived from existential time. According to the common concept of it, time is a sequence of now-moments revealing itself in counting, a counting done in reference to a motion (the sun or the hands of a clock). In fact, Heidegger says, this reckoning of time is guided by and based upon a reckoning with time: time is already disclosed to us *before* we use a clock. The disclosure occurs in our daily comportment. Hence our daily reckoning with time is

what deserves analysis, if we want to define common time fully. As soon as we approach common time in these terms, we realize that the 'now' we check on the clock every day is never a naked and discrete entity given as an object at hand *(vorhanden)*. Now is always 'now that' I am doing this or that. When I say now, in daily life, I am always expressing myself as attending to something, as *presentifying* it. Likewise, when I say 'at that time', I display myself as *retaining* something bygone, either in the mode of recollecting it or in the mode of forgetting it. Similarly, when I say 'then', I show that I am *expecting* something to happen, on its own or by reason of my own deeds. Hence counting time leads back to a reckoning-with-time articulated according to presentification, retention and expectation. But this triad presupposes the existential triad mentioned above. While presupposing the original temporality, however, it also covers it up because of the falling character of everydayness, in which inner-worldly entities tend to prevail upon the existential world. As a result of our fallenness, time becomes an infinite sequence, whereas the original temporality is essentially finite. For the same reason, time becomes irreversible whereas authentic temporality is an ever-renewed encroachment of the past upon the future and vice versa. For the same reason, time gets bound to the *motion* of things whereas authentic temporality is the ownmost mobility of *Dasein*.

The entire analysis involves an explicit criticism of Aristotle, whose concept of time is indeed a free-floating sequence of nows, and an implicit criticism of Husserl's notion of time-consciousness which, as an articulation of retentions, living impressions and protentions, does not go beyond the level of everyday preoccupation.

The deconstructive reappropriation of the history of ontology

As far as Greek philosophy is concerned, there are in fundamental ontology several traces of a 'deconstructive' retrieval of Plato. Heidegger agrees with Plato that human beings are naturally philosophers although most of the time people do not care about philosophy. He also agrees with Plato's characterization of philosophy as a way of Being, a form of existence: the *bios theoretikos*. The distinction between the 'They' *(Das Man)* and the authentic Self owes much to Plato's demarcation between the multitude (the *polloi*) and the philosopher. The description of everydayness in terms of a productive preoccupation owes much to Plato's condescending characterization of active life in terms of *poiēsis*. The description of everyday language as empty talk is obviously indebted to Plato's contempt for *doxa* (opinion) and sophistry. Above all the Heideggerian hierarchy between three levels of seeing—the immediate intuition *(Anschauung)* of entities merely present-at-hand; the awareness that the mere presence of those entities is an abstraction deriving from a loss and fall in relation to their readiness-to-hand *(Zuhandenheit)* open to a practical circumspection; and finally the awareness, reached in the silence of conscience, that the everyday surrounding world *(Umwelt)* is in a position of falling away from one's authentic world, a world transparent *(durchsichtig)* to conscience only—that hierarchy is obviously an echo to the levels of seeing mentioned by Plato in the parable of the cave.

As far as medieval thought, with which Heidegger became acquainted during his early theological studies, is concerned, it is possible to recognize in his analytic of *Dasein* a discreet reappropriation of the scholastic concept of *analogia entis* (analogy of being).

Just as the medieval theologians determined what they called the degrees of Being in terms of an analogy between the kinds of beings and the *summum ens* (highest being), a divine being whose actuality is devoid of any potentiality and whose essence is identical with its existence, Heidegger determines analogically an hierarchy of the ways of Being, in reference to the *Dasein*. Thus he characterizes the being of the stone as 'worldless' and the being of the animal as 'poor in world' on the basis of a unique analogy with *Dasein,* whose essence, once it is thrown in its Being, is to exist, or to be in the world.

Likewise the very distinction between an everyday world in which the *Dasein* feels at home, and an authentic world in which it is homeless is not without a secularized reminiscence of Augustine's notion that the world is an exile, and that the Christians do not belong to it.

For modern philosophy, fundamental ontology includes a reappropriation and deconstruction of several major authors, such as Leibniz, Kant and Hegel.

In Leibniz the 'principle of ground' *(Satz vom Grund),* also for-mulated as the principle of Sufficient Reason which is supposed to provide an ultimate answer to the question 'why?', is based on the nature of truth. For Leibniz truth is to be found primarily in judgment, and judgment ultimately consists in an identity between subject and predicate, an identity such that it can be demonstrated that any *P* is analytically derived from *S*. But for Leibniz this analytical concept of truth is not simply a matter of logic. It has an ontological basis. Ultimately all the logical propositions *'S is P'* have their ontological foundation in the monads that harmoniously compose reality, each of them having in itself the reason or ground for what happens to it. At the time of fundamental ontology, Heidegger discussed Leibniz in the published essay *The Essence of Reasons* (*Vom Wesen des Grundes* [2.4]), but also in posthumously edited lecture courses such as *The Metaphysical Foundations of Logic* [2.34, 2.48]. Though rejecting the traditional privilege of judgment shared by Leibniz, he agrees with him that the problem of ground has to be dealt with in terms of the problem of truth. He also agrees that any ontic truth presupposes an ontological foundation of a monadic nature. But whereas Leibniz inserts such a foundation into an onto-theological framework, Heidegger attributes it to the transcending process through which the *Dasein,* as a Self, overcomes beings towards Being. That process of transcendence which is the ontico-ontological difference itself is the foundational coming-to-pass of truth as unconcealment.

Kant's philosophy was also the topic of a deconstructive appropriation. The major proof of this is offered by Heidegger's book *Kant and the Problem of Metaphysics* [2.3, 2.47]. The book is an attempt to demonstrate that the *Critique of Pure Reason,* at least in its first edition, somehow anticipates the project of fundamental ontology in its reply to the question 'How are synthetic judgments possible?' Heidegger insists that according to Kant the question makes sense only if it stems from a knowing being which is essentially finite. Kant finds the sign of that finitude in the fundamental receptivity of sensibility. Sensible receptivity means that we, human beings, can know only beings that we do not create. However the ontic knowledge of those beings, which for Kant takes place in the experience of natural entities, requires an a priori synthesis which has, Heidegger claims, the nature of an ontological knowledge, i.e., of an a priori comprehension of the Being of those beings. In Kant, that a priori synthesis is the union of pure intuition (the a priori forms of space and time) with the pure categories of the understanding, a union carried

out by transcendental imagination through the protection of transcendental schemata characterized as transcendental determinations of time. By recognizing the decisive role of time—more precisely of a temporalizing process performed in the depths of the knowing subject, at the core of a synthetic or ontological knowledge enabling ontic access to beings as objects—Kant would have anticipated Heidegger's own attempt to show that our openness to beings presupposes a comprehension of their Being, i.e., a transcendence happening in the horizon of temporality. However, in its deconstructive aspect, this reappropriation of Kant also emphasizes the limitations of his endeavour: (1) a framework which is the legacy of Christian metaphysics with its distinction between *metaphysica generalis* and *metaphysica specialis* (psychology, cosmology, theology); (2) a one-sided concept of Being as presence-at-hand, therefore a one-sided concept of time, as a sequence of present moments, although Kant's notion of self-affection partially overcomes this one-sidedness; and (3) also the fact that Kant himself, as evinced by the second edition of the *Critique of Pure Reason,* seems to have withdrawn from his own discovery of finite transcendence in the operation of transcendental imagination.

Heidegger in *Being and Time* is entirely critical of Hegel, and at several places in the book he carefully discards any semblance of a proximity between the Hegelian conceptions and his own position. He claims, for example, that the Hegelian definition of time merely maintains traditional views leading back to Aristotle's *Physics,* and is one-sidedly focused on presence-at-hand. Moreover, he insists on the abstraction and formalism of Hegel, compared to the concreteness of his own fundamental ontology. And against the Hegelian thesis according to which Spirit falls into time, he objects that the very meaning of a 'fall' is left in the dark by Hegel. Instead of claiming that Spirit falls *into* time, the meaningful thesis about the fall should be expressed in this way: 'factical existence "falls" as falling *from* primordial, authentic temporality' ([2.2] 486; [2.45], 435–6). In spite of this apparent discarding of Hegel, readers of *Being and Time* are allowed to suspect, in relation to the history of ideas, that Heidegger's analysis of anxiety as a crucial experience which is not to be confused with ordinary fear, and the characterization of Being in terms of 'no being' or Nothingness, are not without some relation to Hegelian topics. One is inclined to suspect that there is indeed some reappropriation of Hegel in fundamental ontology.

Such a reappropriation comes to the fore in Heidegger's essay of 1929, *What is Metaphysics?* [2.5, 2.50], the text of his inaugural lecture at the University of Freiburg on the occasion of his accession to the Chair of Philosophy left vacant by the retirement of Husserl. At the outset of this essay, Heidegger states that he is in accord with Hegel's comment that 'from the point of view of sound common sense, philosophy is the "inverted world"' (p. 95). And further on, he reveals a second point of agreement. After a description of anxiety as a meta-physical experience in which nothingness manifests itself, he quotes Hegel's *Science of Logic:* 'Pure Being and pure Nothing are therefore the same' (*Wissenschaft der logik,* vol. 1, 111, p. 74). This proposition, Heidegger says, is correct, 'Being and nothing do belong together' (*Basic Writings,* p. 110). To be sure, these two points of agreement are rather formal and Heidegger adds that his own emphasis on the finitude of Being revealing itself in the transcendence of *Dasein* marks a fundamental divergence in spite of a formal proximity. But a lecture course of 1930–1 devoted to an interpretation of Hegel's *Phenomenology of Spirit* shows that there was

much more than a formal convergence, and that Heidegger's fundamental ontology really crossed the Hegelian path. Focusing on the transition from consciousness to self-consciousness, the lecture course claims that Hegel's notion of 'life' in the *Phenomenology of Spirit* unfolds a concept of Being which is no longer caught in the traditional notion of presence-at-hand. Moreover, Heidegger in the lecture course expresses admiration for the Hegelian description of the movement by which absolute knowledge absolves itself from natural knowledge. That description, he suggests, has to be considered as a transposition in an absolute framework of the very movement of finite transcendence.

Finally, fundamental ontology involves a reappropriation of Nietzsche on one point at least: historicality. In *Being and Time* ([2.45], section 76), Heidegger attempts to demonstrate that historiology *(Historie)* has its existential source in *Dasein's* historicality. *Dasein's* Being is essentially historical 'in so far as by reason of its ecstatico-horizontal temporality it is open in its character of "having been"' ([2.45], 445). In the context of the demonstration, Heidegger insists that 'Nietzsche recognized what was essential as to the "use and abuse of historiology for life" in the second of his studies "out of season" (1874), and said it unequivocally and penetratingly' ([2.45, 448]). For both Heidegger and Nietzsche the so-called objectivity of historical sciences, instead of being primordial, is a falling away from an active movement of uncovering directed towards the future. For both, that active movement is essentially interpretative or hermeneutical. For both, it is also circular because it creates an overlapping of the future and the past.

In other words, Heidegger suggests that by saying that only master builders of the future who know the present will understand the past, Nietzsche anticipates the Heideggerian topic of the 'hermeneutic circle'.

THE HISTORY OF BEING

Paroxysm and interruption of fundamental ontology

The basic principle of the analytic of *Dasein,* worked out in *Being and Time,* was: *Das Dasein existiert umwillen seiner* (*'Dasein* exists for the sake of itself). In the light of this principle, the project of fundamental ontology intended to demonstrate under the heading 'Time and Being' how the various meanings of Being—such as life, actuality, reality, permanence and so on—had to be understood as deriving from the self-projecting existence of *Dasein*. But the principle itself was restricted to the way of Being of individuals.

That restriction vanished in 1933 when Heidegger decided to support Hitler and became the first National Socialist rector of the University of Freiburg. The focus of his Rectoral Address is no longer the individual *Dasein* but the *Dasein* of the German people. As a result of that shift many concepts of *Dasein's* analytic undergo a significant metamorphosis.

The early version of fundamental ontology had reappropriated the Aristotelian *praxis* in the direction of *Dasein's* solitary insight *(theoria)* into the finiteness of its own Being,

therefore in the direction of *Dasein's bios theoretikos*. Heidegger in 1933 once again claims that the intention of the Greeks was to understand *theoria,* in its relation to Being, as the highest form of *praxis*. But he adds that *theoria,* thus understood as the science of the Being of beings, is 'the very medium that determines, in its ownmost Being, the *Dasein* of a people and of the State' (*The Self-assertion of the German University (Die Selbstbehauptung der deutschen Universität)* [2.7], 12). Accordingly, no longer the individual *Dasein* but the very existence of a people organized in a state seems to become the authentic location for the unconcealment of beings in their totality and in their Being. Now the organization of a people is obviously not a matter of pure *theoria,* but a matter of *technē,* of knowhow and of *poiēsis*. Consequently as a result of the shift from individual *Dasein* to the *Dasein* of a people-in-a-state, *technē* is no longer confined within the inauthentic realm of everydayness. To be sure, there is an ordinary *technē* which is still restricted to those limits, but, in addition to it, there is now place for an authentic *technē,* a knowhow which, instead of being fascinated by what is merely present-at-hand, is ontologically creative. In this context, Heidegger recalls an old Greek legend according to which Prometheus would have been the first philosopher, and he quotes the words of Prometheus in Aeschylus' tragedy: *'technē* however is much weaker than necessity.' Necessity is here interpreted by him as the 'overpower' of destiny. In such 'overpower' a concealment of being is involved which challenges knowledge and demands a metaphysical reply, in terms of a creative *technē*.

Along with the transposition of the notion of *Dasein* to a people, and the introduction of a creative *technē,* the Rectoral Address also introduces the idea that Being itself, and not only *Dasein,* is intrinsically polemical and historical; and that *Dasein*—either as an individual or as a people—is the 'there' of Being.

But in spite of all these modifications, the Rectoral Address maintains the project of a fundamental ontology, as a task including a metaphysics of *Dasein* articulated according to the opposition between a fallen everydayness, fascinated by presence-at-hand, and a resolute authenticity dedicated to unconcealing Being by transcending beings.

The two lecture courses offered by Heidegger after the rectorate period—a lecture course on Hölderlin [2.37] given in the winter term 1934–5, and a lecture course on the *Introduction to Metaphysics* [2.8, 2.53] given in the summer term 1935—introduce developments of topics treated in the Rectoral Address, but they also maintain the framework of fundamental ontology.

The lecture course on Hölderlin starts by discarding, in order to listen to the poet, all the forms of fallen everydayness already described in *Being and Time* as obstructing the question: Who is *Dasein?* The *Dasein* at stake here, however, is no longer the individual but 'the authentic gathering of individuals in a community' ([2.45], 8). Hölderlin's poetry, in the poems *'Germani*[a]*'* and *'Am Rhein',* is supposed to raise the question: 'Who are we, the German people?' The question demands a withdrawal from everydayness and a resolute attitude of racial questioning opposed to the 'They'. In continuity with *Being and Time,* Heidegger characterizes everydayness in terms of *technē,* i.e., circumspection dedicated to the management of surroundings, to production, usefulness and the general progress of culture. That inauthentic comportment encompasses the everyday life of the Nazi regime: cultural activism, subordination of thought and the fine arts to immediate political needs, biologism, and the rule of bureaucrats. But on the level of authenticity

there is a place for a quite different *technē,* adjusted to the historical *Dasein* of the German people. Only a few individuals are aware of the innermost historiality of that people. These few are the creators: the poet, the thinker and the founder of the state. The co-operation of these three creative types is described by Heidegger in his interpretation of what he calls the *Grundstimmung,* the basic mood of the two poems, i.e., Hölderlin's holy mourning in the face of the flight of the gods. The poet institutes *(stiftet)* the truth of the *Dasein* of the people. The thinker elucidates and articulates the Being of beings thus disclosed by the poet. But the co-operation of the two requires the people to be led to itself as a people. This can only occur through the creation by the state-creator of a state adjusted to the essence of that people. That triad embodies the Promethean *technē* mentioned in the Rectoral Address. The three of them rise to the level of demigods preparing the conditions for a return of the divine.

The same Promethean trend is to be found in Heidegger's dialogue with pre-Socratic thought in the *Introduction to Metaphysics*. As a result of the elevation of a creative *technē* to the highest ontological level, Heidegger now detects between Parmenides, Heraclitus and Sophocles convergences pointing to an ontological assignment to setting-into-work what the creative *technē* sees or knows. The assignment is required by the polemical essence of what the early Greek thinkers called *physis,* an appellation which, like the word *alētheia,* is taken to be another name for Being. Being is polemical because, on the one hand, it is an unconcealment which retains itself in itself while disclosing itself in beings; and because, on the other hand, it is again and again threatened, in its very disclosure, by sheer semblance, deception, illusion. Therefore it is an 'overpowering' calling for a creative self-assertion defined as a decision *(Entscheidung)* to provide a 'separation in the togetherness of Being, unconcealment; appearance, and Non-Being' ([2.8], 84; [2.53], 92). And since there is a violence in the 'overpowering' of Being such decision has to be disrupting and violent. This violent response to the 'overpowering' of Being is what characterizes *technē* in its essential meaning. *Technē* provides the basic trait of the Greek *deinon* (uncanny) evoked in a famous chorus of Sophocles' *Antigone*. So understood, *technē* is both a knowledge and a creative power. As a knowledge, it is a sight looking beyond what is present-at-hand; as a creative power, it is the capacity to set-into-work within being the historical unconcealment of Being. In this context, Heidegger claims that unconcealment takes place only when it is achieved by work: 'the work of word in poetry, the work of stone in temple and statue, the work of the word in thought, the work of the *polis* as the historical place in which all this is grounded and preserved' (pp. 146; 160). In this context, Heidegger celebrates what he calls 'the inner truth and greatness' of the National-Socialist movement versus the ideology (racism) and everyday practice of the Nazi Party.

In these two lecture courses the introduction of a distinction between a petty *technē* trapped in everydayness or presence-at-hand and a lofty *technē* able to set-in-work Being itself in its unconcealment not only leaves untouched but even reinforces the articulation of fundamental ontology—i.e., the opposition between ordinary time and authentic temporality. The fact that the *Dasein* at stake is now understood as the *Dasein* of a people, either Greek or German, simply widens the basic principle of *Being and Time* according to which the *Dasein* exists for its own sake and by willing itself. It could even be said that the Promethean connotation of these texts brings fundamental ontology to a

sort of metaphysical climax. Heidegger suggests, indeed, that it is because of its foundational role towards his people that his own work deserved the heading of fundamental ontology (pp. 113; 146). And he quotes with admiration Hegel's words in the *Logic* of 1812: 'A people without a metaphysics is like a temple without a Holy of Holies.' Metaphysics is thus the privilege of Germany, whereas western democracies, particularly the United States, on the one hand, and the USSR on the other hand, are said to be absorbed in the frenetic development of the petty *technē*.

However, this paroxysm was soon going to bring fundamental ontology to an end, and to open the way to a 'turn' *(Kehre)* in Heidegger's thought. A comparison between the successive versions of his essay *The Origin of the Work of Art* bears witness to such a turn, or at least to a shift in Heidegger's treatment of the question of Being. Indeed the two early versions of the essay preserve the Promethean tendency which characterized the *Introduction to Metaphysics;* whereas the third and final version is no longer Promethean at all. All the topics tackled by the *Introduction to Metaphysics*—the people and its gods, the greatness of a creative *technē,* decision, the ontological *polemos* (conflict)—are still mentioned in the final version, but they lose their previous hardness thanks to an overall tonality which is more meditative and open to enigmas than voluntarist and proclamatory.

In the three versions, Heidegger insists that there is a circle in the investigation into the origin of the work of art. Indeed, if it is true that the artist is the origin of the work, it is also true that the work is the origin of the artist since neither is without the other. However, both are what they are by virtue of art itself. But if it is true that the essence of art should be inferred from the work, it is no less true that we could not recognize a work of art as such without referring to the essence of art. Hence the interrogation into the origin of the work of art moves in a circle. In the two early versions of the essay the topic of the circle operates as a device for signifying the circular character of *Dasein* as a being which projects its own Self by retrieving its thrownness, in such a way that project is a retrieval, and retrieval is a project. But in the final version that emphasis on *Dasein's* existence for its own sake is replaced by an emphasis on Being itself inasmuch as Being is neither limited to beings nor without them, and neither encapsulated in *Dasein* nor without it.

Moreover, whereas the early versions insisted on the contrast between everydayness and creative self-assertion, the final version is almost without sign of a contempt for everydayness and its pettiness. It is significant in this regard that the first section of the final version of the essay is entirely devoted to the question: what is a thing in its thingly character? In the framework of fundamental ontology, as well as in the early versions of the essay, that question was clearly not an important issue for the task of thinking, and there was nothing enigmatic in the question. Indeed, there was an easy answer to it, in terms of everydayness: the Being of things is either presence-at-hand (natural things) or readiness-to-hand (equipment). By contrast, the final version of the essay states the following: 'The unpretentious thing evades thought most stubbornly. Can it be that this self-refusal of the mere thing, this self-contained independence, belongs precisely to the nature of the thing? Must not this strange feature of the nature of the thing become what a thought that has to think the thing confides in? If so, then we should not force our way to its thingly character' ([2.55], 32). In other words, everydayness, instead of being the

familiar realm that resoluteness has to overcome in order to face the homelessness of existence, now becomes strange and deserves meditation in its familiar outlook. Dwelling among things no longer obstructs thought, quite the contrary. It is also significant that the reliability of equipment previously defined by its readiness-to-hand, hence in relation to *Dasein* only, now turns out to bear testimony to an enigmatic interplay of unconcealment and concealment in Being itself. This is what Heidegger tries to suggest in his meditation on one of Van Gogh's paintings of a pair of shoes.

The second section of the final version of the essay also marks a change regarding the notion of truth. Heidegger's point in the three versions is that in the work of art truth sets itself to work. Truth, here once again understood as *alētheia* or unconcealment, is of an essentially ambiguous and polemical nature, for it is a mixture of disclosedness and withdrawal. This polemical nature of truth is revealed by the conflictual nature of the work of art. While setting up a world, the artwork sets forth the earth, but whereas the world is an opening of paths, the earth is a self-seclusion. Hence there is in the work of art a strife between world and earth. Such strife characterizes truth itself as unconcealment. But whereas the early versions of the essay maintain the priority of *Dasein* regarding truth by making the *Dasein* of a people the locus of truth, the final version characterizes unconcealment as a clearing *(Lichtung)* to which human beings belong and are exposed. Consequently the meaning of resoluteness also changes: it is no longer the project to be a Self but an exposure to the secret withdrawal at the core of the clearing.

Finally, the last section of the final version is an attempt to define creation without reference to Promethean self-assertion. What is now considered to be fundamental in the work, inasmuch as it is created, is no longer its ability to anticipate in a leap what a people decides to be. What is decisive in it, as created, is this: 'that such work is at all rather than is not' ([2.55], 65). In other words, the enigma of a coming-to-presence now overcomes the previous privilege of future self-projection. The creator is no longer a violent struggler but someone receptive to the clearing.

The turn and the overcoming of metaphysics

Why did Heidegger give up his project of fundamental ontology? The question raises an extremely complex issue and there are at least three ways of approaching it. From a strictly systematic point of view, it is possible to notice a paradox at the core of the project. Indeed if fundamental ontology—the science of the meaning of Being—is identified with the ontological analysis or metaphysics of *Dasein* (as seemed to be the case up to the *Introduction to Metaphysics*), then, as Heidegger himself said at the time, 'ontology has an ontical foundation' (*Basic Problems,* p. 26). But how is it possible to avoid then the reduction of Being to characteristics of a being, more precisely to *Dasein's* way of Being? If, on the other hand, the metaphysics of *Dasein* is only the provisional preparation of a systematic ontology, then a distinction has to be made between the temporality of *Dasein* and the temporality of Being itself; and, consequently, the provisional character of the analytic of *Dasein* contradicts its allegedly fundamental function. In both cases, the attempt made in *Being and Time* (and later extended to surpass the limits of individual *Dasein*) turns out paradoxically to be itself a manner of

oblivion of Being to the benefit of a being.

A second way of approaching the issue would be a close chronological investigation of the variations, appearing during the 1930s and early 1940s, in Heidegger's use of the notions coined in *Being and Time*. Such investigation remains to be done on a twofold basis: the lecture courses already published or in the process of being edited in the *Gesamtausgabe,* particularly those on Nietzsche (1936–41), and the long text written by Heidegger for his own use under the heading *Contributions to Philosophy* (*Beiträge zur Philosophie* 1936–8) [2.38].

A third approach is offered by Heidegger's own explanations of what he called the 'turn' which, at some point, occurred in his thought. The first among these self-interpretations is Heidegger's *Letter on Humanism,* written in 1946 in reply to questions raised by Jean Beaufret.

It is not certain, however, that the results of the three approaches could ever coincide, mainly because of Heidegger's tendency to justify retrospectively each step of his philosophical development. Despite these difficulties there is no doubt that several topics which had no place whatsoever in fundamental ontology came to the fore during the second half of the 1930s. The lecture courses on Nietzsche are extremely significant in this regard.

It has been noticed by several readers of the *Nietzschebuch* (Mehta; Arendt) that in the first lecture courses (1936–9) Heidegger interprets Nietzsche in terms of the analytic of *Dasein* and shows a basic agreement with Nietzsche, whereas the courses of 1939–41 are polemical. This is why Hannah Arendt claimed that initially the 'turn' was a biographical event, by which she meant that, underneath a polemical debate with Nietzsche, it was an explanation of Heidegger to himself, and an attempt to discard his own voluntarist inclinations during his activist period.

At any rate, what comes to the fore in the polemic against Nietzsche is a new way of considering the history of metaphysics. In fundamental ontology, the point was to deconstruct the biases and confusions inherent in past philosophies in order to liberate metaphysics and complete it as the science of the meaning of Being. Now, the point is to consider its development as a fatal destiny and to prepare its overcoming. That destiny is characterized as an increasing oblivion of Being culminating in Nietzsche's philosophy of the will-to-power and of the eternal return of the same, interpreted by Heidegger as nihilism.

At the dawn of western thought, the key words of the pre-Socratic thinkers, above all the word *alētheia,* all signalled the process through which beings are brought to the 'open' in tension between a reserve and an appearing. This means that Being was experienced as fully differentiated in the manner of an offering which withholds itself in what it gives. This differentiation indicates a finiteness of Being to which corresponds thinking as a receptivity to the secret of Being. The first erasing of this differentiated correspondence and mutual belonging starts with Plato. Plato's dialogues demonstrate a tendency to transform a mere consequence of the ambiguous process of *alētheia* into the essence of truth. In Plato beings reveal their beingness through ideas. The word initially meant the outlook offered by things as they emerge out of *physis*. Therefore it meant a consequence of the process of unconcealment. But Plato's ideas come to the forefront and get split off from the unconcealing process. Moreover, they acquire a normative status in

relation to *physis*. Unconcealment then becomes a result of the clarity of the ideas which themselves refract the clarity of a supreme idea, the Good. This is the birth of metaphysics as onto-theology. The task of metaphysics from now on is to develop a theory of the essence of beings, a logic of their beingness, i.e., an ontology, and simultaneously to develop a theology by relating their beingness to a primordial being. *Alētheia* is thus obliterated by an ontical hierarchy, and truth becomes a matter of correctly seeing the ideas. Accordingly, the mutual belonging of Being in its ambiguity and of thinking in its receptivity to the same is levelled down to a contemplative conformity of the mind to essences.

A second stage in the metaphysical oblivion of Being took place in the Middle Ages. In medieval thought the Platonic concept of truth as conformity of the intellect to the beingness of beings, coupled with the founding role of a supreme being, was retrieved within the Christian speculations about creation and the dependence of the created on the creator. Truth in the scholastic sense of *adaequatio intellects ad rem* (adequacy of the mind to the thing) is now grounded upon the deeper *adaequatio rei Dei intellectus* (adequacy of the thing to the mind of God).

A third stage occurred at the beginning of the modern age with the invention of subjectivity. When Galileo Galilei introduces, in still approximate terms, the first formulation of what Newton, a few decades later, was to call the principle of inertia, he uses the words 'mente concipio' (conceive in my mind). What is significant here, for Heidegger, is not the replacement of the sensible outlook of natural phenomena (the cornerstone of Aristotelian physics) by a purely intellectual approach of nature, but the fact that inertia, in order to appear at all, requires the human mind to give itself a preconception of what motion is and thus projects in advance the condition for phenomenality. In the conformity of adequation between intellect and thing, the stress is now put on the intellect in such a way that the thing manifests its truth inasmuch as it fits with a project emanating from the *mens*. Deeper than the modern use of mathematics in physics, there is what Descartes called *mathēsis*—a project by which the *cogito* ascertains itself on its own and acquires a position of mastery. In Descartes' philosophy, with the restriction of the dependence of the finite human mind on the divine infinity, the *cogito* posits itself as the unique basis upon which beings reveal their beingness. The word for basis in Greek was *hupokeimenon,* in Latin *subjectum*. The *cogito* becomes the only *subjectum*. The rule of subjectivity begins. The modern object-subject correlation means that beings are what they are to the extent that they submit themselves to the rule of the human *cogito*.

Such is the birth of the reckoning and evaluating reason which determines modernity. All its features appear at the outset. The *mathēsis* is *universalis,* which means that it is planning for the totality of beings. It is both a subjectivation of all beings referring them to the *cogito* and an objectivation making them all equally calculable and controllable. Earlier than the current reign of technology, right at the beginning of the modern era, nature as a whole was conceived as one huge mechanism in relation to a technological way of looking.

Between Descartes and Nietzsche, Heidegger does not notice a fundamental discontinuity. Nietzsche's notion of the will-to-power was in several ways anticipated by Descartes and subsequent thinkers: Leibniz's notion of the monad as a conjunction of

perception and appetite in addition to his principle of Sufficient Reason; Kant's concept of reason as a condition of possibility; Fichte's reinterpretation of Kant in terms of practical reason; Schelling's conviction that there is no other Being than the Will; Hegel's concept of the Absolute, willing its self-identity throughout differentiation. So while claiming to be liberated from metaphysics, Nietzsche was merely bringing it to its accomplishment and carrying modern subjectivity to an onto-theological climax. Heidegger indeed interprets the will-to-power in ontological terms as the beingness of all beings, and the eternal return of the same in theological terms as the ultimate ground of beingness and being. Defined as the beingness of all beings, the will-to-power pushes to an extreme limit the project of objectivation and subjectivation inherent in *mathēsis*. Objectivation is brought to an extreme because the will not only treats every being as an object *(Gegenstand)* but also compels any object to become a storage *(Bestand)* available to all kinds of assignment and manipulation. Subjectivation is brought to an extreme as well, for all things are reduced to the values that the will bestows on them in order to intensify its power. On the other hand, the eternal return of the same, defined as the ultimate form of being, signifies an endless, circular, repetitive machination which is the metaphysical essence of modern technology. The abyssal thought of the eternal return means that the will aiming to intensify itself is itself willed and challenged to will itself infinitely. On both counts, Being has definitely lost the enigmatic ambiguity which was experienced by the early Greeks. Being is like nothing. Nihilism rules.

It is significant of the 'turn' at work in this meditation on modernity that Heidegger's description of what he calls 'European nihilism' in a 1940 lecture course on Nietzsche includes the following remarks about *Being and Time:* 'The path followed in it is interrupted at a decisive place. The interruption is explainable by the fact that, all the same, the attempt made on that path was running the risk, against its own intention, to reinforce furthermore subjectivity' (*Gesamtausgabe* vol. 48, p. 261).

The main result of the above description of the history of metaphysics is the claim that modern technology is the last accomplishment of a long process of oblivion of Being inherent in metaphysics since Plato. Heidegger uses the word *Gestell* to characterize the nature of modern technology. *Gestell* is a global 'enframing' wherein beings are entirely available to all sorts of arbitrary evaluations and manipulations, and in which Being counts for nothing. To that global enframing Heidegger opposes what he calls *Ereignis,* often translated as 'event of appropriation', a term already used in his *Beiträge* of 1936–8. Within the global enframing, thinking is replaced by calculation. It is only by meditating *Ereignis* that thinking can remain alive. Thinking the *Ereignis* is a counter-current to nihilism.

That opposition pervades the writings of Heidegger after the Second World War. In all of them the voluntarist tonality of *Being and Time* and of the *Introduction to Metaphysics* has vanished. Significantly the word *Dasein* is now spelled *Da-sein:* there-being. The mortals are the 'there' of Being. They are exposed to the secret granting of Being. Significantly, also, a topic such as the 'call', which was restricted in *Being and Time* to *Dasein's* listening to its ownmost potentiality, now emanates from Being itself. Whereas in fundamental ontology the human *Dasein* was the lieutenant of nothingness, it is now the shepherd of Being. Whereas fundamental ontology somehow conflated thinking and willing, thinking is now a matter of not-willing, of letting-be *(Gelassenheit),* and even of

thanking. Whereas fundamental ontology conceived of dwelling in terms of a preoccupation of inauthentic everydayness, dwelling now deserves profound meditation. Likewise for the 'thing', a topic to which Heidegger devoted several essays in the late period. Likewise for speech, formerly taken as a capacity of *Dasein,* and now characterized in terms of a call emanating from Being, of a gathering of Being and of a corresponding to it. That shift from *Dasein* to Being explains why Heidegger criticized humanism as an aspect of metaphysics.

The shift of emphasis also generates a change in Heidegger's thought about time. While maintaining the notion of *ecstasis,* Heidegger no longer understands ecstatical temporalization in terms of an existential self-project, but in terms of a belonging of *Dasein* to the ambiguous unconcealing process of Being allegedly covered up by the entire tradition of metaphysics. This becomes apparent in a lecture given by Heidegger more than thirty years after *Being and Time,* under the significant title *Time and Being* (1962). This is the title which had been announced in 1927 as the heading of the third division of the book, a division which never appeared. The lecture of 1962, however, is not to be considered as the completion of the project of 1927.

It is a significant feature of the 'turn' that the topic is presented in neutral terms, in which *Dasein* no longer plays a central role. Heidegger indeed announces that his meditation is oriented by the sentence 'Es gibt Sein, Es gibt Zeit', which literally means: 'It gives Being, It gives time.' This neutral phrasing clearly suggests that the issue is no longer Dasein's temporalization. In both sentences, the phrase 'Es gibt' invites the audience to hear an offering which is not itself reducible to what it is offering. Hence the sentence 'It gives time' points to anoffering which keeps withdrawing itself within what is offered. Already in the word 'present' there is more than the now; what is also meant by the word is a gift bestowed upon man. Open to the presence of the present, mortals welcome the granting. The emphasis is no longer on the project of the self but on receptivity to the granting.

In this context, the prior concept of *ecstasis* is modified. Each *ecstasis,* as well as the unity of the three *ecstases,* is now understood as a granting extended to human beings. Instead of saying that the past is what we retrieve in the light of our finite project, Heidegger now says that it happens to us, extending itself to us and soliciting us. The past is an *ecstasis* in the sense of the coming towards ourselves of an absence which concerns us while it is granted to us. Absence is itself a mode of presence if we think of presence in the sense of a granting. But in each there is an interplay of granting and withholding. The same holds true for the unity of the *ecstases*. Heidegger now calls each *ecstasis* a dimension, and he calls the unity of the *ecstaseis* the fourth dimension of time.

About such unity, Heidegger no longer evokes a privilege of the future. The emphasis is now on the coming-to-presence. Moreover, instead of evoking *Dasein's* temporalization, he suggests that time temporalizes from itself. The unifying fourth dimension of time is characterized as a disclosed interplay of the three *ecstases,* a clearing extension, an opening. However it is also characterized by a denial, a withholding. Time nears and holds back. It is radically ambiguous. The granting, effective in it, is also a denial.

This new apprehension of time is at the core of Heidegger's notion of *Ereignis* which he opposes to *Gestell*—the technological enframing for which there is no secret

whatsoever. In German *Ereignis* means 'event'. In Heidegger's terminology it designates the co-belonging of Being and man. He insists on both etymological roots of the word. They are *er-eignen,* 'appropriating', and *'er-äugen',* bringing to visibility. There is no doubt that the use of the word in this twofold meaning signifies a contrast with the use of words such as *eigen* ('own'), and *Eigentlichkeit* ('authentic selfhood') in *Being and Time*. The *Ereignis* is not to be conceived of in terms of the Self at issue in the work of 1927. What is at stake in it is no longer a project but a *Schicken,* a sending or a destining. The event of co-belonging between Being and man is the manner in which Being destines itself to us, by opening the playspace *(Spielraum)* of time wherein beings appear. But destiny withholds itself in order for its granting to occur. The history of Being is that destiny. In it each epoch is an *epokhē,* a withholding of Being within its donation. In each case the *Ereignis* witholds *(enteignet)* itself. Consequently the task of thinking is no longer to be defined by the phrase 'Being and time' but by the phrase *Lichtung und Anwesenheit,* 'clearing and coming-to-presence', both understood in terms of a granting and a denial.

The trouble with this history of Being is that, in spite of the above signals of a significant shift in Heidegger's thought, it reproduces in a new way the previous contrast between the 'They' and the Self. Indeed only a few German poets (Hölderlin, Trakl, George) and Heidegger himself—but not the plurality of human beings interacting in a common world of appearances and events—seem able to properly respond to the ambiguity of the destiny of Being.

Moreover, the previous privilege of *Dasein's bios theoretikos* reapppears in a new manner: thinking is the only activity able to prepare a new beginning in the history of Being.

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CHAPTER 3
Philosophy of existence 2

Sartre

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Born 21 June 1905, in Thiviers (Dordogne), Jean-Paul Sartre was raised in the Parisian home of his widowed mother's parents. After his mother's remarriage, he spent several years with her and his stepfather in La Rochelle but returned to the capital to continue his education, first at the prestigious lycées Henri IV and Louis-le-Grand, and then at the renowned Ecole Normale Supérieure. After several years of teaching in various lycées, interspersed with a year of research at the French Institute in Berlin (1933–4), mobilization during the Phoney War (1939–40), and internment in a prisoner of war camp (1940–1), Sartre abandoned teaching for a career as an author and critic. He founded the review *Les Temps modernes* with Merleau-Ponty, Simone de Beauvoir and others (1944), refused the Legion of Honour (1945) and the Nobel Prize for Literature (1962), and became increasingly involved in the politics of the left in the second half of his life. Sartre adopted a former student, Arlette Elkaïm (1965), who had become his literary heir. He died in Paris on 15 April 1980.

Perhaps no one in the twentieth century better exemplifies the union and creative tension among philosophy, literature and public life than Jean-Paul Sartre. His novel *Nausea* and play *No Exit* emerged in the 1940s as paradigmatic 'existentialist' pieces, for which his masterwork, *Being and Nothingness,* served as the theoretical underpinning. This last, like Darwin's *Origin of Species,* was more mentioned than read during the halcyon days of café existentialism. But its basic insights and powerful phenomenological descriptions have continued to attract a number of contemporary philosophers as well as the general reading public. Several of these themes and theses continued to direct Sartre's philosophy throughout the shifts and adjustments of the next thirty-seven years of his career. So we cannot refer to a rejection of, or a 'turning' from, his earlier thought in his later work as is often done in the cases of Wittgenstein and Heidegger respectively.

The present chapter will survey Sartre's philosophical development, analyse the fundamental concepts and principles that constitute his contribution to philosophy in eight standard fields of inquiry, and conclude with reflections on Sartre's relationship to four movements in the recent history of philosophy, namely, existential phenomenology, Marxism, structuralism and postmodernism.

PHILOSOPHICAL DEVELOPMENT

Sartre once admitted that his inspiration to write philosophy came from reading Bergson's *Time and Free Will*. The Bergsonian influence on his thought, both positive and by way of reaction, has yet to be studied in depth. But the presence of this formidable French theorist is obvious from the centrality of time and temporalizing consciousness in Sartre's published philosophical writings from the very start. These works of the 1930s, culminating in *Psychology of Imagination* (1940), exhibit both a keen sensitivity to lived experience as distinct from the mechanical or quantified phenomena of positive science (a well-known Bergsonian theme) as well as a profound opposition to the philosophical idealism of his neo-Kantian professors at the Sorbonne. His early writings also tended to take imaging consciousness as paradigmatic of consciousness in general. In fact, if Sartre is known as *the* philosopher of freedom in our times, he could with equal justification be considered *the* philosopher of imagination. We shall observe various forms of imaging consciousness emerge in the course of our essay.

Sartre's long-time companion, Simone de Beauvoir, relates the story of their meeting with Raymond Aron after the latter's return from a year in Berlin. At Aron's account of the new philosophy of Edmund Husserl that could describe 'phenomenologically' an individual object such as the cocktail glass before them, she recounts, Sartre 'turned pale with emotion'. As they left the café, she recalls, Sartre had to find a bookstore open at night in order to purchase a copy of Levinas's *The Theory of Intuition in Husserl's Phenomenology*.

If phenomenology enabled Sartre to philosophize about concrete, individual reality, its central concept of intentionality allowed him to escape the 'principle of immanence' that entangled idealist philosophers in a mind-referring world. Philosophical idealism claims that reality is essentially mental or mind-referring. Berkeley's famous maxim 'To be is to perceive or be perceived' illustrates this view. Sartre published an essay in 1939 that countered this idealist claim with the principle of *intentionality,* namely, that consciousness is essentially other-referring: 'All consciousness is consciousness *of* another.' He applied this Husserlian principle with characteristic rigour, even directing it against Husserl himself, whom he accused of sliding into idealism by appeal to a 'transcendental' ego.

Sartre's robust realism continued to shape his epistemological claims over the years. He always insisted that we can know the real world in itself, that historical facts are not the result of our individual or collective creation, and that the harsh facticity of every situation must be dealt with, indeed, that failure to do so is simply 'bad faith'. It made him an apt, if initially reluctant, convert to philosophical materialism in the 1950s. Of course, mechanistic materialism was never a temptation. He had consistently opposed its claims from the start. But once he could separate the emergent features of dialectical materialism from its quasi-mechanical use by Marxist 'economism', he appealed to the 'material conditions of history' that Marxists of all shades respected and undertook to incorporate these socio-historical considerations into his philosophy of individual freedom-responsibility.

The Second World War was the dividing point between the phenomenological existentialist Sartre and his Marxist existentialist avatar. As he said in one of his many interviews, his 'experience of society' during those years forced him to shift from a philosophy of consciousness to one of *praxis,* understood roughly as human action in its

material, socio-historical environment. If it is a mistake to see the early Sartre as an unqualified phenomenologist, witness his rejection of a basic Husserlian concept in *The Transcendence of the Ego* (1937), it is equally erroneous to read him as a Marxist *sans phrase*. In fact, in his final decade he explicitly denied he was a Marxist, insisting that 'existentialist' would be a more appropriate label if one had to make such designations. In *Search for a Method* (1958) and the *Critique of Dialectical Reason,* vol. 1 (1960), he makes ample use of historical materialist categories and arguments. Even in his massive Flaubert study, *The Family Idiot* (1971–2), where existentialist and Marxist terms are intertwined, he seems to regard physical labour and human need as the touchstones of reality. Still, his association with *les maos* (ultraleftists) after the student uprising of 1968, and his unpublished collaborative effort with Benny Levy on yet another ethic, confirms the judgment that Sartre was and remained a *moralist*. For it was the desire to retain a place for moral assessment within social critique that attracted him to these young radicals. As he noted, in obvious disgust, 'The Communists don't give a damn about justice. All they want is power' [3.28], 76. It is his moralist tendencies more than his so-called 'Cartesianism' that locate him squarely in the French philosophical tradition.

Sartre's final interviews with Levy are much controverted. Simone de Beauvoir and Raymond Aron claim that the young man took advantage of Sartre's age and ill health to project a false image, a Sartre without critical bite, a domesticated warrior. Indeed, these conversations do read like Platonic dialogues, with Levy assuming the controlling role of Socrates. Though it would be a mistake to read these pages without reference to the development of Sartre's thought as a whole, comparison of several disputed passages with claims made in posthumously published material from different stages of Sartre's career indicates that at least some of Sartre's so-called revisions of his well-known positions were actually ideas he had defended in these other works quite independent of Lévy's purported influence. Thus his remarks about love and 'fraternity' are anticipated and developed at length in his *Notebooks for an Ethics* (written 1948–9), as we shall see. Again, this does not mean that Sartre 'renounced' his existentialist philosophy in his final years. Nothing could be farther from the truth. But it does reveal Sartre as a living, evolving thinker, responding to the everchanging challenges of his day. For Sartre, to philosophize was his way of being-in-the-world.

PHILOSOPHICAL CONTRIBUTIONS

Existentialists have been portrayed as non- or even anti-systematic thinkers. No doubt this stems from Kierkegaard's notorious animus against Hegel's 'System' and Nietzsche's strictures against academic philosophy in general. But, unless by 'systematic' one means 'axiomatic deductive', classical existentialist thinkers like Sartre, Merleau-Ponty, Heidegger (who rejected the association) and others were rigorous and consistent theorists, who applied fundamental principles and concepts according to a clear method. Given the interlinking and cumulative nature of Sartre's thought, it is best to order our exposition according to the standard philosophical sub-disciplines. Not only will this facilitate our consideration of his massive *oeuvre,* it will also exhibit the unity and

coherence of his theoretical work.

Methodology and epistemology

Sartre had a remarkable talent for psychological description. His novels, plays and short stories were replete with arresting, insightful accounts of both typical and dramatic moments in the human condition. So it is small wonder that he was taken by Husserl's phenomenological method of 'eidetic reduction'. By a 'free, imaginative variation of examples', Husserl proposed to focus on the essence, *eidos,* or intelli-gible contour of any 'object' whatsoever. Not only physical nature, mathematical abstractions or metaphysical categories but acts of ingratitude and artistic events were likely objects for the phenomenologist's eye. Like the forensic artist's composite photograph, these reductive descriptions serve to reveal the form, figure or essence of an object, whether this be an abstract entity, like 'material object', an emotion, like 'resentment', or a particular phenomenon, like 'this glass'. At its best, such descriptive analysis reveals the essential features of the object in question, that is, those that withstand the imaginative variations to which they are subject by the describer. Descriptive phenomenology is a 'science' of what Aristotle called 'formal', not 'efficient' causes. As Husserl noted, 'phenomenology does not try to explain…but simply to get us to see'. When it is unable to generate what Husserl termed the 'intuition of essences' *(Wesensschau),* the phenomenological method must be satisfied with possible or probable opinions about the matter in question. So the first two parts of Sartre's *Psychology of Imagination* are entitled the 'certain' and the 'probable' respectively.

What we may call an epistemology of 'vision', the Husserlian legacy, remains a constant feature of Sartre's method. It accounts for some of the most arresting passages in his philosophical writings, and serves to 'concretize' some of the most abstract sections of his theoretical works. The presuppositions of Husserl's method are Cartesian, however, and Sartre's writings up to and including *Being and Nothingness* refer to a form of the *cogito* as essential to any method that would move beyond mere probability to certainty in its basic claims. The insight of individual reflective consciousness in this approach is taken as the final court of appeal in philosophical argument. Although Sartre seemed to modify this view in his later years, he never abandoned it, as is clear from his retention of the language of *Being and Nothingness* in his final work on Flaubert. A tension between this epistemology of vision and an overlapping epistemology of *praxis* renders Sartre's later philosophy problematic.

After the war, Sartre adopted a form of the dialectical method, which he had been studying in the works of Hegel and Marx during that period. Central to this approach, as he saw it, were the notions of 'finality', 'negativity' and 'time'. It is a feature of dialectical reasoning, he insists, to acknowledge 'a certain action of the future as such'. Explanation in terms of Aristotle's 'final' causality had been philosophically unpopular since Descartes. But Sartre argues that our comprehension of human activity *(praxis)* as distinct from mechanical behaviour depends on the purposes that guided the agents themselves.

He criticized philosophers since Descartes for 'failing to conceive negativity as productive', an oversight that he certainly avoided in *Being and Nothingness,* where

negativity assumes pride of place as an essential feature of consciousness as such. Sartre's dialectic differs most from Hegel's by its insistence on the primacy of individual activity in dialectical advance and in its denial of any 'end' to the dialectical process so long as consciousness/praxis sustains it. A pivotal claim, and the undoing of any totalitarian theory, is Sartre's thesis that a 'totalizing' consciousness/praxis cannot totalize itself, that is, it cannot be completely absorbed in a social whole of which its totalizing activity is a part. This 'nihilating' character of consciousness in the early Sartre remains in the *praxis* of the later one to preclude any 'organicist' or totalitarian tendencies in his social thought.

The later, dialectical thinker prefers 'notions' to 'concepts' as the vehicles for expressing historical intelligibility. Sartre argues that developmental thinking alone can render comprehensible a fluid reality and that notions as dynamic are superior to static concepts in performing this task. Like Aristotle's and Kant's categories, concepts as such are atemporal whereas notions include an essential reference to temporality in their very meaning. We should see 'notion' as a 'dialectical concept' and read Sartre's writings after *Being and Nothingness* as abounding in them.

Sartre's discourse on method is the essay *Search for a Method,* published first as an article and later as a kind of preface to the *Critique of Dialectical Reason*. It combines the phenomenological and dialectical moments in an approach that develops the 'method of understanding' *(Verstehen)* of German social theory at the turn of the century. The method entails three stages or dimensions. The first is a phenomenological description of the subject matter to be studied. The terminus of eidetic reduction, it now forms the beginning of Sartre's approach. The second step is a 'regressive' move from the object of investigation to the conditions of its possibility. These may be purely 'formal', such as the structures of social relations that Sartre uncovers in the *Critique of Dialectical Reason,* vol. 1, or they may include a specific content, like the intrafamilial relations of the young Flaubert that conditioned his psychosocial development. The third move in what Sartre calls his 'progressive-regressive' method is the progressive spiral of interiorization/exteriorization of these material and formal conditions by the agent whose meaning-direction *(sens)* we are attempting to uncover. If successful, the progressive-regressive method enables us to 'understand' (not 'conceptualize') an agent as well or even better than he or she understood himself or herself, the ideal of hermeneutical investigation since Kant.

Psychology

Sartre's first published philosophical books were in psychology: *Imagination* (1936), *Sketch for a Theory of Emotions* (1939), and *The Psychology of Imagination* (1940). Not coincidentally, they emphasize the role of the imagination in our psychic life and pursue in depth Husserl's thesis that intentionality is the defining characteristic of the mental. Both these remain influential in Sartre's subsequent writings.

His phenomenological analysis of the imagination reveals three characteristics of its structure: the imagination is a *consciousness;* like all consciousness, it is *intentional;* and it differs from perceptual consciousness in the way it 'intends' its object, namely, as absent, non-existent or *unreal*.

It is better, he argues, to speak of 'imaging consciousness' than of 'imagination' with its corresponding 'images'. The latter form of expression tends to hypostatize consciousness and to turn images into *simulacra,* 'inner' icons of some 'exterior' object. Such discourse succumbs to what Sartre calls the 'illusion of immanence' shared by realists and idealists alike. Rather, imaging consciousness should be conceived as a manner of being-in-the-world, a Heideggerian term that Sartre adopts. Intentionality avoids the paradoxes of traditional inside-outside epistemology and accounts for the relational character of consciousness. Imaging consciousness 'derealizes' the perceptual or recollected object, relating to it in the properly imaginary mode. This derealizing activity employs physical or psychic material (for example, painted surfaces or phosphenes in the case of aesthetic or oneiric objects respectively), to serve as an *analogue* for the imagined object. Sartre's concept of 'representative analogue' figures in much that is original and interesting in his aesthetic theory. It is integral to his existential 'biographies' of such 'lords of the imaginary' as Baudelaire, Genet, Flaubert and Mallarmé. For each in his own way will be portrayed as 'derealizing' the bourgeois world of his contemporaries and enticing others with his art to do likewise. A conceptual flaw that weakens Sartre's usage is his failure to explain in detail what he means by these cardinal terms, 'analogy' and 'analogue'.

These features of imaging consciousness are summarized in the following definition: 'The image is an act which intends [literally, "aims at" *(vise)*] an absent or non-existent object in its corporality by means of a physical or psychical content which is given not for its own sake but only as an "analogical representative" of the intended object' ([3.30], 25; in the French text, p. 45). It is remarkable that Sartre speaks of imaging consciousness in this first period of his writings as the locus of possibility, negativity and lack, and insists that only in the imagining act is the 'nihilation' of objects revealed (see [3.30], 243–5; French, pp. 360–1), because, in *Being and Nothingness* and thereafter, these emerge as the proper features of consciousness in general. To the extent that Sartre's early philosophy by his own admission is a 'philosophy of consciousness', it is likewise a philosophy of the imagination. Our survey of his thought and works will justify considering him *the* philosopher of the imagination as much as *the* philosopher of freedom—the title by which he is commonly designated.

His analysis of the emotions is in direct parallel with that of the image. Like images, emotions are not 'inner states' that somehow correspond to external stimuli. Neither are they reducible to their physiological expression, as some have argued. Emotional consciousness is another way of being-in-the-world. In this case, it is one that entails a physiological change as a means of relating to the world in a 'magical' manner. Emotional consciousness is 'failure behaviour' *(la conduite d'échec),* an expression that will play an important role in Sartre's biography of Flaubert. The agent, unable to change the world through rational activity, changes himself or herself in order to conjure up a world that is no longer frustrating. Thus, the golfer gets red in the face before his/her failure to escape a sand trap. Sartre reads this as conscious, that is, 'intentional', behaviour. Its purpose is to generate another world as if by magic via one's bodily changes: perspiration, increased blood pressure, agitated motions and the like—these are 'intended' to help whisk the ball on to the green. Again, Sartre's phenomenological descriptions are aimed at escaping the 'inner life' and underscoring the correlativity of

consciousness and world, psychology and ontology.

Ontology

If Sartre is a moralist, he is likewise basically an ontologist. The close relation between ethics and ontology in his thought lends it a 'traditional' flavour quite foreign to that of recent French intellectuals. His masterwork, *Being and Nothingness,* subtitled 'An Essay in Phenomenological Ontology', develops the basic categories of his theory of being (ontology) and concludes with the promise of an ethics, which never appeared in Sartre's lifetime.

Inspired by the divisions of Hegel's *Phenomenology of Spirit* but always relying on the 'apodictic' evidence of Husserl's eidetic reduction, Sartre undertakes a description of the fundamental forms of being. He calls these 'being-in-itself' *(l'être-en-soi),* 'being-for-itself' *(l'être-poursoi)* and 'being-for-others' *(l'être-pour-autrui)*. Each has distinctive characteristics and is irreducible to the others. Exploiting the proximity of phenomenology to psychology, ontology and literary 'argument', Sartre relies on powerful examples and tropes to convey his insights. In fact, his first literary success, *Nausea* (1938), both anticipates and 'works through' imaginatively the themes and theses of *Being and Nothingness,* published five years later.

Being-in-itself or the non-conscious is the inert plenum. It is self-identical and without the features commonly ascribed to being in realist ontologies. For example, it is neither active nor passive, is beyond negation and affirmation (other than the judgment that it is and is self-identical), knows no otherness, is not subject to temporality and is neither derived from the possible nor reduced to the necessary. 'Uncreated, without reason for being, without any connection with another being, being-in-itself is *de trop* (superfluous) for eternity' ([3.2] lxvi). Sartre derives these characteristics from an initial phenomenological investigation of the being of any phenomenon. He confirms them by appeal to certain experiences like nausea and boredom that he believes are revelatory of its ontological nature.

Being-for-itself or consciousness is the counter-concept to being-in-itself and is its internal negation. It brings 'otherness' into play, is precisely non-self-identical, and is characterized as a 'pure spontaneous upsurge', a feature Sartre's concept shares with the concept of mind in classical German idealism. The for-itself 'temporalizes' the 'world' that it constitutes by its intentional relations. As we noted above, consciousness is the locus of possibility, negativity and lack. Early in *Being and Nothingness,* Sartre undertakes an analysis of our act of questioning, a tactic doubtless learned from Heidegger's *Being and Time,* with which his book has several affinities. His descriptive analysis concludes that the negativity which permeates our lives from the fragility of objects to the absence of friends is not dependent on the act of judging—the standard view—but conversely. We have 'a certain prejudicative comprehension of non-being' ([3.2], 7), and it is this that grounds the negative judgments and realities *(négativités)* that populate our world. Sartre proceeds to argue that this 'nihilating' relation of consciousness to the world is possible only because consciousness (the for-itself) is of its very nature a no-thingness *(néant),* an 'othering' relation that holds the in-itself ('thingness') at bay even as it conspires with being-in-itself to constitute the

existential 'situation'.

The essence of consciousness as the internal negation or no-thingness of being-in-itself accounts for many of the paradoxes that abound in Sartre's ontology. Chief among these is the claim that 'human reality' (his translation of Heidegger's *Dasein*), 'is not what it is…and is what it is not' ([3.2], 123). Human reality 'is' its ego, its past, its 'facticity', in the manner of not-being these givens of its situation, that is, as the internal negation of being-in-itself. Metaphorically, the for-itself 'secretes' nothingness *(le néant)* or otherness between itself and whatever predicate one might wish to ascribe to it. These verbal twists are meant to capture the ephemerality of the for-itself, a transitivity which echoes that of temporality, which the for-itself constitutes.

Following Heidegger, Sartre distinguishes lived or *ekstatic* temporality from the 'universal time' measured by chronometers. The latter is quantitative and homogeneous; the former, qualitative and heterogeneous. Being-for-itself is not 'in' time the way a hand is in a glove, or even the way the glove is 'in' time. Rather, it 'temporalizes' the world which it constitutes. The for-itself 'exists' in three temporal *ekstases:* the past as facticity or 'already', the future as possibility or 'not yet', and the present as 'presence to' or the 'othering' relation that at once unites and distinguishes the for-itself from being. These are three structured moments of an original synthesis. Sartre insists that it is better to accent the present *ekstasis* rather than the future as Heidegger does, because presence-to best exemplifies the internal negation of being-in-itself, which is the total synthetic form of temporality ([3.2], 142).

When one moves from the abstractions of the in-itself and the for-itself to the concrete individual agent, these functional concepts, being-in-itself and being-for-itself, assume the roles of 'facticity' and 'transcendence' respectively. Every individual is a being-in-situation and 'situation' is a vague, indeterminate mix of the givens, including one's physical and cultural environment as well as one's previous choices, on the one hand, and the project that moves beyond them, on the other. These givens must be reckoned with, but, Sartre insists, they are not determining. 'One can always make something out of what one has been made into' is the maxim of Sartrean humanism. The first half of his career was spent explaining the first portion of that remark; the remainder was devoted to articulating how society and history have limited our choices without removing them entirely.

Although Sartre insists that being-for-others is as fundamental as the in-itself and the for-itself, it is clearly dependent on them ontologically. In one of the most famous passages of *Being and Nothingness,* he offers his 'proof for the existence of other minds in the form of an eidetic reduction of shame-consciousness. After criticizing the adequacy of traditional arguments from analogy to account for the certainty with which we believe in the existence of other minds, he performs an 'imaginative reconstruction' of an example to reveal how such certainty figures essentially in our experience of shame.

He imagines someone looking through a keyhole at a couple. Like all Sartrean consciousness, the couple's consciousnesses are objectifying one another in a reciprocal gaze. The voyeur is a 'pure' consciousness, seeing but unseen, objectifying but unobjectified, whereas they are in a mutual relation of looking/looked at, unaware of the third party. Suddenly, the interloper hears a noise from behind. In one and the same reaction of shame, one experiences the *other as subject* and oneself objectified. In other

words, one's experience of shame is analysable into the condition of its possibility, namely, one's embodiedness-as-perceived by another consciousness. One cannot be objectified except by another subject, nor is it possible to feel shame except as an embodied being. Even if the noise turns out to have been a false alarm, the mere rustling of the curtains, for example, the agent has had an immediate experience of another *as subject;* it is written in the blush on his/her face. This 'proof of other minds is experiential. Rather than the probability of some weak analogy, it yields the certainty of the *Wesensschau*.

After establishing the existence of other minds, albeit in a general, 'pre-numerical' manner that renders my being for-others the precondition of my being objectified by any subject in particular (see [3.2], 280–1), Sartre directs his ontological investigation to each of the conditions for that experience, namely, the body and the other subject.

There are three dimensions to bodily being-in-the-world, namely, the body as for-itself, as for-others, and as what Sartre calls the way I 'exist for myself as a body known by the Other' ([3.2], 351). The absurdities of the mind-body problem, Sartre believes, stem from failure to respect these ontological levels regarding the body and in particular from beginning our analysis with the body-for-others. The latter approach sees body as a thing among things and hence as externally related to consciousness and to other bodies. Sartre begins, on the contrary, with body as being-for-itself, that is, as my way of being-in-the-world. As such, body is 'lived' (pre-reflectively) and not 'known' (reflectively), it is the absolute centre of instrumentality that I am, rather than an instrument that I employ, and it is at once my point of view and my point of departure for acting in the world. Hence Sartre can claim that 'being-for-itself must be wholly body and it must be wholly consciousness; it can not be *united* with a body' ([3.2], 305). Sartre's peculiar kind of 'materialism' depends on defending a body that is likewise wholly intentional, that is, that is not simply externally related to the projects by which an agent is individuated. Accordingly, body is integral to the existential 'situation' and is the vehicle by which other 'necessary contingencies' of our situation such as our race, our class and our very past figure in the mix. In other words, body as being-for-itself is the basic form of our facticity.

Once we have phenomenologically described our way of 'existing' our body, there is no temptation to misread the body-for-others as a thing among things. The latter now appears as the Other's *flesh,* a term elaborated by Merleau-Ponty and designating for Sartre 'the pure contingency of [the Other's] presence' ([3.2], 343). What he calls 'the pure intuition of the flesh' is especially evident in the Other's face (aclaim that invites comparison with that of Levinas regarding the primacy of the Other and the ethical significance of the face in this revelation). The body is thus revealed as a 'synthetic totality of *life* and *action'* ([3.2], 346, emphasis his).

The third ontological dimension of the body, for Sartre, is 'my body as known by the Other'. This denotes that real but uncontrollable aspect of our being-in-the-world before others—the poet's 'as others see us'. If shame-consciousness reveals the existence of other subjects, affective structures such as shyness indicate a vivid awareness of my body not as it is for me but as it is 'for the Other'. Significantly, Sartre insists that language shows us abstractly the principal structures of our body-for-others. We shall observe him subsequently locate language among the 'practico-inert'. This relation between language

and body-for-others is a suggestive dimension of Sartre's ontology yet to be fully explored.

The social dimension of Sartre's vintage existentialism elaborates our being-for-others as well as the facticity of our being-in-situation. His famous analysis of our basic relations to each other as an attempt to 'assimilate the Other's freedom' through sadistic or masochistic manoeuvres scandalized the public and contributed to his reputation for pessimism in the late 1940s. This was reinforced by the well-known line from his play *No Exit* (1944), that 'Hell is other people' *(l'enfer, c'est les autres)*.

Although he later contextualized these remarks, along with the passages in *Being and Nothingness* on which they form a gloss, as referring to interpersonal relations 'in an alienated society' such as ours, the source of the difficulty and the obstacle to a more satisfactory social theory is ontological, not historical: his looking/looked-at model for interpersonal relations. Until this is surpassed in the *Critique of Dialectical Reason,* Sartre can offer us at best a theory of the other writ large, but not a social philosophy properly speaking.

Ethics

It is now common to divide Sartre's ethical thought into three phases: the ethics of authenticity of his vintage existentialist years, the dialectical ethics that he began to formulate in the 1950s and 1960s, and the 'ethic of the we' that he was fashioning with Benny Levy toward the end of his life. Since the first is his best known and most fully articulated theory, we shall concentrate on the ethics of authenticity.

If there is any existentialist 'virtue', it has been remarked, it is authenticity. The basis for this concept is appropriately ontological: 'man is free because he is not a self but a presence-to-self' ([3.2], 440). In other words, human reality is a 'being of distances'—whatever it is, it is in the manner of not-being that property, that is, as being other*than-that*. So the male homosexual's friend who urges him to 'come out' and admit what he is, in Sartre's example, is really asking him to be inauthentic, to be a homosexual 'the way a stone is a stone', that is, in the manner of the self-identity of being-in-itself. But, of course, that is precisely what he cannot do—since, as conscious, he is 'in situation' as a homosexual. He is homosexual, French, courageous, or whatever, in the manner of transcending that facticity. Still, it is *that facticity* which he transcends, 'nihilates', 'others'. The 'moral' challenge, if that word is appropriate, is to live that tension from day to day. One can no more resign oneself to complete identity as a homosexual than the reformed gambler or alcoholic can rest secure in his or her 'sobriety' after years of success. What others see as pessimism Sartre proclaims as hope: we are not condemned by our upbringing, our characters or our past behaviour; we are freed from determinisms of every kind; we can always make something out of what we have been made into.

Perhaps Sartre's best description of 'authenticity' published in his lifetime is found in *Anti-Semite and Jew* (1946): 'Authenticity consists in having a true and lucid consciousness of the situation, in assuming the responsibilities and risks it involves, in accepting it in pride or humiliation, sometimes in horror and hate' ([3.1], 90). What emerges from existentialism in general and from Sartre in particular is authenticity as an ethical *style*. Its elements are: first, a heightened awareness of *facticity* and *possibility,*

that is, of the existential situation; second, the exercise of creative *choice* of self within this situation; and finally, *owning* or appropriating the consequences of this choice, that is, of the altered situation, the altered self. As he remarks in his posthumously published *Notebooks for an Ethics* (1992), 'It is this double, simultaneous aspect of the human project, gratuitous at its core and consecrated by a reflective reprise, that makes it into *authentic existence'* ([3.26], 481). This is not *amor fati*. Simply to resign oneself to one's facticity is a lie, for it denies that other dimension of the existential situation, transcendence or consciousness, which must sustain the resignation and thereby leave rebellion a constant possibility. Rather, authenticity is the challenge to 'have the courage to go to the limits of ourselves in both directions at once' ([3.32], 599). This is the moral Sartre draws from the biography of his 'hero' of authenticity, Jean Genet.

The ambiguity of 'situation', its indeterminate mélange of facticity and transcendence, reflects the now-self-coincidence of human reality. It makes ontologically possible 'bad faith', the best known of Sartrean moral categories. There are two basic forms of bad faith, depending on whether the individual flees the anguish of his or her freedom-possibility for identification with facticity (for example, the alcoholic who is 'cured' once and for all) or denies the force of circumstances to float in the realm of pure possibility (like James Thurber's Walter Mitty). Each is a kind of 'lie to oneself, which, of course, is impossible unless one introduces another kind of otherness or inner distance into human reality, namely, one that affects consciousness itself.

Sartre discovers a twofold duality in the human way of being: ontological (presence-to-self) and psychological (levels of consciousness). The former accounts for the otherness that infects our very being; the latter divides our awareness such that we can be conscious without 'knowing' it. The former constitutes the split; the latter renders possible the self-deception. In *Being and Nothingness,* he speaks of 'pre-reflective' and 'reflective' consciousness. The former is our immediate experience of the other, our being-in-the-world. It is *ekstatic* and pre-personal in the sense that it is not closed in on itself but is 'already in the world' when reflection intervenes. With reflection comes the self (as quasi-object of reflection), the concepts of 'knowledge' as distinct from the notions of 'understanding', which are rooted in the pre-reflective, and the objects of deliberation to which one turns when 'making up one's mind'.

Significantly, the pre-reflective enjoys both an epistemic and an ontological primacy. It is the level of 'fundamental project' that orients our reflective moments as well as the locus of that comprehension which accompanies every conscious act. In fact, pre-reflective comprehension functions in Sartre's thought in a manner not unlike Freud's 'unconscious', to which Sartre was notoriously opposed. The chief and crucial difference is that appeal to the pre-reflective enhances rather than diminishes responsibility for Sartre. The extreme responsibility to which Sartre holds us in his polemical writings is an application of this far-reaching concept of pre-reflective comprehension: we all understand what we are about, even if we do not reflectively know it. Awareness and responsibility are coextensive.

This virtual identification of consciousness and responsibility will strike many as hyperbolic, given the traditional conditions for moral responsibility, namely, some degree of control in addition to an element of knowledge. In the brief compass of a sub-section, it is impossible to pursue this at length, but it should be noted that Sartre is concerned

with ‘responsibility’ in the sense of being the ‘incontestable author of an event or of an object’ ([3.2], 553). What we might call *noetic* responsibility, that is, our appropriation of the meanings that constitute ‘our world’, is the ground of the other forms of responsibility that Sartre acknowledges. And here it does not seem incredible to claim that awareness and responsibility are extentionally equivalent. Sartre confirms this interpretation when he occasionally responds as a trump card: ‘Well, he or she could always commit suicide.’ The point is that, if they did not do so, they have ‘chosen’ in the existential sense the ‘world’ in which they live.

Fundamental ‘choice’ or project is both the individuating feature of existential ontology, the factor that distinguishes consciousnesses among themselves, and the totalizing aspect of human reality that renders it thoroughly responsible for its situation. Problematic as the concept is—Sartre once likened it to what psychologists mean by ‘selective attention’ (see [3.2], 462)—it is consistent with his claim that being-in-itself cannot act upon consciousness, that the for-itself is a ‘pure spontaneous upsurge’, and that consciousness is what makes motives motivate. Some have compared basic choice to R.M.Hare’s ‘decisions of principle’ in that both are prior to the principles to which one appeals in settling arguments. As Sartre puts it, when one pauses to decide, the ‘chips are [already] down’ ([3.2], 451). Fundamental choice is constitutive, not selective. It is coterminous with pre-reflective consciousness. It is a ‘choice’ which we ‘are/were’, to paraphrase a barbarism that Sartre introduces to express the transitivity and harsh facticity of lived time.

Because consciousness, choice, freedom, responsibility are roughly extentionally equivalent terms in what Iris Murdoch called Sartre’s ‘great inexact equations’, the challenge to authenticity and the consequences of inauthenticity are all-encompassing. There is a *‘Weltanschauung* of bad faith’, for example; it constitutes a manner of being-in-the-world ([3.2], 68).

In a set of unpublished manuscripts for lectures in the 1960s, Sartre begins to elaborate another, dialectical ethic. This is more socially minded than his characteristically individualist stance of twenty years earlier. It builds on his concepts of situation and the exemplarity of moral choices as well as the thesis that no one can be free if anyone is enslaved—themes addressed briefly in his earlier works. His ontological categories are those of the *Critique of Dialectical Reason* and his discussions, for the most part inchoate and sketchy, are phenomenological descriptions of moral experience, especially the following of moral norms and their violation in moments of moral crisis and creativity. The ideal is no longer the ‘authentic’ individual but ‘integral man’, understood *grosso modo* as the person who has entered into relations of positive reciprocity with others whose basic animal and human needs have likewise been met such that they are liberated from the alienating tyranny of material scarcity and the violence it engenders. These are necessarily vague notions, Sartre admits, because they gain their precision from that which they oppose, namely, what he calls ‘sub-man’ or the oppressed and oppressing individuals of contemporary society.The most that can be said of integral man in the present state of our social existence is that he or she is made possible by the continuous refusal to live as sub-man. Although Sartre cites the colonist-native relationship to exemplify the notion of sub-humanity, he has always considered this an instance of more general relations of oppressive practice and structural exploitation that characterize

bourgeois society.

Clearly, Sartre was dissatisfied with this second attempt and so in his last years undertook a third ethic in discussion with Benny Levy. Characterized by Sartre as an 'ethics of the WE', this third version remains buried in the tape-recordings in Lévy's possession. From Sartre's somewhat exaggerated accounts, we learn that this product of a *livre à deux* was to leave uncriticized not a single major thesis of his earlier philosophy. As we noted earlier, the published interviews indicate that this is not the case, though they do reveal the revival of some more 'positive' theses from earlier works such as *Notebooks for an Ethics*. In any case, these tapes, if they are ever published, will almost certainly be chiefly of biographical value and are not likely to warrant our rejecting the systematic thought of Sartre at his prime.

Existential psychoanalysis

Although it has 'not yet found its Freud' ([3.2], 575), this approach to understanding the fundamental project of an agent is followed in increasing detail in Sartre's 'biographies' of Baudelaire, Genet and Flaubert as well as in his Nobel-Prize-winning autobiography, *The Words*.

The method is an application of the ontology of *Being and Nothingness,* although it does not rely on the latter's discredited social theory. It assumes that human reality is a totalization, not a totality, and that this ongoing unity is forged by the existential project. If human reality is the 'useless passion' to coincide consciously with itself, to be in-itself-for-itself, that is, if each of us exemplifies the famous futile desire to be God, then psychoanalysis exercises an hermeneutic on the signs of an individual's life that indicate its distinctive manner of living this futile desire—whether authentically, for example, or inauthentically. Because pre-reflective consciousness has replaced the Freudian unconscious, Sartre considers it possible in principle to understand an individual completely, that is, to uncover his or her self-defining project in complete transparency. Like so many of the claims enunciated at the height of existentialist enthusiasm, the ideal of total transparency is qualified in Sartre's later works, where force of circumstance ('what we have been made into') modifies absolute freedom and ideology clouds individual awareness. But he remained true to theRousseauian concept of personal and social transparency, at least as an ideal.

The details of Sartre's love-hate relationship with Freud have yet to be recounted. On the one hand, he rejected the Freudian concept of the unconscious as being deterministic, and criticized Freud's 'censor' for being in bad faith (it both knows and does not know what is acceptable to consciousness). And yet he employs the concept of pre-reflective consciousness in a manner that imitates Freudian unconscious in important ways and allows the analyst to reveal to the analys-and meanings which he or she had hitherto not known (in a reflective sense). Preparing the never-to-be-filmed script for a John Houston movie, later published as *The Freud Scenario,* forced Sartre to rethink his ideas about the unconscious. He acknowledged finding Lacan's theory of the unconscious structured as a language less troublesome but did not go so far as to embrace the idea. As always, the concept of individual freedom-responsibility remained a non-negotiable.

Sartre's most ambitious exercise in existential psychoanalysis and most thorough use

of the progressive-regressive method is his massive study of the life and work of Gustave Flaubert, *The Family Idiot* (1971–2). Numbering over three thousand pages in the original, it constitutes a kind of *summa* of Sartre's intellectual endeavours, embracing everything from ontology and psychoanalysis to literary and social criticism. It addresses the question, 'What at this point in time, can we know about a human being?' ([3.15], French, vol. 1, p. ix). A synthesis of existential psychoanalysis and historical materialism, the progressive -regressive method seeks to uncover Flaubert's basic project, namely, his 'choice' of the unreal-imaginary through adopting the 'neurotic' lifestyle that bourgeois society thrust upon any would-be artist of Flaubert's generation. As becomes usual in the second phase of Sartre's career, biography has broadened into social critique. What is both banal and profound in Sartre's undertaking is his attempt to comprehend Flaubert's life and times through the dialectical relationship between his progressive 'personalization' and the production and public reception of *Madame Bovary*. It is a commonplace to study the 'life and times' of a historical figure in mutual clarification. But there is something boldly 'rationalistic' about Sartre's attempt to understand why Flaubert had to write *Bovary* and how he could finally claim, 'I am Madame Bovary.'

Philosophy and literature

No thinker in our century more adequately brokers the marriage of these two disciplines than Sartre. His novels, short stories and plays gave him an audience denied to most philosophers, and his criticism, gathered with occasional pieces in the ten volumes of *Situations,* established him as a major voice in that domain. This was furthered by the journal of opinion and criticism, *Les Temps modernes,* which he founded at the end of the war. In a collection of articles published first in that journal and later as a book, *What is Literature?* (1947), Sartre defends his concept of 'committed literature' *(littérature engagée)*. Given his ontological theses of the fundamental project and the possibility of bad faith, Sartre examines literary art in terms of the authenticity and inauthenticity, not merely of its content (which would smell of socialist critiques) but of its very form.

He distinguishes prose from what he calls generically 'poetry' and insists that the latter cannot be committed. Poetry employs its 'analogues' (words, musical sounds, painted surfaces and the like) as ends in themselves. They do not point beyond themselves to our being-in-the-world but undertake to short-circuit that outward movement by rendering the aesthetic object present-absent, that is, imaginatively present, for its own sake. We might say that, for Sartre, where prose looks beyond the pointed finger to the object indicated, 'poetry' focuses on the fingertip. If not precisely escapist, such art avoids the challenges of a period of crisis. Sartre believes that the postwar years form such a period. Hence his recommendation that artists should address social concerns and do so in a manner that 'gives the bourgeoisie a bad conscience'. Once he appropriates this advice himself, ironically about the time the Nobel Committee is preparing to award him the prize for literature, he all but abandons imaginative literature except for an adaptation of Euripides' *The Trojan Women* (1965) and his 'novel that is true' about Flaubert. And yet this very move to committed literature reveals that the distinction between poetry and prose is functional rather than substantive in the final analysis and that imaginative 'derealization' can constitute a form of social action even in genres that Sartre seemed to

have dismissed as 'poetic'. In fact his early (1948) praise of black poetry in French as 'the only great revolutionary poetry of our time' ([3.36], vol. 3, p. 233) indicates that he had understood his original distinction in a functional manner from the start.

At this point we should summarize the elements of Sartre's aesthetic theory. Its foundation is the theory of imaging consciousness developed in *Psychology of Imagination*. It applies intentionality to the constitution of an 'aesthetic object' for which the physical artefact serves as *analogon*. Both cognitive and affective 'intentions' conspire to 'presentify', that is, to render imaginatively present-absent the object in an aesthetic mode. In the case of non-figurative art, the artefact serves as analogon for itself. Words or their grammatical and syntactical configuration form the analogue of the literary object, a 'world' with its proper space and time that is a 'derealization' of our real world of *praxis*. Given both the paradigmatic nature of imaging consciousness for Sartre and the extensional equivalence of 'consciousness' and 'freedom', it is not surprising to find him discussing the work of art as an 'invitation from one freedom to another' and interpreting artistic creativity as an act of generosity. In fact, invitation-response replaces command-obedience as the model for ideal social relations in Sartre's 'city of ends', as we shall now see.

Social philosophy

In his 'biography' of Jean Genet, Sartre avows: 'For a long time we believed in the social atomism bequeathed to us by the eighteenth century…. The truth is that "human reality" "is-in-society" as it "is-in-the-world"; it is neither a nature nor a state; it is made' ([3.32], 590). As we noted earlier, the possibility of developing an adequate social theory was hampered by Sartre's looking/looked-at model of interpersonal relations. At best, this ontology warranted the methodological individualism that his erstwhile friend Raymond Aron ascribed to him in the social realm. But by subsuming his philosophy of consciousness into one of praxis, Sartre increases qualitatively the social potential of his thought. Whereas there is no such thing as a plural look, except as a merely psychological experience (a basic claim of methodological individualists), there is a 'synthetic enrichment' of my action when it is incorporated into that of a group. 'We' can do many things that remain impossible for me alone.

Sartre's major contribution to social philosophy is made at the level of social ontology, the theory of individual and group identity and action. It takes the form of two concepts, the *practico-inert* and the *mediating third*. But to explain each we must first elucidate the notion of *praxis,* which is the pivot on which his social theory turns.

P*raxis* denotes purposive human activity in its cultural environment. It is distinct from human action *sans phrase* in being historical; its 'world' is a horizon of meanings that are already 'there', yet liable to interpretation in light of the ongoing project. But whereas the Husserlian discourse of intentions, meanings and noetic responsibility dominated the landscape of *Being and Nothingness,* Sartre displays a marked preference for the language of historical materialism in the *Critique of Dialectical Reason*. The basic form of praxis is *labour* as a response to material need. This original relationship overcomes whatever lingering idealism Sartre's theory may have been liable to and generates a dialectic of negation, negation of negation, and transcendence *(dépassement)* adapted

from the Hegelio-Marxist tradition. If the early Sartre left the impression that one could simply change oneself rather than change the world, since the terms were correlative in any case, such 'Stoic' freedom is strongly opposed by the later Sartre, and the factical component of one's situation is finally given its due.

Functional heir to being-in-itself, the 'practico-inert' refers to the facticity of our social situation in its otherness, especially the material dimension of our cultural environment, as well as to those sedimented *past praxes* that return to haunt us. If the act of speaking is an instance of *praxis,* language is a form of the practico-inert. This is the category of 'counterfinality' whereby intended ends entail unintended consequences. Sartre's classic example is the deforestation by Chinese peasants that resulted in the very erosion from floods of the land they hoped to cultivate. Similarly, he employs this concept in his account of the impoverishment of the Spanish state through inflation caused by its hoarding of gold from its newly exploited American mines. Practicoinert 'mediation' is alienating, it steals one's activity the way the 'look' of the Other robs one of one's freedom in *Being and Nothingness*. And when qualified by material scarcity, practico-inert mediation renders human relations violent. Sartre describes violence as 'interiorized scarcity'. The fact that there is not enough of the goods of the world to go around colours human history as a tale of violence and terror. Towards the end of his life, Sartre admitted to Benny Levy that he had never reconciled these fundamental features of social life, fraternity and violence. Both are essential to his social thought.

'Fraternity' is Sartre's term for the mutuality and positive reciprocity that constitute his social ideal and which are achieved, albeit temporarily, in the spontaneously formed action group. Most relations are 'serial' because they are mediated by the practico-inert. Most of the individuals who populate our world, from the television-viewing public to the people waiting for the same bus, are rendered serial by the 'false' or 'external' unity imposed on them by such collective objects as a television announcer or an expected bus. They are related among themselves as 'other' to 'other'—as competitors for scarce space, for example, or as fashioning their opinions as the newscaster dictates. Sartre notes that such 'serial impotence' is cultivated by dictators who wish to maintain an illusion of power on the part of their subjects in the midst of the latter's profound malleability.

In the 'apocalyptic' moment when people realize in a practical manner through a common project that they are 'the same', not 'other', and that each is performing the task which the other would do were he or she required to do so at this point, the 'We' emerges in a fusing group. Sartre's idealized example of such a genesis is the famous storming of the Bastille. Under threat from an external source, the crowd changes from serial dispersion to practical unity, from a mob to a group. By a performative utterance that effects what it describes, the cry 'We are a hundred strong!' in Sartre's imaginative reconstruction of the event creates a new entity: the fused group. The *mediating Third* is the ontological vehicle for this transformation. Unlike the objectifying voyeur of *Being and Nothingness,* the third party in group formation performs a mediating, not an alienating function. By subordinating purely personal or divisive concerns to general interest, he or she emerges as the 'common individual'. Mediation is exercised no longer via the practico-inert but by means of the *praxes* of 'common' individuals. Complete organic integration is impossible, Sartre continues to insist; some otherness always remains. But it is 'discounted', not fostered. He calls it 'free alterity' of the group in

praxis as opposed to the serial otherness of the impotent collective.

A threefold primacy of *praxis* emerges in Sartre's later thought. At the ground is an *ontological* primacy. Even at the highest moment of social integration, the group-in-fusion, it is organic *praxes* who create and sustain the group. The entire 'inner life' of the group is a revolving circle of practical relations whereby each *praxis* 'interiorizes' the multiplicity of the rest. (Any member could have cried 'We are a hundred strong!') Even the practico-inert is not an autonomous force that renders us powerless. It is, after all, *practico-inert;* the *praxes* that it absorbs or deflects are still operative, though in alienated fashion. Sartre explicitly adopts the Marxist thesis that 'there are only individuals and real relations among them' ([3.35], 76). If Sartre's early work was a relentless rejection of idealism, his later, social theory is intent on avoiding organicism. The ontological primacy of *praxis* is his chief weapon in that campaign.

On this original primacy Sartre founds an *epistemological* and an *ethical* primacy as well. The epistemological primacy of *praxis* stems from the fact that comprehension is the consciousness of *praxis* and that we can comprehend the other's comprehension through the progressive-regressive method. This is an elaboration of the *Verstehende* sociology of Dilthey, Weber and others, placed in service of an historical materialist conception of social change. But unlike Marxist 'economism', the comprehension Sartre seeks comes to rest in the *praxisproject* of the organic individual. Sartre summarized the difference in a memorable line: 'Valéry is a petit bourgeois intellectual…. But not every petit bourgeois intellectual is Valéry' ([3.35], 56).

Because individual *praxis* sustains the most impersonal economic laws, like the 'iron law of wages', and the most 'necessary' practicoinert processes, such as the colonialist system, one can ascribe existential-moral responsibility to the serialized 'agents' whose passive activity carries them out. In other words, one cannot escape responsibility by appeal to facticity. For Sartre the moralist, the spark of human freedom-responsibility is unquenchable: you can always make something out of what you have been made into.

Philosophy of history

A glance at the posthumously published *War Diaries* which Sartre kept during the Phoney War of 1939–40 reveals that his interest in the topic was not the result of his so-called conversion to Marxism after the war. But he does set the matter aside in *Being and Nothingness,* reserving a lengthy discussion of morality and history for his *Notebooks for an Ethics,* again not published in his lifetime. In the *Diaries,* his dialogue is primarily with Raymond Aron, whose two volumes on the philosophy of history had just been published. In criticism of Aron, Sartre enunciates a thesis that will be formative of his existential approach to history ever after: the only way to achieve historical *unity* is by studying the lived appropriation of historical events by an individual agent. What is being sketched at this early stage is the rationale of his existential psychoanalyses of the next decades. If history is to be more than the positivist concatenation of facts and dates, it must come to life in the projects of the historical agent. This is more than psychohistory, to which it exhibits a marked resemblance, because of Sartre's characteristic moral concerns as well as the historical materialist dimension which he will introduce after the war.

In the *Notebooks* Sartre indicates that an existentialist theory of history will have to respect the paradox of moral responsibility. At this stage the dialogue is with Hegel and the French Hegelians, Kojève and Hyppolite. The existentialist individual makes an 'end' to history inconceivable: any totality of which consciousness is part will be a 'detotalized' totality. Although he speaks of positive reciprocity, the generosity-gift relationship and good faith in ways that correct the one-sided, pessimistic view of interpersonal relations conveyed in *Being and Nothingness,* these notes remain in thrall to the looking/looked-at model of the social. Accordingly, the theory of history is faced with seemingly insurmountable difficulties as it attempts to interrelate the individual and the social, morality and history.

It is in the two volumes of the *Critique of Dialectical Reason,* where the dialogue is now with Merleau-Ponty's criticism of his social thought in the latter's *The Adventures of Dialectic,* that Sartre formulates the philosophy of *praxis* and its attendant social ontology that enable him to construct a theory of history that accounts for collective action and counterfinalities, recognizes the specificity of the sociohistorical, and reserves pride of place for existential-moral responsibility on the part of organic individuals. Since his *War Diaries,* it has been clear that the root problem for an existentialist theory is the relationship between biography and history. He treats this matter apropos of Joseph Stalin and the Soviet Union in the 1930s in his posthumously published notes for volume 2 of the *Critique,* but the relation of biography to history receives its most extended consideration in *The Family Idiot* (especially in volume 3 of the French edition).

SARTRE AND TWENTIETH-CENTURY CONTINENTAL PHILOSOPHY

Although one of the few major twentieth-century philosophers not to be associated with academe for most of his career, Sartre was professionally trained and remained in dialogue with academic philosophy all of his life. Any assessment of his thought should address his relationship to the leading philosophical movements of his time.

Existential phenomenology

It was Gabriel Marcel who first called Sartre an 'existentialist'. By the time of his famous public lecture, *Existentialism is a Humanism* (1945), his name had become synonymous with the movement. Indeed, it was in part to separate himself from association with Sartrean existentialism that Heidegger denied he was an existentialist and wrote his groundbreaking *Letter on Humanism* (1947) to explain why. We have noted Sartre's debt to Husserlian phenomenology throughout this chapter. In *Being and Nothingness* he criticizes Hegel, Husserl and Heidegger at several junctures but clearly has adopted numerous concepts from each. While it is a gross exaggeration to characterize Sartre's masterwork as *'Being and Time* translated into French', the similarities as well as the profound differences between each thinker are underscored by comparing the two works. As soon as a French translation of Heidegger's 1930 lecture *The Essence of Truth* appeared (1948), Sartre wrote a lengthy response. It was published posthumously as *Truth and Existence* (1989).

Sartre was a close collaborator with Simone de Beauvoir in the sense that they read each other's work prior to publication, and she completed several of the lacunae in his social ethic in the mid-1940s with her *The Ethics of Ambiguity*. Despite its obvious originality, Merleau-Ponty's *The Phenomenology of Perception* shows numerous signs of Sartrean influence, even as it takes Sartre to task for his 'Cartesianism'. But we noted that the *Critique* seems to be a response to the trenchant criticism levelled by Merleau-Ponty in his *Adventures of the Dialectic* against a Sartrean social philosophy. Sartre's indebtedness both to Merleau-Ponty and to Kierkegaard is recounted in memorial essays he penned in honour of each ('Merleau-Ponty Alive' (1961) and 'Kierkegaard: The Singular Universal' (1966)).

The 'existential turn' that Husserl's phenomenological movement took, if initiated by Heidegger, was completed by Sartre. To the extent that such phenomenology grew increasingly anthropological and ethical, it became associated with its French practitioners. The phenomenological method was enriched and its limitations as an approach to history were compensated for by the progressive-regressive method. This last, as we noted, is a synthesis of existential psychoanalysis and historical materialism. The former places it in direct line with the hermeneutic tradition of interpreting symbolic action; the latter relates Sartre's method to more 'scientific' (in the Hegelian sense) approaches to historical intelligibility.

Marxism

Sartre's 'Marxism' was always adjectival to his existentialism. In the late 1940s, he advised the workers to support the Communist Party *faute de mieux,* while refusing to join it himself. In *Search for a Method,* he declares Marxism 'the philosophy of our times' and even makes it synonymous with 'knowledge' *(savoir)*. But he described the *Critique of Dialectical Reason,* to which *Search* served as a kind of preface, as an 'anti-communist book' and in his last years explicitly denied he was a Marxist. Still, historical materialism (the Marxist theory of history) is operative in *The Family Idiot* as well as in his other writings after the late 1950s.

Sartre joins that group of Marxists known as 'revisionists' in that they question or reject totally the Marxist dialectic of nature (DIAMAT) and emphasize the humanistic dimension of Marx's writings. In *Search for a Method,* Sartre announces that his mission in this regard is 'to conquer man within Marxism' ([3.35], 83). It is because of their failure to respect the moral dimension of human action, that Sartre abandoned even fellow-travelling in favour of *les maos* after the events in Paris of 1968. This odyssey is recounted in his discussion with two members of that group, published as *On a raison de se révolter* (1974).

Structuralism

The structuralist movement in France as exemplified by the work of Althusser, Lacan, Lévi-Strauss, Barthes and others in the 1960s is commonly credited with having replaced existentialism as the reigning Parisian 'philosophy'. This is true to a large extent, though that school of thought was subsequently eclipsed by poststructuralist writers. Sartre

occasionally criticized the structuralists for ignoring history in general and human agency in particular—essential existentialist concerns. But even a cursory reading of the *Critique of Dialectical Reason* will reveal the important role that Sartre reserves for structural factors in his account. The 'formal conditions' revealed by the regressive movement of the progressive-regressive method are arguably structural. In fact, the major portion of volume 1 of the *Critique* is synchronic and structural. Whether it is thereby 'structuralist' depends on the meaning of the term. Clearly, Sartre opposed it as a system because of its inadequacy to existential experience. And its binary relations, he would accept only as complementing the dialectical, totalizing 'Reason' that he was elucidating in the *Critique*.

The ontological locus of structural relations in his social ontology is the practico-inert. Recall that language as such, for him, is practicoinert. So too is analytical, as distinct from dialectical, reason. Sartre speaks of the practico-inert and hence of structure as non-historical and even 'anti-dialectical'. But this must be taken in the context of the totalizing activity *of praxis,* which renders these structures historically relevant. The 'platonizing' tendencies of structuralist thought are tempered by Sartre's 'dialectical nominalism', an approach to ontology and epistemology that respects the qualitative difference between individual and collective phenomena as well as the irreducibility of the latter to the former, while insisting on the threefold primacy of free organic praxis. Dialectical nominalism is a middle ground between holism and individualism in the methodology of the social sciences.

Postmodernism

Foucault once referred to Sartre as the last of the nineteenth-century philosophers. It was not only his interest in History with a Hegelian 'H' and his seeming fixation on Flaubert that generated this remark. It was equally Sartre's philosophy of the subject, of freedom and of moral indignation that lay behind Foucault's words. And yet one can find several strikingly 'postmodern' theses in Sartre's work. These would make valuable contributions to the current philosophical conversationand deserve closer scrutiny by contemporary thinkers. By way of conclusion let us consider three.

Postmodern thinking is noted for its 'evacuation of the subject' from current discourse. In so far as the 'subject' in question is the Cartesian *res cogitans,* Sartre never held that position. His concept of 'presence to self instead of a substantial self or ego, with its attendant 'circuit of selfness' rather than an outer spatio-temporal plane, leaves Sartre free to consider the fluidity of subjectivist discourse and speak of the self as an achievement rather than an origin. The constitution of a moral 'self, to which Foucault devoted his last years, could have been the topic of a Sartrean treatise.

There is an aesthetic strain in Sartre's thought, owing to the paradigmatic role that he accords imaging consciousness. Postmodern critics from Lyotard to Foucault have shown a marked preference for aesthetic categories as well, even to the point of advocating the Nietzschean aestheticist injunction to 'make one's life a work of art'. Not that Sartre should ever be accused of aestheticism. But his reading of history is certainly 'poetic', and his existential biographies as 'novels that are true' suggest a fruitful field of future inquiry and dialogue with postmodern writers.

The Nietzschean inspiration of Sartre's thought has not received the attention it

deserves, especially since the 'postmodern' Nietzsche has emerged. Sartre's early essay 'The Legend of Truth', written in 1929, is profoundly Nietzschean in content and tone. The general problem of contingency and chance, which Foucault wished to reintroduce into postmodern historiography, was an abiding theme of Sartre's existentialist thought. It surfaces again in the posthumous *Notebooks for an Ethics*. The career of Nietzschean interpretation forms another link between Sartre and postmodern thinkers.

And yet it would be excessive to refer to Sartre as a 'postmodern'. He was a thinker of *unities,* not of fragments. His emphasis on intentional consciousness and later on totalizing *praxis* was meant to counter the historical pluralism of Raymond Aron as well as the brute facts of the positivists. And his corresponding commitments aimed at effecting socio-economic changes that would make it possible for 'freedoms' to recognize one another. He shared the neo-Stoic belief of postmoderns that one should try to maximize freedom even though there is no hope of complete emancipation. But he persevered in the hope that such a 'city of ends' might be possible and urged people to work to realize its advent. Again, we encounter the integral role of the imagination in effecting a meaning-direction *(sens)* to history.

If Sartre is to be remembered as an important and influential philosopher of the twentieth century, it will be as much for the consistency of his commitment to individual freedom as for the insights of his phenomenological descriptions and the force of his categories (bad faith, authenticity, practico-inert, and the like). When he died, the press likened him to Voltaire and noted that we had lost the conscience of our age. It is as moralist, philosopher of freedom and philosopher of the imagination that he made his most memorable contributions. Despite the Teutonic length of his sentences, especially in the later works, he was a quintessential Gallic philosopher.

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CHAPTER 4
Philosophy of existence 3

Merleau-Ponty

Bernard Cullen
à Henri Godin

LIFE AND WORKS

Maurice Merleau-Ponty was born on 14 March 1908 into a petty bourgeois Catholic family in Rochefort-sur-Mer on the west coast of France. When he died suddenly, at his desk, on 3 May 1961, he was widely regarded as France's most brilliant and most profound philosopher.

After his father, an artillery officer, died in 1913, the young Maurice grew up in Paris, in the company of his mother, a brother and a sister. He told Jean-Paul Sartre, in 1947, that he had never recovered from an incomparably happy childhood ([4.99], 230). Schooled, as were all philosophy students of his generation, in a distinctively French philosophical tradition dominated by Cartesianism, he entered the most elite establishment for the study of philosophy in France, the Ecole Normale Supérieure in Paris, in 1926. It was there he first made the acquaintance of Sartre, in circumstances he was to recount twenty years later in the course of an affectionate defence of that 'scandalous author' against his detractors on the right and on the left: 'the Ecole Normale unleashed its fury against one of my schoolmates and myself for having hissed the traditional songs, too vulgar to suit us. He slipped between us and our persecutors and contrived a way for us to get out of our heroic and ridiculous situation without concessions or damages' ([4.22], 41). Simone de Beauvoir describes in her autobiographical novel *Memoirs of a Dutiful Daughter,* under the fictitious name Pradelle, her friend and fellow student Merleau-Ponty, a rather serious but optimistic young searcher after truth who still attended mass.

At the Ecole Normale, Merleau-Ponty's main teacher was the idealist Léon Brunschvicg. In the academic year 1928–9, he prepared a dissertation on Plotinus, under the supervision of Emile Bréhier. Between 1928 and 1930, he attended a series of lectures given at the Sorbonne by Georges Gurvitch on contemporary German phenomenology, especially the writings of Husserl, Scheler and Heidegger; and in February 1929, he attended the lectures given at the Sorbonne by Husserl himself, which were revised and published two years later as the *Cartesian Meditations*. One phrase from those lectures recurs as a leitmotiv throughout Merleau-Ponty's work: 'It is "pure and, in a way, still mute experience which it is a question of bringing to the pure expression of its own significance"' ([4.18], 219; cf. [4.24], 129 and [4.21], 188). The growing interest in German philosophy within Parisian philosophical circles was not confined to

phenomenology. The year 1929 also saw the publication of Jean Wahl's pioneering book *Le Malheur de la conscience dans la philosophie de Hegel (The Unhappy Consciousness in the Philosophy of Hegel)*.

After graduating in second place in the 1930 examinations for the *agrégation en philosophie* (the qualification required to prepare candidates for the *baccalauréat*) and carrying out a year's compulsory military service, Merleau-Ponty taught philosophy in *lycées* in Beauvais and Chartres. He taught himself German. (For his own account of his researches at this time into the nature of perception, together with a list of the works he read in 1933–4, see [4.60], 188–99.) In 1935, he was appointed as a tutor at the Ecole Normale, where he remained until mobilization in 1939. His first two published works, in the Catholic journal *La Vie intellectuelle,* were sympathetic critical notices of the French translation of Max Scheler's book on *'ressentiment'* (1935) and *Etre et avoir* by Gabriel Marcel (1936). (For a summary of these articles, see [4.60], 13–24.)

In the mid-1930s, he began to deepen his study of Marx, especially the writings of the young Marx. From 1935, he attended the influential lectures by Alexandre Kojève at the Ecole Pratique des Hautes Etudes on Hegel's *Phenomenology of Spirit*—a reading of Hegel deeply influenced by the writings of the young Marx, subsequently published under the title *Introduction à la lecture de Hegel*. But around this time (and until the end of 1937), he was still closely associated with the left-leaning Catholic journals *Esprit* and *Sept.* The closure of *Sept,* on instructions from the Vatican, was probably the final blow to his religious faith. In the same way, the publication in 1939 of the reports of the Moscow trials of Bukharin and twenty others the previous year must have influenced his decision not to commit himself to membership of the French Communist Party.

His minor doctoral thesis, *The Structure of Behavior,* was completed in 1938 (though not published in book form until 1942). In early 1939, Merleau-Ponty became acquainted with a special issue of the *Revue internationale de philosophie* devoted to Husserl (who had died in April 1938). The references therein, especially by Eugen Fink, to Husserl's last book, *The Crisis of the European Sciences and Transcendental Phenomenology,* whetted his appetite to learn more about this work, only the first part of which had been published. At the beginning of April, he was the very first visitor to the Husserl Archive at Louvain in Belgium (whence the Husserl papers had been hurriedly moved), where he read the entirety of *The Crisis, Ideas II,* and a number of other unpublished pieces. (See [4.110].) These brief encounters undoubtedly had a decisive influence on the way in which Merleau-Ponty appropriated the later thought of Husserl and incorporated it into the heart of his own philosophy.

The outbreak of war forced Merleau-Ponty to interrupt his research. After a year as a second lieutenant, he was appointed to a post in the Lycée Carnot, where he remained until 1944, when he took over from Sartre as senior philosophy teacher at the Lycée Condorcet. In the meantime, in 1941, he had encountered Sartre again, when he joined Socialism and Liberty, one of the many groups, as Sartre put it, 'which claimed to be resisting the conquering enemy' ([4.99], 231). As Sartre tells it in his remarkably moving extended obituary, the two men immediately recognized their common interests: 'The key words were spoken: phenomenology, existentialism. We discovered our real concern. Too individualist to ever pool our research, we became reciprocal while remaining separate…. Husserl became our bond and our division, at one and the same time' ([4.99],

231).

Throughout this period, Merleau-Ponty continued to work on his principal doctoral thesis and philosophical masterpiece, the *Phenomenology of Perception,* which was accepted and published in 1945. Appointed lecturer in philosophy at the University of Lyons, he was made professor in 1948. He combined these duties with editing the left-wing, anti-colonialist journal *Les Temps modernes,* which with Sartre and Simone de Beauvoir he had founded shortly after the Liberation. (See [4.99], 247–53.) He was the journal's (anonymous) political editor and editor-in-chief, writing most of the editorials (unsigned) and many lengthy articles (signed), several of them later gathered in his book *Humanism and Terror: an Essay on the Communist Problem,* published in 1947. Others were gathered in the collection *Sense and Non-Sense,* published in 1948. According to Sartre's reminiscences, 'the review belonged to him. He had defined its political orientation, and I had followed him' ([4.99], 283). From 1949 to 1952, he occupied the chair of child psychology and pedagogy at the Sorbonne; and in 1952, at the unusually early age of 44, he was appointed to the most prestigious position for an academic philosopher in France, the chair of philosophy at the Collège de France. He gave his inaugural lecture, entitled *In Praise of Philosophy,* at the Collège on 15 January 1953.

Relations with Sartre had been cooling for some time: they disagreed deeply over the role of the Communist Party and the actions of the Soviet Union before and during the Korean War, and Merleau-Ponty resigned as editor-in-chief of *Les Temps modernes* in 1952. Almost half of the book in which, in 1955, Merleau-Ponty renounced his adherence to Marxism, *Adventures of the Dialectic,* was devoted to a merciless critique of 'Sartre and ultrabolshevism'. A further collection of essays was published under the title *Signs* in 1960. His last published work, *Eye and Mind,* had just appeared in the journal *Art de France* when Merleau-Ponty died suddenly on 3 May 1961, from a stroke, aged 53. The divisions between him and Sartre had been gradually healing. Merleau-Ponty had taken the opportunity of his Introduction to *Signs* to record in print his affectionate admiration for Sartre. He counters Sartre's harsh self-criticism (in his Preface to *Aden Arabie,* by their mutual friend Paul Nizan) with the observation that 'his accursed lucidity, in lighting up the labyrinths of rebellion and revolution, has recorded in spite of himself all we need to absolve him' ([4.23], 24). Sartre, for his part, records his surprise and delight when Merleau-Ponty unexpectedly turned up, shortly before his death, at a lecture Sartre gave at the Ecole Normale. Among his many posthumous publications, the two most important are *The Prose of the World* (notes dating from 1950–2) and the unfinished manuscript of the book on which he was working at the time of his death, *The Visible and the Invisible*.

THE PRIMACY OF PERCEPTION

In a paper he wrote in 1952 to support his candidacy for the chair of philosophy at the Collège de France, Merleau-Ponty offers a brief summary of the themes of his work thus far, before proceeding to outline his plans for future research. He begins by referring to 'the perceived world which is simply there before us, beneath the level of the verified true and the false'. His first two works, he goes on, 'sought to restore the world of

perception' ([4.21], 3). Beginning with the insight that the mind that perceives is an incarnated mind, his writings have tried to establish and illustrate the inadequacy of both behaviourism and idealism and to overcome this dualism by recourse to the fundamental reality of the perceiving body-subject.

He had already announced this programme of work in the opening sentence of his Introduction to *The Structure of Behavior:* 'Our goal is to understand the relations between consciousness and nature.' Rejecting philosophical approaches that emphasize either the 'pure exteriority' of the objects of perception or the 'pure interiority' of the perceiving subject, Merleau-Ponty insists that the world as perceived is not a sum of objects of our perception; and our relation to the world is not that of a disembodied thinker to an object of thought. What must not be forgotten is 'the insertion of the mind in corporeality, the ambiguous relation which we entertain with our body and, correlatively, with perceived things' ([4.21], 4).

This means that the classical Aristotelian/Kantian distinction between form and matter is misleading. We cannot conceptualize the world to be perceived as disordered 'matter' on which the perceiving mind (or consciousness), through the use of reason, imposes 'form' or in which it deciphers 'meaning'. 'Matter is "pregnant" with its form, which is to say that in the final analysis every perception takes place within a certain horizon and ultimately in the "world"'([4.21], 12). Perception, for Merleau-Ponty, is not a conscious activity of the mind: perception is the mode of existence of the body-subject at a preconscious level, the dialogue between the body-subject and its world at a level that is presupposed by consciousness. At the same time, 'the perceived world is the always presupposed foundation of all rationality, all value and all existence' ([4.21], 13).

In *The Structure of Behavior,* his first published book, Merleau-Ponty considers this theme of the relations between perceiving persons and the world in which they live and perceive through an examination of certain physiological and psychological theories, principally behaviourism and *Gestalt* psychology. He exposes the inadequacy of behaviourism by showing that we cannot explain the facts of perceptual life by conceptualizing the relation between the perceiving organism and its milieu in terms of an automatic machine whose pre-established mechanisms are brought to life by reaction to external stimuli. 'The true stimulus is not the one defined by physics and chemistry; the reaction is not this or that particular series of movements; and the connection between the two is not the simple coincidence of two successive events' ([4.20], 99). Behaviourism, in other words, is false as a model of perceptual behaviour.

So is idealism. It is not a question of superimposing a pure, thinking consciousness on a brute, thinglike body. Within the realms of physics or mechanics, a body can legitimately be seen as a thing among things. But the scientific point of view is itself an abstraction. 'In the conditions of life…the organism is less sensitive to certain isolated physical and chemical agents than to the constellation which they form and to the whole situation which they define' ([4.21], 4). Furthermore, the behaving organism displays a kind of 'prospective activity', as if it were oriented towards the meaning of certain elemen-tary situations, 'as if it entertained familiar relations with them, as if there were "an *a, priori* of the organism", privileged conducts and laws of internal equilibrium which predisposed the organism to certain relations with its milieu' ([4.21], 4). Higher-order behaviours bring out new forms or shapes of the milieu, in correlation with the

meaning-conferring activity of the behaving subject. Perceptual behaviour emerges from these relations to a situation and to an environment which are not the working of a pure, knowing subject.

In the *Phenomenology of Perception,* his major published work, Merleau-Ponty takes for granted the emergence of perceptual behaviour and installs himself in it 'in order to pursue the analysis of this exceptional relation between the subject and its body and its world'. The book seeks to illustrate how the body is not 'an object in the world, under the purview of a separated spirit…. It is our point of view on the world, the place where the spirit takes on a certain physical and historical situation' ([4.21], 4–5). Although space does not permit any more than a cursory glance at this long and densely textured treatise, it is worth lingering on its Preface, one of the classic texts in the history of phenomenology.

This is Merleau-Ponty's phenomenological manifesto, one that is clearly indebted to the unpublished works of Husserl which he had first inspected in 1939 in Louvain. This is the Husserl who emphasized the *Lebenswelt,* the life-world in which all thinking, perceiving and acting takes place. According to Merleau-Ponty, phenomenology is

> a philosophy which puts essences back into existence, and does not expect to arrive at an understanding of man and the world from any starting point other than that of their 'facticity'…. It is also a philosophy for which the world is always 'already there' before reflection begins—as an unalienable presence; and all its efforts are concentrated upon re-achieving a direct and primitive contact with the world, and endowing that contact with a philosophical status.
>
> ([4.18], vii)

The first feature of this phenomenology is that it is a rejection of science: 'I am not the outcome or the meeting-point of numerous causal agencies which determine my bodily or psychological make-up.' I cannot conceive of myself as 'a mere object of biological, psychological or sociological investigation…. The whole universe of science is built upon the world as directly experienced, and if we want to subject science itself to rigorous scrutiny and arrive at a precise assessment of its meaning and scope, we must begin by reawakening the basic experience of the world of which science is the second-order expression' ([4.18], viii). If the world as understood by phenomenology is 'always already there', it is not the 'objective' world of zoology, social anatomy or inductive psychology, since 'I am the absolute source, my existence does not stem from my antecedents, from my physical and social environment; instead it moves out towards them and sustains them, for I alone bring into being for myself…the tradition which I elect to carry on' ([4.18], ix). To return 'to the things themselves' (an earlier rallying cry of Husserlian phenomenology) is to return to 'the world that precedes knowledge', the world of which science always speaks. In relation to this primordial world, science is an abstract and derivative sign-language, as is geography in relation to the countryside in which we already recognize a forest, a meadow or a river. The purpose of phenomenology is to analyse these perceptual foundations which precede knowledge and upon which our knowledge is built ([4.18], ix).

Also in the Preface to the *Phenomenology of Perception,* Merleau-Ponty offers a

revised version of Husserl's 'phenomenological reduction', a way of looking at the world which enables us to see just how embedded in it we actually are. 'It is because we are through and through compounded of relationships with the world that for us the only way to become aware of the fact is to suspend the resultant activity, to refuse it our complicity.' It is because the certainties of common sense and the 'natural attitude' to things are the presupposed basis of any thought that they are taken for granted and go unnoticed. Only by applying the phenomenological reduction, by suspending for the time being our recognition of them, can we bring them into view. Reflection 'steps back [from the world] to watch the forms of transcendence fly up like sparks from a fire; it slackens the intentional threads which attach us to the world and thus brings them to our notice; it alone is consciousness of the world because it reveals that world as strange and paradoxical'. Not only is the philosopher a perpetual beginner, but 'philosophy consists wholly in the description of its own beginning'. It is in this sense that phenomenology 'belongs to existential philosophy', the philosophy that interrogates Heidegger's 'being-in-the-world' ([4.18], xiii).

In the course of this personal restatement of phenomenological principles, Merleau-Ponty considers the notion of intentionality, at the same time sketching out his own understanding of history. Unlike the Kantian relation to a possible object, phenomenological intentionality assumes that the unified world that is already there is the world that is 'lived' by me. What Husserl calls 'operative intentionality' is the way in which consciousness knows itself to be a project of the world, 'meant for a world which it neither embraces nor possesses, but towards which it is perpetually directed'. Operative intentionality 'produces the natural and antepredicative unity of the world and of our life, being apparent in our desires, our evaluations, and in the landscape we see, more clearly than in objective knowledge, and furnishing the text which our knowledge tries to translate into precise language' ([4.18], xviii).

These are the dimensions of history, the events that are never without meaning. In seeking to understand a doctrine, it must be examined from the point of view of ideology, politics, religion, economics and psychology—all at the same time! 'All these views are true provided that they are not isolated, that we delve deeply into history and reach the unique core of existential meaning which emerges in each perspective. It is true, as Marx says, that history does not walk on its head, but it is also true that it does not think with its feet.' Neither head nor feet are paramount, of course: all aspects of a life are captured in 'the body'. In an obvious reference to Sartre's famous claim that 'we are condemned to freedom', Merleau-Ponty concludes this discussion of intentionality and history with the thought that 'because we are in the world, we are condemned to meaning, and we cannot do or say anything without its acquiring a name in history' ([4.18], xix).

The above discussion leads naturally into a discussion of the individual's relations with other people. To the extent that phenomenology unites extreme subjectivism and extreme objectivism in its notion of rationality, it discloses the way in which 'perspectives blend, perceptions confirm each other, a meaning emerges'. Phenomenological rationality exists neither in an ideal world proper to absolute spirit nor in the real world of scientific investigation and knowledge. The phenomenological world is the sense or meaning *(sens)* revealed where the paths of the individual's various experiences intersect; and also 'where my own and other people's intersect and engage each other like gears'. With this

image of the meshing of gears *(l'engrenage),* Merleau-Ponty seeks to capture both subjectivity and intersubjectivity, 'which find their unity when I either take up my past experiences in those of the present, or other people's in my own' ([4.18], xx).

THE PHENOMENOLOGY OF SPEECH, LANGUAGE AND ART

The *Phenomenology of Perception* largely consists of a series of studies on the role of the body and perception in various aspects of social and cultural experience: speech and language, expression, sexuality, art and literature, time, freedom and history. Space limitations preclude here more than a few cursory glances in this direction. When I perceive in my world cultural artefacts as varied as roads and churches, or implements such as a bell, a spoon or a pipe, 'I feel the close presence of others beneath a veil of anonymity'. The challenge is: how can the word 'I' be put into the plural? When it comes to 'other selves', contact is established through my perception of other bodies. 'It is precisely my body which perceives the body of another, and discovers in that other body a miraculous prolongation of my own intentions, a familiar way of dealing with the world. Henceforth, as the parts of my body together comprise a system, so my body and the other's are one whole, two sides of one and the same phenomenon' ([4.18], 354).

But bodies only establish initial (mostly visual) contacts. The most important cultural phenomenon in the perception of other people as people (as distinct from simply living beings) is language *(le langage)*. In the experience of dialogue, a common ground is constituted between the other person and myself. 'My thought and the thought of the other are interwoven into a single fabric.' Neither my interlocuter nor I invented the language that enables us to communicate: 'our words are inserted into a shared operation of which neither of us is the creator…. Our perspectives merge into each other, and we coexist through a common world' ([4.18], 354). Coexistence does not remove the fact of solitude, but solitude and communication are 'two "moments" of one phenomenon, since in fact other people do exist for me' ([4.18], 359). Indeed, I would not even be in a position to speak of solitude, much less declare others inaccessible to me, if I did not have the experience of other people.

Language, then, is discovered by me in my phenomenal field and used by me for expression and communication with others in that shared antepredicative world. One of the uses to which language is put, of course, is literature; and literature, for Merleau-Ponty, is firmly embedded in the lived world of politics and economics. In a long note on the existential interpretation of historical materialism, tagged on to the end of the chapter of the *Phenomenology of Perception* devoted to 'the body in its sexual being' ([4.18], 171–3), Merleau-Ponty writes that 'the existential conception of history' rejects the idea that our actions are *determined* by socio-economic factors in our situation. It does not, however, deny that our actions are *motivated* by such factors. 'If existence is the permanent act by which man takes up, for his own purposes, and makes his own a certain *de facto* situation, none of his thoughts will be able to be quite detached from the historical context in which he lives, and particularly from his economic situation.'

This applies to the philosopher, to the revolutionary and to the artist. It would be ridiculous, writes Merleau-Ponty, to see Paul Valéry's poetry as simply the product of his

economic circumstances. But it would not be absurd 'to seek, in the social and economic drama, in the world of our *Mitsein,* the motive of this coming to awareness'. The act of the artist (or the philosopher) is a free act, but it is not motiveless. The freedom of the artist is not exercised in a vacuum, completely divorced from the world of shared experience; 'it consists in appropriating a *de facto* situation by endowing it with a figurative meaning beyond its real one'.

Every aspect of our life 'breathes a sexual atmosphere' (as Freud showed), without our ever being able to identify a single content of consciousness that is either 'purely sexual' or without any sexual content whatsoever. In the same way, all our lives are suffused with 'the social and economic drama' which provides each one of us (the artists as well as everyone else) with an inescapable element of the stuff of our existence, which we set about deciphering and reappropriating in our own distinctive way.

> Thus does Valéry transmute into pure poetry a disquiet and solitude of which others would have made nothing. Thought is the life of human relationships as it understands and interprets itself. In this voluntary act of carrying forward, this passing from objective to subjective, it is impossible to say just where historical forces end and ours begin, and strictly speaking the question is meaningless, since there is history only for a subject who lives through it, and there is a subject only in so far as he is historically situated.
>
> ([4.18], 172–3)

We have barely touched on Merleau-Ponty's impressive, but scattered, phenomenology of expression. Most of his more important studies on language, literature, culture and art—which he defined as 'the progressive awareness of our multiple relations with other people and the world' ([4.22], 152)—are gathered in the collections *Sense and Non-Sense* and (especially) *Signs,* which he prefaced with an Introduction (1960) that helps to situate these studies within his evolving philosophical project. *Eye and Mind* ([4.21], 159–90) is his important late essay on painting. The unfinished manuscript abandoned in 1952 and published posthumously as *The Prose of the World* was conceived, in inspiration at least, as a response to Sartre's *What is Literature*? It could be said that the phenomenon of language became, in one way or another, the main focus for all of Merleau-Ponty's subsequent work. In this respect, he is at one with the other great philosophers of the twentieth century, in both the continental and analytic traditions—one thinks of figures such as Heidegger and Wittgenstein, Gadamer, Ricoeur, Austin and Searle. In Merleau-Ponty's case, language is the entry point for a more profound understanding of human interrelations—which, he writes in 1952, 'will be the major topic of my later studies' ([4.21], 9). The meaning of language consists in 'the common intention' of its constituent elements; 'and the spoken phrase is understood only if the hearer, following the "verbal chain", goes beyond each of its links in the direction that they all designate together' ([4.21], 8). In that direction (as we shall see below) lies Being. (For an excellent summary of Merleau-Ponty's views on these topics, see [4.74], 78–86. For a more extended discussion of his theory of existential expression and communication, see [4.82].)

EXISTENTIAL FREEDOM, HISTORY AND POLITICS

In the immediate aftermath of the Liberation, taking stock of what had been learned in the experience of the war and the occupation, Merleau-Ponty declared that in the course of the war 'we have learned history, and we claim that it must not be forgotten' ([4.22], 150). Not surprisingly, his conception of history, and the role of the individual in history, was forged in the crucible of his wartime experience. The final chapter of the *Phenomenology of Perception* (written at this time) is devoted to a dialectical encounter with Sartre's notorious theory of 'absolute freedom' (with its obvious implications for our understanding of history and historical *praxis*), as presented to the world only a year or two earlier in *Being and Nothingness*.

The first three pages of this final chapter outline, roughly, the Sartrean position. However, Merleau-Ponty points out that the problem with Sartre's radical opposition between the determinism of the brute in-itself ('scientism's conception of causality') and the absolute freedom of the conscious for-itself ('divorced from the outside') is that it would appear to rule out the possibility of freedom altogether. If it is true that our freedom is the same in everything we do, if the slave who continues to live in fear is as free as the one who breaks his or her chains (or anyone else, indeed), then there can be no free action, since freedom obviously, as in this example, has nothing to do with actions. Furthermore, 'free action, in order to be discernible, has to stand out against a background of life from which it is entirely, or almost entirely, absent' ([4.18], 437). If freedom is everywhere (since it is simply the mark of human being, or being for-itself), then, says Merleau-Ponty, it is nowhere. The very idea of action, the very idea of choice, disappears, 'for to choose is to choose *something* in which freedom sees, at least for a moment, a symbol of itself. Freedom implies a struggle, freedom must be striven for; freedom must make a decision. If freedom is already achieved without free actions, as it would be in a Sartrean world, then free actions become redundant (ibid.). What is required instead is a theory of freedom that 'allows it something without giving it everything' ([4.22], 77).

Merleau-Ponty works out what this 'something' is by resuming his analysis of *Sinngebung:* that is, interpretation, or, literally, the bestowal of significance on situations. If we accept that there is 'no freedom without a field', and if we reject as non-phenomenological the Kantian idea (which Sartre often seems to adopt) of a consciousness which 'finds in things only what it has put into them', then our understanding of *Sinngebung* must involve the intermeshing of both the conditions of possibility of perception (the body-subject) and the conditions of reality of perception (the world of situations in which I find myself).

To say that a particular rock is unclimbable makes sense only if I entertain the project of climbing it; the attribute 'unclimbable' (like all attributes) can be conferred upon the rock only by 'a human presence'. 'It is therefore freedom which brings into being the obstacle to freedom, so that the latter can be set over against it as its bounds' ([4.18], 439). But given that I have the project to get from A to B, not every rock will appear to me as unclimbable. My freedom does not contrive it that this way there is an obstacle to

my progress and that way there is a way through, but it does arrange it for there to be obstacles and ways through in general. Without my 'human presence' there would be neither obstacles nor ways through. But it is crucially important to distinguish: my freedom 'does not draw the particular outline of the world, but merely lays down its general structures' (ibid.).

The general structures of the world, which dictate that some mountains are climbable while others are not, are to be found not out there, in an in-itself, but within me. Irrespective of my 'express intentions' (for example, my plan to climb those mountains next week), my 'general intentions' evaluate the potentialities of my environment: for example, the fact that they exceed my body's power to take them in its stride. This brings us back to Merleau-Ponty's fundamental insight involving the body-subject's 'insertion in the world': underlying myself as a thinking and deciding subject there is 'as it were a natural self which does not budge from its terrestrial situation' ([4.18], 440). All the 'free' choices in the world will not obviate this fundamental relationship: 'in so far as I have hands, feet, a body, I sustain around me intentions which are not dependent upon my decisions and which affect my surroundings in a way which I do not choose' (ibid.).

To use Merleau-Ponty's terminology (borrowed from the *Gestalt* psychologists), these 'general intentions' are the ever-present 'ground' against which my decisions are 'figures'. This ground is 'general' in the sense that it constitutes a system in which all possible objects are simultaneously included; and also in the sense that it is not simply mine but something I share with 'all psycho-physical subjects organized as I am'. For we are all indeed 'intermingled with things'. While it is true that none of those things constitutes an obstacle unless we ordain it so,

> the self which qualifies them as such is not some acosmic subject…. There is an autochthonous significance of the world which is constituted in the dealings which our incarnate existence has with it, and which provides the ground of every deliberate *Sinngebung*.
>
> ([4.18], 441)

In the same way as the mountain that constitutes an obstacle is 'my obstacle', the pain that makes me 'say what I ought to have kept to myself is 'my pain', and the fatigue that makes me break my journey is 'my fatigue'. According to Sartre, I am always free to transform my being in the world, including my chosen tolerance of pain or fatigue. But Merleau-Ponty draws attention to the fact that this transforming for-itself does not operate as if I had no yesterdays. Rejecting Sartre's famous contention that 'existence precedes essence', he insists that a theory of freedom must recognize 'a sort of sedimentation of our life: an attitude towards the world, when it has received frequent confirmation, acquires a favoured status for us' (ibid.). While it's all very well to claim that the self is always free to change the habits of a lifetime, Merleau-Ponty insists that 'having built our life upon an inferiority complex which has been operative for twenty years, it is *not probable* that we shall change' ([4.18], 442).

To the objection of the rationalist (such as Sartre) that my freedom to change is either total or non-existent, that just as there are no degrees of possibility there are no degrees of freedom, Merleau-Ponty retorts that 'generality and probability are not fictions, but

phenomena; we must therefore find a phenomenological basis for statistical thought' (ibid.). Statistical thought simply addresses the fact that I have a past which, 'though not a fate' (since my past does not totally determine my future), 'has at least a specific weight and is not a set of events over there, at a distance from me, but the atmosphere of my present'. Drawing once again on the image of *l'engrenage,* Merleau-Ponty concludes that 'our freedom does not destroy our situation, but gears itself to it' (ibid.). (Cf. Merleau-Ponty's application of the Freudian concepts of repression and fixation to 'personal time' and 'the ambiguity of being in the world', [4.18], 83–5. For a discussion, see [4.49].)

The past, therefore, does not determine my future, but neither is my history irrelevant. History—my own personal history and the history of the wider community within which I live—provides the context within which I make my choices. And Merleau-Ponty illustrates this conception of conditioned freedom by reference to the question of the development of class consciousness and the decision to be a revolutionary. He again seeks to discover a third way between the two traditional abstractions. Objective (Marxist) thought derives class consciousness from the objective material conditions; and idealist reflection reduces the condition of being a proletarian to the individual's awareness of it. But 'in each case we are in the realm of abstraction, because we remain torn between the *in itself* and the *for itself*. What is necessary is a return to the phenomena, 'to the things themselves': instead of abstractions, we must apply 'a genuinely existential method'.

A person's objective position in the production process will never in itself issue in class consciousness; rather, it is the decision of individuals to become revolutionaries that prompts them to see themselves as proletarians. 'What makes me a proletarian is not the economic system or society considered as systems of impersonal forces, but these institutions as I carry them within me and experience them; nor is it an intellectual operation devoid of motive, but my way of being in the world within this institutional framework' ([4.18], 443). The transition from individual self-description to class solidarity with others takes place through a growing awareness that 'all share a common lot' ([4.18], 444). 'Social space begins to acquire a magnetic field, and a region of the exploited is seen to appear' ([4.18], 445). Neither the status quo nor the free revolutionary action that might overturn it is an abstraction; 'they are lived through in ambiguity' (ibid.). To be a member of a social class is not only to be intellectually aware of the fact; it is to identify oneself with a group 'through an implicit or existentialist project which merges into our way of patterning the world and coexisting with other people' ([4.18], 447).

This is not to say that one cannot at any moment amend one's existential project. What one cannot do is pretend to be a nothingness *(néant)* and choose oneself out of nothing. 'My actual freedom is not on the hither side of my being, but before me, in things.' It is misleading to say (as Sartre does) that I continually choose myself; and that to choose not to choose is still to choose. 'Not to refuse is not the same thing as to choose' ([4.18], 452). In the lived world, there is never determinism and never absolute choice; I am never either a 'being' or a 'nothingness'. We are involved in the world and with others 'in an inextricable tangle' ([4.18], 454). This significant life, this certain significance of nature and history that makes me what I am, far from cutting me off from the rest of the

world, makes it possible for me to remain in communication with the rest of the world. Philosophy, which teaches us to see things in the world and in history in all their clarity and in all their ambiguity, best performs its role by ceasing to be (intellectualizing) philosophy. In the words of Saint-Exupéry with which Merleau-Ponty closes the *Phenomenology of Perception:* 'Man is but a network of relationships, and these alone matter to him' ([4.18], 456).

(Merleau-Ponty published a wide range of articles on the role of the individual in history and politics, varieties of Marxism, the role of the Communist Party, and the Soviet Union. Most of these were collected in *Sense and Non-Sense, Signs, Humanism and Terror* (a polemical riposte to Arthur Koestler's *Darkness at Noon*), and *Adventures of the Dialectic*. For the best extended discussions of Merleau-Ponty's philosophical politics, see 4.119 and 4.130.)

THE HYPERDIALECTIC OF THE FLESH

In the prospectus of his future work written in 1952, Merleau-Ponty writes: 'my first two works sought to restore the world of perception.' As we have seen, all aspects of our life are underpinned by antepredicative perception, the specifically human mode of inherence in the world in which we all live. Looking to the future, he goes on: 'my works in preparation aim to show how communication with others, and thought, take up and go beyond the realm of perception which initiated us to the truth' ([4.21], 3). He wishes to go beyond the 'bad ambiguity' of his works already published and articulate a 'good ambiguity', 'a spontaneity which gathers together the plurality of monads, the past and the present, nature and culture into a single whole. To establish this wonder would be metaphysics itself ([4.21], 11). He himself saw the enormous philosophical achievement represented by the works we have been examining thus far in this chapter as furnishing only the groundwork for the ontology that was to be the work of his mature years. His elaboration of this ontology of 'the flesh' is contained in a number of works published posthumously, but especially in the incomplete manuscript entitled *The Visible and the Invisible*.

It is impossible to exaggerate just how ambitious Merleau-Ponty's mature project really is. He proposed to go beyond (or below, for he frequently returns to the metaphor of archaeology) the traditional philosophical categories of realism and idealism, subject and object, consciousness and world, in-itself and for-itself, being and nothingness, the knower and the known, and discover in that scarcely penetrable region what he called 'the flesh of the world', the primordial stuff in which we all inhere and which is the ultimate ground of all human experience. It is also impossible to give any more than a flavour of this dense and enigmatic text, available to us in the form of 160 pages of an apparently finished methodological introduction, followed by a remarkable chapter entitled 'The intertwining—the chiasm' *(L'entrelacs—le chiasme)* and about 110 pages of working notes. I shall do no more here than draw attention to a few key terms introduced by Merleau-Ponty in these pages: the notion of 'hyperdialectic', and the related concepts of 'the flesh' and 'the chiasm'.

When Merleau-Ponty addresses the theory of dialectic in *The Visible and the Invisible,*

he has in his sights the dialectic of Sartre's *Being and Nothingness*. Sartre's dialectic is a 'bad dialectic'. It is a fixed opposition, presented in terms of theses, where reflection imposes an external law and framework upon the content of experience.

> It is with this intuition of Being as absolute plenitude and absolute positivity, and with a view of nothingness purified of all the being we mix into it, that Sartre expects to account for our primordial access to the things…. From the moment that I conceive of myself as negativity and the world as positivity, there is no longer any interaction…. We are and remain strictly opposed.
>
> ([4.24], 52)

The only 'good dialectic', on the other hand, is what he calls 'the hyperdialectic'. A good dialectic is a 'dialectic without synthesis' which must be constantly aware that every thesis is but an idealization, an abstraction from the lived world of experience. 'What we call hyperdialectic is a thought that…is capable of reaching truth because it envisages without restriction the plurality of the relationships and what has been called ambiguity' ([4.24], 94). What Merleau-Ponty is working towards is 'a dialectical definition of being that can be neither the being for itself nor the being in itself…that must rediscover the being that lies before the cleavage operated by reflection, about it, on its horizon, not outside of us and not in us, but there where the two movements cross, there where "there is" something' ([4.24], 95).

Where the two movements cross, of course, is the body. The body is simultaneously part of the world of things and the thing that sees and feels things. The body (which is itself visible) can see things not because they are objects of consciousness, at a distance from it, but precisely because those things are the environment in which the seeing body exists. These two aspects of the body (seen and seer, visible and invisible) are inseparably intertwined: 'the experience of my body and the experience of the other are themselves the two sides of one same being' ([4.24], 225). This intertwining at the most fundamental and primordial level, this anonymous generality of the visible and myself, is what Merleau-Ponty calls 'the flesh' *(la chair)*.

'There is no name in traditional philosophy to designate it' ([4.24], 139). The flesh is not matter and it is not mind. It is not substance. In a manner that recalls Heidegger, Merleau-Ponty goes back to the pre-Socratic thinkers to try to express what he means:

> to designate it, we should need the old term 'element', in the sense it was used to speak of water, air, earth, and fire, that is, in the sense of a *general thing,* midway between the spatio-temporal individual and the idea, a sort of incarnate principle that brings a style of being wherever there is a fragment of being. The flesh is in this sense an 'element' of Being.
>
> (ibid.)

To underline the oneness of this primordial element of Being, Merleau-Ponty names it the 'flesh of the world': 'My body is made of the same flesh as the world,…this flesh of my body is shared by the world, the world *reflects* it, encroaches upon it and it encroaches upon the world,…they are in a relation of transgression or of overlapping' ([4.24], 248).

Merleau-Ponty's overriding concern, as it has been throughout his philosophical career, is to offer a phenomenological description of reality that gets beneath the spurious distinction between extension and thought, between the visible and the invisible. He is not suggesting an identity of thought and extension; the key image is that 'they are the obverse and the reverse of one another' ([4.24], 152). But we are all part of the same 'flesh of the world'. We situate ourselves in ourselves *and* in the things, in ourselves *and* in the other, 'at the point where, by a sort of *chiasm,* we become the others and we become world' ([4.24], 160). The word 'chiasm' *(le chiasme)* recalls the intersection of lines in the manner of the Greek letter *chi (x),* emphasizing the inextricable interlocking of the various aspects of Being, of the perceived and the perceiver, of the visible and the invisible.

One final theme must be mentioned in this brief examination of *The Visible and the Invisible* and that is the important strategic role of language. 'Language is a life, is our life and the life of the things' ([4.24], 125). Parallel to the reverse/obverse relation of the visible and the invisible, language is always considered by Merleau-Ponty against the background of silence: 'language lives only from silence; everything we cast to the others has germinated in this great mute land which we never leave' ([4.24], 126). Because they have experienced within themselves 'the birth of speech *[la parole]* as bubbling up at the bottom of [their] mute experience', no one knows better than philosophers 'that what is lived is lived-spoken *(vécu-parlé)*'.

Language is 'the most valuable witness to Being' (ibid.). Furthermore, language is a witness to Being that does not disrupt the unity of Being, since 'the vision itself, the thought itself, are, as has been said [by Lacan], "structured as a language", are *articulation* before the letter, apparition of something where there was nothing or something else' (ibid.). The speaking word *(la parole parlante),* which brings to the surface all the deep-rooted relations of the lived experience wherein it takes form, the language of life and of action, and also the language of literature and of poetry, is the very theme of philosophy. Of course, philosophy itself is 'that language that can be known only from within, through its exercise, is open upon the things, called forth by the voices of silence, and continues an effort of articulation which is the Being of every being' (ibid.).

CONCLUDING REMARKS

As we come to the close of this brief survey of Merleau-Ponty's *œuvre,* we must take stock. In my view, Merleau-Ponty is one of the great figures of twentieth-century philosophy, a pivotal figure in mid-century: drawing deeply on and creatively reappropriating earlier masters such as Saussure, Husserl and Heidegger, while his formidable presence is evident (albeit indirectly) in the structuralist, poststructuralist and deconstructionist thinkers in the generation that came immediately behind him.

Merleau-Ponty himself always loudly proclaimed his allegiance to Husserl, especially the Husserl of the *Crisis* and the theme of the life-world. Now, Merleau-Ponty's phenomenology was undoubtedly originally inspired by Husserl. And Husserl (as uniquely and creatively interpreted by Merleau-Ponty) remained a living presence

throughout his work. But it is arguable that there is more Heidegger than Husserl in Merleau-Ponty's philosophy. First, there is the centrality of time: for Merleau-Ponty as for Heidegger, human existence is essentially temporal existence. Second, there is the privileging of language in both cases, as was illustrated in the last section. In the famous saying in *The Letter on Humanism,* Heidegger proclaims that 'language is the house of Being' ('die Sprache ist das Haus des Seins'). In *The Visible and the Invisible,* Merleau-Ponty writes that language is 'the most valuable witness to Being' ([4.24], 126). Third, there is Merleau-Ponty's intention—like Heidegger—to offer a comprehensive description of Being. It has to be said, however, that while Heidegger's Being *(Sein)* is ontologically distinct from beings *(Seiendes),* Merleau-Ponty's Being is inclusive of both *Sein* and *Seiendes*.

Some of Merleau-Ponty's recurring themes also prefigure subsequent dominant trends in continental philosophy. It is not incidental that his first book was entitled *The Structure of Behavior*. He carried out a detailed study of both the *Gestalt* psychologists and Saussure's structural linguistics and lectured on Saussure in 1949. To the last book he published he gave the title *Signs*. Merleau-Ponty was clearly at the centre of the emerging philosophical schools known as structuralism and semiotics. His continual and deepening polemic against Sartre's privileging of the choosing subject reflected the growing decentring of the subject in his own work, a theme which in turn becomes central to the later deconstructionist approach to philosophy. (For an interesting discussion of Merleau-Ponty's move 'from philosophy to non-philosophy', see [4.103], 123–51).

So what was Merleau-Ponty's main contribution to the continental philosophy of this century? Perhaps more than any other philosopher, Merleau-Ponty was determined to overcome the dualism between mind and matter, between subject and object, which had dominated European philosophy since Descartes. The contemporary representative *par excellence* of the Cartesian tradition was, of course, Merleau-Ponty's friend/ foe Sartre. We have seen above how Merleau-Ponty constantly pitched his own philosophical approach against Sartre's radical dualism between the thinking and choosing for-itself and the in-itself that is the object of thought. Merleau-Ponty was always a phenomenologist. His fundamental philosophical impulse was always to describe 'the things themselves'; and he opposed dualism simply because it did not offer an adequate description of the phenomena.

It has been suggested that Merleau-Ponty's late philosophy represents a radical break with his earlier phenomenology of perception. I do not agree with this view. Despite the new terminology he developed in the 1950s, his philosophical work is all of a piece; and his later search for a new fundamental ontology can be seen in germ (and sometimes in more than germ) in the *Phenomenology of Perception,* for example in the chapter on the *cogito*. While it is true that he was concerned in his final years that the basic terminology of the *Phenomenology of Perception* (perceiver and perceived) retained remnants of the old dualism, the fact that he was determined to go further and ground the phenomenology of perception in 'the flesh of the world' in no way implies a rejection of the basic thrust and the achievement (as far as it goes) of the earlier work.

Rather, as he expressed it in a working note of January 1959, Merleau-Ponty's concern was to 'deepen' his first two books within the perspective of an ontology which would finally dissolve the subject/ object polarity. This implies only that those first two books

constitute the indispensable starting point of his philosophical project and not its terminus. His abiding concern was to provide a full description of the world. His new ontology would go beyond his earlier phenomenology and provide the radical new foundations for such a description. He makes it clear in *The Visible and the Invisible* that the basic philosophical stance is one of 'interrogation'. Merleau-Ponty's profound philosophical questions have not yet received an adequate answer.

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CHAPTER 5
Philosophies of religion

Marcel, Jaspers, Levinas

William Desmond

Gabriel Marcel (1889–1973), Karl Jaspers (1883–1969) and Emmanuel Levinas (1906–) seem like a mere aggregate of thinkers. Jaspers, a German thinker who coined the phrase *Existenz Philosophie,* was influential in making known Kierkegaard's importance. Marcel was a French dramatist with a love of music who came to philosophy from a background in idealism, against which he struggled. Yet the influence, for instance, of Royce, the first person on whom he wrote, was strong. Bergson, now a too neglected thinker, was always in the background. Marcel's Catholicism was extremely significant, yet he bridled at the label 'Christian Existentialist'. He was a philosopher who happened to be a Catholic. Levinas was instrumental in introducing phenomenology to France. In 1930 he published a book on Husserl's theory of intuition that was to excite Sartre to say: That is the way I want to philosophize! Yet Levinas always thought in tension with this phenomenological heritage, and most especially its transformation in Heidegger's fundamental ontology.

These three thinkers have received mixed attention. Jaspers laboured in Heidegger's shadow, as he himself seemed to recognize. Heidegger and he were once friends and Heidegger alone he recognized as being on a par with him. Still Heidegger's enormous influence has tended to eclipse a proper appreciation of Jaspers' achievement. Jaspers was opposed to Nazism, as Heidegger was not. This did not prevent him from acknowledging Heidegger's stature. Indeed Jaspers was more concerned with Heidegger than Heidegger was with Jaspers. Also Jaspers respected the tradition of philosophy, as well as the achievements of science. He did not set himself in contestation with the millennia to hoist himself to unprecedented originality. This, coupled with his restorative efforts *vis-à-vis* perennial philosophy, meant that no cultformed around his thought. This is not to deny that he was and is deeply admired.

Marcel is an insightful existential thinker, but existentialism has been identified widely with its atheistic brands, especially that of Sartre. Because of Marcel's unashamed refusal to silence his own search for God, there has been a failure to listen properly to him by professional philosophers who too easily become embarrassed with the religious. They fail to listen attentively enough to his sometimes elusive themes—the body, the family, the sense of mystery as eluding all objectifications, meditations on what I would call the intimacy of being.

Marcel is difficult to package, though there are recurrent themes which have been packaged as identifiably Marcellian: being and having, problem and mystery, intersubjectivity and embodiment. His style of philosophizing, out of respect for the

subject matter itself, refuses to be packaged, even systematically stated in any simple survey. Though he sometimes has a diffuse style of writing, in the very peregrinations of his thinking he *hits* on some absolutely essential insights. Thus the intimacy of being is always other to technical thinking, eludes complete systematic ordering, is on the edge of completely transparent conceptualization. Philosophy tends to home in on themes that are manageable in a more neutral, public, generalized language. We need that language, but it must be counteracted and complemented with modes of thinking that learn from art, and indeed that allow themselves to be shaped by a certain music of being.

Levinas was not widely known in English-speaking philosophy until recently. His work presupposes familiarity with phenomenology, both Husserlian and Heideggerian, and also the currents of intellectual debates that have swept France from the 1930s onwards, over which the shadow of Hegel has hovered in various interpretations and appropriations. Levinas himself distinguishes his own more strictly philosophical writings from his religious studies, but there is little doubt that religion and philosophy cannot be finally insulated from each other. Many of the themes of his major work, *Totality and Infinity,* are incomprehensible without the sense of the presence/absence of God. Levinas's stature is now being more widely recognized outside France, partly owing to the impact of deconstruction, and its high priest Derrida, who learned a thing or two from Levinas. The service to Levinas is ambiguous. Levinas has always exhibited a spiritual seriousness that is ill repaid by the postmodern frivolity to which deconstruction is frequently prone.

Each thinker is deserving of an entire study. Each has been prolific, Levinas less so, but Marcel and Jaspers have been voluminous. To bring some manageable order to the matter, I will concentrate on three major themes, and as the matter dictates I will mention related ideas, without dwelling on them in the detail they might deserve in another study. These three themes will be: the nature of philosophy; the question of the other; the question of transcendence or God.

GABRIEL MARCEL

Marcel's understanding of philosophical thought is determined by a reaction to the idealism of the late nineteenth century. He did some early work on Royce and Schelling. Their themes were to influence him throughout his writing. Thus the theme of loyalty in Royce is transformed into an ontology of intersubjectivity with distinctive emphasis on the notion of what Marcel calls creative fidelity. I mention the struggle of Schelling to break free of the logicism of his own early thought and Hegel's idealism. The struggle led to Schelling's positive philosophy that is the progenitor of all existential thought, including that of Kierkegaard. Schelling tried to think evil as radically other to reason. Marcel has later occasion to mention Schelling and Kant on this score, but the point is more generally relevant to the conception of philosophy at issue. Evil as a philosophical perplexity takes idealistic reason to its limit where the philosopher has to think otherwise of what lies on the other side of reason, as idealistically conceived.

The desideratum of philosophy as system was bequeathed through Kant, Fichte, Hegel to the whole subsequent history of idealistic and post-idealistic philosophizing. Marcel

did intend at an early point to couch his thoughts in a systematic form. He discovered he could not bring it off without forcing his thoughts into a form that went against their grain. Eventually he published his *Metaphysical Journal* (1927), breaking ground here not only in terms of content but in terms of a different sense of literary form.

Marcel's commitment to what is other to system is forged in deep tension with the sense that thought ought to have some systematic character, certainly an appropriate order in its development and presentation. His Gifford lectures, published as *The Mystery of Being* (1950), are presented as his most systematic work, but there he disclaims anything like a system. Primarily philosophy is a matter of venture and exploration. System, such as it is, comes *after;* it ought not to dictate to the matter what it should be. Thinking is open to the matter at issue, even when the matter offers insurmountable resistance to the encroachments of our categories. The drift of his thinking is not forced into a form that betrays, so to say, its improvisatory nature. This sense of philosophy shares a lot with Kierkegaard and Nietzsche, though Marcel does not list these as early influences. One thinks too of the plurality of literary forms used by Kierkegaard and Nietzsche, though one could also mention the non-systematic forms developed by Shestov and the later Wittgenstein.

Marcel's philosophy has a phenomenological as well as an existential side. In no sense was he a disciple of Husserl. But his philosophizing is phenomenological in holding that thinking ought to start by an act of attention to what appears to us. As best as possible we allow the matter to make its appearance, according to its own form and requirements. The first act of philosophical intelligence demands a kind of mindful attention to phenomena, appearing, happenings, in all their nuance and surprise. This requirement is continuous with his rejection of idealism. The stress in idealism on purely autonomous thought tempts the philosopher to impose his categories on being as appearing, hence to see there only what thought has itself put there. Kant himself talked about the mind as only seeing in nature what it has itself put there. Kant was no absolute idealist but the equivocities of some of his pronouncements, like the one just cited, led to the more uncompromising, hence more coherent, idealism of his successors.

But the full coherence of idealism is also its undoing in that what is other to thought always gets finally reduced to the construction of a category. Marcel rejects this, for at a critical point the emptiness of the categorial construction makes itself felt. Hence Marcel's desire for phenomenological fidelity entails the reassertion of a realism which asks the thinker to let things take their own shape without interference from the dictating intellect. Marcel does not deny a critical dimension to philosophy. On the contrary, the appearing of things is shot through with ambiguities that have to be interpreted and evaluated. Letting ambiguity come to appearance is part of the phenomenological requirement of philosophy. Mindless surrender to ambiguity is not. The ambiguities of being have to be sifted.

This is especially relevant to the existential side of his thinking. Marcel is an existentialist to the extent that he lays a primary focus on human being and the perplexities that burden it about being and most especially its own being. He used the term 'existential' before it became fashionable through Sartre. As finding itself in the ambiguous middle of things, the human being is in quest of the truth of things and most especially its own truth. It is tempted by possibilities that veil or distort or destroy its own

truth and the truth of things. Hence the existential philosopher is again involved in a quest or journey. Not surprisingly, Marcel lays great emphasis on *homo viator,* man the wayfarer, (the title of one of his books).

We are on the way, to where we do not exactly know, from where we know not, in a middle often clouded with uncertainty and sorrow. Marcel does not have quite the intense concentrated passion of Pascal, but they share a similar sense of the enigma of existential contingency. Nor can we stand outside the middle and survey our way of passage as a whole. The deficiency of systematic idealism is the false imputation that we have such an Archimedean point whence we can construct the system of categories to make all being transparently intelligible. Such a system is false to our participation in being, and not least to the singularity of the journeying philosopher. We need a different kind of thinking, which acknowledges our intimacy with being, even in our sense of metaphysical homelessness. The great struggle of philosophy is to get some reflective distance on our being thus in the middle, a distance that does not distort our intimacy with being in the middle. Thinking must be shown in its genesis and process, with all its falterings and flights, its matured fruits and undelivered suggestions.

Here Marcel makes a distinction between what he calls primary and secondary reflection. Primary reflection shows a tendency to objectify being and the human being. It tries to survey the object from outside, or penetrate it as if it were an alien thing to be mastered or overcome. Such a thinking has one of its major sources in Cartesian dualism where knower and known, mind and nature, self and other are posited as antithetical opposites. It is a mode of thinking that attenuates the thinker's participation in being. This kind of thinking corresponds to treating being as a problem.

Secondary reflection is such that the matter being thought unavoidably encroaches on the one doing the thinking. The thinker cannot escape involvement with the matter that is being thought. A thinking that objectifies and fosters the self-forgetfulness of the thinker will not do. It is not that the thinker now collapses into a mushy subjectivism, softly surrendering to the inarticulate, having given up the stiff precisions of articulate objectivism. Secondary reflection, Marcel says, is a recuperative thinking. Once having lived or been caught up or carried along by a process of living, one struggles to get a thoughtful distance on one's course, all the more to interiorize mindfully its possible significance.

In human existence secondary reflection in some form goes on always, but not necessarily in the accentuated form the existential philosopher cultivates. As Kierkegaard says: life has to be lived forward, but thought backward. Secondary reflection is thus recollective. As such it is not a nostalgic thinking; for to gain a mindful sense of one's present and past may open a truer orientation to what is to come. Secondary reflection is bound up with the possibility of hope. Hope is a major theme for Marcel. Indeed one can say that Marcel takes very seriously Kant's question: For what may we hope?

The difference of primary and secondary reflection is relevant to Marcel's treatment of the notions of problem and mystery, and thesein turn influence his critique of the spiritual devastations wrought by the modern hegemony of unrestrained technicism, indeed the idolatry of technique. Like many other thinkers, Marcel recognizes the modern dominance of scientific method and its way of conceiving the world. He does not deny the benefits that come from this way, but is disturbed at the accompanying neglect of

issues that fall outside its purview. Scientific method treats of all questions as problematic matters: difficulties that can be solved by means of techniques of objective experimentation and calculation. The hegemony of this approach can lead to the atrophy of human perplexity before the metaphysical enigmas of existence.

Consider questions of despair and salvation. These become a matter of psychological adaptation as the singular self becomes a case of maladjustment. The promise of our despair is betrayed, not even guessed. With issues like suffering, the pervasiveness of evil and the inevitability of death we deal with mysteries or meta-problematic themes. These are perplexities that involve us and shake us and make us sleepless. We are threatened and challenged and put on trial. They never yield a univocal answer; indeed they cannot properly be formulated as univocal problems. A constitutive openness and ambiguity remains. We have to return to such perplexities again and again. We never conclusively master them.

Marcel does not advocate the abandonment of reason, as if these mysteries were absurdities. They do demand a thoughtfulness not reducible to scientific knowledge, moving the philosopher closer to the poet and the religious. The hegemony of the problem makes us take for granted the existence of things and our own. By contrast, the philosopher for Marcel is stunned into thought by just that fact of existence, astonished at the marvel that things are. That the world is at all is the wonder. This mystery is all around and within us, though to it we are heedless. We look but overlook; we hear but have not listened or heard.

The neglect of mystery and the hegemony of problem leads to a world wherein technique reigns with only sporadically disputed sway. There is an anonymity to technique that is antithetical to the singularity of existing. Technique involves a set of directives that can be used by all; the directives of a technique do not originate with the user but, if we desire success in the outcome, to these directives we must submit. Thus technique can breed a conformism, a certain standardization of the human being, an averaging. Uniqueness and recalcitrant singularity are levelled down.

This is a theme sounded loudly by Kierkegaard and Nietzsche. We have heard it so often that perhaps we are jaded. But weariness with a question does not mean it is solved. Technique shows the calculative mind in action. But there is no technique of human wholeness or integrity; there is no technique of ethical responsibility; there is no technique of honesty and truthfulness. Technicism is in flight from the unexpected and the uncontrollable. The idolatry of technique is really a metaphysical hostility to our vulnerability before the incalculable chance of being. The tyranny of technique drowns the deeper human in a conspiracy of efficiency and a frenzy of industry. It may erect a house but cannot make us a home.

Marcel's philosophizing takes shape at the opposite extreme to this technicism. It is appropriate to mention that this philosophizing owes much to his twin loves: music and drama. He repeatedly resorts to musical images, and was a composer and performer of no little talent. The image of improvisation is important. As applied to philosophy and life it means: the score is not settled before playing; the players are invited to create freely. This is not incidental to the pervasive post-Hegelian concern with the limits of systematic philosophy. Schopenhauer and Nietzsche are the major figures in the nineteenth century who believed that music was the metaphysical art. There are others in the twentieth

century, Adorno most notably, who give some privilege to music. Philosophy, particularly in its logicist forms, can run roughshod over the subtleties, intimacies of being. Music may sing these, as it were, in a manner that forces philosophy to raise the question of the unsayable—the unsayable that yet is sung and so somehow said.

If music as metaphysically significant raises questions about the limits of philosophy, Marcel has no desire to yield to a dark romanticism. Nor does he thematically focus on the metaphysics of music, but uses musical images and metaphors again and again to illustrate some of his more elusive ideas. One has to conclude that there is an implicit community of meaning between his thought and music. Again consider the improvisatory style of some of his philosophizing: a theme is stated, developed, dropped; then resumed, restated; there come to be echoes back and forth; nor does Marcel offer any simple resolution, though there are moments of revelation. Does his thought then sing? Does his philosophy approach the condition of music? The analytical philosopher will squirm. But there is a rigour and discipline in this thinking that the analytical philosopher hardly suspects; there is a rigour and discipline in music too. Even Rudolp Carnap, one of the avatars of analytical philosophy, sensed a connection between metaphysics and music, though not surprisingly his judgment was topsy-turvy: metaphysics is just poor music.

The influence of drama is related to Marcel's preoccupation with the question of *the other*. Marcel was himself a successful playwright, with a lifelong interest in the theatre. Drama presents the concrete dilemmas of humans in their otherness and estrangements and solidarities. It imaginatively enacts the resistance and reciprocity of the self and the other. It returns us to a point of emergent significance that is prior to abstract thought. Marcel said that he had interest not in the solitary 'I am' but in the concrete 'We are'. To exist is to be shaped in this solidarity of selves. Drama, of course, is enacted in and through language where again we face the other. Seemingly inconspicuous words may offer the revelation of the significant world of the other, its wounds, its conceit, its hospitality. Words are pregnant with more than can be rendered in the languages of function. Philosophy, like drama, should awaken vigilance for this 'more'.

One senses sometimes that his own plays were more important to Marcel than his philosophy. His preoccupations emerged in pristine form in his plays which were not meant as mere illustration of philosophical theories. What drama brings to birth, philosophy later may take hold of in reflection. It is as if the dramas were closer to the phenomenological matrix of being, wherein the basic perplexities appeared *in statu nascendi,* in a form more concrete than later conceptualizations could capture.

Some readers may find it tedious for Marcel to quote his own plays. I see it as a strategy of saying. In philosophy we always have a problem of writing about matters closest to the personal, to the intimacy of being. We refuse to be confessional. And yet we have to find strategies of confession, of saying the 'I' with a kind of elemental honesty. In quoting his plays, Marcel can confess without embarrassment. The citation offers not only a theme closer to the phenomenological matrix but also one with a space of possible distance. We do not have to collapse into the theme; it can become the basis for a secondary reflection. There is then a rhetorical complicity between his dramatic and philosophical writing.

In that sense Marcel might be called a plurivocal philosopher. He does not dramatize his philosophizing in the same way as Nietzsche does, who is poet and philosopher in

one; or as Plato does in that great achievement of philosophical writing, the Platonic dialogue. Instead he creates a dialogue between his dramas and his philosophizing, in the philosophizing itself. There are times when he should have let the barrier between them break down, as do Plato and Nietzsche. Perhaps he did not, less for the sake of philosophy as out of respect for his dramatic art which one senses he wanted to preserve from the devitalizing encroachments of abstract philosophical categories.

To break down the barrier need not encourage this devitalization but rather promote a more radical vitalization of philosophical thinking. Admittedly the bureaucratic separation of philosophy and poetry is hard to get beyond. We should get beyond it, on Marcel's own terms, since the functionalizing mind, the bureaucratic mind, is an essentially technical mind. If Marcel too strongly insists on separating the function of drama and philosophy, he will show himself captive to the same narrow mind he denounces otherwise so rightly. He does not, to his credit. Beyond the functionalization of poetry and philosophy and religion, the one thing necessary is honesty nourished by spiritual seriousness. It does not matter whether we label it artistic, philosophic or religious. The dialogue of drama and philosophy points to modes of philosophizing outside system, entirely incomprehensible for an analytical philosopher in thrall to the plain prose of univocal writing.

The theme of the other is connected with Marcel's reflection on the body. His emphasis is on the incarnate person. The flesh is where we are in a primary contact with all otherness, both natural and human. The affirmation of being that arises there articulates a sense of the togetherness of the existing self and the rest of being in its otherness. It is as if the incarnate self is initially an inarticulate 'We are'. Marcel obviously sets himself against any form of Cartesianism and dualism here. There is some affinity with empiricism, stemming from his desire for phenomenological fidelity. The difference is in his interpretation of experience. Empiricist experience is an abstraction from the fullness of original fleshed incarnation. It is as alienated from concrete existence as is Cartesian dualism, from the side of the body in this case, rather than the reflective reason.

The subject is an incarnate self defined intersubjectively. The *inter,* the between of intersubjectivity, does not deny the flesh. The between is stressed by the concretization of spirit in the flesh of the human being. Again the intimacy of our involvement with the other matches the intimacy of our being our own bodies. Marcel is given to criticize the view that we have bodies; the connection of self with flesh is not thus external. Marcel wants to say: we are our body.

Here arises his concern with being and having. Like Marx and many other modern thinkers Marcel was concerned with the question of property, of possession, the nature of having. He denies that a person is what a person has. My property is something over which I have power; I can dispose of it as I please; we cannot so dispose of our own bodies, nor of our fellow human beings without a fundamental violation of our own nature and theirs. It is not that we ought not to take care of things. Marcel is quite aware that our care for things can draw them into the orbit of human attachment in a manner which transforms them, releases in them their promise. Our belongings too can have a more intimate relation to our selfhood. But this more authentic belonging is not simply a relation of dominating power. This applies even more radically to our belonging together

in human community.

The theme of possession of the other has also been a major concern in contemporary European philosophy, especially in the light of different interpretations of Hegel's dialectic of master and slave. Power and domination have been held to define the essence of human relations. This is currently a much debated issue, but Marcel has things to say that have not been surpassed. I mention here Marcel's fascination with Sartre's essentially degraded view of the other where the master/ slave dialectic is concretized as a dialectic of sadist and masochist: either dominate or be dominated is the either/or that runs through all of Sartre. While fascinated with Sartre's view that hell is the other, Marcel is unrelentingly hostile to it. The Sartrean look is the look of the Gorgon that would reduce the other to stone. This look wants to have the other, wants to objectify the other and disarm by pre-emptive violence the suspected threat to the self's freedom.

Sartre's sense of the human body is tied to his understanding of our openness to the other. Sartre's body is the place of negativity, the nothingness that shapes our freedom in its power of refusal, like that of the child that asserts its own difference by repeating its 'No'. If the body incarnates a 'We are' and, in a manner that affirms a solidarity with what is other to self, then we are outside this Sartrean sense of the body, this sense of the other, and this apotheosis of negation as freedom. Against the Sartrean degradation, Marcel recommends the possibility of *disponabilité*. This availability to the other is not threatened by the other, nor concerned to threaten. It signals a reversal of the normal for-self of, say, the Spinozistic *conatus essendi*. It is the promise of an agape, rather than the drive of eros to possess the other.

In opposition to having, our relativity to the other is marked by the gift. The bestowal of a gift is never neutral, never just a transfer of a possession from one to the other. The gift given is the bearer of generosity towards the other and for the other. If human being were exhausted by will to power or *conatus* as self-insistence, giving would be a mere ruse to use the other for the self again. There would be no true giving as a movement of self towards the other but not for the sake of the self, but simply for the other as beloved. Without this giving over of the giver, a gift is not a genuine gift.

Similarly the receiving of the gift is not an indifferent addition to the receiver's inventory of possessions. The communication of self on one side, of course, can be met by refusal on the other. One might distrust the bestower's goodness and turn away, or take and suspect and wait for the appearance of the ulterior motive. The Sartrean self lives this suspicion of the goodness of the other. A thing given is received as a genuine gift in being hospitably welcomed. What touches one in the gift is not the thing or the possession. It is the generous freedom of the other that has made itself available without care for itself. The thanks that then may be voiced has nothing to do with abjectness before an other who has one in his or her debt. Thanks is simple, elemental appreciation of the transcendence of self-insistence by the goodness of the giver.

Marcel offers some important meditations on the family and on paternity in *Homo Viator*. He calls attention to a community of spirit beyond all objectification. There are ontological issues at stake in the shaping of a singular destiny by relation to the family. One might here compare Marcel's respect for paternity and the family to Sartre's contempt of the father in *The Words,* and his juvenile baiting of the bourgeois family. Of course, it is not only Sartre who displays this puerile disdain. Marcel distances himself

from the pervasive attitude in post-romantic modernity that the father is always the tyrannical lord. Levinas's remarks on the family also escape the closed dialectic of master and slave.

Generosity is a condition of being beyond having which testifies to the human power of sacrifice. Sacrifice literally means to make sacred *(sacer facere)*. Here Marcel's concern with generosity relative to the human other shades into his meditations on *the divine other*. For instance, Marcel draws attention to the difference of the martyr and the suicide. Suicides claim that their bodies are their own property and that they can do with them what they will. They claim the freedom to visit the ultimate violence on it. Martyrs look like suicides but are entirely different. They give up their bodies, their lives because neither belong to them. They belong to something higher than themselves and to this their death witnesses. Suicides attest to nothing but their own despair. Martyrs are centred beyond themselves; suicides find a centre in nothing, not even in themselves. The death of a true martyr is living testimony to a higher order of being and worth. Our existence is not our property but a gift of this order. The sacrifice makes sacred; even in this death the martyr gives himself or herself over to this order, gives thanks for its gift.

Marcel as philosopher was not primarily or directly interested in the traditional issues of natural theology. He was concerned with an existential phenomenology of significant occasions in human experience where the sense of the divine breaks through or is offered to us. While his conversion to Catholicism was profoundly influential, he tried to stay on the philosophical side of specifically theological reflections. He was reticent about making full-blown theological statements. He expressed some satisfaction when his reflections spoke to individuals outside Catholicism. His philosophical meditations were suggestive of theological possibilities, without determinately articulating anything even approaching a systematic idea of God.

Marcel's greatest fear, I suspect, and precisely out of religious reverence, was the reduction of God to our concepts. Yet clearly his religious faith provided a matrix that nurtured the characteristic ideas of his philosophical reflection. Reflections on the mystery of suffering and evil, and on the love that seeks to outlive death, take his thought again and again to the borders of religious faith.

He set himself against the traditional proofs of God as objectifying what ought never to be objectified. The very idea of proving God is a misconception, a misconception that might border on a kind of rationalistic sacrilege, if the living God is reduced to a mere toy in a parlour game of conceptual virtuosity. God is never an object, always a Thou that resists reification. Yet Marcel was profoundly disturbed at the godlessness of western modernity. There is in his writings a growing sense of the spiritual waste produced by godless modernity when coupled with the unbridled hubris of a Promethean technicism. He has much in common with Heidegger's later meditations on the absence of the holy in modernity.

Marcel does not fit a common view of existentialism as probing a world from which God has been barred. The atheistic existentialist, reduced to caricature by Sartre, sternly girds his or her loins before this Godforsaken world, and dismisses as a sentimental coward anyone seeking hope and ultimate sense. The stratagem began by being disturbing but ended in a different conformism. Its revolt against the old became its new dogma. To Marcel's credit he was not consoled by this comfort of negation. He willingly

made love, fidelity, hope, transcendence his themes—against the grain of the times.

His suspicion of traditional philosophical concepts of God make him the heir of Pascal and his opting for the God of Abraham, Isaac and Jacob. Not that he accepted a fideistic rejection of reason, a fideism sometimes imputed to Pascal and Kierkegaard, both of whom are more sophisticated as thinkers than can be captured by a dualism of faith/reason. Faith and the spirit of truth are bound together, and reason too is bound by the spirit of truth.

Marcel's reflections on human fidelity take us to the border of religious faith. Thus his discussions of death and immortality have little to do with proving the immortality of the soul. They are meditations on a fidelity between the living and the dead others, a fidelity that transcends the divide between the living and the dead. Nor is the issue of death simply a question of my death; it is much more a matter of the death of the other arousing in the still living the promise of a fidelity beyond death. There is no objective certainty with respect to this fidelity. Nor is there with respect to faith in God. It is always on trial in its sojourn in the world. Fidelity is tied to hope, with the promise of being that cannot now be secured with complete certainty. Fidelity itself may flower into witnessing and testimony. Such existential realities—suffering, fidelity, hope, generosity, love, testimony—are the mysteries in which our sense of the sacred is shaped and on which the philosopher must reflect. The kinship with Kierkegaard is noticeable: the impossibility of objective certainty with respect to faith and fidelity. We are dealing with a trans-objective order, which for Marcel is not merely subjective.

Like Nietzsche he acknowledged the godless condition of modern man. But unlike Nietzsche, he did not see this condition as a gain for human freedom but as the sign of a catastrophic loss or refusal. Marcel admired Nietzsche's honest diagnosis about our godlessness but not his proposed solution in the Overman. Nietzsche offered a version of heroic sacrifice when he says: I love the man who creates beyond himself and thus perishes. But in the end there is no genuine beyond for Nietzsche, since all transcendence dissolves into human self-transcendence. Without transcendence beyond human self-transcendence, our sacrifice witnesses to nothing, except perhaps ourselves. The wasteland still grows.

Promethean humans may steal divine fire, but in absolutizing their own power they betray their community with the power of transcendence beyond them. The aspiration to transcendence is deformed. Its root is the divine ground; out of this ground, it grows; outside of it, the aspiration to transcendence withers. The howl of Nietzsche's Madman was heard by Marcel, but he also heard a different music. With neither Marcel nor Nietzsche had the horror of this howl been cheapened into the postmodern kitsch it has now become, with the chirpy nihilists who blithely claim to be at home in the wasteland.

KARL JASPERS

Karl Jaspers is often identified with German existentialism in that he speaks of one of the tasks of philosophy as the clarification of *Existenz*. He distinguished empirical being *(Dasein)* from *Existenz* which is peculiar to the human being. Some commentators have seen a desire to mark his own thought off from Heidegger's *Dasein,* used in the special

Heideggerian sense to refer to human existence. The relationship between Jaspers and Heidegger would command a study in itself, yet both helped to mediate Kierkegaard's philosophy of existence in the twentieth century. Philosophy of existence emphasizes the singularity of the human being, and often in a manner that stresses the recalcitrance of that singularity to inclusion in any system of concepts. Jaspers shares this view but qualifies it with a different respect for the systematic impulse, and indeed a less closed sense of system than had been dominant since German idealism. The tension of *Existenz* and system, the necessity and the limits of system, the relation of *Existenz* and transcendence at the limit of all systems, constitute some of his major concerns.

Jaspers suffered from ill health since his youth, which he turned to good use by husbanding his strengths for thinking. His sense of philosophy was never that of an academic discipline but that of a noble calling. He was under threat during the Nazi regime, but he re-emerged into public prominence after the war with widespread respect for his ethical integrity. He willingly undertook the public task of raising the question of German guilt, and was always concerned with the spiritual condition of the time, the state of the university, the issues of politics, national and international, especially in a nuclear age, the questions of world religions in an age of mass communication.

Jaspers did not publicly commit himself to philosophy until around the age of 40. His background prior to that was in medicine and psychology. His first published work was *General Psychopathology* (1913), followed by *Psychology of Weltanschauungen* (1919). He was later to say that these were really philosophy all along, though not as overtly so as his subsequent work. His reverence for philosophy made him reluctant to claim its mantle, especially when professional philosophers frequently fell short of the nobility of its calling. His first major work, *Philosophie,* was published in 1931 and established him as a major voice. The point has been made that the publication of Heidegger's *Being and Time* in 1927 stole his existential thunder and dimmed somewhat the lustre of his achievement.

E*xistenz* is Jaspers's counterpart to Heidegger's *Dasein*. For both, only the human being exists in this unique sense: only the human being is questionable to itself. *Existenz* is marked by this relatedness to self that is unique to human being; we are a being for self which is the possibility of free self-determination. Though Kierkegaard's influence marks both Heidegger and Jaspers, in Jaspers we find a strong respect for science grounded in his early training. This respect never wavered. Jaspers departs from the standard picture of existentialism as virulently anti-scientific. He never tires of insisting that science is one of the great works of the human mind. Moreover, any serious contemporary philosophizing worth the name must take due cognizance of its pervasive role in the modern world.

That said, the philosopher's task is not simply to be a methodologist of science. In reflecting on the meaning of science one inevitably inquires as to the precise status of scientific truth and science's role within the full economy of human life. One might even call Jaspers a philosopher of science in this generous sense that up to quite recently was almost unknown in Anglo-American analyses of science: science understood as a human achievement, and hence placed within a larger historical and cultural, indeed spiritual, milieu. To reflect on science is then not to abstract its methodological essence in a pseudo-ahistorical analysis; it is to meditate on the ideal of truth, and in Jaspers's case to

open up a more fundamental sense of truth, which is constitutive of the milieu of scientific truth.

Jaspers's ideal of philosophy here is reminiscent of a certain reading and reconstruction of Kant's project. Many commentators have remarked on his debt to Kant, and Jaspers always acknowledged the depth of this debt. In Anglo-American philosophy Kant has been primarily read through the *Critique of Pure Reason,* interpreted as an anti-metaphysical tract, interspersed with some epistemological insights. Outside of Anglo-American analysis, Kant's more comprehensive ambitions are more willingly and widely recognized. Kant spoke of these ambitions in terms of the architectonic impulse. This means that reflection on science is certainly with a view to plotting the limits of valid cognition within a precisely delimited sphere. But—and this is where the more comprehensive sense of philosophy of science is relevant—to plot that limit is not necessarily to impute a merely negative judgment about other modes of meaning that may be other to science. One thinks the limits of science to know its strength but also its weakness in addressing no less pressing perplexities that transcend science. To assert that there are such perplexities that transcend science is not at all to depreciate science. It is to say that science is not the totality. The philosopher thinks what is other to science in thinking the greatness of science.

A careful reading of the Kantian enterprise will show that the heart of Kant's philosophy is not in the *First Critique* but in the *Second Critique,* and perhaps to an ambiguous extent (which has proved powerfully suggestive to Kant's German successors) in the *Third Critique*. German thinkers have this notable ability to hear voices in Kant's writing that to the outsider seem mere silences. In the scholastic twists and turns of the Kantian architectonic they sense that Kant was a tortured thinker. A tortured perplexity of thought is incessantly at work behind or beneath the scholastic encasing of concepts wherein Kant sheaths his explorations. Jaspers singles out many great thinkers for mention—Plato, Plotinus, Cusa, Spinoza, Hegel—but it is clear that his heart hears something in Kant that he hears nowhere else. Kant is often taken as a destroyer of Transcendence. Jaspers's reverence for Kant, I suspect, is as a thinker who tries to plot a winding way from finitude to Transcendence.

This sense of philosophy with a kind of Kantian architectonic is in tension with the singularity of human being as *Existenz*. Granting too the great power of science, there are questions that still exceed its proper competence. I underline the fact that the emphasis must first fall on *questioning*. We are here not talking about academic textbook puzzles. We are talking about the thinking human being as struck into questioning at the edge of all scientific rationalizing. There can be nothing anonymous or neutral about being struck into such questioning, and this is why the very unique selfhood of the philosopher is at stake in a way that is never quite the case in science. The stakes of perplexity are different in philosophy, for the mode of questioning that erupts is not one that can be completely objectified.

In scientific questioning the point is to detach oneself from oneself in the idiosyncrasy of selfhood, and to pose as univocal and determinate a question as possible. The singular I of *Existenz* becomes the anonymous one of univocal mind, consciousness in general. One represents univocal mind, anonymously the same for every rational consciousness, in search of a univocal answer to a univocal curiosity. This is related to Marcel's notion

of the problem. But in philosophy a transformation of selfhood is called for which is energized in a new mode of perplexity which cannot be terminated by information about this object or that object. This perplexity is not a univocal curiosity about this thing or that thing. It is a kind of indeterminate wondering that may extend to the whole of what is, and indeed to the possibility of nothing. The 'objects' of philosophical perplexity are not univocal, determinate objectifiable themes. Nor can the 'results' of philosophical thinking be treated thus, be packaged thus. To do this would be to distort the true energy of living philosophical thinking. This indeterminate perplexity is the very self-transcending energy of human thinking. It was the ceaselessness of this that tortured Kant, even when he thought he had finally laid it to rest in the system and its categories.

I am putting the matter in terms Jaspers does not use but that do not betray his intent. Thus this perplexity is called forth when philosophy deals with what Jaspers calls 'boundary situations' *(Grenzsituationen)*. Questions at the boundary are not just questions about the limits of science, though they are that too. They are questions on the limit, on the edge, *simpliciter*. The most obvious boundary situation is death. There is no answer to the meaning of death, because there is no determinate univocal concept that would put this event within an objective rational whole. Rather this event puts all objective rational wholes into question, and yet the genuine philosopher has to continue to think despite the severe strain put on the ideal of rational completeness. These are the boundary situations Jaspers considers in *Philosophie:* that I must die, that I cannot live without conflict and suffering, that I cannot escape guilt.

Boundary situations are not unrelated to Marcel's notion of the meta-problematic or mystery. They burst out of the system of scientific rationality. Yet philosophy does not end at this bursting. A more authentic philosophizing can then begin. Put in terms of Kant: Kant was obsessed with the desire to make metaphysics into a secure science, and to put behind him all the 'random gropings' of the past. Did Kant secure metaphysics as a science? The answer must be no. It will always be no. Metaphysics is not exhausted by the rationalistic scholasticism of the Wolffian school. Jaspers is critical of metaphysics in a vein reminiscent of Kant's attack on rationalistic science of being. But metaphysical thinking feeds on the indeterminate perplexity that takes us to the boundary and that is more radically energized in encounter with the boundary. There is a sense in which metaphysics really only begins at the limits of science. Despite his Kantian critique of 'metaphysics', I think Jaspers also hears this in Kant: the old rationalistic metaphysics may perhaps be put in its place; but at the limit, the old and ever fresh wonder is recalled into new life. A different kind of thinking has to take place at the boundary. This thinking Jaspers performs under the rubric of what he calls 'periechontology' as distinct from the old 'ontology'.

Consider here Jaspers's claim that truth cannot be reduced to correctness. Scientific truth does operate with some notion of correctness, Jaspers implies. Putting aside the complex disagreements in current philosophy of science, the ideal of correctness is based upon the presupposition that the ideal of determinate intelligibility is fundamental. A scientific proposition or theory or hypothesis is correct if it somehow 'corresponds' to the determinate state of affairs that it purports to report. The scientific proposition or theory or hypothesis must be stated with as much determinate precision as possible. The limit of this precision would be a mathematical univocity, a completely determinate formulation

of a matter without any shade of equivocity or ambiguity or indefiniteness. Moreover, the reality thus propositionally determined is itself taken to be a more or less determinate manifestation of being. To be scientifically objective is thus to epitomize an objective mode of thinking relative to a reality that is objectified in just that sense of being appropriated as completely determinate. Scientific correctness objectively dispels the ambiguities of being. There is no objective *mathesis* of ambiguity, only a *mathesis* that dissolves ambiguity.

Within its sphere this is to the point, as Jaspers acknowledges. But philosophical thinking is already outside this sphere as reflecting upon this ideal of truth as correctness and the will to objective knowing inherent in it. Philosophy is thus already a non-objectifying thought. Jaspers pursues the question relative to truth as correctness by suggesting that determinate objects could not appear as determinable and hence as scientifically intelligible did they not appear out of or against a background that is not itself an object. This is the horizon of intelligibility that makes possible the appearance of determinate objects as determinate. The background horizon relative to which scientific truthdeterminately appears is not itself a determinate truth. There is no truth as correctness possible about this horizon. The horizon is truth in a sense that is not determinable or objectifiable.

Again one is hard put to forget Heidegger's analysis of the primordiality of *alētheia* relative to truth as *orthotes* or *adaequatio*. We might say that this indeterminable truth is the non-objective other to the indeterminate perplexity that drives the self-transcending thinking of philosophy. One wonders if in his own way Kant was aware of this finally indeterminable sense of truth. One of his most suggestive phrases in the *Third Critique* was 'purposiveness without purpose', *(Zweckmässigkeit ohne Zweck)*. Kant does not extend the meaning of this phrase beyond the aesthetic, yet it has implications for the very self-transcending orientation of the human being towards truth as beyond every determinate truth. This is truth as the ultimate horizon of the truths of science and the determinate intelligibilities it discloses. There is, of course, a deep equivocity in Kant in tending to restrict truth to what is scientifically validated, and Jaspers shares in this equivocation, even while in practice extending the notion of truth well beyond scientific correctness. Jaspers's name for this horizon of truth is 'the Encompassing' *(Das Umgreifende),* one of the major ideas in his philosophy as a whole.

D*as Umgreifende*—the word carries the suggestion of being englobed by something that cannot be reduced to any definite object within the globe, the circle. Is this a variation of Parmenides' well-rounded truth? Yes. But any implication of a closed totality is something against which Jaspers will fight. The very language seems almost unavoidably to connote the closed circle. But if so, this is not something Jaspers intends. To close the circle would be to determine the indeterminable and so to objectify its non-objectifiable transcendence. Jaspers also claims that there is a plurality of modes of the Encompassing, and hence a Parmenidean monism will never do. This plurality of modes includes: Being in itself that surrounds us—this is further specified in terms of world and Transcendence; the Being that we are, further specified as empirical existence *(Dasein),* consciousness as such and spirit *(Geist);* finally the Encompassing as *Existenz* and reason *(Vernunft)*.

Jaspers's philosophy is here a post-Kantian Kantianism of *finitude* in which the

singularity of *Existenz* is thrust into the ambiguities of the Kantian architectonic. Jaspers's Kantianism appears again in that the ultimate indeterminability of the Encompassing makes it impossible to capture as a totality. Hegelian idealism makes what for Jaspers is the false claim to totality. To claim totality would be to imply a standpoint external to the Encompassing and this is impossible. Every determinate standpoint is relative to a determinate, objectified other, and hence is itself only possible on the basis of its englobement by the Encompassing.

We humans are not the encompassing of Encompassing. Still there is a sense in which for Jaspers we humans *are* the Encompassing; somehow our self-transcending thinking participates in the Encompassing; we are not determinate things but as *Existenz* participants in the truth in this more ultimate sense. We ourselves are a certain horizon of truth in a sense that cannot be reduced to objective correctness. The 'Kantianism' in this again brings us back to a certain finitude of thought, even in the indeterminate self-transcending of thought. The rejection of totality makes Jaspers join hands with Marcel in rejection of the speculative whole of Hegelian idealism. Marcel is very explicit in saying that the concept of totality is completely inappropriate to the idea of the spirit.

Jaspers, in my view, learned more from Hegel than he always explicitly acknowledged. His willingness to acknowledge the debt was spoken more clearly in his later life, but at the time of his earlier writing Hegel was not seen as an interlocutor that one could be respectably associated with, except to try to thrash. Nevertheless, Jaspers is very much a post-Hegelian philosopher in his refusal of totality, something he shares also with Heidegger. We will see in Levinas a divergence of totality and infinity, where the infinite ruptures every totality, beyond recuperation in any higher totality.

Our failure to determine the indeterminability of the Encompassing does not mean a surrender to the merely indefinite. The other thinking at the boundary of objective thought must be complemented by the project of *Existenz* clarification. Jaspers has some very important reflections on what he calls 'foundering' *(Scheitern)* and 'shipwreck' *(Schiffbruch)*. Philosophy too founders, but in its foundering the possibility of breaking through to something other cannot be closed off. I cannot dwell on foundering here, but we can appropriately situate Jaspers relative to two exceptional predecessors he singles out for special mention: Nietzsche and Kierkegaard. These two could be said to live a sense of philosophical foundering that is deeply significant for all subsequent philosophizing.

Jaspers's writing shows a clear awareness that these two figures signal the end of a epoch, the end of modernity. Without exaggeration one can say that, to the extent that he appropriated their significance, Jaspers himself was a postmodern philosopher. I use the phrase with hesitation, since now postmodernism wastes itself with an academic anti-academic frivolity, the hermeneutics of suspicion gone chic, a scholastic scepticism without spiritual substance. A postmodern philosopher in any genuine sense is one who recognizes the spiritual sickness of modernity. Of course, a sick being is not a dead being, and a sick being continues to live, hence it must be in some other respects healthy. Modernity is sick in this ambiguous sense. Kierkegaard and Nietzsche not only diagnosed this sickness, they lived this sickness within themselves. Both were experimental thinkers, both experienced the illness they tried to cure in themselves, the illness of nihilism.

Kierkegaard's Christian cure, Nietzsche's Dionysian *pharmakon,* diverge. Jaspers thinks that philosophy can never be the same after them. They represent the radical rupture with idealistic totality. They stand before our future as exceptional thinkers who have lived through the spiritual sickness of modernity. Both founder for Jaspers. But this living through and foundering is informed by its own spiritual greatness. This greatness makes one reluctant to ally them completely with 'postmodernism', where the desire for spiritual seriousness or greatness seems feeble, if not terminal. Nietzsche and Kierkegaard would shudder at what passes for their current postmodern appropriations. Nietzsche would see the last men mouthing his songs, and sounding cacophonous. Kierkegaard would be dismayed at the aestheticization of his work, as if he did not call us to God—God, God and nothing but God. Let readers ask themselves if my reiteration of the word 'God' has not sent a shudder of uneasy embarrassment up their spines. Understand Nietzsche and Kierkegaard well. They are embarrassing thinkers; they shame us.

They call into question the traditional pretensions of reason. Jaspers is quite clear about this. Do they bring philosophy to an end? Perhaps philosophy of totality, but philosophy: no. Jaspers is himself a thinker of the end of philosophy, but he has a more nuanced historical sense than the fashionable proclaimers of the end of philosophy. There is an historical fairness. He does not totalize the tradition of philosophy in order to denounce it for totalizing thought—a blatant equivocation not avoided by anti-totalizing totalizers like Adorno, Derrida, Heidegger, Nietzsche himself. Though Jaspers is no Hegelian, there is much about him not entirely antipathetic to Hegel. He acknowledges that for a long time he got great sustenance for his own lectures from Hegel. Granting his greatness, eventually the totalizing Hegel became 'grotesque' for him. I mention his relation to Hegel again in that both have a much more generous attitude to the tradition of philosophy than almost all other post-Hegelian philosophers.

Hegel, Jaspers and Heidegger are perhaps the three greatest thinkers of the last 150 years who have tried to embrace, albeit very diversely, the heritage of millennia in their thinking. Jaspers's generosity to the tradition makes him finally distance himself from the exceptionality of Kierkegaard and Nietzsche. Their provocation of reason has to be balanced by the greatness of reason, as seen from a proper appropriation of the great thinkers of the past. Against the modern will to unprecedented originality—infecting Nietzsche and Heidegger—Jaspers wants to reaffirm the idea of *philosophia perennis*.

A major undertaking of Jaspers was to write a universal history of philosophy. This was never completed. Jaspers was interested not in a history of ideas but in a dialogue with the great thinkers by a genuine philosopher. The truth persists across time, though mediated through time. Nor is this truth identifiable with Heidegger's historicity of being, since Jaspers is not unwilling to invoke eternity, granting, of course, all the cautions and qualifications necessary in any such invocation. The tradition of philosophy is the privileged conversation of great thinkers. He includes himself in that conversation. Across the centuries a great thinker still calls to other thinkers. We later thinkers have to resurrect the greatness of the past thinker, not merely debunk them in the interests of spuriously elevating ourselves into a position of false originality. It is the spiritual truth of philosophical honesty that the great thinkers share. Each concretizes the self-surpassing transcendence of thinking, a personification of the extremity of honest perplexity before

ultimacy.

Jaspers has not been as fashionable as Nietzsche and Heidegger precisely because of the generosity of his respect for tradition. In modernity we have been so infatuated with futurity that we have shortchanged the spiritual greatness of the past. In the future it will be great, it will be new, it will be unprecedented. A rhetoric of originality masks a lot of intellectual conceit. Nietzsche and Heidegger were not immune from thus puffing themselves up. As if a philosopher must strut and preen and crow: How different I am, how new! Cockcrow: and no, not dawn, as Nietzsche said; but flourish, flourish of the postmodern cock.

Jaspers addresses the theme of *the other,* especially in that philosophy for him is inseparable from communication. The dialogue with the tradition is one instance of communication. Communicative reason opens beyond monadic thinking at both ends: towards the past, towards the future. Nor did Jaspers deny the responsibility of the communicative reason of philosophy to shape the spiritual present. Again the other has to be accorded a different place in thought from that allowed for in idealistic totality. Reason in *Existenz* is always marked by a boundless will to communication. One sees some harbingers of Habermas. The communicative relation to the other is constitutive of the activity of reason. Indeed *Existenz* is not itself at all apart from the relation of the self to the other. The demand of communication with the other must be met for *Existenz* to be itself. Likewise we must be awakened to ourselves as *Existenz* if we are to do justice to the demand of communication.

Jaspers confessed to loneliness and incapacity to communicate inhis youth. This was exacerbated by the isolating effects of his illness. Just as *Existenz* cannot be objectified, so our relatedness to the other can never be reduced to an objective relation such as might hold between things. Jaspers' primary emphasis is on the mutual reciprocity of communication between humans. He is a severe critic of the substitution in modernity of mass society for genuine community. The flattening of human beings into averageness, and hence the impoverishment of singularity, diminish, if not deform, what is essential to real community. In the singularity of *Existenz* there is always an opening to what is other than closed subjectivity.

As with Kierkegaard and Marcel, Jaspers offers a critique of the functionalization of man and the massification of societies. The sacrifice of singularity as *Existenz* is the defect of totalitarianism. But this defect also marks the competitive individualism of capitalism, for here singularity is merely atomized, and between atoms there is no deep bond of community. He does not display Nietzsche's elitist disdain for the many. He was deeply and ineradicably influenced by Weber. In many respects he also shares the sense of community at work in Kierkegaard's neglected social critique: each of us is an absolute singularity; this singularity is preserved in community, but genuine community is ultimately a community of spirit under God. The will of *Existenz* to communicate with the other stands under Transcendence as the absolute other.

Nor does Jaspers deny conflict in a mushy communitarianism. As already indicated, guilt and conflict are discussed as boundary situations in *Philosophie*. His suffering through Nazism was itself exposure to the violence of evil. He does underscore the possibility of a loving struggle. Love is not devoid of conflict, but the conflict is a creative war, *polemos,* as it were. Communication can be a contestation which is a mutual

challenge to more authentic *Existenz*. His love for his wife, Gertrude, seem to have epitomized for him this creative contestation. This is close to Marcel's creative fidelity, and certainly beyond sadism and masochism, the degraded form of erotic struggle given so much attention by Sartre.

Communication is also central in Jaspers's ideas of reason and truth. Reason is an opening to the universal, but the true universal is not an anonymous generality in which singularity is submerged. So also for Jaspers truth is incomplete if it does not embody itself in a will to total communication. Truth is not closed on itself, timeless and unaffected by historicity. Jaspers even implies that truth actualizes itself in the movement of communication itself. Truth comes to completion in the process of communication.

One senses the shadow of Kant again. One is reminded of the Kantian *progressus,* the infinite task of the regulative ideal. WhenJaspers indicates a call on self-transformation in communication, to my mind he is talking about *truthfulness,* both singular and communal. Obviously this is constituted in the coming to truthfulness by the self and the community. This is a *becoming truthful* which would not be possible in the solitude of the self-communing thought, self-thinking thought. What about a sense of truth that is not constituted by what comes to be in a process of communication, but that makes possible that process of coming to be of social truthfulness? This sense of truth makes possible the constitution of truthfulness but is not itself constituted by truthfulness. This is truth that a process of communication unfolds or reveals, rather than creates or constitutes.

Residues of the constitutive language of Kantian idealism are here evident in Jaspers. The otherness of truth as for itself is compromised by this constitutive language. Jaspers does not want to deny this otherness but his submission to Kantian ways of thinking conditions a certain emphasis in his efforts to speak of Transcendence. This is applicable with respect to metaphysical transcendence, but also with respect to the possibility of divine revelation. The movement of our transcending, even in the communication of truthfulness, mingles with Transcendence as communicating with us out of its own integral otherness, such that we do not really know if there is this other otherness. What we do, our becoming truthful, seems hard to distinguish from what is done to us, our patience to truth. Does what is done to us collapse into what we do? How then are we to avoid a wrong appropriation of the other?

There is a principle of tolerance in Jaspers's sense of communicative reason. He knows that *vis-à-vis Existenz* we cannot just say there is one univocal truth. The truth is refracted singularly in the specific truthfulness of every singular *Existenz*. Reason must be honestly vigilant to the particularities of just that singular refraction. Communication is this vigilance, and this vigilance is respect for the other as other. I use the term 'refraction', which is not the language of constitutive idealism. And even though there is a quasi-constitutive language in Jaspers, his language of foundering must be seen to plot the limit of this, and indirectly to open a moment of radical receptivity in which we do not communicate but in which the other is communicating with us. Jaspers does not explicitly address the question of symmetrical and asymmetrical relativity in a manner that Levinas does.

Throughout I have referred to Transcendence. Here we approach the question of God. Transcendence for Jaspers is the ground of human *Existenz* and freedom. Jaspers treats of transcendence in volume III of *Philosophie* under the heading *Metaphysics*. The heading

is not insignificant in the light of his critique of ontology from the standpoint of periechontology. The sense of metaphysical transcendence returns,proves unavoidable, even when all the Kantian strictures about metaphysics have been taken to heart. Transcendence is the absolute other. Again the Kantian modulation for Jaspers is that Transcendence is not to be known cognitively but to be reached existentially. There is no positive knowledge of Transcendence. Moreover, Transcendence grants itself gratuitously. Of course, if this is true the autonomy of reason is breached, and every trace of idealism, even Kantian idealism, will have to been reinspected.

Jaspers speaks of Transcendence as the absolute Encompassing, the Encompassing of all the encompassings. Transcendence is not the world, nor is it empty possibility, though Jaspers says that it shows itself only to *Existenz*. Transcendence is the absolute other in which *Existenz* is grounded. Wherever *Existenz* is authentically existing, it is not completely through itself. The human existent does not create itself. Relative to Transcendence I know that I have been given to myself. The more decisively *Existenz* is aware of its freedom the more it is aware of its relation to Transcendence.

I am tempted to think of both Augustine and Kierkegaard. Augustine speaks of being concerned with the soul and God and nothing more. This Augustinian theme is sounded in the correlation of *Existenz* and Transcendence. Moreover, Augustine speaks of God as *intimior intimo meo:* God is more intimate to me than I am to myself. The intimacy of this relation is beyond the world of objectivity; it happens in the deepest interiority of non-objectifiable *Existenz,* selfhood. Truth is subjectivity in Kierkegaard's sense: the truth of Transcendence will never be reduced to a set of general, public concepts. Perhaps this is why Jaspers insists, in Kantian manner, on our relation to Transcendence as non-cognitive. Why not speak of knowing in a different, non-objectifiable sense, a wisdom of idiocy, idiot wisdom of the intimacy of being? Why the obsessive insistence that validated cognition be confined to objective science?

Surely we can expand the notion of cognition without having to give ourselves over to full-blown Hegelian reason? For that matter, without this expansion does not Jaspers's way of talking fall foul of Hegel's critique of Kant's unknowable: If it is unknowable, you can say nothing; you cannot even know that it is unknowable; but you are saying something, then it must not be unknowable. I am enjoining the Hegelian question, not endorsing Hegel's answer to Kant in terms of a dialectical knowing of Transcendence. Hegel's answer sins in the opposite direction of cognitively subordinating Transcendence to immanence. We need a knowing other than Hegelian knowing and a non-knowing other than Kantian agnosticism.

Transcendence is, but is never adequately manifest in appearance. It eludes all thinking if we mean to think it as a determinate object. Itseems easier to name it negatively than to say what it is positively. There is a sense in which we can find no final firm place in trying to say it, whether positively or negatively. Jaspers allows that there are many names for it. We can call it Being, Actuality, Divinity, God. Relative to thinking, he says we can call it Being; relative to life, it can be called Authentic Actuality; as demanding and governing, it can be called Divinity; relative to our encounter with it in our singular personhood, it can be called God.

Again we find a denial of cognitive content in favour of the naming of an existential experience. Self-transformation can occur in encounter with Transcendence; it can

become a source out of which I live and towards which I die. *Amor Dei* can lead to a transformation of how we love and hate the world. Jaspers mentions the magnificent love of the world in Chinese life and the hatred of life in gnostic thought. This latter is finally a nihilism and despair: the godless creation of the world is brought forth by Lucifer. This diabolical creation is counter to God. When the world is God's creation the world is loved and God is loved in God's creation; the promise of human existence is affirmed.

We are always within the world and hence our relation to Transcendence is marked by finitude and foundering. We need the symbol and the cipher to articulate what in the end is beyond all articulation. In his later life Jaspers undertook a major dialogue with religious faith. He himself claimed the standpoint of what he called philosophical faith. Philosophy is often in tension with religion but their quests of ultimacy are akin. Like Hegel, Jaspers insists on the autonomy of philosophy, sometimes to the point of showing traces of a residual Enlightenment hostility to the claims of revealed religion. The same question can be put to both Hegel and Jaspers: To what extent are philosophical ideas rational transformations of religious themes, and hence not autonomous but heteronomous? Is philosophical faith religious faith rationalized?

For Hegel, of course, there is no philosophical faith; philosophy is knowing. Jaspers again stands closer to Kant. His philosophical faith attempts, among other things, to render articulate the 'faith' in favour of which Kant is willing to deny knowledge. This philosophical faith cannot be assimilated to poetry or science or religion. If philosophy is other to religion, it is with respect to critical self-consciousness, not with respect to any Hegelian speculative knowing wherein religion is dialectically *aufgehoben*. This critical self-awareness of limits nurtures a vigilance to the idolatry, whether fideistic or rationalistic, which mistakes the cipher of Transcendence for Transcendence itself. Religion and philosophy are different, not as opposites but as polar approaches to Transcendence. In this polarity they comprise a community of ultimates that are perennially a contestation and a challenge to each other.

EMMANUEL LEVINAS

Emmanuel Levinas was born in Lithuania into an orthodox Jewish family but has spent most of his life in France. His experience of the Second World War was to shape his thought deeply. He has written Talmudic studies, though he claims that his philosophy belongs in another category. Husserl's phenomenology and Heidegger's fundamental ontology influenced his first philosophical studies, influenced in the double sense of supporting his thinking and yet provoking him into struggle against that very support. His mature thought is expressed in *Totality and Infinity* (1961). Subsequently he has published collections of essays leading to *Otherwise than Being or Beyond Essence* (1973). He has also continued to write Talmudic studies of a more strictly religious character. Starting from phenomenology he has moved towards a recovery of metaphysical transcendence and an affirmation of what he calls 'ethics' as first philosophy.

Levinas became better known in English-speaking philosophy in the 1980s, partly mediated through the impact of deconstruction. English-speaking readers will find

Levinas difficult without some sense of the context out of which he writes. Many consider *Totality and Infinity* to be his masterwork. It is a difficult book, for many philosophers as well as non-philosophers. Levinas's thinking is haunted by a whole host of philosophical ghosts. To get some sense of the peculiarities of his philosophizing, relative to his influences and claims, I name some of the ghosts.

There is the Cartesian heritage that seeks cognitive certainty in the foundation of the *cogito,* the 'I think'. Levinas evinces high respect for Descartes, surprising respect in that Descartes is often criticized as the originator of an understanding of mind that locks thought within itself, within its own immanence. Levinas wants to break out of that closed circle of immanence, without denying a certain inner integrity to the subject.

There is the phenomenological tradition, which can be interpreted as an ambiguous continuation of the Cartesian heritage. Levinas's first work was on the theory of intuition in Husserl, and his practice of phenomenology is not without debt to Husserl. He came to question the phenomenological doctrine of the intentionality of consciousness. He points to modes of consciousness where intentionality as a directedness on an object is not the final story. His discussion of enjoyment, for instance, reveals an engagement of consciousness, which cannot be reduced to the intention of an object. The structure of intentionality seems to point to a certain mastery of the object; but if there are modes of the subject beyond intentionality, then objectifying, hence dominating, consciousness does not have the last word.

The presence of Heidegger shadowed Levinas. Heidegger's stature is not denied. Yet the accusation against him is that his Being is an anonymous power that ultimately leads to an account of history as impersonal destiny. The person in its singularity is sacrificed to an ontology of anonymous powers. Heidegger's thought epitomizes ontology as a philosophy of power. Levinas opposes this with a metaphysics of the good wherein a nameless universal Being does not have final sway. Heidegger produces an ontology of the neuter; there is no basis for an ethics.

Levinas speaks against the neutering of being which he tends to identify with the horror and anonymity of what he calls the element. A different view of the elemental is possible, but for Levinas it is the faceless indefinite of the *prima materia* (sometimes wrongly identified with *to apeiron*). His account of the impersonality of the 'There is', as he calls it, reminds one of Sartre's account of being-in-itself, for instance in his phenomenology of the *viscous:* always threatening the integrity of the personal, the self as an integrity of innerness for itself. Levinas rejected the view of human being as derelict, as well as Sartre's alienated vision of man as nothingness. Heideggerian thrownness is counteracted by a phenomenology of enjoyment. Happiness, a prior agreement with being, is a more primordial condition of elemental being.

The question as to why Heidegger was an ardent Nazi is as important to Levinas as it was to Jaspers. Levinas spent time in a prisoner-of-war camp. Nazi philosophy was articulated in terms of a world-historical destiny as expressed in the German people. The others do not finally count; will to power subordinates all ethical concern to the victory of the mighty.

This relates to the influence in French philosophy of Kojève's reading of Hegel through the eyes of the master/slave dialectic in the *Phenomenology*. Hegelianism here becomes reduced to an all-devouring logic of domination and servitude. Sartre takes up a

related interpretation in his infamous identification: hell is the other. Against the violence of the Sartrean look, Levinas sees the defencelessness of the other in the unguarded eyes, a powerlessness that nevertheless commands in the ethical injunction: Thou shall not kill. Levinas rejects the identification of death as the master in Kojève's Heideggerian-Marxist Hegelianism. Contrary to the dialectic of master and slave and its violence, there is a pacific relation to the other that Levinas stresses as underlying the entire economy of labour and dwelling. This relates to the feminine. The grace of the feminine founds the home and the dwelling, out of which the labouring self is articulated, and with this the entire realm of economical, political and historical being. Things are conceived differently at the origins. These origins are not identicalwith the fullness of the ethical relation but they are consistent with it in a way that the dialectic of master and slave is not.

Kojève's Marxist Hegelianism also expresses a philosophy of history which culminates in the modern state as the earthly embodiment of the absolute. The world-historical universal sacrifices the intimate singularity of the self as person to the Moloch of the state. As worldhistorical universals, the state and history are ultimately idolatrous absolutes. Hegelian philosophy, like Heideggerian ontology, is seen by Levinas as an ontology of power which always is tempted to relate to the other by murder. The class struggle historically concretizes the master/slave dialectic. The course of history is war, the goal of history a homogeneous state in which otherness, the dissident other is suppressed in a universal sameness. Though this is abhorrent to Levinas, he is still concerned with labour, property, possession, reminding us of Marcel's concerns with being and having.

Levinas's repeated references to the philosophies of existence are guarded. He shares much with some existentialists, Kierkegaard for instance, in defending the singularity, the ipseity of the human self. Levinas's phenomenological background and its pretence that philosophy must be rigorous, indeed scientific, makes him uneasy with the so-called 'irrationalism' of the existentialists. He distances himself from a philosophy that is merely a protestation against the impersonal reason of the idealists and rationalists. He wants to defend a different sense of reason against individualistic irrationalism. This sense of reason will defend the ethical community of the same and the other. Though Levinas shuns the way of solitary genius, his sense of singularity aligns him with what is best in the philosophies of existence. This is an emphasis on what I called the intimacy of being with respect to Marcel. I find strong echoes of Marcel in some of the themes Levinas dwells on: the family, paternity, filiality, the home, enjoyment.

There is a groundswell of influence from Levinas's Jewishness. It is indicated very explicitly in his admiring reference to Rosenzweig's *The Star of Redemption*. Rosenzweig was initially a Hegelian who had written on Hegel's doctrine of the state. Then he had an astonishing quick conversion—reversion really—to Judaism, out of which *The Star of Redemption* sprung. This book is considered one of the landmarks of modern Jewish thought. Against the lure of Hegelian totality, a metaphysics of creation, as well as an affirmation of singularity as recalcitrant to inclusion in totality, is pursued. Though in *Totality and Infinity* Levinas says he is working in a purely philosophical vein, the distinctiveness of his philosophical voice owes much to the subterranean fermenting of the Jewish heritage.

In contrast to not a few poststructuralist thinkers, Levinas's philosophy has always exhibited a spiritual seriousness that refuses to playact with the matter itself. The return of sacred otherness in Levinas reminds us of Shestov's contrast of Athens and Jerusalem. Shestov is unjustly neglected today but he is a profound, radical thinker of the limits of philosophy in relation to religion as an other, and with a sense of the tradition of speculative metaphysics in some ways more profound than Levinas's.

With Heidegger and many post-structuralists, Levinas tends to totalize the tradition of philosophy. *All* philosophy is said to be only an imperialism of identity or the same. Levinas speaks of philosophy as allergic to otherness, an allergy that reaches its culmination in Hegel. This is surely not true of the philosophical tradition as a whole. This fact is revealed by Levinas's retraction: there is some philosophical acknowledgement of the other, as in Plato's doctrine of the Good beyond being.

The strategy is: totalize the tradition as imperialism of the same; suggest a different thinking of the other that is without precedent; then smuggle back ideas that in some form are found in the tradition; finally, acknowledge instances of such ideas in the tradition. Of course, most readers will have forgotten the first step by the time they reach the last. In fact, the total claim made in the first step is now effectively abolished. Why not acknowledge the last step *at the start*? But one cannot if one wants to claim to 'overcome the tradition'. That claim would be dissolved; suspicion would be cast on the hermeneutics of suspicion. To take the last step first would require a hermeneutics of generosity and perhaps also a different interpretation of the philosophical tradition.

Levinas is not to be confused with Derrida and Heidegger. He is very critical of Heidegger, and his writings evidence a spiritual seriousness that is lacking in Derrida. He mixes suspicion and generosity towards the philosophical tradition in his distinction between what he calls 'ontology' and 'metaphysics'. Ontology marks a philosophy of being that always ends up reducing the other to the same. Ontology is a philosophy of the neuter which cannot do justice to the other, and especially the other as ethical. It is built upon the logic of a movement from the same to the other which is always for the same, and always returning to the same. One is reminded of that strand of the tradition that privileges the movement of thought thinking itself.

By metaphysics Levinas implies a movement of thought that exceeds totality, most especially in the surplus to thought of the idea of infinity and the face-to-face relation of the ethical. Metaphysical thought goes from the same to the other, but not in order to return to the self. This metaphysical movement of mind has always been a philosophical possibility, evidenced in Levinas's own citation of Plato'sGood. Beyond thought thinking itself, thought thinks what is other to thought.

Levinas shows a tendency to identify the assumptions and analyses of Cartesian and transcendental idealism with the essential possibilities of philosophy. Relative to the Cartesian heritage, the *cogito* is privileged as the origin of all rigorously grounded philosophizing. Even Sartre's Cartesianism shows this: the availability of consciousness to itself seems to augur for a mode of philosophizing that is rigorously in possession of its own procedures and contents, for none of its thoughts escape its own immanence, and hence its own certainty and certification. Levinas differently underscores the Cartesian notion of infinitude to find a renewed pathway to the other beyond all mastering thought. Obviously phenomenology offers a more embracing sense of philosophizing than

classical Cartesianism, but their basic presuppositions overlap significantly: immanence to consciousness is fundamental to phenomenology. This is just how the 'phenomenon' of phenomenology is defined: not as the *Sache* as given in itself, but as given to and for consciousness. Nevertheless, starting with many of phenomenology's presuppositions and methodical strategies, Levinas ends up with conclusions that produce the subversion of phenomenological immanence, as well as classical versions of idealism.

Consider an important example: the discussion of representation in *Totality and Infinity*. Long passages are expository of an essentially Husserlian version of representation: representation is representability to consciousness; the immanence of the other is objectified as a representation for the same. This notion of representation has also been attacked by Heidegger, Derrida, Foucault and others. But to take this as *the* analysis of representation is questionable. We are offered analyses of representation and intelligibility which seem to cover the whole field, but do not at all. An account could be given which does not coincide with Husserl's view. Levinas himself goes on to do this, by claiming that there is an uprooted quality to the Husserlian analysis which privileges the theoretical consciousness. Turning to the phenomenon of enjoyment, Levinas finds a more primordial stratum in the genesis of representation that undercuts the analysis of the uprooted version. The 'intentionality' of enjoyment does not privilege self-constituting, or the primacy of the same over the other, as representation allegedly does.

One need not quarrel with this second aim. But Levinas sets up his account as undercutting the philosophical primacy of representation and intelligibility. In fact he is essentially criticizing representation and intelligibility as defined by Husserl's transcendental method. One could give an account of representation in which the privilege of the other over the self is primarily stressed. Instead of representation simply being a commandeering of the other to appear before the self as the self would dictate for itself, it might be an openness to the other in which the truth of the representation is a submission to heterogeneity, a humility before the other which the representation tries to approximate and respect.

Consider: if you ask me to represent you at a meeting, and if I truly want to represent you, I must subordinate my views to you and yours; I as representative must speak for you, the other; I cannot make you, the other, speak for me and yet honestly claim that I am representing you, the other. I am for you, as your representative. Representing is hence being-for-the-other in which the self subordinates the for-self of its own egoism to the truth of the other as it is for the other. This is exactly the opposite of the 'essence' to which Levinas reduces representation. Husserlian phenomenology is one philosophy; it is not philosophy, not the essence of philosophy. Nor is it the touchstone of all comparisons. Indeed its account is not true to the truth of representation as just indicated: a standing for the truth of the other as other.

I dwell on this example, for the standard moves of many poststructuralist thinkers, Derrida included, are already contained in Levinas's account of representation. But all philosophical discourse becomes skewed if Husserlian transcendentalism becomes *the* standard of philosophy against which other views are to be pitted. There is a certain historical, hermeneutical myopia here. When Marcel or Jaspers criticizes idealism, we do not find any tendency to hermeneutical special pleading. They do not totalize philosophy and its traditions. They are more judicious. Yet they too want to get beyond thought

thinking itself to thought thinking what is other to thought.

It is impossible to separate Levinas's philosophy of the other from his sense of infinity and hence the idea of the divine other. Instead of conceiving the world as a fall or an emanation from the One, or a projection of constitutive subjectivity, Levinas's rethinking of the idea of infinity points towards a renewal of the metaphysics of creation. Metaphysics here again means a mode of thinking that is for the other as other, not simply for the same. Creation names the radically originative act by which the singular creature comes into being for itself, and is given its finite being for itself. The Creator absolves His creation from the Creator to let be the other as finite in its given freedom. In that sense, God is the ultimate other that is the giver of all otherness, including the radical otherness that is let be for itself, and in no way coerced into a return that would subordinate a part to an engulfing whole.

The strategic ambiguity here is that Levinas describes the for-self as atheist. On initial reading one might be inclined to think that Levinas espouses atheism. As I understand him, he is saying that the being of finitude as given in creation is atheist; it is a-theist in the most literal sense that it is not-God. God does not create Himself in creating the world, as Hegel and Spinoza might claim. God's creation is the giving of what is radically other to God, radically not-God; and this 'not' is the measure of an incommensurability between the Creator and the created being. This incommensurability is not a merely negative or lamentable disproportion; the 'not' of a-theism is the very space of transcendence in which the freedom of the creature can be enacted and called forth. The atheism of the self is the promise of its possible being-for-itself, and in its being-for-self its possible free relation across an irreducible difference to the divine source itself. Atheist being is then the product of divine generosity; atheism is the precondition of a different relativity between the human and divine which absolves the relata of complicity in relations of domination and violation.

Is there a little disingenuousness here? *Totality and Infinity* was written at a time when atheistic existentialism and Marxism were in their heyday. For well over a century and a half, the spiritual ethos of Europe has been dominated by a *de rigueur* atheism, as is nowhere more evident than in the popularizing of Sartrean existentialism. Levinas is a crafty writer in that he incorporates the truth of atheism within a project that aims to renew the metaphysical affirmation of God as transcendent. In the ambiguous creation, the human being as for-itself is atheist being; but atheist being can know its real otherness to ultimate transcendence and hence out of its atheist being turn towards the other, not as a part returns to its whole, not as an instance subordinates itself to its general, but as a free centre of ethical existence wills to enact the good of the Creator, the good of the creature and neighbour. This ethical affirmation stands sentinel against descent into the anonymous powers of demonic universality, the world-historical universal, whether idolized in Marxist or in Nazi form. In the latter we become agents, instruments of the anonymous universal, and all the more vile when we become judges and executioners of those who will not bow the knee before our murderously exacting idol. This is the malice of atheist being, which does not receive the expression or consideration in *Totality and Infinity* that it should.

Levinas's emphasis on infinity invokes a tale that spans the history of speculative metaphysics, from the pre-Socratics to our own time. Levinas exploits the Cartesian idea

of infinity in a direction that I suspect would have astonished Descartes himself. Pascal was correct and saw right through Descartes when he said: 'I cannot forgive Descartes; in his whole philosophy he would like to do without God; but he could not help allowing him a flick of his fingers to set the world in motion; after that he had no more use for God.' Levinas, who often cites Pascal with approval, seems hardly to suspect the possible godlessness of Cartesianism.

There is also a strange approval of Cartesian doctrines of sensibility, praised because sensibility is held to be essentially other to thought and the concept. Kant is here praised on the same score for insisting on a heterogeneity between sensibility and understanding. One sees the point. The continuity of sensibility and thought, whether in Leibniz or in Hegel, is to be ruptured in defence of a heterogeneity not subsumable under the rational concept. But there is a sense in which such a thing as Cartesian sensibility hardly exists. There is a sensible body in Descartes but it is not the body of flesh; it is not the bodied self; it is the shape of the *res extensa* that in itself is lifeless. How can this lifeless *res extensa* enjoy life, since it is already a dead body? And from where could a Cartesian *res extensa* get a face? The *res extensa* has no face. The Cartesian body is like the featureless wax of Descartes' own example, entirely faceless, except for its automated mechanical movements. But human flesh has a face—just what Levinas wants to uphold.

In another place the Cartesian order is said to be prior to the Socratic order relative to teaching. But again what can the *res cogitans* teach to an other, or be taught itself? What is it taught by the idea of infinity? That God exists. But this is about all that is taught. Descartes is entirely lacking in the passion of religious inwardness that we find, for instance, in Augustine, Pascal and Kierkegaard. In fact, for Descartes the self and God are the two things most easily known, and once Descartes has placed them as foundational concepts to certify rational knowing methodologically, he gets down to the real business at hand: mathematicized science of nature. This Cartesian order of objective *mathesis* proves all but oblivious of the inward otherness of the self and the superior otherness of the divine transcendence. These become methodological means to an end, not enigmatic, mysterious realities that tax all thinking to the utmost, indeed defeat all its claims to the conceptual mastery, such as Descartes ardently pursued.

How superior here is the Socratic dialogue wherein the promise of openness to the other is inscribed from the outset. Levinas has nothing to say about dialogue as already articulating a concept of the soul that in its being is essentially relational; thought is never *kath' auto* in a manner that excludes relativity; for such a *kath' auto* would exclude the possibility of the face-to-face. Socratic dialogue is philosophical speech face-to-face. There is an implied Socratic sense of bodied speech—speech in the sight and in the hearing, and indeed within the touch of the other. Speech in a Socratic dialogue is as much a self saying as a something said.

Levinas's theme of the face-to-face must be noted here. This is his distinctive contribution to the discussion of 'intersubjectivity'. German idealism and phenomenology bequeathed the problem of the other: starting with subjectivity how do we genuinely constitute relatedness to the other as other? Is the other merely the means by which I recognize myself and return to myself? Is the other, seen from the primacy of the subject, just the mirror in which the self sees essentially itself, hence no radical otherness can ever be defended? As an heir of phenomenology and not German idealism,

Levinas confronts phenomenology's same starting point in the subject. Levinas too starts with the self, in that earlier parts of *Totality and Infinity* are predominantly devoted to showing us a sufficiently strong sense of the *separation* of the self for itself. The self for itself is an irreducible ipseity that cannot be subsumed into an impersonal reason, or made the instance of an abstract universal. And yet this for-self in its radical separateness is not a transcendental ego. It is invested with the concreteness of the existing I in its primordial enjoyment of being.

How then is the problem of the *inter,* the 'between', tackled? The self expresses itself and enters into discourse and language. Expression for Levinas is such that the speaking subject always attends his or her expression. He or she does not abandon expression but attends it as willing to justify it, or indeed justify himself or herself, that is to say, apologize. To apologize does not here mean to ask pardon simply; it implies one standing there for oneself and owning up in expression to what one is or does. An apology, like Socrates', is a self-justification; the justice of the self in its personal particularity is at stake. But one apologizes always *before the other*. One attends one's expression in the sight of an other. Hence expression and the apologetic attending of expression by the self is an entry into social relatedness, is the social relation.

This entry of justification, justice, apology, attention of self before the sight of the other, comes to expression in the face-to-face. I encounter the face of the other and the other looks on me, not like Sartre's other that would petrify me and reduce the freedom of interiority to an objectified thing. The face of the other calls me to justification, to justice. The face presents itself with a nudity and destitution that is beyond all conceptualization. The face cannot be totalized, for the infinite comes to epiphany there. I cannot conceptually determine the face of the other; the eyes of the other look at me with an unguarded vulnerability, and call me to a response that is beyond power. This unguarded vulnerability of the eye of the other is radically opposite to Sartre's look. If looks could kill, Sartre's subject would be a mass murderer. In Levinas's case, the look offers itself as the other offering itself in unguarded frankness; in that look there appears the command 'Thou shalt not kill'.

The ethical is not an instrumental contract that the self of will to power, be it Nietzschean or Sartrean or Hobbesian, makes to defend itself against the other and to launch its self-aggrandizing onslaught on the freedom of the other. The unguarded face is beyond all instrumentality and beyond all finality in the sense that it does not constitute a determinate purpose or *telos* that could be conclusively comprehended and mastered or encompassed. Something overflows in the face of the other that is infinite, and this infinite is the command of goodness. The overflow of infinity into the between, the *inter,* calls the subject in its separateness to a relatedness with the other that does not compromise separateness, since the very between is an ethical respect of justice between the self and other.

Levinas finds the face absolutely irreducible, primordial. One cannot break it down into more basic constituents; it is elemental, though not in Levinas's sense. It cannot be contained within the economy of classical subjectivity, whether idealistic or transcendental/ phenomenological. These latter finally give hegemony to the same over the other. While Levinas defends the separateness of the subject, the face-to-face and the overflowing of the other's infinitude reverse the hegemony of autonomy. There is a

heteronomy more ultimate than autonomy. The self is for the other; and the other comes from a dimension of height, even when the other is the abject self, the poor, the widow, the orphan.

Levinas intends to transcend the master/slave dialectic, but there are occasions where the other is referred to as the master, and where the asymmetry between the same and the other seems to skirt dangerously another form of the master/slave relation. We find a peculiar mixture of elements: the radical separateness of the subject, who is not really separate, since he or she puts himself or herself in the between by his or her expression; the subject who in the between encounters the face of the other who commands against murder in the nakedness of the vulnerable eye; the separate self whose ineluctable destiny seems social. How then is the other radically other and the self still irreducibly separate? For it is their co-implication and infinite responsibility that seem the most important things. Is this no more than a verbal problem? Levinas defends the irreducibility of the self in its personal singularity, and yet against Enlightenment modernity he reinstates a heteronomous ethics, where the justice of the other, assumed in infinite responsibility, is absolutely central.

Eros is important for Levinas in breaking out of monadism and the 'egocentric predicament'. This is linked with his stress on fecundity. One is reminded of the speech of Socrates/Diotima concerning *eros* as generating on the good/beautiful. *Eros* generates beyond itself on the beautiful/good. This is a somewhat strange saying. I take it to mean that the highest point of *eros* is not, in fact, erotic in the sense of yielding just a completion of a lack in the self, and hence a culminating self-satisfaction in a final self-relatedness. *Eros* seems to start in lack and in final satisfaction makes the erotic being self-sufficient again by overcoming the lack. But this is not enough. Rather, the self generates beyond itself on the good. There is a transcendence of self that goes beyond the most embracing self-sufficiency and self-relativity.

Fecundity is the self generating beyond itself. I would prefer to call it the promise of *agape* rather than *eros,* in that it does not fill a lack of satisfaction but goes beyond self in an overflowing of being that is already full, overfull. As already full in itself the self agapeically goes towards the other as other; in this case goes towards the child as an other who is not yet known as a this, and who is the promise of the future, a continuation and a rupture, a relativity and a radical separateness at once.

It is noticeable here that Levinas emphasizes the father/son relation, rather than the relation of father/daughter, or mother/son. Paternity and filiality become the means of expressing the fecundity, the infinitude of time in its generative power. The feminine reduces to a certain equivocal form of being. There is ambiguity in the relation of the father and son: I the father am the son; I the father am not at all the son.

Levinas makes much of the infinity of time against what he seems to see as the jealous self-enclosure of eternity. It seems as if the fecundity of infinite time will pardon all. I think this will not do relative to the singularity and sociality Levinas wants to emphasize. Time, even infinite time, will not radically pardon radical evil. Later generations cannot provide justification for the radical evils visited upon present generations. Levinas does not want to instrumentalize present evil. But is infinite time enough to prevent time from being swept up into the instrumental justification of world history? It can only be from an entirely different dimension that the pardon for radical evil can come. This would be

eternity in another sense to the one that Levinas plays with, namely, the catatonic absolute identity that knows no relativity to otherness. Levinas's reference to messianic time at the end of *Totality and Infinity* indicates that the work is a truncated book; its real import lies elsewhere.

For all the talk about the frankness of the face, and the person attending his expression, Levinas is perhaps a dissimulating writer. The entirety of *Totality and Infinity* points beyond itself to God, but God is foxily talked about throughout the entire book. One is reminded of the equivocation of discourse imputed to some Jewish thinkers, Spinoza for instance, or Derrida for that matter. In the present case, one speaks the language of atheism, while being a theist behind it all. Today the metaphysicians and theologians have to hide themselves from the inquisition of the atheist, while for the main part of recorded intellectual history it was the atheist who had to go in hiding in fear of the inquisition of the believer.

In Levinas's later work the sense of responsibility for the other is accentuated further. The claim that ethics is first philosophy is developed more fully. The central essay of *Otherwise than Being or Beyond Essence* is titled 'Substitution'. Here Levinas develops the idea of an anarchic subjectivity that is prior to all thematization. One is reminded of Sartre's non-positional consciousness, except that in Levinas's case the sense of being summoned by the other is to the fore; the self prior to the ego is marked by an obsession with the other. Levinas ties this with being a creature in which the trace of the absolute other is in passage.

'Substitution' is a bold and provocative meditation, brilliant and profound in many respects. I cannot do justice here either to its claims or to the questions it provokes. Levinas does claim that prior even to the absolute priority claimed for the transcendental ego, the call of the other in an infinite responsibility is at work. The concept of 'substitution' refers to the manner in which this anarchic self is a hostage for the other. It is in the place of the other; this power to be in the place of the other is the ground of all other acts of solidarity or sociality. The self is a subject in *being subject* to the other in infinite responsibility.

Levinas likes to quote Dostoevsky's Alyosha Karamazov: 'We are all responsible for everyone else—but I am more responsible than all the others.' This is a claim of hyperbolic responsibility, and some would criticize it as such. It may even ironically suggest an ethical hubris in which I place myself in the role of the absolute, substitute myself for God. Only God could be responsible thus, no mortal creature could. Yet Levinas wants to insist, and insist is the word, that human creatures are disturbed by this call of infinite responsibility. There are ambiguities here too complex to unravel in the space allotted. For substitution is a divine responsibility, substitution even to the point of death and sacrifice. Levinas is often presented as without precedents, and his singular style helps to foster this impression. But I cannot but remind the reader of the emphasis on testimony, witness and sacrifice in Marcel. Read in a certain way, Marcel's Catholicism and Levinas's Judaism generate some very deep affinities.

Levinas sets himself against transcendental phenomenology here and its regress to grounding in originary selfhood. He emphasizes the passivity, the patience to the other of the pre-synthetic self. Yet his mode of thinking, like transcendental philosophy generally, is regressive, a matter of what both call 'reduction'. Is there not after all a strange

'transcendentalism' in this? A transcendentalism of passivity rather than activity, or rather of patience to the other prior to both activity and passivity? This would be prior to the a priori of transcendental idealism. Substitution would be the condition of the possibility of all meaning, linguistic, cognitive, pragmatic as well as ethical. Ethics as first philosophy would then be a transcendental philosophy, though since it does not deal with the transcendental ego as the ultimate originary presence, it might be called an *atranscendental ethics* or a *negative transcendentalism,* on the analogy of negative theology.

Many of Levinas's ways of saying are strongly reminiscent of negative theology: It is not this, not that…; it is as if it were, as though…it is neither this, nor that…. There is a sense in which we here have to make a *leap* beyond phenomenology. There are times when that leap could be made more intelligible for the reader if Levinas provided some phenomenological examples from human relations, for instance in the telling way Marcel appeals to the examples from his own dramatic works to suggest imaginatively the non-objectifiable.

There is generally a tendency to *dualistic* thinking in Levinas, for example, ontology versus metaphysics, being versus the good. This tendency can lead to significant equivocity. I will conclude with a relevant example and question. In 'Substitution' Levinas unrelentingly stresses the irreplaceability of the self that is summoned in ethical responsibility. But how can the irreplaceable be substituted? There cannot be a replacement for the non-substitutable, nor a substitute for the irreplaceable. The concept of hostage carried the idea of *equivalence:* one for the other, a tooth for a tooth. But the concept of equivalence is impossible without the idea of identity, and Levinas's whole discourse of the irreplaceable claims to be prior to the idea of identity and its cognate concepts like equivalence.

This is a logical problem with substitution, but it points to a tension that is not merely logical. If we privilege the irreplaceable, there must be a limit to human substitution; by contrast, if we privilege substitution, we compromise the absolute singularity of the irreplaceable. How then can we affirm substitution and the irreplaceable both together? Put this way: Job's second set of children seem to be replacements for the first dead children, they seem to be substitutes. But the whole thrust of Levinas's thought must be that there can be no replacement for the first irreplaceable children; there are no human substitutes.

Do we reach the limit of human substitution? And a limit of the fecundity of infinite time? Is there such a thing as divine substitution which would radically transfigure the notion of selfhood as irreplaceable? Do we need the idea of re-creation, the idea of a new creation to deal with the irreplaceability of the first creation, relative to the horrors we have heaped on it and its seemingly senseless death?

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CHAPTER 6
Philosophies of science

Mach, Duhem, Bachelard

Babette E.Babich

THE TRADITION OF CONTINENTAL PHILOSOPHY OF SCIENCE

If the philosophy of science is not typically represented as a 'continental' discipline it is nevertheless historically rooted in the tradition of continental thought. The different approaches to the philosophy of science apparent in the writings of Ernst Mach, Pierre Duhem and Gaston Bachelard suggest the range of these roots. But for a discussion of the tradition of continental philosophy of science—as the term 'continental' characterizes a contemporary style of philosophic thinking—it is important to emphasize that while Mach, Duhem and Bachelard may be said to be *historically* continental, a properly continental-style philosophy of science should not be ascribed to any one of them. Contemporary philosophy of science is pursued in what is largely an analytic or Anglo-American-style philosophic tradition. And Mach, Duhem and Bachelard made the formative contributions for which they are known in the philosophy of science within this same almost quintessentially analytic framework.[1]

Nevertheless, this very necessary historical precision is itself witness to a changing circumstance in mainline philosophy of science. Although continental philosophy has been marginalized in professional philosophy in general, and where this marginalization has perhaps been greatest within the philosophy of science, the very centre would seem to have shifted. In past years, traditional philosophers of science have begun to broaden their analytic conception of the philosophy of science to include approaches compatible with or even drawn from continental styles of philosophy. Such approaches reflect the philosophical reflections on science expressed from the tradition of important individual continental thinkers such as Edmund Husserl (Gethmann, Heelan, Orth, Rang, Seebohm, etc.) and Martin Heidegger (Gadamer, Heelan, Kisiel, Kockelmans), Habermas and Foucault (Radder, Rouse, Gutting), and even Friedrich Nietzsche (Babich, Maurer, Spiekermann). In this context, the philosophical reflections on science to be found in Mach, Duhem and Bachelard may be mined for what should prove to be a productive historical foundation between these two traditions addressed to a common focus. Exemplifying such a common focus, the philosophy of science is not inherently or essentially analytic if it is also not obviously continental.

The question of stylistic conjunction between continental and analytic philosophic perspectives is complicated and, before it can be addressed, one further preliminary clarification is necessary. Because of the possibility of geographic confusion, it must be emphasized that the rubric 'continental' in the context of the philosophy of science does

not pertain to the geographic locus of the European continent except historically and circumstantially. Despite German and French scholars interested in specifically continental approaches to the philosophy of science in contemporary European philosophy, the character of the philosophy of science is decidedly analytic. It is telling and to the point in this last connection that Wolfgang Stegmüller, familiar as he was with traditional philosophy including phenomenological approaches, could find the appeal of analytic philosophy for a formalist and foundationalist interest in scientific theories so inspiring that he devoted his own life to its dissemination and through his influence analytic styles of philosophic thought consequently assumed their current leading role in German philosophy of science. In turn, this means that continental philosophy (and philosophy of science) remains as professionally marginal on the 'continent' as in English-speaking scholarly domains.

But if not defined as the dominant tradition in philosophy and if not a matter of geographic reference, continental philosophy (especially with respect to philosophic reflection on science) is also a multifarious tradition and not a single style or school. Just as Rom Harré could speak of 'philosophies' of science,[2] it is best to speak of 'continental philosophies' and hence of 'continental philosophies of science'. Not necessarily linked by 'family resemblances'—for example, Husserlian-influenced thinking bears almost no resemblance to Habermasian or Foucauldian social, critical theory—what is called 'continental philosophy' comprises several conceptual traditions and reflects a manifold of differing styles of philosophy with cross-disciplinary influences and applications. But one general characteristic might be said to be a strong historical sensibility. This sensibility distinguishes continental philosophic styles from analytic (progress-oriented and often expressly ahistoricist and sometimes expressly anti-historical) styles of philosophy. A critically reflective historical sensibility in addition to an explicit reference to lived experience—the *life-world* of Husserlian and Diltheyan usage—indicates some of the major advantages to be brought by continental styles of philosophy to the broader and general philosophic project of reflection on science.

It is this historical dimension and reference to life (practice, experience, etc.) that makes continental styles of philosophy so important for the philosophy of science today. Since the radical critique of the received, analytic style of modern philosophy of science through the writings of N.R.Hanson and the work of Thomas Kuhn and Paul Feyerabend, contemporary philosophy of science has been increasingly transformed by an intensified and today decisive sensitivity to the importance of historical and sociological studies of actual scientific practice. The turn to history so characteristic of Mach's as of Duhem's philosophic writing on science, witnessed by their valuable contributions to the history of science, and implicit in Bachelard's reading of the culture of science, has come to be recognized as an irreducible component of the philosophy of science. In the same way, the resources of continental philosophy with a tradition of reflection on history seem increasingly essential to the practice of the philosophy of science beyond stylistic differences.

As *fons et origo,* the shared destiny and origin of continental philosophy and analytic philosophy is evident in a recent trend reviewing the connection between Husserl and Frege (Hill, Wiener, Cobb-Stevens, Dummett), suggesting that Husserlian-style philosophies of science may go furthest towards bridging the stylistic gap between

analytic and continental philosophy. Likewise it is significant that the philosophy of technology, related to the philosophy of science because of its importance for reflection on experimental science, not only features continental practioners (Ellul, Ihde, Jonas, Schirmacher, Winner, Zimmerman) but is in its rigorously philosophic aspect a direct resultant of this same tradition (drawing as it does on the work of Heidegger but also Ricoeur and Gadamer).

Although Mach's (as indeed Duhem's) positivist successors were ultimately to disregard his concern with history in their focus on the formal analysis and logical reconstruction which characterizes the hypothetico-deductive account of theory formation and justification and which in its most developed form came to be known as the 'received view', recent reviews of Mach seek to examine his philosophy of science in terms germane to its own reflective scientific constellation and philosophical project (Feyerabend, Haller) rather than merely in terms of its influence on the logical empiricist tradition of the philosophy of science (beginning with Frank). Thus a reassessment of Mach's philosophy of science stresses his historical interests, while Feyerabend emphasizes aspects in his work which anticipate the insights of Hanson and Kuhn (as well as Michael Polanyi who is, according to Alasdair MacIntyre, significantly underacknowledged in this connection)[3] in Mach's sensitivity to the element of finesse (or in Polanyi's language: 'tacit knowledge'). Discussion of the role of tacit knowledge or finesse represents the researcher's 'art', an an which, if we follow Mach's words, is *unteachable* in the sense of being inherently unamenable to the programmatic Baconian project and which project, conversely for its part, was held by Bacon to have its singular advantage in being manageable by underlabourers—that is, by technicians literally, as Bacon has it: without 'wit'. For Mach, precisely such a programmatization (automatization, industrialization) is not desirable even if it were possible. We may note that the actuality of what Derek de Solla Price called 'big science' has long demonstrated that such 'programmatization' is possible and Hugh Redner details the same in his study of giant, industrial-sized science.[4] Against the artless routinization of science, Mach held that an unteachable 'art' must be indispensable for the practice of experimental science because, in Mach's conception of scientific inquiry, it is the *sine qua non* of invention and discovery.

A turn to history and the role of the experimenter's art is not the only parallel resonance between continental philosophies of science and traditional analytic approaches: there are others. Despite stylistic differences, analytic and continental styles of philosophy share a common future as complementary approaches to the philosophy of science where both disciplinary styles can enhance one another. But what is inevitably more important than the prospects of such stylistic reconciliation on a scholarly level, it now seems eminently clear that the philosophy of science cannot be conducted from an analytic perspective uninformed by the hermeneutic turn or, as analysts prefer to speak of it: the *interpretive* turn (Hiley *et al*). In concert with the phenomenological turn (to the things themselves), the interpretive, hermeneutic turn represents the foundation of continental thought. And it goes without saying, or calling it hermeneutics, that the interpretive turn is a turn of thought in which, like the historical turn, the reflective advantage of continental philosophy comes to the fore.

In both existing and possible expressions, continental philosophy of science includes

approaches drawn from the larger tradition of phenomenology (as found in the works expressed by Hegel, Husserl, Heidegger, Merleau-Ponty) as well as hermeneutics (beginning with some say Vico, but certainly with Schleiermacher and Dilthey, and also Heidegger, Gadamer, Betti, Gramsci, Ricoeur). Continental philosophy also reflects the influence of structuralism in linguistics, semiotics, and literary criticism and psychology, as well as the Heidegger-inspired *Daseinsanalyse* and existential psychoanalysis (Piaget, Binswanger, Boss, Fromm, Merleau-Ponty, Sartre and Lacan). Related philosophic styles of deconstruction and recent postmodern conceptions of philosophy (Foucault, Derrida, Lyotard, Baudrillard) have had a decisive influence on late twentieth-century philosophic reflection on science in line with the hermeneutic perspective (Heelan, Kockelmans, Kisiel, Hacking, Böhme, Gadamer, Bubner). With specific reference to the philosophy of the social sciences, particularly representing the Frankfurt school, which often incorporates analytic-style distinctions in its focus on language and discourse (Habermas, Apel, Tugendhat), characteristically 'continental' influences are traced in a variety of lineages to Hegel or Schleiermacher, Marx or Feuerbach (Althusser, Bhaskar, LeCourt) and Kierkegaard or Dilthey, Heidegger, Weber, Simmel.

As representatives of nineteenth- and early twentieth-century empiricism and positivism, the particular names Ernst Mach (1838–1916), Pierre Duhem (1861–1916) and Gaston Bachelard (1884–1962) have of course and as already noted much more than a merely historical significance. In analytic philosophy of science, an ongoing tradition of reinterpretations of their work continues to influence the current linguistic or theoretical crisis in analytic philosophy and semiotics/semantics of scientific theory (Duhem not only as represented by W.V.O.Quine but also Stanley Jaki) as well as, on the other hand, the current emphasis on experiment representing the counter-absolutist turn to the history (and historiography) and practice of science in the philosophy of science (specifically Mach, as represented by Feyerabend and others, and Bachelard—and in routine conjunction with analyses of Michel Foucault—for Bruno Latour, Ian Hacking, Mary Tiles, Gary Gutting).

MACH AND THE POSITIVIST CONNECTION: FROM ELEMENTS TO PHENOMENOLOGY

Ernst Mach was born in 1838 at Turas, formerly in Moravia—a region to be found in Bohemia, Silesia, and lower Austria which later was to become part of the modern republic of Czechoslovakia and is now part of the Czech republic. He studied in Vienna, teaching physics there in 1861, becoming professor at Graz in 1864, then at Prague in 1867, finally at Vienna in 1895. In 1901, upon his appointment to the upper house of the Austrian Parliament, Mach gave up his Vienna chair in the history and theory of inductive science. He spent the last three years of his life living with his son, Ludwig Mach and died in 1916 at Haar, near Munich.

At the risk of inviting distracting historical confusion, the above listing of the details of the historical name-changes concerning Mach's original nationality and the proper name or country of his birthplace—where names such as Moravia, Bohemia, Silesia, Lower Austria or, indeed, Czechoslovakia do not *currently* denominate legitimate nations within

today's Europe—dramatizes the fortunes of the Austro-Hungarian empire and eastern Europe as well as the philosophy of science conceived within the broad European tradition of natural philosophy. Although this is also given as Galileo's achievement in historical accounts of science, it is usually claimed that the tradition of natural philosophy was transformed by Newton himself into modern physical science. But this is only to say that the practice of science (*natural* science) came to be regarded as identical to the practice of the more speculative and often explicitly metaphysical tradition known as natural philosophy, and, conversely, that the practice of natural science was identified with natural philosophy. By the turn of the century, the project of the philosophy of nature was identified with the project of natural science. In Mach's day and well before, then, philosophy (including the philosophy of science or natural philosophy) was not thought to be necessarily separate and distinct from (understood as a business of reflection, interpretive or speculative, either subsequent to or independent of) the physical or natural sciences in both theoretical and experimental manifestations as Duhem and more recently Jardine and Crombie have shown. As Kurt Hübner has it, 'theory of science coming into prominence at the turn of the century was still closely tied to the study of the history of science. Names like Mach, Poincaré, La Roy and especially Duhem clearly bear witness to this. However this development ceased to follow the path opened up for it by these men.'[5] Here we may add that the divisions between philosophy and science and between philosophy of science and other kinds of philosophy were not always the same. Thus the debate between Hobbes (a speculative philosopher not merely a theoretician) and Boyle (an experimentalist not merely a physical scientist) or Berkeley and Newton were not regarded by either the participants or their contemporaries as taking place across, let alone mixing, categories (of philosophical speculation or hypothesis and scientific experiment and theory). For Mach and Duhem, the importance of philosophic reflection was to be evaluated with respect to its contribution to the progress of science. Thus retaining a defining reference to and even identification with *natural* science (as) *natural* philosophy, *philosophia naturalis* acquired the methodological, historical and epistemological profile of what would later become modern philosophy of science. Around the turn of the century, as practised by Henri Poincaré and by Duhem, philosophy of science bore the name *critique des sciences* and this same science-critical emphasis (that is, philosophical critique expressed for the sake of scientific advance or progress) is echoed in Mach's empirio-criticism. Under the influence of Wittgenstein, Carnap and Schlick, Hempel's mature expression of the 'received view' of the philosophy of science or the hypothetico-deductive expression of professional analytic-style philosophy of science represents a decisive and increasingly bankrupt departure from this late nineteenth-century tradition of *critique des sciences* with its particular and explicit reference to science in practice.

Almost from its inception then, the analytic tradition of the philosophy of science lacked any reference to the historical 'fortunes' or 'scenes' of actual scientific inquiry (Jardine). If the 'new science' of the seventeenth century had involved a transformative turn (whether revolutionary and world-shattering as Koyré maintains or evolutionary and therefore less radical a transformation as Duhem and Crombie would argue) to experiment, analytic philosophy of science has so far found itself less able to complete the same turn. If the difference is between, as the Galileo experts have it, Platonic

(formal) speculation and Aristotelian mathematical (functional) science, philosophers of science have tended towards Platonism. The turn away from history characteristic of logical positivism was only an expression of this idealizing, analytic tendency.

Although Mach in particular was especially devoted to experiment and its context in the history of science, many analytic authors nevertheless hold Mach to have been responsible for the divorce of traditional philosophical (metaphysical) concerns from the historical sensibility of the application of philosophic reflection to scientific practice. This is a misprision of a devastating kind but it was a constitutive one: seminal for the professional development of analytic-style philosophy of science.[6] The separation between philosophic expression and the lived world characteristic not only of logical positivism but of the division between continental and analytic styles of philosophy is no accident of location or tastes, as the talk of 'styles' may suggest. Rather, a necessary consequence, it might be argued, of the self-definition of modern science (as distinct from medieval and ancient science), the gap between theory and practice has shaped the analytic tradition of the philosophy of science, while at the same time leaving the philosophy of science as a theoretical discipline (*qua,* philosophy) addressed to a particular theoretic practice (science) singularly unable to support the disjoint consequences of a separation between theory and historical practice.

Despite Mach's 'physicalism' or 'phenomenalism', the members of the Vienna circle, in the telling words of one commentator, 'wrote as though they believed science to be essentially a linguistic phenomenon'.[7] Hence this disposition to analyse 'language'—be it ordinary or logical language—together with a naive (non-historical, non-hermeneutic or ideal) view of *direct* observation (i.e., observation sentences) effectively limited the analytic concern of the philosophy of science to the analysis of theory, which last is the project of the received view or hypothetico-deductive nomological ideal of science (theory).

Such a focus on the elements of language—and not on the elements construed according to Mach's conception as *physical-physiological-psychological*—separates language and world. One obvious advantage of such a focus is the advantage of certainty. But this, its strength, to paraphrase Mach, and as is so often the case, is also its weakness. Philipp Frank, one of the founding members of the Vienna circle, who expressed the virtue of scientific analyticity, combining the essence of Mach's insights with Duhem's Kantian conventions, explains, 'the principles of pure science, of which the most important is the law of causality, are certain because they are only disguised definitions.'[8] If the essence of tautology or logical linguistic self-reference is not problematic when what is analysed is language use (the game or its rules), this same tautological expression becomes problematic when what is analysed must correspond to scientific facts or empirical matters. As Harré has observed, 'the philosophy of science must be related to what scientists actually do, and how they actually think'.[9] The imperative for such a correlative project between the philosophy of science and scientific practice, corresponding to the force of the socio-historical turn that comes after the linguistic turn, represents a much-needed philosophic mandate for the philosophy of science.

The revolutionary shifts, reversals and paradigmatic conflicts within the analytic tradition of the philosophy of science also correspond to the revolutionary shifts, reversals and paradigmatic conflicts in physical science. These witness to the need to

develop a ‘new’ philosophy of science appropriate to the ‘new science’. But the history of science tells us that novelty is itself relative, for the history of science is just such a record of ‘new’ sciences. One of the first ‘new sciences’, that of Galileo and Newton (and Hooke and Boyle), inaugurated a tradition that has since developed beyond its initial programme. That tradition was the tradition of modernity (as the cult of the new), and if one can speak of postmodern science today that is just because the programme of modernity can no longer be viewed unproblematically. The fortunes of the ‘new’ science and enlightenment thought mirror the problem of modernity and postmodernity, the problem of the conflict between the grand narratives of science and society and the distintegration of the promise of those same narratives throughout the modern era. This is not unconnected to the new historical and social turns in philosophic thinking about the sciences. These turns are not a sign of the times so much as they reflect a tension interior to post-Galilean science. As Mary Tiles explains the dynamics of this internal tension in post-Galilean (or ‘new’) science: ‘The new science was to be abstract and mathematical, but also experimental; it was to yield both enlightenment and mastery of nature. It was to strive for an objective, purely intellectual, value-free view of the world in order to improve the lot of mankind by rendering technological innovations possible.’[10] There is an inherent conflict in this juxtaposition of material, practical progress and ideal or objective knowledge. Today’s post-analytic or ‘new’ philosophy of science is manifestly directed to an expression of the consequences of this conflict.

Here, with reference to Mach’s own particular historical context, it must be observed that Mach’s declared opposition to philosophy—even where such an opposition may be rendered on Pascal’s account as the best affective precondition for the best kind of philosophy—is, if taken literally as applying to philosophy today, anachronistic. Mach wished to avoid identification with the more metaphysical fashions often associated with or characteristic of philosophy. But his reflection on science was nothing other than a philosophy (albeit a philosophy of nature). This point highlights the value of a return to history for the sake of the broadening illumination of context. And where the return to history represents Mach’s own phenomenalist version of Husserl’s phenomenological call to return ‘To the things themselves!’, it cannot truly be Mach who is to be blamed for the logicization of the philosophy of science.

In all, the history of modern philosophy of science may be said to begin at the juncture epitomized by Mach’s biography; but the rupture between theory and experiment that followed from the increasing logicization of empiriocriticism or critical positivism related to the rise of analytic-style philosophy of science has no precedent in Mach. This point is essential if one is to understand the growing attention paid to Mach’s historical emphasis along with his very prescient sense of the importance of the art of the researcher, of the technical and social flair essential for the practice of the experimental life of the sciences.

Mach was greatly influenced by Berkeley and Fechner as well as by Kant and Hume. His thinking on the logical ‘economy’ of thought was shared by Richard Avenarius and his views on the nature of science engaged not only the scientists Helmholtz, Kirchhoff, Boltzmann, Einstein and Schroedinger but also the American pragmatist philosophers James and Pierce. It has been suggested that Mach’s concern was to understand experience. But this concern with experience was not the same as the anglophone preoccupation with sensation. It has already been noted that many authors also tend to

associate positivism's characteristic distance or alienation from the world with Mach's scepticism. Given Mach's sympathy with Berkeley and Hume, such an identification is not surprising. Mach's philosophy of science is commonly described as a 'sensationalism' or 'phenomenalism', expressed as an 'idealism', or by the catchwords positivist, empiricist, and anti-metaphysical. Endowed with the radical scepticism of a working scientist, as Mach was and because his sensationalism does not express an ontology as such, it is best to understand his perspective as fundamentally or even propaedeutically *heuristic*. Hence whatever metaphysical interests Mach may have had, they are not propositional but rather reflect his project of articulating what Paul Feyerabend describes as a non-foundational epistemology, and such an epistemology is not only essentially scientific but also represents the philosophic spirit of epistemology as such. In the same way, reference to a simplistic notion of parsimony, or *Denkökonomie,* linking that principle to an ontology, is misguided. And without emphasizing the extreme and today uncommon philosophical breadth of Mach's interests, the claim made in his *Analysis of Sensations* (1886) that 'the world consists only of our sensations' must be confusing. Again, Mach does not reduce the world to sensation so much as he finds the world *given in* and, as both Duhem and Bachelard would also stress, *knowable* only through sensation: 'Science does not create facts from facts, but simply *orders* known facts' *(Popular Scientific Lectures)*. It is this connection that suggests a natural affinity between Mach's elemental phenomenalism and Husserlian phenomenology borne out by Mach's initial (and then specifically continental) reception (Brentano, Musil, Dingler) and which has more than once been reviewed in its connections not only with Husserl but even with Nietzsche (Sommer, Gebhard).

Mach deliberately sought to distance himself from the metaphysical pretensions of traditional philosophy as well as those assumed (sometimes by scientists) in the name of science. Like Duhem, Mach eschews the claims to certainty which have come to characterize traditional scientific expression and serve as an identifying feature of today's analytic heirs to the logical positivist tradition of the philosophy of science. For Mach, as for Duhem and Bachelard, *enquiry,* conceived via experiment, was the benchmark of the scientific enterprise and a classical but not necessarily pyrrhonian scepticism was the best guarantee of such an enquiring or open attitude. But this scepticism did not mean that Mach gave up any claim to offer an account of the scientific knowing enterprise, with respect to either practice or progress. Hence William James upon meeting Mach in 1882 could write not only that he had 'read everything' but that he 'knew everything'. James was not merely impressed with Mach, polymath extraordinaire, but by Mach's *pragmaticist* turn, which is one way to understand the very practical but not ontological imperative guiding Mach's endorsement of a logical economy. In this way, Mach's thinking illustrates the continental spirit of philosophy as questioning conceived in that *authentic* sense charac-terizing what Martin Heidegger calls thinking and which Nietzsche critically pronounces as the highest scientific virtue: intellectual probity or *Redlichkeit*. In Mach's *Popular Scientific Lectures* (1882), starting from the axiom that 'Physics is experience, arranged in economical order', such a questioning or open-ended reflection means that a philosophic consideration of the goals of science following the ordering value of economy as a thought principle is not proposed as or purported to yield a finished system: 'In the economical schematism of science lie both its strength and its

weakness. Facts are always represented at a sacrifice of completeness and never with a greater precision than fits the needs of the moment.' This very Aristotelian practicality, which Gadamer has expressed in another context as the prudential core of hermeneutic judgment, works on Mach's account to exclude anything like 'absolute forecasts'.

Considered on its own terms, Mach's view is an *elemental* sensationalism, a factual, specifically non-factitious or empiri[ocriti]cism. Mach's thinking is radically sceptical. And it is a kind of conventionalism, like that of Duhem and Poincaré, which influenced the positivist protophysics of Dingler and the Erlangen school of Lorenzen's constructivism and its related development in evolutionary epistemology (Wuketis). But so far from the flat positivism of a reduction of the world to fact, Mach's 'mental mastery of facts' offers the only understanding to be had from or about those same 'facts', where the question of order or mastery in each case is hypothetical and ever subject to revision. This perspective in its historicist extension explains Mach's positivist appeal but an attention to the elemental mentality of this 'mastery of facts' shows its fruitfulness for current issues. This is evident in contemporary analytic philosophy of science after Kuhn and Feyerabend.

Thus Mach proposes that if the future of science may not be forecast as such (on pain of abandoning the open enterprise of science itself), its non-absoluteness may nevertheless be surmised and he suggests, in a fashion that is as Nietzschean as it is radically, elementally pluralistic, reflecting the spirit of what today has come to be called the 'new physics'—and what might likewise be named the 'new biology' and the 'new ecology'—that 'the rigid walls which now divide man from the world will gradually disappear; that human beings will not only confront each other, but also the entire organic and so-called lifeless world, with less selfishness and with livelier sympathy' *(Popular Scientific Lectures)*.[11]

It has been noted that Mach sought to articulate the project of science in terms of its history and its practical or working functionality. But Mach's particular historicism was that of a philosopher—in spite of his protests against such an identification, where, as was also noted in a preliminary way, these protests themselves must be interpreted with reference to Mach's own, historical, circumstantial context. As a philosopher, Mach's historical focus shows him as a positivist, in the original, pristine Comtean sense of the word.[12] Ian Hacking, in a timely effort to broaden the current flattened and negative reading of 'positivism' with reference to August Comte's original use of the term, defines *positivity* as 'ways to have a positive truth value, to be up for grabs as true or false'.[13] Positivistic to this extent then, not only was Mach a philosopher, but he was a quasi-analytic—if also as we have seen a proto-phenomenological and even hermeneutic—kind of philosopher. Moreover, Mach remained as consistently committed to expressing the logical and philosophical foundations of science as any member of the Verein Ernst Mach (which was in fact and significantly the original name for the Vienna circle) or the modern heirs of the logical empiricist tradition in analytic philosophy of science.

Yet it must be emphasized that Mach was committed to the positivist ideal of science, that is, in Hacking's Comtean sense, to its 'positivity' but not its sheer logical expression. Thus, and, as we shall see, like Duhem, Mach's critical analytic turn far exceeds anything like an exclusive commitment to the expression or clarification of scientific method or theory as an end in itself where he criticizes the working functionality of the latter. More

critical than Kant, Mach believes that there is no possibility of a priori knowledge *as such:* the basis of *all* knowledge is sense experience. Mach's *elementalism*—as his 'sensationalism' is best described as outlined above and following the letter of Mach's own account—repudiates the 'arbitrary, one-sided theory' which is implied in talk of 'sensations' or 'phenomena'. This is important, for what Mach repudiates as 'arbitrary, one-sided theory' focusing upon 'sensations' or 'facts' represents the idea of the self or subject apart from or as substrate underlying or undergoing such 'sensations'. In this way, Mach's elementalism mirrors the critique of the subject familiar to continental scholars and others acquainted with the works of Nietzsche and Freud, as well as Heidegger, Lacan and Wittgenstein. As the central tenet of Mach's psychology, the self is a bundle of elements, an expression which must be understood not as Locke or Berkeley would understand it but rather as signifying a fundamental continuity between the unit of the perceiving self, or the physiological (elemental) subject, and the mental matter of psychological (elemental) knowing and the physical (elemental) world. Physical, physiological and psychological, Mach's convertible elements comprise his elementalism. This continuity suggests the *intentional* commonality requisite for developing a phenomenological reading of Mach's 'sensationalism' in the line of Husserl. This same connection also suggests the relevance of Mach's thought for interpretations of quantum physics. Mach's principle, so important on Einstein's own account for Einstein's theory of relativity, implies the interdependence of all things—that is: relativity (Mach's own views concerning relativity are no matter in this context). Hence there is no need for an absolute frame of reference (whether Newtonian space or time) but only for a relative frame of reference. The law of inertia stated by Newton can be understood either from the perspective of the body at rest or motion or from the related perspective of external impingent forces.

Scientific laws for Mach are abstract, general, and in all we might say: *abbreviated* descriptions of phenomena. The value of such laws, the 'meaning' of such laws for Mach, as for Nietzsche and Wittgenstein, lies in their use: their value for prediction. This too is not an ontological statement. Since Mach is not concerned with absolute truth as is the more metaphysically inclined philosopher of science, he is free to share the physical scientist's focus on working utility. It was this dedication which led to Mach's notorious repudiation of unobservables (unusable—untestable) as explanatory components in the atomic theory of physics and chemistry. Needless to say this prejudice, like his emphasis upon the researcher's 'unteachable' art *(Knowledge and Error),* has acquired the triumphant patina of prescience which is the fruit of a convergence with contemporary science, for today's atomic theorists have since discarded the nineteenth-century mechanistical vision of the atom.

PIERRE DUHEM AND THE DAMNATION OF RELIGION: THE LIMITS OF ANALYTIC REHABILITATION

Pierre Maurice Marie Duhem was born in Paris in 1861, a son of a businessman of Flemish descent. Duhem's mother could trace her origins to the south of France and the village of Cabrespine, near Carcassonne, to the very house where Duhem himself was to

die at the age of 54. In 1882, Duhem entered the Ecole Normale Supérieure at the head of the yearly competition. Proving his initial promise, Duhem completed a dissertation in thermodynamic physics in only three years. But through no evident fault of the work itself, Duhem's dissertation was none the less rejected by a jury headed by Gabriel Lippman. Two years after this first academic frustration, Duhem would successfully submit another thesis in thermodynamics, to earn his doctorate (in mathematics). Duhem's rejected first thesis was not only subsequently published but published to a broad and approbative scholarly reception. We shall have cause to note below that the complicated circumstances of this rejection are important for understanding Duhem's intellectual and academic career. In 1887, Duhem became *maître de conférences* at Lille, where he taught physical mechanics. Following a pedagogic dispute at Lille, Duhem moved to Rennes in 1893, but soon afterwards took a chair at Bordeaux in 1895, which he occupied until his death in 1916.

Duhem's philosophic interest in scientific theories is seen in his still-influential 1906 book, *La Théorie physique: son objet, sa structure (The Aim and Structure of Physical Theory)*. Duhem, who shared Mach's belief in the vital importance of history for scientific progress, also made significant and substantial contributions to the history of science with his *Les Origines de la statique* (1905–6) and his voluminous study of medieval cosmology, *Le Système du monde* (1913–58), for the most part published posthumously and which has recently appeared in highly truncated form in English translation as the one-volume *Medieval Cosmology*.

If a discussion of place names can illuminate the changes necessary for an understanding of the transformation of natural philosophy into the kind of philosophy of science familiar today, the absent name of Paris is significant for understanding Duhem's intellectual position in that same tradition of the *critique des sciences*. For Duhem to all appearances had, with the submission of his first dissertation, opposed a then leading scholar, Marcellin Berthelot.[14] Duhem's biographers are largely agreed in reporting that the reasons for the jury's refusal of the thesis stem from the offence given to Berthelot in Duhem's theoretical repudiation of Berthelot's thermodynamical views on minimal work. And, indeed, more than a motive indicating a subjective and not an objective reason on Berthelot's part, we also have a tacit confession. In a 1936 biography written to secure support for the posthumous project of editing and publishing the remaining volumes (ultimately to number ten in all) of Duhem's *Système du Monde,* Duhem's daughter, Hélène, reported Berthelot's oft-cited professional edict which consigned (or better said, effectively damned) the Parisian-born Duhem to the provinces: 'This young man will never teach in Paris.'[15]

But to leave the question of the merits of Duhem's first dissertation to one side, and likewise to reserve the related question of the tactical wisdom of offending the leading scholar of one's day (for, as a recent biographer of Duhem's life and work, R.N.D.Martin, has observed, both are more properly questions to be directed to Duhem's teachers at the Ecole Normale than against Duhem himself), I would note that Berthelot's personal antagonism towards Duhem nevertheless retains resonant dimensions which exceed the indignant prejudice of the offended vanity of a leading Parisian scientist. For, betraying something more than a personal idiosyncrasy, Berthelot's views echo the general tenor of Duhem's philosophical reception, both then and now, where at least for

our times it may be assumed that questions of professional conviction and ego are not similarly relevant. Nevertheless, questions of personality, understood in the broad, psychological and, in Duhem's particular case, confessional sense, play an essential role. Hence it is not insignificant that we are informed again and again that Duhem was a Catholic. Thus the newly published contribution to Duhem scholarship by Duhem's foremost English-language commentator, Stanley L.Jaki, bears the title *Scientist and Catholic*. Jaki, himself a priest, certainly does not mean to underline this conjunction unsympathetically. But Duhem's religious faith is common stock in reviews of his philosophical merit. And an evaluation of the objective significance of Duhem's faith with respect to Duhem's historical circumstance is not easy. And Martin's study of Duhem's intellectual biography, appropriately subtitled *Philosophy and History in the Work of a Believing Physicist,* begins by adverting to the significance of the specific fortunes of Duhem's intellectual reception. Martin notes that Duhem's work is from the start clouded by a number of persistent critical reservations. Thus it is essential to underline the fact that a French scholar of importance as, beyond all dispute, Duhem must be accounted, should none the less be denied, as Duhem was denied, a Paris chair. Whereas Bachelard, born in the provinces, and mentioned here for the sake of contrast, would not be similarly denied this same token of recognition. The difficulty here in the case of Duhem, arguably the superior philosopher, surely the superior scientist, is to trace the proximate cause.

In the conflict with Berthelot, reservations concerning Duhem's achievements preceded Duhem's scientific and academic career. Martin sums up the general scholarly judgment with respect to Duhem's historical stature with the resounding ambiguity of an understated reservation as, in a word, 'problematic'. For many, Martin writes, Duhem was 'a brilliant maverick who continually got things frustratingly wrong: producing brilliant arguments against atomic explanations in physics and chemistry, a muddled instrumentalism in the philosophy of science, and a voluminous collection of misreadings of mediaeval Scholastics' ([6.50], p. 194). In general, for Duhem's biographical commentators and interpreters, that is for Martin, for Jaki, Roberto Maiocchi, etc., Duhem's problem was fundamentally and in its essence a religious one, and, like most confessional affiliations, this was one that cut two ways. Not only was Duhem's Catholic faith an obstacle to the largely Protestant ideals of modern science but Catholics were uneasy with his totally modern (and in the Catholic view 'modernist') opposition to neo-scholasticism. Duhem for his part was an iconoclast, and his position in the provinces was not such as to inspire him to restraint (Duhem, let it be remembered, despite his lack of a Paris chair, was a native Parisian).[16] He was particularly impatient with the neo-Thomism of the day, evident in the works of Jacques Maritain with his quasi-Aristotelian classification of the sciences. In the long run, what this meant was that Duhem could be dismissed as a Catholic apologist by non-Catholics while simultaneously being condemned as 'modernist' by the French Catholic intellectual elite.[17] And these reservations made on two sides were not the result of unthinking prejudice on one side or the other, but were in fact founded at least to some degree in both cases. For it is clear that the realist metaphysics and authoritarianism of the aims of the neo-scholastic movement in philosophy were undermined by the substance of Duhem's views. Conversely, Duhem's non-Catholic readers could regard Duhem's historical interest in

medieval science as representing little more than another version of neo-scholasticism. The historical researches of Crombie and others suggest that the problem requires a clearer understanding of the differences between historical eras rather than matters of faith, but Martin's observation that 'Duhem seems to have fallen between every available stool' ([6.50], p. 211) would seem to be the least one could say not only of Duhem but of the judgments made concerning him. What the new concern with history illustrates is the value of Butterfield's insight that a 'Whig interpretation of history' (or 'presentism' as it is also called)—that is, an interpretation of other eras from the perspective of one's own era—illuminates only one's own prejudices (and that only from the point of view of a subsequent historiographer) without shedding light on the period in question. History without hermeneutics is blind.

Against Koyré's reading of the revolutionary transformation from the medieval to the modern world-view, which corroborates the non-or anti-Catholic reading of Duhem's reactionary scholasticism, Jaki maintains that Duhem's sympathetic account of the scholastic opposition to Aristotelian philosophy of natural place suggests that this medieval perspective fostered rather than hindered the modern scientific turn such as that associated with, for example, Galileo's speculations concerning the role of impetus. Other scholars, such as William Wallace, have offered corroborating readings of the 'Galileo affair', showing the importance of taking Galileo's terms not in a putatively modern context (following the conviction of Galileo's visionary genius) but in their more patent and for the modern reader all the more tacit historical and that is medieval context.[18] Wallace's discussion of Galileo's use of the Latin term *ex suppositions* illustrates this point.[19] The problem is not only that readers from the perspective of modern (analytic) philosophy of science tend to translate *ex suppositione* as *ex hypothesi,* but that the perspective of the Catholic Church is automatically identified with that of an anti-modern, progress-retarding influence. This, in the apposite context of the contest between religion and science, shows the tenacity of the Whig interpretation of history. For this reason, Butterfield writes, 'It matters very much how we start upon our labours—whether for example we take the Protestants of the sixteenth century as men who were fighting to bring about our modern world, while the Catholics were struggling to keep the medieval or whether we take the whole present as the child of the whole past and see rather the modern world emerging from the clash of both Catholic and Protestant.'[20] For Butterfield the problem is the tendency to reduce the problem to one between Protestant and Catholic, between *enlightened* Whig and *darkage* traditionalist. To understand Duhem, one must go beyond confessional prejudice.

In fact, as Martin takes pains to demonstrate, Duhem must be characterized as a reluctant convert to his ultimately continuous account of the transition from medieval science to modern science. Duhem moved towards this view *in spite* of his own original views as a scientist working at the peak of the modern self-understanding of the sciences, that is, despite his typically scientific (high modern or scientistic) formation at the turn of the last century. According to science's own self-understanding then, and which is in part still true for scientists today, the transition from the (in Koyré's words 'closed') medieval view of the world to the ('open') modern world-view was—like the birth of the fully armoured Athena from the forehead of her father Zeus—a sudden, completely discontinuous or punctual, radical leap from classical and hellenic to fully-fledged

modern science. This view eclipsing the scientific value of the Middle Ages was as typical for the average scientist in Duhem's time as it can still be said to be true of scientists and of many philosophers today. Against the bias of this formation, it was less Duhem's religious faith, one could argue, than his rigorous education as a formal logician that brought him, indeed compelled him, to re-examine the historical record. In Jaki's view, a view now with considerable historiographical support, in addition to Duhem's axiom-atician's rigour, the record suggests that the medieval cosmological viewpoint worked not to obstruct the path to modern science in effect, where even Galileo's term *impeto* may be traced to Jean Buridan in the fourteenth century, but rather to further its advance. Duhem's reading of medieval science as an essential bridge between classical science and Galileo's inauguration of Newton's project of modern scientific thinking reflects a revolution, but the revolution for Duhem takes place in his own thinking, against his modern scientist's ingrained thought-style but in accord with his trained axiomatician's loyalty to the importance of first principles and logical coherence.

Duhem's argument stressed both subtlety and complexity, but it is clear that for him the key question for any theory or hypothesis was its utility in 'saving' the phenomena. On such accounting, of course, not only was Galileo a child of his times, indebted to the scholasticism of Oresme and Buridan, but Galileo's account was less successful than the Ptolemaic alternative. From this point of view, Cardinal Bellarmine's prudential caution may be read less as an illustration of jesuitry than as a representative of that kind of French common sense or Pascalian *bons sens* where the spirits of geometry *and* finesse intersect and for which, as both Martin and, years earlier, Dorothy Eastwood have argued, Duhem had a notable affinity. Yet beyond the still-unsettled questions of Duhem's personal reception, Duhem's significance for analytic philosophy of science is not in fact a subject of much debate owing to the prominence of the philosophers routinely listed as having responded to Duhem's influence, most notably Popper and Quine.

Duhem's argument against crucial experiments may also be seen to turn on his understanding of theories as axiomatic systems and his appreciation of the nature of such systems. For Duhem, physical experiments cannot refute isolated theories. Where alternative theoretical views are to be tested, an experiment designed to enable the experimenter to choose between them only confirms one hypothesis or another. But as an experiment confirms or refutes the theory and not the theoretical system, the results are inconclusive for not only may a subsequent experiment fail to confirm the theory, but a related experiment may refute a related theory; the experimenter is free to make ad hoc adjustments, and what has come to be called the 'theory-ladenness' of observations means that such adjustments may well be already or subsequently 'built into' the interpretation of the experimental results, without necessarily involving the awareness of the experimenter. Apart from such phenomenological hermeneutic questions as context-dependence and interpretation, the significance of the theory in any case is articulated only within the theoretical complex of which it is a part. Just as there are no isolated phenomena, there are no isolated theories but only theoretical systems. This interdependence points to the reason for Duhem's (as for Mach's own) conviction concerning the importance of history. Modification in the theory may preserve the system and vice versa, and an understanding of the system requires an understanding of the

original meaning of its terms. For Duhem, experiment is crucial, but neither falsification nor demonstration provides certain or sure tests of eternal, unchanging truth. On this point, it is the history of science which justifies Duhem.

Apart from Duhem's views on history and related to his views on theoretical indecidability, Duhem held a form of instrumentalism that was shared not only by Mach and Poincaré, but also by Kirchoff, Hertz, Bridgman, Eddington and the Copenhagen school of quantum physics. For Duhem, two aspects of theory must be distinguished, the explanatory and the representational. As far as Duhem was concerned, although scientists and philosophers of science of a realist bent regarded theories as explanation, the value of theory is ultimately its instrumental or conventional value. Instrumentalism is a view of scientific theories founded, as Karl Popper says, by 'Osiander, Cardinal Bellarmine and Bishop Berkeley'.[21] Linking Osiander to Cardinal Bellarmine, as most theoreticians stage this drama, it is clear that the great antagonist to such instrumentalism for Popper and for others is Galileo. And, as Ian Hacking puts it, 'Galileo is everybody's favourite hero—not only Chomsky and Weinberg but also Husserl.'[22] To say as has already been suggested that Galileo was not as radical or as ahead of his times as had been thought is to oppose the general conception of Galileo as a canonic scientific hero (or saint). This is the associative point MacIntyre makes (arguing in a different direction) when he speaks of Feyerabend's 'anarchism' as Emersonian in spirit, advocating 'not "Every man his own Jesus" but "Every man his own Galileo"'.[23] If Duhem is an instrumentalist, he also stands opposed to Galileo. And he cannot do otherwise. Duhem, with his claim that 'a law of physics is properly speaking neither true nor false' *(The Aim and Structure of Physical Theory),* is consequently one of the principal antagonists not only of Popper's realist-falsificationist view of physical theories but of all realist views of science.

Duhem's instrumentalism continues to be important for the present profile of the philosophy of science in the English-speaking world. For Duhem, the same physical law has a potentially different extension at different times owing to the historical development of these laws and their embodiment in experimental *praxis*. The meaning of a physical law is to be determined in the final analysis by the context of scientific practice and the scheme of related laws involved in determining the meaning of that law. This principle provides the basis for the underdeterminist perspective on the relationship between experimental evidence and theory and the constellation of related theories. Through the work of Quine and Davidson, this notion of underdeterminism led to the current position on theoretical indecidability that has done so much to bring analytic philosophy to a (theoretical) cul de sac if also, albeit indirectly, generating the current emphasis on the importance of experiment in discussions within analytic philosophy of science.

It is a testimony to the seminal character of the influence of both Duhem and Mach that it is today thought necessary to return to their philosophic understanding of scientific practice (as theory and *experiment/praxis*). This is not to say that they were in individual agreement among themselves but rather that each had distinct insights which similarly failed to be transmitted in subsequent debates. And the current urgency of an historical turn in the philosophy of science, clear since the work of Hanson, Feyerabend and Kuhn, is accordingly necessary largely if not only because of a correspondent refusal of history in mainline or analytic philosophy of science.

GASTON BACHELARD: SCIENTISM WITH A HUMAN FACE

Gaston Bachelard was born at Bar-sur-Aube in 1884. Bachelard's studies were conducted, as he himself was given to muse, under the sign of delay and he worked as a part-time mechanical technician for the French postal service until 1913 when he earned his *licence* in mathematics and science, becoming a teacher at the Collège of Bar-surAube. Upon earning his doctorate in 1927, he assumed the chair of philosophy at Dijon and was then called to the chair of the history and philosophy of science at the Sorbonne in 1940, where he remained until his retirement in 1954. He died in Paris in 1962.

Bachelard's philosophy of science is expressed as a 'dialectical rationalism' or 'dialectical naturalism'. Just as Duhem's anti-idealist conventionalism was read as conducive to the aims of materialism, although instrumentalist and thus inherently anti-realist, so Marxist authors such as Louis Althusser and Roy Bhaskar have read Bachelard's naturalism as a kind of dialectical materialism to be employed against ideological appropriations of science. Although the current interest in Bachelard's epistemology and consequently in his philosophy of science doubtless owes a good deal to Althusser, and without denigrating the value of Althusser's reading for Marxist or materialist epistemology, the Marxist reception of Bachelard's work and the word 'dialectic', if drawn exclusively from Althusser's programme, can be misleading (LeCourt). Still it should be emphasized that those working from Marxist perspectives have been far more assiduous in examining Bachelard's philosophy for its epistemic component than other traditionally analytic philosophers of science (Bhaskar).

Bachelard's emphasis is on a dialogical exchange, that is to say, a dialogue between the knower and the known, a dialogue between poetic and scientific discourse. This is not to be construed as inherently (or essentially related to) a dialogue between *poetry* proper and *science* proper. Instead the capital dialogical exchange is that between the scientist and the dreaming scientist himself:[24] the scientist and himself poetizing, or projecting (and thus 'dreaming' or effectively constituting or technically constructing) the world of scientific nature. Thus Bachelard wrote on the psychoanalysis of the history of the discovery of fire as a dialogue between psychoanalysis and that history to find *its* psychoanalysis metaphorically in (and of) the history of sexual desire. The metonymic association between the origin of fire (and electricity) and the fire (and electricity) of sexual passion points to a dialogue between image (the discovery of fire) and the human reflection or projection of that same discovery. Similarly, the philosophy of no, by which expression Bachelard seeks to characterize the openness of the scientific attitude, is a dialogical philosophy—or better a dialogical account—of scientific practice. To say that the scientist constitutes the phenomena, the objects of science, is not to describe a unilateral construction; rather the constitution is a formative, informative, reciprocal creation, a making of the scientist himself as much as a making (a projection or constitution) of the scientist's world. This exchange with the world of scientific or technical experience articulates the scientist's characteristic capacity for an anticipatory openness to scientific phenomena, an attitude ever open to possible revision upon

encountering a new phenomenon. Such a 'no' is then heuristic in function not destructive or eliminative: it describes what for Bachelard will be the enabling condition for the possibility of openness to (scientific) novelty. The scientist is thereby summoned to further innovative and creative efforts, reconstituting a new framework embracing the new experience.

Bachelard sought to go beyond phenomenology and regarded Husserl's own contributions as so many points of (dialectical) departure for Bachelard's own avowedly polemical reflections. Thus Bachelard could speak of the need for a 'phenomeno-technology' to reflect the engaged role of the human investigator and the world under investigation. Hermeneutically and phenomenologically sensitive authors have read this perspective as compatible with a hermeneutic phenomenology of (reading) scientific instrumentation.[25] But against such a tolerant syncretism of Bachelard's poetizing science and phenomenological hermeneutics of scientific culture, Bachelard's inherently antagonistic emphasis is more than clear in its original context. In the interest of and following upon the inspiration of science, Bachelard aims to *correct* phenomenology. Owing to the scientific phenomenology implicit in the doing of science, as Bachelard's philosophy of 'no', 'observation is always polemical; it either confirms or denies a prior thesis, a preexisting model, an observational protocol'. For Bachelard, philosophic reflection on science must be prepared to be instructed by science in practice. 'A truly scientific phenomenology is therefore essentially a phenomeno-technology' *(The New Scientific Spirit [6.54])*. The result of this perspective is not merely the banal pragmatism one might expect. Because Bachelard expects that the prime experience of science is to be a mathematical one, and that, as 'the mathematical tool affects the craftsman who uses it', it is not only safe to say that '*Homo mathematicus* is taking the place of *homo faber*', but that ultimately 'it is mathematics that opens new avenues to experience'. Close as this point of view is to Husserl, the gap remains and is widened by Husserl's sense of crisis, as a separation even more exacerbated by Heidegger's hermeneutic critique of technology along with the knowledge ideal of *mathesis,* or axiomatic certainty.

More negatively, resolutely committed as Bachelard was to the scientific and Enlightenment ideal disposition of a constitutional happiness or cheerfulness, Bachelard found the existentialist world-view particularly pernicious for it expressed what in his view was a false opposition between enquiring subject (poetizing poet or scientist—for they are or at least inherently can be considered the same) and world object (as created or as world to be known). Bachelard refused the distinction between the living subject and a dead or alien or meaningless world. The poetic world of human meaning was continuous with the scientific world, which for Bachelard bore the manifest imprint of the human projective imagination. Bachelard's positivism accordingly preserves the casual colloquial meaning of the word 'positive' as an optimistic outlook, or, in Bachelard's words, a 'happy' perspective. This affirmative and essentially scientistic humanism is expressed where Bachelard writes 'Science calls a world into being, not through some magic force, immanent in reality, but through a rational force immanent in the mind…. Scientific work makes rational entities real, in the full sense of the word' (*New Scientific Spirit* [6.54]).

Bachelard's work is extensively cited and has been the subject of numerous commentaries, less in the context of the philosophy of science than in principally literary

and philosophical discussions of Bachelard's poetics. Beyond anglophone continental philosophic interests, Bachelard's eclectic style of reading between literature and science has found significant hearings in France and Germany in part through the efforts of a tradition of literary theorists (as Barthes recounts). In (particularly French) history and philosophy of science, this reception is due to the influence of Bachelard's student, Georges Canguilhem, the historian of physiological science, and R.Cavailles. In this company, Michel Foucault may also be regarded as within Bachelard's intellectual sphere. But if Foucault's value may be traced to—better and more significantly, if here it can be argued that Foucault's value for science can only be understood in terms of—Bachelard's influence (cf. Tiles who prefaces her own study [6.83] by saying that her representation of Bachelard 'is a rational construct',[26] or Gutting who reads Bachelard and Canguilhem as background to Foucault, or Bhaskar who also prefers not to treat of Bachelard on his own, or on his own terms, but sets and thus inevitably defines Bachelard in opposition to Feyerabend), the question of the nature of the enduring significance of Bachelard's philosophy for the philosophy of science is more elusive. This difficulty is not a matter of the conflict between religion and modern scientific sensibility—as it was in Duhem's case—but is doubtless due to Bachelard's style. This is a style that is less esoteric than simply dated and rather specific to French literary culture, at least according to Jonathan Culler's plausible and sympathetic account. Culler implies that the lack of conceptual resonance among philosophers of science or philosophers proper in response to Bachelard's works (a limitation which is also shared by non-francophone literary theorists) is due to Bachelard's nineteenth-century style of rhetorical and imaginative reference. The style in question is one of diffuse allusion and allegory, like that of Jacques Lacan. In Culler's view, Bachelard's style is simply out of synch with current modes of expression and particularly unsuited for today's impatient styles of reading.[27] To the late twentieth-century reader's impatience may be added a fatal incapacity, that is an inability to appreciate the sense, to infer and so to understand the full value of Bachelard's allusions. An allusive, allegorical or metaphorical—in Bachelard's words *poetic*—style presumes and is necessarily dependent upon the reader's aptness for and familiarity with the conventions used.

The capacity to note such allusive resonances in Bachelard's work is essential both for readers of Bachelard's philosophy of science and for readers of his literary criticism. Accordingly, the literary theorist Ralph Smith notes that it is Bachelard's 'philosophy of science [which] must be understood in order to truly appreciate the full significance of his essays on the imagination and to assess properly his contribution to literary criticism'.[28] Where, for Bachelard, 'Science in fact creates philosophy' (*The New Scientific Spirit* [6.54]), any clear distinction between Bachelard's value for literary criticism and science must perforce be difficult to make. Still the lion's share of this attribution of value is represented by studies in literary criticism. Apart from Gutting's background reference to Bachelard's work in line with the philosophy of science, and Tiles's related discussions, Bachelard is better known for his literary contributions, in so far as Bachelard's emphasis on the imaginary continues to appeal to a distinctively French fascination with fantasy and the domains of reverie and poetic invention.

Mary McAllester Jones's recent study [6.76] employs the term 'subversive' to emphasize Bachelard's predilection for the literary and for the imagination not on the

terms of humanism but rather as 'unhinging' humanism.[29] This inverse, 'subverting' emphasis corresponds to the fashionable celebration of the postmodern but also testifies to the need to come to terms with scientism's recondite and irrecusable humanism. Citing Bachelard's claim that 'Man's being is an unfixed being. All expression unfixes him' (Bachelard in Jones [6.76], 193), Jones reads this 'unfixing' in her account of Bachelard's focus on the salutary *spiritual* value of challenge, dynamic flexibility and innovation. Thus, in Jones's expression of such an *unhinged* humanism, the movement or fluidity of articulation is paramount: 'Man is unfixed by language, not decentered' (Jones [6.76], 193).

I think it helpful to add that this openness, as a very literal flexibility, is akin to Paul Valéry's anti-Platonic celebration of the divinity that is not given negative or oblique testament, that is, not at all missed or failing, but which *speaks* precisely in our muteness in the presence of beauty.[30] Such an awe or expression of silence in the face of the beautiful rather than revealing an incapacity (such silence betrayed in the human inability to hold to a steady glance in the face of beauty proves the body's counter-divinity as Plato maintains) is the caesura, the glancing gaping that affirms and confirms, sees, sings and consecrates what is seen. In Bachelard's words with reference to Valéry, 'the temporal structure found in ambiguity can help us to intellectualize rhythms produced by sound…. We have come to realize that it is the idea that sings its song, that the complex interplay of ideas has its own particular tonality, a tonality that can call forth deep within us all a faint, soft murmuring' (*La Dialectique de la durée,* cited in Jones [6.76], p. 73). Silence thus testifies to the moving power or *dynamis* so important for Bachelard, who was of course a reader of Valéry's poetry and theory as well as a high-school teacher of chemistry and university professor of epistemology. For Bachelard's enduring aim was to show that the work of the scientist was not only comparable to that of the poet, but was in its own and full sense a poetics as well. And if, as noted, 'science creates philosophy', for Bachelard it will also be science that, most properly said and equal to any poetic discipline, creates poetry.

In the creative processes of poet and scientist, the play of thought echoes or responds to what is in each case. This is what Bachelard means by writing, 'Science calls a world into being, not through some magic force, immanent in reality, but through a rational force immanent in the mind.' And it is in this creative, reflective way that Bachelard claims that 'Science in fact creates philosophy'. But that is to say that philosophy is science reflecting on itself. The scientist is creator (poet) and philosopher, a modern Prometheus calling 'a world into being'. Here, the different senses evoked by the idea of a 'modern Prometheus' in an English literary context (Mary Shelley's *Frankenstein*) and a continental context (romanticized Titanism) are significant and testify to the difficulties inherent in assimilating such an elusive and allusive author as Bachelard.

A contemporary physicist and philosopher of science, and one who may be counted within the continental tradition, Bernard d'Espagnat, takes Bachelard's important references to Valéry a step further. For d'Espagnat, Valéry's notion of spiritual value expresses a mysticism more veiled than obvious in Valéry's contrast between spiritual and material(ist) domains. D'Espagnat suggests that the nuance to be grasped here is that between a spiritual life without God (atheist) and spiritual life of a human (here, to be fair to d'Espagnat, perhaps not necessarily a *humanist*) kind. The difference is again not

necessarily disjoint.

Yet the association with mysticism should perhaps only be emphasized in a limited way. Furthermore, for the sake of rigour, Bachelard's version of humanist scientism can be named a subversion of scientism only on the most fancifully esoteric level and that level is ambivalently problematic because of its insistent humanism. Bachelard's project must be conceived as a *subversive* humanism far more than a postmodernstyle subversion of humanism as Jones maintains. Such a subversive humanism must, it would seem, be rethought if it may not in the end be said to yield the absence of the subject. Which is of course only to say that a subversive humanism remains a humanism. This subtle humanism is such as d'Espagnat, for example, finds in Valéry. It is elusive because it entails the conjunction of mysticism and what d'Espagnat calls Valéry's 'positivism of principle'.[31] As the proponent of a mysticism which is simultaneously, coextensively in the human, the ambiguity of Valéry's position is rightfully his as poet. Bachelard's poetics of science offers an illumination of why a contemporary scientist such as d'Espagnat could turn to Valéry, a poet, as guide for 'thinking' science. Bachelard's philosophy of science represents (a position on) science as the high point of human culture (as its most profitable-productive and progressive expression). But this science-approbative perspective offers a valorization of science echoing not only Bachelard's well-rounded conservative cultural views but in uncanny resonance with the spirit of the 'two cultures' debate (and their interplay) popularized for the anglophone and traditional reader in the philosophy of science by C.P.Snow's essay *The Two Cultures*.

In Bachelard's as well as Snow's approach to the human achievement of science, science remains an ideal to be valued (and, post-Foucault, we can observe that this value is also the power of science, a power Nietzsche and Lacan would tell us which contributes to the Enlightenment role or reign of terror). Where Snow glamorizes science, Bachelard renders science a kind of poetizing and its products, its 'phenomeno-technologies', a kind of poetry. In effect, science becomes myth. But this does not resolve the opposition between *logos* and *mythos,* an opposition which has been traditional since the beginnings of Socratic philosophy. Since a glamorization of science is a part of our contemporary high-industrialist culture, Bachelard's mythification of science, as a poetizing venture, far from being a revolutionary coding (much less a double or subversive coding) only underlines the ruling mystique of science. In this supplanting of *mythos* by *logos, mythos* is not eliminated but absorbed by or subsumed under *logos*. *Mythos* becomes (is and as so named always was) a function of *logos*. With a cultural presumption exceeding Mach or Duhem, Bachelard asserts the very poetic function of science. On Bachelard's enthusiastic account, science as scientistically—which is also to say (for such is the force of the mythic-logical conversion) science as *poetically*—conceived truly *is* poetry at its best.

Bachelard's express identification of the *project* of scientific practice and method, in theory and experiment, where the scientist is taken to *constitute* the manifest entities (and not merely the image) of science (what Bachelard calls poetizing) inspired the structure of the sociological turn so decisive for the development of the new philosophy of science beyond the received hypothetico-deductive or reconstructivist view (Latour, Bloor, Woolgar). Literally constructed, the poetic project of the world of science is a suitable object for a sociology of knowledge and scientific practice or, in Bachelard's esoteric

coinage, a psychoanalysis of science.

THE HISTORY OF CONTINENTAL PHILOSOPHY OF SCIENCE

From the perspective of Anglo-American analytic-style philosophy, continental philosophy may be identified as the tradition of philosophy committed to thinking within the philosophic tradition, that is, committed to explicitly reconstituting the enduring value of the history of philosophy. For its part, analytic philosophy is not concerned with the history of philosophy although to be sure it is rooted in it. Nor is analytic philosophy, as defined by Müller and Halder, concerned with the traditional objects of philosophic inquiry such as *things* or *relations* or *events,* but rather with 'expressions, concepts, axioms, principles'.[32] On the basis of such a distinction between the objects of continental and analytic philosophic concern, Husserl's otherwise putatively realist 'To the things themselves!' articulates an interest that is not merely stylistically but constitutively antithetical to analytic philosophy.

Patrick A.Heelan characterizes continental philosophy according to two interests: '(1) its preoccupation with the problem of the 'constitution' of knowledge, and (2) the effect of the historical and cultural world context of science on the 'social constitution' of scientific knowledge'.[33] Although the word 'constitution' occurs twice in this definition, rather than focusing on the phenomenological account of such constitution, recent efforts to articulate continental philosophies of scientific theory and practice emphasize the interpretive turn to hermeneutics (Hiley, Bohman *et al.*). The hermeneutic turn is the interpretive turn taken by many analytic philosophers after Rorty, and in so far as this interpretive turn is necessarily an historical turn it is also, as mentioned above, one that is familiar to analytic philosophers of science after Kuhn. The interpretive and historic turn, which may be designated the hermeneutic turn, thus represents the most salient line of intersection between continental and analytic-style philosophy. But preliminary to any rigorous and significant expression of this intersection, as Rüdiger Bubner has demonstrated in a broader reflection on hermeneutics and critical theory, it is essential for the hermeneutic turn to be properly conceived in its technical and (that means) historical context.[34] This background critical context (and constellation of related interests) does not yet characterize the accepted path of received philosophy of science. Bubner's precision is of capital importance for the future of hermeneutic approaches to the philosophy of science. In recent historical studies of science (Hacking, Jardine, Crombie), a noteworthy attention is paid to the concept of the broadly hermeneutic rather than the specifically phenomenological philosophies of Husserl and Heidegger. Authors such as Gadamer and even Nietzsche may be invoked and references made to Ricoeur, but I think it important to consider the consequences entailed by Bubner's reservation that a genuine conversance with critical hermeneutics (in its theoretical and historical context) is often lacking.

What is more crucial than even this lack of interpretive and historical competency is the question of the advantage for the philosophy of science to be gained by taking the 'continental' turn, as it were, be that turn construed more narrowly as a historical turn or more radically as a hermeneutic turn. Would such a turn advance the fortunes of the

currently becalmed (post-Kuhnian, post-sociology of science and knowledge) philosophy of science? Long ago, Immanuel Kant observed that philosophy itself seemed almost not to progress at all if compared to the natural, formalizable or mathematical sciences. For Kant, in the first *Critique* and the *Prolegomena,* to express the difference between philosophy and science, where science shows clear signs of cumulative and accelerating development, philosophy, in contrast, appears dissolutely aporetic: without issue or advance, and without consensus, lacking even a unified perspective or standard for what would count as such advance. To date, analytic-style philosophy seeks to be true to the scientific standard for philosophic progress as implied by Kant's criticism, and seeks the kind of absolutist or cumulative understanding, including formal precision and consensus, which constitutes or at least approximates the professional mien of a scientific endeavour.

If the ideal of science remains the ideal of our modern era, and where science, echoing Kant's reference, is offered as the standard for philosophy itself, it seems patently obvious that only a *scientific* (here, analytic) project of understanding the project of science could command our interest, and analytic philosophy, given its rightful or proper distinction, should also exclude other styles as irrelevant. Thus, as we have seen, Mach, a scientist who was hence already affiliated with the (as he thought) superior thought-style, eschewed the title of philosopher. If science shows *concrete* or factual progress where philosophy manifests only moribund confusion or intestine bickering, science by contrast would appear to have the most progressive part.

But the history of science shows that even in science the idea of progress is a conceptual chestnut. As Kuhn has it, one era's idea of progress is the 'paradigmatic' error to be overthrown by the 'revolutions' of another generation. Even with a cumulative, pre-Kuhnian scheme of simple progress, the philosophy of science, failing to approximate that ideal, is more 'philosophical' (indeed to the extent of following Kant's aporetic account) than Mach's ideal science. The philosophy of science, even analytically construed, even modelled as it is on science, is still not a science as such. Nor is it a metascience: if the philosophy of science is to be a science of science, complete with *concrete* progress and visible results, it has not been very successful. Offering an array (with no end in sight) of logical accounts, analytic philosophy of science may explain and offer an understanding of the workings of science as it conceives them. It is at this formal juncture that an analogy with the practice of science must end. For where science has to do with actual events, whether theoretically construed or experimentally constituted, where science is predictive, and thus amenable to verification or refutation, where related theories and experimental tests may be expected to proliferate, the *philosophy* of science, in its project of explaining science, does not similarly test or check its explanations against the substance or 'fact' of actual science. Thus the shock of the historical, interpretive or hermeneutic, and sociological turns in the philosophy of science. Far from a critique of science as a fact, the philosophy of science begins with science as it finds it: as a fact, a given, and a given to be accepted on the scientist's own terms. Neither Mach nor Duhem would champion this perspective, precisely because of their commitment to the project of science. And Bachelard was too much a scientist himself despite his celebration of science to petrify it by treating it as an accomplished fact. Thus if the least demanding definition of the business of science as an explanation of what the world is, of the world as it is (truly, or really, or practically-pragmatically), is to 'save the

phenomena' on some level, either directly (observationally) or theoretically, the business of the philosophy of science (*qua,* pretended science of science) will need to do the same for science. But that means that the philosophy of science cannot, despite its scientistic ambitions, become a science because such an account belongs within the perspective of philosophy.

CONTINENTAL CURRENTS IN ANALYTIC-STYLE PHILOSOPHY OF SCIENCE

The concern of analytic philosophy is, as its name betrays, a concern with the logical analysis of language. Indeed, for the sake of this distinction, it should be said that analytic philosophy is committed to the dissolution (that is, literally, the analysis) of philosophic problems through their clarification. Once the traditional questions concerning things in the world, cause and effect or freedom are analysed in terms of their meaning and significance one finds that one has to do with a logical account or tractatus concerning the world (i.e., statements, claims and assertions).

The analytic tradition of the philosophy of science is marked by its attention to questions relating to the structure of scientific explanation and theory-making. If science is characterized by reciprocal theoretical and experimental activity, the philosophy of science in its analytic mode has shed more light on theory than on experiment. Conversely its disposition *vis-à-vis* experimental procedure is such that the very mention of historical studies whether by historians of science (Kuhn, Crombie) or by sociologists of science (Barnes, Shapin, Bloor, Latour, Woolgar, Knorr-Cetina) has had a disruptive effect on the analytic programme. For the analyst, historical studies are often characterized by attempts at normative historical reconstruction. Feyerabend's work offers an example of such reconstruction, where efforts to restore the sense and significance of Mach's contribution to the foundations of the philosophy of science should be seen as a logical fulfilment of Mach's appreciation of science as historically and normatively progressive.

Note that this criticism of analytic-style philosophy of science is not a complaint raised against analytic style philosophy of science from the side of continental philosophy. These criticisms have been offered in tandem with the development of the philosophy of science itself from the start, beginning with Mach and Duhem and offered as well in various styles of historical reflection by philosophers and historians of science across cultural boundaries, from Bachelard and Canguilhem to Hanson, Kuhn and Feyerabend. None of these, not excepting Bachelard and Canguilhem (or French philosophy of science today which remains as addicted to analytic as to continental approaches), may be named a typical continental philosopher.

Mach, Duhem and Bachelard along with a number of other scholars have argued that science itself is more critical, indeed more inherently 'hermeneutic', than philosophy. But this point too is problematic, and not only because of its counter-intuitive content—whereby science ends up with the virtue of being more hermeneutic than hermeneutics itself. It is overhasty to conclude as Mach for one would argue, with Duhem and Bachelard echoing him here, that scientists are the best judges of their own practice or

that science provides its own best philosophy.

Feyerabend has argued eloquently against this view in *Against Method* and his recent books. But we should not need Feyerabend's warnings that if science is not inherently a socially *responsible* enterprise, science is nevertheless neither the Moloch nor the redeemer of culture and it *is* as a practical matter of funding in fact socially *responsive*.[35] We do need to add, that for Feyerabend's programme of taking responsibility for getting 'science' to respond to social interests and needs, that if one is not to sink into the platitudes of civic virtue, now more than Nietzsche could have imagined, we desperately need a critique of critique, a critique of reason, of truth, of morality.

If the analytic philosophic perspective represents the notion that (natural and objective) science is 'mankind's most successful truth enterprise', as Heelan puts it, the continental approach rejects the Whiggish implications of this ideal. However, this is a subtle point for it must again be emphasized that today there is no approach to the philosophy of science, analytic or otherwise, which would advocate an unreconstructedly Whiggish ideal. Yet if the perspective of a continental approach to the philosophy of science is inherently problematic owing to a perception of its views as 'anti-science', read off from its explicit rejection of scientific knowledge as a 'privileged kind', the pluralism of continental philosophy recommends a reconsideration. Such a review of continental prospects for the philosophy of science is under way.

This phenomenological tradition begins with Husserl's project of grounding mathematics and physics begun in his work on arithmetic and continued in his *Logical Investigations* and *Ideas*. Related to the Husserlian tradition in turn is Merleau-Ponty's *The Primacy of Perception.* Husserl's interests grew out of the same tradition as and to that extent matched analytic philosophy (Cobb-Stevens). Considering the common origins of analytic and continental philosophy as a response (variously expressed in Husserl and Frege) to the psychologism of Meinong and Brentano, one might propose, as Michael Dummett has done, that a basic standard for bridging the continental-analytic divide should be a scholarly conversance with *both* Husserl and Frege. In this way, Hugo Dingler, a positivist and in that measure an analytic philosophic thinker, may also be productively counted as one of Husserl's students, indeed as a student who memorialized the value of his teacher's influence (Gethmann, Dingler). Recent reviews of the history of the Vienna circle point to a revaluation of the historical relationship between phenomenology and logical positivism. In line with this analytic/continental connection, Ströker, Orth, Gethmann and Haller may be read as offering comprehensive discussions of the phenomenological tradition beginning with Husserl, while Gethmann in particular stresses the development of that tradition in Lorenzen and the Erlanger school and its further development and the continuation of constructivist themes in evolutionary epistemology (Wuketis, Löw, Maturana). According to Gethmann, beyond Husserl's transcendent phenomenology, Heidegger's specific brand of hermeneutic phenomenology may be counted as a indirect influence on the development of the Erlanger school. If Foucault is included, this line of association running from Husserl to Heidegger and beyond is more obviously seen to resonate with the Edinburgh school of strong sociology of science (Rouse, Latour).

Joseph Kockelmans defends as proto-analytic the realist perspective of hermeneutic continental approaches to the philosophy of science. For Kockelmans, a hermeneutic

philosophy of science requires a 'new conception' of truth understood in Heideggerian terms as *alētheic* (truth as unconcealment), *horizonal* or, in Nietzsche's terms, *perspectival* truth (Kockelmans, Heidegger, Gadamer, Babich). But where Kockelmans's concern is meaning, his reading of truth and science is closer to a Fregean conception of *Sinn* (sense meaning) and to the traditional Diltheyan *Lebenswelt* (life-world), articulated in terms of a Gadamerian hermeneutics than to the later Heidegger's conception of truth and ambiguity.

Patrick Heelan's interest remains true to the formal constitutive (eidetic, transcendental, and genetic) phenomenology that is Husserl's project to found philosophy as a rigorous science and not just with respect to the so-called 'crisis' of his later work. Heelan's hermeneutic phenomenology expresses a realism which he calls a *horizonal realism,* articulating the basis for a phenomenology of experiment to be integrated with the theoretical expression of science. Heelan's phenomenology holds with Husserl's eidetic project the possibility of approximating the essence of a scientific object through successive profiles. The hermeneutic dimension reflects the necessity for considering the historical, social and disciplinary circumstance of the researcher. Theoretical descriptions denominate the experimental profiles that would be perceived under standard laboratory conditions and, with a hermeneutic of experimental work, become truly descriptive of what is eidetically perceived in the laboratory. Heelan's perspective accords with strong or robust realist readings of experimental science, but his is more promising than most for with a hermeneutic phenomenological expression the realist perspective becomes a matter of perception not faith.

In current English-language publications, the foremost representatives of so-called 'continental' approaches to the philosophy of science in addition to Heelan and Kockelmans include Theodore Kisiel and Thomas Seebohm. Older continental scholars seem rather more concerned with the special problems of phenomenology (intuition and formal logic, the meaning of transcendence, etc.) rather than with questions specific to the philosophy of science, while younger scholars read the value of Husserl's and Heidegger's thought with respect to science rather more historically and less theoretically. Recent studies (Gethmann, Orth, Harvey, Rouse, Crease) by contrast tend to argue for the historical influence upon rather than the current value of phenomenology and hermeneutic reconceptualizations of the expression of the philosophy of science.

In sum, this means that the work of Heelan, Kockelmans, Kisiel, Seebohm (all continental scholars, most originally of geographically continental nationality but working in the traditionally analytic academic world of United States philosophy of science), etc., must be seen as rather singular representatives of the philosophical development and application of the phenomenological and hermeneutic traditions towards an understanding of science including the natural sciences. And given the factually analytic profile of professional philosophy of science, by far the most influential contributions to the imperative value of a continental turn to historical and hermeneutic expressions of the philosophy of science must be said to have come from traditional analytic philosophers of science, complementing where not directly acknowledging the work of Heelan *et al*. This is not due to the greater perspicacity of scholars in the analytic tradition: it is only a function of its paradigmatic (and professional) dominance. Thus, for example, Hacking's recent work on statistics in *The Taming of Chance* and his recent

articles is characterized by more than a historical turn but a turn that must be properly and fully named (although Hacking does not employ the term) hermeneutic. And this same reference to hermeneutics is implicit when not explicit in many recent historical studies of science (Jardine, Crombie). What is more, in the turn to the social (in old-fashioned terms, to the *life-world*) dimensions of science inspired by the sociology of science and knowledge (Hiley *et al.,* Fuller, Latour, McMullin, Shapin/Scheffler), a new fusion of styles in the philosophy of science is emerging. If philosophy of science may not be said to be returning to its historical continental roots in all these revolutions, a review of these roots cannot but be salutary for the life of the broader discipline, for the range of styles, the plurality, of philosophies of science.

NOTES

1 The topic of the nature of a continental approach to the philosophy of science is almost necessarily esoteric rather than general. The intersection of continental thought and the philosophy of science is far from well defined in professional philosophy. Indeed, the focus on Mach, Duhem and Bachelard may even appear tendentious for these authors might well be represented as antecedent figures within traditional analytic philosophy of science. In fact they serve this antecedent function for both analytic and continental expressions of the philosophy of science. Hence the issues raised in this chapter correspond to the history of continental philosophy and the philosophy of science, their intersection, and the current state of research. As this last profile is constantly in flux, a more detailed bibliography has been included to indicate this ferment and to benefit further research.

2 R.Harré, *Philosophies of Science* (Oxford: Oxford University Press, 1976).

3 A.MacIntyre, 'Epistemological Crises, Dramatic Narrative, and the Philosophy of Science', in G.Gutting (ed.), *Paradigms and Revolutions: Appraisals and Applications of Thomas Kuhn's Philosophy of Science* (Notre Dame: University of Notre Dame Press, 1980), pp. 54–74.

4 H.Redner, *The Ends of Science* (Boulder: Westview Press, 1987).

5 K.Hübner, *Critique of Scientific Reason* (Chicago: University of Chicago Press, 1983), p. 35.

6 As a recent and comprehensive contribution to this perspective and the debate concerning it and the history of the Vienna circle as a whole in the North American context of what is by and large an American discipline, the philosophy of science, see G.Holton, 'Ernst Mach and the Fortunes of Positivism in America', *Isis,* 83:1 (1992):27–60.

7 C.Dilworth, 'Empiricism vs. Realism: High Points in the Debate during the Past 150 Years', *Studies in the History and Philosophy of Science,* 21 (3):431–62 (447).

8 P.Frank, 'Kausalgesetz und Erfahrung', *Annalen der Naturphilosophie,* 6 (1906):443–50.

9 Harré (note 1), p. 29.

10 M.Tiles [6.245], 227.

11 Blackmore cites Hans Kleinpeter's 1912 letter to Mach, reporting that 'Nietzsche read one of your essays in a scientific journal and spoke very favourably about it' ([6.8], 123). And according to Alwin Mittasch, Mach himself sent a copy of one of his articles to Nietzsche bearing the hand-written dedication 'Für Herrn Prof. Dr. Nietzsche hochachtungsvoll Ernst Mach' (Mittasch [6.151], 367). Mach's views correspond to Nietzsche's refusal to distinguish between the organic and the inorganic world as discontinuous (indeed, as opposed). For Nietzsche the living and the dead are representations of a non-discontinuous

order.

12 It goes without saying that positivism has an almost uniformly negative connotation. This negative evaluation is not unique to our own times. F.Ringer notes that in the German universities between the 1890s and the 1930s, during the Weimar period, 'the label "positivist" was almost invariably used in a deroga-tory sense' ('The Origins of Mannheim's Sociology of Knowledge', in McMullin [6.202], 55). This parallel with contemporary negative connotations of positivism extended to a critique that similarly accords with the corrective turns to the historical, the interpretive or hermeneutic and the social. For Ringer, the criticism of positivism entailed its own inherent ideology: 'positivism was seen as a kind of intellectual acid, a potentially disastrous dissolvent of wholistic concepts, traditional beliefs, and socially integrative certainties. To "overcome" the problems raised by specialization and positivism alike…there was an urgent need for a revitalization of philosophical idealism that would also reinstate *Wissenschaft* as a ground for an integral and partly normative *Weltanschauung*.'

13 I.Hacking, '"Style" for Historians and Philosophers', *Studies in the History and Philosophy of Science,* 23:1(1992):1–20 (12).

14 Berthelot, Duhem scholars seem pleased to observe, is himself today very nearly forgotten and certainly more obscure than Duhem.

15 The issue is a socially and historically complicated one. For background information on this topic, see chapter 6 of M.J.Nye [6.51]. For a fuller discussion of the particular circumstances of Hélène Duhem's efforts on behalf of her father's unpublished work, see R.N.D.Martin [6.50],

16 Parisians—and New Yorkers—will understand the profound implications of such a circumstance. Although Duhem was characterized by his Bordeaux contemporaries as testy ('violence himself'), it is not hard to imagine this perception a result of a provincial point of view.

17 Today we might understand this perspective as a reaction against *scientism,* and it is still represented by thinkers such as Jacques Ellul and René Dubos. For a discussion of the French intellectual landscape with respect to the historical features of scientific dogma and religious belief including a discussion of Dubos' situation regarded within such a vista, see H.W.Paul [6.52].

18 W.A.Wallace, *Prelude to Galileo: Essays on Medieval and Sixteenth Century Sources of Galileo's Thought* (Dordrecht: Reidel, 1981).

19 See Wallace, *Prelude to Galileo,* 'Galileo and Reasoning *Ex Suppositione*', pp. 124–59. Among others, see M.Clavelin, *The Natural Philosophy of Galileo: Essay on the Origins and Formation of Classical Mechanics* (Cambridge, Mass.: MIT Press 1974) and R.E.Butts and J.Pitt (eds), *New Perspective on Galileo* (Dordrecht: Reidel, 1978).

20 Butterfield [6.212], 27.

21 K.A.Popper, *Conjectures and Refutations: The Growth of Scientific Knowledge* (New York: Harper & Row, 1963), p. 99.

22 Hacking (note 13), p. 7. Hacking feels compelled to add for reasons I dare not surmise, for Hacking does not comment on this addition, '…and also Spengler'.

23 A.MacIntyre, 'Epistemological Crises, Dramatic Narrative, and the Philosophy of Science', in Gutting (ed.) (note 3), p. 67.

24 It is hard to read Bachelard as conceiving of the scientist as a woman, hence I use masculine pronouns advisedly in what follows.

25 P.A.Heelan, 'Preface' to the English translation of Bachelard's *The New Scientific Spirit* [6.54], xiii.

26 Tiles [6.83], xv.
27 See J.Culler, *Framing the Sign: Criticism and Its Institutions* (Oxford: Blackwell, 1988). See too J.Llewellyn, *Beyond Metaphysics: The Hermeneutic Circle in Contemporary Continental Philosophy* (Atlantic Highlands: Humanities Press, 1985). This dissonant reception may also account for the recurrent fascination with Bachelard.
28 R.Smith [6.82], preface.
29 Cf. J.Derrida's discussion of the 'hinge' *(brisure)* in *Of Grammatology,* trans. G.Spivak (Baltimore: Johns Hopkins University Press, 1974), pp. 65ff.
30 Paul Valéry (1871–1945), French poet, literary theorist and essayist.
31 B.d'Espagnat, *Penser la science ou les enjeux du savoir* (Paris: Bordas, 1990), p. 223.
32 M.Müller and A.Halder, *'Analytische Philosophie', Kleines Philosophisches Wörterbuch,* (Freiburg im Breisgau: Herder, 1971), p. 19.
33 P.A.Heelan, 'Hermeneutical Phenomenology and the Philosophy of Science', in H.Silverman, *Gadamer and Hermeneutics: Science, Culture, Literature* (New York: Routledge, 1991), p. 213.
34 See for example R.Bubner [6.131] and in particular Bubner [6.132].
35 See Feyerabend [6.218, 6.219, 6.220].

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CHAPTER 7
Philosophies of Marxism

Lenin, Lukács, Gramsci, Althusser

Michael Kelly

INTRODUCTION

Marxist philosophy can be seen as a struggle with Hegel or a struggle with capitalism, that is, as an intellectual or a political movement. Neither of these views can be very readily reduced to the other, but nor can they be entirely separated. It is difficult to deal with Marxism in terms of a particular discipline when so much of it sprawls awkwardly across the lines which delineate disciplinary boundaries within the English-speaking institutions of knowledge. The attempt here to approach it within a philosophical context can scarcely avoid transgressing that context and introducing material which, in a narrow definition of philosophy, may be thought out of place. To consider Marxism at all, philosophy may need to consider itself a more commodious enterprise.

A history of Marxist philosophy cannot be innocent. The Marxist tradition includes histories of philosophy and philosophies of history. It also includes notoriously conflicting accounts of the nature and status of both history and philosophy. Nor is there any better agreement among non-Marxist thinkers on the nature and status of Marxist philosophy. A study of its history must enter a fiercely contested field of combat, where, more than in any other philosophical tradition, the struggle is waged not only in the intellectual realm but also in the social and geopolitical arenas. The context in which this study is written, in the turbulent and uncertain aftermath of the collapse of communist regimes throughout Europe, carries its quantum of intellectual risk, and confers a certain untimeliness on what is to be said.

Far from being a *philosophia perennis,* Marxist philosophy is in constant mutation, spurred not only by the shifting contours of its environment but also by the changing problems and purposes of its practitioners. With the passage of time, there has grown up an increasing multiplicity of re-interpretations of canonical texts and commentaries, several divergent accounts of who the founder (or founders) were, which of their writings may be relied on and which subsequent commentators should be consulted. In many cases, such issues have been the occasion of bitter controversy, and several schools of Marxist thought have vigorously claimed to possess the only authentic version. Some have, for a time at least, been willing and able to support that claim with judicial or even military coercion. An initial question is therefore that of identity: in what sense can a substantive Marxist philosophy be coherently defined across the diversity of its forms? Eschewing orthodoxies, the present study will be content with a looser understanding of the Marxist tradition as a family of movements, connected in complex and often

conflictual relationships. In such a brief span as this chapter, it will not be possible to examine more than a few moments in the tradition, and the main lines of their interrelation. Such a broad approach to Marxism carries a price. In particular, it cannot do more than gesture at the coherence and breadth of view which some versions of Marxism have achieved, and which some, but not all, Marxists have regarded as a major strength and achievement.

A closely related issue is what status to accord to philosophy within Marxism. Invariably, this refers back to the relationship between Marx and Hegel. Marx's much repeated distinction between Hegel's system (castigated as the idealist shell) and his method (lauded as the rational kernel) has given rise to deeply conflicting interpretations. Whereas some have argued that Marxism continues the Hegelian project of providing a general philosophical framework which unifies the entire field of human knowledge, others have contended that Marx's signal achievement was to abandon philosophy, having exposed its ambitions as illusory. There are many other positions between these two poles. Without invoking an easy dialectical supersession of these terms, the present study grasps the nettle at least to the extent of accepting that there is a field of discourse within Marxism which must be recognized as philosophical, even when (perhaps especially when) it purports to announce the end of philosophy.

At the heart of the problem is the relation between theory and practice. The starting point lies in the major insight of Marxist thought that in addition to understanding or interpreting the world it should seek to change it. Implied in this notion is the view that in the first instance thought is a product of human social activity and that in the second instance it contributes to producing or shaping the future course of that activity. Applied to philosophy specifically, it suggests that philosophers who refrain from seeking change are by default helping to maintain the existing social order. It may then be inferred that philosophers who declare themselves as Marxist (or vice versa) are engaged, through their philosophy, in a project of social change. The consequences of such an inference for Marxist philosophers personally have at different times and places ranged from exile, torture and execution to celebrity, fame and fortune: more often the former than the latter. The shadow of the philosopher-king also looms in the important historical figures who inhabit the pantheon of Marxist philosophy, including Lenin, Stalin and Mao Tse-tung in their day. Their example compounds the tension between theory and practice in urging Marxist political figures to exercise leadership in philosophy and philosophers to don the mantle of statecraft: a wider gulf to bridge within some cultures than within others.

Karl Marx's own discomfort on the interface between his theoretical and political responsibilities was summed up in his reaction to French 'Marxists', whose work prompted his much-quoted comment that 'I am not a Marxist'. While it may be rash to place too much weight on this *boutade,* it usefully illustrates the problematic relationship between Marxist philosophy and an individual author. Perhaps more than elsewhere, there are visible limits on the extent to which an author can, or would wish to, claim ownership of the texts or ideas ascribed to him or her. If Marx was led to disown his self-appointed disciples during his lifetime, it would be prudent not to assume too close a correspondence between his or other thinkers' writings and the positions with which they are usually associated. Such prudence would be encouraged by the common phenomenon in Marxism of texts coming to exercise influence only long after they were written and in

quite different circumstances from those in which they were produced. This is eminently true of major works of Marx, Lenin, Gramsci and Lukács. A thinker is often brandished as a banner, designating a particular view which may or may not be found explicitly in his or her work. Frequently, by a process of displacement, a thinker or even a philosophical concept will also come to function as a coded reference to a political position or programme, which cannot be directly addressed. An author or idea is in this respect primarily a signifier, whose meaning is closely dependent on the context of its utterance. They can in this way be emptied of meaning, though it is also common for them to become supersaturated with meaning, when accumulated layers of commentary effectively come to bar access to a heavily glossed text.

Marxist philosophy is largely inextricable from the groups and movements for which it has been formulated or which have adopted it as a theoretical approach likely to promote the achievement of their political purposes and programmes. Among them have been the labour and trade union movements, the political parties of the left, the movements for national self-determination and the states and regimes which under one guise or another have espoused Marxism. Institutionalization of this kind has several effects which often differentiate Marxist philosophy from other philosophies. One which is rarely remarked upon is that the channels of its communication are frequently those of a sponsoring organization, whether a political paper or journal, a political training programme or a publishing house with a recognizable political or social complexion. Not infrequently, work of Marxist inspiration has been excluded from the channels available to professional philosophy. Marxist texts are always characterized by high levels of intertextuality, such that their importance is often only grasped by a reader who is familiar with other canonical or contemporary texts from which they are specifically distinguished. Another distinguishing feature is the frequent effort to express Marxist ideas in a way which is sufficiently simple and systematic to be widely understood and applied, particularly by a non-specialist readership. Allied to this is the degree of constraint under which work is produced, ranging from standard formats and house styles to varying degrees of editorial intervention and collective authorship. No doubt this is inseparable from the effect institutions have of vesting philosophy with authority beyond the intrinsic merit of rational discussion.

There remains one final question for the present historical study: what is the object of study? Is it a history of philosophers, however defined, or of ideas, or of intellectual movements? And what criterion of selection and ordering is to be applied in the face of a daunting abundance of material? The close dependence of Marxist philosophy on the material conditions of its production and its reception suggests that it should be approached as a history of ideas, though the confines of space dictate that it will here be examined most often in terms of an individual philosopher. But while ideas and philosophers do have individual and collective histories, their history is not wholly their own. Concepts, propositions or arguments appear, change and disappear at times and in places that can be charted, but their development cannot be adequately understood in isolation from other historical processes, which provide both the conditions of intelligibility and the main motive force for change. Ideas, in other words, draw their life and strength more from social than from logical relations, though in the present study the social context can be only lightly sketched.

If ideas do not entirely have their own history, then they may best be approached through entities which do have their own history. From this perspective, it is clear that countries, or regions, offer the most manageable historical framework. Countries certainly do have their own history, and it may even be argued that having a history is what makes a country a country. The identity of a modern nation is closely bound up with the construction, by itself and others, of a historical narrative in which it figures as the subject. Philosophy is one of the cultural forms through which a nation represents itself, articulating a general statement of its own identity and its history, especially in relation to the acquisition of state power. Marxist philosophy has for most of the twentieth century been a major participant in defining and representing this process, and the remainder of this chapter will therefore be structured in terms of national and regional Marxist philosophical movements.

SOVIET MARXISM

The Soviet Union was the first country to adopt Marxism as an official philosophy. Supported by resources of the state and the prestige of the October Revolution, Soviet Marxism was for most of the twentieth century the dominant version of Marxist philosophy in the world. Its domination was never complete, of course, and much of the debate among Marxist philosophers has been directed towards attacking or defending all or part of the Soviet synthesis.

Towards the end of the nineteenth century, Russian socialists discovered Marxist ideas, and, largely under the direction of George Valentinov Plekhanov (1856–1918), elaborated them into a schematic and all-embracing philosophy. Plekhanov's major work, *The Development of the Monist View of History* (1895) became both an authoritative statement and a model for later Soviet approaches to Marxism. He critically analysed several currents of previous European philosophy, drawing out the strengths and limitations of their thought as a preparation for the resolution of their problems in the Marxist materialist conception of history. The materialism of the eighteenth-century French Enlightenment, the conception of history of nineteenth-century French historians, the French Utopian socialists' concept of society and the dialectical philosophy of the German idealists were each examined and found to be useful but flawed. He then expounded Marx's solutions, based on Engels's short accounts of his own and Marx's philosophy, which Plekhanov characterized as a 'modern dialectical materialism', thus coining the term which later became the generic title for official Soviet Marxism. He laid a particularly strong emphasis on the determining role played by the economic base of society, as against the political, legal and ideological superstructures, which he saw as merely a function of the base, facilitating or impeding economic developments.

Without dwelling on the detail of his interpretation, it may be noted that Plekhanov firmly established the practice of approaching Marxism through the exegesis of passages from Marx and Engels, confirming a scriptural tradition in which texts are the authoritative source of truth. He also approached Marxism through the intellectual history of its antecedents, with several important consequences. In the first instance, it situated Marxism in the mainstream of European thought, with all the intellectual prestige

attaching to it, particularly among the Francophile Russian intelligentsia. Second, it suggested that, within this tradition, Marxism appears as a modern and therefore better solution to long-running problems, the very example of human progress. Third, it confirmed the contestatory and polemical character of Marxism, which is almost defined by its conflict with other schools of thought. These characteristics were amplified over the years, as Plekhanov became the catechist of Russian Marxism. Even though he became a leader of the Mensheviks from 1903, his philosophical writings were warmly endorsed by Lenin, and his influence continued for several years after the Revolution and his own death in 1918.

Lenin's main philosophical work is *Materialism and Empiriocriticism* (1908). In it he attacked what he considered to be idealist deviations in the theory of knowledge, canvassed by leading intellectuals within the Marxist movement, among them Plekhanov, who saw convergences with religious thought. Lenin contested the view that discoveries in modern physics, challenging Newtonian mechanics, lent support to these 'revisionist' tendencies. Apart from the reiteration of classical statements of principle drawn from Engels, the major impact of the work was to reinforce the polemical mode in which Russian Marxist philosophy was increasingly couched, with the invective and stigmatizing labels which were more common in political discourse. Lenin also published a number of short popularizing accounts of Marxism, including an essay, *The Three Sources and Three Component Parts of Marxism* (1913), which identified the founding triad of Marxism as German philosophy, English economics and French politics, each superseded by Marx's theoretical advances.

The importance of these works is primarily that they were written by the leader of the revolutionary movement which took power in 1917, and founder of the Soviet state. In this capacity, they underwent the same canonization as Lenin himself, after his death in 1924. Used to support several sides in the philosophical debates of the 1920s, they achieved the status of scripture when, in the early 1930s, Joseph Stalin declared Lenin to have made such a significant advance in Marxism that it was henceforth to be known as Marxism-Leninism. The sanctification was selective, however. In particular, Lenin's notes on his enthusiastic reading of Hegel, published in 1929, did not attract Stalin's approval.

The process by which Marxism-Leninism became the state philo-sophy of the Soviet Union was marked by bitter controversies, particularly among the professional philosophers who vied with one another to secure the support of Stalin. The groundwork of Marxism-Leninism was laid in the codification of historical materialism by Nikolai Ivanovitch Bukharin (1888–1938), in his manual *The Theory of Historical Materialism* (1921). It sparked an intense debate, much of it conducted in the pages, and editorial premises, of the leading philosophical journal *Pod znamenem marksizma* ('Under the banner of Marxism'—1922–44). On one side, the 'mechanists' (Skvortsov-Stepanov, Timiryazev and others) held, with Bukharin, that Marxism now had no need of philosophy since it had advanced to the stage of scientific knowledge. Consequently there was no place for philosophers and ideologists to intervene in matters of natural science.

On the other side, the 'dialecticians' (Deborin, Tymyansky, Sten and others) argued, in the tradition of Plekhanov, that Marxist philosophy was increasingly needed to generalize, unify and direct enquiry in all areas of knowledge, as a 'science of sciences'.

The debate was concluded in 1929 when Bukharin's fall into political disfavour took the mechanists with him. The dialecticians' victory was, however, shortlived. Their general position passed into orthodoxy, but they themselves were criticized by a new generation of 'bolshevizing' philosophers who accused them of overestimating Plekhanov at the expense of Lenin, and of unspecified links with Trotsky (who had in fact generally been reluctant to pronounce on philosophical matters).

At the centre of these debates was the question of authority, which fell into two parts. First, what authority did philosophy have to direct activity in other areas of society, especially the strategic areas of science and technology? The answer to this was that it had complete authority to legislate and pronounce: Marxist philosophy was fundamental to the successful construction of socialism, both in one country and worldwide. Second, what authority is philosophy itself subject to? The answer to this is that it was subject not to some internal philosophical principle or tradition but to the interests of the working class, represented by the Communist Party, embodied in its General Secretary, Stalin, whose authority was derived from Lenin. The specific contribution of Lenin to Marxism was in turn declared to be his championing of partisanship in philosophy, interpreted ultimately as the obligation of submission to the Party. This was the point at which Marxism-Leninism assumed the position of official state philosophy.

The 1930s were a period during which Stalin extended his power over the whole of Soviet life, and over the expanding communist movement throughout the world. Codification and 'bolshevization' went hand in hand under the banner of Marxism-Leninism, and reached their apogee in the era of the great purges with the publication in 1938 of the definitive Stalinist manual, *History of the Communist Party of the Soviet Union (Bolsheviks), A Short Course.* One chapter of the *Short Course,* credited to Stalin himself, laid out in simple schematic form the basic dogma of dialectical and historical materialism. The four principle features of dialectics, as opposed to metaphysics, are listed as interconnection, change, qualitative leaps and contradiction, while the three features of materialism, as opposed to idealism, stipulate that the world is material, exists independently of mind, and is knowable. This dialectical materialism is the guiding star of the party of the proletariat and when applied to the study of history it yields historical materialism. This recognizes that spiritual life (including ideas and institutions) is a reflection of economic production, and that the determining force in historical development is the mode of production, composed of forces of production and relations of production. Five types of productive (i.e. property) relations have existed: primitive communal, slave, feudal, capitalist and socialist, and the transitions between them have always occurred through revolutions triggered by the faster progress of productive forces (instruments, people, skill) than their associated relations.

The authority of the *Short Course,* assisted by its blunt clarity, channelled Marxist philosophy into a narrow and dogmatic orthodoxy, which held absolute sway in the Soviet Union and in world communism until after Stalin's death. Since that time it has been the implicit reference point of much of Marxist debate, even (perhaps especially) when Stalinism is most vehemently denounced. Soviet dogmatism was given a further twist in the early days of the Cold War when, under the direction of Andrei Zhdanov, culture, including philosophy, was relentlessly confined to the defence and illustration of Soviet Marxist preeminence in all things. This included strong discouragement of interest

in non-Marxist philosophy, even where, as with Hegel, it had strong connections with Marxism, and even extending to Marx's own noncanonical writings, particularly the Paris Manuscripts of 1844.

After the death of Stalin in 1953, and his denunciation by Krushchev at the 20th Congress of the Soviet Communist Party in 1956, the rigidly dogmatic approach began to ease. But an indelible pattern was set, which no amount of destalinization could remove. The authority of the state, the primacy of the party, the obligatory teaching of Marxism-Leninism at all stages of the Soviet education system and a strongly hierarchical academic establishment, all served to maintain the social and intellectual structure of Soviet Marxism largely unchanged. The Stalinist 'Vulgate' developed into an elaborate scholastic system, in which controversies might rage over the interpretation of a particular passage of the canon, or over the status of a particular doctrine. A good example was the successful campaign to rehabilitate the negation of the negation, omitted by Stalin from the *Short Course,* as one of the universal dialectical laws of development.

Paradoxically, the very close identification of Marxism-Leninism with the state and party also largely insulated it from developments which took place elsewhere in Marxist philosophy. The logic was simple: if a foreign thinker was not a member of a communist party, he or she was not an authentic Marxist, and could be recognized only as some form of renegade or deviant from Marxism; conversely, if he or she was a party member, his or her work could not be publicly discussed without infringing the principle of non-interference in the affairs of a fraternal party. The result was inevitably a thriving underground preoccupation with foreign Marxist philosophers, and with major non-Marxist philosophers. The resulting gulf between the public and private face of Soviet Marxism rendered it extremely friable under pressure of events. Marxism-Leninism in the USSR's eastern European satellites, and in pro-Soviet communist movements elsewhere, was clearly marked as a coded acceptance of Russian domination, political or ideological. In those parties which espoused the Eurocommunist line in the 1970s, it was symbolically rejected, while in many others it was discreetly abandoned. In any event, it had no independent strength on which to draw, and when the state and party which sponsored it collapsed at the beginning of the 1990s, Soviet Marxism effectively came to an end. Since it has been the focus and archetype of Marxism for most of the twentieth century, it remains to be seen whether its demise will also prove to be the end of Marxism as such.

The Chinese variant of Stalinist Marxism has also been influential. Chinese communism developed two main currents of philosophy, one being the orthodox Marxism-Leninism of the *Short Course,* introduced by Moscow-trained intellectuals and promoted by the Comintern, the Third or Communist International (1919–43) founded by Lenin to direct the policy and activities of Communist parties worldwide. The other current was an adaptation of the first by intellectuals based in the revolutionary headquarters at Yenan during the late 1930s, of whom the most successful was Mao Tse-tung (1893–1976). Apart from a much greater emphasis on the role of the peasantry, Mao developed a classification of contradictions in terms of whether they were antagonistic or non-antagonistic in nature, primary or secondary in the specific context, and what their primary and secondary aspects were. He argued that contradictions and their aspects could in certain circumstances pass from one type to another, particularly when they were handled correctly in the practice of the revolutionary party.

With the success of the Chinese revolution in 1948, and particularly after the death of Stalin, Mao was increasingly presented as a second Lenin, and Peking as an alternative to Moscow in the leadership of the world communist movement. During the 1960s, most countries witnessed the rise of Maoist communist movements, which in western Europe were small, but particularly successful in student circles. They were particularly influenced by the events of the Cultural Revolution, during which the 'little red book' of *Quotations from Chairman Mao Tse-tung* elevated his neo-Stalinism to cult status, condensing the official philosophy, renamed Marxism-Leninism-Mao-Tse-tung Thought, into all-purpose gobbets and slogans. From this apotheosis, Chinese communism returned from an internationalist to a nationalist Marxism-Leninism, and for a time during the 1980s began to allow the expression of humanist forms of Marxism associated with Lukács and Gramsci. Whether and how soon Chinese communism will incur a fate comparable to its Soviet counterpart can only be a matter of speculation, but it is clear that its influence on Marxist philosophy elsewhere largely ceased in the mid-1970s.

CENTRAL EUROPEAN MARXISM

In the early years after the First World War, before root and branch bolshevization had set them all marching to the rhythm of Moscow, there was still a flourishing culture of philosophical debate among central European Marxists. To a large extent this was conducted in the German-speaking circles which had been the intellectual centre of gravity of pre-Bolshevik Marxism. Pervaded by the humanism of the Second International, the organization which brought together the social-democratic and labour parties of Europe (1889–1914), and oriented toward a respect for intellectual and cultural values, it was blotted out by triumphant Marxism-Leninism and lay largely ignored until the post-Stalinist era of the 1960s. At that stage it was rediscovered in the writings of Korsch, Lukács, Benjamin, Bloch and others, and given widespread currency, largely by movements opposed to the dominant communist orthodoxy.

Several attempts have been made to construct an alternative tradition by aggregating these writers with the Frankfurt school, with Italian Marxists, and with French writers as diverse as Althusser and Sartre, to create a 'western Marxism'. Such has been the project of the British *New Left Review,* which has done a great deal to create an appropriate canon of texts in English, and has rendered accessible a broad range of non-Soviet Marxist theorists. None the less, the notion of 'western Marxism', coined in the mid-1950s by Maurice Merleau-Ponty, loses historical coherence as soon as it is extended beyond the germanophone debates of the interwar period. For this reason, it is more helpful to consider the diverse central European writers withouthaving to wrestle them into an artificial unanimity with each other and with writers from other intellectual and political traditions.

Undoubtedly, the giant among these philosophers is Georg (György) Lukács (1885–1971). Born in Budapest to a wealthy and cultured family, and educated in the universities of Germany and the Austro-Hungarian Empire, he wrote with equal facility in German and Hungarian, and played a significant role in the political history of Hungary and of the international communist movement, as well as being the central

figure in major literary and philosophical debates. Brought up in the German philosophical tradition of Kant, Dilthey and Simmel, he came to espouse Marxism via Max Weber and then Hegel, whose thought exercised an enduring fascination for him. A leading figure of the leftist faction in the Hungarian Communist Party during the turbulent events of 1919–20, Lukács developed an interpretation of Marxism sharply at odds with the dialectical materialism which gained ascendancy in Moscow. Through most of his career he was the target of repeated attacks on his 'revisionist' positions, despite his efforts at different times to assert his own orthodoxy. There has been considerable discussion as to whether Lukács's philosophical positions can be directly correlated with his political shift towards a conciliatory attitude to the non-communist left. But since his political sympathies were in many respects close to Bukharin, whose philosophy he opposed, it would be rash to draw any reductive conclusions.

Undoubtedly Lukács's major work is his collection of essays *History and Class Consciousness,* published in 1923. It was the focus for controversy in the years following its publication, and again at the beginning of the Cold War. It was widely circulated in French translation in the 1960s, before Lukács approved its reappearance in German and English in 1967. The basic thrust of the book was to relocate Marx firmly in the tradition of Hegel, and to draw out the Hegelian concepts which Marx had sought to refashion. In the first essay ('What is orthodox Marxism?') Lukács argues that Marx had adopted the progressive part of the Hegelian method, namely the dialectic, setting it against the mythologizing remnants of 'eternal values' which Hegel himself had been struggling against. In this sense, Marx was directing against Hegel the very criticism that Hegel had levelled against Kant and Fichte, that they immortalized particular moments of abstract reflection at the expense of an awareness of process, concrete totality, dialectics and history. Hegel, he argued, had been unable to progress from the level of abstractions to a perception of the real driving forces of history, and it had been Marx's originality to discover these forces.

Perhaps the most influential essay in the book, entitled 'Reification and the consciousness of the proletariat', launched the interpretation of Marxism as a theory of alienation, remarkably antici-pating the argument of Marx's Paris Manuscripts of 1844, which had not yet been brought to light. Lukács highlighted the exchangeable commodity as the basic unit of capitalist economies, and the fetishism of commodities as an inevitable consequence, leading people to neglect the human content of activity in favour of its quantifiable exchange value. He argued that it was a logical necessity for the development of capitalism that all relations must eventually be reduced to the structure of commodity-exchange. This process of reification led, he thought, to all aspects of life being calculated and quantified, alienating the individuality of both people and things. Carried to its conclusion, it also stamped its imprint on human consciousness and reified the most intimate areas of human relations and the most rigorous of scientific investigations. Within bourgeois society there was clearly no prospect of a radical escape from the ravages of reification. The only hope of a solution was to transform philosophy into *praxis,* a practical orientation of thought and consciousness towards reality. Reality in this sense was understood as a process of becoming, a totality. Only the practical class consciousness of the proletariat, grasping itself as the subject of the social totality, could be expected to transform a theory of *praxis* into a practical theory which overturns the

real world, revolutionizes the totality and overcomes the process of reification. Even then it would succeed only as long as it retained its practical orientation and avoided the Hegelian pitfalls of schematization, repetitive mechanical patterns (such as the famous triad: thesis, antithesis, synthesis), and the undialectical project of extending its attention beyond human society to a philosophy of nature.

Lukács's reaffirmation of Hegel's relevance was in one sense a reclamation of Marx for the European philosophical tradition, and a challenge to the increasing tendency to sanctify Lenin, visible in the last months of the latter's life and stridently pursued by Stalin in the campaign of bolshevization. His strictures against Hegel's shortcomings were in another sense an implicit reproach to the codification of Marxism into a set of rigid abstractions, culminating in the *Short Course*. He reaffirmed the dialectical relationship between subject and object, between theory and practice, as a fundamental tenet of Marxism which guaranteed its progressive and transformative potential. The alternative, he argued, would be a relapse into Utopian dualism, characteristic of revisionism, and generating an ossified theory which would serve as a catch-all justification of any kind of practice. This would most likely lead to a conservative right-Hegelian worship of the state from which Marx had rescued the posterity of Hegel. It is not difficult to see the Marxist-Leninist equivalent looming over the argument.

But Lukács did not only set a challenge to Soviet Marxism, he also set an intellectual agenda for an alternative, Hegelianizing Marxism. Cultured and humanistic in its ethos, it drew strength from romantic idealism and traditions of religious fervour. The philosophy of alienation offered a subtle dialectic with a strong appeal to intellectuals, while the philosophy of *praxis* offered a basis for activism and engagement in the political struggles of the working class, cast as the secular source of salvation. Over the longer term, the richness of Lukács's conceptualization, and the many philosophical links it made with the European intellectual mainstream, made *History and Class Consciousness* a bridge between the western New Left of the 1960s and the non-Stalinist roots for which it was so ardently searching. Lukács himself, though long-lived, played a singularly distant role in his own rediscovery, obliged as he was to play intellectual hide and seek with the political authorities in Moscow and Budapest. For most of his career, he was much more widely recognized as a literary theorist and critic of European literature, deeply involved in the cultural controversies, and more than a little reticent about his earlier philosophy.

Though he was much read, Lukács had few disciples in central Europe. Perhaps the most noteworthy is the Romanian scholar, Lucien Goldmann (1913–70), who met and admired Lukács in Vienna but spent most of his adult life in Paris, where he distinguished himself primarily through his analysis of French literature using approaches drawn from Lukács and from the structuralism of Jean Piaget.

Closer in spirit and preoccupations was Lukács's contemporary and friend Karl Korsch (1886–1961). A leading figure in the powerful German Communist Party of the 1920s, Korsch took a leftist stance vehemently opposed to the bolshevization of the Communist International. His most influential work, *Marxism and Philosophy* (1923), aroused sharp hostility and, with other oppositional leaders he was eventually ousted from the Party. In 1936 he emigrated permanently to the United States.

Korsch noted that nineteenth-century Marxism had largely ignored philosophy, and he

traced the fact to Marx's and Engels's view that their materialist conception of history and society was destined to supersede classical German philosophy, from which it sprang, and ultimately destined to replace philosophy. He castigated the undialectical approach of those who had assumed that philosophy was therefore abolished, and of those who wished to reinstate it, pointing out that its abolition was necessary but dependent on the revolutionary transformation of the historical circumstances which produced it. Since this transformation had not taken place, the rejection of philosophy was premature, while its reinstatement was retrograde. The result of abolition was that Marxist economic or political theory were being proposed as value-free sciences which could equally be used by opponents of socialism, and that in practice socialists were combining Marxism with various substitute philosophies which did provide systems of values. Conversely, the result of reinstatement was to reinforce philosophy as an obstacle to the process of its own historical suppression.

Since Korsch was attacking both the theorists of the Second International, who had abandoned philosophy, and those of the Comintern, who were reinstating it, he attracted fierce criticism from both sides. There were strong affinities between his position and that of Lukács, but both were increasingly isolated voices in the political aftermath of the failure to achieve socialism internationally. The revolutionary fervour and the messianic tone of their thought did not chime with the increasingly inhospitable social and political climate in central Europe.

More consonant with the disillusioned and embattled left of the interwar period is the work of Walter Benjamin (1892–1940), a Berliner who largely avoided political activism but expressed a revolutionary Marxist approach in his critical essays. Benjamin was a critic and historian of culture, rather than a philosopher, sharing the perception of the Frankfurt school (which is treated elsewhere in this volume) that culture had in some respects overtaken politics as the main field of struggle. His work on Brecht (with whom he enjoyed a close friendship) and Baudelaire, and his more philosophical essays collected as *Illuminations,* began to attract renewed attention in western Europe during the 1970s. Benjamin was a deliberately non-systematic thinker, considering images, aphorisms and allegories as a more potent means of gaining purchase on the course of history. Progressive change was likely, he thought, to arise either from a long-term strategy of attrition or from an extremely focused unleashing of explosive social forces. In either event, his approach was expressed in the contemporary maxim of 'pessimism of the intellect, optimism of the will', and he summed up his conception of history by reference to a drawing by Paul Klee showing the angel of history facing backwards to look with pity on the debris of its victims, but propelled into the future by a storm blowing from paradise, which constitutes progress. Benjamin himself fell victim to the upheavals of history, taking his own life to avoid falling into the hands of the Gestapo as he attempted to flee from occupied France into Spain.

Central European intellectuals, caught between the hammer of fascism and the anvil of Marxism-Leninism, plunged into an understandable slough of despond with the approach of war. The basis for any optimism was slender, but, such as it was, it was articulated in the philosophy of possibility of Ernst Bloch (1885–1977). Born and educated in Berlin, Bloch developed a syncretic philosophy in which Marxist elements jostled with religious mysticism, vitalism and classical German philosophy. During his wartime exile in the

United States, he wrote most of his major work, *The Principle of Hope,* which was published in East Germany, where he had returned, during the 1950s. He later fled to West Germany following disagreements with the communist authorities which he had generally supported, without becoming a party member.

Bloch's thought, expressed almost as aphoristically as Benjamin's, follows a humanist inspiration to argue that the basic nature of a human being is characterized by living and working towards a future goal which is in the process made real, actualizing one out of the many potential forms of existence. The task of creating a utopia is central to human existence, and falls not only to the intellect but also to the imagination and emotions, which can awaken latent possibilities within the present. Ever since earliest times, human societies have woven images and stories of utopias, which they have variously attempted to bring into being, without ever completely succeeding. The constantly renewed drive to do this is a principle of hope which energizes human activity and finds its highest expression in the Marxist project of a concrete utopia, which can be compared with the kingdom of heaven.

Bloch's very unspecific characterization of what kind of utopia may be hoped for is in sharp contrast with his euphoric endorsements of East German social achievements, and he has been criticized for both. But, assisted by his own longevity, Bloch's work is another important contribution from the generation of central European Marxist philosophers who were formed and continued to write outside the orthodox Marxist-Leninist framework. Though Bloch, Benjamin, Korsch and Lukács are in many respects different both politically and philosophically, they do share common roots in the classical German philosophical tradition which culminated in Hegel, and a deep regard for the value and efficacity of European cultural traditions. It is this shared culture which gives them their potential for resisting the reduction of philosophy to an instrument to be used, modified or discarded as it suits a particular political purpose.

ITALIAN MARXISM

From the end of the First World War to the end of the Second, Italian Marxism led an underground life, most of which was only brought to wider attention long afterwards. It was not born in the underground, however. Before the Great War, Marxists were well-established figures in the Italian mainstream, active participants in debates which were shaped by the neo-Hegelian revival.

Most prominent of the early Italian Marxists was Antonio Labriola (1843–1904), whose *Essays on the Materialist Conception of History* (1895–1900) were read throughout Europe at the turn of the century. His undogmatic and humanist approach was alert to the sinuosities of history but lyrical about the mission of the proletariat to give meaning to it. His thought left its mark on philosophers like Benedetto Croce (1866–1952) and Giovanni Gentile (1875–1944), who both grappled with Labriola's Marxism before taking an avowedly Hegelian path away from it towards liberal and, in Gentile's case, fascist conclusions. The triumph of Mussolini in the early 1920s created extraordinary difficulties for communists and Marxists in Italy, with activists driven into exile, or hiding, or prison. In exile, a leader like Palmiro Togliatti (1893–1964) was able

to shape the political direction of the Comintern, though not the development of Marxist philosophy.

Paradoxically, it was the imprisonment of the Italian Communist Party leader, Antonio Gramsci (1891–1937) that produced the most influential theoretical and philosophical development. Born of a poor family in Sardinia, Gramsci studied history and philosophy at the university of Turin before throwing himself into revolutionary politics early in the First World War. He became an editor of the influential socialist review *Ordine nuovo* ('New order') in 1919 and played a key role in the foundation of the Italian Communist Party, becoming its leader in 1923, when his policy of broad alliances eventually prevailed. His political activity in Italy and abroad ended when he was arrested in Rome and imprisoned in 1926. Spending the rest of his life in appalling conditions in prison and hospital, Gramsci wrote prolifically, reflecting deeply on Marxist principles in virtual isolation from current events. His influence stems mainly from his *Prison Notebooks,* which were published in Italy soon after the Second World War but only became widely known during the late 1960s, when they were identified as offering an attractive alternative to Soviet Marxism.

Philosophically, Gramsci's affinities were with the Hegelian tradition which he had encountered through Croce. He considered that Marx's achievement had been to create a synthesis from the two opposing schools into which Hegelianism had divided. He also thought that Marx's own posterity had divided into two schools, mechanistic materialism and dialectical idealism, which now needed to be welded into a new synthesis. His proposal was a philosophy of *praxis,* a name he chose partly as a code-word for Marxism to placate the prison censors but partly also because it encapsulated his distinctive conception of history as an aggregation of human practical activity.

At the core of Gramsci's philosophy was the humanist question: what is man? A later generation, attempting to meet feminist critiques, has rephrased the question: What is human existence? Gramsci's answer was that humanity is reflected in every individual person, and consists of the individual, other people and nature. The individual enters into relationships with other people and with nature, primarily through work, generating a network of relationships. These relationships form organic social entities, which become conscious of themselves and become capable of purposeful and effective action. Thus the individual is an integral part of the process of change which is history, its conscious motive force, and the whole complex of changing relationships is part of each individual. Human existence is synonymous with the socio-historical process and the question 'what is human existence?' must therefore be reformulated as 'what can human existence become?'

Within Gramsci's humanist vision, philosophy appears as the consciousness of the historical process, not only a dimension of the totality of human *praxis,* and therefore inherently political, but also part of the consciousness of each individual within it. It was in a sense a collective subjectivity, and its value lay in its appropriateness to the task of the collectivity rather than in its relation to any objective reality. In any case, he questioned whether it was meaningful to speak of a reality existing independently from human *praxis*. He thought it necessary for the unity and advancement of humanity that philosophy should overcome the distance, frequently observed, between the doctrine of the intellectuals and that of ordinary people. There was in particular, he argued, a need

for Marxism to foster intellectuals who were an organic part of the working people and capable of raising the level of consciousness of the masses, without bringing elitist ideas from outside. In this way, it would, he suggested, be possible to build a unity of ideas and political action which could challenge the hegemony of bourgeois philosophy and politics.

The concept of hegemony is Gramsci's most influential and contentious innovation, since it emphasizes that the exercise of power in a society is secured not only by the repressive use of state power but also more crucially by the maintenance of a moral, intellectual and cultural consensus. For the working class and its allies to win power, it is not sufficient to engineer a *coup d'état,* it is also necessary to build an alternative cultural consensus capable of securing hegemony. This is a much broader and more long-term task, requiring a different kind of organization from the highly centralized and disciplined parties built by the Comintern. Learning lessons from the ideological power exercised by the Catholic Church, Gramsci was responding to the fact that Mussolini's fascism had been successful in gaining popular support, and recognizing that a long 'war of position' would be needed to win over the masses for socialism. The alternative, which he rejected, was to fall back on faith in the likelihood of the blind workings of history producing a suitable revolutionary opportunity. For socialists reading Gramsci thirty years later, however, hegemony appeared to emphasize the strategic importance of ideological and cultural struggle as an alter-native to traditional politics, which seemed to offer no prospect of radical change.

Because of their fragmentary, allusive and often obscure nature, Gramsci's prison writings allow of a range of interpretations. At one end of the range, they can be seen as a restatement of fairly orthodox Marxism-Leninism, somewhat veiled by the circumstances in which they were produced. That is largely how they were presented when they were first published. At the other end of the range, they can be interpreted as a penetrating rebuttal of Soviet Marxism which offers an entirely different basis on which to develop Marxist philosophy. That is largely how they have been received since their rediscovery in the 1960s. The philosophy of *praxis* served to challenge the distinction between theory and practice, obviating the need for a body of theory and thus for the scholastic apparatus of hitherto existing Marxism. The concept of hegemony served to challenge the distinction between base and superstructure, reducing the importance of economics, at a time of relative prosperity, and increasing that of cultural theory, at a time of rapid expansion in audiovisual communication. In this way Gramsci's posthumous reputation grew both from his conceptual innovations and from the new political directions his ideas opened up.

In postwar Italy, Gramsci's humanist and historicist positions dominated Marxist debate for many years, assisted by the success of the Communist Party in giving intellectuals an organic role to play within political activity. His influence was not unchallenged, however. In particular, Galvano della Volpe (1895–1968) maintained a persistent critique of historicism, which he regarded as a product of the contamination of Marxism by Italian idealist philosophy. An academic rather than an activist, della Volpe drew on the egalitarian and democratic thought of Rousseau, counterposed to the Hegelian theory of the state, and argued that Marxism should concern itself with specific scientific knowledge of the world, rather than with indeterminate abstractions.

With the political effervescence of the 1960s came a flourishing Marxist culture which permeated most areas of intellectual inquiry, prompting intense philosophical debates between the diverse movements and schools of thought which sprang up inside and outside the Communist Party. Two philosophers of the far left may be mentioned as having been influential in the English-speaking world. Lucio Colletti, brought up in the tradition of della Volpe, sought to demystify the historicism of Gramsci and to refute the view that Marxism could draw on an underlying materialism in the dialectic of Hegel, whom he regarded as essentially a Christian philosopher. Ultimately, however, he concluded that dialectical mystification was present even in Marx, and he began to distance himself from Marxism. His hostility to idealism was shared by Sebastiano Timpanaro, who attacked the French attempts to reconcile Marxism with existentialist (Sartre) and structuralist (Althusser) theories. A strong proponent of materialism, which he saw as lacking in Gramsci, Timpanaro asserted the objectivity of scientific knowledge and sought recognition for the autonomous existence of the natural world, necessary as a theoretical basis for science and for ecological awareness.

These philosophers are not proposed as representative of debates over the past thirty years, and the present study cannot offer an extensive survey of the variety of Italian Marxists. They include a Utopian Marxism strongly imbued with Christian spiritualism, and several suggested combinations of Marxism with other contemporary schools of thought (psychoanalytical, ecological, feminist among others). Moreover, as the example of Colletti suggests, Marxist philosophy shades into other philosophical movements. With the transformation of the Italian Communist Party into a social democratic party, it may be that Italy has largely lost the institutional framework which made it important, or even possible, to distinguish Italian Marxism from other philosophies which are not specifically Marxist.

FRENCH MARXISM

Marxist philosophy came late to France, despite the close contacts which Marx and Engels had with French socialists. This was partly because Proudhon's syndicalist socialism continued to have a deep and abiding influence, and partly because of the periods of repression following the failed revolutions of 1848 and 1871. In the 1890s, Marx's daughters, Laura and Jenny, and his two French sons-in-law, Paul Lafargue and Charles Longuet, did a great deal to make his ideas known in France. Lafargue (1842–1911), the most active of them, propagated a highly simplified economic determinism which Marx himself was wont to criticize. His main opponent, Jean Jaurès (1859–1914), countered this with a neo-Kantian ethical socialism in which he hoped to synthesize Marx's ideas with various other progressive doctrines. Their debate was largely curtailed by the intellectual truce which followed the unification of the main socialist groupings in 1905.

The most sophisticated French contributor to pre-war Marxism, Georges Sorel (1847–1922), was a maverick whose unorthodox Marxism included an unusually vigorous attack on rationalism, and a corresponding advocacy of revolutionary myth. At odds with most of his contemporaries, Sorel's ideas were more influential outside France, especially in

Italy, where Mussolini claimed them as an inspiration for his fascist movement.

After the First World War, a new generation of young intellectuals gradually introduced a thriving Marxist culture, within or on the margins of the Communist Party. Most prominent of them was Henri Lefebvre (1901–91), a prolific and long-lived thinker who set his mark on sociology as well as on Marxist philosophy. Emerging from the surrealist movement of the 1920s, he used his energy and erudition to popularize the early writings of Marx, some of which he translated into French, and to publish several volumes by or about Hegel, who was just beginning to arouse interest in France. Enjoying the more intellectually relaxed climate of the Popular Front period, Lefebvre wrote what eventually became the most successful short exposition of Marxism in France, *Dialectical Materialism* (1939). Despite its orthodox-sounding title, it set out a humanist Marxism fundamentally opposed to that of the *Short Course,* which appeared at about the same time.

Lefebvre affirmed the superiority of Hegel's dialectic over formal logic, based on the dialectic's attempt to achieve a synthesis of the concept and its content, and thence a synthesis of thought and being. What distinguished the Marxist dialectic was that, whereas Hegel had sought to derive the content from the concept, Marx saw the need to enable the content to direct the development of the concept. The resulting dialectical materialism, he thought, transcended both idealism and materialism, and oriented the dialectic towards a resolution of contradictions in practical activity, or *praxis*. The unfolding of dialectical *praxis* in history would, he believed, lead to the practical realization of the full potential of human existence in what he called 'Total Man'.

Recognizing the obstacles to the fulfilment of the dialectic of *praxis,* Lefebvre systematized the analysis of alienation, which he argued was a fundamental structure of human activity, and could be summarized in terms of a three-stage evolution. In the first (spontaneous) stage, activity generates some form of order in response to needs; in the second (conscious) stage, the spontaneous order is shaped into rational structures so as to work more effectively; and in the third (illusory) stage, the rational structures become fixed and fetishized, beginning to hinder further development, and being misappropriated and used as an instrument of oppression by one group over another. The revolutionary overthrow of alienated structures thus appears as a requirement of human self-realization. It is clear that, by its generality, Lefebvre's analysis can be applied to the oppressive role of the state under communism as much as under capitalism, and to the sclerosis of thought in the Communist Party as much as in the Sorbonne.

In the first years after the Second World War, Lefebvre was lionized by the French Communist Party (PCF) as one of its most distinguished intellectuals but, unlike its Italian counterpart, the PCF tended to regard major intellectuals as figures of symbolic rather than practical importance. With the tightening of the Cold War, he was reproached for his lack of orthodoxy, and withdrew from philosophy into sociology, which provided the focus for his subsequent work. In the late 1950s he became an influential figure on the non-communist left, where his dialectical humanism was widely welcomed as an open and non-dogmatic basis for social critique. His conception of philosophy also shifted to a suspicion that any general philosophical assertions would be likely to fall into mystification. Ontological or cosmological statements should, he thought, be left to poets and musicians, and Marxist philosophy should concentrate on honing the concepts of

dialectics as a critical method, to be part of what he termed metaphilosophy. This meant that *praxis,* which was action-oriented, should be supplemented by other dimensions, including a creative function, which he termed *poesis,* to form a concept of 'everyday life'. More productive in sociology than in philosophy, Lefebvre's humanist and Hegelian Marxism offered plausible explanations for the uprising of students and workers in France in May 1968 and proved an attractive conceptual framework for some members of the radical movements involved.

The chief spokesman for Marxist-Leninist philosophy in the postwar period was Roger Garaudy (b. 1913), who articulated a Stalinism of strict obedience up to the 20th Congress of the CPSU in 1956. In its aftermath, he had the task not only of leading the philosophical denunciation of Stalin but also, implicitly at least, of finding a suitable replacement philosophy for the French Communist Party. His first step was to propose a Marxist humanism directed towards the discovery of Total Man, little different in substance from that of Lefebvre, though political difficulties made it impossible to acknowledge the debt. His second step was more original, however, in that he sought an explicit dialogue with other forms of humanism, particularly in the Catholic and existentialist intellectual movements. The vitalist philosophy of Teilhard de Chardin, exercising widespread posthumous influence, seemed to offer significant common ground, though Garaudy stopped short of accepting that evolution would culminate as Teilhard suggested, in the creation of God. Garaudy turned to Hegel, who was also attracting the interest of theologians, as a possible basis for a common humanist philosophy. The alarm his 'God-building' caused in communist circles was a material factor in leading the Party to abandon the notion of an official philosophy in 1966. Disavowed by the Party for disagreements over the events of 1968, Garaudy underwent a religious conversion, first to Catholicism and then to Islam.

The most trenchant opponent of the path followed by Garaudy was Louis Althusser (1918–90), who developed a critique of humanist Marxism, producing in the process an innovative and influential philo-sophical reworking of Marx, expressed in two studies published in 1965, *For Marx* and *Reading Capital*. A professional philosopher rather than an activist, he was initially inspired by Mao Tse-tung's writings on practice and on contradiction, and was widely followed in French Maoist circles of the 1960s and early 1970s. Althusser began from a reexamination of the history of Marxist philosophy, in which he argued that there was a radical discontinuity between Marx and his predecessors, Hegel and Feuerbach. He suggested that Marx had first rejected the idealist system of Hegel, and then the materialist humanism of Feuerbach, in order to emerge with a distinctive and scientific theory. He dismissed the view that the theory was a supersession of Hegel and Feuerbach, which would imply that it conserved important parts of their philosophy, and argued that Marx had made an epistemological break, establishing his theory as a science of history, entirely distinct from the ideological conceptions from which it has emerged. He noted that ideas and concepts tended to emerge in response to a historical situation and to aggregate into more or less coherent combinations, each of which formed a problematic. Retaining a particular concept generally implied accepting the entire problematic to which it belonged, and thus mature Marxism had to exclude ideas drawn from pre-Marxist problematics. Marx's own early writings with their notions of alienation, human self-realization and Hegelian dialectics

came before the epistemological break and should therefore be considered as belonging to pre-Marxist and unscientific problematics. Althusser conceded that Marx's later writings sometimes contained ideological residues, but generalized his argument to assert that the concept of the epistemological break could be applied to distinguish what was scientific (or theoretical, as he preferred to say) from what was ideological in Marx's work, or in the work of anyone else. In this way theoretical practice could be clearly separated from ideological practices.

Althusser next identified the problem that while the mature Marxist theoretical practice was well developed, Marx had never gone back to reformulate the philosophical principles which it implied. There was, in other words, no theory of theoretical practice. In its absence, various ideological approximations were made to serve, most of them Hegelian in origin. He suggested that these had now become an obstacle to the further development of Marxism, and set himself the task of undertaking a philosophical reading of Marx, Engels and Lenin, especially Marx's major work *Capital,* attempting to elucidate a theory of theoretical practice. Since such a theory was not articulated explicitly, the texts would need to be read 'symptomatically', to detect symptoms which might point to the theory at work in a practical way. If the theory had not been supplied by Marx, it could certainly not be taken from Hegel or Feuerbach. Althusser consequently drew from Spinoza'srationalism, Freudian psychoanalysis and Saussurean structural linguistics to provide usable concepts.

Althusser began with the concept of contradiction. The Hegelian notion of a struggle of opposites was replaced by the notion of a process of production, in which a raw material of some kind was transformed into a product by some process of transformation involving human work, or practice, and an appropriate means of production. In societies, or social formations, there are four main processes of production, each with many subsidiary processes: they are the economic, political, ideological and theoretical practices. These practices are highly interlocking in that each is conditioned by all the others, a situation which he designated 'overdetermination', borrowing from Freud's analysis of dream images. Contradictions, or transformations, in one level of practice might transfer to or condense in another, and if contradictions in several or all practices came to fuse together, then a general transformation or revolution would be likely to ensue.

The concept of overdetermination was presented as a more complex, and more rigorous, basis for the analysis of history than the Hegelian dialectic it replaced, and contained a different conception of causality. The linear cause-and-effect principle of classical physics, and the expressive causality of the Hegelian dialectic, were replaced by a structural causality in which a particular event is not determined by an earlier event or a more fundamental event, but is overdetermined by a structure of practices to which it belongs. There is no centre to the structure, and since practices develop unevenly, one of them is dominant in the structure at a given time, though none is permanently so. Even economic practice has no permanent domination, though it has the special power of determining which practice does dominate. This is Althusser's version of the base-and-superstructure model of society, reformulated to give greater relative autonomy to the superstructures, which no longer merely reflect the economic base. Thus, although economic developments are determinant in the last instance, there is no moment at which

they abruptly take over, and so 'the lonely hour of the last instance never comes'.

Althusser's model was crowned in effect by philosophy (designated as Theory, or the theory of theoretical practice) which had the role of ensuring the coherence and rigour of other theories (and their corresponding practices), and therefore appeared as a science of sciences. Criticized for his theoreticism, he devoted most of his writings after 1968 to self-criticism in which a series of retreats from 'high' Althusserian positions was accompanied by further conceptual innovations. Three of these may be mentioned as particularly influential. First, he advanced an alternative conception of philosophy as class struggle in theory, and as a weapon in the revolution. This suggested that its role was to ensure the theoretical correctness of political practice and the political correctness of theory. Second, he redefined the dialectic of history as a process without a subject or a goal, as opposed to the Hegelian dialectic which was both humanist, in seeing human existence as the subject of history, and ideological, in seeing history as advancing purposefully towards some final end. And third, he offered an account of ideology as the necessary illusion of a lived relationship between individuals and their circumstances. In this, he argued that most of the apparatuses of a modern state are primarily ideological, rather than repressive, in that their main function is to elicit the consent of the governed. People are incorporated into these ideological state apparatuses by the effect, which all ideology has, of calling on individuals to recognize themselves as subjects, in the sense both of being persons responsible for themselves and of being subordinated to an authority. His analysis of ideology has been widely adopted in critical theory and political philosophy internationally.

Of the philosophers who have continued Althusser's work, three are particularly worthy of note. Etienne Balibar developed a critique of the abandonment, in France and elsewhere, of the concept of the dictatorship of the proletariat, and has applied Althusserian analysis to issues of nation, race and class. Pierre Macherey developed a theory of how literature is produced, rather than created, and reveals the contradictions which ideology serves to conceal. He also advocated an appropriation of Spinozist conceptions by Marxism in preference to Hegelian ideas. Georges Labica re-examined Marx's early writings, criticizing the simplistic schema of his adoption of English political economy, French socialism and German philosophy, and arguing that he finally succeeded in escaping from philosophical mystifications only by substantially abandoning philosophy in favour of a science of history. Labica is also the major French instigator of academic research into the history of Marxist thought.

Althusser's ideas remained oppositional on the French left, partly because of his political disagreements with the French Communist Party, of which he was a member, and partly because non-communist critics tended to view his enterprise as an attempt to rescue Stalinist conceptions. His name was largely erased from public discussion after 1980 when he killed his wife, in a bout of his recurrent psychiatric disorder. None the less, many of his ideas became common currency in Marxist philosophy, and have had widespread influence particularly in literary and cultural criticism. Paradoxically, his onslaught against Hegel also had the effect of stimulating renewed interest in Hegelian studies in France.

Several Marxist philosophers responded to the challenge by carefully re-examining the concepts which had come through Hegel. Jacques D'Hondt sought to rehabilitate the

progressive content of Hegel's own life and thought. Solange Mercier-Josa argued that it was productive to look at the original Hegelian versions of Marx's main concepts so as to grasp the originality of his reworking of them, and also perhaps to retrieve some useful Hegelian concepts which Marx neglected to rework. Perhaps the most comprehensive of the attempts to find a synthesis in the Hegelian style is the work of Lucien Sève. In a series of studies, culminating in a compendious work, *An Introduction to Marxist Philosophy* (1980), Sève sought to systematize the concept of contradiction, suggesting that the distinction between antagonistic and non-antagonistic forms should not exclude their mutual interpenetration. He maintained the Hegelian distinction between objective and subjective dialectics and consequently between real historical development and the logical ordering of concepts with which to grasp it, while at the same time affirming the dialectical relationship between them. Sève also argued that Marxist materialism, understood as a scientific approach to knowledge rather than as a political ideology, was not specifically atheistic and should be open to learning from what religious thought expressed in intuitive or imaginative terms.

The breadth and erudition of Marxist philosophy in the 1960s and 1970s made it one of the dominant currents in French and European intellectual life, with a strong place in the schools and universities, as well as in political discourse. Towards the end of the seventies it began to run out of steam, under a combination of pressures which included the alternative attraction of other schools of thought (feminism, poststructuralist, psychoanalysis, ecology, spiritualism and postmodernism), as well as shifts in national politics and the accelerating decline of communism internationally. A variety of strategies was proposed to rejuvenate Marxism, including the incorporation of Italian Gramscian and Anglo-Saxon analytical versions of Marxism, but more often including eclectical borrowings from non-Marxist currents. Perhaps most significant was the impact of questioning from various quarters as to the need for, or legitimacy of, such a comprehensive intellectual enterprise (or master-narrative) as Marxism had historically undertaken. It was a question which struck an undeniable chord with intellectuals who were increasingly working without reference to a real or imagined Marxist collectivity (state, party or professional grouping) which could give a communal identity or an institutional basis to their thought. As a result, Marxist philosophy was in serious disarray even before the historical events of 1989 plunged it into catastrophe.

CONCLUSION

Since the present study is undertaken in the perspective of 'continental philosophy', it would not be appropriate to conclude without evoking the implied standpoint of the observer, that is, the philosophy of the English-speaking world, and in particular of the British Isles. The supposition that continental philosophy is something which happens elsewhere, on a real or imagined continent of Europe, indicates the extent to which the dominant currents of English-speaking philosophy have sought to isolate their intellectual traditions from foreign influences. In practice, English-speaking academic philosophy has been deeply engaged with continental European philosophers, even though they have often, like Popper or Wittgenstein, been regarded as honorary English philosophers. The

strategy of exclusion implied by the term ‘continental’ serves to keep out undesirables, of which the least desirable has generally been the Marxist tradition. Until recent times, the exclusion of Marxism from at least academic philosophy has been largely complete, with the result that it has fallen to other disciplines, particularly literary and cultural studies, sociology, politics, history, geography and archaeology, to introduce continental Marxist philosophers to English-speaking intellectuals.

Marxism-Leninism was given some currency through the agency of communist parties, whose small size tended to exacerbate their dependence on Moscow. But for most of the period from the 1920s to the 1960s its influence was confined to the trade union movement. During the 1930s a small number of intellectuals were attracted to communism, and one of them, Christopher Caudwell, might have founded an indigenous Marxism in Britain had he not been killed fighting for the Republic in Spain. Later, Maurice Cornforth (1909–80) was an effective exponent of Marxist-Leninist philosophy, applying it in polemics against Popperian positivism and linguistic philosophy during the 1960s, and began to formulate a more critical view of Marxism shortly before his death. During the 1970s, English-speaking communist parties, in rapid decline, divided between Marxist-Leninists and Eurocommunists, who took Gramsci as their main philosophical inspiration.

During the 1960s a strong interest in Marxism emerged in the New Left groupings which were founded by dissident communists and Trotskyists. They drew on the non-Marxist-Leninist writings which were being published in France and Italy. The American journal *Telos* and the English journal *New Left Review,* and its publishing house, played a major role in the cultural, political and historical fields, in translating and introducing the work of Marxists who have been discussed above. From the early 1970s, the journal *Radical Philosophy* played a similar role with particular emphasis on philosophical discussion, by no means all Marxist. The growth of a flourishing English-speaking Marxist culture was visible from the 1960s with the emergence of literary and cultural critics like Raymond Williams, Stuart Hall, Terry Eagleton and Fredric Jameson, and historians such as E.P. Thompson, Christopher Hill, Eric Hobsbawm and Perry Anderson, among others. Philosophy proved more resistant to Marxist influence, though it is visible in the philosophy of science, particularly in the work of Roy Bhaskar, whose theory of scientific realism was linked to a project of general human emancipation. More ambitious and influential has been the work of Jon Elster and G.A.Cohen, who have attempted to reformulate the main principles of Marxism in terms of analytical philosophy. The confrontation of Marx with Popper, Keynes and Austin produces insights which are refreshing within the analytical tradition and challenging to Hegelian dialectics. The reconciliation is inevitably incomplete, however, and involves rejecting much of Marx’s socialism and historical materialism.

English-speaking Marxist theory has developed in relative dissociation from powerful Marxist political movements. It has keenly observed such movements abroad, but their domestic counterparts have been either far left groups with marginal influence or mainstream parties with little commitment to particular doctrines. Its academic detachment has to some extent insulated it from the debacle of communism in 1989. That year did not bring Marxist philosophy to an end, but it does provide a convenient point at which to end the narrative of its history. Though it is always rash to extend history so far

towards the present that it cannot be seen at any historical distance, 1989 is mainly significant in that the collapse of communism, symbolized by the breaching of the Berlin Wall, was a turning point in international history heavy with consequences for Marxist philosophy. While some English-speaking writers have continued to feel at ease in a broadly Marxist moral and philosophical framework, the political fall-out of 1989 has impelled others to take a more sympathetic view of other alternatives. This latter tendency is also encouraged by the increasingly chill winds blowing from the continent on unreconstructed Marxism.

Marxist philosophy has generally been distinguished by its close relationship to its social context, and in particular to the institutional forms through which its practical and political orientation is mediated. In its most institutional form, Marxism-Leninism, it became inextricably tied to the Soviet state and to the network of communist parties and client states which pledged their allegiance to it, including *mutatis mutandis* the Chinese variant. To a large extent, it has collapsed with the states and parties which sustained it, and, in Europe at least, writings in this tradition are now unreadable, except as historical docu-ments, or as liturgy for the fragmented groups of old believers who continue to keep the faith. The question which remains posed is how far this erasure will affect other Marxist traditions which have been outlined in the present chapter.

The answer can as yet be only speculative, but it is probable that the future of Marxism as an identifiable philosophy will depend on the persistence or emergence of states, groupings or movements which can provide a plausible institutional basis for the imperative to change the world as well as interpreting it. It is unlikely for the foreseeable future that any individual state will provide such a basis, and the calamities which have overtaken those which did so in the past will more probably serve as a counter-example. Similarly the health and influence of those political parties which still claim the name communist or Marxist suggests that they are scarcely better placed. If the link between theory and practice is taken seriously, then the failure of practice must call into question the validity of the theory. It is only a partial defence to argue that the previous practical implementation of the theory was deficient, since that accepts a substantive severance of the link.

If the chief originality of Marxism is that it claimed to have the means to put its theory into practice, then it has largely lost that originality. An attenuated commitment to change would effectively place Marxism in the same position as any of a number of philosophies which express moral or social imperatives with general hortatory effect. Viewed in this light, it becomes less important to set precise limits on what may be called Marxism. For most of its history, Marxist philosophy has had an active and influential place as a strand in many currents of thought. Some, like the Frankfurt school, took it as a starting point; some, like the French existentialists, attempted to marry it with another tradition; and some, like the structuralists, accepted it as one element feeding into their theory. There is no reason to suppose that the process of intellectual cross-fertilization is likely to come abruptly to an end.

The loss of a distinct and coherent tradition of Marxist philosophy would in some respects liberate its proponents from their obligations to a collectivity, and perhaps also from the authority of a canon. In other respects, however, it would remove a point of reference and an identity, which has had the unusual role of forming common links

between the different cultural and intellectual environments of Europe whether western, central or eastern, and of opening them out to a wider world outside. The resistance to overarching world-views or master narratives is no doubt in part a response to the constricting effects of international Marxism especially in its dogmatic forms. In a world where postmodernism is setting the intellectual and cultural agenda, there may be a role for a humanist post-Marxism which retained its varieties and its international dimensions without proclaiming the necessity or authority to synthesize them. But if Benjamin's angel of history is still being driven by the storm from paradise, it is unlikely to linger over the debris that it leaves behind, and it remains to be seen how much of Marxist philosophy will survive from the wreckage.

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CHAPTER 8
Critical theory

Horkheimer, Adorno, Habermas

David Rasmussen

HEGEL, MARX AND THE IDEA OF A CRITICAL THEORY

Critical theory[1] is a metaphor for a certain kind of theoretical orientation which owes its origin to Hegel and Marx, its systematization to Horkheimer and his associates at the Institute for Social Research in Frankfurt, and its development to successors, particularly to the group led by Jürgen Habermas, who have sustained it under various redefinitions to the present day. As a term, critical theory is both general and specific. In general it refers to that critical element in German philosophy which began with Hegel's critique of Kant. More specifically it is associated with a certain orientation towards philosophy which found its twentieth-century expression in Frankfurt.

What is critical theory? The term bears the stamp of the nascent optimism of the nineteenth century; a critical theory can change society. Critical theory is a tool of reason which, when properly located in a historical group, can transform the world. 'Philosophers have always interpreted the world, the point is to change it.' So states Marx's famous eleventh thesis on Feuerbach. Marx got this idea from Hegel who, in his *Phenomenology of Spirit,*[2] developed the concept of the moving subject which, through the process of self-reflection, comes to know itself at ever higher levels of consciousness. Hegel was able to combine a philosophy of action with a philosophy of reflection in such a manner that activity or action was a necessary moment in the process of reflection. This gave rise to one of the most significant discourses in German philosophy, that of the proper relationship between theory and practice. Human practical activity, *praxis* in the sense that classical Greek philosophy had defined it, could transform theory. There are two famous instances where Hegel attempted to demonstrate the interrelationship of thought and action in his *Phenomenology of Spirit,* namely, the master/ slave dialectic and the struggle between virtue and the way of the world. In the former example, which attempts to demonstrate the proposition, 'Self-Consciousness exists in and for itself when, and by the fact that, it so exists for another: that is, it exists only in being acknowledged,'[3] the slave transforms his or her identity by moulding and shaping the world and thus becomes something other than a slave. In the latter example, the modern way of the world (essentially Adam Smith's concept of the political economy of civil society) triumphs over the ancient classical concept of virtue as a higher form of human self-knowledge oriented toward freedom. Historical development, as the institutionalization of human action, became an element in human rationality. Critical theory derives its basic insight from the idea that thought can transform itself through a

process of self-reflection in history.

Marx, early on in his development in a text that has come down to us under the title *On the Jewish Question,*[4] argued from Hegel's critical insight into the context of modern society. Having already done an analysis a few months before of Hegel's *Philosophy of Right,* he turned his attention to the development of the modern state by reflecting on Bruno Bauer's essay by the same name. Here, he would come to the conclusion that the course of human freedom culminating in the modern state (which Hegel had so brilliantly documented as leading from slavery to emancipation—the so-called course of human reason) was no emancipation at all. Indeed, the promised liberation of modern society from the shackles of the Middle Ages had not occurred. Hence, the task of social emancipation which could be carried on by critical reflection would lead the very agents of that reflection to a further task, namely, the transformation of society through revolution. Consequently, the promise of critical theory would be radical social transformation. The ancient assumption that the purpose of reflection was for knowledge itself, allied with the further assumption that pure contemplation was the proper end of the human subject, was replaced by another end of reflection also to be derived from classical thought, but with its own peculiarly modern twist; theory when allied with *praxis* has a proper political end, namely, social transformation.

However, for Marx this was not enough. Two factors remained. First, whence was such knowledge to be derived? Second, what would be the nature of such knowledge? Between the autumn of 1843 and the summer of 1844, Marx would provide answers to both questions. The answers came in the form of a class theory in which the newly emerging 'proletariat' were to play the central role. For Marx, they became the concrete subject of history with the result that hopes for emancipation would be anchored in a critical theory, which would in turn be associated with the activity of a particular class. Again, Hegel had provided the groundwork for this understanding by associating the basic interest in civil society in his philosophy of law with the interest of a particular *Stände*. Of the three orders of society—agricultural, business and civil service—it was only the latter which could represent the universal interests of humankind. With Marx, that latter task was transferred from the civil servants, who could no longer be trusted, to the proletariat, who he somewhat confidently asserted would bring about the social revolution necessary to overcome the contradictions with modern political society.

With regard to the second question, it was again Hegel, the philosopher of modernity *par excellence,* who taught Marx to look not to intuition *per se* but to the manifestation of reason in practical institutional form for an appropriate understanding of the world. Hegel had been the first philosopher both to understand and to use the work of the political economists in his work. Marx, first in a review of James Mill's *Elements of Political Economy* and later in a much more elaborate fashion, would work out a thesis about the dynamics of history leading him to assert that economic activity had a certain priority in the development of history.

This thesis would lead Marx to assert shortly thereafter, in *The German Ideology,*[5] that for the first time real history could begin. The very assumption behind a book which had the audacity to put the term 'ideology' into the title was that thought alone was ideological. There was a higher truth which Marx, through his methodology, would be able to attain, namely the 'productive' activity of humankind. Human history would then

be simultaneous with human production. The term for this new approach to the world of reflection and action would be 'historical materialism' and it would attack other more 'idealistic' modes of thinking as 'ideological'. Hence, a critical theory would be able to unearth the false presumptions that had heretofore held humanity in their sway. Later, in *Capital,* Marx would label the kind of thinking which he had characterized as 'ideology' in *The German Ideology* as 'fetishism'. He did so in the famous last section of the first chaper of volume 1, entitled 'The fetishism of commodities and the secret thereof. Marx's choice and use of metaphor is interesting, if not compelling. He uses 'ideology', 'fetishism' and 'secret' as if there was some ominous conspiracy against humankind which a certain kind of critical and theoretical orientation could unmask. The term 'fetishism' had a religious origin designating a fundamental confusion regarding perceptual orientations to the world. The very assumption that a certain theoretical orientation could unleash the 'secret' behind ideology as a kind of 'fetishism' represented a kind of confidence that would not only shape the historical development of critical theory in the future, but also unearth its problematic nature.

At the risk of oversimplification, one might state that there are two basic strains in the history of German philosophy. One strain argues that thought or reason is constitutive, the other that it is transformative. The former orientation can be traced to the debate initiated by Kant over the limits of human reason, while the latter can be traced to Hegel's philosophy of history, which attempted to locate philosophical reflection in a discourse about the history of human freedom.

Critical theory could be said to ally itself with this latter theme, even though the constitutive element would play an ever more significant role. In its classical, Hegelian-Marxist, context, critical theory rests on the nascent Enlightenment assumption that reflection is emancipatory. But what is the epistemological ground for this claim? In other words, how is thought constitutive for action? Which form of action is proper, appropriate or correct? In the early writings, Marx attempted to ground the epistemological claims of transformative action in the concept of *Gattungswesen,* i.e., species being. This concept, taken directly from Ludwig Feuerbach, who in turn had constructed it from both Hegel and Aristotle, affirms that in contrast to the radical individuation of the subject in modern thought, the aim or purpose of a human being is to be determined through intersubjective social action. In Hegelian terms, one constitutes valid self-knowledge through social interaction defined as human labour. According to Marx, the problem with the modern productive process is that it fails to allow the worker to constitute him-or herself as a species being, i.e., as a person who can function *for* another human being. Hence, the labour process reduces him or her to an animal, as opposed to a human, level making him or her autonomous, competitive and inhuman—co-operating with the productive process and not with other human beings. The point of revolution would be to bring the human being to his or her full and proper capacities as a being for whom the species would be the end, object and aim.

There were problems with this view. To be sure, Marx represents the culmination of a certain kind of political theory that began with Hobbes, and which was in turn critical of original anthropological assumptions that saw the human being as an autonomous agent emerging from a state of nature. However, in a certain sense, the concept of species-being was as metaphysical as the Hobbesian notion of the human being in a state of nature, a

view which was so aptly and appropriately criticized by Rousseau. It is my view that Marx was aware of the essentially epistemological problem that lay at the foundation of his own thought. Does one ground a theory of emancipation on certain anthropological assumptions regarding the nature of the species, assumptions which were as metaphysical as those the theory was attempting to criticize? Marx attempted to overcome this dilemma by providing historical evidence. In this context, his later work, the volumes of *Capital,* represent a massive attempt to give an account of human agency which was both historical and scientific. Hence, the quest for a valid constitutive ground for critical theory began with Marx himself. Marx as a political economist would bring massive historical research to bear on the claim that capitalism is merely a phase in human development and not the be-all and end-all of history. Hence, as a true Hegelian, he would assert that like any economic system it bore the seeds of its own destruction. As a consequence, the metaphysical claims present in the notion of species-being would re-emerge as a claim about the implicit but incomplete socialization present in capitalism, which, when rationalized, would transform the latter into socialism. As is well known, Marx even went beyond that to attempt to develop, on the basis of his historical investigations, a scientific, predictive formula announcing the end of capitalism on the basis of the 'falling rate of profit'. The formula assumed that as capital advanced it would be able to generate less and less profit and so would lose its own incentive. Hence, the force of capitalism, unleashed, would lead to its own imminent self-destruction. The victor, of course, would be socialism, which would emerge from the fray, new-born and pure, the ultimate rationalization of the irrationalism implicit in capitalism. As the family would inevitably give way to the force of civil society in Hegel's philosophy of law, so capitalism would break down and re-emerge as socialism.

In 1844 the young Marx had accused his one acknowledged theoretical mentor, Hegel, of harbouring a certain 'latent positivism'.[6] There are those who would accuse the older Marx of having done the same. If capitalism is to fall of its own weight, what is the link between thought and revolutionary action that so inspired the younger Marx? Indeed, what role would the proletariat, the heretofore messianic class of underlings, play in the transformation of society? And what of critical theory? It too would be transformed into just one more scientific, predictive positivistic model. In Marx's favour, this desire to secure the claims of a critical theory on the firm foundation of positivistic science was always in tension with the more critical claims of exhaustive historical analysis. But it was Marx himself who bequeathed to the late nineteenth century, and subsequently by implication to the twentieth century, the ambiguities of a critical theory. One could imagine the great social thinkers of the nineteenth and twentieth centuries coming together to pose a single question: upon what can we ground a critical theory? Would it be the proletariat now transformed into the working class? economic scientific analysis? the critical reflection of a specific historically chosen agent (the vanguard)? informed individual *praxis*? Perhaps critical theory would produce a 'dialectic of enlightenment' so cunning that its very inauguration would produce its own destruction as certain later heirs would predict. Certainly, the late nineteenth and the early twentieth centuries saw the concretization of a particular form of Marxism in a political society, not merely in the former USSR but also in the various workers' movements in Europe and elsewhere, as well as in the founding of the International, which would raise these questions. A kind of

critical theory found its apologists from Engels to Lenin, from Bernstein to Luxemburg, from Kautsky to Plekhanov. Yet the systematization of critical theory as a model of reflection owes its life in the twentieth century to a group of academics who, originally inspired by the German workers' movement, attempted to give to critical theory a life in the German university.

FROM GRÜNBURG TO HORKHEIMER: THE FOUNDATION OF CRITICAL THEORY

Although the term 'critical theory' in the twentieth century owes its definition primarily to an essay written in 1937 by Max Horkheimer,[7] the institute which became associated with this term was founded almost two decades earlier. Certainly one of the more interesting experiments in the history of German institutional thought began when Felix Weil, the son of a German exporter of grains from Argentina, convinced his father, Hermann, to provide an endowment which would enable a yearly income of DM 120,000 to establish, in the year 1922, an Institute for Social Research in affiliation with the University of Frankfurt. Weil, inspired by the workers' movement, and having written a thesis on socialism, wanted an institute which could deal directly with the problems of Marxism on a par equal to other established disciplines in the University. The first candidate for director, Kurt Albert Gerlach, who planned a series of inaugural lectures on socialism, anarchism and Marxism, died of diabetes before he could begin. His replacement, Karl Grünberg, a professor of law and political science from the University of Vienna, an avowed Marxist, who had begun in the year of 1909 an Archive for the History of Socialism and the Worker's Movement, was present at the official creation of the Institute on 3 February 1922. In his opening address, he indicated that Marxism would be the guiding principle of the Institute. And so it was for a decade. To be sure, it was the kind of Marxism that was still inspired by the nineteenth century, by the idea of the proletariat, by the workers' movement, by the example of the Soviet Union and the Marx-Engels Institute in Moscow, by the conception of Marxism as a kind of science which could penetrate heretofore unknown truths which had been obscured by so-called 'bourgeois' thought. Indeed, mocking Frankfurt students celebrated its orthodoxy by referring to it as 'Café Marx'.

Certainly, Marxism need not be vulgar to be orthodox. Academic problems which were standard fare for a now more or less established theoretical tradition were commonplace. Principal among them was the study of the workers' movement. Indeed, if Marxian class theory was correct, the proletariat were to bear the distinctive role of being those who were able to interpret history and bring about the transformation that such insight would sustain. *Praxis* would then be associated solely with their activity. From an epistemological point of view, the problem of the relation of theory to *praxis* would be revealed. As Lukács would later think, there would be a certain transparent identity between Marxian social theory and the activity of the working class. Hence, academic study of the working class would be the most appropriate, indeed, the most proper, subject of study for an institute which conceived itself in Marxist terms.

For the Institute for Social Research at that time, Marxism was conceived by analogy

to science. Hence, the original works of the Institute were associated with capitalist accumulation and economic planning, studies of the economy in China, agricultural relations in France, imperialism and, along with this, through close collaboration with the Soviet Union, the establishment of a collection of the unpublished works of Marx and Engels. However, it wasn't until the leadership passed from Grünberg to the more able hands of one of the young assistants at the institute, Max Horkheimer, in 1931, that the Institute was to make its mark through both productivity and scholarship. Although Horkheimer was never the believing Marxist Grünberg had been, certain events in Germany and the world would shape the Institute, distancing it from Marxian orthodoxy. The rise of fascism and the splintering of the workers' movement as well as the Stalinization of Russia would force the Institute to stray from the conventional Marxist wisdom about both theory and science as well as shake its confidence in the workers' movement.

During the 1930s, the roster of the institute would include Theodor Adorno, Leo Lowenthal, Erich Fromm, Fredrich Pollach, Herbert Marcuse, Walter Benjamin (indirectly though, since he never became a fully-fledged member) and others. Although each figure would eventually be known for independent work, and although certain members would break with the general orientation of the Institute, in retrospect what is somewhat amazing about this illustrious group of scholars was its concern for sharing a common theoretical programme under a distinctive directorship. Indeed, the two most powerful theoretical minds, Adorno (1903–69) and Horkheimer (1895–1973), continued to collaborate for their entire lifetimes. Also, it was during this period that the distinctive perspective with which this group came to be identified began to be developed. Modern critical theory can be dated from this period.

The problematic which sparked a critical theory of the modern form was the demise of the working class as an organ of appropriate revolutionary knowledge and action coupled with the rise of fascism and the emergence of Stalinization. Taken together, these events would de-couple the link between theory and revolutionary practice centred in the proletariat which had become commonplace in Marxian theory. What became apparent to Horkheimer and others at the Institute was that once this link was broken, essentially the link with a certain form of ideology, it would be necessary to forge a unique theoretical perspective in the context of modern thought in general and German thought in particular. It would not be enough either comfortably to study the workers' movement or to define Marxist science. The road upon which the Institute embarked would have to bear its own distinctive stamp and character. In brief, not only would this de-coupling give critical theory its peculiar dynamic for the 1930s but, as the torch was passed in the 1960s to a younger generation, this same thrust would give it definition. Hence, while Grünberg's Archive for the History of Socialism and the Workers' Movement would define the Institute in more traditional Marxian terms, the chief organ of the Institute under Horkheimer, *The Journal for Social Research,* would record a different purpose, namely the movement away from Marxian materialism. Writing in 1968 Jürgen Habermas would put it this way:

> Since the years after World War II the idea of the growing wretchedness of the workers, out of which Marx saw rebellion and revolution emerging as a

> transitional step to the reign of freedom, had for long periods become abstract and illusory, and at least as out of date as the ideologies despised by the young. The living conditions of laborers and employees at the time of *The Communist Manifesto* were the outcome of open oppression. Today they are instead motives for trade union organization and for discussion between dominant economic and political groups. The revolutionary thrust of the proletariat has long since become realistic action within the framework of society. In the minds of men at least, the proletariat has been integrated into society.
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> (*Critical Theory* [8.104], vi)

Horkheimer's 1937 essay, 'Traditional and Critical Theory', which attempted to systematically define critical theory, does not begin by underlining an association with the Marxist heritage which still distinguished the Institute and journal with which it was associated. Rather the essay begins by trying to answer the more general question regarding theory *per se,* 'What is theory?' (*ibid.,* p. 188). In the traditional sense, theory is a kind of generalization based upon experience. From Descartes to Husserl theory has been so defined, argues Horkheimer. As such, however, theory traditionally defined has a peculiar kind of prejudice which favours the natural sciences. Horkheimer, reflecting the great Diltheyian distinction between *Geisteswissenschaften* (social sciences) and *Naturwissenschaften* (natural sciences) makes the appropriate criticism. Social science imitates natural science in its self-definition as theory. Put simply, the study of society must conform to the facts. But Horkheimer would argue that it is not quite so simple. Experience is said to conform to generalizations. The generalizations tend to conform to certain ideas present in the minds of the researchers. The danger is apparent: so defined, theory conforms to the ideas in the mind of the researcher and not to experience itself. The word for this phenomenon, derived from the development of the Marxist theoretical tradition following Lukács's famous characterization in 1934, is 'reification'. Horkheimer doesn't hesitate to use it. Regarding the development of theory he states, 'But the conception of theory was absolutized, as though it were grounded in the inner nature of knowledge as such, or justified in some other ahistorical way, and thus it became a reified ideological category' (*ibid.,* p. 194). Although various theoretical approaches would come close to breaking out of the ideological constraints which restricted them, theoretical approaches such as positivism, pragmatism, neo-Kantianism and phenomenology, Horkheimer would argue that they failed. Hence, all would be subject to the logico-mathematical prejudice which separates theoretical activity from actual life. The appropriate response to this dilemma is the development of a critical theory. 'In fact, however, the self-knowledge of present-day man is not a mathematical knowledge of nature which claims to be the eternal logos, but a critical theory of society as it is, a theory dominated at every turn by a concern for reasonable conditions of life' (*ibid.,* p. 199). Of course, the construction of a critical theory won't be easy. Interestingly enough, Horkheimer defines the problem epistemologically. 'What is needed is a radical reconsideration not of the scientist alone, but of the knowing individual as such' *(ibid.)*.

Horkheimer's decision to take critical theory in the direction of epistemology was not without significance. Critical theory, which had heretofore depended upon the Marxist tradition for its legitimation, would have to define itself by ever distancing itself from that

tradition. Indeed, one of the peculiar ironies resulting from this particular turn is that the very tradition out of which critical theory comes, namely Marxism, would itself fall under the distinction between traditional and critical theory. Ultimately, in many ways the Marxist tradition was as traditional as all the other traditions. But, of course, the 1937 essay fails to recognize this. Indeed, this dilemma of recognition would play itself out in the post-1937 period. This is the very irony of the systematization of critical theory. Equally, this epistemological turn would change permanently the distinction and approach of critical theory. As I suggested earlier, critical theory found its foundation in the transformative tradition in German thought as inspired by Hegel and Marx. Now, having embarked upon an epistemological route, it would find it necessary to draw upon the constitutive dimension of German thought. If one could not ground critical theory in Marxian orthodoxy, certainly the assumption behind the 1937 essay, it would be necessary to find the constitutive point of departure for critical theory in an analysis of knowledge as such. Unfortunately, Horkheimer was unprepared to follow his own unique insight. Instead, the constitutive elements of knowledge to which he refers are taken in a more or less unexamined form from the Marxian heritage. The distinction between individual and society, the concept of society as bourgeois, the idea that knowledge centres in production, the critique of the so-called liberal individual as autonomous, the primacy of the concept of history over logos—these so-called elements which are constitutive of a critical theory were part of the Marxist heritage.

Taken as a whole, 'Tradition and Critical Theory' is strongly influenced by the Hegelian-Marxist idea that the individual is alienated from society, that liberal thought obscures this alienation, and that the task of critical theory must be to overcome this alienation. Horkheimer put it this way,

> The separation between the individual and society in virtue of which the individual accepts as natural the limits prescribed for his activity is relativized in Critical Theory. The latter considers the overall framework which is conditioned by the blind interaction of individual activities (that is, the existent division of labour and class distinctions) to be a function which originates in human action and therefore is a possible object of painful decision and rational determination of goals.
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> (*ibid.,* p. 207)

Horkheimer is vehement in his critique of the kind of thought that characterizes so-called 'bourgeois' individualism. For him, 'bourgeois thought' harbours a belief in an individual who is 'autonomous' believing that it, the autonomous ego, is the ground of reality. Horkheimer counters this view with another, reminiscent of the early Marx. 'Critical thinking is the function neither of the isolated individual nor a sum total of individuals. Its subject is rather a definite individual in his real relation to other individuals and groups, in his conflict with a particular class, and, finally, in the resultant web of relationships with the social totality and with nature' (*ibid.,* pp. 201–11).

Of course, this view is dangerously close to traditional Marxian class theory and Horkheimer knows it. After all, who is this 'definite individual' whose 'real relation' is to other individuals? Traditional Marxist theory answered, the proletariat. Horkheimer is

suspicious. ‘But it must be added that even the situation of the proleteriat is, in this society, no guarantee of correct knowledge’ (*ibid.,* p. 213). Horkheimer is hard pressed to find the appropriate replacement of the proletariat without falling back into what he called ‘bourgeois individualism’. He is doubtful of the proletariat’s ability somehow to ‘rise above…differentiation of social structure…imposed from above’. But if he wants to eliminate the proletariat as a source of truth or correct knowledge, he doesn’t quite do it. Indeed, the intellectual or critic can proclaim his or her identity with the proletariat. Horkheimer is not entirely without optimism. ‘The intellectual is satisfied to proclaim with relevant admiration the creative strength of the proletariat and finds satisfaction in adapting himself to it and canonizing it’ (*ibid.,* p. 214). Indeed, Horkheimer is optimistic about this identification. If, however, the theoretician and his specific object are seen as forming a dynamic unity with the oppressed class, so that his presentation of societal contradictions is not merely the expression of the concrete historical situation but also a force within it to stimulate change, then his real function emerges’ (*ibid.,* p. 215).

Horkheimer’s reliance on Marxian doctrine as the epistemological foundation for critical theory becomes more apparent as the essay develops. Hence, a critical theory of society will show ‘how an exchange economy, given the condition of men (which, of course, changes under the very influence of such an economy), must necessarily lead to a heightening of those social tensions which in the present historical era lead in turn to wars and revolution’ (*ibid.,* p. 266). As such, critical theory has a peculiar insight into the potential history of modern society. As Marx used political economy and the theory of the primacy of production, Horkheimer will use this model of economic determinism to predict the development of social contradictions in the modern world. Indeed, he goes as far as to state that critical theory rests upon a ‘single existential judgment’, namely, ‘the basic form of the historically given commodity economy, on which modern history rests, contains in itself the internal and external tensions of the modern era’ (*ibid.,* p. 227).

Equally, critical theory will be able to overcome the ‘Cartesian dualism’ that characterized contemporary traditional theory by linking critical with practical activity, theory and *praxis*. Indeed, it was this belief that critical theory was somehow related to practical activity that would distinguish this kind of theoretical endeavour. ‘The thinker must relate all the theories which are proposed to the practical attitudes and social strata which they reflect’ (*ibid.,* p. 232).

In retrospect, one may view this 1937 declaration as something of a *tour de force* attempting to break away from at least some of the most fundamental tenets of traditional Marxist theory, while at the same time in a curious way being caught in the very web of the system from which it was trying to escape. Hence, while dissociating itself from the assumption that truth and proper knowledge were to be rendered through the proletariat, the fundamental tenet of Marxian class theory, this treatise on critical theory celebrated concepts such as economic determinism, reification, critique of autonomy and social contradiction—assumptions derived from traditional Marxian social theory—as valid notions. Simultaneously, this position could not seek to justify itself independently of the events of the time. As the French Revolution determined Hegel’s concept of the political end of philosophy as human freedom, and as the burgeoning Industrial Revolution determined Marx’s thought, critical theory attempted to respond to the events of the time, the decline of the workers’ movement and the rise of fascism. Hence, the indelible mark

of the Institute, and of the essay on critical theory in the decade of the 1930s, was the conviction that thought was linked to social justice. The thesis, as old as the German Enlightenment itself, was that thought could somehow be emancipatory. The predominance of this view gave the Institute its particular character, especially when contrasted to the other German philosophical movements of the time, phenomenology, existentialism and, to some extent, positivism. Although influenced by the same set of events as the other German philosophical movements it was critical theory that was to distinguish itself by addressing the political oppression of the day.

HORKHEIMER, ADORNO, AND THE DIALECTICAL TRANSFORMATION OF CRITICAL THEORY

Critical theory in the post-1937 period would be characterized by two essentially related perspectives, one which broadened its critique of modes of rationality under the heading 'critique of instrumental reason' and the other which attempted a grand analysis of culture and civilization under the heading 'dialectic of enlightenment'. With the onslaught of the Second World War, Horkheimer and Adorno shared not only a deep pessimism about the future course of rationality but also a loss of hope in the potentialities of a philosophy of history for purposes of social transformation. The confidence in the great potentialities of thought as unleashed by the German Enlightenment went underground, replaced by the pessimism of the two major thinkers of critical theory who gave up not only on being thinkers in solidarity with the proletariat but also on the redemptive powers of rationality itself. In this sense, not only do they represent a critique of what is now quite fashionably called 'modernity', but they may be the harbingers of postmodernity as well.

In the course of the development of critical theory under the ever more pessimistic vision of its principal representatives, the focus would change from Hegel and Marx to Weber. Although they were never to give up entirely on Hegel and Marx, it was Weber who would articulate the pessimistic underside of the Enlightenment which Horkheimer and Adorno would come to admire. Hegel, through his notion of reflection which made a distinction between true and false forms of externalization, between *Entaüsserung* and *Entfremdung,* always sustained the possiblity of reason being able to overcome its falsifications. Marx, although less attentive to this distinction, retained the possibility of overcoming falsification or alienation through social action. Hence, whether it was through the reconciliatory power of reason in the case of Hegel, or the transformative force of social action in the case of Marx, a certain emancipatory project was held intact. Horkheimer, and eventually Adorno, initially endorsed that project. However, when Horkheimer wrote his *Critique of Instrumental Reason* [8.105] it was under the influence of Weber's brilliant, sobering vision regarding reason and action forged through a comprehensive analysis of the genesis and development of western society. Weber had speculated that in the course of western history, reason, as it secularizes, frees itself from its more mythic and religious sources and becomes ever more purposive, more oriented to means to the exclusion of ends. In order to characterize this development, Weber coined the term *Zweckrationalität,* purposive-rational action. Reason, devoid of its redemptive

and reconciliatory possibilities, could only be purposive, useful and calculating. Weber had used the metaphor 'iron cage' as an appropriate way of designating the end, the dead-end of modern reason. Horkheimer would take the analysis one step further. His characterization of this course was designated by the term, 'instrumental reason'. Implied in this usage is the overwhelming force of reason for purposes of social control. The combined forces of media, bureaucracy, economy and cultural life would bear down on the modern individual with an accumulated force which could be described only as instrumental. Instrumental reason would represent the ever-expanding ability of those who were in positions of power in the modern world to dominate and control society for their own calculating purposes. So conceived, the kind of analysis which began with the great optimism inaugurated by the German Enlightenment (which sustained the belief that reason could come to comprehend the developing principle of history and therefore society) would end with the pessimistic realization that reason functions for social control, not in the name of enlightenment or emancipation. And what then of a critical theory?

No doubt that question occurred to Horkheimer and Adorno, who, as exiles, now southern Californians, collaborated on what in retrospect must be said to be one of the most fascinating books of modern times, *Dialectic of Enlightenment*. Is enlightenment, the avowed aim of a critical theory, 'self-destructive'? That is the question posed by the book, the thesis of which is contained in its title. Enlightenment, which harbours the very promise of human emancipation, becomes the principle of domination, domination of nature and thus, in certain hands, the basis for the domination of other human beings. In the modern world, knowledge is power. The book begins with an analysis of Bacon's so-called 'scientific attitude'. The relation of 'mind' and 'nature' is 'patriarchal' (*ibid.,* p. 4); 'the human mind, which overcomes superstition, is to hold sway over a disenchanted nature' *(ibid.)*. 'What men want to learn from nature is how to use it in order wholly to dominate it and other men. That is the only aim' *(ibid.)*. Hence, 'power and knowledge' are the same. But the thesis is more complex. The term 'dialectic' is used here in a form which transcends Hegel's quasi-logical usage. Here dialectic circles back upon itself in such a manner that its subject, enlightenment, both illuminates and destroys. Myth is transformed into enlightenment, but at the price of transforming 'nature into mere objectivity' (*ibid.,* p. 9). The increment of power gained with enlightenment has as its equivalent a simultaneous alienation from nature. The circle is vicious: the greater enlightenment, the greater alienation. Magic, with its desire to control, is replaced by science in the modern world, which has not only the same end but more effective means. According to this thesis, the very inner core of myth is enlightenment. 'The principle of immanence, the explanation of every event as repetition, that the enlightenment upholds against mythic imagination, is the principle of myth itself' (*ibid.,* p. 12). Indeed, they observe, in the modern obsession with the mathematization of nature (the phenomenon so accurately observed by Edmund Husserl in his famous *The Crisis of European Science and Transcendental Phenomenology*) they find representatives of a kind of 'return of the mythic' in the sense that enlightenment always 'intends to secure itself against the return of the mythic'. But it does so by degenerating into the 'mythic cult of positivism'. In this 'mathematical formalism', they claim, 'enlightenment returns to mythology, which it never knew how to elude' (*ibid.,* p. 27). Such is the peculiar character of the dialectic of

enlightenment, which turns upon itself in such a way that it is subsumed by the very phenomenon it wishes to overcome.

Critical theory distinguishes itself in this period by ever distancing itself from the Marxian heritage with which it originally associated. Some would see this as a departure from the very sources of reason from which it was so effectively nourished. Hence, a form of rationality gone wild. Others might see it from a different perspective. Perhaps the *Dialectic of Enlightenment* represents the coming of age of critical theory as critical theory finally making the turn into the twentieth century. As such, the philosophy of history on which it so comfortably rested, with its secure assumptions about the place of enlightenment in the course of western history (to say nothing of the evolution of class and economy), was undercut by the authors' curious insight into the nature of enlightenment itself. Enlightenment is not necessarily a temporal phenomenon given its claims for a particular time and place in modern historical development. Rather, for Horkheimer and Adorno, enlightenment is itself dialectical, a curious phenomenon associated with rationality itself. In this view, the dialectic of enlightenment could be traced to the dawn of human civilization. Here we encounter a form of critical theory influenced not only by Kant, Hegel, Marx and Weber but also by Nietzsche and perhaps Kierkegaard. It would follow that texts that witnessed the evolution of human history would be placed side by side with those which gave testimony to its origin. Enlightenment can then be traced not to the so-called German Enlightenment, or to the western European Enlightenment, but to the original written texts of western civilization, which, as any former Gymnasium student knows, were those of Homer. Nietzsche is credited with the insight. 'Nietzsche was one of the few after Hegel who recognized the dialectic of enlightenment' (*ibid.,* p. 44). They credit him with the double insight that while enlightenment unmasks the acts of those who govern, it is also a tool they use under the name of progress to dupe the masses. 'The revelation of these two aspects of the Enlightenment as an historic principle made it possible to trace the notion of enlightenment as progressive thought, back to the beginning of traditional history' *(ibid.)*.

Horkheimer and Adorno do not concentrate much on the illusory character of the enlightenment in Homer, 'the basic text of European civilization' as they call it. That element has been over-emphasized by the so-called fascist interpreters of both Homer and Nietzsche. Rather, it is the use or interpretation of myth as an instrument of domination as evidenced in this classic text that they perceive as fundamental. Here, Weber and Nietzsche complement one another. The other side of the dialectic of enlightenment is the thesis on instrumental reason. Hence, the 'individuation' of self which is witnessed in the Homeric text is carried out through what seems to be the opposition of enlightenment and myth. 'The opposition of enlightenment to myth is expressed in the opposition of the surviving individual ego to multifarious fate' (*ibid.,* p. 46). The Homeric narrative secularizes the mythic past in the name of the hero's steadfast orientation to his own 'self-preservation'. It secularizes it by learning to dominate it. Learning to dominate has to do with the 'organization' of the self. But the very instrumentality associated with domination has its curious reverse side; something like that which Marcuse would later call 'the return of the repressed'. As they put it regarding Homer, 'Like the heroes of all the true novels later on, Odysseus loses himself in order to find himself; the estrangement from nature that he brings about is realized in the process of the abandonment to nature

he contends in each adventure; and, ironically, when he, inexorably, returns home, the inexorable force he commands itself triumphs as the judge and avenger of the legacy of the powers from which he has escaped' (*ibid.,* p. 48).

There is no place where this curious double thesis is more effectively borne out than in the phenomenon of sacrifice. Influenced by Ludwig Klage's contention regarding the universality of sacrifice, they observe that individuation undercuts the originary relation of the lunar being to nature which sacrifice implies. 'The establishment of the self cuts through that fluctuating relation with nature that the sacrifice of the self claims to establish' (*ibid.,* p. 51). Sacrifice, irrational though it may be, is a kind of enabling device which allows one to tolerate life. 'The venerable belief in sacrifice, however is probably already an impressed pattern according to which the subjected repeat upon themselves the injustice that was done them, enacting it again and again in order to endure it' *(ibid.)*. Sacrifice, when universalized and said to apply to the experience of all of humanity, is civilization. Its elimination would occur at enormous expense. The emergence of rationality is based on denial, the denial of the relationship between humanity and nature. 'The very denial, the nucleus of all civilizing rationality, is the germ cell of a proliferating mythic irrationality: with the denial of nature in man not merely the *telos* of the outward control of nature but the *telos* of man's own life is distorted and befogged' (*ibid.,* p. 54). The great loss is of course that the human being is no longer able to perceive its relationship to nature in its compulsive preoccupation with self-preservation. The dialectic of enlightenment continues to play itself out. To escape from sacrifice is to sacrifice oneself. Hence the subthesis of *Dialectic of Enlightenment:* 'the history of civilization is the history of the introversion of sacrifice. In other words, the history of renunciation' (*ibid.,* p. 55). It is this sub-thesis that they associate with the 'prehistory of subjectivity' (*ibid.,* p. 54).

The text to which Horkheimer and Adorno have turned their attention is written by Homer, but the story is about the prehistory of western civilization. Odysseus is the prophetic seer who in his deeds would inform the course of action to be followed by future individuals. Odysseus is the 'self who always restrains himself, he sacrifices for the 'abnegation of sacrifice' and through him we witness the 'transformation of sacrifice into subjectivity'. Above all, Odysseus 'survives', but ironically at the 'concession of one's own defeat', an acknowledgement of death. Indeed, the rationality represented by Odysseus is that of 'cunning': a necessity required by having to choose the only route between Scylla and Charybdis in which each god has the 'right' to do its particular task. Together the gods represent 'Olympian Justice' characterized by an 'equivalence between the course, the crime which expiates it, and the guilt arising from that, which in turn reproduces the curse' (*ibid.,* p. 58). This is the pattern of 'all justice in history' which Odysseus opposes. But he does so by succumbing to the power of this justice. He does not find a way to escape the route charted past the Sirens. Instead, he finds a way to outwit the curse by having himself chained to the mast. As one moves from myth to enlightenment, it is cunning with its associated renunciation which characterizes reason. The great promise held by enlightenment is now seen when perceived in retrospect from the perspective of the earlier Horkheimer and Adorno to be domination, repression and cunning.

The thesis contained in *Dialectic of Enlightenment* can be extended beyond the origin

of western civilization. As its authors attempt to show, it can be brought back to critique effectively the eighteenth-century Enlightenment as well as attempts to overcome it. As self-preservation was barely seen in Homer as the object of reason, the so-called historical Enlightenment made a fetish of it. 'The system the Enlightenment has in mind is the form of knowledge which copes most proficiently with the facts and supports the individual most effectively in the mastery of nature. Its principles are the principles of self-preservation.' 'Burgher', 'slave owner', 'free entrepreneur' and 'adminstrator' are its logical subjects. At its best, as represented in Kant, reason was suspended between 'true universality' in which 'universal subjects' can 'overcome the conflict between pure and empirical reason in the conscious solidarity of the whole' (*ibid.,* p. 83), and calculating rationality 'which adjusts the world for the ends of self-preservation'. In this view, Kant's attempts to ground morality in the law of reason came to naught. In fact, Horkheimer and Adorno find more base reasons for Kant's attempt to ground morality in the concept of 'respect'. 'The root of Kantian optimism' is based in this view on the fear of a retreat of 'barbarism'. In any case, in this view the concept of respect was linked to the bourgeois which in latter times no longer existed in the same way. Totalitarianism as represented in fascism no longer needed such concepts nor did it respect the class that harboured them. It would be happy with science as calculation under the banner of self-preservation alone. The link between Kant and Nietzsche is said to be the Marquis de Sade. In Sade's writings, it is argued, we find the triumph of calculating reason, totally individualized, freed from the observation of 'another person'. Here, we encounter a kind of modern reason deprived of any 'substantial goal', 'wholly functionalized', a 'purposeless purposiveness' totally unconcerned about effects which are dismissed as 'purely natural'. Hence, any social arrangement is as good as any other and the 'social necessities' including 'all solidarity with society duty and family' can be dissolved.

If anything, then, enlightenment means 'mass deception' through its fundamental medium of the 'culture industry' where the rationality of 'technology' reigns. 'A technological rationale is the rationale of domination itself (*ibid.,* p. 121). In film, in music, in art, in leisure this new technology has come to dominate in such a way that the totality of life and experience have been overcome. In the end, in accord with this view, the so-called enlightenment of modern civilization is ironic, total, bitter and universal. Enlightenment as self-deception manifests itself when art and advertising become fused in an idiom of a 'style' that fashions the modern experience as an ideology from which there is no escape. In the blur of modern images, all phenomena are exchangeable. Any object can be exchanged for any other in this 'superstitious fusion of word and thing' (*ibid.,* p. 164). In such a world, fascism becomes entertainment, easily reconciled with all the other words and images and ideologies in the vast arena of modern assimilation.

In the end, *Dialectic of Enlightenment* can be viewed as a kind of crossroads for modern philosophy and social theory. On the one hand, reason can function critically, but on the other, it cannot ground itself in any one perspective. Reason under the image of self-preservation can only function for the purpose of domination. This is critical theory twice removed; removed from its foundations in the Marxism of the nineteenth century from which it attempted to establish its own independence, and removed once again from any foundation to function as a raging power of critique without foundation. In this sense,

this book, more than any other to come from the so-called Frankfurt school, hailed the end of philosophy, and did so in part to usher in the era now designated as postmodernity. Thus, it was not only to the successive reconstruction of phenomenology from Husserl through Heidegger that the harbingers of postmodernity could point as legitimate forebears of their own movement, but to the voices which rang out in the *Dialectic of Enlightenment* whose prophetic rage led the way. It was left to Foucault to probe the multiple meanings of the discipline of the self and the institutional repression of the subject unleashed by the Enlightenment, and to Derrick to articulate the groundlessness of a position which seeks the role of critic but cannot find the way to a privileged perspective which would make possible the proper interpretation.

ADORNO AND THE AESTHETIC REHABILITATION OF CRITICAL THEORY

But if critical theory was willing in the late 1940s to give up partially on the Enlightenment and the possibility of a modality of thought that harboured within it a potential for emancipation, it was not totally ready to do so. Hence, critical theory in its curious route from the early 1920s to the present would make one more turn, a turn toward aesthetics. The wager on aesthetics would keep alive, if in muted fashion, the emancipatory hypothesis with which critical theory began. Adorno, inspired in part by Benjamin, would lead the way out from the ashes left in the wake of an instrumental rationality whose end, as the end of philosophy, was almost apparent. If the general claims of the *Dialectic of Enlightenment* were to be sustained, the theoretical consequences for critical theory would be devastating. Hence the question regarding the manner in which a critical theory could be rehabilitated, but this time under the suspicion of a full-blown theory of rationality. In a sense, through Horkheimer's and Adorno's rather devastating analysis of rationality as fundamentally instrumental, and of enlightenment as fundamentally circular, it would have seemed that the very possibility for critique itself would be undermined. The aesthetic redemption of the claims of critical theory would have to be understood from the perspective of the framework of suspicion regarding the claims of cognition. Since cognition would result inevitably in instrumentality, it would be necessary to find a way in which critique could be legitimated without reference to cognition *per se*. Aesthetics, with which Adorno had been fascinated from the time of his earliest published work, would provide a way out. If *Dialectic of Enlightenment* could be read as a critique of cognition, art represents for Adorno a way of overcoming the dilemma established by cognition. Adorno sees the capacity of a non-representational theory in the potentiality of art as manifestation. The explosive power of art remains in its representing that which cannot be represented. In this sense it is the nonidentical in art that can represent society, but only as its other. Art functions then for Adorno in the context of the programme of critical theory as a kind of stand-in for a cognitive theory, which cannot be attained under the force of instrumentality.

Adorno, however, was not quite ready to give up on a philosophy of history which had informed his earlier work. Hence, under the influence of Benjamin and in direct contrast

to Nietzsche and Heidegger, he was able to incorporate his understanding of art within a theory of progress. At the end of his famous essay 'The Work of Art in the Age of Mechanical Reproduction',[8] originally published in the *Zeitschrift für Sozialforschung* in 1936,[9] Benjamin has postulated the thesis that with photography, 'for the first time in world history, mechanical reproduction emancipates the work of art from its parasitical dependence on ritual'. As a consequence, art no longer needed to sustain a claim on authenticity. After photography, the work of art is 'designed for reproducibility'. From this observation, Benjamin drew a rather astonishing conclusion: 'But the instant the criterion of authenticity ceases to be applicable to artistic production, the total function of art is reversed. Instead of being based on ritual, it begins to be based on another practice—politics' (*ibid.,* p. 244). However, it should not be assumed that the politics with which modern an was to be associated was immediately emancipatory. The thesis was as positive as it was negative. 'The logical result of Fascism is the introduction of aesthetics into political life' (*ibid.,* p. 241). But for Benjamin this was a form of the relationship between aesthetics and politics which would attempt to rekindle the old association between art and ritual. 'The violation of the masses, whom Fascism, with it the Führer cult, forces to their knees, has its counterpart in the violation of an apparatus which is pressed into the production of ritual values' *(ibid.)*. However, the tables can be turned; while fascism 'equals the aestheticism of politics', Benjamin claimed, Marxist as he was, that 'communism responds to politicizing art' (*ibid.,* p. 242).

Adorno would use this insight into the nature of art and historical development freed of Benjamin's somewhat materialist orientation. While he affirmed that 'modern art is different from all previous art in that its mode of negation is different' because modernism 'negates tradition itself, Adorno addressed the issue of the relation of art not to fascism but to capitalist society. Beyond that, Adorno's task was to show how art could overcome the dilemma of rationality as defined through the critique of instrumentality, while at the same time sustaining the claim that art had a kind of intelligibility. How could art be something other than a simple representation of that society? Adorno would return to the classical aesthetic idea of mimesis in order to make his point. Art has the capacity to represent, but in its very representation it can transcend that which it is representing. Art survives not by denying but by reconstructing. 'The modernity of art lies in its mimetic relation to a petrified and alienated reality. This, and not the denial of that mute reality, is what makes art speak' (*Aesthetic Theory* [8.23], 31). Art, in other words, represents the non-identical. 'Modern art is constantly practicing the impossible trick of trying to identify the non-identical' *(ibid.)*.

Art then can be used to make a kind of claim about rationality. 'Art's disavowal of magical practices—art's own antecedents—signifies that art shares in rationality. Its ability to hold its own *qua* mimesis in the midst of rationality, even while using the means of that rationality, is a response to the evils and irrationality of the bureaucratic world.' Art then is a kind of rationality that contains a certain 'non-rational' element that eludes the instrumental form. This would suggest that it is within the power of art to go beyond instrumental rationality. This is what art can do which cannot be done in capitalist society *per se*. 'Capitalist society hides and disavows precisely this irrationality, whereas art does not.' Art then can be related to truth. Art 'represents truth in the twofold sense of preserving the image of an end smothered completely by rationality and of

exposing the irrationality and absurdity of the status quo' (*ibid.,* p. 79).

It is Adorno's claim then that although art may be part and parcel of what Weber described as rationalization, that process of rationalization in which art partakes is not one which leads to domination. Thus, if art is part of what Weber called the 'disenchantment of the world', it leads us in a direction different from that of instrumental reason. Hence, the claim that 'Art mobilizes technology in a different direction than domination does' (*ibid.,* p. 80). And it is for this reason, thinks Adorno, that we must pay attention to the 'dialectics of mimesis and rationality that is intrinsic to art' *(ibid.)*.

Whereas the *Dialectic of Enlightenment* could be conceived as a critique of cognition, Adorno uses art to rehabilitate a cognitive claim. 'The continued existence of mimesis, understood as the non-conceptual affinity of a subjective creation with its objective and unposited other, defines art as a form of cognition and to that extent as "rational"' *(ibid.)*. Hence, in a time when reason has, in Adorno's view, degenerated to the level of instrumentality, one can turn to art as the expression of the rehabilitation of a form of rationality which can overcome the limitation of reason by expressing its non-identity with itself. In this sense, the claims of critical theory would not be lost but be transformed. Indeed, the earlier emancipatory claims of critical theory would be reappropriated at another level. Here again, Adorno's view seems to be shaped by that of his friend Walter Benjamin. Art can reconcile us to the suffering which can never be expressed in ordinary rational terms. While 'reason can subsume suffering under concepts' and while it can 'furnish means to alleviate suffering', it can never 'express suffering in the medium of experience'. Hence, art has a unique role to play under a transformed understanding, i.e., the role of critical theory. 'What recommends itself, then, is the idea that art may be the only remaining medium of truth in an age of incomprehensible terror and suffering' (*ibid.,* p. 27). In other words, art can anticipate emancipation, but only on the basis of a solidarity with the current state of human existence. 'By cathecting the repressed, art internalizes the repressing principle, i.e. the unredeemed condition of the world, instead of merely airing futile protests against it. Art identifies and expresses that condition, thus anticipating its overcoming' (*ibid.,* p. 26). For Benjamin it was this view of and solidarity with suffering experienced by others in the past which has not been redeemed. For him then, happiness is not simply an empty Enlightenment term. It has a slightly messianic, theological twist. His fundamental thesis was 'Our image of happiness is indissolubly bound up with the image of redemption' (*ibid.,* p. 254).

Finally, if it is possible to look at Adorno's later work on aesthetics from the perspective of the position worked out with Horkheimer in *Dialectic of Enlightenment,* it appears that a case can be made for the retrieval of the earlier emancipatory claims of critical theory on the basis of the non-identical character of the work of art. To be sure, Adorno, along with Horkheimer, had left little room to retrieve a critical theory in the wake of their devastating critique of the claims of reason. Indeed, the claims for art would have to be measured against this very critique. Yet, in a peculiar way, Adorno was consistent with the prior analysis. If reason would always lead to domination, then art would have to base its claim on its ability to express the non-identical. However, the task remained to articulate those claims precisely. In order to do so Adorno would often find

himself falling back on a philosophy of history which, by the standards articulated in his earlier critique, he had already invalidated.

HABERMAS AND THE RATIONAL RECONSTRUCTION OF CRITICAL THEORY

With Jürgen Habermas, Adorno's one-time student, the discourse over the rehabilitation of critical theory was taken to a higher level. Habermas's initial strategy was to rehabilitate the notion of critique in critical theory. Clearly, Habermas has long-held doubts about the way in which his philosophical mentors in Frankfurt failed to ground a critical theory in a theory of rationality which would harbour an adequate notion of critique. On this he has written eloquently in both *The Theory of Communicative Action* (1981, [8.85]) and *The Philosophical Discourse of Modernity* (1985, [8.88]). What I have found interesting in studying the works of Habermas is the manner in which the argument for a critical theory of rationality began to take shape as an alternative argument to the one which Horkheimer and Adorno put forth. In this context, Habermas would avail himself of certain resources within the tradition of contemporary German philosophy which his mentors overlooked. I suggested earlier that German philosophy since Kant has been shaped by the interaction between the themes of constitution and transformation. If modern critical theory began with a relatively firm belief that the grounds for the emancipatory assumptions regarding critique were clear and given in a certain orientation toward theory, in retrospect that foundation became ever less secure. Eventually, critique, as in *Dialectic of Enlightenment,* became caught in a never-ending circle of internal repression and external domination. Hence, the promise of critical theory had been undermined. It was the great merit of Habermas's early work to have seen the dilemma and to have addressed it in terms of turning not to the transformative but to the constitutive element in the German philosophical tradition. Critical theory was for Habermas, at least originally, the problem of 'valid knowledge', i.e., an epistemological problem.

It should come as no surprise then that when Habermas first juxtaposes traditional and critical theory, following in the footsteps of Horkheimer's 1937 article, he engages Edmund Husserl not only on the status of theory but also on the nature of science. By so doing, he appropriates two of the themes that were germane and of a piece in late transcendental phenomenology, namely, the association of the concept of theory with a more or less political notion of liberation or emancipation and the preoccupation of phenomenology with the status of science.

As early as the writing of *Knowledge and Human Interests* (1969, [8.82]), Habermas sustained the thesis that critical theory could be legitimated on the basis of making apparent the undisclosed association between knowledge and interest. This association, however, could be specified only on the basis of the clarification of theory in its more classical form. According to Habermas *theoria* was a kind of mimesis in the sense that in the contemplation of the cosmos one reproduces internally what one perceives externally. Theory then, even in its traditional form, is conceived to be related to the 'conduct of one's life'. In fact, in this interpretation of the traditional view, the appropriation of a

theoretical attitude creates a certain ethos among its practitioners. Husserl is said to have sustained this 'traditional' notion of theory. Hence, when Husserl approached the question of science he approached it on the basis of his prior commitment to the classical understanding of theory.

In Habermas's view, it is this commitment to theory in the classical sense which determines Husserl's critique of science. Husserl's attack on the objectivism of the sciences led to the claim that knowledge of the objective world has a 'transcendental' basis in the pre-scientific world, that sciences, because of their prior commitment to mundane knowledge of the world, are unable to free themselves from interest, and that phenomenology, through its method of transcendental self-reflection, can free this association of knowledge and mundane interest through a commitment to a theoretical attitude which has been defined traditionally. In this view, the classical conception of theory, which phenomenology borrows, frees one from interest in the ordinary world with the result that a certain 'therapeutic power', as well as a 'practical efficacy', is claimed for phenomenology.

Habermas endorses Husserl's procedure, while at the same time pointing out its error. Husserl is said to be correct in his critique of science, which, because of its 'objectivist illusion', embedded in a belief in a 'reality-in-itself', leaves the matter of the constitution of these facts undisclosed with the result that it is unaware of the connection between knowledge and interest. In Husserl's view, phenomenology, which makes this clear, can rightfully claim for itself, against the pretensions of the sciences, the designation 'pure theory'. Precisely here Husserl would bring the practical efficacy of phenomenology to bear. Phenomenology would be said to free one from the ordinary scientific attitude. But phenomenology is in error because of its blind acceptance of the implicit ontology present in the classical definition of theory. Theory in its classical form was thought to find in the structure of the 'ideal world' a prototype for the order of the human world. Habermas says in a rather insightful manner, 'Only as cosmology was *theoria* also capable of orienting human action' ([8.82], 306). If that is the case, then the phenomenological method which relied on the classical concept of theory was to have a certain 'practical efficacy', which was interpreted to mean that a certain 'pseudonormative power' could be derived from the 'concealment of its actual interest'.

In the end, phenomenology, which sought to justify itself on the basis of its freedom from interest, has instead an undisclosed interest which it derived from a classical ontology. Habermas believes classical ontology in turn can be characterized historically. In fact, the concept of theory is said to be derived from a particular stage in human emancipation where *catharsis,* which had been engendered heretofore by the 'mystery cults', was now taken into the realm of human action by means of 'theory'. This in turn would mark a new stage, but certainly not the last stage, in the development of human 'identity'. At this stage, individual identity could be achieved only through the indentification with the 'abstract laws of cosmic order'. Hence, theory represents the achievements of a consciousness that is emancipated, but not totally. It is emancipated from certain 'archaic powers', but it still requires a certain relationship to the cosmos in order to achieve its identity. Equally, although pure theory could be characterized as an 'illusion', it was conceived as a 'protection' from 'regression to an earlier stage'. And here we encounter the major point of Habermas's critique, namely, the association of the

contemplative attitude, which portends to dissociate itself from any interest, and the contradictory assumption that the quest for pure knowledge is conducted in the name of a certain practical interest, namely, the emancipation from an earlier stage of human development.

The conclusion is that both Husserl and the sciences he critiques are wrong. Husserl is wrong because he believes that the move to pure theory is a step which frees knowledge from interest. In fact, as we have seen, the redeeming aspect of Husserl's phenomenology is that it does in fact have a practical intent. The sciences are wrong because although they assume the purely contemplative attitude, they use that aspect of the classical concept of theory for their own purposes. In other words, the sciences use the classical concept of pure theory to sustain an insular form of positivism while they cast off the 'practical content' of that pure theory. As a consequence, they assume that their interest remains undisclosed.

Significantly, when Habermas turns to his critique of science, he sides with Husserl. This means that Husserl has rightly critiqued the false scientific assumption that 'theoretical propositions' are to be correlated with 'matters of fact', an 'attitude' which assumes the 'self-existence' of 'empirical variables' as they are represented in 'theoretical propositions'. But not only has Husserl made the proper distinction between the theoretical and the empirical, he has appropriately shown that the scientific attitude 'suppresses the transcendental framework that is the precondition of the meaning of the validity of such propositions' (*ibid.,* p. 307). It would follow, then, that if the proper distinction were made between the empirical and the theoretical and if the transcendental framework were made manifest, which would expose the meaning of such propositions, then the 'objectivist illusion' would 'dissolve' and 'knowledge constitutive' interests would be made 'visible'. It would follow that there is nothing wrong with the theoretical attitude as long as it is united with its practical intent and there is nothing wrong with the introduction of a transcendental framework, as long as it makes apparent the heretofore undisclosed unity of knowledge and interest.

What is interesting about this analysis is that the framework for the notion of critique is not to be derived from dialectical reason as Horkheimer originally thought but from transcendental phenomenology. One must be careful here. I do not wish to claim that Habermas identifies his position with Husserl. Rather, it can be demonstrated that he derives his position on critique from a critique of transcendental phenomenology. As such, he borrows both the transcendental frame-work for critique and the emphasis on theory as distinguished from empirical fact that was established by Husserl. Therefore, at that point he argues for a 'critical social science' which relies on a 'concept of self-reflection' which can 'determine the meaning of the validity of critical propositions'. Such a conception of critical theory borrows from the critique of traditional theory the idea of an 'emancipatory cognitive interest' which, when properly demythologized, is based not on an emancipation from a mystical notion of universal powers of control but rather from a more modern interest in 'autonomy and responsibility'. This latter interest will appear later in his thought as the basis for moral theory.

On the basis of this analysis, one might make some observations. Clearly, from the point of view of the development of critical theory, Habermas rightfully saw the necessity of rescuing the concept of critique. Implicit in that attempt is not only the rejection of

Dialectic of Enlightenment but also Adorno's attempt to rehabilitate critical theory on the basis of aesthetics. However—and there is considerable evidence to support this assumption—the concept of critical theory which had informed Horkheimer's early essay on that topic had fallen on hard times. As the members of the Institute for Social Research gradually withdrew from the Marxism that had originally informed their concept of critique, so the foundations upon which critical theory was built began to crumble. Habermas's reconceptualization of the notion of critique was obviously both innovative and original. It was also controversial. Critique would not be derived from a philosophy of history based on struggle but from a moment of self-reflection based on a theory of rationality. As Habermas's position developed it is that self-reflective moment which would prove to be interesting.

HABERMAS: CRITIQUE AND VALIDITY

Critique, which was rendered through the unmasking of an emancipatory interest *vis-à-vis* the introduction of a transcendentalized moment of self-reflection, re-emerges in the later, as opposed to the earlier, works of Habermas at the level of validity. The link between validity and critique can be established through the transcendentalized moment of self-reflection which was associated with making apparent an interest in autonomy and responsibility. Later, that moment was transformed through a theory of communicative rationality to be directed to issues of consensus. Validity refers to a certain background consensus which can be attained through a process of idealization. As critique was originally intended to dissociate truth from ideology, validity distinguished between that which can be justified and that which cannot. Hence, it readdresses the claims for autonomy and responsibility at the level of communication. It could be said that the quest for validity is superimposed upon the quest for emancipation. There are those who would argue that moral theory which finds its basis in communicative action has replaced the older critical theory with which Habermas was preoccupied in *Knowledge and Human Interests*. I would argue somewhat differently that Habermas's more recent discourse theory of ethics and law is based on the reconstructed claims of a certain version of critical theory.

However, before justifying this claim, I will turn to the basic paradigm shift in Habermas's work from the philosophy of the subject to the philosophy of language involving construction of a theory of communicative action on the one hand and the justification of a philosophical postion anchored in modernity on the other. Both moves can be referenced to the debate between earlier and later critical theory.

If Horkheimer's, and later Adorno's, concept of 'instrumental rationality' is but a reconstruction of Max Weber's concept of purposiverational action, it would follow that a comprehensive critique of that view could be directed to Weber's theory of rationalization. In Habermas's book, *The Theory of Communicative Action,* it is this theory that is under investigation as seen through the paradigm of the philosophy of consciousness. Weber's thesis can be stated quite simply: if western rationality has been reduced to its instrumental core, then it has no further prospects for regenerating itself. Habermas wants to argue that the failure of Weber's analysis, and by implication the

failure of those like Horkheimer and Adorno who accepted Weber's thesis, was to conceive of processes of rationalization in terms of subject-object relations. In other words, Weber's analysis cannot be dissociated from Weber's theory of rationality. According to this analysis, his theory of rationality caused him to conceive of things in terms of subject-object relations. Habermas's thesis, against Weber, Horkheimer and Adorno, is that a theory of rationality which conceives of things in terms of subject-object relations cannot conceive of those phenomena in other than instrumental terms. In other words, all subject-object formulations are instrumental. Hence, if one were to construct a theory of rationalization in non-instrumental terms, it would be necessary to construct an alternative theory of rationality. The construction of a theory of communicative action based on a philosophy of language rests on this assumption.

In Habermas's view, the way out of the dilemma of instrumentality into which earlier critical theory led us is through a philosophy of language which, through a reconstructed understanding of speech-act theory, can make a distinction between strategic and communicative action. Communicative action can be understood to be non-instrumen-tal in this sense: 'A communicatively achieved agreement has a rational basis; it cannot be imposed by either party, whether instrumentally through intervention in the situation directly or strategically through influencing decisions of the opponents' ([8.85], p. 287). It is important to note that the question of validity, which I argued a moment ago was the place where the emancipatory interest would be sustained, emerges. A communicative action has within it a claim to validity which is in principle criticizable, meaning that the person to whom such a claim is addressed can respond with either a yes or a no based, in turn, on reasons. Beyond that, if Habermas is to sustain his claim to overcoming the dilemma of instrumental reason he must agree that communicative actions are foundational. They cannot be reducible to instrumental or strategic actions. If communicative actions were reducible to instrumental or strategic actions, one would be back in the philosophy of consciousness where it was claimed by Habermas, and a certain form of earlier critical theory as well, that all action was reducible to strategic or instrumental action.[10]

It is Habermas's conviction that one can preserve the emancipatory thrust of modernity by appropriating the discursive structure of language at the level of communication. Hence, the failure of *Dialectic of Enlightenment* was to misread modernity in an oversimplified way influenced by those who had given up on it. Here is represented a debate between a position anchored in a philosophy of history which can no longer sustain an emancipatory hypothesis on the basis of historical interpretation, and a position which finds emancipatory claims redeemable, but on a transcendental level. Ultimately, the rehabilitation of critical theory concerns the nature and definition of philosophy. If the claims of critical theory can be rehabilitated on a transcendental level as the claims of a philosophy of language, then it would appear that philosophy as such can be defined *vis-à-vis* a theory of communicative action. Habermas's claim that the originary mode of language is communicative presupposes a contrafactual communicative community which is by nature predisposed to refrain from instrumental forms of domination. Hence, the assertion of communicative over strategic forms of discursive interaction assumes a political form of association which is written into the nature of language as such as the guarantor of a form of progressive emancipation. In other words, if one can claim that the

original form of discourse is emancipatory, then the dilemma posed by instrumental reason has been overcome and one is secure from the seductive temptation of the dialectic of enlightenment.

NOTES

1 There are three excellent works on the origin and development of critical theory. The most comprehensive is the monumental work by R.Wiggershaus [8.140]. M.Jay's historical work [8.131] introduced a whole generation of Americans to critical theory. Helmut Dubiel [8.128] presents the development of critical theory against the backdrop of German and international politics.
2 Hegel, *Phenomenology of Spirit,* Oxford: Oxford University Press, 1977.
3 *Ibid.,* p. 111.
4 K.Marx, 'On the Jewish Question', in *The Marx-Engels Reader,* ed. R.Tucker, New York: Norton, 1972.
5 *Ibid.,* pp. 110–65.
6 *Ibid.,* pp. 83–103.
7 M.Horkheimer, 'Traditional and Critical Theory', in *Critical Theory,* New York: Herder & Herder, 1972.
8 W.Benjamin, 'The Work of Art in the Age of Mechanical Reproduction', *Illuminations* [8.36].
9 *Zeitschrift für Sozialforschung,* 5:1 (1936).
10 For a more comprehensive analysis of the issues involved in this distinction, see my discussion in [8.96].

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CHAPTER 9
Hermeneutics

Gadamer and Ricoeur

G.B.Madison

THE HISTORICAL BACKGROUND: ROMANTIC HERMENEUTICS

Although the term 'hermeneutics' *(hermeneutica)* is, in its current usage, of early modern origin,[1] the practice it refers to is as old as western civilization itself. Under the traditional appellation of *ars interpretandi,* hermeneutics designates the art of textual interpretation, as instanced in biblical exegesis and classical philology. In modern times, hermeneutics progressively redefined itself as a general, overall discipline dealing with the principles regulating all forms of interpretation. It was put forward as a discipline that is called into play whenever we encounter texts (or text-analogues) whose meaning is not readily apparent and which accordingly require an active effort on the part of the interpreter in order to be made intelligible. In addition to this exegetical function, hermeneutics also viewed its task as that of drawing out the practical consequences of the interpreted meaning ('application'). This dual role of understanding (or explanation) *(subtilitas intelligendi, subtilitas explicandi)* and application *(subtilitas applicandi)* is perhaps especially evident in the case of juridical hermeneutics where the task is not only to ascertain the 'meaning' or 'intent' of the law but also to discern how best to *apply* it in the circumstances at hand.

In the early nineteenth century, at the hands of Friedrich Schleiermacher (1768–1834), the scope of hermeneutics was expanded considerably. Indeed, Schleiermacher claimed for hermeneutics the status of an overall theory *(allgemeine Hermeneutik)* specifying the procedures and rules for the understanding not only of textual meaning but of cultural meaning in general *(Kunstlehre)*. Rooted in the romantic tradition, Schleiermacher, often referred to as the 'father of hermeneutics', empha-sized the 'psychological' or 'divinatory' function of hermeneutics—the purpose of interpretation being that of 'divining' the intentions of an author, or, in other words, reconstructing psychologically an author's mental life ('to understand the discourse just as well as and even better than its creator').[2] The purpose of hermeneutics is thus that of unearthing the original meaning of a text, this being equated by Schleiermacher with the meaning originally intended by the author.[3] This view of hermeneutics as a form of cultural understanding (understanding another culture or historical epoch, for instance) and the concomitant, 'psychological' view of understanding (as a grasping of the subjective intentions of authors or actors) was developed more fully towards the end of the century by Wilhelm Dilthey (1833–1911).

One of the most salient features of the nineteenth century was the rapid expansion of

the human sciences *(Geisteswissenschaften),* historiography in particular. The task that Dilthey set himself was that of furnishing a methodological foundation for these new sciences, similar to the way in which, a century earlier, Kant had sought to 'ground' the natural sciences philosophically. Conceding, like Kant, an exclusivity in the explanation of natural being to the natural sciences *(Naturwissenschaften),* Dilthey sought to go beyond Kant by arguing (as the historian J.G.Droysen had before him) that the human sciences have their own specific subject matter and, accordingly, their own, equally specific, method. A spokesperson for the *Lebensphilosophie* current at the time, Dilthey maintained that the proper object of the human sciences is something specifically *human,* namely the inner, psychic life (*Erlebnis,* lived experience) of historical and social agents. Whereas the natural sciences seek to explain phenomena in a causal and, so to speak, external fashion *(Erklären),* the method proper to the human sciences is that of emphathetic understanding *(Verstehen)*. The task of the human scientist is, or should be, that of transporting himself or herself into an alien or distant life experience, as this experience manifests or 'objectifies' itself in documents, texts ('written monuments') and other traces or expressions *(Ausdrucken)* of inner life experiences and world-views *(Weltanschauungen)*. The *Lebensphilosophie* assumption operative here is that, because the human scientist is a living being, a part of life, he or she is, as a matter of principle, capable of reconstructively understanding other objectifications of life. Understanding (the method proper to the human sciences) is thus a matter of *interpretation,* and interpretation *(Deutung)* is the means whereby, through its outward, objective 'expressions', we can come to know in its own innerness what is humanly other, can, in effect, imaginatively coincide with it; *relive* it. Dilthey thus viewed the goal or purpose of interpretation as that of achieving a *reproduction (Nachbildung)* of alien life experiences.

Dilthey's purpose in conceptualizing the hermeneutical enterprise in this way was, as I indicated, to secure for the human sciences their own methodological autonomy and their own scientific objectivity *vis-à-vis* the natural sciences. The human sciences can lay claim to their own rightful epistemological status, can, indeed, lay claim to *validity,* if, as was Dilthey's aim, it can be shown that there is a 'method' which is specific to them, and which is different from the one characteristic of the natural sciences. This, Dilthey argued, was the method of *Verstehen,* as opposed to that of *Erklärung;* the task of the human sciences is not to 'explain' human phenomena, but to 'understand' them.

As a matter of historical interest, it may be noted that Dilthey's 'solution' to what could be called the 'problem of the human (or social) sciences' was revived several decades later in the mid twentieth century by Peter Winch, at roughly the same time that Gadamer and Ricoeur were developing their own quite different version of hermeneutics. In opposition to the then dominant positivist approach to the human sciences, which (as in the case of Carl Hempel and his 'covering law' model)[4] maintained that these disciplines could be made 'scientific' if they could manage, somehow, to incorporate the explanatory methods of the natural sciences, Winch argued that the 'explanatory' approach is totally inappropriate in the human sciences. With Wittgenstein's notion of 'forms of life' in mind, Winch maintained that 'the concepts used by primitive peoples can only be interpreted in the context of the way of life of those peoples'. The task of the anthropologist, for instance, can be no more than that of empathetically projecting himself or herself into an alien 'form of life'. When one has empathetically described in

this way a particular 'language game', there is nothing more to be done. Like Dilthey, Winch drew a radical distinction between empathetic understanding and causal explanation and suggested that the human sciences should limit themselves to the former, arguing that human or social relations are an 'unsuitable subject for generalizations and theories of the scientific son to be formulated about them'. 'The concepts used by primitive peoples', he insisted, 'can only be interpreted in the context of the way of life of those peoples.'[5] Winch's position is accurately characterized by Richard J.Bernstein in the following terms:

> Winch's arguments about the logical gap between the social and the natural can be understood as a linguistic version of the dichotomy between the *Naturwissenschaften* and the *Geisteswissenschaften*. Even the arguments that he uses to justify his claims sometimes read like a translation, in the new linguistic idiom, of those advanced by Dilthey.[6]

The important thing to note in this regard is how this Diltheyan-style attempt to make of life a special and irreducible category and to set it up as the foundational justification for a special and irreducible son of science is, by that very fact, to oppose it to another distinct category, that of nature, which generates another, opposed kind of science. Explanation and understanding are viewed as two different, and even antagonistic, modes of inquiry. As we shall see later in this chapter, one of the prime objectives of Ricoeur's hermeneutics has been to overcome the understanding/explanation dichotomy inherited from Dilthey which has bedevilled so much of the debate in the twentieth century as to the epistemological status of the human sciences. Indeed, it could be said that one of the principal tasks of contemporary phenomenological hermeneutics[7] continues to consist, on the one hand, in 'depsychologizing' or 'desubjectivizing' the notion of meaning (rejecting thereby an empathetic notion of understanding) and, on the other hand, and correlatively, in attempting to specify the particular sense in which (or the degree to which) it can properly be said that the human sciences are indeed 'explanatory'.

In order to position ourselves for understanding what is distinctive about the hermeneutics of Gadamer and Ricoeur, it should also be noted that the Schleiermacher-Dilthey tradition in hermeneutics (customarily referred to as 'romantic hermeneutics') has been carried on in this century in the work of Emilio Betti and E.D.Hirsch, Jr, both of whom have strenuously objected to the version of hermeneutics put forward by Gadamer and Ricoeur. In an attempt to revive traditional hermeneutics (which they view phenomenological hermeneutics as having unfortunately displaced), Betti and Hirsch have sought to argue anew for hermeneutics as a general body of methodological principles and rules for achieving validity in interpretation.

Betti, the founder in 1955 of an institute for hermeneutics in Rome, has sought to resuscitate Dilthey's concern for achieving objective validity in our interpretations of the various 'objectifications' of human experience. He has attacked Gadamer for, as he sees it, undermining the scientific concern for objectivity and, because of the emphasis that Gadamer places on the notion of 'application' (to be discussed below), of opening the door to arbitrariness (or 'subjectivism') in interpretation and, indeed, to relativism. At the outset of his major work of 1962, *Die Hermeneutik als allgemeine Methodik der*

Geiteswissenschaften,[8] Betti indirectly accused Gadamer of abandoning the 'venerable older form of hermeneutics' by having turned his back on its overriding concern for correctness or objectivity in interpretation.

Betti's critique was taken up by Hirsch with the publication in 1967 of the latter's *Validity in Interpretation,*[9] the first original and systematic treatise on hermeneutics written in English. As the title of his book so clearly indicates, Hirsch, like Betti and the other romantic hermeneuticists before him, was concerned to make of hermeneutics a*science* capable of furnishing 'correct' interpretations of 'verbal meanings' presumed to exist independently of the interpretive process itself. Hirsch's critical arguments are much the same as those of Betti, but he does add a new, methodological twist to his overall position. Hirsch's strategy for transforming interpretation into a genuine science is, quite simply, to transfer—lock, stock and barrel—the method of hypothetico-deductionism and Popperian falsificationism from the philosophy of the natural sciences to the humanities and, in particular, to the interpretation of literary texts. Like Popper's 'logic of scientific discovery', Hirsch's 'logic of validation' maintains that there can be no *method* for 'guessing' ('understanding') an author's meaning but that once such 'conjectures' or 'hypotheses' happen to be arrived at, they can subsequently be subjected to rigorous testing in such a way as to draw 'probability judgments' supported by 'evidence'. 'The act of understanding', Hirsch writes, 'is at first a genial (or a mistaken) guess, and there are no methods for making guesses, or rules for generating insights. The methodological activity of interpretation commences when we begin to test and criticize our guesses' (*Validity,* p. 207). And the activity of testing 'interpretive hypotheses', he says, 'is not in principle different from devising experiments that can sponsor decisions between hypotheses in the natural sciences' (p. 206).

The curious result of Hirsch's attempt to make of hermeneutics a science is to have narrowed considerably the scope that, traditionally, was claimed for it by the romantics. Hermeneutics is no longer concerned with understanding, interpretation and application but with interpretation alone, and this conceived of merely as 'validation'. In Hirsch's hands hermeneutics becomes essentially no more than an interpretive technique *(technē hermeneutikē)* for arbitrating between possible meanings, conflicting interpretations, with the aim of deciding which of them is the *one and only* true meaning of the text, i.e., the one intended by the author. Moreover, in conceiving of 'validation' in a Popperian and positivistic fashion, Hirsch effectively collapses the distinction between the natural and the human sciences,[10] sacrificing in the process the concern of Dilthey and others to safeguard the integrity and autonomy of the latter. Hirsch resolves the long-standing explanation/understanding debate—but at the total expense of 'understanding'. He uncritically endorses the scientistic claim that the natural sciences represent a model for all legitimate knowledge and are canonical for all other forms of knowledge.

In the wake of Betti and Hirsch, critics of Gadamer and Ricoeur continue to iterate the (by now well-worn) objection that their version of hermeneutics is incapable of generating a method by means of which 'correct' interpretations of textual meaning can be conclusively arrived at and that, because of this, it inevitably results in subjectivism and relativism.[11] We can begin to understand what is specific to phenomenological hermeneutics when we can understand its own reasons for rejecting the modernist obsession with 'method' and when, moreover, we can see why phenomenological

hermeneutics should in its turn accuse traditional hermeneutics of falling prey to a naive form of *objectivism*.

MOVING BEYOND THE TRADITION: PHENOMENOLOGICAL HERMENEUTICS

It would seem to be something of a general rule that any specifically human phenomenon is understood best when understood in terms of that from which it differs. It is certainly the case in any event that what goes to make up the specificity of the hermeneutics defended by Hans-Georg Gadamer (1900-) and Paul Ricoeur (1915-) is the way in which it differs from, and stands opposed to, traditional hermeneutics, as portrayed in the preceding remarks. For his part Ricoeur has explicitly characterized his hermeneutics in terms of its oppositional role when he declared: 'I am fighting on two fronts.' The two fronts he is referring to are, on the one hand, the 'romantic illusion' of empathetic understanding and, on the other hand, the 'positivist illusion' of a textual objectivity closed in upon itself and wholly independent of the subjectivity of both author and reader' (OI, 194–5).[12] In the latter case Ricoeur had the structuralist approach to texts in mind, but his remark would apply equally well to Hirsch's brand of hermeneutics to the degree that the latter seeks to maintain the pristine objectivity of a text closed in upon itself and wholly independent of the subjectivity of the reader (of its 'application'). Gadamer has sought in a similar way to clarify his position by differentiating it from that of Betti.

In the Foreword to the second edition (1965) of his *magnum opus, Truth and Method,* Gadamer attempted to defend himself against Betti's criticisms. His response was basically two-sided. On the one hand, he sought to justify his lack of concern for 'method' and, on the other, to defend himself against the charge of 'subjectivism'. In regard to the question of method he stated:

> My revival of the expression 'hermeneutics', with its long tradition, has apparently led to some misunderstandings.[13] I did not intend to produce an art or technique of understanding, in the manner of the earlier hermeneutics. I did not wish to elaborate a system of rules to describe, let alone direct, the methodical procedure of the human sciences…. My real concern was and isphilosophic: not what we do or what we ought to do, but what happens to us over and above our wanting and doing.[14]
>
> In other words, the goal that Gadamer set himself was that of envisaging hermeneutics in a way thoroughly different from the way in which it traditionally had been envisaged. In stark contrast to the positivistinspired view of hermeneutics that Hirsch was subsequently to defend, Gadamer's goal was not *prescriptive* (laying down 'rules' for (correct) interpretation) but, in the phenomenological sense of the term, *descriptive* (seeking to ascertain what actually occurs whenever we seek to understand something). The difference between Gadamer's hermeneutics and traditional hermeneutics could be aptly compared to the difference between traditional philosophy of science, of either a

positivist or Popperian sort, and the radically new approach to the philosophy of science instituted by Thomas Kuhn in *The Structure of Scientific Revolutions* (first published in 1962, two years after the original German edition of Gadamer's *Truth and Method*), a work which was to revolutionize the philosophy of science. Analogously to Gadamer, Kuhn sought not (like, for instance, Popper) to lay down methodological criteria that scientists must meet if what they do is to merit the appellation 'science', but sought instead simply to describe that particular activity which we refer to when we speak of someone 'doing science' (the actual characteristics of which are more often than not significantly different from what scientists are liable to say they are doing when pressed to make philosophical statements about their actual practice). With Gadamer explicitly in mind, Kuhn was later to describe his own work as 'hermeneutical'.

As the text cited above clearly indicates, Gadamer's purpose was not 'methodological' but, as he says, 'philosophic'. That is, Gadamer's goal was to elaborate a general *philosophy* of human understanding, in all of its various modes. It is precisely for this reason that his thought is often referred to as 'philosophical hermeneutics'.[15] A couple of pages further on in the Foreword Gadamer, again with reference to Betti, states his 'philosophic concern' in the following way:

> The purpose of my investigation is not to offer a general theory of interpretation and a differential account of its methods (which E.Betti has done so well) but to discover what is common to all modes of understanding and to show that understanding is never subjective behaviour toward a given 'object', but towards its effective history—the history of its influence; in other words, understanding belongs to the being of that which is understood.
>
> ([9.7], xix)

What in the present context is to be noted is how, in this last remark, Gadamer is attempting to respond to Betti's accusation of 'subjectivism'. Understanding, Gadamer is effectively saying, is not so much a 'subjective' as it is an *ontological* process. Understanding is not something that the human subject or we 'do' as it is something that, by reason of our 'belonging' to history *(Zugehörigkeit), happens* to us. Understanding is not a subjective accomplishment but an 'event' *(Geshehen),* i.e., 'something of which a prior condition is its being situated within a process of tradition' ([9.7], 276).

If, as we shall see, phenomenological hermeneutics is adamantly opposed to all forms of objectivism, it is equally opposed to all forms of modern subjectivism. As Ricoeur would say, it is continually constrained to do battle on two fronts. The central thrust of phenomenological hermeneutics is to move beyond *both* objectivism *and* subjectivism, which is to say, also, beyond relativism. One of the core features of Ricoeur's hermeneutics has been his ongoing attempt to articulate a notion of 'the subject' which would be free from all forms of modern subjectivism.[16] Unlike other forms of postmodern thought, hermeneutics has strenuously resisted the current, and very fashionable, anti-humanist calls for the abolition of 'the subject' (the 'end of "man"'). The notion of the

subject, hermeneutics insists, is not to be abandoned—but it must indeed be stripped of all its modernist, metaphysical accretions. This continued allegiance on the part of hermeneutics to the notion of the subject testifies to its rootedness in the phenomenological tradition inaugurated by Edmund Husserl.

THE PHILOSOPHICAL BACKGROUND OF PHENOMENOLOGICAL HERMENEUTICS: HUSSERL AND HEIDEGGER

All of Husserl's philosophizing, from roughly 1900 onwards, was a sustained attempt to overcome the debilitating legacy of modern philosophy and, in particular, the subject/object dichotomy instituted by Descartes.[17] A pivotal moment in the unfolding of Husserl's phenomenology occurred in 1907 with a series of five lectures delivered in Göttingen (published subsequently in 1950 by Walter Biemel under the title *Die Idee der Phänomenologie*). In these lectures Husserl introduced his celebrated 'phenomenological reduction', the express purpose of which was to achieve a decisive overcoming of what the French translator of this work, Alexandre Lowit, has called 'la situation phénoménale du clivage', in other words, the subject/object split which presides over the origin and subsequent unfolding of modern philosophy from Descartes onwards. To speak in contemporary terms, what Husserl was seeking to accomplish by means of the 'reduction' was a thoroughgoing 'decon-struction' of the central problematic of modern philosophy itself, namely, the 'epistemological' problem of how an isolated subjectivity, closed in upon itself, can none the less manage to 'transcend' itself in such a way as to achieve a 'knowledge' of the 'external world'.[18] This, it may be noted, is, in one of its many variants, the problem which continues to inform the work of Betti and Hirsch (how to 'validate objectively' our own 'subjective ideas').

Thanks to the 'reduction' however, Husserl effectively displaced or deconstructed the epistemological problematic itself. He did so by discrediting (revealing the 'philosophical absurdity' of) its two constitutive notions: the notion of an 'objective', 'in-itself' world and the correlative notion that 'knowledge' consists in forming inner 'representations' on the part of an isolated 'cognizing subject' of this supposedly objective or 'external' world. The subsequent history of the phenomenological movement in the twentieth century—from Heidegger and Merleau-Ponty to Gadamer and Ricoeur—could be viewed as nothing other than an attempt 'to extract the most extreme possibilities'[19] from Husserl's own deconstruction of the epistemological problematic. Building on Husserl's own point of departure, phenomenological hermeneutics has systematically defined itself in terms of its opposition to both objectivism and subjectivism.

If the key methodological notion in Husserl's phenomenology is that of the reduction, the key substantive notion is the one that Husserl uncovered late in his life, that of the life-world *(Lebenswelt)*. This too was to play a decisive role in the evolution of hermeneutics.[20] As was later pointed out by Merleau-Ponty (who in his own revision of Husserlian phenomenology anticipated a great many of the themes developed later on in greater detail by hermeneutics), what Husserl's phenomenological reduction serves ultimately to reveal is the life-world itself and this, Merleau-Ponty observed, is exactly what Heidegger referred to as 'being-in-the-world'.[21] The basic paradigm of modern

epistemologism, dominated as it is by the subject/object dichotomy, is that of an isolated subjectivity (the 'mind') which is supposed to be related to the 'external' or 'objective' world by means of ideas or sense impressions (subsisting *within* the 'mind' itself) which are said to be 'true' (a 'true likeness') to the degree that they adequately 'represent' or 'refer to' facts or states of affairs in 'reality'. This modernist view of things (which could appropriately be labelled 'referentialist-representationalism') is one that continues to prevail with theorists such as Betti and Hirsch. It was in opposition to modern epistemologism, however, that Martin Heidegger argued in *Being and Time* (1927) that a relation (a *commercium*) between the subject and the world does not first get established on the level of 'cognition' or 'knowledge'.[22] Before any explicit awareness on its part, the human subject *(Dasein)* finds itself already in a world, 'thrown' into it, as it were. This surrounding world, the life-world, is thus one which is 'always already' there. What this pregivenness (as Husserl would say) of the life-world means is that, by virtue of our very existence, i.e. our 'being-in-the-world', we possess what Heidegger called a 'pre-ontological understanding' of the world (of 'being'). All explicit understandings or theorizings do no more than build on this always presupposed—and thus never fully thematizable—'ground'. For Heidegger, therefore, understanding is not so much a mode of 'knowing' as it is one of 'being'. As Gadamer would subsequently put it, consciousness is more *Sein* than *Bewusstsein*.

Heidegger refers to this situation as 'facticity': if there is an always presupposed element in all our explicit understandings, this means that, in our various interpretations of things, we can never hope to achieve total transparency. The lesson that phenomenological hermeneutics was to draw from this Heideggerian position is that human understanding is essentially 'finite'. As Ricoeur has said: 'The gesture of hermeneutics is a humble one of acknowledging the historical conditions to which all human understanding is subsumed in the reign of finitude.'[23] What this means is that there can be no 'science', in the traditional philosophical sense of the term *(episteme, scientia intuitiva),* of existence (or of 'being'). The hermeneutics of Gadamer and Ricoeur could most fittingly be characterized as nothing other than a systematic attempt to draw all the philosophical conclusions that follow from a recognition of the inescapable finitude of human understanding (this is why they will argue, against objectivists such as Betti and Hirsch, that it is impossible ever to arrive at *the* (one and only) correct interpretation of a text or any other human product). Their hermeneutics will be 'a hermeneutics of finitude' ([9.15], 96).

Heidegger's 'existential analytic'—his phenomenological-interpretive description of human existence and its basic structures (what he referred to as *Existentialen*), his attempt to elaborate a 'hermeneutics of facticity', of everyday life, the life-world—provided the crucial impetus for subsequent hermeneutics. What is peculiar to Heidegger's hermeneutics is that it is an *ontological* hermeneutics. It is ontological (rather than 'methodological') in that, unlike what traditionally had gone under the heading 'hermeneutics', it was not concerned to specify criteria for 'correct' interpretations but instead had for its object something much more fundamental (Heidegger referred to his project as 'fundamental ontology'), namely a properly philosophical elucidation or interpretation of the basic (ontological) structures of human understanding which is to say, human existence) itself. The move that Heidegger made in this connection was to

prove decisive for the subsequent development of hermeneutics. Understanding, Heidegger insisted, is not merely one attribute of our being, something that we may 'have' or not (in the sense in which we are said to 'have knowledge'); understanding is rather that which, as existing beings, we most fundamentally *are*.

As existing beings, we exist only in the mode of becoming (as Kierkegaard—from whom Heidegger drew much of his inspiration—would have said), and thus *what* we most fundamentally are is not anything fixed and given but rather what we can *become, i.e., possibility*. This in turn means that the understanding which we are is itself nothing other than an understanding of the possible ways in which we could be ('Understanding is the Being of such potentiality-for Being', *BT,* 183). As existing, understanding beings, we are continually 'projecting' possible ways of being (our being is defined in terms of these 'projects'). What Heidegger calls 'interpretation' *(Auslegung)* is itself nothing other than a possibility belonging to understanding. That is, when our prethematic, pre-predicative or tacit understanding is developed, it becomes interpretation.[24] Interpretation (explication, laying-out, *Auslegen*) is the working-out *(Ausarbeitung)* of the possible modes of being that have been projected by the understanding. The point that Heidegger is insisting on is that interpretation is always derivative; interpretation discloses only what has *already* been understood (albeit only tacitly).

In other words, interpretation is never without presuppositions (Heidegger referred to these as 'fore-structures'). It is never the mere mirroring of an 'objectivity' which simply stands there naked before us (the 'bare facts'); in interpretation there is always something that is 'taken for granted'. With the example of textual interpretation in mind, Heidegger pointedly remarks that if in one's interpretations one appeals to 'what "stands there", then one finds that what "stands there" in the first instance is nothing other than the obvious undiscussed assumption *[Vormeinung]* of the person who does the interpreting' (*BT,* 192). There is, then, an essential *circularity* between understanding and interpretation.

In this way Heidegger effectively ontologizes what traditional hermeneutics had called the 'hermeneutical circle', which, as a methodological rule, simply meant that when interpreting a text one ought continually to interpret the parts in terms of the whole, and the whole in terms of the parts. For Heidegger, however, the 'circle' of understanding goes much deeper; it is in fact rooted in the existential constitution of human being itself. Human understanding itself has a circular structure. This amounts to saying that all interpretive understandings are presuppositional or 'anticipatory' by nature (interpretation must…already operate in that which is understood' (*BT,* 194).

Since the 'circle' is constitutive of our very being—since, in other words, it constitutes the very condition of possibility of our understanding anything at all—it would be altogether misleading to view it, as a logician might, as a 'vicious circle'. Even to view the circularity involved in all understanding—its 'presuppositional' nature—as an inevitable or unfortunate imperfection of human understanding that, in an ideal situation, could or ought to be overcome would mean, Heidegger says, that one has misunderstood the act of understanding 'from the ground up' (*BT,* 194). Indeed, all attempts to deny the 'circle' or to escape from it testify to a false consciousness. What Heidegger is here calling into question is the Cartesian ideal that has dominated all of modern philosophy, namely, the notion that truly 'objective' knowledge must be presuppositionless or 'foundational', grounded upon some rock-solid, 'objective' foundation (even the logical

positivists continued to demand such a foundation and believed that they had found it in a combination of the laws of logic and raw 'sense data'). Thus, he maintains that the objectivistic ideal of 'a historiology which would be as independent of the standpoint of the observer as our knowledge of Nature is supposed to be' is a false ideal, an idol, in fact, of the understanding. Both scientistic objectivism and common sense (the 'natural attitude', as Husserl would have said) misunderstand understanding (see *BT,* 363). The important thing, Heidegger says, the lesson to be drawn from the phenomenological analysis of human being-in-the-world, is that we ought not even to try to get out of the circle but should attempt rather 'to come into it in the right way' (*BT,* 195). We must, in other words, learn in our theorizing to do without 'foundations' (such as, in textual interpretation, the supposedly original intention of the author). It would not be too much of an exaggeration to say that the whole meaning and significance of post-Heideggerian hermeneutics consists in its strenuous attempt to take this lesson to heart and, accordingly, to elaborate a theory of understanding and interpretation that could most properly be termed 'non-foundational'.

PHENOMENOLOGICAL HERMENEUTICS: THE BASIC THEMES

The putative purpose of Heidegger's lengthy analysis in *Being and Time* of the basic structures of human being was to set the stage for raising anew the age-old question of the meaning of Being, a question which Heidegger believed had increasingly been lost sight of since the time of the ancient Greeks. In subsequent writings Heidegger attempted to find a more direct approach to the Being-question *(die Seinsfrage),* abandoning in the process the existential orientation of his earlier work which, he believed, had distracted him from this overriding issue. The key actor in Heidegger's later writings is no longer the human being *(Dasein)* but Being itself, Being-as-such. Neither Gadamer nor Ricoeur chose to follow Heidegger in this all-out pursuit of 'Being'. The following remark of Gadamer reflects well the agenda that hermeneutics has set itself—and which is not that of Heidegger's ontological eschatology: 'What man needs is not only a persistent asking of ultimate questions, but the sense of what is feasible, what is possible, what is correct, here and now' ([9.7], xxv).

Throughout his career Ricoeur has, for his part, held fast to a fundamentally existential motivation, conceiving of hermeneutics as an attempt on the part of the reflecting subject to come to grips with 'the desire to be and the effort to exist which constitute us'[25] (his 'existentialism' is at the root of his opposition to scientistic objectivism), and over the last several decades Gadamer has greatly expanded the scope of Heidegger's earlier, existential hermeneutics (the 'hermeneutics of facticity'), elaborating in the process an all-inclusive philosophical discipline. As he once remarked: 'I bypass Heidegger's philosophic intent, the revival of the "problem of Being".'[26] Unlike Heidegger, Gadamer has focused his interest not on the question of 'Being' but on the *Geisteswissenschaften,* on the nature and scope of the human sciences. 'We make', he said, 'a decided relation between the human sciences and philosophy…. The human sciences are not only a problem *for* philosophy, on the contrary, they represent a problem *of* philosophy' (*PHC,* 112). As the subject matter of his writings testifies, Ricoeur has also devoted a great deal

of his philosophical attention to human science issues. If there is a difference between the two hermeneuticists in this regard, it is that Ricoeur feels that Gadamer has slighted important methodological issues having to do with the human sciences in his concern to accord them a special ontological status *vis-à-vis* the natural sciences ('an entirely different notion of knowledge and truth' [*PHC,* 113]). We shall, accordingly, return to the relation between hermeneutics and the human sciences after having explored some of the basic tenets of hermeneutics *qua* philosophy.

In responding to Betti's charge that his shift away from the concern of traditional hermeneutics for verificatory method encourages subjectivism and arbitrariness in interpretation, Gadamer, it will be recalled, asserted: 'understanding is never subjective behaviour toward a given "object", but towards its effective history—the history of its influence.' One of the most outstanding features of Gadamer's hermeneutics is the emphasis he places on the 'historicality' or tradition-laden nature of human understanding. 'It is not really ourselves who understand', he in fact says, 'it is always a past that allows us to say, "I have understood"' ([9.5] 58). Gadamer defends himself against the charge of subjectivism by maintaining that interpretation is never—indeed, can never be—the act of an isolated, monadic subject, for the subject's own self-understanding is inevitably a function of the historical tradition to which he or she belongs. In fact, Gadamer attempts to turn the tables on the objectivists by arguing that the 'presuppositionless' or 'objective' view of understanding that their theory of interpretation calls for is an existential impossibility, that, as Heidegger would say, it involves a thoroughgoing misunderstanding of human understanding.

It is in this context that Gadamer's famous 'rehabilitation' of *prejudice* must be understood. When Gadamer provocatively asserts that prejudices are integral to all understanding, he is not condoning wilful bias or bigotry. He is simply generalizing on Heidegger's observations on the 'anticipatory' nature of understanding, the fact that all understanding operates within the context of certain pre-given 'fore-structures'. 'Prejudice' must be understood in the literal sense of a 'pre-judgment' (or a pre-reflective judgment), a presupposition, not in the pejorative sense of the term which has prevailed since the Enlightenment. The polemical thrust of Gadamer's speaking of 'prejudice' is in fact directed against what he calls the Enlightenment 'prejudice against prejudice' ([9.7], 240). There can be, he wants to argue, 'legitimate prejudices'. Here is yet another, and most basic, instance of how phenomenological hermeneutics essentially defines itself in opposition to modernist objectivism. The aim of Gadamer's rehabilitation of prejudice is to call into question the very notions of reason and knowledge that we have inherited from Cartesianism and the rationalism of the Enlightenment.

In this rationalist view of things *reason* stands opposed to *authority;* the 'prejudice against prejudice' is indeed, on a deeper level, a prejudice against 'authority' itself and as such. The peculiarly rationalist prejudice is that true knowledge can be had only by freeing ourselves from all inherited beliefs and opinions (the 'authority of the tradition') so as to create a *tabula rasa* on which genuinely 'objective' knowledge can be erected. What Gadamer objects to here is the quite arbitrary way in which Enlightenment rationalism equates authority with blind obedience and domination; as there can be 'legitimate prejudices', so likewise the recognition of authority can itself be fully rational. Gadamer asserts:

> It is true that it is primarily persons that have authority; but the authority of persons is based ultimately, not on the subjection and abdication of reason, but on recognition and knowledge—knowledge, namely, that the other is superior to oneself in judgment and insight and that for this reason his judgment takes precedence, i.e., it has priority over one's own. This is connected with the fact that authority cannot actually be bestowed, but is acquired and must be acquired, if someone is to lay claim to it. It rests on recognition and hence on an act of reason itself which, aware of its own limitations, accepts that others have better understanding. Authority in this sense, properly understood, has nothing to do with blind obedience to a command. Indeed, authority has nothing to do with obedience, but rather with knowledge.
>
> ([9.7],

As Gadamer goes on to say, if we accord recognition to anything, it is because 'what authority states is not irrational and arbitrary, but can be accepted in principle' ([9.7], 249). There is, therefore, something like rightful authority, the recognition whereof is itself fully rational.

Gadamer contends that the Enlightenment ideal of Reason, as a 'faculty' enabling the individual to make contact with 'reality' unmediated by authority and tradition, is in fact an idol of modernity. He is especially opposed to the modernist assumption that reason so conceived (in an objectivistic-instrumentalist fashion) should serve as the basis for the complete reorganization ('rationalization') of society. As Richard Bernstein points out: 'We can read his philosophic hermeneutic as a meditation on the meaning of human finitude, as a constant warning against the excesses of what he calls "planning reason", a caution that philosophy must give up the idea of an "infinite intellect".'[27]

Curiously enough (though not surprisingly), the modernist quest for 'objective knowledge' is itself supremely subjectivistic. It presupposes that the thinking subject has direct access only to the contents of its own 'mind' (which is assumed to be fully transparent to itself) but that, with suitable methodological procedures, this isolated individual can, by means of Reason, achieve genuine knowledge on his or her own. An appropriate label for this view would be 'methodological solipsism'. For Gadamer, however, 'Understanding is not to be thought of so much as an action of one's subjectivity, but as the placing of oneself within a process of tradition, in which past and present are constantly fused' ([9.7], 258).

It can thus be seen that Gadamer's defence of 'prejudice' goes hand in hand with the emphasis he places on *tradition;* indeed, for Gadamer the ultimate locus of authority is tradition itself. It is interesting to note in this regard that post-positivist philosophy of science has, in the case of Thomas Kuhn, Paul Feyerabend and others, sought to highlight the role that tradition plays in that rational enterprise called 'science'. Scientists, it is now recognized, do not simply 'observe and describe' bare facts; what they look for, and what they accordingly find, is a function not of an abstract method ('the experimental method') but of the 'paradigms' or research traditions in which they happen to be working (and into which they have been enculturated in their training as scientists). This parallel between the new philosophy of science and Gadamerian hermeneutics is perhaps

especially interesting and noteworthy in that in his work Gadamer has focused exclusively on the human sciences and has not sought to indicate what a hermeneutical approach to the natural sciences might look like. But the point that the new philosophers of science are making is a properly Gadamerian one: there are no answers 'in themselves'; the only answers that scientists get is to the questions they have asked, and these are ones which they owe to the tradition within which they are working.

In his reflections on the human sciences Gadamer has devoted particular attention to the importance of the *question*. The logic of the human sciences, he says, is 'a logic of the question' ([9.7], 333, see also 325ff.). All knowledge comes only in the form of an answer to a question. And much as Feyerabend was later to do in his *Against Method,* Gadamer insists that 'There is no such thing as a method of learning to ask questions, of learning to see what needs to be questioned' ([9.7], 329). This of course does not mean, as a neopositivist like Hirsch would maintain, that there is no 'art of questioning'. There is indeed such an art, and this is precisely one we learn from the tradition to which, as thinking beings, we belong.

From what has been said, it can be readily appreciated why, in his attempt to elaborate an overall philosophy of human understanding, Gadamer should devote so much of his attention to the notion of tradition. If there is no understanding without presuppositions or 'prejudices', then it is incumbent on a philosophical hermeneutics to thematize the role that tradition plays in our understanding, since our enabling presuppositions are historical by nature, something handed down to us by the tradition(s) to which we belong—a prime instance of 'the historicality that is part of all understanding' ([9.7], 333). In highlighting tradition in this way, Gadamer is led to articulate one of the core notions in his work, that of *wirkungsgeschichtliche Bewusstsein*.

Like so many other German terms, this one defies easy translation. The 'hermeneutical consciousness' it designates is 'the consciousness of effective history' or, alternatively, 'the consciousness in which history is effectively at work'. What effective-history 'means' is that 'both what seems to us worth enquiring about and what will appear as an object of investigation' are determined in advance ([9.7], 267–8). The term connotes a consciousness which is at once affected by history and aware of itself as so affected, an awareness which precludes our regarding history as an object since it is itself already implicated in history.[28] As Ricoeur characterizes it, effective-history is 'the massive and global fact whereby consciousness, even before its awakening as such, belongs to and depends on that which affects it' ([9.15], 74). 'Effective-history' is Gadamer's response to 'historical objectivism'. Gadamer not only argues that there can be no purely 'objective' knowledge of history—since history is already effectively at work in all historiological attempts at understanding it—he argues also that the rootedness of understanding in its own history (a history which it therefore continually 'presupposes') must not be viewed as an impediment to genuine understanding, to 'truth'. Or as Ricoeur sums it up: 'The action of tradition [effective-history] and historical investigation are fused by a bond which no critical consciousness could desolve without rendering the research itself nonsensical' ([9.15], 76).

That indeed is Gadamer's main point. Effective-history does not signal a limitation on our ability to understand (unless, of course, one wishes to contrast human understanding with divine understanding, in which case human understanding will always come out the

loser) as much as it designates the positive and productive possibility of any understanding that lays claim to truth. To speak in traditional philosophical terms, effective-history is the very condition of possibility of understanding. Effective-history provides us with our 'enabling' presuppositions.

There is a phenomenological parallel between the world in which we exist as thinking beings and the world in which we exist as perceiving beings: both have *horizons*.[29] Effective-history provides us with the intelligible horizon within which, as thinking beings, we 'live, move, and have our being'. Now, what occurs in the case of historical or intercultural understanding is what Gadamer calls a 'fusion of horizons' *(Horizontsverschmelzung)*. The term 'fusion' is perhaps misleading, however. When we attain to a 'hermeneutical consciousness' of another historical or cultural horizon, we do not coincide with the other (cf. Dilthey's notion of *nachleben,* re-living), but our horizon and that of the other partially overlap, as it were. The best illustration of such a 'fusion' is that of a meaningful conversation. As Gadamer writes:

> Just as in a conversation, when we have discovered the standpoint and horizon of the other person, his ideas become intelligible, without our necessarily having to agree with him, the person who thinks historically comes to understand the meaning of what has been handed down, without necessarily agreeing with it, or seeing himself in it.[30]
>
> ([9.7], 270)

Were one inclined to draw out the applicational significance of Gadamer's notion of a fusion of horizons, it would be most instructive to interpret it in the light of recent debates about 'incommensurability'.[31] What this would serve to reveal is how the notion of a fusion of horizons, like so many other hermeneutical notions, is an intrinsically oppositional or dialectical notion. In regard, for instance, to the question as to whether different cultural world-views are in any way 'commensurable', the fusion-of-horizons notion would oblige one to defend a position which would be *neither* absolutist *nor* relativist. On the one hand, the hermeneuticist would want to argue—as Richard Rorty, for instance, has done—against the idea of 'universal commen-suration', the idea, that is, that the values operative in different cultures can be measured or ranked according to some univocal, hierarchical standard of comparison, by means of some kind of epistemological algorithm. On the other hand, however, the hermeneuticist would want to argue just as strenuously against an unrestrained 'particularism', i.e., against the outright rejection of universalism altogether (cf. Rorty's defence of 'ethnocentrism'). The hermeneutical notion of a fusion of horizons means (in practical or pragmatic terms) that a meaningful dialogue with the 'other' (a genuine contact with the other, as other) is always possible, given the necessary effort and good will—even though a Hegelian-like *Aufhebung* of differences in a univocally uniform understanding is neither possible nor even, for that matter, desirable.[32] Expressing much the same point, though in a somewhat different way, Ricoeur observes:

> This [the fusion of horizons] is a dialectical concept which results from the rejection of two alternatives: objectivism, whereby the objectification of the

> other is premissed on the forgetting of oneself; and absolute knowledge, according to which universal history can be articulated within a single horizon. We exist neither in closed horizons, nor within an horizon that is unique. No horizon is closed, since it is possible to place oneself in another point of view and in another culture…. But no horizon is unique, since the tension between the other and oneself is unsurpassable.
>
> ([9.15], 75)

To sum up: what Gadamer has called 'tradition' is nothing other than the way in which our own horizons are constantly shifting through 'fusion' with other horizons. 'In a tradition,' he says, 'this process of fusion is continually going on, for there old and new continually grow together to make something of living value, without either being explicitly distinguished from the other' ([9.7], 273). The all-inclusive name for the phenomenon in question is 'understanding'.

To highlight in this way the 'horizonal' nature of understanding is, once again, to underscore the essential finitude of all understanding. 'Philosophical thinking', Gadamer insists, 'is not science at all…. There is no claim of definitive knowledge, with the exception of one: the acknowledgement of the finitude of human being in itself.'[33] The important thing to note in this regard, however, is that while an emphasis on finitude rules out the possibility of our ever attaining to 'definitive knowledge', it does not exclude the possibility of *truth*. It does not, that is, if and when truth is no longer conceived of in a metaphysical fashion, as a state of rest in which one has achieved a final coincidence with the object in question (e.g., the meaning of a text), but is reconceptualized to mean a mode of existence in which we keep ourselves open to new experiences, to further expansions in our horizons. Truth, for Gadamer, is not a static but a dynamic concept. It is not an epistemological but an existential concept, designating a *possible mode of being-in-the-world*. When, in the very last line of *Truth and Method,* Gadamer speaks of 'a discipline of questioning and research, a discipline that guarantees truth', what he means by 'truth' tends to coincide with the notion of *openness*. This is why he writes: 'The truth of experience always contains an orientation towards new experience…. The dialectic of experience has its own fulfilment not in definitive knowledge, but in that openness to experience that is encouraged by experience itself' ([9.7], 319).[34]

If human understanding is effectively historical, this means that it is also *linguistic* through and through, since it is through language that the tradition is effectively mediated and 'fused' with the present (which means also that in the language we speak and by means of which we achieve understanding the past continues to be effectively present). 'The linguistic quality of understanding', Gadamer remarks, 'is the concretion of effective-historical understanding'; 'it is the nature of tradition to exist in the medium of language' ([9.7], 351). Ricoeur has summed up the chief consequence of the 'new ontology of understanding' in the following way: 'there is no self-understanding which is not *mediated* by signs, symbols and texts…that is to say that it is *language* that is the primary condition of all human experience' (OI, 191). For both Gadamer and Ricoeur the ultimate goal of all understanding is self-understanding, and, to the degree that this occurs, it occurs by means of language. As was mentioned earlier, hermeneutics for Ricoeur is nothing other than an attempt on the part of the reflecting subject to come to

grips with 'the desire to be' ('le désire d'être'), and there is, he says, a basic 'proximity between desire and speech'. In fact, the path to self-understanding, he says, 'lies in the speech of the other which leads me across the open space of signs'. Like Gadamer, Ricoeur believes that the condition for understanding and self-understanding is the linguistically mediated tradition to which we belong, 'the whole treasury of symbols transmitted by the cultures within which we have come, at one and the same time, into both existence and speech' (OI, 192–3).

At one point in his career,[35] Ricoeur equated hermeneutics with the interpretation of symbols, i.e., various double-meaning expressions such as stain, fall, wandering, captivity, and so on, the purpose of hermeneutics being that of explicating the non-literal meaning of these expressions, thereby recollecting and restoring the fullness of their symbolic meaning. In work undertaken subsequent to what he calls his 'linguistic turn', Ricoeur's view of the scope of hermeneutics expanded to include the entire range of human linguisticality, the issue of textuality in particular. Gadamer for his part devoted fully one-third of *Truth and Method* to a discussion of language. If 'all understanding is interpretation', it is equally the case, Gadamer insists, that 'all interpretation takes place in the medium of language'. Language, he says, 'is the universal medium in which understanding itself is realized' ([9.7], 350).

This is Gadamer's thesis concerning the 'linguisticality' *(Sprachlichkeit)* of experience, regarded by some as 'his most original contribution to the history of hermeneutics'.[36] As he formulates it, the thesis is a strong one:

> Linguistic interpretation is the form of all interpretation, even when what is to be interpreted is not linguistic in nature, i.e., is not a text, but is a statue or a musical composition. We must not let ourselves be confused by these forms of interpretation which are not linguistic, but in fact presuppose language.
>
> ([9.7], 360)

A natural reaction on the part of many readers is to object that, surely, we have experiences which are not linguistic in nature. As if in realization of the somewhat counter-intuitive nature of his thesis, Gadamer goes on to say:

> We must understand properly the nature of the fundamental priority of language asserted here. Indeed, language often seems ill-suited to express what we feel. In the face of the overwhelming presence of works of art the task of expressing in words what they say to us seems like an infinite and hopeless undertaking. It seems like a critique of language that our desire and capacity to understand always go beyond any statement that we can make. But this does not affect the fundamental priority of language.
>
> ([9.7], 362)

It is indeed necessary, as Gadamer says, to understand properly the nature of the priority being asserted here. Gadamer is not advocating a kind of *Sprachidealismus,* a linguistic idealism. He is not defending a metaphysical thesis to the effect that there is nothing outside of language or that everything can be reduced to language—as Derrida was

subsequently perceived to be saying ('Il n'y a pas de hors-texte'). The linguisticality-thesis does not *deny* the meaningfulness of non-linguistic modes of experience; rather it *affirms* that meaningfulness by maintaining that it can always, in principle, be brought to expression (can be interpreted) in language. If the pre-linguistic could not be so interpreted, it would indeed be meaningless to speak of it as having any meaning at all. Thus, as Gadamer says:

> language always forestalls any objection to its jurisdiction. Its universality keeps pace with the universality of reason. Hermeneutical consciousness is only participating in something that constitutes the general relation between language and reason. If all understanding stands in a necessary relation of equivalence to its possible interpretation and if there are basically no bounds set to understanding, then the linguistic form which the interpretation of this understanding finds must contain within it an infinite dimension that transcends all bounds. Language is the language of reason itself.
>
> ([9.7], 363)

Ricoeur too insists on this 'general relation between language and reason'. The operant presupposition or 'central intuition'[37] underlying his hermeneutical endeavours is that existence is indeed meaningful, that, notwithstanding the very real existence of unmeaning, necessity (unfreedom) and evil, there is in existence 'a super-abundance of meaning to the abundance of non-sense'.[38] The core of what could be called Ricoeur's philosophical faith is his belief in the *dicibilité,* the 'sayability', of experience. He formulates this 'wager for meaning' or this 'presupposition of meaning' in the following way: 'It must be supposed that experience in all its fullness…has an expressibility *[dicibilité]* in principle. Experience can be said, it demands to be said. To bring it to language is not to change it into something else, but, in articulating and developing it, to make it become itself ([9.15], 115).

Perhaps no more forceful statement could be adduced to highlight the fundamental difference between hermeneutics and other forms of postmodern philosophy which also emphasize the centrality of language but which proceed to draw from such a recognition conclusions of a philosophically agnostic sort (cf. Derrida's notions of *différance* and 'undecidability'). For hermeneutics the fact that our understanding of things is always *mediated* by language does not mean that language is a *barrier* preventing us from having genuine access to 'reality'. Precisely because of the linguisticality of understanding, hermeneutics insists that there is—'in principle', as Ricoeur would say—nothing that we might wish to understand which cannot, in one way or another, be brought to language. As Gadamer states: 'everything that is intelligible must be accessible to understanding and to interpretation. The same thing is as true of understanding as of language' ([9.7], 365). 'Every language', he maintains, '…is able to say everything it wants' ([9.7], 363). This of course is not to say that one could ever succeed in saying everything that there is to be said about anything; experience of the world is not only expressible, it is infinitely expressible and is, therefore, inexhaustible in its meaning.[39]

It should be noted that the hermeneutical 'postulate of meaningfulness', of expressibility, is not merely an article of (philosophical) faith but is based on an

ontological thesis as to the relationship between human understanding (what traditional philosophy would have called the 'mind') and reality. The thesis is one to which Gadamer gave the following succinct formulation: 'Being that can be understood is language' ([9.7], 432). Let us attempt to unpack this very provocative assertion.

What exactly the thesis as to the 'linguisticality of the world' means can perhaps best be grasped when it is reinserted in the phenomenological context from which it derives; for hermeneutics the relation between language and the world parellels the relation between consciousness and the world as described by Husserl. As was mentioned earlier, the 'phenomenological reduction' was the means by which Husserl sought to overcome the subject/object split of philosophical modernity. What the reduction served to reveal is the 'intentionality' of consciousness: 'all consciousness is consciousness *of* its object, *of* the world.' In other words, in being conscious, one is not first of all conscious of one's own consciousness and then, only subsequently, of an object; on the contrary, self-consciousness is derivative—'parasitical', even—upon an immediate consciousness of the object.[40] Consciousness is therefore not something we have to break out of in order to encounter the world. As Merleau-Ponty remarked, 'there is no inner man';[41] consciousness is 'always already' in a world and thus is itself a mode of being-in-the-world.

Transposed from the register of consciousness to that of language, the intentionality-thesis means that between language and the world there exists, as Gadamer puts it, a mutual belonging, an 'affiliation'. What language 'expresses' is nothing other than the world itself, and thus, as Gadamer says, 'language has no independent life apart from the world that comes to language within it' ([9.7], 401). Echoing, as it were, Heidegger's characterization of language as 'das Haus des Seins', the home of being, Gadamer insists on 'the intimate unity of word and object'. Objecting to 'the instrumentalist devaluation of language that we find in modern times' ([9.7], 365), Gadamer maintains that language is not simply a tool, 'a mere means of communication' ([9.7], 404). 'Language', he says, 'is not just one of man's possessions in the world, but on it depends the fact that man has a world at all.' By strict phenomenological logic, the conclusion follows: 'this world is linguistic in nature' ([9.7], 401). Thus, to speak of 'the nature of things' or of 'the language of things' is, Gadamer remarks, to use two expressions 'that for all intents and purposes mean the same thing' ([9.5], 69).

Like the notion of a fusion of horizons, the hermeneutical view of language is a dialectical concept resulting from a rejection of two alternative views of language. On the one hand, just as phenomenology rejects the modernist view of consciousness as a mere 'representation' of the 'external' world, so likewise hermeneutics rejects the modernist view of language as nothing more 'than a mere sign system to denote the totality of objects' ([9.7], 377). The words of a natural language, Gadamer insists, are not merely 'signs' that 'refer' to an alinguistic, pre-given reality. Words are not mere labels that we stick on things that are fully defined in themselves; they are the very means by which the things themselves exist for us. To say that language is the universal medium of our experience of the world means, practically or pragmatically speaking, that it is quite devoid of meaning to speak of a totally extra-linguistic reality. The age-old goal of transcending language in such a way as to coincide with reality as it is 'in itself, with a transcendental signified (as Derrida would say), is thereby shown to be a vain and

meaningless pursuit. Hermeneutics spells the 'end of metaphysics' when it insists that being itself is (to borrow a phrase from Jacques Lacan) 'structuré comme un langage', structured like a language.

On the other hand, hermeneutics also rejects not only modernism but also those postmodern views of language which, in addition to viewing language as a mere system of signs, maintain as well that the system is closed in upon itself and that it 'refers' to nothing other than itself—which is to say, to nothing 'real' at all. That indeed would be a form of linguistic idealism.

For hermeneutics, language is neither a mere tool nor an autonomous object in its own right; it is the medium of understanding itself, and all understanding is in the last analysis a form of self-understanding. Faithful to its origins in existential phenomenology, hermeneutics views language as the means whereby a speaking subject arrives at understanding in dialogue with other speaking subjects. For his basic model of linguistically-mediated understanding, Gadamer invariably takes as his privileged example what is itself an instance of language as *praxis: conversation (Gespräch)*.[42] He seeks, as he says, 'to approach the mystery of language from the conversation that we ourselves are' ([9.7], 340). Language, he says, 'has its true being only in conversation, in the exercise of understanding between people' ([9.7], 404). By 'conversation' Gadamer understands

> a process of two people understanding each other ['fusion of horizons']. Thus it is characteristic of every true conversation thateach opens himself to the other person, truly accepts his point of view as worthy of consideration and gets inside the other to such an extent that he understands not a particular individual, but what he says. The thing that has to be grasped is the objective rightness or otherwise of his opinion, so that they can agree with each other on the subject.
>
> ([9.7], 347)

We should note that, as Gadamer defines it, conversation is an instance of *dialogue*. What makes the conversation a dialogue is that it is not simply the intersection of two monologues; in a conversation there exists a genuine *commonality*. What makes for this commonality is not the individual 'subjectivities' of the interlocutors but rather what the conversation is 'about', 'what is being said', i.e., the 'topic' or 'subject' of the conversation or what Gadamer calls *die Sache,* that which is at issue (at play, *en jeu*) in the conversation.[43] As in a game situation, what guides and rules over the conversation is not the subjective intentions of the participants but 'the object to which the partners in the conversation are directed' ([9.7], 330). It should also be noted how the above definition of conversation also contains an implicit reference to the concept of truth, as hermeneutics conceives of it: truth (according to one reading of Gadamer's somewhat ambiguous remarks on the subject) is essentially the *agreement* that the interlocutors arrive at in the course of a conversation on the issue at stake.

Gadamer's portrayal of language under the aegis of conversation is typically 'ontological': it is part and parcel of his overall attempt to elaborate a philosophy (an ontology) of human understanding. However, privileging as it does the point of view of the speaking subject (or subjects), it bypasses the approach to language taken by the

science of linguistics and the methodological implications thereof. One of Ricoeur's chief preoccupations has been to remedy this situation by engaging in a debate with the objective science of language. Resisting Gadamer's separation of 'truth' from 'method', Ricoeur defines his own approach *vis-a-vis* that of Heidegger and Gadamer as wanting to contribute 'to this ontological vehemence an analytical precision which it would otherwise lack' (OI, 196).

Like Gadamer, Ricoeur holds to 'the conviction that discourse never exists *for its own sake,* for its own glory, but that in all of its uses it seeks to bring into language an experience, a way of living in and of Being-in-the-world which precedes it and which demands to be said' (OI, 196). However, he believes that it is not sufficient simply to assert this conviction but that it must be justified given what could be called the 'semiological' challenge. What exactly is this challenge?

For structural or Saussurian linguistics (from which philosophicalpoststructuralism was to draw much of its inspiration and, in particular, its rejection of the notion of 'the subject'), language is an autonomous system of differences, one of internal dependencies which are self-referential and self-defining. In this respect the system has no outside, only an inside, and, as a mere code, it is anonymous. This means that, from a 'semiological' point of view, language has neither subject nor meaning nor reference, nor, a fortiori, is it to be viewed as a means of communication. It would seem, therefore, that in their views on language hermeneutics and 'semiology' are irreconcilably opposed.[44]

Typically of his general approach to issues, Ricoeur has sought to arbitrate this dispute and to elaborate 'a new phenomenology of language which would take seriously the challenge of semiology, of structural linguistics, of all the "structuralisms"'.[45] He has done so by arguing that while on the micro level of phonological and lexical units the structuralist approach to language is, *qua* science, fully justified, it none the less fails to account for what is uniquely characteristic of language when one considers larger linguistic units, such as the sentence and, above all, the text. When language is considered no longer merely as an atemporal *system* of *signs* but as an *event* of *discourse,* as an 'actualisation of our linguistic competence in performance', it becomes apparent, Ricoeur argues, that language does indeed communicate something meaningful about the world to a subject attuned to it (see [9.15], 132ff.). As we shall see in the next section when considering the hermeneutical principles of text-interpretation, what a text communicates is indeed a *world,* i.e., a possible mode of being-in-the-world.

Ricoeur's debate or *Auseinandersetzung* with structural linguistics illustrates very well one of the persistent elements in his philosophizing. From his early work in philosophical anthropology (where he sought to overcome the idealist limitations of Husserl's philosophy of consciousness) to his current concern with textuality, semantic innovation and the narrative function, Ricoeur has throughout waged a philosophical battle on two fronts. While seeking to overcome all forms of modern subjectivism and, in particular, all psychologistic theories of meaning (e.g., those which equate meaning with authorial intention), he has consistently opposed various structuralist and poststructuralist attempts to get rid of the notion of subjectivity altogether. What Ricoeur has worked to articulate is a renewed, transformed and, above all, decentred notion of the subject, i.e., one which views subjectivity not as a metaphysical 'origin' of meaning but as the result ('effect') of its transformative encounter with the 'other'. If, as Habermas has done in a recent work,

we were to take as one of the more noteworthy traits of contemporary philosophy its critique of 'a self-sufficient subjectivity that is posited absolutely'[46] ('the philosophy of the subject', the 'philosophy of consciousness'), the hermeneutics of Gadamer and Ricoeur would stand out as exemplary in this regard. In its basic philosophical orientation—key elements of which we have surveyed in this section—hermeneutics is a prime instance of the general movement in twentieth-century philosophy which has been a movement away from the paradigm of (monological) consciousness to that of (dialogical) intersubjectivity. To insist, as hermeneutics does, on the effective-historical and linguistic nature of consciousness is, *eo ipso,* to insist on its intersubjective nature. To maintain that 'the goal of all communication and understanding is agreement concerning the object' ([9.7, 260) is to aim at a conception of meaning and truth which is neither objectivistic nor subjectivistic. Truth is not to be thought of objectivistically as 'correspondence' to some in-itself reality, nor is meaning to be thought of subjectivistically as something residing 'within' subjectivity itself. The attempt on the part of phenomenological hermeneutics to move decisively beyond both objectivism and relativism is especially evident in regard to its theories on text-interpretation, an issue to which we now turn.

THE HERMENEUTICAL THEORY OF TEXT INTERPRETATION

'The best definition for hermeneutics', Gadamer writes, 'is: to let what is alienated by the character of the written word or by the character of being distantiated by cultural or historical distances speak again. This is hermeneutics: to let what seems to be far and alienated speak again.'[47] As we have seen, however, Gadamer distances himself from the tradition of romantic hermeneutics by insisting that his 'philosophical' hermeneutics is not intended as a skilled procedure, a body of knowledge that 'can be brought under the discipline of consciously employed rules and thus be deemed a technical doctrine'. Rather, it is, as he says (borrowing a phrase from Habermas), a 'critical reflective knowledge', i.e., an attempt to articulate what is ontologically presupposed in all acts of text-interpretation which seek to bridge over cultural or historical distances.[48] As a *critical* reflection, it seeks to uncover 'the naive objectivism within which historical sciences, taking their bearings from the self-understanding of the natural sciences, are trapped'.

In regard to text-interpretation, the 'naive objectivism' to be uncovered and overcome is the belief that (as with respect to 'reality' naturalistically or scientistically conceived) texts contain within themselves (as Hirsch would say) a perfectly well-defined, determinate, selfsame, and unchanging meaning that it is the business of interpretation merely to lay bare. It goes without saying that this objectivistic view of 'knowledge' is thoroughly at odds with the philosophical theory of human understanding outlined above. How then, we may ask, does philosophical hermeneutics conceive of textual meaning and the business of interpretation?

The basic point can be stated fairly tersely: what interpretation seeks to understand is not the *intention* of the *author,* but the *meaning* of the *text*. To put the matter yet another way: textual meaning is not reducible to authorial intention. A 'good' text is precisely

one which has something to say to us, its readers, over and above what its author may (or may not) have intended and willed.[49] As Gadamer pointedly asks: 'Does an author really know so exactly and in every sentence what he means' ([9.7], 489)? 'The sense of a text', Gadamer says, 'in general reaches far beyond what its author originally intended.' And thus 'the task of understanding is concerned in the first place with the meaning of the text itself' ([9.7], 335).'[50] The task of interpretation is to develop or explicate these textual meanings—by means, as we shall see, of 'application'. The distinctive tenet of philosophical hermeneutics is that, as Gadamer says, *interpretation* is never simply *reproduction* ([9.7], 345).

Gadamer's rejection of authorial intention as the supreme criterion of textual meaning follows from his views on conversation. As we have seen, a genuine conversation is one wherein we are not preoccupied with 'reading the other person's mind' but are concerned, instead, with coming to a mutual understanding ('agreement') with him or her on the topic under discussion. For Gadamer, the same is, or ought to be, the case in our encounter with texts. Reading involves 'not a mysterious communion of souls, but a sharing of a common meaning'. The goal of interpretive understanding is not 'to recapture the author's attitude of mind but…the perspective within which he has formed his views' ([9.7], 259–60)—in other words, to join with him or her in a conversation on the issue at stake in the text. Such is the 'hermeneutic situation' with regard to texts.

To speak of 'conversation' is necessarily also to speak of a 'fusion of horizons'. What occurs in the act of reading or interpretation is a 'fusion' of the 'horizon' of the text (what Ricoeur calls the 'world of the text') with that of the reader. The meaning of the text is the result of this 'fusion'. Textual meaning is therefore nothing substantial in itself but exists rather in the form of an *event,* and this event is the act of reading.[51] If, as we have seen, there are no answers but to questions we ourselves pose, then it is the presupposition of 'fore-meanings' we bring to bear on a text which are decisive in what the text 'tells' us. 'The only "objectivity" here', Gadamer insists, 'is the confirmation of a fore-meaning in its being worked out' ([9.7], 237).

This of course is not to say that we are free to project our own presuppositions on to the text arbitrarily—this would precisely *not* be a conversation in the Gadamerian sense. Indeed, to the degree that in reading a 'fusion' actually does occur, to that very degree our own presuppositions are put at risk. The mark of arbitrary prejudices, Gadamer says, is that 'they come to nothing in the working-out' ([9.7], 237). This not infrequently happens. Our fore-meanings are often not confirmed but challenged, and it is precisely in this way that our own horizons are transformed, such that we gain in understanding. Not only is understanding, in the final analysis, a form of self-understanding, but all self-understanding is ultimately a matter of *self-transformation*. When we encounter a text or object whose newness is a challenge to our acquired presuppositions, what that object says to us is: 'You must change yourself.' Thus, in the act of reading, by means of the fusion of horizons effected thereby, we achieve an understanding of what is other by relating its horizon to our own; however, in order to do so, we are at the same time challenged to expand our own horizons, such that, through and by means of reading, our own selves are renewed. The postmodern paradigm of intersubjectivity under which philosophical hermeneutics operates is perhaps no more in evidence than here, in its theory of text-interpretation. 'Only through others', Gadamer says, 'do we gain true

knowledge of ourselves' (*PHC,* 107).

Another way of expressing this whole matter would be to say that all interpretation necessarily involves *application (Anwendung, applicatio)*. We can be said to have understood a text, grasped its meaning, only when we are able to relate ('apply') what it says to our own situation, our own historical horizon. Indeed, if there would be *no* way in which we could relate what a text says (what it means, 'wants to say', *veut dire*) to our own situation, if, in other words, there were no way we could *translate* the language of the text into our own historically conditioned language—then it would be meaningless to speak of our having to do with a *text* in the first place, i.e., something presumed to have *meaning*. We would have no more grounds for viewing the thing in question as a text than we would to view markings on the floor of the Peruvian desert as traces of alien subjectivities from outer space, rather than as mere curiosities of nature.

For Gadamer, the three moments of the 'hermeneutical situation'—understanding, interpretation and application—are inseparable. Just as understanding always involves interpretation, so also interpretation always includes the element of application. In asserting this interconnection ('the truly distinctive feature of philosophic hermeneutics', in the words of one commentator[52]), Gadamer is once again distancing himself from the tradition of romantic hermeneutics and, indeed, from the basic paradigms of modern epistemology in general. In linking together understanding, interpretation and application, he is rejecting outright the modernist view of 'knowledge' as correct 'representation' of an in-itself state of affairs. He is insisting, in a decidedly postmodern fashion, that all genuine knowledge is in fact *transformation*. Understanding, he maintains, is never merely 'a reproductive, but always a productive attitude as well…. It is enough to say that we understand in a different way, if we understand at all' ([9.7], 264). What that means in regard to text-interpretation is that, since understanding a text involves its application to the situation of the interpreter, it is necessarily the case that in changing circumstances a text is understood appropriately 'only if it is understood in a different way every time' ([9.7] 275–6). This is yet another inevitable consequence of linking up meaning with the event of understanding. If, indeed, understanding (truth) is itself in the nature of an event then, as Gadamer remar—provocatively, but with perfectly good reason none the less: 'the same tradition must always be understood in a different way' ([9.7], 278). An understanding of things which failed constantly to renew itself in this way—through 'application'—would be nothing more than (to borrow a phrase from Hegel) 'the repetition of the same majestic ruin'.[53]

It may be noted in passing that Gadamer's notions of the fusion of horizons and, consequent upon this, the transformative nature of understanding is enough to deflect one of the main criticisms often directed at his work, namely that it amounts to a form of cultural or intellectual conservatism. From what we have seen, it should be obvious that Gadamer's defence of tradition is in no way a paean to an incessant repetition of the same. If the 'same'—the tradition—is not always understood differently, it ceases to what Gadamer understands by 'tradition'. What are commonly referred to as 'traditional' societies—ones which seek to deny change and transformative becoming and to perpetuate inviolate a particular societal order—are precisely ones which are devoid of tradition in the Gadamerian sense, i.e., a *living* tradition animated by a 'historical consciousness'. The fact that language and its effective-history preforms our experience

of the world does not, Gadamer insists, 'remove the possibilities of critique'. 'Conversation' always holds open 'the possibility of going beyond our conventions' and ensures 'the possibility of our taking a critical stance with regard to every convention'. In short, tradition does not present 'an obstacle to reason' ([9.7], 495–6). Gadamer's response to charges of conservatism could not be more categorical:

> It is a grave misunderstanding to assume that emphasis on the essential factor of tradition which enters into all understanding implies an uncritical acceptance of tradition and socio-political conservatism…. In truth the confrontation of our historic tradition is always a critical challenge of the tradition.
>
> (*PHC,* 108)

Gadamer's position in this matter could be summed up in the following way: given the presuppositional nature of human understanding, the idea of a *total* critique of what has been handed down to us by tradition is utopic and is an existential impossibility, for the only way in which we can critically scrutinize certain presuppositions is by tacitly appealing to others. However, the fact that we stand always within tradition and cannot, for that reason, criticize everything *at once,* does not mean that there are things that cannot be criticized, as a cultural conservative might maintain. The fact of the matter is that, for Gadamer, there is nothing that cannot, at some time or other, be subjected to criticism in the light of reason. For Gadamer reason and tradition do not stand in an antithetical relation. 'Reason', he in fact says, 'always consists in not blindly insisting upon what is held to be true but in critically occupying oneself with it.'[54]

Thus, in contrast to intellectual conservatives such as Alasdair MacIntyre and Leo Strauss, Gadamer's trenchant critique of philosophical modernity is not intended to justify a return to an idealized, premodern, metaphysical past. When, as he often does, Gadamer makes use of notions drawn from the philosophical tradition, it is with the aim of articulating a decidedly post-metaphysical and post-foundationalist—which is to say, postmodern—theory of human being and understanding (albeit one which differs in important ways from other forms of postmodern thought in that it seeks to avoid their relativistic and nihilistic tendencies).

Gadamer's way of summing up his notion of application by saying that the 'same' tradition must always be understood 'in a different way' may strike one as being, to say the least, paradoxical. It would be meaningless indeed were Gadamer presenting his theory of interpretation as a *science* in the traditional sense of the term; from a scientific point of view the same conclusions should invariably follow from the same premises. Unlike Betti and Hirsch, however, Gadamer is not attempting to make of hermeneutics a science; indeed, he is resolutely turning his back on the age-old Platonic notion of science *(episteme)*. What he is arguing for is 'a knowledge that is not a science'.[55] In order to indicate what such a knowledge could be, Gadamer effectuates, in the course of his discussion of application, a creative retrieval of Aristotle's notion of *phronesis*.

P*hronesis* is the key concept in Aristotle's practical philosophy (ethics, politics) and is concerned with the crucial issue of how something *universal* is to be applied in *particular* circumstances. *Phronesis* designates a form of historically informed, prudential judgment which seeks to determine not what is eternally true or valid (as in mathematics) but, as

Gadamer would say, 'what is feasible, what is possible, what is correct, here and now' ([9.7], xxv). In opposition to Plato, Aristotle argued that in matters of practical reasoning (whose object is human action) there can be no hard and fixed rules which, as in logic, can mechanically generate particular decisions. In practical reasoning there is, as it were, a dialectical relation between the universal and the particular; the relation between the two is one not of logical subsumption but of codetermination. The universal in question (an ethical maxim, a law, a principle of political philosophy, and so on) is oriented entirely towards its application and has no real meaning apart from it—in that, precisely, its *raison d'être,* as a theoretical principle, is itself entirely practical, in that it is meant to serve as a guide to action—and yet the universal is not reducible to its particular applications, either, since no single application of the universal is unequivocally dictated by it and, consequently, can claim to exhaust it (to express its 'univocal' meaning). It is just this sort of reciprocal or codetermining relation, Gadamer holds, that obtains between a text (which, as something that is in a sense 'self-same', functions as a universal) and various interpretations ('applications') of it. He writes:

> The interpreter dealing with a traditional text seeks to apply it to himself. But this does not mean that the text is given for him as something universal, that he understands it as such and only afterwards uses it for particular applications. Rather, the interpreter seeks no more than to understand this universal thing, the text; i.e., to understand what this piece of tradition says, what constitutes the meaning and importance of the text. In order to understand that, he must not seek to disregard himself and his particular hermeneutical situation. He must relate the text to this situation, if he wants to understand at all.
>
> ([9.7], 289)

Gadamer's preferred model for text-interpretation is the interpretive activity of the jurist. 'Legal hermeneutics', he maintains, 'is able to point out what the real procedure of the human sciences is.' As he goes on to say:

> Here we have the model for the relationship between past and present that we are seeking. The judge who adapts the transmitted law to the needs of the present is undoubtedly seeking to perform a practical task, but his interpretation of the law is by no means on that account an arbitrary re-interpretation. Here again, to understand and to interpret means to discover and recognise a valid meaning. He seeks to discover the 'legal idea' of a law by linking it with the present.

From this Gadamer generalizes as follows:

> Is this not true of every text, i.e., that it must be understood in terms of what it says? Does this not mean that it always needs to be restated? And does not this restatement always take place through its being related to the present? …Legal hermeneutics is, then, in reality no special case but is, on the contrary, fitted to restore the full scope of the hermeneutical problem and so to retrieve the former

> unity of hermeneutics, in which jurist and theologican meet the student of humanities.
>
> ([9.7], 292–3)

It follows as a general conclusion that in text-interpretation it is altogether inappropriate—indeed, quixotic—to seek to determine the single correct interpretation of a text. However, it also follows, and with equal force, that in text-interpretation, as in practical reasoning in general, it is never the case that 'anything goes'. If hermeneutics is an instance of practical reasoning, as indeed Gadamer insists that it is—'The great tradition of practical philosophy lives on in a hermeneutics that becomes aware of its philosophic implications'[56]—this means that while it is never possible to *demonstrate* the validity of one's interpretations, it is nevertheless always possible to *argue* for them in cogent, non-arbitrary, indeed, prudent ways. As an instance of practical philosophy, hermeneutics is as remote from dogmatic scientism as it is from interpretive anarchism. It is precisely because hermeneutics is a practical philosophy in the Aristotelian sense of the term that it can legitimately claim to have transcended both objectivism and relativism.

Godamer's interest in practical philosophy has led him to explore the relationship between hermeneutics and rhetoric. The relationship between the two is both extensive and deep.[57] If it is the case that hermeneutical reasoning is not a form of scientific *demonstration* but of *persuasive argumentation* and that its object is not what is *certain* but what is *probable* or *likely,* then it is obvious that it is to traditional rhetoric—the theory of argumentation (in the words of Chaim Perelman[58])—that hermeneutics is obliged to look for its theoretical and methodological grounding. The scope of rhetoric, Gadamer says, is truly unlimited, and thus to the universality of hermeneutics corresponds the ubiquity of rhetoric. As he further remarks:

> Where, indeed, but to rhetoric should the theoretical examination of interpretation turn? Rhetoric from oldest tradition has been the only advocate of a claim to truth that defends the probable, the *eikos* (verisimile), and that which is convincing to the ordinary reason, against the claim of science to accept as true only what can be demonstrated and tested! Convincing and persuading, without being able to prove—these are obviously as much the aim and measure of understanding and interpretation as they are the aim and measure of oration and persuasion.
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> ([9.5], 24)

Ricoeur shares with Gadamer the same basic approach to text-interpretation, the most common element in which is perhaps the attempt to work out a 'non-subjective' theory of meaning. However, there are some noticeable differences between these two leading representatives of phenomenological hermeneutics, differences not so much in substance, perhaps, as in what they choose to accentuate. Three such differences may be noted.

In the first instance, Ricoeur has always been uncomfortable with Gadamer's apparent dichotomizing of 'truth' and 'method'. Throughout his career Ricoeur has maintained a strong interest in the relationship between philosophy and the human sciences; accordingly, and in contrast to Gadamer, the focus of much of his attention has been on

specific methodological issues. While he fully subscribes to the basic ontological concerns of both Heidegger and Gadamer, he feels none the less that this particular preoccupation on their part has tended to prevent philosophical hermeneutics from entering into a serious dialogue with the more empirically oriented sciences. Reacting no doubt to Gadamer's somewhat underdefined notion of 'truth',[59] Ricoeur insists that questions of 'validation' cannot simply be bypassed. Gadamer's 'ontological' hermeneutics, he maintains, ignores the quite legitimate question of validation which so preoccupied romantic hermeneutics. In Ricoeur's eyes Gadamer develops not only the anti-psychologistic tendencies of Heidegger's philosophy but also, unfortunately, its anti-methodological tendencies as well. As a result, he says, a crisis is opened in the hermeneutical movement: 'in correcting the "psychologizing" tendency of Schleiermacher and Dilthey, ontological hermeneutics sacrifices the concern for validation which, with the founders, provided a balance for the divinatory aspect.'[60] Ricoeur distinguishes his own 'methodological' hermeneutics from Gadamer's 'ontological' hermeneutics by saying that it attempts to place 'interpretation theory in dialogue and debate with the human sciences'. It is not surprising, therefore, that—in his continuing attempt to mediate the 'conflict of interpretations'—Ricoeur should make an explicit attempt to incorporate Hirsch's concerns for validation into his own interpretation theory (though in a way which is hardly likely to have won Hirsch's allegiance to the cause of phenomenological hermeneutics).[61]

Another aspect of Gadamer's interpretation theory about which Ricoeur has expressed reservations is the conversation model on which Gadamer relies so extensively. In the light of his concern over the nature of textuality as such, Ricoeur argues that the relationship between reader and text is significantly different from that between two conversational partners. The latter should not be taken as a model for all instances of understanding, and it is definitely not appropriate for conceptualizing our relationship with texts: 'the dialogical model does not provide us with the paradigm of reading' ([9.15], 210).[62]

Far from viewing the act of reading as a kind of dialogue, we should, Ricoeur provocatively remarks, consider even living authors as already dead and their books as posthumous—for only then does the readers' relationship to the book become 'complete and, as it were, intact' ([9.15], 147). The reason for Ricoeur's saying this is the profound transformation that he believes writing has on language. Ricoeur defines a text as 'any discourse fixed by writing' ([9.15], 145). but with this 'fixation' something important happens: the text achieves, as it were, an 'emancipation with respect to the author' ([9.15], 139). More specifically, in writing, the *intention* of the author and the *meaning* of the text cease to coincide (in spoken discourse, Ricoeur holds, the intention of the speaker and the meaning of what he says overlap) (see [9.15], 200). In other words, when language is transformed into a text, it assumes a life of its own, independent of that of its author. As Ricoeur expresses the matter: 'the text's career escapes the finite horizon lived by its author. What the text says now matters more than what the author meant to say, and every exegesis unfolds its procedures within the circumference of a meaning that has broken its moorings to the psychology of the author' ([9.15], 201).

This leads directly into the third difference between Ricoeur and Gadamer to be noted in the present context, having to do with the notion of 'distantiation'. It will be recalled

how at the outset of the present section I quoted Gadamer as saying: 'The best definition for hermeneutics is: to let what is alienated by the character of the written word or by the character of being distantiated by cultural or historical distances speak again.' This remark might seem to imply that distantiation is a negative factor which it is the task of interpretation to overcome as much as possible. Ricoeur for his part appears to read Gadamer in this way; he perceives as 'the mainspring of Gadamer's work…the opposition between alienating distantiation and belonging'—an opposition reflected in the very title of Gadamer's *Truth and Method* ([9.15], 131). He sees Gadamer as wanting to renounce the concern of the human sciences for objectivity so as to reaffirm our 'belongingness' to the tradition. In opposition to this, Ricoeur states: 'My own reflection stems from a rejection of this alternative and an attempt to overcome it.'

The point that Ricoeur wishes to emphasize is that the phenomenon of textuality overcomes 'the alternative between alienating distantiation and participatory belonging' in such a way as to introduce 'a positive and, if I may say so, productive notion of distantiation.' Why is distantiation a 'productive function'? Distantiation is productive in that, in 'alienating' a text from its original context, it confers on the text a kind of 'autonomy', thereby freeing it for what is in fact its true vocation, namely, that of being 'reactualized' in ever new contexts (becoming in this way a genuinely 'living' text).[63] This reactualization (or recontextualization) is what Ricoeur calls 'appropriation' *(Aneignung)*. He prefers this term to 'application' *(Anwendung),* since it underscores the central role that the reader plays in regard to the text. To 'appropriate' means '"to make one's own" what was initially "alien"' ([9.15], 185). It is the reader's function to actualize ('make actual, real") the meaning of the text. A text is, by its very nature, addressed to someone, to 'an audience which extends in principle to anyone who can read' ([9.15], 139). In a very real sense, the text's audience is one 'that it itself creates' ([9.15], 202). In any event, without an audience (an addressee) to reactualize it, the meaning of a text would remain for ever 'undecidable', as Derrida has quite rightly remarked. Thus, for Ricoeur, 'reading is the concrete act in which the destiny of the text is fulfilled' ([9.15], 164)

Ricoeur's position in this matter is a strict consequence of his rejection of the psychologistic theory of meaning. The meaning of a text is its 'reference', but this is neither the psychological intention of the author nor an empirical state of affairs in the so-called 'objective' world ('ostensive reference'). The true referent of a text is what it is 'about', what Gadamer calls *die Sache,* the 'matter of the text'. Ricoeur calls this the 'world of the text'. He defines it as 'the ensemble of [nonsituational] references opened up by the text'—as when we speak of the 'world of the Greeks', meaning thereby not an empirical reality but a particular *understanding* of the world ([9.15], 202). The 'intended meaning of the text' is the 'world' that it discloses; the projecting of a world is 'the process which is at work in the text' ([9.15], 164).

For Ricoeur there is no text that does not express a 'world', that 'does not connect up with reality', no matter how fictional the text may be ([9.15], 141). In opposition to Roland Barthes, Ricoeur strenuously maintains that the language of texts does not merely 'celebrate itself. Poetry and novels may not refer to any merely empirical reality, but they most definitely do have a 'second-order reference'.[64] The central task of interpretation is that of explicating this higher-level reference; herein lies, according to Ricoeur, 'the

center of gravity of the hermeneutical question' ([9.15], 132), 'the most fundamental hermeneutical problem' ([9.15], 141):

> If we can no longer define hermeneutics in terms of the search for the psychological intentions of another person which are concealed *behind* the text, and if we do not want to reduce interpretation to the dismantling of structures [as in the structuralist, purely explanatory approach], then what remains to be interpreted? I shall say: to interpret is to explicate the type of being-in-the-world unfolded *in front of* the text.

This last remark provides a more precise indication of what Ricoeur means by the 'world of the work'. This 'world' is none other than Husserl's life-world or Heidegger's being-in-the-world. That is to say, the 'possible world' ([9.15], 218) unfolded in a text is nothing other than a *possible mode of being*. In other words, *it is a world which I, the reader, could (possibly) inhabit*. By opening up a world for us, a text provides us with 'new dimensions of our being-in-the-world' ([9.15], 202); it suggests to us new and different ways in which we ourselves could be. 'To understand a text', Ricoeur says, 'is at the same time to light up our own situation' ([9.15], 202). It is at this point that Ricoeur's theory of text-interpretation links up with his overriding concern to articulate a non-metaphysical concept of subjectivity, 'a new theory of subjectivity' ([9.15], 182).

The key point here is that in appropriating the meaning (the 'world') of a text, the reader—the self—reappropriates itself, acquires in effect a new self. 'What would we know of love and hate,' Ricoeur asks, 'of moral feelings and, in general, of all that we call the *self,* if these had not been brought to language and articulated by literature' ([9.15], 143)? The relation between text and reader is thus, as it were, a two-way street: the text depends on its readers for its actualization, but in the process of reading—giving the text a meaning—readers are themselves actualized ('metamorphosed')—given a self—by the text. In exposing ourselves to the text, we undergo 'imaginative variations' of our egos (see [9.15], 189) and receive in this way from the text 'an enlarged self, which would be the proposed existence corresponding in the most suitable way to the world proposed' ([9.15], 143). Thus, as Ricoeur remarks:

> In general we may say that appropriation is no longer to be understood in the tradition of philosophies of the subject, as a constitution of which the subject would possess the key. To understand is not to project oneself into the text; it is to receive an enlarged self from the apprehension of proposed worlds which are the genuine object of interpretation.
>
> ([9.15], 182–3)

It can thus be seen that while Ricoeur's interpretation theory situates the reader at the heart of the interpretive process, it does not legitimate any form of interpretational subjectivism; what it calls for is 'instead a moment of dispossession of the narcissistic *ego*' ([9.15], 192).[65] However, by linking up the understanding of meaning with self-understanding, it does illustrate in a striking way Ricoeur's basic philosophical motives which derive from the tradition of reflective (or reflexive) philosophy and, more

particularly, the concern for the 'self that he inherits from existentialism.[66] In all text-interpretation what is ultimately at stake is a self in search of self-understanding, in search of 'the meaning of his own life' ([9.15], 158). Thus Ricoeur writes: 'By "appropriation", I understand this: that the interpretation of a text culminates in the self-interpretation of a subject who thenceforth understands himself better, understands himself differently, or simply begins to understand himself ([9.15], 158). It is accordingly not surprising that when in the course of a famous debate Lévi-Strauss asserted that for him meaning is always phenomenal and that underneath meaning (conceived of as nothing more than the combination of elements meaningless in themselves) there is only non-meaning, Ricoeur should have insisted most strongly: 'If meaning is not a segment in self-understanding, I don't know what it is.'[67] The position that Ricoeur adopts in his consideration of the human sciences and, in particular, the explanation/ understanding debate is, as we shall see in what follows, dictated by this fundamental conviction.

HERMENEUTICS AND THE HUMAN SCIENCES: FROM TEXT TO ACTION

If Gadamer's major contribution to philosophical hermeneutics is to have provided it with a general theory of human understanding, Ricoeur's vital contribution to the discipline could perhaps be said to consist in his having drawn from this ontology of understanding *methodological* conclusions of direct relevance to the practice of the human sciences. In doing so, he has also addressed the key problem in the philosophy of the human sciences that Gadamer's hermeneutics tends to leave unresolved, namely, the problem of the relation between *explanation* and *understanding*.

What is it about hermeneutics, one might ask, that makes it especially relevant to the human sciences? Or, again, what is it about the human sciences that allows one to maintain that they themselves are most properly understood when viewed as a form of 'applied' hermeneutics? The proper objects of these disciplines might seem, on the face of it, to have very little in common: the traditional concern of hermeneutics is *texts,* whereas the proper object of the human sciences is human *action*. The human sciences are concerned with what people do, the meaning of what they do, why and how they do it, and the consequences of their doing what they do. Hermeneutics is concerned, at its core, with the right reading of texts. But perhaps, to be understood properly, human action needs also to be *read* in the right way. Perhaps the common element here is the notion of *meaning*.

What indeed constitutes the specificity of the human sciences *vis-à-vis* the natural sciences? The difference lies first and foremost in the respective objects of these sciences. What is unique about the objects of the human sciences is that these objects are also *subjects*. As three human scientists remark: 'the objects studied are subjects, embedded in cultural practices, who think, construe, understand, misunderstand, and interpret, as well as reflect on the meanings they produce.'[68] This difference in the objects (or subject matter) of the two kinds of science dictates a difference in *method* (it does, that is, if one adheres to Aristotle's injunction to the effect that a science should always adapt its method to the nature of the object under consideration). From a methodological point of

view, human *action* falls under a different category altogether than does mere physical *motion*. Motion can be 'explained' in purely mechanistic terms, in terms of physical cause and effect relations, but action cannot properly be 'understood' except in terms of *meaning*. As the object of a science, human agents are not only interpreted objects (as in the case of the natural sciences), they are also self-interpreting subjects. Phenomenologically speaking, what is unique about that entity called 'man' is that he is a self-interpreting animal (this is, of course, simply another way of saying that 'man' is the 'speaking animal'). What this all means is that (in the words of the hermeneutical anthropologist Clifford Geertz) 'man is an animal suspended in webs of significance he himself has spun' and that, accordingly, the analysis of human culture (understood as precisely those 'webs') is not 'an experimental science in search of [nomological-deductive] law but an interpretive one in search of meaning'.[69]

Human action is essentially meaningful (significative) in that action is, by definition and in contrast to purely physical systems, intentional, teleological or purposeful. Humans *act* in order to bring into being states of affairs that would not, or would not likely, prevail without their acting. If, for instance, humans engage in economic activities (the only species to do so), it is, as economist Ludwig von Mises has remarked, *in order to* improve their material position, to make their lives more liveable, more meaningful.[70] That human action is essentially meaningful can therefore be taken as an ontological (or phenomenological) fact. The crucial question, as concerns the human sciences, is a methodological one: if the human sciences cannot look to the natural sciences for their method (since the concept of meaning or purpose is itself meaningless in a purely physicalistic or mechanistic context), where are they to look? This is where hermeneutics comes in.

In a famous article, 'The Model of the Text: Meaningful Action Considered as a Text', Ricoeur addressed the above mentioned question. Meaningful action, he said, can be the object of a science only if the meaning of action is 'objectified' in a way equivalent to that in which the meaning of discourse is 'fixated' by writing (see [9.15], 203)—only if, in other words, action can properly be viewed as a text-analogue (a 'quasi text'). Ricoeur maintains that this is indeed the case. He writes:

> In the same way that a text is detached from its author, an action is detached from its agent and develops consequences of its own. This autonomisation of human action constitutes the *social* dimension of action. An action is a social phenomenon…because our deeds escape us and have effects which we did not intend. One of the meanings of the notion of 'inscription' ['fixation'] appears here. The kind of distance which we found between the intention of the speaker and the verbal meaning of a text occurs also between the agent and its action.
>
> ([9.15], 206)

This is an important text, in that it specifies clearly that aspect of meaningful human action which makes of it the proper object of a *social* science: as in the case of texts, the meaning of action is not reducible to the psychological intentions of the agents themselves. The meaning of what people do displays an autonomy similar to that of texts in regard to their authors' intentions. Thus here too the notion of meaning must be

'depsychologized' or 'desubjectivized'. The proper objects of the social sciences are various social *orders* (the equivalent of texts) which are the *result* of human action—the result, it must be added, of human action but not necessarily of human design.[71] As Ricoeur remarks: 'our deeds escape us and have effects which we did not intend.' Our deeds escape us in the same way that the text's career escapes the finite horizon of its author. Strictly speaking, therefore, the meaningful action or, better expressed, the meaningful *patterns of action* that the social sciences seek to understand are *neither* subjective *nor* objective (in the purely physicalistic sense of the term). As the Canadian hermeneuticist Charles Taylor has emphasized, we are dealing here with meanings which are not subjective (residing in the heads of the actors) but rather *intersubjective*. 'The meanings and norms implicit in these practices', Taylor observes, 'are not just in the minds of the actors but are out there in the practices themselves, practices which cannot be conceived as a set of individual actions, but which are essentially modes of social relation, of mutual action.'[72] Although, as Ricoeur reminds us, it is only individuals who do things, it is nevertheless also the case that human action is meaningful—and thus understandable—only in terms of a shared public world.[73] As one psychotherapist observes:

> The meaning of action can be read from the directedness of the action seen within the pattern of practices that constitute the individual's social milieu. It is these practices, and not any representations in the individual's head, that determine the meanings attributable to the individual. The background of social practices and cultural institutions give specific objects and actions—and even mental representations when they do occur—their meanings.[74]

Another way of expressing the matter would be to say that just as what constitutes a text is that it has a certain 'logic' which it is precisely the task of text-interpretation to lay bare (Ricoeur speaks in this regard of 'the internal dynamic which governs the structuring of the work' (OI, 193)), so also there is a certain objective logic to human events or practices which it is precisely the task of social science to explicate. The social orders or 'wholes' that social scientists (anthropologists, economists, historians, etc.) seek to render intelligible possess their own unique ontological status in that their mode of being is *neither* psychological *nor* physical; it is, as Merleau-Ponty would say, an 'ambiguous' mode of being, neither that of the for-itself nor that of the in-itself. These wholes are indeed *objective* (or incarnate) *logics,* which exist as the sedimented results (in the form, ultimately, of sociocultural *institutions*) of the activities of a myriad of individual human agents, each of whom was pursuing meaning in his or her own life. If this is indeed the case, the crucial methodological question becomes: what method is most appropriate to the task of explicating these logics?

From what has been said, it should be evident that a purely *descriptive* approach (in terms of mental states) is no more appropriate than would be a purely 'explanatory', cause-and-effect approach; in both cases the object to be understood—meaning embedded in intersubjective practices—would be lost sight of. Human agents are self-interpreting beings, but it is not the task of a social science simply to 'describe' these interpretations. It is not their task, if it is indeed the case that the meaning of action

surpasses the intentions of the actors themselves. The function of interpretation cannot simply be that of *Verstehen* in the classical sense of the term, i.e., that of articulating the self-understanding of human actors, in such a way as to achieve an empathetic understanding of them. The unavoidable fact of the matter is that the human sciences are *doubly interpretive;* they are interpre-tations of the interpretations that people themselves offer for their actions. As Clifford Geertz has observed: 'what we call our data are really our own constructions of other people's constructions of what they and their compatriots are up to.'[75] The fact that the proper object of social science is the logic of *practices* and not merely the psychological intentions of actors means that social scientists often have to discount the self-interpretations of the actors themselves.[76] Ricoeur has long insisted that the consciousness that we have of ourselves is often a false consciousness, which means that the hermeneutical enterprise must include as one of its moments, a 'hermeneutics of suspicion'.

This amounts to saying that the role of an interpretive social science is necessarily *critical*. The fact that there is inevitably a certain non-coincidence between the interpretations worked out by the social scientist and the self-interpretations proffered by the actors themselves means that there exists, in the words of John B.Thompson, a 'methodological space for…*the critical potential of interpretation*'.[77] Because there is always, to one degree or another, a certain *décalage* or discrepancy between what people do and what they say they do, critique is in fact integral to interpretive understanding, and this is why philosophical hermeneutics can, with Habermas in mind, insist on the *emancipatory* function of interpretive theory.

In conceptualizing the interpretive function in a way such as this, Ricoeur is able, he believes, to resolve the long-standing conflict between 'explanation' and 'understanding' (Gadamer had already portrayed Dilthey's dichotomizing distinction as a relic of the Cartesian dualism which has infected all of modern thought).[78] From what has been said, it is obvious that interpretation cannot be reduced to 'understanding', in the narrow (empathetic) sense of the term. Indeed, precisely because the meaning of human action is not 'subjective', there is, Ricoeur maintains, a legitimate, albeit strictly limited, place for explanatory techniques of a purely objective nature in the overall interpretive process. If (as in psychotherapy, for instance) meaningintentions are not open to, or cannot be exhaustively grasped by, direct inspection, and thus cannot simply be described 'from within', but must be deciphered and interpreted, as it were, 'from without', it follows that there is, by principle and of necessity, a rightful place for 'explanation' (in the traditional sense of the term) in the human sciences.

Just as, in the case of text-interpretation, it may be useful at the outset to approach a text in a purely objective way, in terms of an analysis of its formal structure or computer analysis of word distribution, for instance, so also, in an attempt to understand human action, an objective approach, e.g., in terms of statistical analysis, may alert social scientists to the existence of patterns they might otherwise over-look. What Ricoeur wishes nevertheless to emphasize is that the intelligibility provided by purely explanatory techniques is essentially partial and one-sided. The phenomena themselves cannot properly be understood, in the last analysis, until the results of the explanatory approach are integrated into a wider, interpretive understanding. For Ricoeur, 'explanation' amounts to a *methodological distantiation* from what is 'said' in the text (the 'world of

the text'), but, unlike Gadamer (in Ricoeur's view), he holds that this is a proper, and even necessary, moment in the overall process of understanding, conceived of, in the last analysis, as 'appropriation'. With Ricoeur there is, therefore, as one commentator says, a 'dialectic of an understanding which takes the detour of methodic distantiation so as to return to understanding'.[79]

Ricoeur's strategy in this regard consists in locating 'explanation and understanding at two different stages of a unique *hermeneutical arc*' ([9.15] 218), integrating thereby the opposed attitudes of explanation and understanding within an overall conception of interpretation as the recovery of meaning. In accordance with his hermeneutical conviction that all understanding is ultimately a form of self-understanding, Ricoeur maintains that, as he says, 'the final brace of the bridge [is] anchorage of the arch in the ground of lived experience' ([9.15], 164). In accordance as well with his underlying existential motivations, Ricoeur also insists that social structures are 'attempts to cope with existential perplexities, human predicaments and deep-rooted conflicts' ([9.15], 220). Thus, the ultimate goal of the social sciences is no different from that of text-interpretation, namely 'appropriation', a heightened understanding of the meaning of our being-in-the-world. 'We are not allowed', Ricoeur insists, 'to exclude the final act of personal commitment from the whole of objective and explanatory procedures which mediate it' ([9.15], 221). In applying Ricoeur's notion of the 'fixation' or 'inscription' of meaning to the study of cultures, Clifford Geertz for his part insists that the ultimate concern of the anthropologist is 'the existential dilemmas of life' and that the 'essential vocation' of interpretive anthropology is that of making 'available to us answers that others, guarding other sheep in other valleys, have given, and thus to include them in the consultable record of what man has said'.[80]

Ricoeur has long maintained that human phenomena—texts, action—cannot properly be understood until the results of the explanatory approach have been integrated into a wider, interpretive understanding. In his latest work culminating in his three-volume study *Time and Narrative* (1983–8), he has argued that the attempt to understand the specifically human must, in the final analysis, assume the form of a *narrative*. To the teleological nature of action, discussed above, corresponds the plot structure of narrative.[81] 'Objective data' (that is, the data that are produced as a result of the application of objective measuring techniques) achieve their maximum intelligibility not when, as is the goal of the natural sciences, they have been subsumed under (supposedly) binding and timeless 'covering laws' (whose putative purpose is that of 'explanation' and 'prediction') but when, as in history or psychotherapy, they have been interrelated and integrated into a narrative account, one which, precisely, confers meaning on them through narrative emplotment. For Ricoeur, the most primordial of all forms of understanding is thus that of story-telling. He writes:

> to follow a story is to understand the successive actions, thoughts and feelings as displaying a particular *directedness*. By this I mean that we are pushed along by the development and that we respond to this thrust with expectations concerning the outcome and culmination of the process. In this sense, the 'conclusion' of the story is the pole of attraction of the whole process. But a narrative conclusion can be neither deduced nor predicted. There is no story

> unless our attention is held in suspense by a thousand contingencies. Hence we must follow the story to its conclusion. So rather than being *predictable,* a conclusion must be *acceptable*. Looking back from the conclusion towards the episodes which led up to it, we must be able to say that this end required those events and that chain of action. But this retrospective glance is made possible by the ideologically guided movement of our expectations when we follow the story. Such is the paradox of the contingency, 'acceptable after all', which characterises the understanding of any story.
>
> ([9.I5], 277)

As Kierkegaard pointed out, understanding comes always only after the event, and, as Ricoeur has sought to show, the full measure of whatever understanding is available to us is made possible not by formalistic modes of explanation but by retrospective, narrative emplotment. Ricoeur has developed his theory of the narrative function primarily with respect to historiography,[82] but it can be, and has been, extended to other human sciences.[83] If Gadamer has argued for the universality of hermeneutics on the grounds that hermeneutics is concerned with the entire range of human *linguisticality*—which, in turn, is coextensive with 'being that can be understood'—Ricoeur advances this claim even further when, in his later writings, he maintains that the object of hermeneutics is *textuality,* and that this notion is coextensive with human existence itself. As one commentator remarks: 'Hermeneutics is concerned with the interpretation of any expression of existence which can be preserved in a structure analogous to the struc-ture of the text…. Taking it to the limit, the entirety of human existence becomes a text to be interpreted.'[84]

As Ricoeur's work on narrative clearly demonstrates, good history shares many of the same traits as good fiction. In showing how understanding is ultimately a form of story-telling—and in undermining in this way the modernist opposition between the 'real' and the 'imaginary'—Ricoeur has also shown how hermeneutical truth is itself a result of the *productive imagination*.[85] For Ricoeur the poetic imagination (the means whereby that 'higher order referent' he calls the 'world of the text' is brought into being) is necessarily a 'subversive force' in regard to what is customarily (or traditionally) taken to be 'real'. If Ricoeur stresses the role of the imagination in the overall understanding process, it is because he perceives this to be a strategic means of defending hermeneutics against Habermas's charge that it is inherently 'conservative'. The hermeneutics of the text conceived of as a 'hermeneutics of the power-to-be' (and thus as a critique of the illusions and false consciousness of the subject) would itself, he argues, provide the necessary underpinnings for a critique of ideology [9.15], 94). Of particular interest to Ricoeur is the theme of the 'social-imaginary' ('l'institution imaginaire de la société', in the words of Cornelius Castoriadis), an interest which testifies to his overriding concern with social and political, i.e., practical, philosophy—a concern shared by Gademer, as we shall see in what follows.[86]

HERMENEUTICS AND PRACTICAL PHILOSOPHY: ETHICAL AND POLITICAL IMPLICATIONS

The ultimate task of hermeneutical reflection consists in explicating the values that inform and guide hermeneutical practice itself. These are values that are inherent in the 'hermeneutical experience' (as Gadamer calls it), i.e., in that most natural and universal of all human activities: the persistent attempt on the part of humans to achieve understanding, self-understanding, and, above all, mutual understanding. In articulating these values, hermeneutics seeks to do no more than to spell out the (practical) 'conditions of possibility' of the interpretive-communicative process itself. It may be noted that the values arrived at in this way are the core values of traditional liberal theory: tolerance, reasonableness, the attempt to work out mutual agreements by means of discourse ('conversation') rather than by means of force.[87] The values in question are ones that Gadamer would call 'principles of reason'—in that they are integral to communicative understanding or rationality.

Hermeneutical values are those having to do with respect for the freedom and dignity of one's conversational partners, one's fellow dialogical beings. A fundamental value in this regard is that of *equality*. Since for an agreement to count as 'true'—from the viewpoint of communicative rationality—it must be reached by non-coercive means, the right of dialogical partners to equal and fair consideration cannot rationally be denied. The hermeneutical notion of 'good will'[88] points to a core precept of democratic pluralism: the other may possibly be right over against oneself and thus must be accorded a freedom equal to one's own. Of all the principles of reason, the highest is of course *freedom* itself. In the course of a discussion of Hegel, Gadamer asserts:

> There is no higher principle of reason than that of freedom. Thus the opinion of Hegel and thus our own opinion as well. No higher principle is thinkable than that of the freedom of all, and we understand actual history from the perspective of this principle: as the ever-to-be-renewed and the never-ending struggle for this freedom.
>
> ([9.6], 9)

Freedom is the highest 'principle of reason' in that (as the theory of argumentation—the 'new rhetoric'—has shown) no one can claim to be 'reasonable' if he or she denies freedom of opinion and expression to others. No one, that is, can deny this freedom without undermining his or her own demand for due consideration (recognition) that is implicit in the expressing of any opinion whatsoever, and without thereby ostracizing himself or herself from collective or intersubjective deliberations as to what is true and right. For Gadamer *freedom* and *reason* are inseparable concepts; freedom is precisely the freedom (the right) to possess a meaningful voice in the common dialogue, in that 'conversation' which is constitutive of our humanity.

In advocating the 'freedom of all' as the highest principle of reason, Gadamer, it will be noted, is defending the *universality* of certain basic human values. Here again is an illustration of how hermeneutics differs in a most important way from other forms of anti-foundational postmodernism; unlike them, hermeneutics does not believe that a rejection of objectivism need entail an anti-humanist relativism. To the universality of human linguisticality corresponds the universality of certain basic human rights. 'It is no longer possible', Gadamer insists, 'for anyone still to affirm the unfreedom of

humanity' ([9.6], 37). Unlike Heidegger and recent poststructuralists, both Gadamer and Ricoeur defend the tradition of philosophical and political humanism.[89]

It may be noted as well that hermeneutics' defence of normative universalism is what allows for the possibility of a *philosophical or rational critique* of existing practices. 'The task of bringing people to a self-understanding of themselves', Gadamer says, 'may help us to gain our freedom in relation to everything that has taken us in unquestioningly' ([9.6], 149–50). To the degree that this or that form of human community fails to embody the universal values of communicative rationality, it is a legitimate object of critique. To fail to expose various forms of 'social irrationality' ([9.6], 74) for fear of being accused of 'ethnocentrism' and, more specifically, of 'Eurocentrism' would, hermeneutics believes, amount to nothing less than a betrayal of reason.[90]

This is yet another reason why Gadamer's own version of hermeneutics is improperly understood when, as is often the case, it is thought to entail 'an uncritical acceptance of tradition and sociopolitical conservatism' (*PHC,* 108). Richard Bernstein is one commentator who has clearly perceived the 'radical' element in Gadamer's hermeneutics that follows from its stress on practical philosophy. Bernstein notes how, in attempting to draw out the practical consequences of philosophical hermeneutics, Gadamer appropriates from Hegel the principle of freedom ('a freedom that is realized only when there is authentic mutual "recognition" among individuals'), and he remarks: 'This radical strain is indicated in his emphasis—which has become more and more dominant in recent years—on freedom and solidarity that embrace all of humanity.'[91]

Although he meant it as a criticism, Stanley Rosen was quite right when he said: 'Every hermeneutical program is at the same time a political manifesto or the corollary of a political manifesto.'[92] Gadamer openly acknowledges this when he characterizes hermeneutics as *scientia practica sive politica*.[93] Hermeneutical philosophy is inevitably political—to the degree, that is, that it is a form of practical philosophy, which is to say, to the degree that it privileges practical reason, *phronesis,* dialogue. In addition, hermeneutical politics inevitably assumes the form of what Ricoeur calls 'political liberalism'. 'This apologia of dialogue', he says, 'implies, in the context of politics, an unremitting censure of tyranny and authoritarian régimes, and a plea for discussion as also for the free expression and unrestricted interplay of all shades of opinion.'[94] In many of his shorter writings after *Truth and Method* Gadamer returns again and again to socio-political issues, defending the values of communicative rationality and denouncing the subtle forms of oppression that tend to subvert these values in an age dominated by science and technology and a purely instrumentalist conception of reason. 'It is the function of hermeneutical reflection, in this connection [the conservation of freedom],' Gadamer says, 'to preserve us from naïve surrender to the experts of social technology' ([9.5], 40).[95]

The term used by Gadamer to refer to the normative ideal defended by hermeneutics is *solidarity*. What 'practice' means, Gadamer says, 'is conducting oneself and acting in solidarity. Solidarity…is the decisive condition and basis of all social reason' ([9.6], 87). The task incumbent upon hermeneutics is a universalist one; it is, as Gadamer might say, that of 'reawakening consciousness of solidarity of a humanity that slowly begins to know itself as humanity' ([9.6], 86). The solidarity advocated by Gadamer is not, it

should clearly be noted, one based solely on ethnic or cultural commonalities *(Gemeinschaft,* 'culture'). What he means by solidarity is, rather, 'rational identification with a universal interest', with 'the universals of law and justice'.[96] Unlike present-day communitarians of either the left or the right, Gadamer is not extolling the virtues of any particular ethos or way of life ('community'), purely as such; he is arguing for the need for a genuine, philosophical (and thus universalist) *ethics*. The relation here between ethics *(Moralität)* and ethos *(Sittlichkeit)* parallels the more general relation between 'understanding' (the universal) and 'application' (the particular) discussed above; the former requires the latter, but is not reducible to it.[97] Practical reason is indeed a form of *reason,* which means that it makes a claim to *universality*.[98] In the final analysis, the solidarity Gadamer defends is the solidarity of *reason* seeking 'general agreement';[99] it is the solidarity of mutual recognition *(Anerkennung)* binding together the citizens of a liberal society *(Gesellschaft),* i.e., a polity, or what Kant called 'a universal civic society',[100] founded upon the rational idea of human rights and universal freedom.[101]

In opposition to anarchism in both its leftist and rightist versions (the latter sometimes referred to as 'anarcho-capitalism'), hermeneutics insists that for freedom and solidarity to prevail in practice liberal *institutions* are required (or what Gadamer refers to as 'moral and human arrangements built on common norms'.)[102] As Merleau-Ponty had already pointed out, invoking the name of Hegel: 'freedom requires something substantial; it requires a State, which bears it and which it gives life to.' The essential thing is the existence of 'institutions which implant this practice of freedom in our customs *[moeurs]*'.[103] Ricoeur reiterates this point. In the Hegelian view that Ricoeur adopts, an 'institution' is the 'whole of the rules relating to the acts of social life that allow the freedom of each to be realized without harm to the freedom of others'.[104] Ricoeur refers to this institutional set-up as 'un Etat de droit', i.e., the liberal-democratic state or the rule of law. Such a state is democratic in that it 'does not propose to eliminate conflicts but to invent procedures permitting them to be expressed and to remain negotiable. The State of Law, in this sense,' Ricoeur goes on to say, 'is the State of organized free discussion.' Ricoeur refers in this connection to Hegel's definition of the most rational state as 'the State in which each would be recognized by all'.[105] In arguing for 'a synthesis of freedom and institution' Ricoeur is expressly arguing against those contemporaries of his—referred to by some as the 'philosophers of '68'[106]—who exalt a kind of 'liberté sauvage' outside of any institutional framework and who denounce institutions as being essentially coercive and repressive. And he insists that 'it is only in the form of the liberal State that this synthesis [of freedom and institutions] can be seen at work in the depths of history'.[107] The liberal-democratic state defended by hermeneutics is, one could say, nothing other than the institutionalization of (dialogical) reason. In this connection Richard Bernstein describes the practical task of hermeneutics as that of fostering 'the type of dialogical communities in which *phronesis* becomes a living reality and where citizens can actually assume what Gadamer tells us is their "noblest task"—"decision-making according to one's own responsibility—instead of conceding that task to the expert"'.[108] What democratic theory has long referred to as the 'common good' is in fact nothing other than an order of social institutions binding people together, one whose *raison d'être* is to facilitate and encourage in them the exercise of practical-dialogical reason ('solidarity').

In conclusion, it is apparent that philosophical or phenomenological hermeneutics not only provides a general theory of human understanding in its various modes, it also prescribes very specific tasks in the realm of socio-political *praxis*. With the recent demise of anti-liberal socialism and the triumph of democratic values throughout much of the world, 'the end of history' is said by some to have occurred. Although Gadamer too does not see any alternative to liberalism, he is under no illusions as to the ultimate triumph of freedom and reason in history. He agrees with Hegel that it is no longer possible for anyone (rationally) to deny the supreme value of the freedom of all. 'The principle that all are free never again can be shaken.' It cannot be shaken to the degree that the principle is, precisely, a principle of reason. However, he adds:

> But does this mean that on account of this, history has come to an end? Are all human beings actually free? Has not history since then [Hegel's time] been a matter of just this, that the historical conduct of man has to translate the principle of freedom into reality? Obviously this points to the unending march of world history into the openness of its future tasks and gives no becalming assurance that everything is already in order.
>
> ([9.6], 37)

The task of realizing freedom in history is like the task of understanding and self-understanding itself—it is an endless task. 'To exist historically', Gadamer says in reply to Hegel, 'means that knowledge of oneself can never be complete' ([9.7], 269). Like humanism or the belief in the 'subject'—the human subject in search of meaning in his or her own life and, as such, the bearer of basic human rights—hermeneutics or the belief in meaning in history must recognize, as Ricoeur says, that it is without metaphysical foundations, that it is a wager, a cry.[109]

NOTES

1 The term was apparently first used by J.C.Dannhauer in his *Hermeneutica sacra sive methodus exponendarum sacrarum litterarum* (1654).

2 F.Schleiermacher, *Hermeneutics: The Handwritten Manuscripts,* ed. H.Kimmerle, trans. J.Duke and J.Forstman (Missoula: Scholars Press, 1977), p. 93.

3 Both Gadamer and Ricoeur concur in ascribing to Schleiermacher a 'psychologistic' view of understanding of the sort described here. This interpretation has been challenged, however, by Manfred Frank; see his *What is Neostructuralism?,* trans. S.Wilke and R.Gray (Minneapolis: University of Minnesota Press, 1989), pp. 8–9.

4 See C.G.Hempel, 'The Function of General Laws in History' (1942), reprinted in *Theories of History,* ed. P.Gardiner (New York: Free Press of Glencoe, 1959), pp. 344–56.

5 See P.Winch, *The Idea of a Social Science and Its Relation to Philosophy* (London: Routledge & Kegan Paul, 1958), as well as his articles 'The Idea of a Social Science' and 'Understanding of a Primitive Society', both in *Rationality,* ed. B.R.Wilson (New York: Harper Torchbooks, 1971).

6 R.J.Bernstein [9.29], 30.

7 'Phenomenological hermeneutics' aptly designates the hermeneutics of Gadamer and

Ricoeur since, as I shall indicate in more detail below, their thought is rooted in the phenomenology of Edmund Husserl and Martin Heidegger. Ricoeur has said of his own position: 'it strives to be a *hermeneutical* variation of this [Husserl's] phenomenology' ('On Interpretation' in A.Montefiore (ed.), *Philosophy in France Today* (Cambridge: Cambridge University Press, 1983), p. 187; hereafter cited in the text as *OI*). On another occasion Ricoeur stated: 'I do not believe that hermeneutics replaces phenomenology. It is only opposed to the idealist interpretation of phenomenology' ('Response to My Friends and Critics' in C.E.Reagan [9.25], no page no.).

8 Tübingen: J.C.B.Mohr; see also his earlier encyclopaedic work, *Theoria generale della interpretazione,* 2 vols (Milan: Dott. A.Giuffrè, 1955).

9 E.D.Hirsch, Jr, *Validity in Interpretation* (New Haven: Yale University Press, 1967).

10 See *Validity,* p. 264: 'The much-advertised cleavage between thinking in the sciences and the humanities does not exist. The hypothetico-deductive process is fundamental in both of them, as it is in all thinking that aspires to knowledge.'

11 A particularly mean-spirited attack against Gadamer along these lines was published by J.Barnes: 'A Kind of Integrity', *London Review of Books,* 6 Nov. 1986, pp. 12–13.

12 As Ricoeur recently pointed out in response to the Canadian hermeneuticist Jean Grondin, hermeneutic's polemical opposition to objectivism is an integral part of hermeneutics as it is of the Husserlian phenomenology from which it derives. 'L'herméneutique…est polémique', Ricoeur says, 'parce que la *compréhension* dont elle s'autorise doit sans cesse se reconquérir sur diverses figures de la *méconnaissance*' (Ricoeur, 'Réponses' in C.Bouchindhomme and R.Rochlitz (eds), *'Temps et récit' de Paul Ricoeur: en débat* (Paris: Editions du Cerf, 1990), pp. 201–2).

13 Gadamer here refers in a note to Betti's work.

14 Hans-Georg Gadamer, *Truth and Method* [9.7], xvi.

15 This was in fact the title given to an edited collection of essays by Gadamer published in 1976: *Philosophical Hermeneutics* ([9.5]).

16 For a detailed treatment of this issue see 'Ricoeur and the Hermeneutics of the Subject' in Madison [9.34]; forthcoming also in *The Philosophy of Paul Ricoeur* (Library of Living Philosophers), ed. I.E.Hahn. For a good overview of the basic themes in Ricoeur's philosophizing, centred on the notion of the subject, see John W.Van Den Hengel [9.27]. Van Den Hengel includes in his study a remarkably extensive bibliography (483 titles) of Ricoeur's writings from 1935 to 1981.

17 Husserl provides a historical reconstruction of the modernist tradition to which he is opposed in *The Crisis of European Sciences and Transcendental Phenomenology: An Introduction to Phenomenological Philosophy,* trans. D. Carr (Evanston: Northwestern University Press, 1970).

18 See E.Husserl, *The Idea of Phenomenology,* trans. W.P.Alston and G. Nakhnikian (The Hague: Martinus Nijhoff, 1964), lecture I.

19 The phrase is that of Ludwig Landgrebe, one of Husserl's late assistants. See his 'Husserl's Departure from Cartesianism', in R.O.Elveton (ed.), *The Phenomenology of Husserl* (Chicago: Quadrangle Books, 1970), p. 261.

20 Cf. Ricoeur, 'On Interpretation' (see note 7), p. 190: 'The theme of the *Lebenswelt,* a theme which phenomenology came up against in spite of itself, one might say, is adopted by post-Heideggerian hermeneutics no longer as something left over, but as a prior condition.'

21 See M.Merleau-Ponty, *Phenomenology of Perception,* trans. C.Smith (London: Routledge & Kegan Paul, 1962), p. xiv: 'Far from being, as has been thought, a procedure of idealistic philosophy, phenomenological reduction belongs to existential philosophy: Heidegger's

"being-in-the-world" appears only against the background of the phenomenological reduction.'

22 M.Heidegger, *Being and Time,* trans. J.Macquarrie and E.Robinson (New York: Harper & Row, 1962), p. 90: hereafter cited in the text as *BT*.

23 Ricoeur, *Hermeneutics and the Human Sciences* [9.15], 87.

24 'In it [interpretation] the understanding appropriates understandingly that which is understood by it' (*BT,* 188).

25 Ricoeur, 'The Question of the Subject', in D.Ihde (ed.), *The Conflict of Interpretations:Essays in Hermeneutics* (Evanston: Northwestern University Press, 1974), p. 266 (translation corrected).

26 Gadamer, 'The Problem of Historical Consciousness', in P.Rabinow and W. M.Sullivan (eds), *Interpretive Social Science: A Reader* (Berkeley: University of California Press, 1979), p. 106; hereafter cited in the text as *PHC*. Ricoeur also bypasses Heidegger's concern for Being. Grounded as his thinking is in the French tradition of reflexive philosophy, Ricoeur's guiding question is not so much 'What is the meaning of being?' as 'Who am I?' He writes: 'L'herméneutique devenait pour moi le long détour d'une philosophie de la réflexion, la médiation interminable de l'auto-compréhension…[M]a philosophie s'est développée—grossièrement parlant—comme une anthropologie philosophique, où la question de l'être se réduit à celle du mode d'être de cet être capable de se désigner comme sujet parlant, comme agent et patient de l'action, comme sujet moral et politique, porteur de responsabilité et de citoyenneté' ('Réponses' in *'Temps et récit' de Paul Ricoeur* (note 12), p. 211).

27 Bernstein [9.29], 159.

28 I owe this particular observation to Paul Fairfield.

29 The parallel between the two was one of the principal objects of concern of Merleau-Ponty's hermeneutical phenomenology.

30 What Gadamer says here of historical understanding could be applied, *mutatis mutandis,* to intercultural or ethnological understanding and could be usefully contrasted with the position defended by Peter Winch.

31 For a good overview and discussion of the issues involved in this debate, see Bernstein [9.29].

32 It would not be desirable, in that it is incompatible with the philosophical-political values to which hermeneutics subscribes—a topic to be considered later in this chapter.

33 Gadamer, 'The Science of the Life-World', *Analecta Husserliana,* 2 (1977): 185. It should be noted that this text differs from the version published subsequently under the same title in *Philosophical Hermeneutics*.

34 Ricoeur makes a similar remark: 'The truth is…the lighted place in which it is possible to continue to live and to think. And to think *with* our very opponents themselves, without allowing the totality which constrains us ever to become a knowledge about which we can overestimate ourselves and become arrogant' ('Reply to My Friends and Critics' [9.25], no page no.). It could thus be said that for hermeneutics 'truth' is primarily not 'cognitive' but a 'moral' concept; it refers not so much to bits and pieces of 'information' we may *possess* as it does to a general mode of *living* (being-in-the-world). In this connection Ricoeur remarks, in a very Jamesian sort of way: 'We wager on a certain set of values and then try to be consistent with them; verification is therefore a question of our whole life. No one can escape this…. I do not see how we can say that our values are better than all others except that by risking our whole life on them we expect to achieve a better life, to see and to understand things better than others' (*Lectures on Ideology and Utopia* [9.16], 312).

35 In *La symbolique du mal* (*Philosophie de la volonté: Finitude et culpabilité,* vol. II) (Paris: Aubier, 1960). English translation: *The Symbolism of Evil* [9.20].
36 D.C.Hoy [9.33], 61.
37 See T.M.Van Leeuwen [9.28] 1.
38 Ricoeur, *The Conflict of Interpretations* [9.13], 411.
39 In what is said, there is always, Gadamer insists, 'an infinity of what is not said' ([9.7], 426).
40 This point is developed by Sartre in *La transcendance de l'ego: Esquisse d'une description phénoménologique* (Paris: J.Vrin, 1966).
41 Merleau-Ponty, *Phenomenology of Perception* (note 21): there is no inner man, man is in the world, and only in the world does he know himself' (p. xi).
42 It should perhaps be noted that, from a Gadamerian point of view, conversation is not so much an *instance* of language as it is what language essentially *is*.
43 As Gadamer goes on to point out: 'Where a person is concerned with the other as individuality, e.g. in a therapeutical conversation or the examination of a man accused of a crime, this is not really a situation in which two people are trying to understand one another.' (In a footnote Gadamer remarks that in such a situation the questions which arise are 'marked by insincerity'.) As we shall see later, this view of conversation has important consequences for the theory of text-interpretation.
44 For a discussion of these issues see Ricoeur, 'Structure, Word, Event' in *The Conflict of Interpretations* [9.13].
45 Ricoeur, 'New Developments in Phenomenology in France: The Phenomenology of Language', trans. P.Goodman, *Social Research,* 34:1 (spring 1967): 14.
46 See J.Habermas, *The Philosophical Discourse of Modernity,* trans. F.Lawrence (Cambridge, Mass.: MIT Press, 1987), pp. 41–2.
47 Gadamer, 'Practical Philosophy as a Model of the Human Sciences', *Research in Phenomenology,* 9 (1980):83.
48 See Gadamer, 'Reply to My Critics' in G.L.Ormiston and A.D.Schrift, *The Hermeneutic Tradition: From Ast to Ricoeur* (Albany: State University of New York Press, 1990), pp. 275–6.
49 For Hirsch, in contrast, meaning is always *willed* meaning (see *Validity* (note 9), p. 51).
50 See also pp. xix, 321, 336, 338, 353, 356.
51 This point is developed in aesthetic response theory and reader reception theory by Wolfgang Iser and Hans Robert Jauss, respectively (see Iser, *The Act of Reading: A Theory of Aesthetic Response* (Baltimore: Johns Hopkins University Press, 1978) and Jauss, *Towards an Aesthetic of Reception,* trans. T.Bahti (Minneapolis: University of Minnesota Press, 1982). Ricoeur discusses the views of Iser and Jauss in *Time and Narrative* [9.21], vol. 3, pp. 166ff.
52 Bernstein [9.29], 145.
53 G.W.F.Hegel, *The Philosophy of History* (New York: Dover Publications, 1978), p. 106.
54 Gadamer, 'The Power of Reason', *Man and World,* 3:1 (1970):15. In response to Habermas's charge that 'tradition', as hermeneutics understands it, is not subject to a critique guided by an 'emancipatory interest', Gadamer makes the following counter-charge: 'unconsciously the ultimate guiding image of emancipatory reflection in the social sciences [i.e., Habermas's position] must be an anarchistic utopia. Such an image, however, seems to me to reflect a hermeneutically false consciousness, the antitode for which can only be a more universal hermeneutical reflection' ([9.5], 42).
Gadamer's emphasis on tradition is not meant to deny either (1) the universality of certain

values or (2) the critical function of *reason*. What it does deny is the existence of an *ahistorical* reason (the kind of 'transcendental' reason appealed to by Habermas that can escape tradition altogether). In *Truth and Method* Gadamer states his position in the following way: 'Does the fact that one is set within various traditions mean really and primarily that one is subject to prejudices and limited in one's freedom? Is not, rather, all human experience, even the freest, limited and qualified in various ways? If this is true, then the idea of an absolute reason is impossible for historical humanity. Reason exists for us only in concrete, historical terms, i.e., it is not its own master, but remains constantly dependent on the given circumstances in which it operates' ([9.7], 245).

We shall return to the question of values and rational critique in the concluding section of this chapter.

55 Gadamer, 'Reply to My Critics' (note 48), p. 273.

56 Gadamer, 'Hermeneutics as Practical Philosophy', in *Reason in the Age of Science* [9.6], 111.

57 For a detailed treatment of this issue see my 'The New Philosophy of Rhetoric', *Texte: Revue de critique et de théorie littéraire,* 8/9 (1989):247–77.

58 See C.Perelman and L.Olbrechts-Tyteca, *Traité de l'argumentation: la nouvelle rhétorique* (Bruxelles: Editions de l'Institut de Sociologie, Université Libre de Bruxelles, 2nd edn, 1970).

59 R.Bernstein remarks in this regard: 'Although the concept of truth is basic to Gadamer's entire project of philosophic hermeneutics, it turns out to be one of the most elusive concepts in his work' ([9.29], 151).

60 Ricoeur, 'Langage (Philosophie)' *Encyclopaedia Universalis,* vol. 9 (1971), p. 780.

61 See Ricoeur, 'The Model of the Text' in *Hermeneutics and the Human Sciences* [9.15], 212–13.

62 See also pp. 146–7, 203. Ricoeur also says that whereas Gadamer, with his reliance on the model of conversation, places a great deal of confidence in *Einverständnis*—profound agreement—he himself is 'beaucoup plus sensible au caractère conflictuel du champ d'interprétation' ('De la volonté à l'acte' in *'Temps et récit' de Paul Ricoeur* (note 12), p. 19.

63 'Distantiation is not the product of methodology and hence something superfluous and parasitical; rather it is constitutive of the phenomenon of the text as writing' ([9.15] 139). Critics of Ricoeur might argue that his own critique of Gadamer is not entirely fair, in that Gadamer himself argues for a 'positive' notion of distantiation. See, *inter alia,* the following remarks that Gadamer made in his lectures at the University of Louvain in 1957: 'Contrary to what we often imagine, time is not a chasm which we could bridge over in order to recover the past: in reality, it is the ground which supports the arrival of the past and where the present takes its roots. "Temporal distance" is not a distance in the sense of a distance to be overcome…. Actually, it is rather a matter of considering "temporal distance" as a fundament of positive and productive possibilities for understanding' (*PHC,* 155–6).

If it is the case that Ricoeur has misread Gadamer on this score, then it is also the case that he concedes too much to Habermas in the latter's criticism of Gadamer (for Ricoeur's attempt to mediate the dispute between Habermas and Gadamer, see 'Hermeneutics and the Critique of Ideology' in *Hermeneutics and the Human Sciences*) [9.15]. If Ricoeur argues for a positive notion of distantiation, it is because he wants to maintain (against Habermas) that hermeneutics has to do not only with the transmission of the past (as Habermas portrays Gadamer as saying) but that it can also incorporate a *critical* moment in the appropriation process. However, if Gadamer's notion of distantiation is itself of a positive sort, then there

is *already* a critical element in Gadamer's hermeneutics (which therefore does not need to be supplemented with borrowings from Habermas's critical theory). As I have already indicated, Gadamer does indeed make this claim.

64 The 'second order referentiality' of metaphorical discourse was one of the main things that Ricoeur sought to demonstrate in *La métaphore vive* (Paris: Seuil, 1975); English trans.: *The Rule of Metaphor* [9.19].

65 This highlights an important difference between Ricoeur's theory of text-interpretation and other postmodern theories which indeed do legitimate 'projecting oneself into the text' in whatever way, i.e., engaging in 'strong misreadings' of the text. An outstanding example of just how 'strong' misreadings of a deconstructionist sort may be is provided by the American literary critic J. Hillis Miller. In a review of Ricoeur's *Time and Narrative,* Miller asserts that 'hermeneutic theories', such as Ricoeur's, assume 'the existence of stable monological texts of determinable meanings, meanings controlled in each case by the intentions of the author and by the text's reference to a pre-linguistic "real world out there"'. One's astonishment over such a manifestly absurd remark (do deconstructionists even bother any more to read the texts they pretend to 'interpret'?) is compounded when a few paragraphs further on one reads: 'his view of language remains a more or less unambiguous copy theory. Language, for him, mirrors, represents or "expresses" the lived world' ('But Are Things as We Say They Are?', *Times Literary Supplement,* 9–15 October 1987:1104).

66 See in this regard 'On Interpretation' (see note 7), pp. 185ff. The subject of the 'self' was the topic of Ricoeur's 1986 Gifford Lectures, 'On Selfhood, The Question of Personal Identity', published in book form under the title *Soimême comme un autre* (Paris: Seuil, 1990), trans.: *Oneself as Another* [9.17].

67 'Si le sens n'est pas un segment de la compréhension de soi, je ne sais pas ce que c'est' (*Esprit,* November 1983:636).

68 S.B.Messer, L.A.Sass, R.L.Woolfolk (eds), *Hermeneutics and Psychological Theory: Interpretive Perspectives on Personality, Psychotherapy, and Psychopathology* (New Brunswick: Rutgers University Press, 1988), p. xiii.

69 C.Geertz, *The Interpretation of Cultures* (New York: Basic Books, 1973), p. 5.

70 By way of underscoring the purposive nature of human action, Mises writes: 'There is no human being to whom the intent is foreign to substitute by appropriate conduct one state of affairs for another state of affairs that would prevail if he did not interfere' (*The Ultimate Foundation of Economic Science: An Essay on Method* (Kansas City: Sheed Andres & McMeel, 1978), p. 71).

71 That various social orders are the result of human action but not necessarily of human design has been one of the major themes in the work of F.A. Hayek whose work anticipates, in many ways, that of Gadamer and Ricoeur. See in this regard my 'Hayek and the Interpretive Turn', *Critical Review,* 3:2 (spring 1989).

72 C.Taylor, 'Interpretation and the Sciences of Man', in P.Rabinow and W. M.Sullivan (eds), *Interpretive Social Science: A Reader* (note 26), p. 48.

73 See Ricoeur, 'History as Narrative and Practice', interview with P.Kemp, *Philosophy Today* (fall 1985):216.

74 J.Wakefield, 'Hermeneutics and Empiricism: Commentary on Donald Meichenbaum' in Messer *et al.* (eds), *Hermeneutics and Psychological Theory* (note 68), p. 143.

75 Geertz, *The Interpretation of Cultures* (note 69), p. 9.

76 The interpretive economist D.Lavoie remarks in this regard: 'The fact that the objects of our study *already have* an interpretation of what is going on does not release the social scientist

from the responsibility to develop and defend her own explication of what is going on. The interpreter should not try to rid herself of her own perspective in order to 'adopt' that of the interpreted, but must try to find new ways to use her presuppositions to attain a better understanding of the human activities under study…. Thus interpretation always means *adding* to what is said through a mediation of the 'horizons' of the interpreter and the interpreted' ('The Account of Interpretations and the Interpretation of Accounts: The Communicative Function of "The Language of Business"', *Accounting, Organizations and Society,* 12:6 (1987):594).

77 J.B.Thompson, *Ideology and Modern Culture: Critical Social Theory in the Era of Mass Communication* (Stanford: Stanford University Press, 1990), p. 323. In his analysis of ideology Thompson draws extensively on suggestions put forward by Ricoeur. For a comparative study of Ricoeur's hermeneutics and the critical theory of Jürgen Habermas, see his earlier work [9.26].

78 See Gadamer's discussion of Dilthey in 'The Problem of Historical Consciousness' (note 26).

79 Jean Grondin, 'L'herméneutique positive de Paul Ricoeur' in *'Temps et récit' de Paul Ricoeur* (note 12), p. 125.

80 Geertz, *The Interpretation of Cultures* (note 69), p. 30.

81 In *Time and Narrative* [9.21], vol. I, Ricoeur refers to 'explanation' and 'understanding' as 'a now obsolete vocabulary'; he prefers to speak instead of 'nomological explanation and explanation by emplotment' (p. 181).

82 Of Ricoeur's work in this area historian H.White has said: 'Ricoeur's is surely the strongest claim for the adequacy of narrative to the realization of the aims of historical studies made by any recent theorist of historiography' ('The Question of Narrative in Contemporary Historical Theory', *History and Theory,* 1 (1984):30).

For a discussion of Ricoeur's treatment of the imagination over the course of his writings see Richard Kearney, 'Paul Ricoeur and the Hermeneutic Imagination', in T.P.Kemp and D.Rasmussen (eds) [9.24] (reprinted in Kearney, *Poetics of Imaging: From Husserl to Lyotard* (London: Harper Collins Academic, 1991)). The thesis defended by Kearney is that 'a poetic hermeneutic of imagination' represents 'the ultimate, if discreet, agenda of his philosophical project' (p. 2). The following remark of Ricoeur lends support to this thesis: 'Despite appearances the one problem that has interested me from the beginning of my work as a philosopher is that of creativity. I worked from the angle of individual psychology in my early work on the will, then on the cultural level with my studies on symbolisms. My present work on narrative puts me right at the heart of this social, cultural, creativity' ('History as Narrative and Practice', *Philosophy Today* (fall 1985):222).

83 Thus, for example, economist D.Lavoie writes, with reference to Ricoeur: 'History is in this view not an attempt to find quantitative covering laws that fully determine a sequence of events, but an attempt to supply a qualitative interpretation of some part of mankind's "story". The whole purpose of the theoretical social sciences (including economics and accounting research) is to equip people with the capacity to better distinguish acceptable from unacceptable historical narratives…. What we find ourselves doing in the social sciences is not so much the testing of *ex ante* predictions but is more of the nature of what the Austrian economist F.A.Hayek calls an *ex post* explanation of principles. The only "test" any theory can receive is in the form of a qualitative judgment of the plausibility of the sequence of events that has been strung together by narrative' ('The Account of Interpretations and the Interpretation of Accounts' (note 76), pp. 595–6).

84 D.Pellauer, 'The Significance of the Text in Paul Ricoeur's Hermeneutical Theory' in

[9.25], 112, 109.

85 Ricoeur's interest in history and narrative can be seen to be the logical outgrowth of his abiding concern over the issue of human action, since, in being 'fixated', action is transformed into institutionalized social patterns, which is to say that it generates historical processes.

86 Ricoeur deals at length with the issue of the 'social imagination' (of which ideology and Utopia are two basic modes) in *Lectures on Ideology and Utopia* [9.16].

87 See Ricoeur's remarks on violence and discourse in *Main Trends in Philosophy* (New York: Holmes & Meier, 1979), pp. 224–7. On p. 227 Ricoeur writes: 'It is because we, as men, have chosen discourse—that is, discussion, seeking agreement by means of verbal confrontation—that the defence of violence for violence's sake is forever forbidden us.'

88 'Reaching an understanding in conversation presupposes that both partners are ready for it and are trying to recognize the full value of what is alien and opposed to them' ([9.7], 348).

89 Speaking of the humanistic ideal of the German historical school, Gadamer says that it 'does not contain any particular content, but is based on the formal ideal of the greatest variety. This kind of ideal is truly universal, for it cannot be shaken by any historical evidence, any disturbing evidence of the transience of human things. History has a meaning in itself' ([9.7], 178).

The political motivation for Ricoeur's defence of philosophical humanism is evident in the following remark: 'If anti-humanism is true, there is also no theoretical basis on which the legal subject can oppose the abuse of political authority' (*Main Trends in Philosophy,* p. 369).

90 The real 'ethnocentrist', hermeneutics maintains, is the person who denies the universal validity ('applicability') of the principles of freedom and reason and who asserts that any criticism of non-western societies for failing to recognize these principles is an instance of 'Eurocentrism'. As a leading spokesperson for democratic values ('such basic ideas as representative government, human rights, and the rule of law') in the 'third world', Aung San Suu Kyi, recipient in 1991 of the Nobel Peace Prize, has stated: 'The proposition that the Burmese are not fit to enjoy as many rights and privileges as the citizens of democratic countries is insulting' ('In Quest of Democracy', *Journal of Democracy,* 2:1 (January 1992):6 and 11). Anti-universalist ethnocentrism ('reverse Eurocentrism') is indeed an affront to basic human dignity.

91 Bernstein [9.29], p. 163.

92 S.Rosen, *Hermeneutics as Politics* (New York: Oxford University Press, 1987), p. 141.

93 Gadamer, 'The Power of Reason', *Man and World,* 3:1 (1970):8.

94 Ricoeur, *Main Trends in Philosophy* (note 87), p. 315.

95 In 'Hermeneutics and Social Science', *Cultural Hermeneutics,* 55 (1970), Gadamer writes: 'the chief task of philosophy is…to defend practical and political reason against the domination of technology based on science. That is the point of philosophical hermeneutic' (p. 316).

96 'The Power of Reason' (note 93), p. 13.

97 See in this regard Gadamer's remarks on natural law in *Truth and Method* [9.7].

98 Cf. Gadamer, 'The Power of Reason' (note 93): 'Clearly reason has an immediate connection with the universal' (p. 6); 'identification with the Universal—what is Reason if not that?' (p. 12). Reason is 'the self-realizing identification with the universal' (p. 14). On p. 13 of this text Gadamer identifies 'loss of freedom' with 'lack of possibility of identifying with the universal'.

99 See Gadamer. 'Reply to My Critics' (note 48), p. 289.

100 I.Kant, 'Ideas for a Universal History from a Cosmopolitan Point of View', in *On History,* L.W.Beck (ed.) (Indianapolis: Bobbs-Merrill, 1963), p. 16. Kant goes on to characterize such a society as 'the society with the greatest freedom. Such a society is one in which there is a mutual opposition among the members, together with the most exact definition of freedom and fixing of its limits so that it may be consistent with the freedom of others'.

101 The notion of human rights, as hermeneutics conceives of it, is not a metaphysical notion and does not appeal to essentialist or foundationalist modes of thinking. Human rights are not 'natural rights' (as Gadamer's critic, L.Strauss, would maintain); they are *rational rights, rights of reason*. That is to say, they are injunctions as to how people *ought* to be treated, given what they in fact *are,* namely rational beings. That means: beings who have the *logos* (as Isocrates said), i.e., are capable of engaging in dialogical or communicative rationality. Basic rights such as freedom of speech, of conscience, of association, and so on, are simply enumerations of the legal-institutional guarantees that are required for the unimpeded exercise of this form of rationality. Since, as Gadamer recognizes, the 'power of reason' is not a 'natural faculty' but a social attribute ('This is not simply a capacity that man has, but something of the sort that must be developed' ('The Power of Reason' (note 93), p. 7), people can be fully rational (and thus fully human) only when they have the good fortune of living within the kind of institutional set-up that these rights make possible. Human rights are what those rational beings who are reflectively aware of what they are will claim for themselves, in order to be recognized for what they are and in order to become what they are (cf. Tiananmen Square, 1989).

102 'The Power of Reason' (note 93), p. 8.

103 M.Merleau-Ponty, *Signs,* trans. R.C.McCleary (Evanston: Northwestern University Press, 1964), p. 349.

104 Ricoeur, 'Le Philosophe et la politique devant la question de la liberté', in *La liberté et l'ordre social* (Neuchâtel: La Baconnière, 1969), p. 53.

105 Ricoeur, *Du texte à l'action* (Paris: Seuil, 1986), p. 404.

106 See L.Ferry and A.Renaut, *French Philosophy of the Sixties: An Essay on Antihumanism* (Amherst: University of Massachusetts Press, 1990).

107 Ricoeur, 'La raison pratique' in T.Gearets (ed.), *La Rationalité aujourd'hui/ Rationality Today* (Ottawa: Editions de l'Université d'Ottawa, 1979), p. 238.

108 Bernstein [9.29], p. 159.

109 See Ricoeur, *Main Trends in Philosophy* (note 87), p. 372. On another occasion, Ricoeur says that 'the lament of modern philosophy [is] that we have to raise Hegelian problems without the Hegelian solutions.' While rejecting the notion of absolute knowledge and all-encompassing theories of history, he nevertheless concedes: 'Maybe we cannot have passionate history without a certain expectation of what *could be* the global meaning of history, but that must remain at the level, I think, of hypothesis; that must remain a kind of working hypothesis' ('The Conflict of Interpretations' in R.Bruzina and B.Wilshire (eds), *Phenomenology: Dialogues and Bridges* (Albany: State University of New York Press, 1982), pp. 319–20).

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CHAPTER 10
Italian idealism and after

Gentile, Croce and others

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INTRODUCTION

The history of twentieth-century Italian philosophy is strongly influenced both by the peculiar character of its evolution in the preceding century and by widespread tendencies of contemporary continental (especially German) thought. In nineteenth-century Italian philosophy we can distinguish four main trends: (1) St Augustine's and Aquinas's traditional *dualistic metaphysics,* which was renewed with some originality by the priest Antonio Rosmini Serbati (1797–1855), and was regarded by the Roman Catholic church as its 'official' philosophical doctrine; (2) *methodological empiricism,* which was developed since the Renaissance especially by the founder of modern mathematical physics, Galileo Galilei, and which found its most prominent exponent in the *positivist* thinker Roberto Ardigò (1828–1920); (3) the speculative German tradition of *Kantian-Hegelian idealism,* according to its interpretation as a *metafisica della mente,* i.e. as a philosophy of pure self-consciousness, outlined by the greatest nineteenth-century Italian thinker, Bertrando Spaventa (1817–83); and finally (4) Marx's and Engels's *historical materialism,* which was spread and fostered especially by Antonio Labriola (1843–1904), who worked out a 'humanistic' (anti-naturalistic) interpretation of it.

The influence of 'classical German philosophy' from Kant to Marx on twentieth-century Italian thought thus turns out to be strictly determined and 'mediated' by the peculiar character of its interpretation and appropriation in the preceding century. But other trends of German thought too are studied, interpreted and further developed by contemporary Italian philosophers, thus exerting a direct, 'immediate' influence on them: e.g., the German tradition of 'speculative mysticism' (one might recall the philosophies of the later Fichte and the later Schelling, as well as Gadamer's 'hermeneutics'), the 'philosophy of immanence' (Schuppe and Schubert-Soldern), the 'empiriocriticism' of Mach and Avenarius; Husserl's 'phenomenology' and Heidegger's 'existentialism', etc.

The peculiar political-cultural context in which the above-mentioned trends of contemporary Italian thought arise and spread can be sketched as follows. The philosophy of German idealism, and especially its Hegelian version, owing both to its origin in Protestant theology and religiosity and to its insistence on the state's 'ethical' essence as the supreme moral law of the individual's practical activity, met the spiritual exigencies of those 'liberal-national' movements of the Italian *Risorgimento* which aimed at the foundation of a unitary state, and which saw their major adversary in the Catholic church's temporal power.[1] Augustine's and Aquinas's dualistic metaphysics, on the

contrary, prevailed in the most conservative classes and political trends in Italian society, and can be safely regarded, as it were, as the Roman Catholic church's secular arm in its intellectual and moral life. At the extreme opposite of the social-political array, Marx's historical materialism seemed able to offer an 'objective', 'scientific' foundation to the political aspirations of those who dreamt of radically transforming Italian society's traditional order, be it the more archaic one sanctioned by the Roman Catholic church or the more recent one of the national unitary state. Finally, positivistic empiricism became, as it were, the 'official' ideology of the rising Italian industrial bourgeoisie, concentrated especially in the country's northern regions.

One can easily distinguish three fundamental evolutionary phases in twentieth-century Italian philosophy. In the first (*c.* 1900–45) we witness an indisputable prevalence of the idealistic trends, among them especially Giovanni Gentile's thought. This is despite the often exaggerated cultural influence of his 'actual idealism', which from its first 'official' statement (1911) was strongly opposed by other no less famous representatives of Italian idealism such as Pietro Martinetti, Benedetto Croce and Pantaleo Carabellese. In the second phase (*c.* 1945–80), a widespread violent reaction against idealistic philosophy in general, and 'actual idealism' in particular, occurred. Antonio Banfi, Nicola Abbagnano, etc. set against it not only the materialistic conception of history, but also later tendencies of German thought such as, e.g., Husserl's phenomenology and Heidegger's existentialism. The distinction between the first and the second phase, however, must be understood not simply as a rigid separation, but as indicating a *prevalence* of the idealistic orientation in the first half of the twentieth century and of the anti-idealistic one in the second. In effect, the influence of nineteenth-century positivism does not disappear in the age dominatedby Croce's and Gentile's thought (it suffices to think, in this regard, of the writings of sociologists such as Vilfredo Pareto (1868–1923), of economists such as Luigi Einaudi (1874–1961), and of methodologists of science such as Antonio Aliotta (1881–1964). Furthermore, many of the most prominent exponents of the reaction against idealism in the second half of the century (e.g., Antonio Gramsci, Abbagnano and Banfi) had already worked out their fundamental conceptions before 1945. On the other hand, although in weakened and often speculatively unfruitful forms, the philosophical traditions of Gentile's 'actual idealism' and of Croce's 'absolute historicism' have survived up to today.[2] In the 1980s, the final phase, something like a widespread 'decline of ideology' ('tramonto dell'ideologia') has, as Lucio Colletti says, taken place. The most remarkable consequence of it is likely to be the perhaps definitive dissolution of the cultural influence of the materialistic conception of history, which in the second half of the century has often represented one of the most powerful and unrelenting adversaries of any idealistic speculation. Although, then, the current situation of the 'spirit' of Italian culture is undoubtedly pervaded with a general feeling of bewilderment and creative impotence, yet it might also disclose new horizons and real possibilities for a critical resumption and further original development of the most glorious and speculatively fruitful trend in Italian thought—i.e., the Kantian-Hegelian tradition.

'ACTUAL IDEALISM': GIOVANNI GENTILE

Giovanni Gentile (1875–1944), who was rightly defined by Michele Federico Sciacca as 'the greatest Italian philosopher in our century',[3] was the author of numerous philosophical and historiographical works which are to be counted among the masterpieces of Italian thought in any age and have left an indelible trace also on the development of contemporary European philosophy. Here I can confine myself to mentioning the most relevant ones: *La riforma della dialettica hegeliana (The Reform of Hegelian Dialectic)* (1913 [10.32]), *Sommario di pedagogia come scienza filosofica (An Outline of Pedagogy as a Philosophical Science),* two volumes (1913–14 [10.33]), *Teoria generate dello spirito come atto puro (General Theory of Mind as Pure Act)* (1916 [10.35]), *I fondamenti della filosofia del diritto (The Foundations of the Philosophy of Law)* (1916 [10.34]), *Sistema di logica come teoria del conoscere (A System of Logic as a Theory of Knowledge),* two volumes (1917–22 [10.36]), *Le origini della filosofia contemporanea in Italia (The Origins of Contemporary Philosophy in Italy),* three volumes (1917–23 [10.37]), *Discorsi di religions (Speeches on Religion)* (1920 [10.38]), *La filosofia dell'arte (The Philosophy of Art)* (1931 [10.42]), *Introduzione alla filo-sofia (An Introduction to Philosophy)* (1933 [10.43]), and finally his posthumously published book *Genesi e struttura della società (Genesis and Structure of Society)* (1946 [10.44]). Gentile's works organically merge a vigorous theoretical development of his own original philosophical doctrine, 'actual idealism' (or 'actualism') with an immense, philologically very accurate, historiographical erudition, focusing especially upon the history of Italian philosophy and culture.

The doctrine of 'actual idealism' can be safely regarded as an attempt to press to its extreme consequences Spaventa's interpretation of Hegelian philosophy as a metaphysics of pure self-consciousness. Philosophy is the search for truth—not for this or that particular 'abstract' truth, but for the unique 'absolute' truth (and reality). And such a truth cannot possibly 'transcend' thought's self-conscious act which aspires to its possession. For in such a case not only could the latter never be 'certain' of any truth whatsoever, but as essentially 'other' than (absolute) truth it could not but turn into a mere contingent phenomenon. This, however, is clearly disproved by the fact that, as Descartes had already pointed out, one can deny the 'evidence' of self-conscious thought only by virtue of a further, more original act of thinking. Gentile can therefore assert: 'cogito ergo sum; sum substantia cogitans; quatenus substantia in me sum et per me concipior; hoc est mei conceptus non indiget conceptum alterius rei, a quo formari debeat' ('I think, therefore I am. I am a thinking substance. As a substance I am in myself and can be thought of only through myself—i.e., the concept of myself need not any concept of another thing in order to be thought of').[4] Yet according to Gentile, unlike Descartes, not only is consciousness actual but the whole of reality turns into consciousness. For any possible objectivity, in the final analysis, turns out to be *absolutely* enclosed in it, as its own immanent content, or rather 'opposite'. Since the act of consciousness is *one* and 'unmultiplicable' *(immoltiplicabile),*[5] the object's essence, then, will be radically *manifold*. On the other hand, as the object is but a *negative* content of knowing, that of which consciousness can be *actually* aware is only *itself*. As Hegel had already maintained, the 'truth' of consciousness is therefore *self-consciousness*. 'The Ego's act is consciousness as self-consciousness; the Ego's object is the Ego itself. Any conscious process is an act of self-consciousness.'[6] In such an act, then, subject and

object *coincide*. But their identity is never 'immediate'. For self-consciousness is every truth *only* as the *necessary* consciousness of the *error* that essentially inheres to any 'immediate' (i.e. sensuous, manifold, natural, etc.) being as such. As a consequence, its 'being' can become actual only as the negation of a 'not-being' originally immanent to it—and thus is a *dialectical unity of opposites*. Now, as Hegel himself had shown by 'deducing' Becoming from the opposite 'abstractness' of Being and Nothing, such a unity can be consistently conceived only as 'movement' or 'process': 'The subject that resolves the object into itself, at least when this object is a spiritual reality, is neither a being nor a state of being: it is nothing immediate, as we said, but a constructing process—a process constructing the object as a process constructing the very subject.'[7]

One of the deepest and most fascinating aspects of 'actual idealism' is certainly Gentile's insightful distinction between his 'transcendental' concept of the self-conscious Ego and the 'empirical Ego' (the sensuous-finite individual), and consequently between the former's peculiar processuality and the form of 'time'. In fact, both the empirical Egos and time (which to Gentile, unlike Kant, is, like 'space', the essential form of *nature, not* of consciousness) imply a *plurality* of 'facts', or 'points', which exclude each other, either in the simultaneity of spatial existence or in the succession of temporal becoming. The transcendental Ego, on the contrary, as *necessarily* existing *(cogito ergo sum),* is of necessity *universal,* and thus *unique*. The mutual transcendence (exclusion) of the empirical Egos as well as of the moments of sensuous time (past, present and future), therefore, is in the final analysis negated (in the Hegelian sense of 'negation', i.e. as *Aufhebung*) in the *timeless,* 'eternal' process of the transcendental Ego—of the *pensiero pensante*. 'Thought as actual, or as the universal Ego, contains, and therefore overcomes not only the spatiality of pure *nature,* but also the temporality of pure natural becoming. Thought is beyond time, is eternal.'[8] 'And therefore the moment *[istante],* the ἐξαίφνης of thought, is not a moment among the moments, is not in time; it has no 'before', and no 'after'; it is eternal.'[9]

Gentile deduces with admirable logical cogency the overall articulation of spirit's whole life from his concept of human self-consciousness as 'mediate', dynamic unity of subject and object. If their unity cannot in principle be 'immediate', this means that they are immediately different, and even opposite. Pure ('abstract') subject, pure ('abstract') object, and their ('concrete') mediation (identity of subject and object)—these are the three fundamental 'phases' of self-conscious thought's process, the three 'absolute forms of spirit'.[10] The form of spirit's abstract subjectivity coincides, according to Gentile, with 'pure feeling' *(sentimento puro),* which constitutes the specific element of *art*.[11] It is not to be mistaken for the *psychological* sensations of pleasure and pain, although these latter do constitute the opposite 'poles' of its immanent dialectic, for it is not conditioned by any alleged extramental reality,[12] and thus is 'infinite'. Although acknowledging that feeling, art, beauty, etc. *are* the origin, and even the 'root' *(radice),* of spirit's whole development, Gentile emphatically denies that they constitute something more than a merely 'abstract', 'inactual' moment of it. For in the act of thinking in which they are thought of as such, they necessarily negate themselves as 'pure' feeling, 'pure' beauty, etc., and rather identify themselves with the very (concrete) objectivity of pure thought. In fact, Gentile says, '[k]nowing is identifying, overcoming otherness as such'.[13] The very moment, then, the self-conscious subject becomes fully aware of the

'intimacy' *(intimità)* of its feelings, it cannot but objectify them, and thus transform them into a thought-content. Not unlike Hegel, Gentile therefore denies any possible *autonomous* development of art.[14]

The pure, 'abstract' object, we have seen, is the immanent negation of the act of thinking. Gentile can therefore proceed to set spirit's unity, universality, necessity, activity, freedom, eternity, etc. over against the radical multiplicity, particularity, contingency, passivity, temporality, etc. of *nature,* which is just the object of thought as 'immediately' other than it. He consequently holds to a rigidly *deterministic* and *mechanical* conception of nature. For him this *is* immanent to spirit, but the latter is not immanent at all to it *as such*. To the extent that nature's reality is (abstractly, and therefore 'erroneously') posited, the actuality of the spiritual subject must be negated. This is also the case with the positive (both 'natural' and 'historico-social') sciences, since they describe or explain an essentially manifold object (the 'phenomenal' plurality of natural 'facts' or of historical 'events'), and, moreover, abstract from its essential relation to the self-conscious act of thinking as its ultimate origin and condition of possibility. Yet no less abstractly objective, and therefore in the final analysis negative and 'erroneous', than sensible nature and the positive sciences is the *intelligible* multiplicity of the concepts, principles, and logical laws that constitute the subject matter of traditional formal logic. Although the first volume of his *Sistema di logica come teoria del conoscere (A System of Logic as a Theory of Knowing)* is devoted to a close examination of its fundamental structures,[15] such a logic, whose peculiar object he defines in terms of *logo astratto* (abstract thought) or of *pensiero pensato* (thought thought of), is radically unable adequately to express the logical essence of thought's *self-conscious* process (or *autoconcetto*). Just as was the case with nature and the positive sciences, Gentile does recognize the necessity of the *logo astratto* but for no other reason than that in his *dialectical* conception of spirit's becoming the negative, the 'abstract' is no less essential than the positive, the 'concrete', to its 'self-positing' *(autoctisi)*.

As an 'abstractly' objective form of spirit Gentile does not hesitate to consider religion itself, both as confessional religiosity[16] and as subjective mystical experience. This is because religion generally sets against pure self-consciousness, as the creating principle of its being, an absolutely transcendent personal God, who, as such, is obviously an 'other' with respect to its 'pure immanence', and thus an 'inactual' abstraction. On the other hand, in mystical experience the subject does try to identify itself with the objectivity of the 'divine', but at the cost of *annihilating* itself as consciousness, and, a fortiori, as *self-consciousness*.[17] Not unlike spirit's artistic form, then, to Gentile religion too remains incurably 'abstract'. The 'concrete' unity of subject and object, therefore, can be attained only by a higher spiritual form, in which the object is conceived as essentially immanent to the subject, and this latter not as merely 'subjective' feeling but as the 'substantial', 'objective' subjectivity of *actual thought*. And this, of course, can be explicated only by *philosophy,* which for Gentile coincides without residue with spirit's *ethico-political* activity. For it is possible to distinguish them only by somehow opposing thought to action, theory to praxis, or, within the latter, the 'morality' of the individual to the 'ethicality' of society (or of the state). Yet for him the very intrinsic absoluteness, creativity and actuality of the *autoconcetto* excludes in principle the possibility that it may be conceived as *mere* theory, as a *passive* 'reflection' of a 'given' it does not itself

'posit'. As a consequence, it does not lack that creative energy which traditional philosophy (before and after him) is rather inclined to ascribe to the will alone. On the other hand, to Gentile the only concrete effective moral life the human individual can realize is that which unfolds in the organic, 'spiritual' unity of *social* institutions, from the family up to the state.[18] The very moment, then, speculative philosophy theoretically 'constructs' absolute truth in the 'pure act' of self-consciousness, it also actualizes itself in those ethico-political institutions which are the 'kernel', as it were, of humanity's spiritual history.

Despite the extremely summary character of this outline of Gentile's idealism I believe that the reader can easily grasp its fundamental difference from Hegel's, whose paternity, on the other hand (through the mediation of Spaventa's interpretation), he openly recognizes. Whereas to Hegel there exists a dialectical movement of the logical categories and of natural reality which is *not yet,* as such, (explicitly) *self-conscious,* to Gentile the only possible dialectical process, and then concrete actuality, is that of self-conscious spirit. Whereas to Hegel an organic, ideological development of the *Denken,* of speculative reason, is immanent in nature (despite its being nothing more than the Absolute Idea's self-alienation), to Gentile (not unlike, at least in this regard, Kant and the positivists old and new) it is nothing more than a dead mechanism determined by merely quantitative and causal connections. Whereas to Hegel the identity of knowing and the will in the Absolute Idea does not exclude a no less substantial 'logical' difference between them, which, in the Philosophy of Spirit, renders possible the further distinction between the 'finite' sphere of ethico-political life ('objective' Spirit) and the higher one of the artistic, religious and philosophical contemplation of the Absolute (Absolute Spirit), to Gentile there is no other 'Absolute' than spirit's ethico-political history, nor any other 'spirit' than the 'infinite' unity of the 'Ego=Ego' (i.e., Absolute Spirit).

To these fundamental differences two others can be added, which seem to me no less relevant, although strictly logico-methodological in character. First of all, Hegelian dialectic unfolds in a succession of categories (*Denkbestimmungen* and *Begriffsbestimmungen*) in which the preceding are (relatively) more 'abstract' than the subsequent ones, while the latter are (relatively) more 'concrete', and constitute the 'truth' of the former, which are both 'negated' and 'preserved' *(aufgehoben)* in them. To Gentile, on the contrary, the 'concrete', the 'Ego=Ego' is the beginning of the dialectical process not only in the *ontological* order of reality and truth, but also in the *methodological* one of its dialectical explication. Second, while to Hegel the speculative synthesis of opposites constitutes itself as a *Stufenfolge,* a hierarchical succession of categories, or 'spiritual forms', more and more adequate to the Absolute's concreteness, Gentile openly denies that spirit's development unfolds 'in a series of typical degrees'.[19] For its self-identity is *equally immanent* in all 'concrete' moments in which its evolutionary process is being articulated. In fact, if one should admit, with Hegel, a hierarchy of spiritual forms, the Absolute and the higher ones would turn out to be (at least relatively) *transcendent* to the most elementary and inadequate ones. And this would undermine the fundamental methodological assumption of 'actual idealism': i.e. the 'absolute immanence' of truth to self-conscious thought.

This is not the place to try to strike a balance (however summary) of Gentile's

philosophy,[20] still less of his 'reform of Hegelian dialectic'. As compared with the speculative doctrine from which it stems, it might certainly be regarded as little more than a mere 'simplification'[21] of it that risks mutilating, if not even irreparably distorting, the rich, systematic complexity of Hegel's thought. Yet in such a case one would too easily forget that that concept of 'spirit' as 'pure act', on which all of Gentile's theoretical reflections and constructions hinge, does constitute the most living, profound and up-to-date aspect of the whole Hegelian system. Moreover, while Hegel distinguishes religion from philosophy only owing to their 'form', and emphatically asserts the identity of their 'content', thus seeming to forget that according to his own logic[22] they on the contrary determine each other, Gentile's distinction between religion as the 'abstractly objective' form of spirit and philosophy as the fully 'concrete' and 'actual' one does bring to light a difference concerning their very content, and thus saves—against Hegel—the validity of his very principle of the mutual determination of the form and the content of thought.

Finally, an undeniably original, creative development of Gentile's thought with respect to Hegel's is certainly to be found in his pedagogical theory. The dialectical opposites that are constitutive of the educational act, which he conceives as an essentially 'spiritual' activity, are the subjectivity of the 'pupil' and the objectivity of 'science', which is embodied in the person of the 'teacher'. As long as these two terms of the educational relation remain in the 'immediate' form of their mutual exclusion—which constitutes, as such, the original 'antinomy of education'[23]—no real spiritual progress in the pupil's self-consciousness can take place. For it to occur, indeed, it is necessary that the latter should turn the teacher's objectivity into his or her own self-consciousness, thus becoming, in a sense, the 'teacher of himself or herself. In the fullness of the educational act, Gentile profoundly observes, the pupil 'does learn, and throbs and lives in the teacher's word, as if he heard a voice sound in it that bursts out from the inwardness of his own being'.[24] Any true knowing, therefore, is never mere passive learning of dead and fragmentary notions, but rather free spiritual creation of knowledge by the pupil's inner personality. The spirit which 'actually' thinks, Gentile concludes, is always, in one way or another, an 'auto-didact'. From his deep-rooted conception of education as a 'spiritual' process Gentile does not fail explicitly to draw a consequence that seems to me to be still today of the utmost cultural relevance and upto-dateness. True culture and education is only that in which the human mind knows and 'creates' itself. Hence it is an essentially *humanistic* (philosophical) culture and education. Any technological cognition or ability (which as such constitutes the object of what he calls 'realistic instruction'),[25] therefore, can be legitimately ascribed some sort of meaning and value only to the extent that it constitutes a useful (although of necessity always subordinate) *means* for the pupil's *spiritual formation,* this being in one both philosophical and ethico-political.[26]

'ABSOLUTE HISTORICISM': BENEDETTO CROCE

Both to Hegel and to Gentile 'the Absolute is Subject', and as such it necessarily manifests itself in humanity's *historical* development. Yet this does not mean at all that for them historical reality, as a multiplicity of spiritual 'facts' or events, and historiography, as the subjective representation of such a reality, constitute, respectively,

the unique true actuality, and the only possible 'objective' knowledge of which the human mind could dispose. Any historico-factual manifestation of the Absolute, as such, is incurably 'finite', and thus inadequate to its pure ideal self-identity, whose full concreteness is actualized only in the process of 'absolute knowing' (Hegel) or of the *autoconcetto* (Gentile), as absolute identity of knowing and the will. The 'absolute historicism' of Benedetto Croce (1866–1952), on the contrary, aims at resolving without residue any possible reality into historical facticity. The fundamental error of any metaphysical speculation consist in the *filosofismo,*[27] i.e., in the illegitimate claim that the concept's immanent development would of itself be able to offer us an adequate knowledge of objective reality. Croce appeals to Kant's famous dictum that 'concepts without intuitions are empty, and intuitions without concepts are blind', in order to vindicate the element of the intuitive, individual, 'historical' representation as an essential condition for any possible knowing. Actual knowledge, then, is neither the pure concept (as metaphysics, and especially Hegel's 'panlogism', maintains),[28] nor the singular sensuous representation (as empiricism generally holds), but rather the logical activity of the 'individual judgment',[29] in which the human mind predicates of an historico-individual 'fact' four fundamental 'categories' (the Beautiful, the True, the Useful, the Good), to which Croce ascribes universal, necessary and thus a priori validity.

But is not nature's reality itself constituted by a multiplicity of individual 'facts', and do not the natural 'laws' which the positive sciences discover in such facts imply some sort of a priori cognitive 'forms' (e.g., space and time) or 'categories' (causality, substance, etc.) either? Why, then, restrict the area of application of the 'individual judgments' to historical reality alone? Croce resorts to the idealistic principle of the identity of being and consciousness in order to deny in principle the actuality of any alleged natural, and then extra-mental, facts. On the other hand, he borrows from one of the most fashionable *Wissenschaftstheorien* (theories of science) of the early 1900s, Mach's and Avenarius's 'empiriocriticism', the idea that the concepts and laws of the positive sciences are devoid of intrinsic universality and necessity, and are rather 'abbreviations' of a contingent plurality of sensuous, particular representations, which are worked out only in view of their practical *utility,* this consisting in the 'economy' of mental 'effort' which their employment would allow to the scientists.[30]

Having denied the reality of the Absolute and of nature, and consequently the truth of metaphysics and the positive sciences, Croce can easily identify the whole theoretical activity of the human mind with *historiography*. Philosophical knowledge differs from it only as the reflective explication of the conditions for the possibility of those 'logical a priori syntheses' (the 'individual judgments') which the actual historiographical praxis mostly carries out in an unconscious way. Contrary to what all great metaphysicians had concordantly maintained, then, philosophy can no longer be regarded as an 'autonomous' science but as the mere 'methodological moment of historiography'.[31] Its specific subject matter would consist, in substance, in a clarification of the contents and mutual relations of those a priori categories which constitute, as we have seen, an essential moment of the 'individual judgments'. The category of the Beautiful coincides with spirit's *artistic* activity, or sense-perception, and its essential products are just those individual intuitive representations which become the subject of the judgments laid down by spirit's *logical* activity.[32] This latter, then, does not exhaust as such the essence of the category of the

True, whose concrete content, rather, turns into the multiplicity of the individual judgments historical knowledge consists of. As to the category of the Useful, according to Croce it defines a form of spirit's activity no less concrete and 'autonomous' than art, knowledge or morality. In this regard, the influence of Marx's thought on Croce, through the mediation of its 'humanistic' interpretation worked out by Labriola at the end of the nineteenth century (see p. 350), *is* undeniable.[33] Unlike Hegel and Gentile, who emphasize the fact that the economic activity of the human mind is but the 'phenomenal', 'negative', 'abstract' side of the only true practical activity, i.e., moral activity as social morality *(Sittlichkeit, eticità)* or ethico-political praxis, to Croce the world of economic processes and relations instead constitutes a fully actual and autonomous factor in human history. Of course, since Croce identifies being in general with history, and defines this latter in terms of 'spirit', he can acknowledge the actual reality of economy only by interpreting the latter as a human activity no less 'spiritual' than, e.g., aesthetic contemplation or historical knowledge. As to the category of the Good, finally, Croce decidedly rejects Hegel and Gentile's contention that it can be concretely embodied only in social institutions. As was already the case with Kant, he confines moral activity to the private sphere of individual conscience, or, at best, to those social relations which an individual can freely join.

These are the main lines of the 'philosophy of spirit' set forth by Croce in his four 'systematic' works: *Estetica come scienza dell'espressione e linguistica generale (Aesthetics as the Science of Expression and General Linguistics)* (1902 [10.15]), *Logica come scienza del concetto puro (Logic as the Science of the Pure Concept)* (1905 [10.16]), *Filosofia della pratica (The Philosophy of Practice)* (1908 [10.18]), and *Teoria e storia della storiografia (A Theory and History of Historiography)* (1917 [10.19]). In the later years of his long literary, philosophical and political career, he seemed deeply to modify such a conception, at least with respect to two fundamental issues. On the one hand, in his *Storia d'Europa nel secolo decimonono (A History of Europe in the Nineteenth Century)* (1932 [10.20]),[34] he sees at the root of the progressive historical realization of the ethico-political ideal of 'liberalism' the spiritual energy of a new 'religion', although non-confessional in character: the so-called 'religion of freedom'. In the systematic exposition of his 'philosophy of spirit', on the contrary, religion is not regarded as a peculiar form of spirit's activity. On the other hand, in his *La storia come pensiero e come azione (History as Thought and as Action)* (1938 [10.22]),[35] he denies that the category of the Good constitutes, as such, a 'distinct' and autonomous form of spirit's life. Now morality seems to him to turn without residue into each of the three previous categories: the True, the Beautiful, and the Useful. Furthermore, in an essay collected in his last book, *Indagini sullo Hegel e schiarimenti filosofici (Inquiries into Hegel and Philosophical Explanations)* (1952 [10.23]),[36] he stresses the spiritual form of 'vitality' *(vitalità)*—which coincides, at least *prima facie,* with the category of the Useful—as the unique, common origin and 'root' of all the 'distinct' forms of spirit, whose 'autonomy', on the contrary, he had once so emphatically vindicated.

Despite the wide influence exerted by Croce's 'historicism' on twentieth-century Italian and European culture, I do not believe that he was actually able to offer a speculatively relevant contribution to the development of philosophical thought in our age. Elsewhere I have pointed out those which seem to me to be the fundamental

shortcomings both of his general conception of history and, in particular, of his logic.[37] Here I can confine myself to remarking that Croce's negation of the possibility of metaphysics is based upon the uncritical ontological presupposition of the actual reality of the 'finite' (as 'historical fact'). As soon as its intrinsic negativity becomes evident to self-conscious reflection, the radical inconsistency of such a presupposition can easily be unmasked. Second, the empiriocriticistic and Crocean denial of the universality of the concepts and laws of the positive sciences turns out to be possible only by surreptitiously presupposing the immediate evidence of sense-perception, which in truth is no less negative and contradictory than the 'finite' as such. Third, Croce declares that the four 'categories' in which he articulates the essence of spirit's development are a priori, i.e., 'universal' or absolute (and this is just the reason why, as against historical relativism, he defines his own philosophy as '*absolute* historicism'). A merely historico-inductive justification of their peculiar content and relations, then, is clearly out of place. The only possible foundation of their objective validity would obviously be their 'deduction' (however this may be conceived). Now, in no passage of his extensive writings does Croce appear to be able to provide us with the least 'deduction' of the specific categorial content of his 'theory of the distincts', and still less with any coherent conception of their mutual 'dialectical' relations. On the other hand, the groundlessness of his claim that they are a priori is proved *ad oculos* by his subsequent reduction of their number through the suppression of the category of the Good as an autonomous form of spirit's life as well as by his conclusive resolution of the whole categorial order into the sensuous immediacy of the *vitalità*. Fourth, how is it possible meaningfully to speak of an alleged 'religion of freedom' while at the same time openly *denying* (unlike Gentile and Hegel!) that religion as such is a specific form of spirit's dialectical development? Finally, Croce's vindication of the a priori character of the category of the Useful and, correlatively, of the 'spiritual' value and meaning of man's economic activity *as such* clearly implies the absurd transmogrification of a merely *external* and *finite* categorial relation such as that of 'utility'[38] into a self-contained, 'infinite' concept, since *any* authentic 'spiritual' category must necessarily be such. The final outcome of Croce's critical destruction of metaphysics in general, and especially of his sometimes very virulent polemic against Hegel's and Gentile's thought, then, appears to be, on the one hand, the sanctification of the most immediate, arbitrary and egoistic *utilitarian interests* of the 'private' individuals, and, on the other, the replacement of the living profundity of speculative thought with the dead superficiality of the most trivial and fragmentary historical *erudition*.

HISTORICAL RELATIVISM AND SCEPTICISM

Despite his polemic against Hegel and Gentile, Croce's historicism nevertheless holds to two fundamental assumptions of any *idealistic* philosophy: i.e., the identification of being with *consciousness* and the distinction, within the latter, between a system of *universal* (absolute) categories (or 'values') and the multiplicity of the particular, contingent representations which they somehow determine and qualify. A widespread theoretical and historiographical trend in twentieth-century Italian philosophy, represented especially

by former fellows of Croce and Gentile, although holding fast to the first assumption, decidedly rejects the second. It *is* a 'dogmatic' prejudice, they acknowledge, to assert the actuality of a reality different from, and transcendent to, human consciousness—broadly speaking, of an 'external world' (however this may be conceived). Yet this would not imply at all that there exists something like a Universal Consciousness or an Absolute Subject, or a mere plurality of a priori concepts, unifying the multiplicity of individual consciousnesses and of their historical, temporal and subjective contents in a universally valid objective experience. The very idea of 'truth' as an *absolute* norm and principle of human knowledge is regarded as nothing more than a 'metaphysical prejudice'. Not only do they deny the existence of a unique, universal truth, of which the manifold determinate truths would be but internal, organic manifestations, but human knowing could not even come to any intrinsic, 'apodeictic' *certainty* of the specific content of a mere plurality of finite, particular truths. Any judgments that can be actually stated, indeed, are always merely 'problematic'. According to the *problematicismo* of Ugo Spirito (1896–1979), such a relativistic, and in the final analysis *sceptical,* conception of knowing would be the unavoidable outcome of Gentile's dialectical logic itself. This, as we have seen, identifies the essence of spirit with its becoming. Yet as a 'theory of spirit as pure act' it cannot but negate itself *as* becoming to the very extent that it claims a priori, and thus immutable and eternal, validity for its own theoretical tenets. As a consequence, one can do justice to reality's intimate processuality only by denying, in principle, the possibility of anything like a 'general theory of spirit'—more generally, of *metaphysics* as such.[39] Reality would thus turn into a 'historical' flux of states of consciousness, in which any alleged universal or absolute truth and reality dissolves, as a follower of Spirito puts it, into 'an unrestrainable rhapsody of sensations'.[40] Any human knowledge would consist of nothing other than mere '[probabilistic assertions, hypotheses and conjectures', and these 'are propositions which reality itself, in its daily or even hourly becoming, undertakes to compromise in their objectivity and to defeat in their claim to universality'.[41] According to Raffaello Franchini (1920–90), metaphysics and (historical) becoming 'cannot get along with each other',[42] and the former's claim to an 'absolute unification' and to 'conclusiveness' must give place to the 'infinity of particular researches'.[43] 'The survival…of the metaphysical conception of philosophy is very harmful to philosophy itself.'[44] Although not hesitating to see in Croce's historicism the epilogue and culmination of the whole history of western dialectic,[45] Franchini declares that not even Croce 'can avoid paying a tribute to the archaic philosophy of Being, despite his effective polemic against it'.[46] Such a tribute would obviously consist in his 'systematic' conception of spirit's forms as 'distinct' a priori categories, whereas they too would be nothing else than the product of 'a distinguishing *activity,* which in the final analysis is the judgement which Croce himself did not by chance call "historical"',[47] i.e. merely contingent and relative.

It is out of place to go deeply here into a more detailed exposition and critique of the 'problematistic' and 'relativistic' outcomes of Italian idealism. In this context it will suffice to point out that, first of all, there is no actual contradiction between spirit's essential becoming and its reflective self-comprehension in a (metaphysical) 'theory' provided that the former is conceived (as with Gentile no less than with Hegel) not as mere temporal change but as 'eternal process': not as a simple negation of the eternal's

self-identity, but as a self-identity which *eternally* 'returns-into-itself from its 'self-alienation'.[48] Second, 'problematicism' and 'historical relativism', like any more or less radically *sceptical* sort of relativistic subjectivism, is plainly a *self-refuting* philosophical conception. For on the one hand it denies the metaphysical ideal of an absolute, 'definitive' truth; on the other, it undeniably ascribes absolute, 'definitive' value to its unjustified and unjustifiable, and therefore 'dogmatic',[49] denial of truth.

'CRITICAL ONTOLOGY': PANTALEO CARABELLESE

Not unlike Croce's 'historicism' or Spirito's 'problematicism', the philosophy of Pantaleo Carabellese (1877–1948) can itself be safely regarded as a critical reaction to 'actual idealism'. Yet what he sets against Gentile's metaphysics of the 'pure act' is not a subjectivistic and relativistic conception of historical becoming so much as an 'ontology' of the 'pure Object', of absolute Being. In any case, such an ontology is still based upon an *idealistic* conception of reality (unlike all the other trends of twentieth-century 'metaphysics of Being', which I shall examine below) in that Carabellese shares with Gentile and Croce the fundamental epistemological assumption that 'being is in consciousness'.[50] Hence he explicitly disallows any attempt to 'overcome'[51] consciousness and to make the latter dependent, in the manner either of naturalistic empiricism or of traditional dualistic metaphysics, on a reality radically alien to it. Any possible actuality is either an act, or an object (a content), of consciousness. The peculiar problematic of metaphysics thus comes to coincide, for Carabellese, with a 'critical' analysis of the immanent formal-general structures of consciousness as the only 'concrete' reality. He distinguishes in it two 'transcendental conditions' mutually connected: the 'subject' and the 'object'; and three 'determinate forms' of its activity, which also imply one another: 'feeling', 'knowledge' and the 'will'. In each of the latter it is possible to bring out a peculiar configuration of the subject-object relation. Carabellese's whole polemic against Gentile is rooted in a different, and even alternative, conception of such a relation. Setting out from Kant's famous contention that the 'objectivity' of a perception coincides with its intersubjective validity, i.e. with its 'universality', he identifies the very essence of the object as such with the most 'universal' concept, i.e. the indeterminate 'idea of Being'. Yet this latter, as Rosmini (see p. 350) had already pointed out against Kant,[52] is not to be regarded as the product of an act of the knowing subject. Rather, it is passively 'given' to it. But what about the 'singular' objects, e.g. 'this' pen 'here'? Carabellese appeals in this regard to Berkeley's immaterialism, and emphatically denies that consciousness can actually refer to an extended, material, bodily, etc. object.[53] The only objective actuality it can become aware of is a 'spiritual reality', and this coincides with the *universal* idea of Being. The subject of the act of consciousness, on the contrary, must necessarily be merely 'singular': 'one among many', a 'monad'[54] bearing a relation of 'mutual otherness'[55] to infinite other possible singular subjects. As a consequence, contrary to what Kant, Hegel and Gentile held, the *unity* of conscious experience cannot be the result of a spontaneous 'synthesis' by the subject (for this is 'in itself' merely passive and manifold). It will therefore be rendered possible by the object alone, which, as universal, is also of necessity *unique*.[56]

The universal uniqueness of the object, then, *unifies* the singular plurality of the subjects; these latter, conversely, *individuate* the indeterminate universality of ideal Being. As we have already said, this takes place in three 'determinate forms of consciousness', to which three distinct ideal objectivities correspond: to feeling the idea of the Beautiful, to knowing the idea of the True, to willing the idea of the Good. In polemic with Gentile, who held 'pure feeling' to be 'inactual', and identified knowing with the will in the concrete actuality of the transcendental Ego (see p. 356), Carabellese vindicates, no less emphatically than Croce, the mutual *autonomy* of such concepts (and, of course, of the corresponding forms of consciousness). Hence it turns out to be impossible to raise any of them to the unconditioned principle of the others. Yet, unlike Croce, he not only excludes economic activity (and the corresponding category of the Useful) from his 'table' of the 'determinate forms of consciousness', but also tries to offer something like a 'deduction' of their specific content, which should bestow on them that *necessity* of which Croce's 'theory of the distincts', as we have seen, is devoid. In this regard, Carabellese appeals to consciousness's *temporal* form. While Kant regarded time as the mere form of 'inner sense', according to Carabellese it expresses rather the inmost essence of the whole life of consciousness.[57] Hence he thinks it possible to 'deduce' from the three 'moments' involved in the essence of time—past, present and future—the concepts of the True, of the Beautiful, and of the Good in the following way:

> In the certainty of having already been, the subjects are said intellect, the object is said true, and the concrete act is said *knowledge;* therefore *knowledge is consciousness of the being that was, is consciousness of the past*. In the certainty of being now, instead, the subjects are said feeling; the object is said beautiful, and the concrete act is said *intuition;* this therefore is consciousness of the being that is, is *consciousness of the present*. Finally, in the certainty of having to be *[dover essere],* the subject is said the will, the object is said good, and the concrete act is said *action*. This therefore is consciousness of the being that will be, *consciousness of the future*.[58]
>
> Unlike Gentile (and Hegel), Carabellese refuses to deduce from the idealistic principle of the identity of being and consciousness the further consequence that the truth of immediate consciousness is the pure act of *self-consciousness*. For in such an act the Ego should be the object of itself; but to Carabellese, as we know, the object is essentially distinct from the subject (although being immanent in, and inseparable from, it). I therefore can be conscious of an object different from me (i.e., the idea of Being), but cannot possibly become aware of my own conscious act. The resolution of the objectifying act of consciousness into pure self-consciousness thus appears to Carabellese to be nothing less than 'the fundamental falsehood' of 'post-Kantian idealism'.[59]
>
> A summary critical examination of Carabellese's ontology suffices to show that it is certainly not preferable to Croce's 'historicism' as a plausible alternative to 'actual idealism'.[60] First of all, his attempt to deduce the 'determinate forms of consciousness' from the essence of temporality is quite unsuccessful. His raising of temporality from a mere form of 'inner sense' to the constitutive structure of consciousness as such appears to be wholly arbitrary

and unjustified. He does not seem to realize the intrinsic *negativity* (contradictoriness) of temporality, of whose 'moments' the past and the future, as such, *are not,* and the (sensuous) present is but an *abstract,* unreal limit between them. Moreover, if the origin of the concept of the True (and of knowing) lay in the temporal moment of the past, not only would the knowledge of the present and the future be obviously impossible, but also any logical and metaphysical knowing whatsoever (for this as such transcends the whole sphere of temporality). No less inconsistent is Carabellese's identification of the subject's essence with the 'plural singularity', and of that of the object with the unique universality of the idea of Being. As Kant himself, to whose authority Carabellese so often resorts, had already shown, I can become aware of a multiplicity (be it objective or subjective, and, in the latter case, be it the 'manifold' of the states of consciousness within the single subject or an 'intersubjective' plurality of individual subjects) only if I keep *self-identical* during the whole process of knowing in which I become aware of such a multiplicity. It is, then, the absolute identity of the self-conscious Ego, and not that of the object, which renders possible, in the final analysis, the 'synthetic unity' of concrete experience. Moreover, on what grounds can I assert that the object is 'in itself' *unique*? In effect, apart from the fact that sense-perception manifests an indefinite *plurality* of singular objects ('this' pen 'here', etc.), *all* objective *concepts* too, as determined, are essentially manifold. Only the *indeterminate* idea of Being is likely to be actually 'unique'. Yet, just as indeterminate, it is, in truth, but a mere 'abstraction', an empty *nothing*. How, then, can it render possible the objective unity of the 'concrete' as consciousness? Finally, Carabellese does not realize that his denial of the possibility of self-consciousness undermines nothing less than the most original conditions for the possibility of his own idea of philosophy as a 'critique of the concrete'. For we already know that to Carabellese the 'concrete' coincides with consciousness, and that his 'critique of the concrete' consequently turns into a reflective explication of consciousness's formal-general structures. Such an explication is obviously an act of consciousness. But its object, unlike that of 'immediate' consciousness, is by no means the indeterminate idea of Being, but *the very concrete actuality of knowledge,* so that it clearly takes the shape of a determinate form of *pure self-consciousness,* whose real possibility, then, it as such proves, as it were, *ad oculos*.

'MYSTICAL IDEALISM': PIETRO MARTINETTI

When outlining the historical genesis of 'actual idealism' I have remarked that it stems from Hegel's idealism through the mediation of its interpretation by Spaventa in the nineteenth century. And the conceptions of thinkers such as Croce, Carabellese, Spirito, etc., can to a great extent be regarded as a mere reaction to Gentile's philosophy. The thought of Pietro Martinetti (1872–1943), on the contrary, derives both its concrete problematic and its fundamental speculative inspiration from a direct, and very detailed,

acquaintance with the German idealistic tradition from Kant[61] to the neo-Kantianism of Riehl, Wundt and others. Not unlike the other exponents of Italian idealism, however, for him too the term 'idealism' fundamentally means an epistemological conception of the subject-object relationship according to which the latter is nothing more (nor less) than a pure immanent content of consciousness. The entire world-becoming thus turns without residue into that of consciousness. '[T]he reality which is given us in perception is conscious reality itself, and nothing other than it.'[62] If consciousness is considered from the standpoint of its immanent multiplicity, it constitutes the object. If, conversely, it is considered from the viewpoint of its active, unifying function, it constitutes the subject or the 'Ego' *stricto sensu*. The peculiar orientation of Martinetti's philosophical idealism with respect to that of Croce, Gentile or Carabellese is revealed, in my opinion, by two fundamental aspects of his thought. On the one hand, he seems to hold that a clear understanding of consciousness's process can be offered us rather by a *psychological* analysis of our inner experience than by a purely logical deduction of its a priori forms (Fichte, Hegel). Indeed, he does not hesitate to define his own position in terms of 'psychological idealism',[63] and to lay down a very favourable judgment about the 'idealistic empiricism flourishing in contemporary philosophy'[64]—for example Schopenhauer's theory of 'representation' or Schuppe's and Schubert-Soldern's 'philosophy of immanence'. But, on the other hand, no less crucial than the influence of that 'psychologism' which held sway over German thought at the end of the nineteenth century is that of *pantheistic mysticism*—from the Indian philosophy of the 'system' Sankhya (to which he devoted his doctoral dissertation) to the metaphysics of Plotinus, Spinoza[65] and the later Fichte. In substance, according to Martinetti, the analysis of psychological experience *is* a necessary moment of the process of knowing, but only as the groundwork for the construction of an 'idealistic metaphysics'[66] of the Absolute as an immanent Whole.

The fundamental philosophical principle bestowing unity and coherence on Martinetti's thought, in fact, has little or nothing to do, in my opinion, with psychological experience, but seems rather to coincide with the chief speculative assumption of Plotinus's metaphysics.[67] The most universal categories on the basis of which it is possible to interpret to totality of experience are Unity and Multiplicity. Contrary to what Hegel (and, before him, Plato himself at least in the *Parmenides*) maintained, they are, as such, *mutually exclusive*. This means that in an entity, experience or concrete spiritual activity, the more the moment of unity prevails, the less relevant the role played by multiplicity becomes, and conversely. The implications of such an assumption are not only ontological but also axiological and ethical in character. Unity is the principle of the intelligibility and 'perfection' of an entity; multiplicity, on the contrary, that of its irrationality and 'imperfection'. As a consequence, the differences revealed by our experience of the world and the Ego are ordered in a hierarchical succession, at the lower levels of which the moment of multiplicity predominates, while unity is the peculiar feature of the higher ones. Absolute Reality, therefore, is to be identified with an absolutely 'formal', 'indeterminate' Unity, devoid of any content, properties, relations, etc., since these are all clearly unthinkable apart from the manifold. Any other form of unity, even the 'concrete unity' of the system of Plato's 'ideas' or of Hegel's 'categories', is but mere *appearance*. Since intelligent activity too involves a manifold content (the

plurality of the concepts which it distinguishes and/or unifies), the Absolute Unity necessarily *transcends* intelligence itself. 'But also this intelligible world is nothing else than a relative expression of a unity which in itself transcends intelligence.'[68] This latter, Martinetti rightly points out, is but a 'development' *(potenziamento)* of 'consciousness'. As a consequence, the Absolute Unity will transcend the totality of conscious experience as well: 'the highest constructions of logical thought are imperfect expressions of a Reality whose absolute unity transcends any consciousness'.[69] Although, then, all of our world-experience turns without residue into a dynamic, hierarchical succession of forms and states of consciousness, the ultimate aim (which to Martinetti, just as to Hegel, is at the same time the 'absolute foundation' of the whole cosmic becoming) of its evolution is not a possible act or content of consciousness.

It should be noted, however, that Martinetti's insistence on the absolute *epistemological* transcendence of Unity to consciousness does not exclude an unambiguous vindication of its substantial *ontological immanence* to the multiplicity of phenomenal experience. Perhaps the most intriguing aspect of Martinetti's metaphysics seems to me to be precisely his unrelenting polemic against the traditional theistic conception of God as an absolutely transcendent, 'otherworldly' entity. For him, on the contrary, the absolute, 'divine' unity is immanent even in the most negligible details of world-becoming.

> And therefore, as Leibniz already saw, every single phenomenon always expresses in the unity it realizes the unity of the world to which it belongs; every most simple unity reflects, owing to the infinite multiplicity of its factors, the universal order of existences; every most trifling being encloses in the mystery of its laws the secret of the world.[70]

The vulgar conception of the (first) cause as external to its effects *(causa transiens)* is to be rejected *in toto*. For the a priori necessity of their connection can be accounted for only by presupposing the intrinsic identity of them as their common foundation. But the cause, in truth, is not only identical with its effects: rather, it 'potentiates', 'reveals' itself in them.[71] In polemic with Aquinas and, more generally, with the whole scholastic ontology, Martinetti therefore declares: 'The whole system of the forms *in re* and *post rem* dissolves in such a case as an unhelpful complication. The world is but the very system of the divine thoughts, of the forms *ante rem,* that, before the obscure power of sense, as it were breaks and is refracted in the indefinite multiplicity of sensuous appearances.'[72]

Martinetti's reference to the 'obscure power of sense' in this passage is critical for the interpretation and evaluation of his whole philosophy. For his doctrine of sensible knowledge is perhaps that which gives rise to the greatest difficulties in his theoretical perspective. I have said that to Martinetti the manifold is a principle of unreality and imperfection, and that the more the process of consciousness approximates the Absolute Unity, the less relevant the former's actuality becomes. 'Sensible intuition' is obviously the most rudimentary phase in consciousness's development, since its content coincides with the heterogeneous, unreal multiplicity of material things and of sensuous qualities. A loose unification of the manifold is rendered possible, within the sphere of sense, by the

(relatively) a priori functions[73] of 'space' and 'time'. The whole sphere of spatio-temporal reality, then, becomes the content of further, higher-order *logical* unifications by virtue of the fundamental categories of 'causality'[74] and 'logical identity'.[75] Now, not unlike Hegel, Martinetti explicitly declares that in the evolution of a lower form of spirit into a higher one the latter represents the 'truth', the 'actual reality' of the former, which with respect to it turns out to be 'virtually negated': 'the logical unity is not a reality coexisting with pure sensuous multiplicity, is not a reality of the same degree, but is a qualitatively higher reality, which *virtually denies sensuous reality*.'[76] Yet, on the other hand, he tries to differentiate his own position in this regard from Hegel's 'panlogism' by asserting that the logical unification of the sensuous 'given' does not undermine its autonomous, independent *reality:* 'An abyss subsists between the logical world of panlogism and sensuous reality.' 'The sensible and the logical order are two absolutely distinct orders, and their forced overlapping only succeeds in bringing out—here better than elsewhere—the absolute impossibility of making them coincide.'[77] The sharp contradiction in which Martinetti's thought here gets entangled is self-evident. In effect, in the final passage of his major work he himself somehow tries to solve it by declaring that 'if from the logical viewpoint the distinction between logical and sensuous reality turns into the distinction between being and not-being…from the absolute viewpoint both are but two subsequent forms of one reality, which in its absolute form is neither the one nor the other'.[78] Yet we know that for Martinetti the 'absolute viewpoint' is that of the absolutely 'formal' Unity, which as such radically transcends any consciousness and intelligence. How, then, can *we* take up such an alleged 'absolute viewpoint'? The 'logical' viewpoint therefore remains the only one we can legitimately resort to (and, strictly speaking, not only 'we', but also a possible infinite 'divine' *intelligence*). Hence his vindication of the original autonomy of sensuous reality is clearly self-refuting, and consequently his attempt to differentiate his own position from Hegel's 'panlogism' turns out to be, at least in this regard, quite unsuccessful.

The other fundamental objections that Martinetti's idealistic monism raises against Hegel's philosophy concern the dialectical method; his doctrine of the immanent becoming of the logical Idea; his identification of the latter with the very Absolute Reality; and finally his 'realistic' admission of the possibility of a philosophy of 'nature' as the process of the Idea in a still 'unconscious form'. Given the validity of the idealistic principle of the identity of being and consciousness, how can one still deem it possible to construct a priori a succession of natural categories that is not, at the same time, the content of a series of subjective 'syntheses' of consciousness? Martinetti's reproach to Hegel's thought, in this regard, is clearly that it is not yet sufficiently 'idealistic'. It seems to me to be historically enlightening to point out that the gist of this Martinetti objection coincides *in toto* with one of the fundamental results of Gentile's 'reform of Hegelian dialectic': i.e., the denial of the possibility of any dialectical process which is not the pure becoming of the *pensiero pensante,* i.e. of the self-conscious Ego (p. 356).

As for the relation between the Hegelian Idea and Absolute Reality, it is undeniable that, if the latter really is, as Martinetti maintains, a Unity which transcends any multiplicity, and therefore the very element of consciousness and intelligence, it cannot possibly coincide with Hegel's Absolute Idea, which is indeed the pure self-consciousness of a systematic totality of thought-determinations. Moreover, any

becoming (be it temporal or logical) is clearly possible and thinkable only as a synthesis of unity (continuity) and multiplicity (discretion, as the *plurality* of the successive 'phases' discernible in it). If, then, Absolute Reality is actually devoid of any multiplicity whatsoever, becoming must certainly be nothing more than a mere 'phenomenon'. The Absolute Unity, therefore, is *eo ipso* absolutely motionless and static. Finally, according to Martinetti (who strangely seems to share, in this regard, some of the most popular tenets of contemporary logical empiricism), there are only two scientifically valid 'logical' methods: 'analysis', which is merely formal and reconstructive in character; and 'synthesis', or 'induction', which consequently is the only method actually able originally to constitute, and then to extend, our knowledge. The latter's 'genetic order', he says, 'is invariably inductive, and springs forth from a unique source which is experience'.[79] As a consequence, induction is the proper method not only of the *positive sciences* but also of philosophy itself. As a consequence, the only real difference between them is that, while the positive sciences limit themselves to a more or less 'relative' unification of the multiplicity of the immediate 'given', philosophy on the contrary essentially aspires to a 'total', 'absolute' unification. The undeniable non-inductive character of Hegel's dialectical method, then, would ineluctably undermine the 'scientificity' of his 'panlogistic' conception of the Absolute. In Martinetti's critique of Hegelianism, then, (psychological) empiricism and (immanentistic) mysticism work hand in hand in a somewhat surprising way. While, indeed, his rejection of the dialectical method (like his theory of sensible intuition I have outlined above) relies on arguments of clear empiricist origin, his polemic against Hegel's Absolute Reason has no other ground, nor any other aim (so at least I believe), than the vindication of the ontological and ethical primacy of *mystical-religious experience* over rational-philosophical thought. In fact, on one occasion he does not hesitate openly to define in terms of 'mysticism' the deepest possible form of unity between the Absolute and the human mind: 'our knowing…is an act of mystical union with the eternal Logos which is the absolute ground of our nature.'[80]

The plausibility of Martinetti's anti-Hegelian polemic thus appears to depend *in toto* upon two decisive speculative assumptions: (1) the epistemological validity of induction; and (2) the ontological reality of an absolute Unity absolutely devoid of any moment of difference or multiplicity. But, in truth, Aristotle and Kant had insightfully pointed out already in the antinomy of 'complete induction' the irremediable shortcoming of the inductive method; and Plato, in his *Parmenides,* had already brilliantly shown that the statement 'The One is' actually means the very opposite of what it purports to mean, i.e. the *unreality* of the One as One. For the existential predicate 'is' constitutes of itself an element *different* from it, and thus immediately posits an *original manifold* in the alleged pure 'unity' of the One itself.

METAPHYSICS OF BEING

The peremptory rejection of the 'idealistic' identification of being and consciousness and the unrelenting polemic against all the logical, metaphysical and ethical consequences drawn from it by both Croce and Gentile constitute the fundamental and historically most

relevant features of a widespread tendency in twentieth-century Italian philosophy which one could generally define in terms of 'metaphysics of Being'.[81] The divergences among the spiritual traditions of (1) Thomism, (2) Augustine's and Rosmini's 'spiritualism', and (3) Kierkegaard's mystical irrationalism—to which thinkers such as (1) Armando Carlini (1878–1959), Augusto Guzzo (1894–1986), Gustavo Bontadini (1903–90), and Michele Federico Sciacca (1908–79), (2) Francesco Olgiati (1886–1968) and (3) Luigi Pareyson (1918–91) respectively go back—turn out to be negligible as compared with the substantial affinity of both the theoretical content and the historico-cultural finalities of their philosophical activity. Being, Truth, the Absolute, God, they maintain, radically *transcend* the whole sphere of self-consciousness, and especially the activity of rational thought. Even those who are most willing to acknowledge the actuality and value of speculative reason, i.e. the neo-Thomists, hold nevertheless that this is a function of spirit which is in the final analysis *subordinate* (or rather: 'subaltern') to an alleged more original immediate *intuition* of the 'idea of Being'—and, a fortiori, to religious revelation such as is sanctioned by the authority of the Roman Catholic church, and to mystical experience. 'The absolute objective truth', Sciacca declares, 'is before its being known, and it would remain such even though no thinking subject ever knew, or sought for, it.'[82] '[T]he *ratio* is a cognitive power inferior to the *intellectus,* on which it depends.'[83] 'What counts,' Pareyson echoes him, 'is not reason, but truth.'[84] The vindication of the absolute epistemological transcendence of truth to human self-consciousness finds a close counterpart, at the ontological level, in their common intent to 'restore', as Bontadini openly says, in contemporary philosophy and culture a decidedly 'dualistic' conception[85] of the relations between God and man, process and eternity, spirit and nature, the One and the Many, etc. '[*Transcendence* means *duality,* immanence means *monism*', Sciacca asserts. 'The condition of culture turns out to us still to be the dualistic conception of the reality of "this" world and of that of the "other" world, of the world of man and of the world of God.'[86] 'Hegel's *Gottin-Werden* [God-in-becoming] is a nonsense, in that one uses the term "God", but one ascribes to him a predicate that denies him, that is contrary to his nature.'[87] From this dualistic ontological perspective the reality of nature, of life, of the 'cosmos' cannot obviously but be regarded as something quite alien to spirit, and as such even unworthy of philosophical consideration. 'Analogy', Guzzo maintains, 'can be held to be the only means truly fit to dispel any temptation of identifying nature and man, either in the naturalistic sense of a reabsorption of man into nature or in the sense of an idealistic epistemology which aims at drawing back and dissolving "nature" into "spirit"',[88] In his polemic against the metaphysical reality of nature, Carlini goes as far as to accuse of *cosmologismo,* i.e. of naturalism, the very 'Christian Neoplatonism with its *Ens Realissimum*'![89]

According to Olgiati, 'if there were no realities there would be no relations, for it is not the relations which create reality, but it is reality which gives rise to the relations'.[90] In Bradley's terminology one could say that the fundamental ontological point this neo-Thomist intends to make is that the only actual relations are the 'external' ones occurring among an original plurality of logically indifferent entities that are irreducible to any higher, more concrete Unity or organic Totality. No surprise, then, that in the light of such an ontological conception of reality as mere plurality the *only* concept of man's personality that appears to be tenable to the upholders of the metaphysics of Being is still

that of the traditional 'soul-substance', i.e. of a self-contained, finite and contingent entity. '[T]he concept of person', a follower of Sciacca observes, 'cannot avoid that individualistic-intimistic closure which seems to be wholly peculiar to the level of singularity.'[91] Its only possibility of, and hope for, 'immortality', consequently, far from consisting in its absolute identity with the Totality of the cosmos and human history, will rather coincide with its alleged indefinite duration 'after death' in the temporal dimension of the *future:* i.e., as Sciacca openly declares, with its 'ultramundane *[ultraterreno]* destiny'.[92]

If it is an indisputable merit of the upholders of the metaphysics of Being to have revived interest in the metaphysical problem in contemporary philosophy, one must also acknowledge that its statement and solution in the ambit of their philosophical perspective does appear to be wholly unsatisfying. The fundamental concept of 'Being' they concordantly resort to as the first and most original truth of the human 'intellect', indeed, is but a dead, unfruitful, *unthinkable* abstraction—both because it is devoid of any determinate content whatsoever and because it presupposes the actual *abstraction* from the concrete becoming of the 'act of thinking', of which, in truth, such a concept is a mere product, and which is thus necessarily presupposed by any alleged categorial negation of it. In other words, the self-conscious ('subjective') process of thinking cannot possibly be transcended, and consequently the object is originally and substantially *identical* with the subject. The dualistic conception of reality, which is on the contrary based on the original *opposition* of subject and object, is therefore inconsistent and untenable, and any attempt to 'restore' it in the spiritual life of contemporary humanity appears to be ineluctably destined to failure.[93]

MARXISM AND PHENOMENOLOGY

While for the upholders of the metaphysics of Being the fundamental shortcoming of Croce's and Gentile's idealism consists in its rigorously 'immanentistic' and/or 'historicistic' orientation, most theorists of twentieth-century Italian Marxism, on the contrary, regard it as the most 'living' and up-to-date legacy of the idealistic-Hegelian tradition (if not even of the whole history of 'bourgeois' philosophy). One can distinguish three main trends in Italian Marxism just on the basis of their different relation to that tradition. According to Antonio Gramsci (1890–1937), 'in a sense…the philosophy of praxis [i.e., Marxism] is a reform and development of Hegelianism'.[94] Croce's and Gentile's Hegelian idealism is therefore the only twentieth-century 'bourgeois' philosophy which he holds to be able to furnish a helpful conceptual contribution to the theoretical elaboration of historical materialism. Not unlike Croce's 'absolute historicism', indeed, 'the philosophy of praxis has been the translation of Hegelianism into a *historicistic* language'.[95] And not unlike 'actualism', it is itself a philosophy of the 'act'—even though not of the 'pure', but of the '"impure" *(impuro),* real act, in the most profane and mundane sense of this word'.[96] The possibility and necessity of an 'integration' of historical materialism with any other contemporary philosophical-cultural tendency whatsoever is emphatically rejected by Gramsci. 'Marxist orthodoxy', he says, consists 'in the fundamental concept that the philosophy of praxis is "self-sufficient", i.e.

contains in itself all the fundamental concepts needed to build up a total, integral conception of the world'.[97]

Quite opposed to the 'subjective'[98] conception of historical materialism worked out by Gramsci is the interpretation of Marx's thought as a 'logic of existence', or of 'contingent reality', put forward by Galvano Della Volpe (1895–1968).[99] In his opinion, Marx's methodology would bear a close resemblance to the 'kind of critical instances from which *modem experimental science* originates'.[100] In open polemic against Hegelianism, and, more generally, against any 'metaphysics' or 'mysticism', the school of Della Volpe (Mario Rossi,[101] Lucio Colletti,[102] etc.) stresses the radical difference between thought and being, vindicates the 'positive reality', the objectivity of the 'instance of *matter,* or the manifold, or the discrete',[103] and reduces Hegel's concept of 'reason' as a unity of opposites (an 'identità tauto-eterologica', as Della Volpe also says) to a merely logical ideal devoid of concrete actuality.

The interpretation of Marxism put forward by the 'Milan phenomenological school' founded by Antonio Banfi (1896–1957), whose most prominent exponent was probably Enzo Paci (1911–76), shares with Gramsci's the insistence on the 'subjective', 'humanistic' character of historical materialism, and on its consequent substantial divergence from any kind of traditional naturalistic and deterministic materialism. But the most radical, and up-to-date, understanding of human subjectivity would certainly not be the excessively 'speculative' and 'metaphysical' one worked out by Hegel's philosophy, so much as the 'descriptive' and 'intuitive' explication of its 'formal-general structures' rendered possible by Husserl's 'phenomenological' method. Whereas, then, for Gramsci Marxism is a 'self-sufficient' world-view, for Paci it needs to be 'integrated', and in some respects even 'rectified', by the most original theoretical achievements of 'transcendental phenomenology'.

The fundamental shortcomings of traditional idealistic philosophy, according to Gramsci, consist, on the one hand, in its being an 'abstractly' *theoretical,* or 'speculative', conception of the world which unduly ignores the essential *practical,* or rather 'political', origin and finality of any alleged 'autonomous' spiritual or rational activity; and, on the other, in its more or less explicit 'solipsism'. 'The history of philosophy', he asserts, is nothing more than 'the history of the attempts…to modify practical activity as a whole'.[104] 'One can believe in solipsism, and indeed *any form of idealism* necessarily falls into solipsism.'[105] Gramsci therefore goes on to set against the idealistic (rationalistic) principle of 'coherence' as truth criterion the more trivially *quantitative* one of the wideness of the consent which a philosophy (or rather, as he says, an 'ideology') enjoys in the 'masses'. The truth of a philosophy, he declares, 'is witnessed by the fact that it is appropriated, and permanently appropriated, by the majority *[gran numero],* so as to become a culture'.[106] 'One can say that a philosophy's historical value can be "calculated" by the "practical" effectiveness it has won.'[107] Also Gramsci's polemic against 'vulgar' materialism and positivism, which reduce in one way or another humanity's spiritual reality to the passive and ineffective 'superstructure' or 'epiphenomenon' of its material life, is based, in the last analysis, on grounds that are strictly practical-political in character. Idealistic philosophy is right to insist on the 'reality' of 'ideologies'—but not because they would express an 'eternal' or 'autonomous' being or truth so much as because the 'cultural factor' would constitute an

essential 'instrument of practical action'[108] in view of the establishment of the 'political domination', of the 'hegemony' *(egemonia),*[109] of one social class over another. 'According to the philosophy of praxis, ideologies are not arbitrary at all; they are *real historical facts*.'[110]

Far more akin to traditional materialism and positivism is Della Volpe's interpretation of historical materialism. In his opinion, Marx's Hegel critique would have rendered possible the foundation of philosophy 'as a scientific ontology, this being a *material ontology* and no longer a *formal ontology* or *metaphysics* as the traditional one from Plato and Aristotle up to Hegel'.[111] It would thus allow us to replace Hegel's 'metaphysics of the state' with a far more realistic 'sociology of the state', whose peculiar inspiration would be 'experimental' or 'Galileian'.[112] Its fundamental epistemological assumptions consist, according to Della Volpe, in the vindication of the original reality of the sensuous-contingent 'facts' (of the 'manifold') as well as of the objective validity of the principle of non-contradiction, of the 'finite understanding', of experiment, and of formal or 'classificatory' logic. Della Volpe decidedly denies the authentically 'scientific' character of Engels's 'laws of dialectic',[113] and against any activistic or pragmatistic interpretation of historical materialism insists on the fact that it is Marxism as a 'science' that grounds practical activity, and not conversely.[114]

In open polemic against 'naturalistic' materialism, and the very logico-experimental method of the positive sciences which would be but a peculiar form of the 'alienation' typical of 'bourgeois' society, Paci emphasizes no less than Gramsci the 'subjective', 'historical' character of Marx's concept of 'matter'. Yet, unlike Gramsci, he holds that it at least virtually finds a close counterpart in Husserl's conception of 'transcendental consciousness' as 'virtual intentional life' *(vita intenzionale fungente),* or as a 'world-of-life' *(mondo-della-vita)*. 'Inert matter is in some way *subjective*. Materialism is not a metaphysics of a substance *[sostanzialismo]* alien to the subject: I am the world, I am the whole world.'[115] The plausibility of an 'idealistic' interpretation of such a fundamental phenomenological conception is ineluctably undermined, according to Paci, by the fact that to Husserl consciousness is always originally and radically *sensuous, passive,* and *temporal,* even when it is regarded as a 'pure' transcendental 'function'. 'The error fraught with the worst consequences in the interpretation of Husserl's phenomenology is that of those who see in [Husserl's] Ego the consciousness or self-consciousness in the creative *[creativistico]* sense of idealism.'[116] The phenomenological analysis of the 'world-of-life' would thus render it possible to 'correct' the erroneous 'naturalistic' tendencies or interpretations of historical materialism without falling once again into the alleged 'categorial' abstractness of the 'idealistic' metaphysical tradition. The phenomenological point of view, Paci maintains, 'allows us…to stress the necessity and the conditioning of the material structure or of the structure of the needs on human-historical praxis, but forbids us, at the same time, to apply to history a scientific dialectic in the sense in which physics is scientific'.[117]

Except for the school of Della Volpe, then, Italian Marxism generally tends to emphasize the decisive role played by *human subjectivity* in the self-constructing process of history—and even of universal reality itself. Yet its uncritical allegiance to the assumption of the original reality and truth of sensible perception and praxis, of time and finitude, as fundamental constitutive structures of 'history', or even of the 'transcendental

consciousness', does not allow either Gramsci or Banfi and Paci to realize the 'abstractness' (in the sense of 'mutilated' one-sidedness) and thus contradictoriness of a 'subjectivity' that is not at the same time 'objective' (infinite), since the 'eternal' reality of the Absolute is not held to be immanent in it.[118] Furthermore, they do not seem to be sufficiently aware that their denial of the *unconditional* autonomy of logico-speculative reason (of the philosophical 'categories') in the final analysis undermines the 'coherence', and then objective validity, of any conception or interpretation (be it philosophical or scientific) of the very evolutionary process of human social history.

EXISTENTIALISM AND EMPIRICISM

The reaction against the speculative tradition of Italian idealism does reach a climax in the philosophical perspective of Nicola Abbagnano (1901–90) and his followers, which he defines in terms of both 'positive existentialism' and 'methodological empiricism' or 'neo-illuminism'. His interpretation of Heidegger's existential ontology, indeed, emphatically disallows any possible 'metaphysical stiffening'[119] of it, and reduces the method of 'existential analysis' to a mere empirical and contingent description 'of those human situations which can be regarded as "fundamental" or "essential" or "decisive" or as "limit-situations" *[situazioni-limite],* etc.'.[120] On the other hand, as the American pragmatists had already pointed out, that 'experimental method' which any empiricist philosophy is used to appealing to cannot and must not be conceived in a strictly 'theoretical' or 'objective' sense,[121] but as 'the structure of action *par excellence,* in that it is destined to modify such [human] situations'.[122] This is because to Abbagnano, just as to all existentialists, the 'being-in-the-world' of man is a 'relation to being' which is originally 'emotional' and 'practical' in character (something like a series of 'decisions'), and as such is absolutely alien and impenetrable to rational, theoretical consciousness. 'Existence cannot be enlightened by knowledge or by reason, but can throw light on them.'[123]

The originally 'irrational' nature of 'existence', according to Abbagnano, excludes the possibility that it might be adequately qualified by those ontological categories which most typically express the essence of pure rationality, such as universality, necessity, infinity, 'progress'. The only 'really existing man', he declares, is neither the Absolute Subject of the idealistic systems, nor the ideal of 'humanity', nor world-history, but nothing else than the 'singular individuality'.[124] This would be determined by a particular factual 'situation' which radically distinguishes it from any other human individual, and which one-sidedly conditions any possible 'activity'—or 'project'—of its own. Human existence, then, is by its nature 'contingent', 'uncertain', 'risky', and the most general ontological category needed to understand its fundamental structures is therefore that of 'possibility'. Indeed, the essence of 'freedom' itself would turn into the mere possibility of 'choosing' among a range of 'given' alternatives (or 'choices'), and therefore is not, nor can it in principle ever be, infinite or absolute. 'Existentialism asserts that man is a finite reality, that he exists and operates at his own risk and danger.'[125]

According to Abbagnano, then, the only object of which philosophy and the sciences can meaningfully speak is 'finite' (temporal, contingent, relative, etc.) reality. The

fundamental *idealistic,* or 'romantic', assumption that the finite as such is not actually real, but is rather the mere manifestation of a 'superior Reality'[126] (the Totality of the Universe, Spirit, Absolute Reason, etc.), is purely 'mythological' in character. But not only is a unique, infinite Reality or Totality quite inexistent, but it does not even make sense to speak of 'absolute' *moral,* or 'spiritual', values. Also the faith in the objectivity of such values would be but a mere 'romantic' prejudice, and it is just the task of 'existential analysis' to show its inconsistency.

> Romanticism always has a certain spiritualistic bent. It tends to extol the importance of inwardness, of spirituality, as well as of the values that are called 'spiritual', at the cost of what is earthly, material, mundane, etc. Existentialism shamelessly recognizes the importance and value for man of externality, of materiality, and of 'mundanity' in general, and thus of the conditions of human reality that are included under these terms: the needs, the use and production of things, sex, etc.[127]
>
> [F]rom the empirical standpoint, the moral problem cannot obviously be coped with by resorting to an apology for morals, or by claiming to be able to establish hierarchies of 'absolute' values, which ought to provide us with necessary criteria for evaluation.[128]

The fundamental philosophical error that undermines the 'positive existentialism' of Abbagnano and his followers throughout is the absurd claim that the human subject may become 'immediately' aware of its own 'existence' as a 'structure' originally 'other' than rational self-conscious thought. In truth, any reliance on the 'evidence' of 'immediate', sensible, 'pre-logical' perception, intuition, praxis, etc. is purely illusory, since it does not account for the intrinsically 'mediate' character of any subject-object relation, and, furthermore, for the fact that any 'mediation', connection or 'relation', in the last analysis, is nothing more (as Kant had already stressed) than a product of the 'synthetic' activity of the pure self-conscious Ego. And even the most elementary act by which this 'posits itself necessarily involves (as the 'dialectical' development of its pure immanent content could easily show) the objective validity of those very categories of 'necessity', 'universality', 'infinity', etc., which Abbagnano's 'positive existentialism' dogmatically denies, or rather is simply unable to account for. In face of the luminous 'self-evidence' of the thinking concept's immanent self-explication, then, all the too often banal, trivial, and worn-out arguments of his polemic against 'romanticism' and 'idealism' cannot but 'dissolve as fog in the sun'.

CONCLUSION

If now, having come to the conclusion of this brief outline of twentieth-century Italian philosophy, we take a fleeting retrospective glance at its most significant vicissitudes and achievements, we can first of all remark that the debate between the upholders and the adversaries of idealist-speculative thought does constitute the crux of its whole development. It is undeniable that in the second half of the twentieth century the anti-

idealistic trends—empiricism, existentialism, phenomenology, Marxism, dualistic metaphysics, etc.—have somehow prevailed. Yet this does not mean at all that their contributions to the progress of Italian philosophical culture have *eo ipso* turned out to be more convincing, valuable, or lasting. On the contrary, our summary analysis of their fundamental assumptions outlined above seems to have clearly brought out their indisputable theoretical inferiority with respect to both the content and the method of the idealistic perspective.

As far as the latter is concerned, then, we have witnessed the polemic between the rigorously dialectical, monistic, and 'speculative' development of the philosophical principle of idealism carried out by Gentile's 'actualism' and other antidialectical, pluralistic or historicistic forms of idealism such as Martinetti's mystical monism, Carabellese's 'critical ontology', and Croce's 'absolute historicism'. Despite the sharp critiques to Gentile's thought put forward by the latter, none of their speculative constructions can bear comparison—as to coherence, lucidity and intimate force of persuasion—with the theoretical perspective of 'actual idealism'. Hence this is and remains up to the present the essential reference point for any further development and progress of philosophical research in Italy.

This, however, is not tantamount at all to saying that a fair evaluation of the actual speculative achievements of Gentile's thought cannot and must not bring to light in it more than one fundamental limit.[129] In this context I can confine myself to remarking that the actual result of his 'reform of Hegelian dialectic' appears to consist, in more than one respect, rather in a one-sided formalistic 'simplification' of the very complex totality of Hegel's Absolute Idea than in the positive explication of a speculative truth which in the Hegelian system would still be merely implicit. After all, Bosanquet's famous objection to Gentile's philosophy—that it would be a sort of 'narrow humanism' which, unlike the Hegelian one, does no justice to the intrinsic 'dialectical' nature both of the logical categories and of the processes of natural reality—is likely to be sound and tenable. The *speculative task* which the critical reflection on the theoretical limits of 'actual idealism' proposes to contemporary philosophy thus seems to be the integration of the brightest and most fruitful idea of Gentile's thought—i.e., that Absolute Reality is the totality-in-becoming of self-conscious, active 'spirit'—with a 'holistic' and 'systematic' interpretation of the fundamental achievements of scientific and methodological research in our century such as is being developed, for example, by the latest and most significant trends of the philosophical tradition of Anglo-Saxon Hegelianism.[130]

NOTES

1 Cf. H.Marcuse, *Reason and Revolution: Hegel and the Rise of Social Theory,* 2nd edn, New York: The Humanities Press, 1954, pp. 402–9.

2 For a detailed, although somewhat uncritical, reconstruction of the 'external' events of the development of twentieth-century Italian philosophical culture, see E.Garin [10.31] A summary overview of the fundamental trends of Italian thought from 1945 up to 1980 is offered by the collection of essays, ed. E. Garin [10.53].

3 M.F.Sciacca [10.86], vol. 3, p. 214.

4 G.Gentile, 'L'atto del pensare come atto puro', 1911; in Gentile, *La riforma della dialettica*

hegeliana [10.32], 193.

5 G.Gentile, *Teoria generale dello spirito come atto puro* [10.35]; in Gentile [10.45], p. 491.

6 'L'atto del pensare come atto puro' [10.32], 194.

7 *Teoria generale dello spirito come atto puro* [10.35], 475.

8 'L'atto del pensare come atto puro' [10.32], 190.

9 *Ibid.,* p. 191.

10 G.Gentile, *Il modernismo e i rapporti tra religions e filosofia,* 1909, ch. 10: 'Le forme assolute dello spirito', in Gentile, *La religione,* [10.38], pp. 259–65.

11 Cf. G.Gentile, *La filosofia dell'arte* [10.42], 144–70. See also Gentile, *Introduzione alla filosofia* [10.43], 34–60.

12 Cf. *La filosofia dell'arte* [10.42], 150–2.

13 Cf. *Teoria générale dello spirito come atto puro* [10.35], 470.

14 Cf. *La filosofia dell'arte* [10.42], 117ff.

15 Cf. G.Gentile, *Sistema di logica come teoria del conoscere* [10.36], vol. 1.

16 The most developed and accomplished form of which remains, in his opinion, Catholicism: cf. G.Gentile, 'La mia religione' [10.40], 405–26.

17 Cf., e.g., G.Gentile, *Discorsi di religione* [10.38], 382: 'The most deeply religious (= mystical) element of religion is not the affirmation of the abstract object so much as the *negation of the subject*' (my italics).

18 In Gentile's terminology: in the '*societas in interiore homine'.* Cf. Gentile, *I fondamenti della filosofia del diritto* [10.34], 75–6; and *Genesi e struttura della società* [10.44], ch. 4, pp. 33–43.

19 Cf. G.Gentile, *Sommario di pedagogia come scienza filosofica* [10.33], vol. 1, p. 25.

20 For a more detailed critical examination of his fundamental logical and epistemological doctrines, see my paper [10.83] and my book [10.82], part 3, ch. 2, no. 51.

21 H.S.Harris [10.52], 274. A careful outline of Gentile's philosophy is offered by the same author in his essay [10.51]. Nothing more than a somewhat grotesque distortion of Gentile's thought in a relativistic-materialistic sense is the 'interpretation' put forward by A.Negri in his book [10.64] and by V.A. Bellezza in his papers [10.7] and [10.8].

22 Cf., e.g., Hegel, *Enzyklopädie der philosophischen Wissenschaften,* Frankfurt: Suhrkamp, 1970, vol. I, no. 133, *Zusatz*.

23 G.Gentile, *La riforma dell'educazione* [10.41], 32–47,

24 *Sommario di pedagogia* [10.33], 127.

25 *Ibid.,* p. 253.

26 *La riforma dell'educazione* [10.41], 176.

27 Cf. B.Croce, *Logica come scienza del concetto puro* [10.16], 249–54.

28 Cf. B.Croce, *Saggio sullo Hegel seguito da altri scritti di storia delta filosofia,* [10.17], 126ff.

29 Cf. *Logica* [10.16], 91ff.

30 Cf. *ibid.,* pp. 323–5.

31 Cf. *Teoria e storia della storiografia* [10.19], 140.

32 In an essay of 1936, however, Croce, explicitly contradicting a fundamental assumption of the aesthetic theory outlined by him in 1902, asserts that one of the essential features of 'poetry' is the *'cosmicità',* i.e. its 'universality' (cf. B.Croce, *La poesia* [10.21], 11–14).

33 Croce's critical discussion and (partial) appropriation of the theory of Marx's historical materialism is documented especially by his book *Materialismo storico ed economia marxistica* [10.14].

34 Cf. B.Croce, *Storia d'Europa nel secolo decimonono* [10.20], 7–21.

35 Cf. B.Croce, *La storia come pensiero e come azione* [10.22], 44.
36 B.Croce, *Indagini sullo Hegel e schiarimenti filosofici* [10.23], 29–55.
37 Cf. my paper [10.81], and my book [10.82], part 3, ch. 2, no. 52.
38 Cf. *ibid.,* part 2, ch. 4, note 19, p. 280.
39 Cf. U.Spirito [10.89]. For an outline of the development of Spirito's thought see A.Negri [10.64], vol. 2, pp. 65–73.
40 A.Negri [10.65], 58.
41 *Ibid.,* p. 57.
42 R.Franchini [10.30], 167.
43 *Ibid.,* p. 57.
44 *Ibid.,* p. 172.
45 R.Franchini [10.29], 347.
46 R.Franchini [10.30], 167.
47 *Ibid*.
48 'Relativistic historicism' is also the final outcome of the spiritual itinerary of one of the major Italian historians of philosophy, Guido de Ruggiero (1888–1948). See especially [10.25]. For a critique of his misguided polemic against Hegel's absolute idealism, which he accuses of 'theologism' and even of 'fetishism', cf. G.Rinaldi [10.82], part 3, ch. 2, note 87. The denial of the constitutive immanence of the logical universal in individual consciousness led Julius Evola (1898–1974) to identify the essence of the human subject with Nietzsche's 'will to power': cf. J.Evola, *Teoria dell'Individuo Assoluto* [10.27].
49 In fact, Franchini (not unlike, in this regard, the contemporary empiricists) denies the epistemological value of any possible logical 'foundation' or 'demonstration', as merely 'tautological' (cf. [10.30], 171). His very denial of the possibility of metaphysics, then, is to be held to be *ungrounded*—more the expression of individual subjective impotence than the ascertainment of human reason's objective, insuperable 'limits'.
50 P.Carabellese, *Critica del concreto* [10.11], 23. The second edition of this work considerably differs from the first, and can be legitimately regarded as the definitive version of Carabellese's 'critical ontology'.
51 *Ibid.,* pp. 101, 184.
52 And, after him, Bernardino Varisco (1850–1933), a spiritualistic and theistic Italian thinker who has remarkably influenced the development of Carabellese's thought.
53 In Carabellese's ontological perspective the very concept of 'nature' turns out to be simply nonsensical. As a consequence, he cannot but deny *in toto* the theoretical value of the positive sciences. Cf., e.g., *Critica del concrete* [10.11], 189.
54 *Ibid.,* p. 109.
55 *Ibid.,* p. 199.
56 In more than one context Carabellese does not even hesitate to identify the objective unity of the idea of Being with God himself (cf., e.g. *ibid.,* p. 7, note). In any case, since such an idea, as we know, is but an abstract 'transcendental condition' of knowing, radically *different* from the subject which is its other essential condition, he is bound to conclude, somewhat absurdly, that God as such *does not exist actually,* nor is he 'subject', 'person', 'self-consciousness', 'spirit' (cf. *ibid.,* pp. 151–2, 171, 194).
57 Cf. *ibid.,* pp. 113–15 and 181. Note the analogy of this Carabellese doctrine with Husserl's and Heidegger's more known 'phenomenological' conceptions of 'temporality'.
58 *Ibid.,* p. 24.
59 Cf. *ibid.,* pp. 126–39.
60 Garin rightly stresses the 'obscurity' and 'haziness of expression' of Carabellese's thought

(cf. [10.31], vol. 2, pp. 357, note 16, and 455). And R.Donnici suitably observes that 'as compared with Gentile and Croce's idealism, his most immediate polemical targets, Carabellese's critical ontology appears to be very frail' (R.Donnici [10.26], 7). In my opinion, this holds good more for his critique of Gentile than for that of Croce.

61 His book *Kant* [10.61] is devoted to a decidedly 'spiritualistic' interpretation of Kant's whole 'critical philosophy'.

62 P.Martinetti, *Introduzione alla metafisica* [10.55], 45.

63 *Ibid.,* p. 40.

64 *Ibid.,* p. 259.

65 To Spinoza's thought, which Martinetti interprets and criticizes from a substantially *neo-Platonic* point of view, he devoted numerous insightful essays. Cf. P.Martinetti, 'La dottrina della conoscenza e del metodo nella filosofia di Spinoza' [10.56], 289–324; 'La dottrina della libertà in Benedetto Spinoza' [10.57], (reprinted in his book *La libertà* [10.59]); 'Modi primitivi e derivati, infiniti e finiti' [10.58]; 'Problemi religiosi nella filosofia di B.Spinoza' [10.60]. For a general critical evaluation of Martinetti's Spinoza interpretation see my 'Introduction' to my Italian translation of E.E.Harris's book *Salvezza dalla disperazione. Rivalutazione della filosofia di Spinoza,* Milano: Guerini, 1991, pp. 29–31.

66 *Introduzione alla metafisica* [10.55], 261.

67 Cf., e.g., Plotinus, *Enneads* VI, 9.

68 *Introduzione alla metafisica* [10.55], 471.

69 *Ibid.,* p. 476.

70 *Ibid.,* p. 478.

71 Cf. *ibid.,* pp. 435–43.

72 *Ibid.,* p. 273.

73 I say 'relatively', because for Martinetti their ultimate psychological origin is itself merely empirical. They are a priori only with respect to experience's sensible qualities, which they unify in a 'unique', 'absolute' order. Cf. *ibid.,* pp. 423ff.

74 Cf. *ibid.,* pp. 434–43.

75 Cf. *ibid.,* pp. 443–55.

76 *Ibid.,* p. 468.

77 *Ibid.,* p. 403. Such a vindication of the autonomy of sensible intuition seems to find a close counterpart in Martinetti's critique of Kant's doctrine that the 'manifold' of sensuous impressions is merely subjective, and the objective unity is introduced in it only by the understanding's 'synthetic' activity. In his opinion, on the contrary, sense-perception is an inseparable unity of subject and object before, and independently of, its subsequent unification in the logical forms of thought (cf. *ibid.,* pp. 241–2).

78 *Ibid.,* p. 472.

79 *Ibid.,* p. 18.

80 *Ibid.,* p. 433.

81 Among the numerous, although often speculatively mediocre, writings of today's upholders of the metaphysics of Being, I confine myself to mentioning: F.Olgiati [10.66]; A.Carlini [10.12]; A.Guzzo [10.49]; V.La Via [10.54]; C. Mazzantini [10.63]; F.Olgiati [10.67]; V.A.Padovani [10.73]; M.F.Sciacca [10.87]; L.Stefanini [10.90]; F.Olgiati [10.68]; V.Mathieu [10.62]; M.F. Sciacca [10.88]; P.Prini [10.77]; G.Bontadini [10.10]; C.Arata [10.4]; C. Arata [10.5]; M.Gentile [10.46]; D.Pesce [10.76]; C.Fabro [10.28]; A.Guzzo [10.50]; L.Pareyson [10.74]. Guzzo's broad essay [10.48] is devoted to an excellent exposition of Spinoza's thought and to a lucid critique of it from a still 'actualistic' (and by no means 'spiritualistic' or 'neo-Thomistic') point of view. The reductive 'irrationalistic'

interpretation of Fichte's thought put forward by L.Pareyson [10.75] is, on the contrary, wholly questionable.

82 M.F.Sciacca [10.88], 36.
83 *Ibid.,* p. 163.
84 L.Pareyson [10.74], 147.
85 Cf. G.Bontadini [10.10], 4.
86 M.F.Sciacca [10.88], 241.
87 *Ibid.,* p. 206.
88 A.Guzzo [10.50], 77.
89 A.Carlini [10.12], 192.
90 F.Olgiati [10.68], 27.
91 C.Arata [10.5], 18.
92 M.F.Sciacca [10.88], 66–7.
93 A lucid, thoroughgoing critique of Thomism from the standpoint of Gentile's 'actual idealism' is carried out by Giuseppe Saitta (1881–1965) in his admirable essay [10.85].
94 A.Gramsci [10.47], 115.
95 *Ibid.,* p. 244 (my italics).
96 *Ibid.,* p. 54.
97 *Ibid.,* p. 195.
98 *Ibid.,* p 238.
99 G.Della Volpe [10.24], 36.
100 *Ibid.,* p. 123.
101 Cf. especially M.Rossi [10.84].
102 Cf. especially L.Colletti [10.13].
103 G.Della Volpe [10.24], 103.
104 A.Gramsci [10.47], 26.
105 *Ibid.,* p. 27.
106 *Ibid*.
107 *Ibid.,* p. 28.
108 *Ibid.,* p. 52.
109 *Ibid.,* p. 219.
110 *Ibid.,* p. 292. For a critique of Gramsci's Hegel interpretation see my book [10.79], vol.1, pp. 14f., 24f., 136f., 201f.
111 G.Della Volpe [10.24], 169.
112 Ibid., p. 121.
113 *Ibid.,* p. 201.
114 Ibid., p. 184.
115 E.Paci [10.71], 222.
116 E.Paci [10.69], 3. For his critique of Gentile's idealism see especially Paci [10.72]), 62–6. Husserl's theory of consciousness's 'original temporality' is developed by Paci especially in his essay [10.70].
117 [10.71], 226.
118 Banfi's open denial of the original truth and reality of the Absolute is unambiguously witnessed, for example, by the following passage: 'in general one must say that according to phenomenological thought an absolute reality is as absurd as a round quadrilateral, for there is nothing absolute but the ideal moment of pure immanence' (A.Banfi [10.6], 94–5). For a more detailed exposition and critique at Banfi's and Paci's 'phenomenological Marxism' see my book [10.78], Appendices, pp. 214–31.

119 N.Abbagnano [10.2], 157.
120 *Ibid.,* p. 156.
121 Cf. Abbagnano [10.3], 45–9.
122 [10.2], 156.
123 [10.3], 48.
124 *Ibid.,* p. 47.
125 [10.2], 26f.
126 *Ibid.* p. 26.
127 *Ibid.,* p. 27. The stiff opposition between the philosophical-cultural perspectives of 'Illuminism' (or 'existentialism') and of 'Romanticism' (or 'idealism') constitutes the fundamental historiographical criterion by which Abbagnano interprets and judges the whole development of contemporary philosophy. Cf., e.g., Abbagnano [10.1], vol. 3, parts VI and VII.
128 [10.2], 157.
129 Cf. above, note 20.
130 Errol Harris's epistemological researches appear especially interesting in this regard. For a summary exposition and interpretation of his philosophy see my books [10.80] and [10.82], part 3, ch. 3 no. 61.

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CHAPTER 11
French structuralism and after

De Saussure, Lévi-Strauss, Barthes, Lacan, Foucault

Hugh J.Silverman

FERDINAND DE SAUSSURE

The history of structuralism cannot be thought without Ferdinand de Saussure (1857–1913). The Swiss linguist lecturing in Geneva in the early twentieth century set the scene for what in the two and a half decades following the Second World War came to be known as structuralism. The figures who dominated the development of the movement in the 1940s and 1950s were Claude Lévi-Strauss (b. 1908), Jacques Lacan (1901–82), and Roland Barthes (1915–80). By the 1960s Michel Foucault's (1926–84) reformulations and even rejections of structuralism indicated the new directions for what became poststructuralism.

Curiously, the parallel development of existential phenomenology in France ran a different course. With the possible exception of Maurice Merleau-Ponty's (1908–61) interests in the structuralist alternative, structuralism had little or no effect upon the development of phenomenology as a philosophical movement. With poststructuralism, however, the confluence of these two different philosophical methods marked the appearance of an entirely new mode of thinking—one which is exemplified in Foucault's archaeology of knowledge on the one hand and Jacques Derrida's (b. 1930) deconstruction on the other. For the purposes of the present chapter however, I shall take Foucault as exemplary of this new development.[1]

Structuralism—and especially French structuralism—cannot be understood apart from de Saussure's semiology. According to de Saussure—as articulated clearly in the posthumously published *Course in General Linguistics* (1916), a compilation of several years of the Swiss linguist's Geneva lectures [11.1]—semiology is 'the general science of signs'. De Saussure proposed a new understanding of the notion of 'sign'. He argued that the sign is not just a word but rather that a sign is both a word and concept. He named these two components of the sign the 'signifier' *[signifiant]* and the 'signified' *[signifié]*. The signifier is the word, that which does the signifying. The signified is the concept, that which is signified. Together these two components constitute a binary pair called the sign. The standard example which de Saussure offers for this binary relation is the word *tree* and the concept 'tree'.

A sign, however, is not yet a sign until it is distinguished from other signs in the same system, or language *[langue]*. A sign cannot be on its own—apart from all other elements of the language. Indeed, de Saussure defines a sign as determined by its difference from all other signs in the sign system. Hence the sign *tree* is the sign *tree* by its difference

from other signs such as *house, bird* and *sky*. Now the sign *tree* is also different from the sign *arbre* or the sign *Baum, arbor* or *arbol*. Each of these other signs is part of a different sign system: *arbre,* the French language, *Baum,* the German language, *arbol,* the Spanish language. Because they are not part of the same sign system, they are signs only in their respective sign systems.

De Saussure also remarks that the relation between a signifier and a signified is entirely 'arbitrary'. That the concept or signified 'tree' is designated by the word *tree* in English is simply arbitrary. It could have been called *arbre, Baum* or *arbol*—and indeed in different languages it does acquire such signifiers. Only in the limited instances of onomatopoeia in which a signifier corresponds in a motivated way to a particular signified is the arbitrary nature compromised. Hence *bow-wow* for a dog's bark, or *smooth,* for something soft and gentle, or *Being-in-the-world* for the extensiveness of our existence are connected in a more related way than most words with their corresponding concepts.

A sign—a signifier *[un signifiant]* and a signified *[un signifié]*—is one among many signs in a language *[langue]*. A *langue* can be English, French, German, Japanese, Russian, etc. In the account of a *langue* nothing need be spoken as such. Hence, de Saussure offers a correlative concept called the speaking of the language or *parole*. While *langue* is constituted by elements that make up a particular language, *parole* is the speaking of that language in a determinate context and at a determinate time. Hence when I say: 'Tall evergreen trees inspire a sense of grandeur', I am saying *[parole]* these words (with their corresponding concepts) in English. Were I to say: 'Ces grands arbres verts sont magnifiques', I am saying something else in French but I am enacting the French language in a particular context and at a specific time—the saying is *parole*.

Another binary pair (or binary opposition), as Saussure sometimes calls them, is the relation between 'syntagm' and 'system' (or 'paradigm'). The sentence 'Tall evergreen trees inspire a sense of grandeur' is a sequence of signs; one follows the other. As a sequence, the signs follow a syntagmatic line. Each sign is contiguous with the next, and there is a meaning produced by the sequence. By contrast, were one to substitute alternate signs such as 'short', 'broad', or 'imposing' for 'tall', for instance, the sentence would read: 'Short (or broad, or imposing) evergreen trees inspire a sense of grandeur.' The new sentence with the substituted term still makes sense, but the sense is of course different—and even in the first two instances a bit curious. What does not quite fit with 'tall', 'short', and 'broad' is 'imposing'. The first three are all signs of size. 'Imposing' is of another order, yet it is also substitutable for 'tall'. All of these substitutable terms are part of the same system (or paradigm) if broadly interpreted. If more narrowly interpreted, the system could be restricted to signs of size and not just signs that are substitutable. Each of the elements of the sentence could be examined in terms of substitutable signs, and each would be part of a different system.

A fourth binary opposition is that between diachrony and synchrony. A diachronic study of the Greek sign of excellence *aretē* would follow it through its Latin version in *virtus,* its Italian reformulation as *virtú,* its French usage as *vertu,* a term which is also repeated in English (virtue). To study the same work over time, chronologically, allows for the consideration of a development over time, historically, as it were. However, such a study isolates what is studied from its context and framework. It takes the element and

reviews the whole development independently of related concerns. A synchronic study, by contrast, is ultimately concerned with the set of relations among a whole complex of signs and elements that arise at the same time and in the same context. The sign *aretē* is studied in relation to other signs at the time: *paideia* (education and the ideals of the culture), *sophrosyne* (moderation or temperance), and so forth. In this respect a given notion is understood in a broad context—in this case, a cultural context. Once the synchronic study has been accomplished for a given time-slice, it will be possible to compare that time-slice with other periods of time—in order to show similarities and/or differences across a number of different time-slices.

As a linguist, de Saussure was ultimately concerned with language. Indeed, the whole project of structuralism is framed according to a linguistic model. This model presumes that what is outside language is not relevant to the linguist's task. Hence the earliest forms of structuralism were restricted to the formulations of a semiology based on language study. Roland Barthes, by contrast, in his *Elements of Semiology* (1964 [11.7]), remarks that while de Saussure believed that linguistics is a part of semiology—that there are domains of semiology that are not relevant for the linguist—in his view, semiology is a part of linguistics. Barthes's formulation presumes that all sign systems are already language systems of one sort or another—I shall return to Barthes later.

CLAUDE LÉVI-STRAUSS

What is significant here is that when Lévi-Strauss in the late 1940s began to apply structuralist principles to anthropological concerns, he was already extending the linguistic model far beyond language study. This meant that although Lévi-Strauss as an anthropologist was concerned with structures of thought, he had already made the shift that Barthes articulates: ethnology is already a language which can be studied by the structuralist.

Although de Saussure was lecturing on structural linguistics in the first decades of the century, it took until the 1930s for his work to become noticed and accessible to a broader context. This was the fate of his *Course in General Linguistics*. When Lévi-Strauss travelled to the United States during the Second World War, it was out of political and personal necessity as he narrates in considerable detail in *Tristes tropiques* [11.3]. When he arrived in New York, he began teaching at the University in Exile (which has subsequently come to be called The New School for Social Research). During that time, he met and conferred often with Roman Jakobson (1896–1982) (whose own itinerary had taken him from Russia to Prague to Paris to New York). Jacobson was a linguist whose development of Russian formalism was an important contribution to the concept of structure. Indeed both Lévi-Strauss and Jakobson worked together on a groundbreaking reading of a Baudelaire poem, 'Les Chats'. The idea was to offer a structural study of the poem. Their reading was careful and meticulous. They were interested in how the poem exhibits structural, stylistic and syntactic features in order to constitute the work as a whole. Jakobson's further interest in metaphor and metonymy was worked out in his *Fundamentals of Language* [11.50] in terms of two types of aphasia: metaphor as replacement by substitution, metonymy as replacement by

contiguity.[2]

After the war, Lévi-Strauss served as cultural adviser to the French ambassador to the United States (1946–7). Then he returned to France where he took up his position at the Ecole Pratique des Hautes Etudes en Sciences Sociales (the 'Pratique' has subsequently been dropped) and resumed his research in structural anthropology. In 1949, he produced his major contribution, *The Elementary Structures of Kinship* [11.2]. Here the concept of kinship was developed in connection with Lévi-Strauss's understanding of structuralism and his collation of many different ethnographic accounts of kinship throughout the world. His view was that despite many significant differences in kinship practice in different cultures, common structures are repeated underneath these multiple instances of kinship practices. These structures have a basic form according to a determinate set of relations. The actual character of the relation might change from one context to another, but what does not change is the relation itself. Each relation is part of a whole structure of relations, where no element is strictly independent of any of the others. Thus a one-to-one correspondence of one part of a structure with one part of another cannot be made. The whole structure must be compared with another whole structure in order to provide an appropriate analysis. For instance, Lévi-Strauss is particularly interested in the 'avunculate' or uncle-relation. He finds from his extensive research of many different cultures, societies and social groups that the role of the uncle is critical. Hence there is the mother-father relation, the mother-father and son relations, the son-maternal uncle relation, and the mother-brother relation.

Understood independently, each of these relations has a particular content: positive and socially supported in one case, negative and outcast in another. Lévi-Strauss determined that by assigning a positive or negative value to each of these relations in a particular context, he could determine the nature of the whole structure. For three hypothetical societies, it might look like Fig. 11.1.

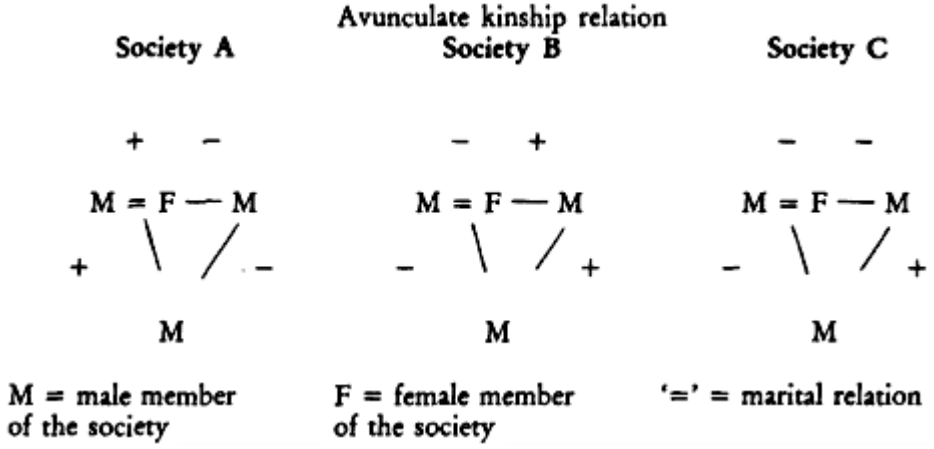

Figure 11.1

In each of these societies, the mother and father, the mother's brother and the brother's

sister's son constitute the key kinship relations. While the structure recurs, the nature of the relations change from one society to the next. The repetition of the same structure is matched with the differences in the nature of the relations among the social roles in each society.

This concept of structure indicates a latent set of relations that underlie the actual, particular and real relations of specific individuals in a determinate context. Lévi-Strauss broadens his reading of kinship relations to the account of totems and taboos in different societies as well as to the detailed study of myths. These further explorations of the application of structural method resurface in a variety of essays written between 1944 and 1957 and are collected together in the first volume of *Structural Anthropology* (1958 [11.4]). The appearance of *Structural Anthropology* marked a significant phase in the development of structuralism. *Elementary Structures* (1949, [11.2]) was highly detailed and technical. The new book solidified the role of structuralism in France. It indicated that there was now an alternative research programme that would ultimately match that of existentialism and the existential phenomenology that had reigned unopposed since the early 1940s. While it would take another decade for structuralism to establish its foothold firmly, Lévi-Strauss's new book was an important link between the growing interest in de Saussure's semiology and the full-fledged structural studies that Barthes, Lacan and Foucault would carry on into the 1960s. This is not to say that Lévi-Strauss has not been a continuing and dominant force in the development of structuralism even today. At the beginning of the 1970s, when I attended his lectures at the Collège de France where he occupies the Chair of Social Anthropology, he was still defending his position against the comments and criticisms of the British anthropologist Rodney Needham. And many books have followed the appearance of *Structural Anthropology*. His four-volume study of world mythologies, his second volume of *Structural Anthropology,* his autobiographical *Tristes tropiques,* his many essays on masks and race all add up to a major contribution to late twentieth-century French thought.

Louis Marin (1931–92) used to comment that when he was a young man in the early 1950s, he and his wife Françoise were invited to the apartment of M. and Mme Maurice Merleau-Ponty for what was then described as a 'dîner intime'. When he and his wife arrived, he discovered that it was indeed a small diner party: M. and Mme Merleau-Ponty, M. and Mme Lévi-Strauss, and M. and Mme Lacan. That these three were all friends indicates a certain collaboration and dialogue that was highly charged in the early period in which structuralism was gaining hold. Although Merleau-Ponty is known for his groundbreaking work as a phenomenologist of perception (1945), only a year later he was lecturing on de Saussure at the Ecole Normale Supérieure in Paris. Merleau-Ponty's turn to semiology as a topic of interest began to blend with his commitment to the achievements of Gestalt psychology, but even more with those of phenomenology which he saw as superior even to the Gestalt theories of Köhler and Koffka, Gelb and Goldstein. Yet with his growing interest in language, Merleau-Ponty found real value in the Saussurian theory of the sign.[3] His courses on 'Language and Communication' (1946–7) stressed his new commitment to language—a topic which he had only broached in *Phenomenology of Perception* (1945), notably in the chapter on 'The Body as Speech and Expression'. Hence concurrently with Lévi-Strauss's return to France and his intense work on kinship relations, his friend Merleau-Ponty, who was by then Professor of Child

Psychology and Pedagogy at the Institut de Psychologie in Paris, was also developing a serious interest in the implications of Saussure's structural linguistics.

When Merleau-Ponty set himself the task of writing a kind of literary theory which was to have seen the light of day in the early 1950s, he was setting the stage for an important debate that would take shape throughout the 1950s and 1960s—even long after his death in 1961. What became *The Prose of the World* (published posthumously in 1969) [11.64]) , was to have been completed in 1952. However, Merleau-Ponty was elected to the Collège de France that year and his research took him in other directions, most notably in his critique of 'dialectic' and towards his theory of visibility in *The Visible and the Invisible* (1964). There were two companion pieces that have been included in *Signs* (1960 [11.62]) which addressed the question of language: 'The Phenomenology of Language' and 'Indirect Language and the Voices of Silence'. These two essays, written in 1951–2, indicate the convergence between phenomenology and structuralism as it was under development in the French context. While Sartre continued to reject structuralism vigorously,[4] Merleau-Ponty continued to be intrigued. While Sartre published his own theory of literature in *Qu'est-ce que la littérature*? in 1947, he oriented this theory toward the act of communicating the freedom of a writer to the freedom of a reader. Writing, for Sartre, was both an act of commitment and an expression of freedom. Merleau-Ponty's response came in 1952 with *The Prose of the World:* there are many aspects of language and expression that are simply not direct, that do not give an algorithmic reading of experience—literature and painting are prime examples. Here there is language but indirectly expressed—even silence for Merleau-Ponty speaks.

ROLAND BARTHES

Like Merleau-Ponty, the second major figure of French structuralism, Roland Barthes, was also preparing in 1952 a response to Sartre's literary theory: *Writing Degree Zero* [11.5] was of mould-breaking merit. It offered an entirely different way of understanding the role and status of writing. Writing was no longer an act of communication, but rather an articulation that links up both style and language. The writer's style (whether romantic, or surrealist or existentialist) is matched with the writer's *langue* or language. This language is not simply idiosyncratic. For Barthes, language partakes of a social context and experience. Language and style at the intersection of the two marks the locus of writing *(écriture)*. Hence revolutionary writing or bourgeois writing or romantic writing occur in terms of a particular language and a determinate style. And such revolutionary writing can be found equally in the times of Thomas Jefferson, Robespierre and Brecht. Though the times are radically different, even the language and style are different, the writing can be called 'the same'. Although Barthes found that different texts could be characterized in terms of these repeatable forms of writing, he was also fascinated with the new writing of Alain Robbe-Grillet. Barthes is credited with having 'discovered' Robbe-Grillet, whose style of writing is officially a radical break with the nineteenth-century novel, but whose writing itself marks the beginning of an impassionate language where the subject is decentred and the discursive proliferations are structurally identifiable. *Le Voyeur* and *La Jalousie* are excellent examples of a language

stripped of emotion—or at least emotion as described by the typical nineteenth-century omniscient author. There is still emotion, but it is described through the surfaces and the ways in which surfaces are affected.

With the 1964 publication of *Elements of Semiology* [11.7], Barthes at last linked up his critical practice with the theoretical writings of de Saussure. In this short piece, which was originally published in *Communications,* the official journal of the Ecole Pratique des Hautes Etudes en Sciences Sociales, Barthes outlines the theory of the sign: the signifier/signified relation, the *langue/parole* link, the connection between diachrony and synchrony, and the opposition between denotation and connotation. But the critical year was 1966, which saw the publication of his own *Criticism and Truth* [11.8], Lacan's *Ecrits,* [11.15] and Foucault's *The Order of Things* [11.17]. Hence over a decade after Barthes produced *Writing Degree Zero,* structuralism finally came of age. *Elements of Semiology* set the stage for that crowning moment. In his seminar at the Ecole Pratique des Hautes Etudes which I attended for the whole year in 1971–2, Barthes focused on what he called 'The Last Decade of Semiology'. He considered 1966 as the watershed year. In the following year, Jean-Luc Godard produced his revolutionary film *La Chinoise* (which prefigured the student-worker revolts of 1968) and Derrida published *Speech and Phenomena* [11.30], *Of Grammatology* [11.29], and *Writing and Difference* [11.31]. Hence by 1967, a whole new phase had begun—for lack of a more precise term it was called poststructuralism. Of course, there were still many who were committed to structuralism for another decade and many of the so-called poststructuralist theories continued to build upon the languages and lessons of structuralism.

Once the scene was set and the terminology clarified in *The Elements of Semiology* [11.7], Barthes himself began to develop his own position further. He rejected those critical theories that gave special place to the author and authorial presence. And in his famous essay 'From Work to Text' (1971 [11.10]), he outlined very clearly the distinction between the traditional notion of the 'work' and his notion of the 'text'. The 'work' *(oeuvre, opera, Werk)* results from an act of filiation: an author produces or creates a work which is then a 'fragment of substance, occupying a part of the space of books (in a library for example)'.[5] The author requires authority over the meaning of the work. And the critic seeks to understand the author's meaning. This hermeneutic concern pervades work-centred studies. And it was also a dominant feature of the Sartrian theory as well. Barthes proposes to place the emphasis on the text, which he describes as a 'methodological field'. He elaborates: 'The Text can be approached, experienced, in reaction to the sign. The work closes on a signified' (p. 158). This means that the text can be read in terms of the sign system which participates in it, while the work focuses on what is meant by it. The plurality of the text permits a full and elaborate network of intertextuality which is closed off by the work. 'The Text', he says, 'is bound to *jouissance,* that is to a pleasure without separation' (p. 164).

Two years later, Barthes published *The Pleasure of the Text* (1973, [11.11]). For Barthes, the Text is not an object of desire or even a result of a creative act. Rather the Text is a site—a locus for a reading, a place in which *jouissance* occurs. Something happens in the critical reading of a Text. The Text's network of signifying dynamic is brought out. In the Introduction to *S/Z* (1970), Barthes had already shown how the distinction between the 'readerly' *(lisible)* and 'writerly' *(scriptible)* text marks the

difference between a text which is simply read through for the pleasure of it and the text which is read as a methodological field—one in which the codes and sign systems are elaborated in detail and available for careful decoding. The 'writerly text is not a thing,' Barthes writes, 'we would have a hard time finding it in a bookstore.'[6] The 'writerly is the novelistic without the novel, poetry without the poem, the essay without the dissertation, writing without style, pro-duction without product, structuration without structure' (p. 5). The writerly occupies only a methodological and theoretical space, it is not a product like the readerly text.

In this frame, Barthes outlined five different codes which constitute what he calls 'the plural text', and the plural text is the writerly text critically disclosed. The five codes include: the semic code (the elaboration of the signifier), the hermeneutic code (disclosure of the enigma), the symbolic code (one element stands for another), the actantial code (the action code), and the reference code (the cultural indicators marked in the text). These codes are only possible codes for the reading of a text. Although Barthes does not dwell upon the alternatives, it is only plausible that alternative sets of codes function as well as those Barthes invokes.

Barthes was at his most daring when he took up an age-old topic, namely autobiography, but in a radically new way. *Roland Barthes* (1975, [11.12]) by Roland Barthes is certainly a break with the traditional diachronic mode of writing one's own life. He organizes his life not according to the succession of years, but according to the alphabetical arrangement of topics, themes and oppositions that played an important role in his life. And as to the typical chronology, that can be found in two pages at the back of the essay. Barthes should not have died so early. He was run over by a milk truck outside the Collège de France where he had been elected to the Chair of Semiology in 1977. He was only sixty-five when he died in 1980.

JACQUES LACAN

Jacques Lacan, by contrast, born in 1901 only one year after Hans-Georg Gadamer, lived to a ripe old age of eighty-one. There is a wonderful cartoon which Barthes includes in his *Roland Barthes* of Lévi-Strauss, Lacan, Barthes, Foucault and Michel Leiris all sitting together in Tahitian skirts. Although reflecting different ages, they all came together around the structuralist enterprise. Lacan provided the basis for a structural psychoanalysis. His early 1936 study of the mirror stage was first presented in Marienbad (later made famous by Robbe-Grillet in the film *Last Year at Marienbad*). Lacan's theory is rather simple: the child at first does not detect any difference between it and its mother. The sensory world around it is all integrated. It begins to notice a difference between it and the mother. This becomes clear when it looks into the mirror and sees no longer just motion or another person, but recognizes an identity between what it sees and itself. It waves an arm and the image waves its arm, etc. It notices then that the mirror image is itself. But then the father intercedes: the *nom du père/ non du père/non-dupe erre* are all forms of interdiction. The father with his name and his prohibition—after all, he is somewhat jealous of the close relationship that his child has with his wife—attempts to break the harmony, introduces a negation, his paternal law, his 'No'. The father is no

fool. He knows what he wants and he knows what he does not want. By interceding between the child and the mother, he imposes his authority, his will, his name. Now the child cannot but recognize difference. The *Verneinung* is effective. The father imposes his will and the child learns to affirm its own identity. Thus the mirror stage is the critical moment at which the child takes on an identity of its own.

The inclusion of the revised version of the 'Mirror Stage' in *Ecrits* (1966 [11.15]) correlates with a number of other essays of major importance. In 1966 there was a conference held at Johns Hopkins University subsequently entitled *The Structuralist Controversy*. While Richard Macksey and Eugenio Donato edited the volume, the leadership of René Girard was crucial. At Stanford, for instance, in the late 1960s one heard of the Johns Hopkins experiment and those professors of literature committed to an earlier model of literary study were deeply opposed to the Johns Hopkins scene. Curiously, René Girard is now Professor of Humanities at that very same Stanford University after trying out the State University of New York at Buffalo for a brief period.

Lacan was one of the speakers at the 1966 Hopkins conference. Also presenting papers were Jean Hyppolite and Jacques Derrida. It was an important moment. And Lacan's essay was no less important. His paper was entitled 'The Insistence of the Letter in the Unconscious', an essay which also appears in *Ecrits*. The question is, how does the chain of signifiers mark off and bar the range of the signified? The signified especially in the metonymic line is barred from access by the signifier. This exclusion of the signified leads to a veering off of the signifier from one sign to the next. The signified however remains unaccessible. The line between the signifier and the signified is strong and resistant. In such cases in which the signifier has no access to the signified, it must act in terms of that repression.

In the case of metaphor, there is an overdetermination of signifieds for a particular signifier. In such a case, the bar is weak and a multiplicity of meanings intrude. Throughout Lacan's account, 'the unconscious is structured like a language'. Where there is resistance in language, there would be resistance in the unconscious. But for Lacan whatever there is of an unconscious is read in terms of the play of signifiers. Repression results when the letter is unable to insist in the signified. Meaning is kept at bay. A stream of words and utterances follows but the relation to the signified is repressed. With Lacan, as later with Derrida, the self is decentred, the subject is dispersed throughout language. The language of the self is the language of the chain of signifiers. The subject *per se* remains absent.

MICHEL FOUCAULT

The theme of the absent subject is especially notable in the philosophy of Michel Foucault, who met an untimely AIDS-related death at the early age of fifty-eight. In his *magnum opus, The Order of Things (Les Mots et les choses)* [11.17] also published in 1966—the theme of the absent subject pervades not only his reading of Velázquez but also his account of the contemporary human sciences. For contemporary (poststructuralist, or what would now be called 'postmodern') thought, there is no centred origin, no unique place of focus, no present subject as there once was for the modern age.

Foucault's reading of origins is marked off by his reading of discursive practices. As he demonstrates in *The Order of Things,* history does not begin at a certain moment and then continue—in linear fashion—from then on. Rather, moments of dominance of certain discursive practices prevail for a time and are then succeeded by a new set of discursive practices. Where a discursive practice ends, a new one is about to begin. Origin then will occur where a new discursive practice starts to take place. But where and when do such new practices begin to take place? They clearly do not occur at a determined moment in time such as a date or year. Certain discursive practices pertinent to a particular epistemological space, as Foucault calls it, continue into a new epistemological space, while others die out.

But what is a discursive practice? For Foucault, a discursive practice is a whole set of documents produced within a broadly general period of time in which common themes or ideas occur across that period in a wide variety of disciplines and areas of human knowledge production. For instance, in the nineteenth century the relations between biology, economics and philology would seem to be entirely unrelated. However Foucault has shown that they all consolidate in terms of a relatively singular conceptual unity, or what Foucault calls an *epistemé*. For the broad space of the nineteenth century, Foucault identifies the theme in question with what he calls an 'anthropology', that is, the theory of 'man' as defined by the 'empirico-transcendental doublet',[7] the particular Kantian idea that empirical (objective) considerations must always be understood in connection with a transcendental (subjective) set of conditions that permeates the discursive practices of the nineteenth century. The theme of subjectivity in relation to objectivity pervades the nineteenth-century understanding of life, labour and language. Thus the discursive practices of the nineteenth century repeat themselves in a variety of contexts—all explicitly unrelated to each other. These differences then form an *epistemé*.

The *epistemé* of the nineteenth century succeeds the *epistemé* of the 'classical age'. This prior epistemological space is marked by another set of discursive practices. These include the classification of species, the analysis of wealth and natural grammar. What one would take to be entirely unrelated concerns are here brought into relation to one another in that they each exhibit features of the 'classical age' *epistemé,* namely 'representation'. As Foucault reads the general period of the seventeenth century and first half of the eighteenth century, the idea of 'representation'—the projection or postulate of ideas before the mind—formed the frame for a distinctly 'classical' way of thinking. The relation between this classical *epistemé* and the nineteenth-century *epistemé* is much less significant than the relation between the various practices at each of these respective time-slices.

The origin of the *epistemé* is not the beginning of the *epistemé*. A particular *epistemé* is marked by a certain dominance. The place where the *epistemé* dominates is the place of its origin. The place of dominance for the empirico-transcendental doublet is the place of origin within that epistemological framework. Similarly the place of dominance of *representation* in the classical age is the place of origin within that epistemological framework. However, where is this place of origin in each case? Dispersed throughout the epistemological space, the place of origin occurs wherever there is a discursive practice that exhibits it. Hence the origin is in many places: reappearing in many locations throughout the epistemological space itself. In the nineteenth century, one can

find the empirico-transcendental doublet not only in Hegel and Hölderlin but also in biologists such as Cuvier (whose 'fixism' is set off against the backdrop of human historicity), economists such as Ricardo (for whom history is a vast compensating mechanism) and philologists such as Schlegel (with his 1808 essay on the language and philosophy of the Indians), and philologists such as Grimm (most notably in the 1818 *Deutsche Grammatik*) and Bopp (whose 1816 study of the Sanskrit conjugation system became an object of study).

Each of these places constitutes itself as an origin, as a locus in which the concept of 'man' as a subject-object is brought into discourse production itself. No longer does language, for instance, operate between words and things resulting in an operation of representation. And in the nineteenth century, words are objects themselves, objects for scrutiny and study by a scientific practice that hopes to judge them and their interrelationships. Origin, then, for Foucault is not a source from which all historical events follow. Origin is not the beginning from which history begins to unfold. Origin is not the inception from which development ensues. Origin does not establish the moment before which nothing else will have occurred. Rather origin springs up in many places within a broad, general, historical time-frame. Origins occur in various discourses, scarring them with marks of a common practice that is unaware of its own commonality.

Foucault's enterprise disperses origin throughout a kind of methodological field (as Barthes would have called it). And his appeal to the English reader to ignore those 'tiny little minds that persist in calling him a structuralist', indicates that he is already beyond the mere repetition of structuralist methods. Although his own archaeology of knowledge could be characterized as largely synchronic, it also relies upon the assessment of periods or time-slices in order to compare one time-slice with another. What Foucault rejects is the necessity of a concept of continuity in favour of discontinuity. Structuralists were already concerned with a discourse of the past. Nietzsche and Mallarmé are invoked as threshold figures marking the break with the older empirico-transcendental doublet of the modern age. They mark the beginning of a new mode of thought in which dissemination, dispersal, metonymy and decentring of the subject are the dominant frames of knowledge production.

Where Sartre had announced in his 1936 *Transcendence of the Ego* that the self or ego could not be located in consciousness but is at best an object of consciousness, Foucault in 1966 places that claim in a historical context. He situates the end of the age of modernism with the end of the centred subject, the dominant self, the focal 'I'. Like Nietzsche's madman who ran through the streets proclaiming the 'death of god', Sartre had already proclaimed 'the end of man', but in a sense that would not be fully understood for another thirty years. The linguistic turn in continental philosophy took on a different shape from that in the analytic tradition. It did not fully take place until the Saussurian epistemology became the principle according to which language, culture and knowledge production would be understood. The structural analysis of kinship, totems and myths in Lévi-Strauss, the speaking subject's chain of signifiers in Lacan, the semiological analysis of text and culture in Barthes were themselves placed in context by Foucault. In this respect, Foucault is indeed already after structuralism, for he is able to situate it as a movement in a period of time. The subsequent development of Foucault's own genealogy, Derrida's deconstruction, Deleuze's nomadologies, Kristeva's

semanalysis and Lyotard's postmodernist sublimities are all themes for another story in the history of continental thought. Suffice it to say that structuralism played a critical role in offering an alternative to existential phenomenology and at the same time a complement to it. What comes after structuralism (and after the age of the modern subject) is identified by those such as Foucault who were themselves marked by both phenomenology and structuralism and who were in a position to succeed them as well.

NOTES

1 Derrida's deconstruction is left aside here for the simple reason that it is taken up in another contribution to this same volume. A portion of the discussion of Foucault is taken from H.J.Silverman, *Textualities: Between Hermeneutics and Deconstruction* (New York and London: Routledge, 1993).

2 The role of metaphor and metonymy have been subsequently linked with what Freud calls 'condensation' and 'displacement' in dream interpretation. Hence metaphor as substitution and condensation implies the replacement of a father by a big bear (for instance) in a young boy's dream, while metonymy as contiguity and displacement results in a dream about a neighbour's garden hose (for instance) instead of her passion for him. In structural political theory, developed most notably by Louis Althusser—in an essay called 'Freud and Lacan' from *Lenin and Philosophy* [11.23] metaphor is associated with overdetermination in a reading of a political text or context, while metonymy is represented as underdetermination. In making this point, Althusser is building on the account of metaphor and metonymy offered by Lacan in his famous essay 'The Insistence of the Letter in the Unconscious' (included in *Ecrits* [11.15]) and H.J.Silverman [11.72], especially the chapter on 'Merleau-Ponty on Language and Communication (1946–47)'.

3 See Maurice Merleau-Ponty, *Consciousness and the Acquisition of Language* [11.65].

4 See H.J.Silverman [11.72], esp. chapters on 'Sartre and the Structuralists' and 'Sartre versus Structuralism'.

5 R.Barthes, 'From Work to Text' [11.10], 155–64.

6 R.Barthes, *S/Z* [11.9], 5.

7 See Silverman [11.72], esp. chapter 18 on 'Foucault and the Anthropological Sleep'.

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CHAPTER 12
French feminist philosophy

De Beauvoir, Kristeva, Irigaray, Le Doeuff, Cixous

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INTRODUCTION

Although women have been active philosophers for many centuries,[1] the development of a specifically feminist viewpoint in the context of philosophy has gained credence only comparatively recently; partly as a result of more widespread debates about sexual politics in recent years, and partly as a result of social changes in the status of women. While recognizing that feminism did not spring fully formed and fully armed from the last twenty years like Athena from the brow of Zeus,[2] for reasons of brevity I will discuss in this chapter only a few of the better-known contemporary contributors to feminist philosophy, and focus particularly on those feminists whose work overlaps with or draws upon continental philosophy.

At the outset, it should be stressed that the strands of feminist thinking in relation to philosophy have been and continue to be diverse and do not necessarily present a unified point of view. Feminist thinking in relation to philosophy can take place at a number of levels and from different perspectives, and indeed this has been one of the strengths of its position(s). In general terms, it can take the form of a critique of philosophers' images of women (for example, criticisms of Schopenhauer's description of women as 'defective, trivial, silly and shortsighted',[3] or Kant's account of women as more sentimental and more 'delicate in judgment' than men).[4] It can be historical research into past women philosophers whose work may have been unjustly disregarded.[5] It can be a political critique of the organization of the discipline of philosophy, or a critique of the whole of philosophy as 'male' or 'masculine'.[6] Or it can be positive contributions to philosophy from a feminist perspective.[7] Feminist philosophy may take all or some of these approaches to be important. However, as a general guide, feminist philosophy will assume the question of sexual difference to be a philosophical issue at some level and, depending on the point of departure, produce very different ways of theorizing this question. Having said this, not all women philosophers are necessarily feminist philosophers (although there may be feminist implications in their work); for example Hannah Arendt and Simone Weil are twentieth-century thinkers whose work I will not discuss here;[8] and not all feminists accept the relevance of philosophy to their work.

Despite these qualifications, a notable amount of feminist thinking has been greatly influenced and aided by developments in recent continental philosophy, borrowing from thinkers such as Jacques Derrida, Michel Foucault, Jean-Paul Sartre and Jacques Lacan, and earlier figures such as Hegel, Freud and Heidegger.[9] Such borrowings have furnished

many different aspects of feminist approaches to questions of sexual difference, subjectivity and selfhood, ethics and epistemology. Because the above thinkers have been concerned to raise questions about the discipline of philosophy itself—for example, what they see as philosophy's tendency to organize its enquiries in particular ways around notions of truth or knowledge, the use of binary oppositions or dualisms of mind/body, spirit/matter, order/chaos and hierarchical structures, and the issues of power and politics—they have been helpful in the search for ways of theorizing sexual difference for feminists.

However, feminist theorists have also been highly critical of the above thinkers, sometimes finding their work reduplicating some of the problems they had already identified with the discipline of philosophy in general, i.e. the exclusion of women as philosophers, the use of such symbolic values as 'the feminine' to indicate chaos and plurality without considering how such values relate to women, or the tendency to speak 'on behalf of' women.[10] In other words, feminists have been concerned about the apparent loss or lack of political agency which seems to accompany critiques of identity in recent postmodernist theory. Postmodernists such as Jean Baudrillard respond that 'there is a strange, fierce complicity between the feminist movement and the order of truth'[11] and women would do better to recognize that 'woman is but appearance. And it is the feminine as appearance that thwarts masculine depth. Instead of rising up against such insulting counsel, women would do well to let themselves be seduced by its truth, for here lies the secret of their strength.'[12]

The critiques of identity which thinkers such as Derrida, Baudrillard and Gilles Deleuze advance mean that women, characteristically stereotyped as lacking agency in the past, are ironically now 'already' in an enviable position.[13] But feminists have been alarmed or suspicious of the passivity implied in such characterizations of the feminine.

Such disagreements have often been placed in the context of the modernism/postmodernism debate, where feminist theorists are seen to be holding on to notions of emancipatory Enlightenment projects and 'essentialist' notions of identity in the face of, and in opposition to, unassimilatable heterogeneity and the feminine as 'mere' surface. However, the feminist thinkers I discuss below have, I believe, a subtle and complex approach to political questions and are not easily placed into this either/or debate. In addition to raising questions of sexual difference in the context of philosophy, they also raise questions about the connection (or lack of it) between theory and practice/lived experience—women *are* the ones (amongst others) over whose heads this discussion often seems to take place, and deserve to be able to make their own contribution.

SIMONE DE BEAUVOIR

Simone de Beauvoir is perhaps the best-known feminist philosopher of the twentieth century. Her lifelong association with Jean-Paul Sartre seems to have been on the whole one of mutual intellectual inspiration and companionship.[14] De Beauvoir's work on the moral implications and the social context of existentialism, for example in her 1947 work *Pour une morale de l'ambiguité* (translated as *The Ethics of Ambiguity*)[15] was influential

upon Sartre, an influence discernible in his shift of focus from the individual consciousness in *Being and Nothingness*[16] to the more collective or situated concerns of his later work. The publication in 1949 of de Beauvoir's best-known work, *The Second Sex,*[17] continued her interest in these themes, a work which provoked reviewers to express outrage at a book which was seen to herald the breakdown of social relations. However, given that de Gaulle had granted French women the vote only five years earlier, the radical impact of this book should not be underestimated.

T*he Second Sex* is a rich and complex work which draws upon literature, myth and religion, theories of biology, accounts of social and economic development (Marxism and psychoanalysis), but also existentialist philosophy. De Beauvoir's aim is to address the question 'What is a woman?'[18] It is because her painstaking analysis uncovers and addresses the nature of the oppression and exclusion of women that it has been significant in the history of feminist thought. But de Beauvoir is also responsible for the promotion of questions of sexual difference on to the philosophical agenda, and for probing questions about the social context of the existentially free individual. Sartre, Merleau-Ponty and other existentialist thinkers agreed that sexuality was an issue that had been largely disregarded in philosophy, but de Beauvoir's work most insistently asks questions of the relevance of sexual difference to philosophical notions of identity, an insistence Michèle Le Doeuff has called 'a characteristic genius for the inappropriate'.[19] De Beauvoir points out that sexuality is not just 'added on' to human beings but plays a fundamental role in the meaning of an individual's existence: that we are 'embodied'.

However, she rejects the accounts of sexual difference which subscribe to an 'essential' notion of identity, whether this is found in the biological differentiation of the sexes (male/female) or in the 'eternal feminine', an ideal 'essence' of feminine qualities.[20] She rejects these accounts first because she sees individuals as dynamic, engaged in struggles towards freedom, and second because she fears that to suggest an 'essential' nature of woman will allow women to be imprisoned back in the problematic identity of the oppressed. This identity is unacceptable for ideals of existential freedom, and for feminist claims that women should have equal opportunities to engage freely in projects in the world. Her overwhelming historical evidence points to the fact that, in general, men possess such freedom and women do not.

De Beauvoir takes up the concerns of existentialist thinking with the freedom of the individual, the capacity of the individual to make choices and the conflicts which arise between individuals in the context of social relations. She claims that *The Second Sex* is 'an existentialist ethics',[21] and hence agrees with Sartre about the need for individuals 'to engage in freely chosen projects'.[22] The Sartrean individual, striving to maximize freedom, becomes aware that he or she exists as an object in the consciousness of others, a compromising objectification for an individual striving towards freedom. Individuals may become locked into opposing the determinations that others, with their own projects and their capacity to objectify an individual, present. This means that social relations are inherently conflictual, basically relations of dominance and submission. For de Beauvoir, it is important that freedom be maintained as an open horizon, since this is what gives meaning to an individual's existence. However, she immediately questions the apparent neutrality of the individual and the equal starting point of human freedom and autonomy that existentialist individuals are supposed to possess. She points out that, rather than

beginning from a neutral and autonomous point, women are already in the position of the determined and objectified, as the Other. 'She is defined and differentiated with reference to man and he not with reference to her; she is the incidental, the inessential as opposed to the essential. He is the Subject, he is the Absolute—she is the Other.'[23]

The freedom of the existential individual is immediately compro-mised by the socially constructed roles for men and women; rather than various neutral possibilities presented to equal individuals, women are unable to exercise their freedom, because they inherit a pre-given set of assumptions shaping the range of possibilities available to them.

This seems to suggest that women are doomed to be inauthentic because of their sex, if inauthenticity is the failure to maximize one's freedom. Women are in the position of being the second sex. Their existence is constantly conflated with their gender in a way that men's is not, and they seem to be more confined to being bodies or objects.

De Beauvoir accepts that biology plays an important part in one's identity (we live our bodies), but argues that it cannot be used to determine one's destiny. Women's role in reproduction has caused her to be exclusively identified with this role, but with adequate social changes such as childcare and medical advances, there is no reason why reproduction should limit a woman's capacity for freedom. The problem with a biological account of sexual difference, she argues, is that it may attribute essences to men and women, splitting human beings into two types or essential identities.[24] There may be perceptible differences (in physical strength for example), but there is no intrinsic reason why strength should be given a superior value. Such values depend on social context, and are therefore open to revision.

De Beauvoir may wish to dissociate herself from the 'biology is destiny' position, but she often seems to come close to rejecting biology altogether. If women are restrictively defined as 'mere' bodies or as mothers then such restrictions must be overcome, to ensure that women are able to realize their choices consciously. But de Beauvoir does not always consider the extent to which she may be echoing a misogynistic distaste for the female body in trying to overturn such determinations. 'It has been well said that women have "infirmity in the abdomen", and it is true that they have within them a hostile element—it is the species gnawing at their vitals.'[25]

These aspects of her argument are an attempt to escape from essentialism or biologism and to affirm the demand for self-determination. But de Beauvoir has also argued that women's own experience is important and should be validated, even if such experience is of a less independent nature than men's. After sex, she suggests, men are free to take up their individuality once again, whereas women feel themselves to be more 'connected' to biology and more embodied, with responsibility for reproduction within themselves—an experience of their own 'immanence'.[26] De Beauvoir's commitment to projects of transcendence and freedom on the one hand, and her argument that women are more immanently 'in' their bodies on the other, seems to suggest that women are placed in the impossible position of having to transcend their own bodies. It suggests that if women do not seektranscendence they are 'inauthentic' or guilty of bad faith, but if they do seek transcendence it will be a project of self-defeat, an attempt to escape from the immanent realm which is 'feminine'.[27] This contradiction has led some feminists to interpret de Beauvoir either as essentialist or as suggesting that sexual identity is culturally constructed. In fact she seems to be in both positions, and the tension here can be

interpreted as part of the contradictions in her existentialist framework.

In keeping with her initial socialist perspective on oppression, de Beauvoir does seem to locate inequalities between the sexes in a social or cultural context. Such declarations as 'One is not born a woman, one becomes one'[28] or 'the body is not a thing, it is a situation'[29] would tend to support this interpretation. Her concern is to ensure that inequalities can be diagnosed, and so combated, at this level. She refuses to accept that any biological or essentialist reason could be given to prevent women overcoming their 'secondary' position. Sheer effort of will, the widespread recognition of women's freedom and choices (which must also be recognized by men) and the fuller availability of choices will bring about greater equality of the sexes. This uncompromising stance often leads her to be stern about the efforts women must make to transcend determination for themselves, in effect to 'stop colluding' in becoming the other for men. Her objective is to galvanize women into asserting their autonomy and formulating projects which will allow them to develop their own identity. She has been criticized for apparently suggesting that it is only if women become more like men that equality will be attained, partly because the kinds of projects she values as important are derived from a framework which itself could still be described as masculine—emphasizing fewer domestic ties, the need for recognized (and paid) labour, perhaps specifically the work of individual creative artists. However, she does suggest that even complete equality in this sphere would not cancel out all differences between the sexes, and women would still maintain a specific understanding of their own sexuality.[30]

AFTER DE BEAUVOIR

The increasingly complex account of otherness that feminist theory in France has developed owes a clear debt to de Beauvoir's analysis of Woman as Other. Feminists have sought to combine the forceful political critique provided by drawing attention to sexual difference, with an analysis of identity drawn from developments in poststructuralist and psychoanalytic theory. Such an analysis draws attention to the self's vulnerability to the displacing effects of desire, as well as to the socially and culturally constructed nature of identity, implicating systems of language and meaning in such a critique.[31]

Rather than situating projects for change and emancipation within existing political and cultural practices, many feminists have subjected such practices to a sustained critique, asking questions about the very constitution of meaning and the concepts of power and politics as such. Whereas de Beauvoir stressed the strong will and self-control required in struggling for equality and autonomy, subsequent theories have raised questions about the very nature of equality and the extent to which such self-control can be practised. In this respect, feminist critiques of identity as rational or masculine coincide with psychoanalytic theory regarding the displacement of consciousness by forces which call into question the epistemological privilege of the subject. Such forces are seen as all-pervasive and unsettling, manifest in systems of representation and language and are understood as corresponding linguistically to the processes of desire. This theory, shaped in part by Lacan's work in structuralism and psychoanalysis, looks at difference as a

relation operating not only intersubjectively between self and other, but also as sets of relations of differences within the very systems of signification which order and create meaning. This expanded version of difference means that apparently unified or singular terms are seen to operate by processes of exclusion or suppression, occluding their relation to, or reliance upon, other terms. Discrete or autonomous identities are shown to be disrupted or undermined by 'otherness' and concepts such as 'truth' or 'knowledge' are put into question.

Hence the maintenance of identity as rational and autonomous and the notion of truth as objective and independent are viewed as a defence of territory by the exclusion of that which is other. Anything which lies outside the 'normal' circuits of knowledge or identity gets classified as madness, chaos, darkness or ignorance, and the borders between the two realms are characterized as the site of constant power struggles. Many thinkers also draw attention to a symbolic equation between the excluded otherness and the feminine. Whether this connection is made explicitly or implicitly, the feminine as otherness is seen as multiple, dissembling and excluded, yet capable of disrupting limits and disturbing the status quo.

Thus a connection is established between sexual difference (male/ female or masculine/feminine) and polarized oppositions such as self/ other, knowledge/ignorance, spirit/body. De Beauvoir makes it possible to draw these parallels from a feminist viewpoint, and to politicize the hierarchical arrangement of such oppositions. Apparent neutrality is thus opened up for analysis as an imbalance of power. But de Beauvoir retains her existentialist/humanist framework when discussing a possible feminist practice, whereas other feminist thinkers take up thecritique of the humanist subject as besieged and intersected by unruly forces of desire and structures of power. Thinkers such as Julia Kristeva, Hélène Cixous or Luce Irigaray are influenced by understandings of otherness inherited from Hegel, Sartre and Heidegger, as well as by Derrida's account of western thinking as phallo-logo-centric, unduly centred on a particular account of truth which is infused with masculine values, and Foucault's analyses of the connections between power and knowledge. They are also influenced by Lacanian theory concerning sexuality, language and identity.[32]

Psychoanalytic theory has proved useful to feminist theory, in that it can show the extent to which identity and sexuality are constructed by conflicting and quasi-deterministic forces, as well as indicating the penetration of such forces to psychic structures.[33] At the same time there is an acknowledgement of the implicitly sexual nature of structures and economies which are ostensibly neutral. Hence on one level it provides a generalizable account of identity construction, cross-culturally and trans-historically. Despite the danger of universalizing identity which such an analysis courts, it does give a certain force to the analysis of sexual difference: the dominant structures which divide sexuality into two essential types may need to be challenged and addressed at precisely this level. However, the determinism implied by such internalized constructions is offset somewhat by the notion of the unconscious. The unconscious can act as a constant reminder of the overall failure of the internalization process: 'a resistance to identity at the very heart of psychic life',[34] as Jacqueline Rose puts it. The splits, forcings and divisions of psychic life place pressure against the notion of coherent identity, a widespread replay of an incomplete adjustment to the norm. This moment of

failure, negativity, fluidity or formlessness is symbolically bound up with the feminine. As Rose suggests, feminists may recognize certain similarities with their own projects—a 'symbolic failure to adjust to normality'[35] and the resistance this implies.

Lacan suggests that the whole social and cultural context of meaning, the Symbolic Order, is premised on a suppression or repression of the symbolically feminine/maternal. Symbolically otherness stands as excessive, ex-centric and ecstatic, beyond or outside the dominant order of meanings, which allows Lacan to state 'the woman does not exist'.[36] Whether this is the pre-Oedipal mother or the quintessentially feminine, the Ideal woman or the dark absence of negativity, it is the process by which such a realm is designated as Other or otherness which allows the dominant meanings to retain their hold on truth, singularity and power, although paradoxically such otherness is the hidden ground or unacknowledged axis of such an economy.

In its very construction the Lacanian framework is emphatically unfeminist. Nevertheless, Lacan accords women, or the feminine, a kind of power, the possibility of disrupting signifying systems, albeit without the agency to do anything other than constantly disrupt, efface, move on. 'I believe in the jouissance of the woman in so far as it is something more, on condition that you screen off that *something more* until I have properly explained it.'[37] The force of feminist theory influenced by Lacan may be understood as a kind of 'return of the repressed'.[38] The unnameable and unrepresentable feminine jouissance Lacan has proscribed is taken up as the power of disruption and destabilization, and works to unsettle fixation, particularly in the realm of sexual stereotypes.

JULIA KRISTEVA

The interdisciplinary nature of Julia Kristeva's work, drawing from linguistic theory, Marxism, philosophy and psychoanalysis, makes her a versatile and wide-ranging thinker. She sees herself as a cultural critic and analyst rather than particularly as a feminist thinker, although many feminists see potentials in her work for developing critiques of western thinking and for understanding problems of identity, and she certainly deals with questions about 'the feminine', cultural representations of figures such as 'the mother', or topics such as Chinese women. Coming to Paris from Bulgaria in the mid-1960s, she brought with her a mixture of left-wing politics and an approach to literary criticism influenced by Russian formalism: in brief, a materialist approach to signification and social structures, tempered by her commitment to aesthetic and cultural practices and her desire to change oppressive conditions.[39] The common themes running through her work are an interest in language, politics and sexual identity, themes initially broached in her doctoral thesis *Revolution in Poetic Language* (1974),[40] where she attempts to develop a theory of identity formation in the context of Lacanian psychoanalysis and structuralism. Her main concern in this book is to understand the structuring effects of language without relinquishing the creative, poetic and marginal aspects. She then links her theory to a political account of marginalized but revolutionary forces, exemplified in the figure of the avant-garde poet.

Through a complex intersection of theoretical perspectives, Kristeva develops her

account of the material/linguistic forces which constantly disrupt identity, but are still located within the corporeal body. She suggests that identity is forged in a precarious and dynamic relation between various positionalities which can be taken up according to the social and cultural meanings in the Symbolic, and a force of negativity which is persistently engaged in undermining such positions. Her analysis has proved intriguing for many feminist theorists for a number ofreasons. First, she emphasizes the critique of identity as a fixed or essential notion. Second, she identifies the constructed nature of meaning and sexuality, and the determining or restrictive effect which existing definitions, stereotypes and cultural roles can have in shaping identity. Third, she identifies a transgressive force which, if activated, can have a disruptive or revolutionizing effect on the social/cultural context in question. Her account of 'the subject-in-process'[41] analyses the cost involved in subject formation, but it also hints at ways of subverting the dominant forms of understanding sexual difference. For feminist theorists, she seems to negotiate essentialism on the one hand by suggesting that subject 'positions' are being created and destroyed in the ongoing dialectic of signification, and yet she refuses to diffuse subjectivity into merely an effect of language.

For Kristeva, Lacan's 'return to Freud' (his reworking of Freud)[42] is important in that it shifts the focus from biology to a linguistic shaping of sexuality and identity. This shift, she thinks, will allow for a different way of understanding identity. If sexual difference is implicated in the conceptual framework itself, Kristeva's characterization of language as a shifting process of the production and decay of meaning allows her a potential for mobility on the question of identity formation. The Freudian focus on a visible/biological structure seems very limiting in the light of the fluid freeing of sexual difference into the Symbolic arena (many potential positionalities or social roles to be fulfilled). But in some ways all that has happened is a shifting of the terms of formation. Lacan's point that a framework of cultural reference is the only place from which any account of sexual difference can be produced, is meant to negate any simplistic biological starting point. Now that difference is seen as being produced by systems of meaning, there is no direct access to a pure biological understanding of physical bodies, since it would be impossible to recognize such bodies outside of the system of meaning. This is the basis of the development of the imaginary, the realm which severs full cognisance of the body and renders its relation metaphorical or 'morphological'. If identity is seen as *structuration* rather than as psycho-physical development through time, the issue shifts from questions of anatomical difference (at what point in development do differences appear?) to questions as to what such differences *mean* within the symbolic, and the extent to which they are open to subversion. But because Lacan denies any access to an 'other' realm, for him there can only be the conceptions of sexual difference which already exist, but which are inherently 'masculine' (because created in the Symbolic).[43]

For Lacan, the primary relation with the mother's body, which he had characterized as fluid and plural, the realm of unmediated jouissance, was what had to be overcome so that identity could be established. Successfully relinquishing this realm of non-separation allows for successful entry into the Symbolic and identification with the masculine or patriarchal values of social/cultural meaning. The price to be paid for attaining linguistic competence and a place in the Symbolic is the loss of the blissful, unselfconscious pleasure before the entry into language. However, Kristeva argues that the overcoming of

this 'other' realm can never be wholly successful, and it will continue to break through or irrupt into the Symbolic Order, where its effects will be felt bodily as pleasurable disturbances. Symbolically, such disruptions will connote the pre-Oedipal and the feminine.

The focus of Kristeva's work on femininity is governed by this understanding. If the structuration of identity is at the level of language, but this process is constantly invaded by the 'language' of the other realm, then its stability is called into question. Perhaps by insisting upon the disruptive rather than the constitutive elements of language, a sufficiently transgressive notion of the subject can be produced to allow it to reformulate itself, 'more or less' masculine or feminine?

Kristeva is critical of theorists who focus on language as a homogeneous, logical system with internal coherence. It would seem she has in mind the prioritizing of communication, consensus and competence she finds in the work of Saussure and Chomsky and in Lacan's symbolic. In contrast, Kristeva focuses on the 'edges' of language, the points at which language appears to break down: the 'pathologies' of madness and schizophrenia, the hermetic and difficult poetries of the avant-garde, and the 'hysteria' of women. She theorizes these aspects in a different way from other linguists, who had seen these forms of language as continuous with conventional signification, but less successful. If the formal practice of language uses is emphasized, these deviant practices are judged according to their conformity or deliberate flouting of the rules. Structuralist linguists minimized reference to 'subjective' elements. Kristeva seeks to identify a connection, but, as she makes clear, it is a productive and dynamic relation she is interested in, not a relation of stasis or a revival of a humanist subject.

Focusing on rhythm, repetition, elision and displacement reinforces a notion of the subject-in-process, rather than an ideal enunciator, since it concerns the apparent failures rather than the successes of the struggle to maintain a coherent identity. It is also indicating the points at which the 'other' realm is discernible through its effects.

Kristeva's notions of 'the semiotic' and the *'chora'* present an attempt to theorize this untheorizable, pre-discursive realm which is described in terms of 'space' or a locus to avoid pinning it to a stage of development. She writes of the semiotic as a kind of primordial writing or signifying of the body, although this is not strictly an accurate description, since it is concerned with 'the body of a subject who is not yet constituted as such'.[44] Still, this pre-signifying signification is a textuality of the body which is more experiential than meaningful. 'We understand the term semiotic in its Greek sense; σημεῖσν=distinctive mark, trace, index, precursory sign, proof engraved or written sign, imprint, trace, figuration.'[45] It is an ordering of energies which initiates the inscription and conditions for representation. Hypothesized as both the material rhythms and forces underlying the possibility of textuality, and the imprinting of psychical energies to connect sensation to movement, it acts as a preparation for entry into language. This space is as yet undifferentiated but it cannot be described as homogeneous, shot through with 'psychical marks' and in a state of motility. Kristeva names it as 'the *chora*…an essentially mobile and extremely provisional articulation constituted by movements and their ephemeral stases'.[46]

That this notion is positioned 'prior' to signification should not be taken to indicate a necessary chronology in time, since this realm is symbolically 'other' to temporal order

as well as topographical space. Therefore although it is given an apparently archaic and originary status, it does not constitute a reified origin divided from the subject in the symbolic. This would replicate a duality which Kristeva is concerned to resist; the terms are not equal and the notion of origin is reconstructed only in retrospect from positions already in language. In fact, Kristeva is explicitly critical of Lacan for making the repression of the mother the condition of subjectivity. As she draws attention to the symbolic connection of the *chora* with feminine or maternal notions, she is taking up pre-figured connections which identify the notion of an origin with a primordial mother: 'This place which has no thesis and no position, the process by which significance is constituted. Plato himself leads us to such a process when he call this receptacle or chora nourishing or maternal.'[47] However, the semiotic is in one important sense opposed to the Symbolic: it is a site of resistance and disruption against which the organization of the Symbolic is to be compared. Kristeva takes up the equation of otherness with the feminine or maternal, in order to demonstrate the sacrificial process involved in identity construction, and to suggest how the inherent violence might be made less painful or channelled in more creative ways.

Despite the alignment of otherness and the feminine, for Kristeva it does not constitute an alternative identity for women, nor does it allow a specifically female or feminine language. However, there are ways of maximizing its disruptive effects in order to combat the restrictive impact of the Symbolic. The figures of the avant-garde poet and the political dissident are focal points in Kristeva's earlier work, while later on she considers women as potential disruptive figures.

> What the father doesn't say about the unconscious, what sign and time repress in their impulses, appears as their *truth* (if there is no absolute, what is truth, if not the unspoken of the spoken?) and this truth can be imagined only as a woman. A curious truth: outside time, with neither past nor future, neither true nor false; buried underground, it neither postulates nor judges. It refuses, displaces, breaks the symbolic order before it can re-establish itself.[48]

Kristeva suggests three ways in which this curious truth may be understood: 'Jouissance, pregnancy, and marginal speech: the means by which this "truth", cloaked and hidden by the symbolic order and its companion, time, functions through women'.[49] Here Kristeva is linking 'a vigilance, call it ethical',[50] with the figuration of the feminine and the maternal as 'other'. It is a critical and disruptive kind of ethicality, linked to a capacity to resist the fixation of subjectivity and to remain critical, but also seeking a means to express such 'otherness'.

> To refuse all roles, in order, on the contrary, to summon this timeless 'truth'—formless, neither true nor false, echo of our jouissance, of our madness, of our pregnancies—into the order of speech and social symbolism. But how? By listening; by recognising the unspoken in speech; by calling attention at all times to whatever remains unsatisfied, repressed, new, eccentric, incomprehensible, disturbing the status quo.[51]

Here she seems to be suggesting that the location of ethicality is no longer adequately situated in the reformulation and attempted perfection of codes of behaviour, rules and laws. Unless the disruptive traces of the subject, constantly being rewritten in its processes, can also be accounted for, these projects are destined to keep retreading the same ground. The constant transgression and renewal of positioning in relation to the process of signification leads to the possibility of new practices, forged at the very boundaries of thinking.

Kristeva finds in maternity the metaphoric expression of the above boundary location of ethicality, which is given the force of subversion but still embodied. Maternity connotes a possible irruption and interruption of the Symbolic, centrally placed, yet disruptive, a disturbance between stasis and dynamism, cyclical/monumental time and discursive/grammatical time. In her essay 'Stabat Mater',[52] the poetic, left-hand (sinister?) 'other' side of the text irrupts into the historical and chronological mapping of motherhood. Textually this corresponds to a writing of the metaphoric mother, positioned as a body in signification and yet already split, separated, pleasuring; 'the heterogeneity not subsumed under any law'. A space is opened for different subjective possibilities, yet retaining the specificity of women. This 'heretical ethics' (her-ethics) is based not upon avoiding the law, but upon enriching it. 'Now, if a contemporary ethics is no longer seen as being the same as morality; if ethics amounts to not avoiding the embarrassing and inevitable problematics of the law but giving it flesh, language, jouissance—in that case its reformulation demands the contribution of women.'[53] A similar position is taken in Kristeva's analysis of the role of the Virgin Mary. In 'Stabat Mater' she draws heavily upon Marina Warner's book *Alone of All Her Sex; the Myth and Cult of the Virgin Mary*[54] to indicate how the Virgin Mary becomes a symbolic axis of the conjunction between hebraic and hellenic; and as a conjunction between virginity and maternity. As a moment of undecidability, the figure presents a potential site of ambivalence, for the two traditions as well as for understandings of women. There is a potential disruption of the Greek logos and Jewish monotheism in the presence of a divine feminine figure, central to religion but neither one thing nor another. But this dangerous ambivalence is conscripted for control and synthesis, in that the virginal aspect becomes a pure and holy asceticism, and maternity becomes the continuity of the community via reproduction. The freezing of undecidability sets up an ideal, fusing with the existing ideal of virginity in courtly love and the ideal of devoted maternal love. The impossible totality of the virgin mother is not only disseminated within patriarchal cultures but becomes the prototype for western love relations. In Kristeva's terms, the dangerous moment of rupture is contained by erasing jouissance, in virginity, and channelling it, in maternal reproduction, to sustain the deathless ideal of the masculine, whether this is the law, the community or the subject.

This maternal figure, the epitome of romantic sentimentality and utterly serene icon, ideal and untroubled, functions as a sublimating vessel for various cultures. And yet Kristeva indicates that its 'cleverly balanced architecture today appears to be crumbling', the 'psychotic sore of modernity' is 'the incapacity of contemporary codes to tame the maternal'.[55] Thus it reveals that which it cannot contain even in trying to cover over this slippage.

Despite Kristeva's characterization of the subject as 'an open system', I don't think she

is committed to the denial of sexual difference or the 'erasure' of the subject. However, she does argue that the positionality which may lead to a metaphysical hypostatization of identity is to be found in feminist discourse too. This is perhaps what leads her to be unnecessarily harsh on the variety of feminist positions which do not coincide with her own; a fear of the reintroduction of the essentialist subject which has led women to 'sacrifice or violence'. If this is a challenge to feminist theory, is it the kind of critique which feminist theory needs? Many feminist writers on Kristeva find her attacks on feminism uncomfortable, especially when they seem to emanate from an apparently powerful position as the 'queen of theory'. But on occasion her work is compatible with feminist approaches to the body, offering a potential rethinking of corporeality in keeping with a radical perspective on difference. As Rosi Braidotti puts it:

> the body thus defined cannot be reduced to the biological, nor can it be confined to social conditioning. In a new form of 'corporeal materialism', the body is seen as an inter-face, a threshold, a field of intersection of material and symbolic forces; it is a surface where multiple codes of power and knowledge are inscribed; it is a construction that transforms and capitalises on energies of a heteronomous and discontinuous nature. The body is not an essence, and therefore not an anatomical destiny.[56]

LUCE IRIGARAY

Like Kristeva, Irigaray has a background in linguistics, psychoanalysis, philosophy and feminist theory, and is currently practising therapy or analysis. However, she takes a set of premises very different from Kristeva's from these areas, and produces markedly different conclusions.

Born in 1930 in Belgium, Luce Irigaray began her work with research into psycholinguistics, specifically the language of patients diagnosed schizophrenic or suffering from senile dementia (see some of the essays in *Speaking/Language is Never Neutral/Neuter* first published in 1986).[57] Her conclusions concerning the loss or lack of identity of such patients who seem 'overwhelmed' by language led her to draw comparisons with the position of women in relation to language. In the process of the analytic session, understood as a dialogue between two speakers, Irigaray noted a number of factors which continue to be important throughout her work. First, the emergence of identity formulated as possible positions in such locutionary exchanges. Second, the differences (specifically sexual difference) dramatized or enacted in speech. Third, the points at which grammatical formulations of language begin to break down, and the experience of speakers caught in this position. Her focus is the vulnerability of subjectivity and the attempts to secure a place for it against the destructive technologization of communication in the present age. However, her concern is not the resurrection of a humanist subject but a critique of the language and thinking which presents itself as neutral or neuter.

Irigaray combines this research with her understanding of Lacanian psychoanalysis and structuralism concerning the construction of identity, to throw light on what she sees as a

sacrificial culture and the position of women in such a culture. One of her concerns, which has been extensively misinterpreted, is her attempt to develop an alternative strategy to allow 'feminine identity' to take (a) place. Although she has often been understood to be positing a language of the female body, the level of her intervention is markedly that of cultural and social formations. She does suggest that the dominant form of discourse has been 'isomorphic' with masculine sexuality, and it is this relation which has been difficult to understand or translate. It is not simply a representational model but a relation itself to be understood as metaphoric or metonymic. If this relation has dominated in the past, perhaps there could be a form of discourse which has morphological suggestions of images of the female body? It is this 'hypothetical' style she deploys in the essay *This Sex Which is Not One*' (first published in 1977),[58] and which has led to the assumption that she is 'writing the body'. Rather, it appears that this stylistic deployment is a strategic intervention in what she feels has been a monologic or 'phallo-logo-centric' approach to questions of sexuality and language. In her later work it appears that she is concerned more with existing social formations and linguistic practices than with developing a completely alternative female language, and her recent empirical studies into language use and sexual difference would seem, with hindsight, to support this analysis of her early writings. However, this does not lessen her attempts to restore, or rather to create, a less damaged and damaging understanding of sexual difference.

At the beginning of her book *The Ethics of Sexual Difference,* (first published in 1984),[59] she states her belief that sexual difference is the burning issue of our age, the issue of difference which potentially could be 'our salvation on an intellectual level…the production of a new age of thought, art, poetry and language; the creation of a new *poetics*'. However, she suggests that the development of this event is hampered and constrained by the systematic repetition of sameness being compulsively reiterated in the spheres of philosophy, politics, religion and science. This repetition, or reworking of the same ground, is evident in many contexts, which Irigaray lists as 'the consumer society, the circular nature of discourse, the more or less cancerous diseases of our age, the unreliable nature of words, the end of philosophy, religious despair or the regressive return to religion, scientistic imperialism or a technique that does not take the human subject into account, and so on'.[60] According to Irigaray, this repetition works to conceal or efface a possible way of articulating otherness. This articulation, she thinks, can best take place in the context of questions of sexual difference. Apart from the explicit feminist perspective, her reasons for privileging sexual difference lie in her specific appropriation of psychoanalytic discourse, particularly the work of Lacan. Despite her use of a psychoanalytic framework, her work is also a strategic departure from it, or an attempt to subvert it from within. She suggests that psychoanalysis has enabled a theoretical treatment of sexuality and identity to take place via the (generalizable) analysis of forms of patriarchal identity as constructions. Her focus on the *constructed* nature of such notions as identity, philosophical discourse and its concepts has a number of implications. She is able to diagnose a bias running through the history of such notions and to point to the permeation of such forces to psychic levels. She is also able to conduct a sustained critique of the damaging nature of such constructions as exclusion or suppression. She thus sees her work as 'jamming the machinery'[61] of western theory, a

process of analysing and uncovering the fantasies, projections and repressions which are taken to be normal or necessary. The nature of this work is extensive and radical.

> For the work of sexual difference to take place, a revolution in thought and ethics is needed. We must re-interpret the whole relationship between the subject and discourse, the subject and the world, the subject and the cosmic, the microcosmic and the macrocosmic…. In order to think and live through this difference, we must reconsider the whole question of space and time.[62]

If such apparently foundational notions are shown to be constructions, then there is a possibility that they may be modified or changed in the future. For Irigaray, the usefulness of psychoanalytic theory rests in some part on its capacity to analyse the symbolism of masculine and feminine as a pair of terms which pervade wide and various sets of relations, such that the symbolization becomes tangled up in the very process of conceptualization. The common oppositions of the Pythagorean table of opposites become aligned with a symbolic interpretation of anatomical difference, and, significantly, the unified, non-contradictory and homogenous terms come to dominate. Across a range of systems and at different levels, exclusion and censorship operate to prioritize the masculine term at the expense of the feminine, such that the very operation itself is obscured from view. The status quo is maintained at the price of a peculiar violence—the exclusion of the feminine, or its characterization as object, matter, inferior term. As regards subjectivity, masculine/feminine forces or values may become aligned with male and female sexes, but, she suggests, the very notion of subjectivity itself has 'already been appropriated to the masculine', despite the way that such a notion is presented as neutral. It is because such structures are built upon repression and denial that inevitably the tension of maintaining such a territory begins to show and the cracks, failures and breakdowns indicate the spaces through which the potentiality of the feminine may begin to be built. It is through her under-standing and seizure of a certain *lack* of synchronization, therefore, that Irigaray situates her project.

Irigaray's engagement with philosophy has been extensive. If she sees philosophical discourse as 'the master discourse…the discourse on discourses'[63]—adding, 'the philosophical order is indeed the one that has to be questioned, and disturbed, inasmuch as it covers over sexual difference[64]—she has also identified philosophy's resources as crucial in reinterpreting questions of sexual difference. She sees her focus as philosophical, but her work is a dramatic testimony to the ambivalence she feels as a woman in philosophy, and as such displays an equivocation between her critique of philosophy and her more positive reconstructions of female subjectivity.

In the context of philosophy, she announces her desire to 'have a fling with the philosophers',[65] paradoxically to indicate the seriousness of her engagement with philosophical questions. This means 'going back through the male imaginary', and gives rise to 'the necessity of "reopening" the figures of philosophical discourse—idea, substance, subject, transcendental subjectivity, absolute knowledge—in order to pry out of them what they have borrowed that is feminine, from the feminine, to make them "render up" and give back what they owe the feminine.'[66]

She means to be as intimate and familiar with philosophical history as possible, but

also to challenge it from the position of a woman; that is, one who is symbolically positioned outside or other to philosophy, one who can only 'flirt' with ideas, or conversely, deflate them by being too playful, refusing to take them seriously. This positioning allows Irigaray to follow through some of the main canonical texts of western philosophy; in *Speculum of the Other Woman* (first published in 1974), she takes on Plato, Aristotle, Meister Eckhart, Descartes, Hegel, Spinoza, Plotinus, Kant, Marx, Freud, and in *The Ethics of Sexual Difference* she adds Hegel, Merleau-Ponty and Levinas, while other texts deal with Nietzsche and Heidegger, for example,[67] reconstructing their logic carefully in order to show how it interrupts itself. What she calls 'the blind spot in an old dream of symmetry',[68] the hidden assumption so necessary to the symmetry and so necessarily hidden, will entail analysing philosophy's unconscious.

For Irigaray, what is repressed is 'the feminine', that which allows philosophy to get off the ground, but must remain essentially unspoken, as the ground. The negativity of symbolically occupying this groundless ground constantly places women in an impossible position. As primal matter or 'mother-matter', the feminine or maternal acts an archaic past, the 'nature' placed in opposition to culture. 'The mother-woman remains the place separated from its "own place", a place deprived of a place of its own. She is, or ceaselessly becomes, the place of the other who cannot separate himself from it.'[69] One of Irigaray's concerns is to explore the suppressed or superseded nature of this element or 'the elemental' space, partly to remind philosophy of its debt to this unexplored 'pre-rational' world-view and partly to try to develop a vocabulary which could articulate this otherness. Irigaray writes: 'I wanted to go back to this natural material which makes up our bodies, in which our lives and our environment are grounded; the flesh of our passions.'[70] Her 'elemental' texts deal with air, earth, water and fire, her 're-invention' of the material origins of philosophical thinking and its elision with maternal or feminine symbolism (for example in *Marine Lover of Friedrich Nietzsche* (first published in 1980) she shows a certain aversion in Nietzsche's writing to water, which is symbolically feminine). In trying to imagine this 'other region' she employs a strategic syntactical style, an interplay of weaving in the writing of the body as she had expressed it—multiplicity and plurality, with frequent changes of tense, and questions disurpting her work and interrupting whichever position she was speaking from. Speaking (as) woman is a tactical means of restoring specificity to a non-specific discourse, and also corresponds to her aim to put the philosophical subject back into a material context—the body and the materiality of its surroundings.

Irigaray's strategy in reading these canonical texts is to imitate their movements, a mimicry which is, in its very exaggerated miming, in excess of the limits and definitions which had been set.

> There is in an initial phase, perhaps only one 'path', the one historically assigned to the feminine: that of mimicry. One must assume the feminine role deliberately. Which means already to convert a form of subordination into an affirmation and thus to begin to thwart it.… To play with mimesis is thus, for a woman, to try to recover the place of her exploitation by discourse, without allowing herself to be simply reduced to it.[71]

Her strategy of mimicry is directly related to the notion of 'mirroring' which runs throughout her texts. This notion is part of a complex set of interwoven strands which explore the preoccupation of western thinking with accurate 'reflection', illumination, and clarity. Not only do metaphors of the 'ocular' and 'specular' seem to dominate, but, she suggests, they are essential for the establishing of the self-reflexive subject, and the apparent autonomy of the philosopher. The narcissism of the subject that results is, for Irigaray, part of the logic of 'the same'. However, she also suggests that the speculations which privilege this version of the epistemological subject are based upon a (hidden) reliance upon women or the feminine to act as a mirror for such a subject, at the expense of their own identity. Women are either frozeninto static representations dictated by the logic of the same, or they are positioned wholly outside the system as a conceptual 'black hole'; the elsewhere and otherwise without a status of its own. In *Speculum* Irigaray suggests equivalencies with Freud's dark continent or Plato's cave, the exploration of which is deemed essential and yet produces, according to Irigaray, theory still caught within its own expectations, more of the same. In order to broach the question of sexual difference, Irigaray produces a critique of the 'flat mirror' of 'the processes of specula (riza)tion that subtend our social and cultural organisations'[72] and suggests, through such a critique, another mode of approach which will allow for feminine subjectivity: '*a curved mirror,* but also one that is *folded back on itself,* with its impossible appropriation "on the inside" of the mind, of thought, of subjectivity. Whence the *intervention of the speculum and the concave mirror,* which disturb the staging of representation.'[73] If mimesis is no longer direct and accurate 'reflection', then the distorting mirror in which women have been confined can throw back 'disturbed' and disturbing reflections, thereby beginning the process of allowing the feminine to take (a) place. This is a mimicry which not only twists and parodies, but effects a change in the process.

Irigaray proposes a particular conception of psychic health to counteract the crisis and fragmentation of the present age, which would involve the adequate conceptualization of both masculine and feminine elements in a non-hierarchical exchange and process. However, we are far from this stage. The feminine is still inadequately conceptualized. It is only by intervening on the destructive circuit that another age of difference might be broached, an intervention which Irigaray describes as ethical. The revaluation of 'passion' and 'wonder' *(admiration)*[74] could lead to relations which, while retaining the radical otherness of the other, allow for an ethical encounter to take place.

Irigaray's more explicitly political proposals include interventions in the legal, civil and representional status of women[75] and her own work with various women's groups in Italy for example. But she has also explored more 'mystical' approaches; lyrical poetic expressions of love between women, between mothers and daughters and lovers, and her work on 'the divine', which is an attempt to explore the forms of sacred meaning which have also acted to exclude women, and to revalue divisions between sacred/profane, carnal/celestial, matter/spirit.[76]

Irigaray's equivocations may strike her critics as contradictory or difficult to place. How are we to understand what seem to be utopic projections of 'amatory exchanges' and a new fertile dialogue of sexual difference in the light of her sustained critique of subjectivity and philosophy, the 'sacrificial culture'? Is she writing for all women? From where? However, at present she is perceived to be a thinker who manages to negotiate the

minefields and sustain the tensions with acuity, a position which itself invites further responses and engagements with her writings.[77]

MICHÈLE LE DOEUFF

Michèle Le Doeuff was born in 1948, taught philosophy at the Ecole Normale Supérieure and is currently doing research at the CRNS. Her focus on the apparently innocuous illustrative devices used in philosophy (and she shows that 'the feminine' is a constantly recurring item) uncovers a tension at the heart of such texts which has repercussions for women's relation to philosophy. Although metaphors and images may appear to be harmless, especially when they are explicitly given a secondary status, one of Le Doeuff's concerns is to expose such an assumption. Her reading of the history of philosophy shows how philosophy draws upon a very specific set of such devices which function in quite particular ways in the texts, even as 'philosophical discourse…labels itself as philosophical by means of a deviation from the mythic, the poetic and all that is image making'.[78] For Le Doeuff, these images point to tensions or stress lines in the organization of the philosophical enterprise, the 'sensitive nerve endings' which say more about philosophical discourse than it would prefer to speak. For not only do they provide continuity markers in the history of philosophy, but they also indicate the 'obsessions, neuroses and dangers', or the more uncontrollable elements intrinsically bound up in the progress of reason. In her book *The Philosophical Imaginary* (first published in 1986) she analyses such images and figures in Kant, Rousseau, Plato, Moore, Bacon and Descartes. She argues that philosophy sets up the feminine as an internal enemy: 'a hostile principle, all the more hostile because there is no question of dispensing with it…the feminine, a support and signifier of something that, having been engendered by philosophy whilst being rejected by it, operates within as an indispensable deadweight'.[79]

Despite the psychoanalytic tones of this analysis, Le Doeuff rejects any notion of the unconscious at work. For her, the metaphors of 'the feminine' are expressed as part of the philosophical imaginary (which at times seems to resemble a bestiary), but she uses this term more in the sense of 'a collection of images' than in the sense which Lacan, or Irigaray, employ it. She argues that greater awareness of this process will have certain implications for changes in the practice of philosophy, but she rejects overarching frameworks such as Marxism or psychoanalysis, partly because of her concern that women in philosophy will exchange one set of orthodoxies for another, sitting at the feet of 'new masters' (Lacan and Derrick, amongst others), a process which sets up new forms of political correctness.

This is why she is careful to examine the specific relation of student and teacher in her more recent book *Hipparchia's Choice* (first published in *1989*).[80] She conducts an analysis of the way an apprenticeship is served in philosophy, considering what techniques of assessment, training and control are used. Seeing this relation in terms of influence and power or lack of it, she locates it within a wider set of relations, the relation of the academic institution to the particular social setting and historical inheritance, with connections between knowledge and power being made in a manner reminiscent of Foucault. Her 'case study' for this analysis is the relationship between Sartre and Simone

de Beauvoir, a complex site of tensions between male/female, teacher/ disciple (de Beauvoir's own description), philosophy/feminism.

Rather than concentrate upon the exclusion of women from philosophy, Le Doeuff emphasizes their incorporation into the very centre. Far from them appearing as victims of rigid expulsion, she points out, women have been philosophers all along, learning, corresponding, discussing and writing. However, the terms of their admission into philosophy have been, she suggests, quite strictly controlled, presenting a more complex and subtle picture of philosophy's process of self-legitimation.

Despite the cheerful optimism which Le Doeuff seems to display about the possibility of 'retraining' philosophy to be more open and tolerant, she doesn't underestimate the difficulties which such a demand presents. Rather, I would see her strategy as 'entrism', borrowing scholarly techniques in order to gain a legitimate foothold in philosophy, and from there developing the feminist challenges and provoking the changes which she believes the discipline must address. She wishes to redeem, restore and rehabilitate philosophy, arguing for a pluralistic 'contest of faculties', or 'constrained disagreement' in academia, which could allow for uncertainty and resisting closure, and prevent domination of any one viewpoint at the expense of other, more hesitant viewpoints. This approach, which Rosi Braidotti calls 'a reasoned critique of reason',[81] comparing it with the work of Lorraine Code or Genevieve Lloyd,[82] means that her work does not indict the whole of western philosophy for 'masculinism'. Her work is not really compatible with that of, for example, Irigaray's, because Le Doeuff does not subscribe to the discourse of radicality or revolution. Her 'commonsense' approach contrasts with the 'poetic-hysteric' style of other French feminists, but some critics find her occasionally too cautious.

HÉLÈNE CIXOUS

Hélène Cixous was born in Algeria in 1937, and has been professor of English literature at the University of Paris VIII at Vincennes, located in Saint-Denis, since 1968. It is with Cixous that the notion of *écriture féminine* (feminine, or female, writing) is most readily associated. Through her explorations of the relationship between sexuality and writing, mostly in her texts of the 1970s (which deliberately defy classification as poetry or theory), she tries to encourage the scripting of Lacan's forbidden feminine jouissance. While she seems to pay even less heed to the theoretical demands of philosophical rigour and clarity than Kristeva and Irigaray, she elaborates on the construction and uncovering of feminine sexual pleasure as it might be given shape in a subversive practice of writing, but the implicit background is Derrida's analysis of *différance* and the poststructuralist problematizing of logos, power and knowledge. Cixous takes up the notion of the feminine as symbolically other, plural and multivocal, positioned as such by the classical oppositions which classify and divide values. Her texts may be said to work at the knots which tie such an economy in place, loosening the rigidity of dualisms to free the expression of heterogeneity. Through the exploration of this more open and fluid form of difference, from the strategic standpoint of a woman 'lost' in her corporeal sexuality, her dreams of her marginalized, inessential nature, Cixous believes that the fixity of our present conceptual schema will be shaken. Her work initiates and celebrates the

experiential dimensions of feminine desire. She raids classical literature to uncover 'lost voices' through reinvesting in powerful figures—mothers, mythical heroines, goddesses and the ecstatic and excessive aspects of a sexual 'dark continent'. It is also an attempt to enrich a particular vocabulary coextensive with 'the feminine'; poetic and allusive, metaphorical and 'incandescent'. Rather than merely replicating the static, fragmented or silenced position she has diagnosed women as occupying, her texts attempt to transgress these positions by 'overloading' them, and lyrically exploding them. The notions of 'spending' and 'the gift' are significant in her piece 'Sorties':[83] showing up an economy of exchange to be one of exploitation by miming its carefully monitored limits to the point of parody is for Cixous a political and transgressive activity.

There are many problematic aspects of Cixous' work—she may seem to lapse into the versions of women's bodies she was critical of, or into a fascination with her own fabulous textual labyrinths at the expense of more explicit political engagement. She does extricate herself from any collective feminism which she believes to be a quest for recognition and legitimation in an inadequately interrogated patriarchal economy and so a 'reactionary ideology'. It is also unclear whether Cixous is celebrating and uncovering the quintessential 'feminine' in her work, or if she is demonstrating a strategy which all women are invited to explore for themselves. The use of 'we' for women in her texts is an ambivalent point in this regard. However, the celebratory tone of her texts is inspirational and creative: 'a laughter that breaks out, overflows, a humour no one would expect to find in a woman… she who laughs last. And her first laugh is at herself.'[84]

CONCLUSION

The philosophical paradox of scepticism bears, I think, many similarities to feminist work in philosophy. 'Scepticism may be understood as an expression of an extreme form of dissatisfaction with the logos in its philosophical form. Scepticism tries to evade philosophy; but is there any logos-free space where it could settle to enjoy a human life?'[85] If thinking is continually involved in movements of imprisonment, encompassing and repulsing, 'Which experiences, adventures of the mind, or events of history do not permit the gathering of logos to enclose them within its horizons?'[86] How are we to find a strategy of critique which is not merely repetition of the same, but manages to avoid the infinite regress of a scepticism forced to be sceptical of its own position? This is the problematic which faces those thinkers who seek to reproach philosophy for what it has repressed or left out, and to reproach it in the name of a legitimate cause, and yet this reproach contaminates the basis of an appeal to legitimation in reproaching philosophy. How to dodge philosophical containment while at the same time utilizing its resources to articulate otherness? Engaging in this 'impossible' enterprise is to offer an ethical reproach to philosophy, the conditions of this reproach being a determination to avoid quietism.

The questioning of identity belongs to an immense volume of work which aims to uncover the conflation of singularity, ontology and presence, and the connection to the power structures which not only create such formations but maintain them as the most successful means of sustaining the status quo. The totalitarian thinking which occludes

difference in the name of a more coherent theorization of unity is not confined to those political regimes more immediately identifiable as repressive, but also to the liberal framework which argues for equality at the expense of celebrating difference. If feminist theory has been concerned to question identity in the context of postmodernist thinking, it is in order to analyse the alignment of presence and power. But the recent 'return to the subject' in philosophical theory, which is heralded as the chance to reconsider questions of ethics and political responsibility now that subjectivity has been unsettled from its complacent fixity, is not really new to feminist theory, in that feminism is in general seeking an effective version of agency to be able to conduct a struggle, whether reformist or revolutionary.

NOTES

1 See M.E.Waite (ed.) [12.87].
2 In [12.85], 169, G.Spivak suggests that the professional woman philosopher may be comparable to Athena: 'Women armed with deconstruction must be aware of becoming Athenas, uncontaminated by the womb, sprung in armour from the father's forehead'.
3 A.Schopenhauer, 'On Women', in [12.84], 102–13.
4 I.Kant [12.69].
5 See some of the contributors to [12.87].
6 Many feminists have drawn attention to masculine traits in philosophy (see [12.73, 12–80] for examples) although this does not often extend so far as to see philosophy as all and irredeemably 'male'.
7 I have tried to include a representative sample of feminist philosophers in the Bibliography.
8 See E.Young-Bruehl [12.93], and C.Herman, 'Women in Space and Time', in E.Marks and I.de Courtivron (eds), *New French Feminisms, an Anthology* (Brighton: Harvester, 1980), pp. 168–74, for just two examples of feminist readings of Arendt and Weil.
9 See A.Jardine [12.68], R.Braidotti [12.50] or E.Grosz [12.65] for a mapping of the influence of such thinkers on contemporary feminist theory.
10 The works cited in note 9 also give examples of critiques of these thinkers. See also A.Nye [12.79].
11 J.Baudrillard [12.46], 8.
12 *Ibid.,* p. 9.
13 See J.Derrida [12.57], J.-F.Lyotard, 'One of the Things at Stake in Women's Struggles', in A.Benjamin (ed.), *The Lyotard Reader* (Oxford: Blackwell, 1989), pp. 111–21, or G.Deleuze [12.57] for examples of the fragmentation and dispersal of identity being linked to the feminine.
14 Texts dealing with Sartre's and de Beauvoir's relationship are extensive: see for example M.Le Doeuff's discussion in *Hipparchia's Choice* [12.43]. Many of the themes discussed above are given shape in de Beauvoir's novels, for example in *The Woman Destroyed,* or in her short stories, *When the Things of the Spirit Come First*. Portraits of women struggling with social contradictions and moral dilemmas and attempting, succeeding or failing to assert their freedom, complement her more theoretical work on this topic. Such themes are also given poignant expression in her autobiography, from 'dutiful daughter' to 'old age'.
15 S.de Beauvoir [12.27].
16 J.-P.Sartre, *Being and Nothingness,* trans. H.Barnes (London: Methuen, 1968).

17 S.de Beauvoir *The Second Sex* [12.28].
18 *Ibid.,* p. 13.
19 M.Le Doeuff, *Hipparchia's Choice* [12.43], 58.
20 De Beauvoir, *The Second Sex* [12.28], 15.
21 *Ibid.,* p. 28.
22 *Ibid.,* p. 29.
23 *Ibid.,* p. 16.
24 *Ibid.,* pp. 35–69.
25 *Ibid.,* p. 62.
26 Ibid., p. 57.
27 See G.Lloyd [12.73], 102, for a discussion of this paradox in relation to de Beauvoir.
28 De Beauvoir, *The Second Sex* [12.28], 249.
29 *Ibid.,* p. 66. De Beauvoir also considers a Marxist analysis of sexual difference, which attributes inequalities to economic conditions and the historical development and transmission of such conditions. The division of labour which leads to the unequal distribution of property and wealth still does not explain why women should be seen as secondary, confined to the home and themselves valued as part of property. Sexual difference cuts across all class distinctions, yet in each class women are seen as subordinate. Although she agrees that at some indeterminate moment in history women became the other for men, and, once occupying a secondary role, continued to perpetuate such conditions through the centuries, she rejects the idea that the abolition of the family will resolve women's subordination, since without a fuller account of interpersonal relations (how dominant and subordinate roles between individuals come about), she argues, the inequalities may continue to exist.
30 See J.Pilardi, 'Female Eroticism in the Works of Simone de Beauvoir', in J. Allen and I.M.Young (eds) [12.44], 18–34. Another aspect of sexuality which de Beauvoir explores is the psycho-physical development of an individual in the context of the family. She agrees with Freud that women's positioning as subordinate is a consequence of her own emotional and sexual development, as a woman she identifies with or reacts against certain models of sexuality and incorporates such attitudes into her own self-understanding. But she also questions the universality of the Freudian scheme, being suspicious of the apparent inevitability with which men and women achieve their sexual identity in Freud's view, motivated by drives and prohibitions into particular socially determined roles, mainly because it represents an encroachment on her valorization of freedom.
31 See C.Duchen [12.61] for a clear historical perspective on the shifts in thinking.
32 See E.Grosz [12.66].
33 See J.Mitchell and J.Rose (eds) [12.76], or J.Gallop [12.63], for discussions of this influence. Feminist theory influenced by ego-psychology and object relations psychoanalysis, such as the work of Jessica Benjamin or Nancy Chodorow ([12.48], [12.54]) differs, in that it tends to analyse patterns of identification and difference or relations of dominance and submission between individuals, rather than the fragmented individual of Lacanian theory.
34 J.Rose, cited in G.C.Spivak, 'Feminism and Deconstruction, Again: Negotiating Unacknowledged Maculinism', in T.Brennan (ed.) [12.51], 206–24.
35 *Ibid*.
36 J.Mitchell and J.Rose (eds) [12.76], 166.
37 *Ibid.,* p. 147.
38 Although this is Freud's phrase, it is often used to describe feminist theory influenced by psychoanalysis.

39 See J.Lechte [12.72] for an account of Kristeva's work and influences upon her.
40 J.Kristeva, *Revolution in Poetic Language* [12.35], Only the first part is translated. The poets she discusses in the later section are Lautréamont and Mallarmé.
41 *Ibid.,* p. 22.
42 See Lechte [12.72], 32, where he writes: 'On 7 November 1955, Jacques Lacan—doctor of medicine, psychoanalyst, friend of surrealism—"officially" announced his famous "return to Freud" in a paper given at a neuro-psychiatric clinic in Vienna.' See J.Lacan, The Freudian Thing, or the Meaning of the Return to Freud in Psychoanalysis' in [12.71], 114–45.
43 Lacan writes: 'It is the name-of-the-father that we must recognize as the support of the symbolic function, which from the dawn of history has identified his person with the figure of the law' [12.71], 67.
44 Kristeva, *Revolution in Poetic Language* [12.35], 25.
45 *Ibid*.
46 *Ibid*.
47 *Ibid.,* p. 26.
48 Kristeva, *About Chinese Women* [12.36], 35.
49 *Ibid.,* p. 36.
50 *Ibid.,* p. 16.
51 *Ibid.,* p. 35.
52 Kristeva 'Stabat Mater' in *Tales of Love* [12.40], and in *The Kristeva Reader* [12.41]. Quotations from *The Kristeva Reader*.
53 *Ibid.,* p. 185.
54 M.Warner [12.88].
55 Kristeva 'Stabat Mater', in [12.40], 162.
56 R.Braidotti [12.50], 219. In contrast to the so-called 'feminists of difference' stand those thinkers who see all identity as social construction, and as a consequence see the notion of sexual difference as constructed. Such thinkers as Monique Plaza and Christine Delphy return to the ground of materialist/ humanist thinking because they see the adoption of sexual difference and 'the language of the female body' as too hasty or naive, in the face of the material and social oppression which women face. While it may be timely to remind philosophy of such concerns, overall the rejection of difference may lead once again to the marginalization or postponement of issues about sexual difference, or to very specific or localized areas of concern. Monique Wittig is perhaps an example of this approach. She rejects all binarisms of male/female or masculine/ feminine, and opts for a 'third' category, the lesbian, which, in her terms, involves advancing a strategic utopia and utilizing guerrilla-type tactics of subversion. Opting out or refusing any given terms may ultimately render this tactic less than effective.
57 L.Irigaray, *Parler n'est jamais neutre* [12.12].
58 L.Irigaray 'This Sex Which is Not One', in *This Sex Which is Not One* [12.34], 23–33. Reprinted from Marks and de Courtivron (eds) (note 8), pp. 99–106.
59 L.Irigaray, *Ethique de la différence sexuelle* [12.11]. First part translated in T. Moi (ed) [12.78] as 'Sexual difference', pp. 118–32. Quotes from translation.
60 *Ibid.,* p. 118.
61 Irigaray, *This Sex* [12.34], 78.
62 Irigaray, 'Sexual difference' (note 59), p. 119.
63 Irigaray, *This Sex* [12.34], 149.
64 *Ibid.,* p. 159.
65 *Ibid.,* p. 150.

66 *Ibid.,* p. 74.
67 L.Irigaray, *Speculum of the Other Woman* [12.33]. See also *Marine Lover of Friedrich Nietzsche* [12.31] and *L'oubli de l'air chez Martin Heidegger* [12.10].
68 The title of the first section of *Speculum of the Other Woman*.
69 Irigaray, 'Sexual difference' (note 59), p. 122.
70 L.Irigaray, 'Divine Women', Sydney: Local Consumption Occasional Papers 8, trans. S.Muecke, from *Sexes et parentés* [12.13].
71 Irigaray, *This Sex* [12.34], 76.
72 *Ibid.,* p. 154.
73 *Ibid.,* p. 155.
74 Irigaray takes this notion from Descartes, *The Passions of the Soul,* article 53 in *The Philosophical Writings of Descartes,* vol I, trans. J.Cottingham *et al.,* Cambridge: Cambridge University Press, 1985, p. 350.
75 See L.Irigaray, *Sexes et parentés* [12.13], *Je, Tu, Nous, pour une culture de la différence* [12.15] and *Le Temps de la différence: pour une révolution pacifique* [12.14] for examples of Irigaray's recent concerns. See *The Irigaray Reader* [12.32] for representative translations, particularly pp. 157–218.
76 See *Ethique de la difference sexuelle* [12.11] or *Elemental Passions* [12.29] for examples.
77 See M.Whitford's excellent and comprehensive study [12.90] and her introduction to *The Irigaray Reader* [12.32] where she writes: 'Holding the tension here, walking this particular tightrope, is what makes her work so challenging and so insistent' (p. 13). See also R.Braidotti [12.50], 262–3.
78 M.Le Doeuff, 'Women and Philosophy' in T.Moi (ed.) [12.78], 195, revised from version printed in *Radical Philosophy,* 17 (summer 1977):2–11. Originally from *The Philosophical Imaginary* [12.42].
79 *Ibid.,* p. 196.
80 M.Le Doeuff, *Hipparchia's Choice* [12.43].
81 R.Braidotti [12.50], 197.
82 See G.Lloyd [12.73] and L.Code, 'Experience, Knowledge and Responsibility', in M.Griffiths and M.Whitford (eds) [12.64], 187–204.
83 H.Cixous, 'Sorties' in Marks and de Courtivron (eds) (note 8), pp. 90–8.
84 H.Cixous, 'Castration or Decapitation?' [12.24], 55.
85 A.Peperzak, 'Presentation', in R.Bernasconi and S.Critchley (eds) [12.49], 51–66 (p. 54).
86 *Ibid.,* p. 53.

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CHAPTER 13
Deconstruction and Derrida

Simon Critchley and Timothy Mooney

DERRIDIAN DECONSTRUCTION[1]

In the last twenty-five years or so, particularly in the English-speaking world, no philosopher has attracted more notoriety, controversy and misunderstanding than Jacques Derrida. Caricatural summaries of deconstruction and 'deconstructionism' abound in introductory textbooks, newspaper articles, radio and television programmes. The word 'deconstruction' has found a home in everyday language, and positions pro and contra Derrida are taken up and held with a vehemence that is difficult for the uninitiated to grasp. 'Derrida' and 'deconstruction' have become integral terms in the debate on the meaning of western culture in the late twentieth century. However, in this chapter I would like to take a step back from the sound and fury of the cultural debate around Derrida and sketch, as clearly and simply as possible, what appears to take place in deconstruction, that is to say, what is the method of reading employed by Derrida and what, in brief, are the consequences of the latter for the philosophical tradition.

What is deconstruction? Or, as it is perhaps initially easier to give a negative response to this question, what is *not* deconstruction? Employing a short text of Derrida written in 1983 and published in 1985, 'Letter to a Japanese Friend', which was specifically written in order to aid the possible translation of the word *déconstruction* into Japanese, one can quickly sketch some important caveats. First, Derrida insists that deconstruction is not negative; it is not a process of demolition (which does not automatically entail that deconstruction is positive—[13.17], 390). Furthermore, deconstruction needs to be sharply distinguished from analysis, which presupposes a reduction of entities to their simple or essential elements, elements which themselves would stand in need of deconstruction. Crucially, deconstruction is not critique, either in the general or Kantian sense; Derrida writes, 'The instance of the *krinein* or of *krisis* (decision, choice, judgement, discernment) is itself, as is moreover the entire apparatus of transcendental critique, one of the essential "themes" or "objects" of deconstruction' ([13.17], 390). Similarly, deconstruction is not a method or way that can be followed in the activity of interpretation. This is also to say that deconstruction cannot be reduced to being a methodology (amongst competing methodologies) in the human or natural sciences, or becoming a technical procedure assimilable by academics and taught in educational institutions ([13.17], 390–1). In addition, deconstruction is not an *act* produced and commanded by a subject, nor is it an *operation* that sets to work on a text or an institution. Derrida concludes the 'Letter' characteristically by writing, 'What deconstruction is not? But everything! What is deconstruction? But nothing!' ([13.17], 392). All ontological statements of the form 'deconstruction is x' miss the point a priori,

for it is precisely the ontological presuppositions of the copula that provide one of the enduring 'themes' of deconstruction. Rather, carefully avoiding the verb 'to be', Derrida claims that deconstruction takes place ('a lieu'), and that it does so wherever there 'is' something ('où il y a quelque chose'). Such is the *enigma* (Derrida's word—[13.17], 391) of deconstruction: it cannot be defined and therefore resists translation; it is not an entity or a thing, it is not univocal or unitary. Derrida writes, paying careful attention to reflexivity of the statement, 'Ça se déconstruit' ('It deconstructs itself, the *Ça* being both a translation of *Es*—the id, the unconscious—and a homophone for *Sa*—'Savoir Absolu', Absolute Knowing—[13.17], 391). It deconstructs itself wherever something takes place.

However, such a formulation, although subtle and faithful, risks being unhelpful because of its generality. Having taken on board the negative caveats in the problem of defining deconstruction, I should now like to assemble a more 'constructivist' account of deconstruction by asking the question: *how* does deconstruction take place? Derrida addressed this question concisely and lucidly in *Of Grammatology* (1967) [13.4, 13.29], in a chapter entitled, 'The Exorbitant. Question of Method'. The first essential point to make, however, trivial it may seem, is that deconstruction is always the deconstruction of a *text*. Derrida's thinking is always thinking *about* a text, from which flows the obvious corollary that deconstruction is always engaged in a *reading* of a text. The way of deconstruction is always opened through reading, what Derrida calls 'a first task, the most elementary of tasks' ([13.21], 35; [13.43], 41). Any thinking that is primarily concerned with reading will clearly be dependent upon the text that is being read. Thus, Derrida's readings are parasitic because they are close readings of texts that draw their sustenance from within the flesh of the host. What takes place in deconstruction is reading, and, I shall argue, what distinguishes deconstruction as a textual practice is *double reading*. That is to say, a reading that interlaces at least two motifs or layers of reading, most often by first repeating what Derrida calls 'the dominant interpretation' ([13.22], 265; [13.44], 143) of a text in the guise of a commentary, and second, within and through this repetition, by leaving the order of commentary and opening a text up to the blind spots or ellipses within the dominant interpretation.

Now, when Derrida reads Rousseau, he organizes his reading around the word *supplément.* It is claimed that this word is the 'blind spot' *(tâche aveugle* [13.4], 234; [13.29], 163) in Rousseau's text, a word which he employs but whose logic is veiled to him.[2] Derrida's reading of Rousseau traces the logic of this supplement, a logic which allows Rousseau's text to slip from the grip of its intentions and achieve a textual position that is other than the logocentric conceptuality that Rousseau intended to affirm. Thus, Derrida's reading of Rousseau occupies the space between the writer's intentions and the text, or between what a writer commands and fails to command in a language. It is into this space between intentions and text that Derrida inserts what he calls the 'signifying structure' ([13.4], 227; [13.29], 158) of the reading that constitutes part two of *Of Grammatology*.

How does one perform a deconstructive reading? In 'The Exorbitant. Question of Method', Derrida pauses in his reading of Rousseau in order to justify his own methodological principles. The signifying structure of a deconstructive reading cannot, he claims, simply be produced through the 'respectful doubling of commentary' ([13.4], 227; [13.29], 158). Although Derrida is acutely aware of the exigencies of the traditional

instruments of commentary as an 'indispensable guardrail' in critical production, he claims that commentary 'has always only *protected,* it has never *opened,* a reading' *(ibid.)*.

Here I would like to pause for a moment to consider what Derrida could possibly mean by the word 'commentary' in this context: is he claiming, oblivious to the achievements of Heideggerian and especially Gadamerian hermeneutics, that there can be a pure commentary or literal repetition of a text that is not already an interpretation? Derrida corrects and clarifies the above remarks from *Of Grammatology* in one of his responses to Gerald Graff in the 'Afterword' to *Limited Inc*. Derrida writes that 'the moment of what I called, perhaps clumsily, "doubling commentary" does not suppose the self-identity of "meaning", but a relative stability of the dominant interpretation (including the auto-interpretation) of the text being commented upon'. He continues, 'perhaps I should not have called it commentary' ([13.22], 265; [13.44], 143). Thus, for Derrida, the moment of commentary refers to the reproducibility and stability of the dominant interpretation of a text, for example the traditional logocentric reading (or misreading) of Rousseau. Commentary is always already interpretation and Derrida does not believe in the possibility of a pure and simple repetition of a text. However, and this is a crucial caveat, there is an unavoidable need for a competence in reading and writing such that the dominant interpretation of a text can be reconstructed as a necessary and indispensable layer or moment of reading. 'Otherwise', Derrida writes, echoing a sentence from *Of Grammatology* effectively ignored by many of its opponents and proponents alike, 'one could indeed say just anything at all and I have never accepted saying, or being encouraged to say, just anything at all' ([13.22], 267; [13.44], 144–5; cf. [13.4], 227; [13.29], 158).

Derrida goes on to argue that the moment of 'commentary' or of the dominant interpretation reflects a minimal *consensus* concerning the intelligibility of texts, establishing what a given text means for a community of readers. Although such a search for consensus is 'actively interpretive', Derrida adds, 'I believe that no research is possible in a community (for example, academic) without the prior search for this minimal consensus' ([13.22], 269; [13.44], 146). Thus, although 'commentary' alone does not open a genuine reading, the latter is not possible without the moment of commentary, without a scholarly competence in reading, understanding and writing, without a knowledge of texts in their original languages (for example, Rousseau's or Derrida's French), without knowing the corpus of an author as a whole, without knowing the multiple contexts—political, literary, philosophical, historical and so forth—which determine a given text or are determined by that text. This is what one might call the deconstructive duty of scholarship. I would go further and claim that there is a hermeneutic principle of fidelity—one might even say 'an "ethico-political duty"' ('un "devoir éthico-politique"') ([13.22], 249; [13.44], 135)—and a minimal working notion of truth as *adaequatio* underlying deconstructive reading, as its primary layer of reading. If deconstructive reading is to possess any demonstrative necessity, it is initially in virtue of how faithfully it reconstructs the dominant interpretation of a text in a layer of 'commentary'.

To choose an extreme example, in *Limited Inc*. every word of Searle's 'Reiterating the Differences: A Reply to Derrida' is repeated or re-reiterated. Derrida clearly views this as

a way of responding responsibly to the brutality of Searle's essay, which decides to 'insult' ([13.22], 257; [13.44], 139) Derrida's work—for example Searle writes of 'Derrida's distressing penchant for saying things that are obviously false'[3] rather than engaging in the necessary critical demonstration. Thus, bearing the above qualifications in mind, one might say a reading is *true in* the first instance to the extent that it faithfully repeats or corresponds to what is said in the text that is being commented upon. This is perhaps the reason why Derrida quotes at such length and with such regularity in his writings, and it is also the basis for his accusation of falsity against Habermas's critique of his work in 'Excursus on Leveling the Genre Distinction between Philosophy and Literature', where Derrida is not cited a single time ([13.22], 244; [13.44], 156).[4]

Returning to *Of Grammatology,* it is clear that although the respectful repetition of the text which 'commentary' produces fails to open a reading, this in no way entails that one should then transgress the text by reductively relating it to some referent or signified outside of textuality (i.e. historical material or the psychobiography of the author). To determine textual signifiers by referring them to a governing signified—for example, to read *A la recherche* in terms of Proust's asthma—would be to give what Derrida calls a transcendent reading. The axial proposition of *Of Grammatology* is 'il n'y a pas de horstexte' ('there is no outside text' [13.4], 227; [13.29], 158), or again, 'il n'y a rien hors du texte' ('there is nothing outside of the text' [13.4], 233; [13.29], 163). One should be attentive to the nuanced difference between these two sentences: the first claims that there is no 'outside-text', no text outside; whilst the second claims that there is *nothing* outside of the text, the text outside is nothing), implying by this that any reading that refers the text to some signified outside of textuality is illusory. Within the logocentric epoch, the textual signifier (and writing, inscription, the mark and the trace in general) has always been determined as secondary, as a fallen exteriority preceded by a signified. A deconstructive reading must, therefore, remain within the limits of textuality, hatching its eggs within the flesh of the host.

Thus, the 'methodological' problem for deconstruction becomes one of discovering how a reading can remain internal to the text and within the limits of textuality without merely repeating the text in the manner of a 'commentary'. To borrow the adverbial phrase with which Derrida describes his reading of Husserl, deconstructive reading must move *à travers* the text, *traversing* the space between a repetitive commentary and a metatextual interpretation, *'Traversing [à travers]* Husserl's text, that is to say, in a reading which cannot simply be that of commentary nor that of interpretation' ([13.2], 98; [13.27], 88). By opening up this textual space that is other to 'commentary' or interpretation, a certain distance is created between deconstructive reading and logocentric conceptuality. The signifying structure of a deconstructive reading traverses a space that is other to logocentrism and which attempts eccentrically to exceed the orbit of its conceptual totality. In an important and explicit reference to the 'goal' or 'aim' of deconstruc-tion, Derrida writes, 'We wanted to attain the point of a certain exteriority with respect to the totality of the logocentric epoch. From this point of exteriority a certain deconstruction of this totality… could be broached *[entamée]*' ([13–4], 231; [13.29], 161–2). It is from such a point of exteriority that deconstruction could cut into or penetrate the totality, thereby displacing it. The goal of deconstruction, therefore, is to locate a point of otherness within philosophical or logocentric conceptuality and then to

deconstruct this conceptuality from that position of alterity.

It is at this point that the concept of double reading can be properly understood. If the first moment of reading is the rigorous and scholarly reconstruction of the dominant interpretation of a text, its *vouloir-dire,* its intended meaning, in the guise of a commentary, then the second moment of reading, in virtue of which deconstruction obeys a double necessity, is *the destabilization of the stability of the dominant interpretation* ([13.22], 271; [13.44], 147). It is the movement of traversing the text which enables the reading to obtain a position of alterity or exteriority from where the text can be deconstructed. The second moment brings the text into contradiction with itself, opening its intended meaning, its *vouloir-dire,* onto an alterity which goes against what the text wants to say or mean ('ce que le texte veut dire'). Derrida often articulates this double reading around a semantic ambivalence in the usage of a particular word, like *supplément* in Rousseau, *pharmakon* in Plato or *Geist* in Heidegger. It is of absolutely crucial importance that this second moment, that of alterity, should be shown to arise necessarily out of the first moment of repetitive commentary. Derrida ventriloquizes this double structure through the mouth of Heidegger in *De l'esprit:* 'That is why, without opposing myself to that of which I am trying to think the most matinal possibility, without even using words other than those of the tradition, I follow the path of a repetition which crosses the path of the wholly other. The wholly other announces itself within the most rigorous repetition ([13.18], 184).' Thus, by following the path of a repetition, the *Wiederholung* of a text or a tradition, one inevitably crosses the path of something wholly other, something that cannot be reduced to what the text or tradition wants to say. It is at this point that the similarities between Derridian deconstruction and Heideggerian *Destruktion* become apparent. Indeed, Derrida initially employed the term *déconstruction* as an attempt to render into French the Heideggerian notions of *Destruktion* (de-struction, or non-negative de-structuring) and *Abbau* (demolition or, better, dismantling—[13.17], 388). For the Heidegger of *Being and Time,* the working out or elaboration *(Ausarbeitung)* of the question of the meaning of Being does not become truly concrete until the ontological tradition—that is, the tradition that has forgotten the question of Being, and more precisely the *temporal* dimension of this question—has been completely repeated *(wiederholen)* and deconstructed.[5] In the 1962 lecture 'Time and Being', *Abbau* is presented (and presented, moreover, as a synonym for *Destruktion)* as the progressive removal of the concealing layers that have covered over the first Greek rending of Being as presence *(Anwesenheit)*. The repetition of the metaphysical tradition is a dismantling that reveals its unsaid *as* unsaid.[6] Returning to Derrida, it is the belonging together or interlacing of these two moments or paths of reading—repetition and alterity—that best describes the double gesture of deconstructive reading: the figure of the chiasmus.

What takes place in deconstruction is double reading, that is, a form of reading that obeys the double injunction for both repetition and the alterity that arises within that repetition. Deconstruction opens a reading by locating a moment of alterity within a text. In Derrida's reading of Rousseau, the concept of the supplement is the lever that is employed to show how Rousseau's discourse is inscribed within the general text, a domain of textuality irreducible to logocentric conceptuality. In this way one can see how a moment of blindness in a logocentric text grants insight into an alterity that exceeds logocentrism. As Derrida remarks in an interview with Richard Kearney, 'deconstruction

is not an enclosure in nothingness, but an openness towards the other'.[7] What takes place in deconstruction is a highly determinate form of double reading which pursues alterities within texts, primarily philosophical texts. In this way, deconstruction opens a discourse on the other to philosophy, an otherness that has been dissimulated or appropriated by the logocentric tradition. Philosophy, particularly in its Hegelian moment, has always insisted on thinking its other (art, religion, nature, etc.) as its *proper* other and thereby appropriating it and losing sight of its otherness. The philosophical text has always believed itself to be in control of the margin of its own volume ([13.5], 1; [13.30], x). As Emmanuel Levinas points out in 'Transcendence and Height', philosophy might be defined as the activity of assimilating all otherness into the Same.[8] Such a definition would seem to be accurate in so far as the philosophical tradition has always attempted to understand and *think* the plurality and alterity of a manifold of entities through a reduction of plurality to unity and alterity to sameness. The same gesture is repeated throughout the philosophical tradition, whether it be in Plato, where the plurality of the instances of an entity *(phainomena)* are understood in relation to a unifying form *(eidos)*. Or whether it be Aristotle, where *philosophia protē* (that is to say, metaphysics) is the attempt to understand the Being of a plurality of entities in relation to a unifying substance *(ousia),* and, ultimately, a divine *ousia:* the god *(to theion)*. Or, indeed, whether it be in terms of Kantian epistemology, where the manifold or plurality of intuitions are brought into unity and sameness by being placed under concepts which are regulated by the categories of the understanding (and other examples could be cited).

The very activity of thinking, which lies at the basis of epistemological, ontological and veridical comprehension, is the reduction of plurality to unity and alterity to sameness. The activity of philosophy, the very task of thinking, is the reduction and domestication of otherness. In seeking to think the other, its otherness is reduced or appropriated to our understanding. To think philosophically is to comprehend—*comprendre, comprehendere, begreifen,* to comprehend, to include, to seize, to grasp—and master the other, thereby reducing its alterity. As Rodolphe Gasché points out, 'Western philosophy is in essence the attempt to domesticate Otherness, since what we understand by thought is nothing but such a project.'[9] As the attempt to attain a point of exteriority to logocentrism, deconstruction may therefore be 'understood' as the desire to keep open a dimension of alterity which can neither be reduced, comprehended, nor, strictly speaking, even *thought* by philosophy. To say that the goal of Derridian deconstruction is not simply the *unthought* of the tradition, but rather 'that-which-cannot-be-thought' is to engage neither in sophistical rhetoric nor negative theology. It is rather to point towards that which philosophy is unable to say.

Derridian deconstruction attempts to situate, 'a non-site, or a non-philosophical site, from which to question philosophy'.[10] It seeks a place of exteriority, alterity or marginality irreducible to philosophy. Deconstruction is the writing of a margin that cannot be represented by philosophy. In question is an other to philosophy that has never been and cannot become philosophy's other, but an other within which philosophy becomes inscribed.

However (and this is crucial), the paradox that haunts Derrida's and all deconstructive discourse is that the only language that is available to deconstruction is that of philosophy or logocentrism. Thus to take up a position exterior to logocentrism, if such a thing were

possible, would be to risk starving oneself of the very linguistic resources with which one must deconstruct logocentrism. The deconstructive reader is like a tightrope walker who risks 'ceaselessly falling back inside that which he deconstructs' ([13.4], 25; [13.29], 14). Deconstruction is a double reading that operates within a double bind of both belonging to a tradition, a language and a philosophical discourse, and at the same time being unable to belong to the latter. This ambiguous situation of belonging and not-belonging describes the problem of *closure*.

Broadly stated,[11] the problem of closure describes the duplicitous historical moment—*now*—when language, conceptuality, institutions and philosophy itself show themselves to belong to a logocentric tradition which is theoretically exhausted whilst at the same time searching for the breakthrough from that tradition. The problem of closure describes the liminal situation of modernity out of which the deconstructive problematic arises and which Derrida inherits from Heidegger. Closure is the double refusal both of remaining within the limits of the tradition and of the possibility of transgressing that limit within philosophical language. At the moment of historical and philosophical closure, deconstructive reading takes place as the disturbance, disruption or interruption of the limit that divides the inside from the outside of the tradition. A deconstructive reading shows how a text is dependent upon the presuppositions of a metaphysics of presence of logocentrism, which that text might attempt either to champion or dissimulate, whilst at the same time showing how that text radically questions the metaphysics it presupposes, entering into contradiction with itself, and pointing the way towards a thinking that would be other to logocentrism. Closure is the hinge that articulates this double and strictly undecidable movement between logocentrism and its other. Deconstruction(s) take(s) place as the articulation of this hinge.

Simon Critchley

PHILOSOPHICAL ROOTS AND BIBLIOGRAPHICAL HISTORY

Throughout the history of thought new philosophies have unfolded as reactions to or developments of previous ones, and in this way have shown their indebtedness to their forebears. There is no field outside the philosophical tradition from which a completely new thinking could spring into being. Starting from the recognition of this fact, the first part of this section seeks to show how some of Jacques Derrida's central ideas develop out of his encounters with the work of Edmund Husserl. Charting the ground of an individual's thought with any fidelity is always a difficult exercise, the more so in Derrida's case. He has cited and displayed evidence of numerous influences, including Heidegger, Hegel, Levinas, Nietzsche, Freud and Saussure, and his own arguments have cast doubt on the possibility of uncovering simple origins or foundations. All this being said, however, the crucial importance of Husserl's phenomenology can still be clearly demonstrated. Outlining Derrida's readings of Husserl also shows that he has engaged in philosophical argumentation rather than in some esoteric anarchism that is supposedly closed off from all criticism.

The second part of this section attempts to give a concise overview of Derrida's philosophical career within the broad framework of a bibliographical history. Reference

will be made to his most important works and to the way in which they follow on from certain questions articulated in the early texts. This is also a difficult task. From the close of the 1950s Derrida has published twenty-six books and innumerable articles, many of them extending into the associated regions of literary criticism, aesthetics and politics. These factors alone militate against the adequacy of short summaries and chronological surveys, quite apart from specifically theoretical objections. Perhaps the best combination of clarity and continuity lies in confining one's attention to those philosophical concerns that stand out most strongly in the Derridian constellation. It is this approach that has been adopted here.

It was as a teenager in Algeria that Derrida first became interested in philosophy. He read Sartre copiously, and was spurred into enrolling for pre-university classes after hearing a radio broadcast by Albert Camus. In 1949 Derrida went to Paris, where he commenced his studies under Jean Hyppolite at the Ecole Normale Supérieure. As far as can be ascertained, Derrida's interest in Sartre waned from the moment he became acquainted with the work of Husserl. The latter's phenomenology, as opposed to the version propounded by Sartre, appeared to Derrida as an inescapable method of analysis. As recently as 1980, Derrida has remarked that he still sees it, although in a different way, as a discipline of incomparable rigour.[12]

Derrida's first article was entitled '"Genesis and Structure" and Phenomenology'. Published in 1959, this was a development of part of his master's thesis. The problem of genesis or origin and structure had emerged as a result of Husserl's insistence that the meanings of those objects and states of affairs taken as irreducible to what we call the conscious self are never immediately given from outside. There are no transparently intelligible meanings in phenomena which would fall like manna from a heavenly place *(topos ouranios)* and strike the mind ready-made. In all these cases meaning demands not just a subject but a complex subjective contribution. All of the objects or states of affairs that we can entertain must be taken as more than an amorphous fuzz of unceasing mutation. Without at least a relative constancy in phenomena, recognition and discrimination would be impossible. Yet these constancies themselves presuppose a wider horizonal structure within which we ourselves place every appearance. Recognition and discrimination point to a surround of expectations which phenomenology seeks to make explicit. We expect physical objects, for instance, to have currently invisible aspects which can be brought into view, or made present, as we vary our perspective. We also expect physical things to behave in certain ways. On this view everything experienced is implicitly contextualized, whether it pertains to the physical, scientific or cultural worlds.

Unlike the Kantian categories of experience and understanding, Husserl's horizons are not fixed but constantly evolving. Through successive acts of perception we adjust each horizon so that it more comprehensively contextualizes objects or states of affairs. Meaning emerges from a weave made up of changing horizons and their contents. This creative emergence of meaning Husserl calls *constitution*. To explain any constituted phenomenon adequately, we have to give a structural description of this phenomenon and of our present mode of consciousness of it. But we also have to give a genetic or originary description of the evolving horizon which the phenomenon and our mode of consciousness of it presuppose.

According to Derrida, certain insoluble problems ensue from this approach, stemming from the fact that the isolation and description of the objective structures of phenomena and of the horizons through which they are revealed is, on Husserl's premisses, an infinite task. Because we must describe ever anew our continually evolving horizons, we will at the same time be altering our correlative characterizations of the objective structures of phenomena. What now appear as foundational structures could well be shown to be derivative in the future. Being caught up in history, we can never claim to encounter closed or finished structures, that is, structures that would be immune from modification and deposition. Yet another problem is that of discerning where our horizons end and where the objective structures of phenomena begin. There are no sure criteria for distinguishing between the 'productive' and 'revelatory' aspects of certain constituted meanings.

Derrida does not claim any great novelty in this analysis, and he stresses that these difficulties could never have been brought to light were they not built upon Husserl's powers of insight. It is the critical drive in Husserl that foregrounds these problems as he attempts to get back to the things themselves, to describe faithfully the phenomena presented to consciousness.

Derrida does not accept the Husserlian argument that the living present *(lebendige Gegenwart)* of human consciousness is the ultimate locus and ground of meaning. He takes over the structuralist position that meaning depends on sign-systems that transcend the intentional control of individual subjects. There is no self and no other than can be understood apart from signs. The move towards this position is marked in Derrida's first book, *Edmund Husserl's Origin of Geometry, an Introduction* (1962) [13.1; 13.26]. All the problems treated in this early text, according to Derrida, have continued to organize the work he has subsequently embarked upon.[13]

In *The Origin of Geometry* (1936), written shortly before his death and published only posthumously, Husserl was concerned with the communicability of ideal objects, such as geometrical formations, that are initially reached or constituted in an individual human consciousness. Being universal and non-perspectival, geometrical idealities are free from the contingencies of spatio-temporal existence, and in terms of perfection, argues Husserl, they can serve as the model for any object whatsoever. But precisely because of their ideality, they must in principle be accessible to every rational being, capable of being objects for all conscious subjects. One of the core concerns in *The Origin of Geometry* is to explain how a geometrical formation which is initially confined to the solitary psychological life of the first or proto-geometer can become intersubjective, that is, an object for the whole human community.

Husserl's immediate answer is that it is speech which brings ideality into the public realm, allowing the proto-geometer to share his or her discovery with others in the same community. But it is only writing that allows the discovery to be transmitted from generation to generation, thus giving it a history. Through writing or inscription, the geometrical formation is passed down to others, who add corollaries and formulate further theorems and axioms. Through successive generations, new layers are added on top of the original formation. This is the path of scientific progress, and indeed of cultural development in general, and it resembles an elevated rock stratum composed of various sedimented layers. Through encoding the original discovery, the protogeometer sends it

forward in a productive passage through time. The price of productive written transmission, however, is the loss of the conscious intentional states of the proto-geometer's mind that led to his or her discovery. Writing is an autonomous field that can virtualize a discovery, separating a bare formation from the conscious acts of constitution that are communicable through the tone and facial expressions of everyday speech. This loss is itself a condition of progress, for later geometers have to take the bare formation as a readymade given so as to have the time to improve on it. Quite apart from the comparative shortness of wakeful life, our bodily needs leave us little enough time for research. All the productive arts and sciences, argues Husserl, have to progress in this way. But it is just this element of loss in writing that has led to the contemporary crisis in western civilization. We have lost our roots, our sense of where we came from, of how and why our scientific and cultural traditions began.

Husserl regards this state of crisis as endemic—it can never be overcome. The intentional states of the founders of our traditions are lost for ever, and there is no return-enquiry *(Rückfrage)* that could recover them. But if we cannot reactivate the primordial *archē* of a science in our present age, argues Husserl, we can at least envisage its *telos,* which is that of a complete system of knowledge, of absolutely transparent and univocal understanding. This is not something that can ever be fully actualized; rather it functions as a infinite ideal. The building up of a science on top of an original formation can be understood as a gradual process of approximation towards this ideal. The actual formation can be understood as an essential element within this process that contributes to its determination. In this regard it is described by Husserl as an 'Idea in the Kantian sense'. Only efficacious through writing, the ideal of objective and thorough knowledge and the correlative Idea in the Kantian sense may not constitute a knowledge of origins, but they do show that our scientific and cultural objects are not meaningless when recontextualized.

In his reading of this text, Derrida seeks to show that certain radical conclusions follow from Husserl's premisses. These were already touched upon by the latter, but never developed, perhaps because he well understood the problems they would pose for a text that valorized the notion of a unique and transparent origin of geometry and of other traditions in the living present of human consciousness. Derrida is careful to emphasize Husserl's acute awareness of the significance of language, and of writing in particular. Here we see the first direct articulation of the idea that language is more than a material body that receives an already constituted truth. Contributing to the clarification and systematization of a discovery, it is not a passive receptacle of something given ready-made. Constituting ideal objects as definite and repeatable formations, it is a necessary condition of truth, in principle as well as in fact:

> Husserl insists that truth is not fully objective, i.e, ideal, intelligible for everyone and indefinitely perdurable, as long as it cannot be said *and* written. Since this perdurability is truth's very sense, the conditions for its survival are included in its very life… freedom is only possible precisely from the *moment* truth *can* in general be said and written, i.e., *on condition* that this *can* be done. Paradoxically, the possibility of being written *[possibilité graphique]* permits the ultimate freeing of ideality…the *ability* of sense to be linguistically

embodied is the only means by which sense becomes nonspatiotemporal.[14]

This material condition of truth can also jettison what Husserl sees as the original meaning of a truth, its intentional origin. In philosophy and literature, as well as in the natural sciences, Husserl well appreciates the possibilities of loss and misunderstanding brought into play by writing. But what he fails to account for, Derrida goes on to argue, is the possibility of the total loss of a message in the autonomous field of writing. This eventuality is to be distinguished from an empirical catastrophe, such as a worldwide burning of books and defacing of monuments. In this case writing would be materially destroyed and the message consumed. What Derrida is adverting to is the possibility of the complete disappearance of a message in a writing that remains fully intact in the world. The writing that gives life after death to a message can just as well bury that message. As Derrida points out, we can see abundant evidence of this in those prehistoric artefacts and monuments that silently defy all comprehension and translation. That which is the condition of transmission through the ages is not a guarantor of the success of any such transmission.

Derrida rejects Husserl's suggestion that the intentional origin of geometry was unique to one particular person at one time. He maintains that the unpacking of the Idea in the Kantian sense undercuts any such suggestion. This, we may recall, is the notion of an ideal object as an essential element in a process of approximation towards a complete system of objective, univocal knowledge. Derrida's argument is that a person would have no appreciation of the ideality of geometry without possessing this notion, even if they chanced upon a bare geometrical formation in the empirical world. The proto-geometer could never understand the significance of such formations without some awareness of science, of its ultimate end.[15] This awareness would include some of the conditions that a formation would have to fulfill in order to have an essential status in any science. For this reason, the Idea in the Kantian sense is not just the end of geometry—it is its very origin. Anyone who attains to this idea begins in just as original and authentic a fashion as the chronologically first geometer, since it is not specific to any one culture at any one time. Apart from a brute empirical history of ownership and copyrights, Derrida wonders whether we can ever speak of a once-off or unrepeatable origin of geometry. Since the intentional origin of geometry need not be unique to any one factual individual, geometry could in principle have an infinite number of births and birth certificates, each one upstaging its forebears. On this view, it can be difficult to divide intentional acts into ones that are original on the one hand and derivative or parasitic on the other.

Perhaps the most important caveat that Derrida has in connection with *The Origin of Geometry* pertains to Husserl's suggestion that what is lost in writing was a transparent plenitude in its own time. This is the idea that the proto-geometer was adequately aware in the living present of consciousness of what he or she was about in constituting an ideal formation. The fact that the meaning of an ideal object as an Idea in the Kantian sense is universally accessible, notes Derrida, does not entail that this meaning is adequately given in the present. In fact and in principle, the project within which we understand the ideality and objectivity of a formation cannot be realized in the living present of a human subject. The present meaning is given by virtue of an ideal which is deferred *ad infinitum*. The sign that gives the object its meaning is the sign of something for ever absent, because the

realization of a complete science within which the significance of an ideal object would be transparently intelligible always recedes as we approach it. We can have the empty idea, but not that of which it is the idea. To comprehend the inability of consciousness to reach such an absolute is to comprehend the structural necessity of deferral, delay, or difference. As a structure of infinite anticipation devoid of final fulfilment, the absolute is a limit, a condition of possibility of meaning that cannot be imagined in itself alone. To make it real one would have to be an omnipotent God untrammelled by perspective and distance, eternally comprehending everything within its absolute gaze. The origin of geometry and of objectivities in general lies in a promised land which even the so-called proto-geometer never saw in the living present of consciousness. Even in its own time the past-present was never an undivided plentitude. The meaning of objectivity presupposed something that could never be brought into view.

Derrida's second book, translated as *Speech and Phenomena* [13.27], was published in 1967. Derrida has described this essay as the one which he likes most, because it raises in a 'juridicially decisive' way the 'privilege of the voice' as it occurs in western metaphysics in general and in Husserl in particular. He also says that this work can be read as the other side, the recto or verso, of the earlier *Introduction* ([13.27], 5). In the later work, Derrida focuses his attention on the Husserlian claim that the living present is based on an undivided immediacy of self-consciousness. In the *Introduction,* Derrida had already argued against the idea that we can ground the meaning of objectivity in an undivided present of consciousness. Now he will argue that this latter notion is a metaphysical illusion in itself. Reflective awareness or subjectivity is also dependent on the representation by the sign of something that cannot be made fully present.

In his account of conscious mental life in the *Logical Investigations* (1900–1), Husserl makes a distinction between a signified meaning that can be fully present to consciousness and one that can be only indirectly present. A meaning of the first type can be described as an expression *(Ausdruck)*. A meaning of the second type is anything conveyed through indication *(Anzeichen)*. In general terms, the world of indication is composed of those signs referring to things outside direct awareness. The function of an indicative sign is that of standing in for something that is completely or partially absent. Although it has its referent or signified, this type of sign is devoid of intrinsic meaning. To be more than an empty bearer or carrier it must be given meaning by a specific intention, though it may not transmit this in its fullness. When I read a book in which the author indicates something to me, for instance, I can grasp that something without intuiting his or her background intention as well as I could intuit an intention of my own.

In contrast to derivative indications, expressions are inherently meaningful and fully present to the self. They mean something and they express a meaning. Because an expression effectively includes content and object, it is a sign that almost immediately gives way to the actual thing that it signifies. Every expression can subsequently acquire an indicative function, for example when I communicate it' to another person via speech. In this case expression is given a phonic material body. It is this vehicle that allows it to enter into the arena of intersubjectivity. I can also communicate through writing, through a graphic material body. This puts expression into the historical field that threatens the perversion and loss of meaning. Writing lacks the immediacy of speech. When I make an utterance I can hear myself speak. I concretely experience and understand an indication

that has been permeated by an expression. What I say is present to me, under my intentional control. This immediacy can be lost in writing. When I write something, it can go out beyond my living present. The original immediacy is cast adrift with the indication, and fades into the dead letter on the page. Speech is the only material medium that safeguards the life of expressed intuitions, for it is a reflection of the uncontaminated immediacy of conscious life. This is why thinking is often described as a form of self-addressed inner speech. In the actual zone of conscious life, however, Husserl does not hold that the solitary mind engages in a silent dialogue with itself. In the interior field of pre-expressive intuition, we can only imagine mercurial messages flitting through the galleries of the transcendental ego. We have no need to communicate anything at this level because our meanings are immediately experienced and understood. Not even the blink of an eye can be held to separate an intention and my intuition of it. In the pure self-relation of reflective consciousness, the realm of signs is really quite useless *(ganz zwecklos)*.

Derrida rejects Husserl's initial prioritization of speech over writing, which he terms *phonocentrism*. This privilege of the voice is regarded by Derrida as a metaphysical assumption foreign to the rigour of a thoroughgoing phenomenological philosophy. Derrida points to the fact that Husserl characterizes most conscious intentions as imperfect or unfulfilled. In perception I intend the entire bureau that I am leaning on. Yet it is only partially present to me as a hard and black horizontal surface that I see with my eyes and touch with my elbows. In imagination I intend the cellars of Ludwig of Bavaria's fairytale castle. These are only present to me in so far as they can be envisaged without acquaintance or description. It is linguistic signs that stand in for these absences. We use these to denote objects and states of affairs that are either indirectly given or not given at all. On this description, signs can operate perfectly well in the complete absence of their object, and indeed this is one of their essential functions. But what about cases where the object, so to speak, is the human subject itself? We have to ask whether propositions with reflexive pronouns are properly meaningful in the absence of the subject that communicates them.

Husserl draws back from affirming this. He admits that we can understand the ordinary everyday meaning of a mathematical proposition, for example, quite apart from the circumstances of our use of it. We can read it without thinking of a particular person. But in a statement that uses the word 'I', such as 'I am alive', Husserl states that we can glean its proper meaning only from the individual intentions that permeate it at the time of its utterance or inscription. If we were to read this statement without knowing who wrote it, says Husserl, it might not be meaningless, but it would be alienated from its normal meaning. According to Derrida, however, such a proposition can and does function normally in the absence of a speaker or writer. 'I am alive' retains its normal meaning even when the original subject is dead or fictitious. The meaning borne in the reflexive sign or proposition does not have to be fulfilled by a personal intuition. Language has a life of its own in writing, and there is no good reason to think why the situation is any different in speech. Here also we have to allow for the transmigration of signs that have their own meaning. If the expressed personal intuition that my voice breathes into the sign were to give it its normal meaning, and if this were to stay with the sign, then everyone would have to use my own private language. According to Derrida:

> The absence of intuition—and therefore of the subject of the intuition—is not only *tolerated* by speech; it is *required* by the general structure of signification, when considered *in itself*. It is radically requisite: the total absence of the subject and object of a statement—the death of the writer and/or the disappearance of the objects he was able to describe—does not prevent a text from 'meaning' something. On the contrary, this possibility gives birth to meaning as such, gives it out to be heard and read.
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> ([13.2], 104; [13.27], 93)

In the world that we actually find, the meaning of each and every sign is independent of whatever momentary intentional fulfilment the speaking or writing subject may give it. Precisely because he recognizes that language has its own life, Husserl tries to limit normal or proper meaning to the here and now of the speaking subject. Yet this subject, implicated in a living medium not under its control, has to stand like a watchguard over its utterances. We often enunciate a statement and immediately qualify it, aware that our intention does not encounter a neutral container. We hang around so as to catch certain 'normal' implications of the sign that we were not sufficiently aware of at the time of speaking or writing. And it could even be argued that writing is better than speaking inasmuch as it focuses the mind and enables greater clarity of expression, though again this is not safeguarded from perversion or loss in either medium.

Derrida is not content with exposing phonocentrism as an unjustified prejudice. He wants to show that the conception of an immediate, self-identical consciousness reflected in expression and subsequently cast into an impure world of indication itself falls down. Husserl argues that signs are redundant in the self-relation because we are present to ourselves in an undivided now, though he is very careful to qualify this last idea. This can be seen in a series of lectures which he composed between 1893 and 1917 and later published as *On the Phenomenology of the Consciousness of Internal Time* in 1928. Husserl here rejects out of hand any recourse to the notion of detached atomic instants of consciousness. Our conscious processes are always ongoing and interconnected, making up a flowing stream. Within this stream every present moment or immediate now of self-consciousness carries an inheritance from the past (retention) and an anticipation of the future (protention).

The past that is held in retention is different from a past that has to be reproduced. Reproduction is the recreation of an event that is completely over, one that lies in the more distant past. It is the reactivation of a dead event and it always involves some vagueness and distortion. Retention is the holding of an immediately lapsed past in the present moment of consciousness. It would be analogous to the hum of a dinner-gong that echoes on in my ears. The present-past of retention avoids the inevitable imperfection of reproduction, because there is no significant temporal lapse between the present moment and the immediately past one that makes up the content of the retention. I have to be conscious of the retentional content in the present moment to be conscious of the latter's immediacy. This can only be identified when I have an immediate past against which it can be contrasted.

As stated above, the present moment also involves a protention. This is an anticipation

of the next moment of awareness, the one that will immediately follow the now. Implicit in self-consciousness is the expectation that the now will pass into a new moment within which I shall be just as present to myself as I am in this one. I could of course switch attention, be knocked unconscious or drop dead, but the suspension or cessation of self-consciousness cannot be experienced or imagined *per se*. I cannot know what it is like not to be self-aware; since by definition one cannot be cognizant of such a state when one is in it. Barring accidents then, self-consciousness (the ground of human subjectivity) is understood as something ongoing, not as a once-off act. It has an ideal and repeatable character. Every protention is the expression of this understanding, anticipating as it does the repetition of the present moment of self-awareness. Reflective consciousness can be extensive and continuous because each moment contains the 'about to be' as well as the 'just gone'. Through protention and retention, past, present and future are connected in each individual moment of reflective awareness.

On Derrida's reading, Husserl is correct and prescient to recognize that each moment of self-consciousness involves retentions and protentions. But it is this very recognition that opens up a fissure in the claim that the now is something pure, unified and devoid of signification. It has been possible to present the now to consciousness only by setting it against something different, the immediately past now. It has been possible to present it as part of an unbroken unity only by anticipating the moment that will immediately succeed it. Consciousness of the selfsame, the now, always requires consciousness of the other, the not-now. Put another way, that which is different has to be held over and anticipated within the same so as to produce immediacy and continuity, the essential characteristics of a conscious subject. Derrida describes this retentional and protentional process as *autoaffection*. It constitutes rather than being constituted: 'This movement of difference is not something that happens to a transcendental subject; it produces a subject. Auto-affection is not a modality of experience that characterizes a being that would already be itself *(autos)*. It produces sameness as self-relation within self-difference; it produces sameness as the nonidentical' ([13.2], 92; [13.27], 82). Derrida is arguing against the idea of a self-identical now and hence of a primordial and self-contained subjectivity. To be itself the now has to point to moments beyond itself. Because they are actual forms of pointing, retention and protention can effectively be understood as signs of what has lapsed and what is pending. But is this admission of signs into the now of reflective consciousness also an invasion by indication? Taking retention on its own, one could argue that since it perfectly captures the past as it was in its own time, it is a fulfilled or expressive sign. In the case of protention, however, the situation seems different. The pending moment which I point to in the now will in turn point to another moment, and the cessation of this process is unimaginable—it could proceed to infinity. What I point to will never fulfil the present sign, because it will not itself be a self-referential plenitude. When one comes to look backwards, one sees that the situation was in fact the same. The present moment was itself anticipated in a previous moment, and that moment was also anticipated, right back to a primal moment of reflection that cannot be isolated because there was no antecedent reflection to identify it against. (The antecedent moment would be an unconscious trace hidden from view.) The most recent protention anticipating the immediate now passed over into a retention on the arrival of this present moment, and from this it can be concluded that both protention and retention

(one of which collapses into the other) are condemned to an unfulfilled and indicative function. The present moment cannot fulfil that which pointed to it in the past, and the pending moment will not fulfil that which is pointing to it in the present. Difference doubly contaminates the now. It only allows self-presence through a Janus-faced indication of an indefinite past and future. Presence is always already outside of itself, and so on without a definite end.

Derrida concludes his reading by adverting to a strangely prophetic passage from the first volume of Husserl's *Ideas* (1913). Husserl remembers walking through the Dresden Gallery and seeing a painting by Teniers. This represents a gallery of paintings, each of which represent further paintings in an endless regress. In this passage, as Derrida interprets it, can be glimpsed the fate of phenomenology. This raises the question of whether Husserl in some way reaches deconstruction *avant la lettre*. In the course of *Speech and Phenomena* Derrida speaks of Husserl's 'admirable' analysis of internal time consciousness, an analysis which he further characterizes as one of 'incomparable depth' ([13.2], 94 n. 1; [13.27], 84 n. 9). It seems strange that Husserl failed to see where this analysis was leading. The explanation, for Derrida, lies in the fact that the idea of unmediated or perfect presence is a pervasive and hidden prejudice carried forward from ancient times. The emphasis on the 'now' as an Archimedean point, the ground of immediacy and certainty, is one particular manifestation of this. So powerful is the prejudice that even Husserl, the first to provide the means for its circumscription, none the less remains under its sway. He stands on the very threshold of the deconstruction of the metaphysics of presence.

A brief overview of Derrida's career could well begin with the essays from his formative period in *Writing and Difference* (1967) [13.3; 13.28]. This collection includes the first article on genesis and structure and also 'Force and Signification' and 'Structure, Sign and Play', where the earlier analysis can be seen applied to modern structuralism. Whilst agreeing with the structuralist critique of a subjectivity that would be anterior to the world of signs, Derrida sees the general enterprise as misled in its tendency to construct closed sign-systems that are abstracted from time and change, and, having done this, to characterize these as transcendental realities that determine meaning in general. The dream of unearthing foundational structures centred on some fixed theme is a metaphysical illusion which sustains itself only by concealing the dynamic and ongoing process of constitution through which meanings emerge and mutate. The point at which this strategy is made evident is the point at which structuralism's fabrications begin to tremble and show their cracks. It is here that deconstruction takes its hold.

In 'Violence and Metaphysics', Derrida engages with the thought of Emmanuel Levinas. Characterizing the history of philosophy since Parmenides as a totalitarian wasteland, Levinas calls for an openness to the experience of the other that lies beyond the dominion of reason, whose logos has always been one of violence and power. The only ethical relationship to this other, or others, is one of infinite responsibility and respect. Whilst greatly admiring the approach of Levinas, Derrida argues that he does not pay due attention to Husserl's studies of intersubjectivity or to Heidegger's 'destruction' of those forms of thought that proceed from a determinate precomprehension of Being. Derrida also maintains that ordinary language and the philosophical discourse that proceeds from it cannot be escaped in the way that Levinas would like. Since the other

can only be revealed through discourse—the opening of peace as well as of war—the attempt to transcend this risks its suppression, which would result in the worst violence.

In 'Freud and the Scene of Writing', Derrida examines Freud's metaphor of the mystic writing pad, where the unconscious is likened to a text and the structures and layers of this text compared to forms of writing. This text, Derrida will argue, is a weave of signs based on lost traces which involves intervals spaced out in time just as in the world of conscious awareness. It would be one more ruse of reason to see the unconscious text as embodying primordial truths that could be brought to the surface and transcribed, like an original that is somehow reproduced. Even the most radical of critiques run the danger of confirming presence at a deeper level, and metapsychology is no exception. This theme of covertly reinstating what one seeks to reject recurs throughout the remaining essays and through the later Derrida.

O*f Grammatology* (1967) [13.4; 13.29] is an extended reworking of an article of the same name that Derrida originally published in two parts in 1965. The book incorporates many of the conclusions reached in *Speech and Phenomena,* and its purpose, according to Derrida, is to make enigmatic the concepts of proximity and of the proper that are included in the concept of presence. The deconstruction of these begins with the deconstruction of consciousness. Derrida explicitly generalizes the concept of the indicative sign to include anything that can possibly appear, whether it is 'originally' in consciousness or in the world of sense-experience. All 'present' things are internally constituted by variation of phonic and graphic marks or protentions and retentions. The manifest is what it is through being always ready set against irreducible absences. There is never a thing in itself that could come to glow in the luminosity of its own presence. Derrida rejects the belief that a sign or sign-system can eventually fall away before the naked object, like a veil that would drop from our eyes. This is the myth of the *transcendental signified,* of a terminus to the play of signs somehow outside that play. It recurs in various guises throughout the philosophical tradition, as God, or matter, or absolute knowledge, or the end of history. It remains a myth because it is never realized. In the absence of the transcendental signified we are left with the apparent limitlessness and pervasiveness of the play of signs. In this sense it can be held that everything is writing, with every instantiation of this general writing making up a text. (To give a crude example, the red sky in the morning is a set of signs written on the blank sheet of the sky. This text points to an indeterminate series of other events that will probably include a storm.) All meanings are inscribed in a text and point to other meanings in other texts. The world would be the most general text, though it is never closed or finished. The history of philosophy can be read as a sustained attempt to suppress such a seemingly endless play.

The ideal of the transcendental signified, according to Derrida, is the obverse side of *logocentrism,* which is the affirmation—in whatever form—of a pre-ordained order, of a univocal and proper meaning to all things that merely awaits discovery. Because it poses a threat to the communication of every supposed univocity, graphic writing has traditionally been relegated to the role of a dangerous and accidental supplement, with Rousseau providing the most notable example of such a strategy. Writing has been understood as something subsequent to a pre-given plenitude. But Derrida argues that there is another meaning to supplementarity which has been all but ignored in the

philosophical canon. The supplement is also that which is required to make up for a lack. If graphic writing were no longer seen as exterior and accidental, the way would be paved for the recognition of general writing as the weave of differences that inhabit and make possible all forms of presence. It is not by accident that Rousseau conceives of writing as an unhappy mischance, the root of dissemblance and impropriety. Writing has to be suppressed if he is to uphold the logocentric illusion of a prelapsarian state of nature. Rousseau most clearly demonstrates the inevitable violence of metaphysics, which equates propriety with pure presence through the debasement of writing.

The year 1972 saw the publication of three further books by Derrida: *Margins of Philosophy* [13.5; 13.30], *Dissemination* [13.6; 13.31] and *Positions* [13.7; 13.32]. *Margins* is made up of eleven articles written from 1967 on. Most of these are applications of a practice of reading whose theoretical grounding is effectively completed in the second article of the collection, entitled 'Différance'. This piece can also be read as a summary of the earlier works. Derrida presents *différance* as the development of Saussure's insight that in language there are only differences. It is also presented as an outcome of the important Heideggerian notion of ontological difference, the difference between Being and beings considered as such:

> It is the domination of beings that *différance* everywhere comes to solicit, in the sense that *sollicitare,* in old Latin, means to shake as a whole, to make tremble in entirety. Therefore, it is the determination of Being as presence or as beingness that is interrogated by the thought of *différance*. Such a question could not emerge and be understood unless the difference between Being and beings were somewhere to be broached. First consequence: *différance* is not. It is not a present being, however excellent, unique, principal, or transcendent. It governs nothing, reigns over nothing, and nowhere exercises any authority. It is not announced by any capital letter. Not only is there no kingdom of *différance,* but *différance* instigates the subversion of every kingdom…. Since Being has never had a 'meaning', has never been thought or said as such, except by dissimulating itself in beings, then *différance,* in a certain and very strange way, (is) 'older' than the ontological difference or than the truth of Being.
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> ([13.5], 22–3; [13.30], 21–2)

Being is not a meaning that commands from a lofty height. It emerges from beings and they from it. In a similar way the intelligible needs the sensible and the natural the cultural. *Différance* is the productive movement of differing and deferring. Every concept is deferred in signifying a plenitude without realization and differed in gaining identity from that which it is not. *Différance* is not a concept, but that which makes concepts possible. It is not an essence, for it assumes a different form in each relation and does not exist before these.

In the third article, *'Ousia* and *Grammē',* Derrida examines a note by Heidegger concerning Aristotle on time. Aristotle first posed the problem of how Being can be determined as presence without determining time as external to substance, and hence as non-present and nonexistent (the no-longer and the not-yet). According to Derrida, Heidegger seriously neglects Aristotle's investigations. Furthermore, Heidegger's own

critique of 'vulgar temporality' succumbs—despite its significance—to the *aporia* or perplexity outlined by Aristotle. Authentic existence is characterized as primordial temporality and inauthentic existence as derivative temporality. In this opposition of the primordial and the derivative Derrida observes a covert reintroduction of Being as self-present substance.

'The Ends of Man' addresses the question of humanism, concentrating on Heidegger's critique of the general ideology. Derrida describes this critique as unsurpassed in the 'archeological radicalness' of the questions that it sketches. No metahumanist position can neglect the opening of these questions without being peripheral and secondary ([13.5], 153; [13.30],128). Heidegger wishes to transcend humanism so as to discover the proper essence and dignity of man, his *humanitas*. He seeks to move towards an understanding of man as an openness to the mystery of Being, one who will shepherd the true meaning of Being in the proximity of the near. Derrida regards this alternative as a subtle variant of traditional humanism. Heidegger's evocations of the proper and of proximity indicate a logocentric ideal, a real meaning of Being and of the self that can be epiphanically revealed to those who attain to the right attitude.

In *Dissemination* [13.6; 13.31] Derrida writes on Sollers, Mallarmé and Plato. In the best-known essay, 'Plato's Pharmacy', phonocentrism is traced back to the *Phaedrus* dialogue, where writing is condemned for endangering the truth of the living voice and reinstated as the inscription of eternal law in the soul. Writing is ambiguously characterized as poison and cure, this being its most charitable characterization in the western tradition.

The extended preface or 'Outwork' to *Dissemination* attacks the historical conception of the book as the best form of encapsulating authorial intentions in the graphic medium, since it has a definite structure of beginning, expanding and ending. Derrida reactivates his claim that the *différance* in all conscious activities usurps transparency and mastery in every form of every medium. The book is a concatenation of irreconcilable elements and forces from which meaning is onanistically disseminated or scattered to the four winds.

P*ositions* [13.7; 13.32] is a series of interviews held with Derrida so as to clarify his own project and its relationship with other intellectual movements. It can lay claim to being one of the more illuminating introductions to his thinking. According to Derrida, deconstruction is not a simple overturning of traditional philosophical prejudices or 'violent hierarchies'. It is best conceived as a double gesture of unseating the privileged motifs within texts (speech, nature, spirit, etc.) and then showing how the opposites on which they depend are sited within a subtext or shadow-text. The so-called master text is always haunted by a double that dislocates it rather than destroying it. *Différance* produces two texts or two ways of looking that are at once together and separate.

G*las* (1974) [13.8; 13.33] can be interpreted as a rather jarring example of deconstructive work in progress.[16] Hegel's discourses concerning God, law, religion and the family are presented on one side of each page and Jean Genet's somewhat different treatment of the same topics on the other. Derrida's running commentary oscillates somewhere between the two. The subtlety of this rather inaccessible performance may lie in showing that the reader always becomes a writer to extract sense. It could also be viewed as a once-off experiment in hyper-Joycean equivocity, for Derrida never again presents a work in this precise format.

With *Spurs* (1978) [13.10; 13.35], Derrida moves to a consideration of sexual difference. He focuses his attention on Nietzsche's strange denunciation of woman as the nexus of untruth and subversion, which on first sight might appear as one more rendering of Schopenhauer's misogynism. Derrida draws out of Nietzsche's cryptic remarks an anticipation of some of the themes in modern feminist criticism, since the latter was never noted for his love of the established order or of traditional conceptions of truth.

In *The Post Card* (1980) [13.12; 13.37], Derrida develops at length the theme—already seen at length in his work on the origin of geometry—of messages that fail to reach their destinations. In the course of readings of Freud, Lacan and Heidegger, he compares general writing to a telecommunications service that is quite capable of suffering hitches and breakdowns. The little postcard that is open to all symbolizes the fragility of meanings always already cast into space and time. Even messages that reach their addressees without too much delay can be misunderstood, whether they come from the subconscious, from the mystical contemplation of being, or from 'external' sources.

Most of Derrida's work since the late 1970s has concentrated on literature and its genre distinction with philosophy on the one hand and on matters ethical and political on the other. A good example of the first set of interests can be seen in *Parages* ('Regions') (1986) [13.15], which engages with the work of Maurice Blanchot. Derrida has also written on Ponge, Celan and Joyce.

The increased concern with ethics and politics first emerges in *The Ear of the Other* (1982) [13.1; 13.38], which was based on a colloquium held in Montreal in 1979. Derrida's remarks emerge out of considerations of the philosophical problems of autobiography and translation. He stresses that whilst *différance* undercuts authorial mastery and makes every interpretation a misreading, it does not destroy personal responsibility. The fact that statements and writings immediately take on a life of their own is an argument for eternal vigilance. One should at least attempt to foresee possible misinterpretations of one's works. Though the exercise cannot always succeed, it may minimize certain dangers inherent in inscription. These dangers have been well shown in the use that at least one ideology has made of the work of Nietzsche. We have to proceed as if every part of what we say and write could be taken out of context.

P*syché: Inventions de l'autre* ('Psyche: Inventions of the Other') (1987) [13.17] includes articles on Reconstructive methodology, sexual difference, racism and nuclear deterrence. In 'Racism's last word', written for an itinerant exhibition of art against apartheid, Derrida scrutinizes this very word. Apartheid is the appellation for one of the world's ultimate forms of racism. It signifies the violence of the talking animal that can make words discriminate rather than discern. Though it claims to represent a state of law derived from a natural or divine right, the day will come when this word will resonate in its own emptiness. Yet the collapse of what it signifies will be credited not just to the triumph of moral standards but to the laws of liberal economics that have come to determine this system as 'inefficient'. These laws of the market are another standard of calculation to be analysed.

In 'No Apocalypse, Not Now', Derrida attacks certain consequentialist assumptions in the logic of nuclear deterrence. The leading idea in the nuclear arms race has been that each advance in destructive capability will so impress the opposition as to make catastrophe more unlikely. Derrida notes that this assumes that the 'best intentions'

would always be 'correctly interpreted' by the other side. The seeming success of this strategy has also pleased the military-industrial complex. Expensive contracts can be made without any apparent increase in danger.

In the lengthy afterword to *Limited Inc*. (1988) [13.22; 13.44], the full record of Derrida's critique of the work of J.L.Austin and exchange with John Searle, Derrida tries to clarify questions concerning the aim and extent of the activity of deconstruction. Derrida states that although the themes of full presence and immediacy have been subjected to deconstruction, he has never argued for an untrammelled free-play of meaning. There can be a relative stability of meaning in texts; the point being made is only that this is not self-sufficient, immutable or indestructible. The double reading revealing a double text shows that the dominant meaning or interpretation of a text cannot live up to all its claims. In undoing conceptual hierarchies deconstruction seeks to achieve a more just balance. It does not suspend or reject the possibility of truth or of communication.

With *Memoires for Paul de Man* (1988) [13.21; 13.43] and *Du droit à la philosophie* (1990) [13.23], Derrida has included essays concerning the responsibilities and position of the intellectual in the modern or post-Enlightenment world.[17] He has maintained that the freedom of the academic world is only an abstract one, since the members of this world are effectively excluded from the fields of ethical and political decision-making. One of the crucial roles of the university in a technocratically managed society, according to Derrida, has been to provide a place where trouble-makers can be properly corralled and the compliant properly funded. As can be imagined, these analyses have not contributed greatly to Derrida's popularity amongst certain academics.

The most intriguing question that the essays in these books have raised—as with much of Derrida's work over the last few years—is that of the future direction of his project. Whilst his concentration on ethics and politics could be read as the unfolding of the hitherto unseen and positive aspects of deconstructive practice, it does not involve a clear advance on the theoretical groundwork already sketched in the 1960s. Furthermore, Derrida has not spoken of any departure from or revision of the existing body of texts. All the comments he has made on his work have been more or less explanatory in nature. It remains to be seen what new paths may be opened in the future by this most controversial of modern thinkers.

Timothy Mooney

NOTES

1 This section reworks certain arguments from the opening sections of *The Ethics of Deconstruction: Derrida and Levinas* [13.73].

2 This formulation implies, of course, a certain delusion on Rousseau's part, namely that he did not mean to say what he actually said and that what he actually meant to say is in contradiction with what is said in his text. Such a line of thought recalls Paul de Man's objections to Derrida in 'The Rhetoric of Blindness: Jacques Derrida's Reading of Rousseau', in *Blindness and Insight: Essays in the Rhetoric of Contemporary Criticism,* 2nd edn (London: Methuen, 1983), pp. 102–41, where de Man goes so far as to claim that 'Rousseau's text has no blind spots' (p. 139). Consequently, 'there is no need to deconstruct

Rousseau' *(ibid.)*. However, de Man continues, there is a profound need to deconstruct the established tradition of Rousseau interpretation which has systematically misread his texts. Thus, although de Man claims that Derrida is Rousseau's 'best modern interpreter' (p. 135), one who has restored 'the complexities of reading to the dignity of a philosophical question' (p. 110), Derrida is still blind to the necessarily ambivalent status of Rousseau's *literary* language (p. 136). Derrida fails to read Rousseau as *literature*. *Of Grammatology* is therefore an exemplary case of de Man's thesis on the necessary interaction of blindness and insight in the language of criticism.

In defence of Derrida, let me briefly say that despite de Man's many insights, *his* blindness to *Of Grammatology* consists in the fact that he reads the latter as a *critique* of Rousseau and not as a double reading. Derrida is no more speaking against Rousseau than he is speaking for him. Indeed, one might go so far as to say that the proper name 'Rousseau', whose texts Derrida comments upon, simply signifies the dominant interpretation (or, for de Man, misreading) of Rousseau; that of the 'époque de Rousseau' ([13.4], 145; [13.29], 97), an interpretation that sees Rousseau simply as a philosopher of presence, and which ascribes to him the fiction of logocentrism, a fiction that extends even to modern anthropologists like Lévi-Strauss, whose structuralism, it must be remembered, is Derrida's real target for so much of part two of *Of Grammatology*.

3 J.Searle, 'Reiterating the Differences: A Reply to Derrida', *Glyph,* 2 (1977): 203.

4 J.Habermas, *The Philosophical Discourse of Modernity,* trans. F.Lawrence (Oxford: Polity Press, 1987), pp. 185–210.

5 Cf. Heidegger, *Sein und Zeit,* 15th edn (Tübingen: Max Niemeyer, 1984), p. 26, trans. J.Macquarrie and E.Robinson as *Being and Time* (Oxford: Blackwell, 1962), p. 49.

6 Cf. Heidegger, *Zur Sache des Denkens* (Tübingen: Max Niemeyer, 1969), p. 9, trans. J.Stambaugh as *Time and Being* (New York: Harper & Row, 1972), p. 9.

7 R.Kearney, *Dialogues with Contemporary Continental Thinkers* (Manchester: Manchester University Press, 1984), 124.

8 Cf. E.Levinas, 'Transcendence et hauteur', *Bulletin de la Société Française de la Philosophie,* 56:3 (1962):92.

9 R.Gasché [13.61], 101.

10 *Dialogues with Contemporary Continental Thinkers,* 108.

11 For a detailed discussion of closure in Derrida, see 'The Problem of Closure in Derrida', in [13.73], 59–106.

12 J.Derrida, 'Ponctuations: Le Temps de la thèse', in *Du droit à la philosophie* [13.23], 444, trans. K.McLoughlin, 'The Time of a Thesis: Punctuations', in A.Montefiore (ed.), *Philosophy in France Today* (Cambridge: Cambridge University Press, 1983), p. 38.

13 *Ibid.,* p. 446, trans. pp. 39–40.

14 Derrida, *Introduction à l'origine de la géométrie par Edmund Husserl* [13.1], trans. [13.26], 90. For a detailed outline of Derrida's *Introduction* and its influence on his later work see R.Bernet, 'On Derrida's "Introduction" to Husserl's *Origin of Geometry*' in J.Silverman (ed.) [13.70], 139–53.

15 Neither Derrida nor Husserl would ever deny the bare logical objectivity of a geometrical truth, that the three angles of a triangle make up two right-angles in two-dimensional space, for example. What they are claiming is that a particular objectivity is only philosophically significant when set within a wider context. For a more detailed explanation of this claim, see the *Introduction,* pp. 31–3 (trans. pp. 47–8).

16 Leavey has provided a concordance of references to Hegel in his *Glassary* (Lincoln: University of Nebraska Press, 1986).

17 Derrida's comments on the modern university clearly display the influence of Heidegger, as he would be the first to admit. An interesting comparison can be made between this aspect of Derrida's work and the more recent writings of the Austro-American philosopher Paul Feyerabend. In particular see the latter's *Farewell to Reason* (London and New York: Verso, 1987).

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CHAPTER 14
Postmodernist theory

Lyotard, Baudrillard and others

Thomas Docherty

INTRODUCTION

Philosophy has been touched by postmodernism. Philosophy, in the modern academy, is supposed to be the discipline of disciplines: it is philosophy which will be able to gather together, in one over-arching discourse, all the various micro-disciplinary problems and procedures dealt with in the differing and ostensibly unrelated fields of literature, medicine, law, politics and so on; and it is philosophy which will also set itself the task of explaining their necessary separations. Postmodernism has not 'challenged' philosophy; rather it has simply enabled an earthquake under its foundations; for postmodernism is most aptly situated precisely in the moment of the eradication of all foundational thinking. This, of course, makes it a fundamentally paradoxical exercise to 'define' postmodernism, for any definition would at once inherently seek the foundationalist status lexically integral to any description, while it would simultaneously discount in the semantic content of the definition the very possibility of such foundationalism. In what follows, therefore, I shall not so much 'define' postmodernism in philosophy as indicate what is at stake in the debates that have constituted the postmodern moment in our cultures.[1]

The term 'postmodern' was probably first consistently used by Arnold Toynbee in 1939; and it was prefigured in his writings in 1934 (that is, at around the date of the first recorded instance of the term's usage in Spanish, by Federico de Onis).[2] In *A Study of History,* Toynbee suggested that the 'modern' historical period had ended, at a date determined in his studies roughly between 1850 and 1918. Toynbee's historiography was a product of the late nineteenth-century desire to found a synoptic and universal history; and this desire was most easily accommodated in Toynbee's own individual work by the fact that his history approximates to the condition of a Christian theodicy. His task was to redeem humanity by discovering the trajectory of history to be a movement of separation from God and the eternal returns towards a theocentric and universalizing centre of meaning for the world. Secularity—history itself—becomes nothing more or less than a humble interruption in a fundamentally circular narrative structure, whose end is always already somehow contained in its beginning. This, of course, is reflected in much of the artistic literary production of the first decades of the present century in western Europe, where writers such as Eliot, Joyce, Mann, Proust and many others all experimented with the cyclical structures of history. For Toynbee and his kind, the facts of history would make sense in relation to a governing narrative structure which would be given and

legitimated in advance, since it is narrated fundamentally from the point of view of a monotheistic God.

Such a notion of history is indebted to conflicts which had their root in Enlightenment. As Hayden White points out, the Enlightenment broadly agreed with Leibniz's monadology in the sense that the philosophers of the Enlightenment subscribed to the view that there was an underlying unity or direction to human history. But the big difference between Leibniz and Enlightenment is that Leibniz thinks that this essential unity of humanity is simply immanent, whereas the philosophers of the Enlightenment view it as an ideal whose realization lies in the future, an ideal which is therefore, at best, imminent, or one which is

> *yet to be realized* in historical time. They could not take it as a *presupposition* of their historical writing, not merely because the data did not bear it out, but because it did not accord with their own experience of their own social worlds. For them the unity of humanity was an *ideal* which they could *project* into the future.[3]

Toynbee's invocation of a postmodern moment can thus be seen to accord with the idealist drive of Leibniz; yet it also acknowledges the necessarily future orientation of history. Toynbee can plainly see that the 'modern' moment is not yet a moment of a universal accord or harmony. In this, he is rather like the literary critic Erich Auerbach, who wrote his great study, *Mimesis,* while living in Turkey in flight from the Nazis. In that study, Auerbach poignantly and desperately attempts to discern, and to validate in the literary history of the western world, the idea of a shared humanity in which, 'below the surface conflicts' which ostensibly wedge us apart, 'the elementary things which our lives have in common come to light'.[4] Both these writers were writing under the sign of the Second World War, in which the ideology of a specific racial difference and disharmony momentarily, but triumphantly, was in the ascendant. Auerbach's answer to his predicament was to find solace in *aesthetic* harmony; Toynbee rather hypothesized a moment in the future, a 'post-modern' *political* moment, when history and humanity can be properly redeemed.

The word 'postmodern' is thus characterized, from its very inception, by an ambiguity. On the one hand, it is seen to describe a historical period; on the other, it simply describes a desire, a mood which looks to the future to redeem the present. This ambiguity is at the core of a tension between postmodernism as an aesthetic style and postmodernity as a political and cultural reality.

This is an instance of one of the dominant philosophical concerns responsible for shaping the question of the postmodern: what is the proper relation in our time between the aesthetic and the political? The particular intimacy of the relation between aesthetics and politics in postmodernism is apparent even from the earliest considerations of the question. Leslie Fiedler characterized the emergence of new aesthetic priorities in the novel during the 1960s as a 'critical point' in which new attitudes to time were developed; and such attitudes, he claimed, 'constitute…a politics as well as an esthetics'.[5] In the light of this, it is interesting to note that two of the foremost thinkers in the field of postmodernism, Fredric Jameson and Jean-François Lyotard, both write

equally fluently and influentially on aesthetic culture and on political practices; and, more importantly, they have consistently pondered the relation between these hymeneally-linked activities. A deep formative influence lying behind much of the contemporary debate, as is now perhaps obvious, is the legacy of the Frankfurt school, perhaps most especially the work of Adorno, to which I shall return. For present purposes, the single salient fact is that aesthetic postmodernism is always intimately imbricated with the issues of a political postmodernity, even if postmodernism and postmodernity may not always themselves coincide.

As a result of the legacy inherited from Frankfurt, the question of the postmodern is also, tangentially at least, an issue of Marxism. Marxism, in placing the labouring body at the interface between consciousness and material history, is the necessary explanatory and critical correlative of a modern culture whose technology (in the form of an industrial revolution) divides human knowledge or consciousness from human power or material history. But the continuing revolutionary shifts within capitalism itself have necessitated in recent years a marked and vigorous self-reflection on the part of Marxism. In Habermas, for instance, Marxism has taken 'the linguistic turn', in arguments for a continuation of the emancipatory goals of Marxist theory and practice under a revised rubric of 'communicative action'. Habermas's faith in the continuing viability of a vigorously self-revising Marxism is shared by Jameson, who models his own version of 'late Marxism' to correspond with Mandel's descriptions of 'late capitalism'.[6]

A key date here, of course, is 1968. This is not only a moment which could be described as the high point of 'grand theory' and of the emergence of a poststructuralist challenge to what had become by then the grand structuralist orthodoxies; it is also the moment of a critical political failure. The seeming availability of a revolution which brought workers and intellectuals together all across Europe represented a high point for a specific kind of Marxist theoretical practice. But when these revolutions failed, many began, at precisely that moment, to rethink their commitments to the fundamental premises of Marxist theory. Simultaneously, most other erstwhile dominant philosophical trajectories (the phenomenological tradition; the insistence on the centrality of Hegel via Kojève; the entire 'history of western thought') came under suspicion and revision.

Rudolph Bahro and André Gorz began, from an economistic perspective, to rethink issues of growth and sustainable development. Their emergent ecologism coincided neatly with the 'imaginative' aspects of 1968, and Cohn-Bendit began his own movement from red to green. Kant began to assume the same kind of position of centrality once occupied by Hegel. Feminism and deconstruction both criticized the monolithic aspects of the institutions of western thinking. These all coincided neatly with the aftermath of the Algerian and other colonial crises, and with the growing awareness of the issues relating to post-colonialist cultures. The developed countries began to question not only the desire of the underdeveloped countries for the same levels of consumerist technology as those enjoyed by the First World, but also the reliance of that First World upon exhaustible planetary resources.

For many European thinkers who were now coming to question the fundamental grounds of their intellectual activities and philosophies, Marxism now began to appear to be part of the problem, especially in its assumption of the desirability of human mastery over nature. The emerging Green movement of this period moved closely to a post-

Marxism which was sceptical of Enlightenment: sharing the emancipatory ideals and the desire for the fullest possible enjoyment of human capacities, but tempering that with the idea of a necessary cohabitation between humanity and the rest of nature. A postmodern world needed a post-Marxist politics. Gramsci began to assume a prominent position in this thinking, and the notion of hegemony replaced that of class as a fundamental political category. A new political pluralism became possible precisely at the moment when technology, as Lyotard indicates, had made it possible for the multinational companies to homogenize and unify their forms of control. Yet underneath the increasingly homogenized capitalist world, the play of local forces continues to pose the threat of a disruptive pluralism which capitalism must now police if it is to sustain itself. For those forces to be activated, all we require is the release of something inimical to capital, the release of something which cannot be inserted into or accommodated within a capitalist economy. The radical, central philosophers at this moment made their revolutionary investment in the body and in libidinal desire.

Perhaps the most extreme re-thinking of Marx began with the socalled 'philosophy of desire' in texts such as Lyotard's *Economie libidinale* (1974; complete translation not available) or in the work of Deleuze and Guattari in their *Capitalisme et schizophrénie* (1972, 1980; translated 1984, 1987). This work led Lyotard and Deleuze to the position where they favour the supervention of a micropolitics which will attend to the local and the specific without recourse to some grand programme or macropolitical theory such as Marxism, psychoanalysis or evolutionary progress to legitimize actions taken at the local level. Practice is now valid—that is to say, it becomes an 'event'—only when it is unanswerable to, or when it is actually disruptive of, a totalizing 'grand theory'.

The most explicit attack on fundamental Marxist theory, and specifically on its underlying category of 'production' is fully developed in Baudrillard's *Le Miroir de la production* (1973; translated as *The Mirror of Production* 1975), a work which set Baudrillard firmly on a trajectory away from any form of classical Marxism. His work since has increasingly sustained a problematization of the oppositionalist impetus inscribed in Marxist theory. For Baudrillard, opposition to a dominant force is always already inscribed in the structure which holds that dominant force in power. The oppositional energy is diverted and recharged to the account of the dominant force: opposition works like inoculation. Marxism inoculates capital, the better to sustain it: 'critical' or 'oppositional' thinking is, as it were, the last refuge of the bourgeois, who is condemned to go through the motions of theoretical opposition while simultaneously sustaining the historical status quo.

Theory, by which I here mean any critical practice which makes a philosophically foundational claim, enters into crisis itself in the wake of 1968. Not only has knowledge become uncertain, but more importantly the whole question of how to legitimize certain forms of knowledge and certain contents of knowledge is firmly on the agenda. No single satisfactory mode of epistemological legitimation is available. Even if one were, the very Subject of consciousness has, as a result of deconstruction and psychoanalysis, also been thrown into doubt. Postmodernism is shaped and informed by these crises in epistemology, in ontology, in legitimation and in the Subject.

In what follows, I shall firstly outline briefly the intellectual trajectory of two thinkers whose work has shaped much of the debate over postmodernism: Jean-François Lyotard

and Jean Baudrillard. I shall then substantively address the issue of the Enlightenment and its contested legacies. This leads into a necessary reconsideration of the question of politics, specifically under the rubric of a theory of justice. In conclusion, I shall draw together the characteristics of postmodern philosophy under the sign of what might be called, in contradistinction to Leibnizian Optimism, a 'new pessimism' distinguished not by sadness but by stoicism.

TWO PARADIGMATIC THINKERS

Jean-François Lyotard

Lyotard moved to the centre of debates around postmodernism in the late 1970s when he defined *The Postmodern Condition* in terms of an 'incredulity toward metanarratives'.[7] By this, he meant that, in the contemporary world, it had become difficult to subscribe to the great narratives which had previously conditioned existence, be they narratives of salvation as in the various religions, or of emancipation as in Marx, or of therapy as in Freud, and so on. Postmodernism was defined in terms of an anti-foundationalism; it was a mood and not a period; and it was characterized by a pragmatic and experimentalist attitude. Like the artist, the postmodern philosopher was to 'work without rules in order to formulate the rules of what will have been done' *after the event*:[8] that is to say, thinking was to be radically experimental and ostensibly undirected in order to allow for the unpreprogrammed, for the unforeseen, to take place.

This led Lyotard to ponder two key theoretical principles: that of the 'event'; and that of 'justice'.[9] An 'event' occurs when 'it happens' without the 'it' having any specific identity. Such an identification of 'what' happened can only happen when the event is inserted into a determining structure which will assign a meaning to the happening and a substance to it. An 'event' is, as it were, a happening laid bare, devoid of a Subject, devoid of—or, better, prior to—an assigned significance. For Lyotard, the honour of thinking can itself only occur when thinking is 'eventful', when thinking is of the status of an event.

Thought thus has little to do with the accumulation of 'knowledges' whose significance can be arrayed and arranged in hierarchical orders and sequences, initially placed in repositories of knowledge such as libraries and museums, but increasingly in our time stored in ostensibly less material but equally reified form on microchips or on computer discs.

For Lyotard, one effect of this is the necessity to wage war on all forms of totality. He argues that any 'grand narrative' or foundational theory necessarily tends to homogenize the absolute heterogeneity and specificity of singular events, thereby robbing the event of its full ontological or historical status and, more importantly for a philosopher, denying the possibility of genuine thinking. Further, he argues that such totality most often articulates itself under the form simply of consensus. Here, he explicitly set himself apart from a thinker such as Jürgen Habermas, who argues that, given the lack of any prior foundational philosophy upon which to build a rational society, individual Subjects must strive collectively or mutually to attain a rational consensus which will enable the

formulation of (at least provisional) values against which individual acts can be judged. In other words, a practical social theory is to be based upon rational discourse and the disinterested pursuit of the better argument by a community. Lyotard argues that the consensus thus reached is illusory, for it is necessarily founded upon a covert violence between the participants in the dialogues, in which the discourse of one Subject will always find itself degraded in and by the discourse of the other. There is no consensus without the covert exercise of an imperialist power, according to Lyotard, who therefore prefers the pursuit of paralogy over consensus.

In order to maintain thinking at the status of the event, it becomes important to bear witness to what Lyotard calls the 'differend'. A differend occurs when, in a dispute between two parties, the rules of conflict which bring them into their opposed positions are made in the idiom of one party while the wrong from which the other suffers simply does not figure and cannot be recognized in that idiom. That is, the fundamental clash is one of language-games; the language-game of each party to the dispute simply cannot accommodate the terms of the wrong suffered by the other; and further, there is no common language to which a 'neutral' appeal can be made to facilitate an adjudication between the two parties.

Here we enter the second specific realm of Lyotard's concern: justice. As with knowledge, justice or judging too must become, for Lyotard, an event rather than a substance. Given that we should abandon the metanarrative, or theory, we now have no grounds upon which to make our judgments, be they aesthetic, ethical, political or whatever. Yet we must judge, as a simple condition of living. For Lyotard, we must bear witness to the differend and learn to judge without criteria. This he relates to the Kant of the third Critique, where a fundamental distinction is made between determining judgment and reflective judgment. Determining judgments are made in conformity to a rule; reflective judgments are those where we lack any formal guiding principle, as in aesthetics. Lyotard urges the prioritization of the latter, for it is only by making judging and thinking reflective—and thereby 'eventful' —that we will attain to the postmodern mood; and it is only that way that we can avoid the tacit political violence which dominates and informs our modes of philosophy and of social being.

Jean Baudrillard

Baudrillard, like Lyotard, began his career on the political left. But in *The Mirror of Production,* he began his trajectory steadily away from any recognizable Marxism and towards an extremely different position indeed. Fundamentally, Baudrillard began by arguing that Marx was not Marxist enough; that in the attempt to confound political economy, Marx simply could not manage to escape the form 'production' and the form 'representation' which shape political economy. Marxism is thus tainted by a complicity with capitalism, argued Baudrillard. He then began himself to try to find a way out of this by insisting that the world is not 'pro-duced' but 'seduced': seduction, he claimed in *De la séduction,* was logically prior to production. Seduction is not simply sexual: it is rather any mutual interplay of forces of attraction and repulsion. It thus can have no paradigmatic form and veers into a multiplicity of social practices, none of which can assume a position of centrality, normativity or dominance. By this point, Marxism has not

been modified as much as entirely abandoned.

Baudrillard began to indicate that Marxism had become part of the problem rather than part of the cure for a society in any case. He suggested that in any given system (such as a capitalist one) which is characterized by efficiency, the possibility of opposition to the system has to be controlled internally if the system is to persist. The single best way of controlling opposition is, of course, by accommodation. Hence, using a medical analogy, Baudrillard argued that every system generates localized 'scandals' which ostensibly throw the system entirely into disrepute—but which operate rather like an inoculation against disease. Thus, for instance, Watergate was a scandal to the office of the President of the USA; but it was a scandal which 'purified' the office by vilifying its temporary occupant; it thus enabled the possibility of that now 'purged', 'incorruptible', office being inhabited very soon after by Ronald Reagan, whose folly, lies and obvious insincerity far outstripped anything of which Nixon seemed capable. Similarly, capitalism needs and thrives on Marxism; masculinism and patriarchy need feminism if they are to strengthen themselves; racism requires anti-racist legislation; and so on.

This somewhat desperate scenario provokes Baudrillard into his most radical claims, and into a position usually described as 'nihilist'. The principle of reality itself, he argues, is defunct. At an early stage in his career, when he concentrated his attention on consumer society, Baudrillard rapidly realized not only that consumption was the new structure of power in the social, but also that something had happened to the very materiality of the object of consumption. He argued that the object as signifier was more important than the object as referent. In other words, classical 'use-value' had been replaced not just by 'exchange-value' but by what might be called 'signifying-value', or the value of the object as a sign. The referent—the 'real' world—began simply to disappear in Baudrillard's theoretical thinking.

When allied to his thinking on negation or criticism as a form of therapeutic inoculation, this has far-reaching consequences. Baudrillard is now able to argue that Disneyland, for example, is there as an arena of fantasy in order to generate the belief that the rest of the USA, everything 'outside' Disneyland, is 'real'. In fact, Baudrillard argues, it is the rest of the USA which is now living entirely at the level of fantasy. Meanwhile 'the real' has disappeared, or has been overtaken by simulacra of the real. Thus he felt able to claim, for instance, that, in a specific sense, the Gulf War of 1990 'did not take place'. Baudrillard indicates that technology has now made it possible for us to reproduce the real in a 'more' real form than the 'original'; and historical events for us now are only real once they have been mediated, usually by television. If we are to make any genuine philosophical or political engagement in this state of affairs, it has to be done by attending not to specific aspects of the real but rather to the very principle of reality itself.

ENLIGHTENMENT AND ITS LEGACIES

A major source for the contemporary debates around the postmodern is to found in the work of the Frankfurt school, and perhaps nowhere more precisely than in the text proposed by Adorno and Horkheimer in 1944, the *Dialectic of Enlightenment,* a work 'written when the end of the Nazi terror was within sight'. This work prefigures some of

Lyotard's later scepticism over Enlightenment; and it also seriously engages the issue of mass culture in ways which influence Gorz's thoughts on the 'leisure merchants' of contemporary capitalist societies. It is worth indicating in passing that it is Adorno and Horkheimer, and not Lyotard, who propose that 'Enlightenment is totalitarian':[10] the vulgar characterization which describes contemporary German philosophy as pro-Enlightenment and the French as anti-Enlightenment is simplistic and false.

Enlightenment aimed at human emancipation from myth or superstition, and from an enthralled enchantment to mysterious powers and forces of nature. Such emancipation was to be effected through the progressive operations of critical reason. According to Peter Gay, 'The Enlightenment may be summed up in two words: criticism and power':[11] criticism would become creative precisely by its capacity for empowering the individual and enabling his or her freedom. Why would Adorno and Horkheimer set themselves in opposition to this ostensibly admirable programme? Why do they argue that 'The fully Enlightened earth radiates disaster triumphant'?[12]

The problem lies not in the theoretical principle of Enlightenment but in its practice. In the desire to contest any form of animistic enchantment by nature, Enlightenment set out to think the world in an abstract form. Consequently, the material content of the world becomes a merely formal conceptual set of categories. As Adorno and Horkheimer put it: 'From now on, matter would at least be mastered without any illusion of ruling or inherent powers, of hidden qualities. For the Enlightenment, whatever does not conform to the rule of computation and utility is suspect'.[13] In a word, reason has been reduced to *mathesis:* that is, it has been reduced to a specific *form* of reason. More importantly, this specific inflection of reason is also now presented as if it were Reason-as-such, as if it were the only valid or legitimate form of rational thinking. But Adorno and Horkheimer share a fear that, in this procedure, reason has itself simply become a formal category, which reduces or translates the specific concepts of material realities into rational concepts, or into a form amenable to mathematization. Reason becomes no more than a discourse, a language of reason (the codes of mathematics), which deals with the 'foreign' matter of reality by translating it into reason's own abstract terms; and something—the 'event', non-conceptual reality itself—gets lost in the translation. As Adorno and Horkheimer have it: 'The multiplicity of forms is reduced to position and arrangement, history to fact, things to matter.'[14] A mathematical consciousness thus produces the world, not surprisingly, as mathematics. So a desired knowledge of the world is reduced to the merest *anamnesis,* in which a consciousness never cognizes the world as it is, but rather *recognizes* the world as the proper image and correlate of the consciousness itself. Enlightenment thus serves only the self-Identity of the Subject of consciousness.

'Emancipatory' knowledge turns out to involve itself firmly with a question of power, which complicates and perhaps even restricts its emancipatory quality. Knowledge, conceived as abstract and utilitarian, as a mastery over a recalcitrant nature, becomes characterized by power; as a result, 'Enlightenment behaves toward things as a dictator toward man. He knows them in so far as he can manipulate them. The man of science knows all things in so far as he can make them.'[15] Knowledge is hereby reduced to technology; and that in nature—the 'event'—which is unamenable to the formal or conceptual categories of such mathematical knowledge simply escapes consciousness.

Yet the Subject believes itself to have captured, dominated and conceptually controlled the event; for it can determine the *meaning* of the event. There is thus only the *illusion* of power over nature; and yet there is a more important dividend of power here: the Subject endowed with Enlightenment 'knowledge' has a power over the consciousness of others who may be less fluent in the language of reason. Knowledge is thus caught up in a dialectic of mastery and slavery in which the victim is not a dominated and overcome nature but rather other overwhelmed human individuals. Accordingly, knowledge such as this cannot be purely characterized by disenchantment and emancipation. Enlightenment does not simply produce a disenchanted knowledge of the contents of the material world; rather, it produces a formally empowered Subject of consciousness, a Subject which exerts its power in the discourse of reason, in a language-game. From now on in philosophy—and this is what will be characterized as the 'modern' philosophy from which postmodernism wishes to escape—to know is to be in a position to enslave, or, as Lyotard will argue, 'what was and is at issue is the introduction of the will into reason'.[16]

What is thus at issue is a confusion between the operations of a pure reason on the one hand and a practical reason on the other: a confusion between theory and practice, between *gnosis* and *praxis*. This is an old Aristotelian distinction which has resurfaced precisely at the moment when many thinkers are becoming suspicious precisely of theory itself. Twentieth-century literary criticism, the field in which much of the postmodern debate has been fought out, presents us with a series of attempts to yoke together theory and practice. Language, for instance, is often seen not as something which merely runs alongside and parallel to the 'real' events of material history: rather, it is consistently secularized, realized as itself a historical event. This is so all the way from J.L.Austin's speech-act theories of performative linguistics, through various advocates of the idea of 'language as symbolic action' (Kenneth Burke, R.P.Blackmur and others), and all the way on to the contemporary revival of Jamesian and Deweian pragmatism in the thinking of Rorty, Fish and others.[17] These are all attempts to bring together the epistemological function of language with the ontological event of linguistic activity. And in this regard, twentieth-century literary criticism can be seen to be wrestling with one major and fundamental issue: the perceived rupture between the realm of language and the realm of Being, a rupture articulated most vigorously by those readers of Saussure's *Course in General Linguistics* who prioritize above all else the arbitrariness of the relation between the linguistic signifier and the conceptual signified. By inserting the cognitive activity of a real historical reader between the text and its epistemological content, critics such as Fish, Jauss, Iser and others tried to circumvent the threatened split between, on the one hand, the structure of consciousness (i.e., the conceptual forms in which a consciousness appropriates the world for meaning) and, on the other, history (the material content of a text which may—and indeed, according to Fish, *must*—disturb such formal structures).

In philosophical terms, what is at stake here is an old Kantian question regarding the proper or adequate 'fit' between the noumenal and the phenomenal. Kant was aware that the world outside of consciousness does not necessarily match precisely our perceptual cognitions of that world; and in the *Critique of Pure Reason* he argued that it was erroneous simply to confuse the two. The two elements of signification being confused were distinguished by Frege as 'sense' and 'reference'; and it is a distinction similar to this which was maintained by Paul de Man, who argued that such a confusion is precisely

what we know as 'ideology': 'What we call ideology is precisely the confusion of linguistic with natural reality, of reference with phenomenalism.'[18]

De Man's concern was to ensure that literary criticism made no premature assumptions of the absolute validity of reference; and in this he simply followed the deconstructive practice of maintaining a vigilant scepticism about the legitimacy or truth-contents of any linguistic proposition made about those aspects of the real world that could properly be called 'non-linguistic'. He was aware that the premature assumption that the world was available for precise, 'accurate' or truthful linguistic formulation was itself an assumption not only grounded in but fundamentally demonstrative of ideology. But this, of course, is simply a reiteration of Adorno and Horkheimer in their complaint about the assumption made by (mathematical) reason that the world is available for rational comprehension. It should now be clear that the fundamental burden of the *Dialectic of Enlightenment* is that Enlightenment itself is not the great demystifying force which will reveal and unmask ideology; rather, it is precisely the locus of ideology, thoroughly contaminated internally by the ideological assumption that the world can match—indeed, can be encompassed by—our reasoning about it, or by the attendant assumption that the human is not alienated by the very processes of consciousness itself from the material world and events of which it desires knowledge in the first place. Enlightenment, postulated upon reason, is—potentially at least—undone by the form that such reason takes.

For Adorno and Horkheimer, this argument assumed a specific shape recognizable as an abiding question in German philosophy from Kant to Heidegger. What worried Adorno and Horkheimer was that under the sign of Enlightenment, the Subject would be capable of an engagement with the world in a manner which would be 'rational' only in the most purely formal (and thus vacuous) sense of the word. That is, they were anxious that what should be a properly *political* engagement which involves the Subject in a process called intellection or thinking could be reduced to a ritual of thinking, to a merely formal appearance of thinking which would manifest itself as a legitimation not of a perception of the world but of the analytical modes of mathematical reason itself. The political disturbance of the Subject proposed by an engagement with a materially different Other (i.e., the Subject as transformed and transfigured through an 'event') would be reduced to a confirmation of the aesthetic beauty and validity of the process of mathematical reason itself, a reason whose object would thus be not the world in all its alterity but rather the process of reason which confirms the Identity of the Subject as an identity untrammelled by the disturbance of politics, an amorphous identity predicated on a narcissism and uninformed by any real event. In short, the Subject would be reduced to an engagement with and confirmation of its own rational processes rather than being committed to an engagement with the material alterity of an objective world.[19]

The 'aesthetic engagement' with the world might be characterized as follows: the structure of consciousness determines what can be perceived, and processes it in accordance with its own internal logic, its own internal, formal or ritualistic operations of reason. There is thus a ritual or appearance of engagement with the material world only. 'Political engagement' would be characterized by the rupture of such ritual, by the eruption of history into the consciousness in such a way that the aesthetic or formal structures of consciousness must be disturbed, reconfigured, rearranged. Enlightenment's commitment to abstraction is seen as a mode of disengagement of the ideological,

opinionated self: abstraction is itself meant to address precisely this problem. But it leads, according to Adorno and Horkheimer, not to a practice of thinking but rather to the ritualistic form of thought; it offers a form without content. Adorno and Horkheimer fear that it is precisely when Enlightenment addresses the political that it in fact most successfully evades the political; that Enlightenment is Idealist precisely when it pretends to be fully materialist.

One twentieth-century legacy of Enlightenment is the so-called 'Copernican revolution' proposed initially by structuralism and semiotics. In the wake of Roland Barthes, the world became an extremely 'noisy' place: signs everywhere announced their presence and demanded to be decoded. Such decoding was often done under the aegis of a presiding formal structure, such as myth in anthropology (Lévi-Strauss), desire in psychoanalysis (Lacan), or grammar in literature (Genette, Greimas, Todorov). In semiotics, it is always important to be able to discover a kind of equivalence between ostensibly different signs: this is, in fact, the very principle of decoding or of translation which is at the basis of semiotic analysis. But as Adorno and Horkheimer indicate: 'Bourgeois society is ruled by equivalence. It makes the dissimilar comparable by reducing it to abstract qualities.'[20] Such abstraction must wilfully disregard the specificity of the material objects or events under its consideration: 'Abstraction, the tool of enlightenment, treats its objects as did fate, the notion of which it rejects: it liquidates them.'[21] The semiotic revolution—a revolution which frequently masqueraded as a political, emancipatory heir of Enlightenment, but a revolution whose content was only at the level of the abstract sign and thus at the level of an aesthetics denuded of politics—is, like Enlightenment, irredeemably bourgeois in the eyes of the postmodernist, for it is irredeemably caught up in a philosophy of identity which negates material and historical reality in the interests of constructing a recognizable Subject of consciousness as a self-identical entity.

When postmodernism rigorously questions the tradition of a selfconsciously 'modern' Enlightenment philosophy, it does not do so in the interests of nihilism or irrationality. Postmodernism indicates rather (as did Foucault) that Enlightenment reason may not itself be entirely reasonable.[22] Further, postmodernism returns to the great Kantian questions: how might we know the alterity of a material reality; how might we validate or legitimize that knowledge?

The *Dialectic* was written in a profound awareness of the material and historical realities of fascism and of the Nazi atrocities. It is a text which inserts itself in a specific tradition of philosophical and ethical tracts which ask for an explanation of the presence of evil in the world. This tradition was properly inaugurated in the modern world by the debates around Leibniz and Optimism. Optimism is based on the idea that nature is a Leibnizian monad, and that there is a great unifying chain in nature which links, in a necessary conjunction, all the ostensibly random and diverse elements of a seemingly heterogeneous and pluralistic world. Much more important for our purpose is the observation that Optimism must be based upon a specific idea of *progressive time* which challenges the meaning of events. It argues that what appears 'now' to be a local evil will be revealed 'in the fullness of time' as something which essentially serves the realization of a greater good. As Voltaire's Pangloss has it in *Candide,* 'All is for the best in the best of all possible worlds'; or, as a less comic predecessor, Milton's Satan, has it: 'Evil, be

thou my good.'[23] History would reveal the immanent goodness in the most apparently evil acts; under the sign of a homogeneous and monadic eternity, the heterogeneous and secular would be redeemed.

In a sense this philosophy is a precursor of some contemporary theoretical principles; and it foreshadows directly the great (and perhaps final) flowering of a modernist thought in deconstruction. According to Optimistic philosophy, the meaning of an event is not immediately apparent, as if it were never present-to-itself: its final sense—to be revealed as the necessity of goodness—is always deferred (to be revealed under the sign of eternity), and is thus always 'different' (or not what it appears to be to the local eye caught up in the event itself). The major difference between deconstruction and Optimism is that Optimism believes that the final sense lies *immanently* within an event, whereas deconstruction eschews any such 'immanentist' ideas as metaphysical. Yet the trajectory underpinning both is the same in that they share fundamentally and tacitly an investment in the notion of a 'progressive enlightenment': the passage of time is invested with the idea of *progress*.

Optimism was buried, of course, with the buildings under the earthquake in Lisbon on 1 November 1755. But at that time a different idea of progress in history arises. After 1755, progress is characterized as a gradual emancipation from the demands of the sign of eternity. The secularization of consciousness became a necessary precondition for the possibility of an ethics: that is to say, the ethical is increasingly determined by the philosophically rational, or the good is determined by the true. Hans Blumenberg in his *The Legitimacy of the Modern Age,* offers eloquent testimony to the inflection this gives to philosophy and to truth. Traditionally, the pursuit of truth had been pleasurable, eudaemonic; from now on, the absoluteness of truth, and correspondingly its ascetic harshness, becomes a measure of its validity: 'Lack of consideration for happiness becomes the stigma of truth itself, a homage to its absolutism.'[24] Pain legitimizes knowledge.

There arises thus the possibility—and Kantians would argue the necessity—of separating the realm of facts from the realm of values: neither can legitimately be derived from the other, neither facts from values nor values from facts. Optimism has proceeded on the grounds that these were intimately conjoined; and it followed that the progressive movement from evil to good was seen as inevitable. But once epistemology is separated from ethics, the whole idea of historical progress is itself called into question: no longer do we know with any certainty the point towards which history is supposedly progressing. In the wake of this, humanity becomes enslaved not to the enchantments of myth but rather to the necessities of narrative, for humanity has embarked upon a secular movement whose teleology is uncertain, whose plot is not inherently predetermined by values or by an ethical end.[25]

This critique of progress returns in the twentieth century; and is acentral component of a postmodernist mood. The paradigmatic example comes in architecture, where there has grown a resistance to the 'modernist' idea that all buildings must be innovative in aim and design. As Jencks and Portoghesi have suggested, it is possible to relearn from the past, to develop a 'new classicism' or simply to engage with an abiding 'presence of the past'.[26] The result is—in principle if not always in practice—a heterogeneous juxtaposition of different styles from different architectural epochs as a putative response

to the homogenizing tendency of the so-called 'international style'. This argument leads to two interrelated consequences. The first is that lived space is inhabited by a complicating sense of historical time.[27] More importantly, there grows an awareness in architecture and urban planning in general that the local traditions of a place should be respected in all their specificity, while at the same time these local traditions may be opened to a kind of criticism by their juxtaposition with styles from other localities and from different traditions.[28] This is a localism without parochial insularity: a revalorization of the 'periphery' without the need for a determining 'centre'.

Probably the greatest and most-cited description of the postmodern coincides nicely with this architectural scepticism regarding inexorable progress. In philosophy, Lyotard argued that the postmodern mood was characterized by an 'incredulity towards metanarratives'. In an argument which he subsequently described as 'overstated', Lyotard argued that it was becoming increasingly difficult to subscribe to the great—and therapeutically Optimistic—grand narratives which once organized our lives.[29] What he had in his sights were the great totalizing narratives, great codes which in their degree of abstraction necessarily deny the specificity of the local event and traduce it in the interests of a global homogeneity or a universal history. Such 'master narratives', as they subsequently came to be called, would include the narrative of emancipation via revolution proposed by Marx; the narrative of psychoanalytic therapy elaborated by Freud; or the story of constant development and adaptation advanced under the rubric of evolution by Darwin. Such narratives operate like Enlightenment reason: in order to accommodate widely diverging local histories and traditions, they abstract the meaning of those traditions in a 'translation' into the terms of a master code, thereby violating the specificity of the local and rendering real historical events unrecognizable. As metanarratives, they also become coercive and normative. In the interests of respecting the heterogeneity of the real, and (more importantly for Lyotard) in the interests of maintaining the possibility of thought, of philosophy, we must wage war on such totalizing prescriptive grand narratives. Lyotard's debt to Adornian critical theory is obvious here.

This new pessimism with regard to the idea of historical progress was foreseen by Walter Benjamin, another great source for much postmodern thinking. In his famous seventh thesis on the philosophy of history, he indicates a specific scepticism regarding history which has been picked up and thoroughly developed in postmodernism. His famous words in that thesis—'There is no document of civilization which is not at the same time a document of barbarism'—prize open the historical document—and, by extension, the event itself—to an internal instability and mutability.[30] Postmodernism has enlarged on this to the extent that it challenges the very notion of there being any universal history at all. It is important to be clear on this: postmodernism does not deny history; rather, it denies that there is only *one* history. For Lyotard, a universal history implies a single transcendent Subject position from which the history might be recuperated, appropriated, recounted or narrated: that is to say, universal history is predicated on monotheism. In place of this, Lyotard advocates the pluralism of paganism: multiple gods, multiple histories, no transcendence.[31] Any singular event can be inserted into any number of histories, each presided over by a different force or power; and its value—its essence—will depend upon the contradictions and incoherence involved in our

necessarily considering the event from such a pluralist perspective. In the simpler terms which Benjamin had in mind, the singular event of a battle, say, is different when one is the victim and when one is the victor: postmodernism would ask us to think the narratives proposed by both such positions simultaneously.

'Modernity' itself is increasingly seen as a Benjaminian document of civilization and of barbarism at once. It is a crude banalization of the postmodern position to suggest that it entirely reneges on modernity. Zygmunt Bauman's work is an excellent case in point here. Given the pessimism regarding Enlightenment and subsequent European history, it would be an easy step to consider the twentieth century's greatest disaster, the Nazi atrocities, as a consequence of modernity. But Bauman takes a much more circumspect postmodern attitude to the Holocaust. Citing sociological research into the victims of hijackings and terrorist activity, he indicates that so-called 'personality change' after the traumatic event is in fact illusory. What happens is that historical circumstances after the trauma favour the appearance of traits which were always latent, but which were not appropriate under the historical norms which conditioned the life of the victim before the traumatic event. A different aspect of the personality assumes the normative position: the same person remains. Bauman allegorizes this to consider the Holocaust:

> The unspoken terror permeating our collective memory of the Holocaust…is the gnawing suspicion that the Holocaust could be more than an aberration, more than a deviation from an otherwise straight path of progress, more than a cancerous growth on the otherwise healthy body of the civilized society; that, in short, the Holocaust was not the antithesis of modern civilization and everything (or so we like to think) it stands for. We suspect (even if we refuse to admit it) that the Holocaust could merely have uncovered another face of the same modern society whose other, so familiar, face we so admire. And that the two faces are perfectly comfortably attached to the same body.[32]

Modernity does not lead inexorably to the Holocaust; rather, the civilized face of modernity is attended constantly by a barbarism which is its Janus-complement.

The horror at the evil of the Holocaust is, for Bauman, really a horror at the rationality inscribed within the practice of the Holocaust. Enlightenment reason had enabled the development of an extraordinarily complete rationally ordered and self-sustaining social process. Part of the legacy of this is the development of efficiency in productivity, and the (often self-serving) development of technology. The horrifying truth of the matter, according to Bauman, is that 'every "ingredient" of the Holocaust…was normal, "normal" not in the sense of the familiar…but in the sense of being fully in keeping with everything we know about our civilization, its guiding spirit, its priorities, its immanent vision of the world'.[33] Structurally, the gas chambers are driven by the same presiding principles that were taken for granted as the positive aspects of modernity: rationalized efficiency in industrial production. The barbarism of the Holocaust arises because Enlightenment contained within its drive to reason a carcinogenic drive to rationalism, which can be used as well for fascist as for emancipatory ends. For a postmodern sociologist such as Bauman, it becomes difficult to disintricate the 'rationality of evil' from the 'evil of [modern, instrumental] rationality'. As he indicates, in the world of the

death camps, everything was rationalized: 'Each step on the road to death was carefully shaped so as to be calculable in terms of gains and losses, rewards and punishments.'[34] The SS also knew that, in a perversion of Enlightenment, but a perversion made possible precisely *by* Enlightenment, reason was their single best ally in ensuring that their victims would become complicit in their own suffering, betraying their fellows in the reasonable hope of prolonging their own lives thereby: 'to found their order on fear alone, the SS would have needed more troops, arms and money. Rationality was more effective, easier to obtain, and cheaper. And thus to destroy them, the SS men carefully cultivated the rationality of their victims.'[35]

Reason, which was supposed to legitimize the neo-pagan and emancipatory activities of Enlightenment, is now itself in need of legitimation. It can no longer assume the capacity for self-legitimation without assuming an exclusivity which necessarily victimizes other possible (and equally, if differently) reasonable narratives. Its claims upon universality are supplied by its inherent tendency to fall into the merest rationalism. It produces an administered society, and not a reasonable one; reason is replaced by efficiency and by the aesthetic and formal vacuities of rationalism. As both Derrida and Foucault have argued, though in very different ways, Enlightenment reason is profoundly exclusivist: it can legitimate itself only by first identifying and then stigmatizing its Other. As a result, Enlightenment reason is a potent weapon in the production of social normativity, driving people towards a conformity with a dominant and centred single 'norm' of behaviour. Reason, in short, has to produce the 'scandal' of its Other to keep itself going. Baudrillard has argued that this has an extremely important corollary effect in the twentieth century. In our time, it is not so much reason itself which requires legitimation as the very principle of reality (which, it is assumed, is founded upon rational principles). Society, in a move structurally parallel to Enlightenment reason, thus produces the Other of the real—fantasy—to legitimize the normativity of its own practices. Thus: 'Disneyland is there to conceal the fact that it is the "real" country, all of "real" America, which is Disneyland (just as prisons are there to conceal the fact that it is the social, in its entirety, in its banal omnipresence, which is carceral.'[36] The emancipation proposed by Enlightenment brings with it an incarcerating impetus: its 'freedom' turns out to be but the *form* of a freedom, an aesthetics rather than a politics of freedom. The name for this aestheticization of the political is *representation*. In the postmodern, representation, as both a political and an aesthetic category, has come under increasing pressure; and it is to this that we can now turn.

JUSTICE AND REPRESENTATION

Enlightenment reason is self-legitimizing: it takes one historically and culturally specific inflection of reason for the universal form of all Reason; and then adjudges all competing forms of reason to be, *ipso facto,* unreasonable.[37] In crude terms, Enlightenment Europe judged the rest of the cultures of the world in precisely the terms of Enlightenment Europe; and when, not surprisingly, it found the rest of the world to be 'different', it judged it to be inferior, unreasonable, 'underdeveloped'. Hence there arises the legitimation for a racist and imperialist consciousness which underpins some of the most

unjust actions of the modern world, culminating perhaps in the Holocaust. Enlightenment's difficulty, it seems, was in accepting the possibility of a plurality of the forms of reason, each specific to particular historical or cultural events in their singularity. That difficulty had its root in the tendency to abstraction, or to theory.

Equally abstract is the idea of a Universal History which, if it is to exist, must disregard the singularities of specific events, reading them as 'signs' or semiotic counters which can be meaningfully inserted into a governing and totalized master narrative. Given that a human culture or society is made possible precisely by the narratives which it tells to itself, then it becomes clear that what is at stake here is a massive political injustice.

The postmodern attack on the notion of a Universal History has important ramifications for the questions of representation and justice. As I indicated earlier, a Universal History is tacitly predicated upon a monotheism which brings in its wake an incipient totalitarianism. It presupposes a single transcendental position ('God') from which the whole of history can be recounted or truthfully narrated. Accordingly, if we subscribe to such notions, then all contradictory ('pagan') human narratives are automatically discarded and deemed to be nothing more than 'fictions'. In pragmatic fact, of course, this has meant that, as Benjamin and others have indicated, all history is told from the point of view of the victor, who, as a 'master narrator', assumes the position of a totalitarian author, or God; and any opposing narratives—such as the narratives which constituted the entire cultural and social history of the victim—are either ignored, denied or brought into line with the dominant narrative of the victor, from whose point of view they appear to be deviant, disjunctive and clearly false. The master narrator simply subsumes other competing narratives within a totalized framework, and assigns the competing narratives to a marginalized position. Those margins have, in modernism, been occupied by various figures such as dissidents, intellectuals, communists, women, lesbian and gay people, 'foreigners', and so on. In contrast to this, the postmodern faces the problematic possibility of a potentially endless and self-contradictory series of re-presentations *without the predication of an implied presence anywhere which would exist to ground or hierarchize the competing representations or narratives*.

In addition to this, and linked to it, is the political complication of the issue of justice. How can we judge an event? In the 'modern' world it is possible to judge according to specific criteria. These criteria are assumed to be shared by a social consensus. But this also implies an instance of presence somewhere, a fundamental ground of truth upon which all judgments can be made. That is to say, both representation and justice require a foundational theory. It is precisely such a theory that postmodernism would challenge, on the grounds that it is a theory which is always tacitly founded upon injustice and upon the covert violence of totalization.

Habermas would agree that no necessary foundation for a social formation exists prior to human beings in community. But he has consistently argued for the necessity of struggling towards the fabrication of a society founded upon a rational consensus. Lyotard challenges this on the grounds that consensus without the prior exercise of power and without covert injustice seems to be impossible; and on the grounds that such a consensus, which would of necessity conceal and act as a cover for the violences and injustices upon which the social is founded, may therefore not even be desirable.

For Lyotard, there is, in any achieved consensus, necessarily repression or, worse, oppression.[38] In order to circumvent this, he advocates that we multiply differences and that we bear witness to the differend, a term taken from legal discourse. A differend arises under specific circumstances: two opposed parties in a dispute are each in the right according to their own terms of reference; the terms of reference of each party cannot accommodate, or refuse to accommodate, the other party; and there is no common ground or third set of terms of reference which will allow an adjudication between the two parties while respecting their own terms of reference. In short, a differend arises when we lack a theory which will encompass radically divergent ('pagan') narratives. This may arise in a court of law; but, for Lyotard, it arises everywhere as an issue of justice and representation.[39]

Neither party to a differend can find an adequate representation of itself in the language-game of the other party. Each therefore feels violated by its insertion into that language-game. Further, we lack a 'neutral' or monotheistic theory which can encompass and adequately represent both parties. In the absence of criteria upon which to make the necessary judgments, how then do we judge?[40]

Judgment and representation are intimately related in the postmodern. The just has always been closely linked to the true; and justice depends upon a revelation of truth. There is a clear structural similarity between this and a Marxist hermeneutic. The project of an ideological demystification starts from the presupposition that a text (or the object of any critical judgment) is always informed by a specific historical and political nexus, and that the text is the site for the covering over (or disappearance) of the contradictions implicit in this historical conjuncture. The task of critical judgment here is in the first instance epistemological: it involves the necessary revelation of a truth lying concealed behind an appearance. But it is precisely the opposition between ideological appearance on one hand and foundational or true reality on the other which the postmodern puts under speculative pressure.

As Baudrillard has argued, the real in our time is no longer what it used to be. Technology has made it possible to confound the separation between the authentic and the fake, between the real and its representation, in ways far more radical than even Benjamin imagined. Yet that separation, of course, is precisely the separation required for a foundational philosophy or for any philosophy which has a strong investment in a univocal and transcendental notion of truth. The postmodern eschews any such simple access to the true or to foundational criteria upon which to base its acts of criticism or of judgment.

We live increasingly in the time of what Debord aptly called 'the society of the spectacle'. Our politics, and our justice, have become increasingly 'spectacular', a matter of 'show trials' and 'live' television courtroom drama. A poignant icon of this state of affairs is to be found in the example, often cited by Paul Virilio, of the women of the Plaza de Maya in Buenos Aires, who congregate in silence at regular intervals simply to bear witness to their relatives who have been made to 'disappear' by a cruel politico-military regime.[41] Political systems—including *soi-disant* 'democratic' systems—increasingly deal with dissident thought by controlling and regulating its appearances; and, on occasion, dissident thinkers themselves are entirely 'disappeared' either directly by force or indirectly by bureaucratic measures. The essence of the political in our time is

formulated not upon the old—the 'modernist'—relation between appearance and reality, but rather upon the relation between appearance and disappearance. Increasingly, the real itself is subject to this relation as well, when, for a random instance, the reality of the Gulf War of 1990 was reduced to the status of a video game, death and destruction disappearing until such times as the military decided it was appropriate for their reappearance before the population to be acceptable.[42]

Fundamentally, this shift has affected the status of knowledge upon which judgment and representation are based. The opposition of appearance to reality assumes necessarily that the Object of knowledge is stable, and that there exists a model for the Subject of knowledge which is transcendent. But in the postmodern mood, this has been contaminated by a historicity and mutability which render both Subject and Object unstable. As a result, knowledge itself—predicated upon a stable relation between the Subject and Object of knowledge, upon a moment of anagnorisis or recognition producing the Identity of the Subject—has entered into crisis.

This crisis was foreseen by Kant. In the *Critique of Pure Reason* Kant faced up to the question of the scientificity—by which he meant verifiability—of knowledge about the world; and he argued there for the necessity of a priori judgment in such matters. But more than this, he argued that an a priori knowledge gleaned simply from an analytic methodology would simply tell us a great deal about the methodology, and not necessarily anything new about the world: it would provide only *anamnesis*. That is to say, to perceive the world at all, consciousness needs a form in which to comprehend it; that form—the analytic method of perception—serves primarily the function of self-legitimation. Kant, like the contemporary postmodernist, wanted the world to be able to shock us into new knowledge, into the unforeseen and unpredictable. For Badiou, who makes a clear—and we might now say 'Kantian'—distinction between truth and the accumulation of knowledges, for instance, 'what is clear is that the *origin* of a truth is of the order of an event'.[43] Kant wanted the world to be able to shock us out of the ideological conditioning of our consciousness's structures. He wanted, thus, what he called the *synthetic a priori,* which would exceed the *analytic a priori*. The synthetic would not only confirm the method of epistemological analysis of the world; it would also allow for the structural modification of the very analytic method itself to account for and encompass a new given, the new and therefore unpredictable data of the world. It would thus provide not just anamnesis but what we would now call the event of knowledge, or knowledge as event rather than fact.

In the *Critique of Judgment,* this distinction between analytic and synthetic more or less maps directly on to a distinction between determining and reflective judgments, a distinction made much of by Lyotard in the question of postmodern justice. In a determining judgment, an analytic method determines—predetermines—the result of the judgment: as in mathematics, say, where the structure of arithmetic determines the result of its internally generated problems, such as those of addition or subtraction. In reflective judgment, we have a different state of affairs, for here, as in our judgments about the aesthetically beautiful, there are no predetermining rules in accordance with which we can verify our judgments: we judge 'without criteria', in the phrase made famous by Lyotard. In short, this means that we judge without a predetermining theory. Judgments, we could say, are replaced by acts or by events of judging: the aesthetic *form* of justice is

replaced by the political *event* of justice.

In this state of affairs, the operation of reason extends itself beyond its own internally coherent framework and attempts to grasp—or to make—the new. This extension is one in which we can see a shift in emphasis away from scientific knowledge towards what should properly be called narrative knowledge. Rather than knowing the stable essence of a thing, we begin to tell the story of the event of judging it, and to enact the narrative of how it changes consciousness and thus produces a new knowledge. The postmodern prefers the event of knowing to the fact of knowledge, so to speak.

But the central problem remains: how can one legitimize an 'event' of judging? With respect to what can one validate what must effectively be a singular act? For Lyotard, a credulity towards metanarratives (i.e., subscription to a prevailing theory against whose norms single events of judging might themselves be judged and validated) is tantamount to a concession to systems theory. Even Habermas, who is opposed to Lyotard on many counts, opposes this, seeing that in such systems theory 'belief in legitimacy…shrinks to a belief in legality'.[44] For Habermas, communicative action can lead to the establishment of consensus, which would provide the necessary—if always provisional—grounds upon which to make our judgments. But Lyotard would see the establishment of consensus as a means of arresting the flow of events, in such a way that truth would be reduced to an accumulation of knowledges. That is to say, in short, that consensus is the means whereby a philosophy of Becoming is reduced to a philosophy of Being. The modernist assumes that it is possible to pass from Becoming to Being; the postmodernist believes that any such move is always necessarily premature and unwarranted, and that its primary victim is truth in the guise of the event.

Politics, as we usually think it, depends upon consensus; most often, such consensus articulates itself under the rubric of 'representation', in which there is first an assumed consensus between representative and represented, and second the possibility of consensus among representatives. This is bourgeois democracy, and, for the postmodernist, hardly a democracy at all. In place of such a politics, the postmodernist makes the demand for a justice. Justice cannot happen under bourgeois democracy, which is always grounded in the tyranny of the many (and even, of course, in many 'democratic' systems, on the tyranny of the few—on the hegemonic control of thought and of mediatic representations, appearances and disappearances, exercised by a few who mediate the norms of a social formation). We may no longer be able to legislate comfortably between opposing or competing political systems, for we can no more subscribe to such totalizing forms; but we can address the instance, the event, of judging and of justice in its singularities.

Here lies the basis of the ethical demand in the postmodern, a demand whose roots lie in the work of a philosopher such as Levinas. We must judge: there is no escape from the necessity of judging in each particular case. Yet we have no grounds upon which to base our judgment. This is profoundly akin to Levinas:

> I have spoken a lot about the face of the Other as being the original site of the sensible…. The proximity of the Other is the face's meaning, and it means in a way that goes beyond those plastic forms which forever try to cover the face like a mask of their presence to perception. But always the face shows through

> these forms. Prior to any particular expression and beneath all particular expressions, which cover over and protect with an immediately adopted face or countenance, there is the nakedness and destitution of the expression as such, that is to say extreme exposure, defencelessness,vulnerability itself…. In its expression, in its mortality, the face before me summons me, calls for me, begs for me, as if the invisible death that must be faced by the Other, pure otherness, separated, in some way, from any whole, were my business.[45]

The 'face-to-face' implicates us in a response, in the necessity of sociality. We must behave justly towards the fact of the Other; but we cannot do that according to a predetermined system of justice or a predetermining political or ethical theory. The Other is itself always other than itself; it is not simply a displaced Identity in which we may once more recognize and reconstitute our self. The demand is for a just relating to alterity, and for a cognition of the event of heterogeneity. In short, therefore, we must discover—produce—justice. Here, for Lyotard and many others is the real political burden of the postmodern: the search for a just politics which will respect the differend that constitutes the event.

THE NEW PESSIMISM

Postmodernism has thrown the very fundamental notion of critique into doubt. It asks two basic questions of critique: first, given that, in order to be consistent internally, critique must have a theoretical foundation, how does it escape the injustice of violence; second, is critique not always accommodated by and within the existing totality of its ostensible object, and thereby rendered at best redundant and at worst complicit with its own defeat? Many conclude, as a consequence, that postmodernism is nihilist through and through, and that it gives succour to a contemporary socio-cultural and political state of affairs in which late capitalism carries on unabated and uncontested.

This view causes a particular concern among critics of culture, who, coincidentally with the rise of postmodernism in philosophy, have striven to validate mass and popular forms of culture, and who therefore see the work of critical philosophy to be thoroughly enmeshed in matters of general political interest. It is a widely held belief that the postmodern has somehow eradicated the boundaries supposed to exist between 'high art' and 'popular culture'. This is largely due to an understanding, deriving largely from Jameson, that the fundamental trope of postmodernism in art is pastiche, a 'parody without purpose'.[46] While modernists would cite or refer intertextually to a wide range of other artistic products (Joyce using Homer, say), they would do so for some specific ends. Postmodernists, it is argued, reiterate the same structural strategy of quotation, partial misrepresentation and so on, but they do this simply for the sake of it. In short, where modernism's strategy of quotation sent the Subject from one signified to another, postmodernism's similar strategy stays defiantly at the level of the signifier. We watch a rock video, in which allusions will be made to Hitchcock, say, and which may use archive cinematic footage; but the point is simply to play with such references and not to assign any governing 'meaning' or intentionality to them.

This is an 'ad hocism' which has seen its counterpart in some forms of contemporary architecture, where some architects have explicitly tried to accommodate their design to the various tastes and demands of a variegated community. Typically, contemporary popular art-forms plunder, and thereby question the 'value' of, the forms of high art, which are often deemed to be obstructively monumental. Modelling themselves on Duchamp, whose 'ready-mades' or 'LHOOQ' derive their power from the questioning of all modes of 'originality', contemporary artists frequently 'sample' or repeat the 'great works' of the past. In fact, as a result of this, much of the popular cultural product which goes under the name of the postmodern in our time is actually simply a continuation of the modern. It is frequently characterized by fragmentation instead of unity, by intertextuality or autoreferentiality instead of reference, by the prioritization of the signifier over the signified, and similar tropes and figures as we found in Joyce, Proust, Mann, Gide, Picasso, Kandinsky, Schoenberg, Stravinsky and others.

There is an important distinction, however. If the allusions and cultural cross-references made in contemporary popular art are not grasped by an audience, then so be it. There is nothing to be gained by such knowledge, which would only allow for the self-satisfying congratulation of narcissistic self-recognition and self-legitimation as a 'connoisseur'. The fundamental argument here is based upon a rather cheerful 'degradation' of knowledge, or at least a degradation of knowledge-as-fact in favour of knowledge-as-event.

Knowledge here has become nothing more than the next 'byte' on the computer screen, the next 30,000 pixel-image, the next software package. It is important to indicate that this is as much an effect of the technology of postmodernity as it is of any philosophical determinants of the cultural practices of postmodernism. For the philosopher or intellectual who assumes that his or her position is to be that of the critic whose criticisms are based upon knowledge, enlightenment, the pursuit of truth or at least of the better arguments in the interests of the construction of a 'rational society', this surely provokes a dismal pessimism.

Yet it would be true to say that this kind of pessimism is, in a sense, rather banal. With this form of pessimism, there yet remains the hope of Enlightenment, of an enlightenment possessed by the critic and therefore available to others. What is at stake in postmodernism is a much more rigorous form of Pessimism, one which will act as a philosophical counter to the Optimism on which Enlightenment and modernity are fundamentally grounded. As I indicated earlier, such Optimism projects into the future a moment of redemption of the present. It suggests the possibility and even the eventual necessity of a coincidence between intellection and material practice, between aesthetics and politics, between 'I' as the Subject of consciousness and 'me' as its Object. Thereby it suggests the immanence as well as the imminence of a moment of self-presence; and fundamentally, therefore, such an Optimism can be seen to be predicated upon a philosophy of Identity. If the postmodern is distinguishable from the modern, the distinction lies in the willingness of postmodernism to countenance and indeed to encourage a philosophy of alterity. The Pessimism of the postmodern lies in a realization that the future will not redeem the present; that the material world may be thoroughly resistant to consciousness and to our determination to master it by signification; that history, in short, does not exist *for* the Subject.

Such a Pessimism, of course, has nothing to do with an emotion of sadness. It is, rather, of the philosophical order of an ethical demand. If the crude formulation of Optimism is that 'all is for the best in the best of all possible worlds', then Pessimism does not strictly speaking simply or simplistically state the reverse, that 'all is for the worst in the worst of all possible worlds'. Rather, it takes as its first step the acknowledgement, even within modernist Optimism, that there are a number of 'possible worlds'. It advances from this that these possible worlds may exist simultaneously (in the form, say, of 'first' world, 'Third' world, 'underdeveloped' world, and so on), and that we should bear witness to the differend which constitutes their mutual relations. We cannot therefore homogenize these worlds, nor can we hierarchize their order of priority or normativity. We are in no position to speak of the 'all', and therefore cannot describe it as being either 'for the best' or 'for the worst': the 'all' is, in fact, precisely the kind of homogenizing semantic trope which postmodernism would counter with 'the local' or, better, the 'singularity of the event'. The singularity of the event always implicates the Subject in an act of judgment, and such judgments, made without criteria, are best faced both stoically and ethically.[47] Postmodern Pessimism derives from the realization that 'the just' can never be formulated; the positive aspect of such Pessimism lies in the realization that the just must be enacted, invented. History may not exist for the Subject; but the Subject must 'just' exist.

NOTES

1 For a full indication of the scope of these debates, see T.Docherty (ed.), *Postmodernism: A Reader* (Hemel Hampstead: Harvester-Wheatsheaf, 1993), and C.Jencks (ed.), *The Postmodern Reader* (London: Academy Editions, 1992).

2 F.de Onís (ed.), *Antologia de la poesia española e hispanoamericana* (Madrid, 1934); A.Toynbee, *A Study of History,* vol. 1 (1934; 2nd edn, Oxford: Oxford University Press, 1935), p. 1, note 2, and vol. 5 (Oxford: Oxford University Press, 1939), p. 43. For a fuller documentation of the history of the term 'postmodernism', see M.Köhler, '"Postmodernismus": Ein begriffsgeschichtlicher Überblick', *Amerikastüdien,* 22:1 (1977).

3 H.White, *Metahistory* (Baltimore: Johns Hopkins University Press, 1973; repr. 1987). pp. 61–2.

4 E.Auerbach, *Mimesis* (1946; trans. W.R.Trask; repr. Princeton: Princeton University Press, 1974), p. 552. See my comments on what, theoretically, is at stake in this text in T.Docherty, *After Theory* (London: Routledge, 1990), pp. 122–3.

5 L.A.Fiedler, 'The New Mutants', *Partisan Review,* 32 (1965):505–6. The distinction between aesthetic postmodernism as mood and political postmodernity as a periodizing term has often been seen as a state of affairs productive of a specific 'schizophrenia'. For more on this, see F.Jameson, *Postmodernism* (London: Verso, 1991), pp. 25ff.; and cf. the work of Deleuze and Guattari and those thinkers usually grouped under the rubric of 'anti-psychiatry', such as Rollo May, David Cooper, R.D.Laing, Norman O.Brown and others.

6 See, e.g., J.Habermas, *Theory of Communicative Action,* 2 vols, trans. T. McCarthy (London: Heinemann, 1984); Habermas, *Philosophical Discourse of Modernity,* trans. F.G.Lawrence (London: Polity, 1985); F.Jameson, *Late Marxism* (London: Verso, 1990); E.Mandel, *Late Capitalism* (London: Verso, 1978).

7 J.Lyotard, *The Postmodern Condition* [14.44], xxiv. Lyotard indicates that such a definition

is ‘simplifying to extremes’; and later, in *Le Postmoderne expliqué aux enfants* [14.34], 40, he points out that in this text he overstressed the narrative genre.

8 Lyotard, *Postmodern Condition,* [14.44], 81.

9 For more on the event, see Lyotard, ‘The Sublime and the avant-garde’, in A. Benjamin (ed.) [14.47] and cf. G.Bennington, *Lyotard: Writing the Event* (Manchester: Manchester University Press, 1988). On justice, see Lyotard, *Le Différend* [14.30] and Lyotard and J.-L.Thébaud, *Au juste* [14.41].

10 T.Adorno and M.Horkheimer, *Dialectic of Enlightenment* (1944; trans. J. Cumming, London: Verso, 1986), p. 6.

11 P.Gay, *The Enlightenment,* vol. 1 (Oxford: Oxford University Press, 1966), p. xiii.

12 Adorno and Horkheimer, *Dialectic,* p. 3.

13 *Ibid.,* p. 6.

14 *Ibid.,* p. 7.

15 *Ibid.,* p. 9.

16 Lyotard, ‘Svelte Appendix to the Postmodern Question’, trans. T.Docherty, in R.Kearney (ed.), *Across the Frontiers* (Dublin: Wolfhound Press, 1988), p. 265.

17 See, for examples, J.L.Austin, *How to do Things with Words* 2nd edn, (Oxford: Oxford University Press, 1975); K.Burke, *Language as Symbolic Action* (Berkeley: University of California Press, 1966); S.Fish, *Self-Consuming Artifacts* (Berkeley: University of California Press, 1972), and *Is there a Text in this Class*? (Cambridge, Mass.: Harvard University Press, 1980); W.J.T.Mitchell (ed.), *Against Theory* (Chicago: University of Chicago Press, 1985), which includes a ‘more-pragmatist-than-thou’ statement by Richard Rorty, the most explicitly ‘New Pragmatist’ of current pragmatic theorists.

18 Paul de Man, *The Resistance to Theory* (Manchester: Manchester University Press, 1986), p. 11. See also G.Frege, ‘On Sense and Meaning’, in M.Black and P.T.Geach (eds), *Translations from the Philosophical Writings of Gottlob Frege* (Oxford: Blackwell, 1952).

19 On the philosophical deconstruction of such identity, see, e.g., V.Descombes, *Modern French Philosophy,* trans. L.Scott-Fox and J.M.Harding (Cambridge: Cambridge University Press, 1980), p. 38.

20 Adorno and Horkheimer, *Dialectic,* p. 7.

21 *Ibid.,* p. 13.

22 See M.Foucault, *Folie et déraison* (Paris: Plon, 1961).

23 Voltaire, *Candide* (Oxford: Oxford University Press, 1968), passim; John Milton, ‘Paradise Lost’, in B.A.Wright (ed.), *Milton: Poems* (London: Dent, 1956), p. 218 (Bk iv, line 112) and p. 164 (Bk i, line 253). Cf. my comments on this in Docherty, *On Modern Authority* (Brighton: Harvester Press, 1986), ch. 7.

24 H.Blumenberg, *The Legitimacy of the Modern Age* (1966), trans. R.M.Wallace (Cambridge, Mass.: MIT Press, 1983), p. 404.

25 The indebtedness of this mode of thinking to the proto-existentialist Kierkegaard should be clear: the sense that one was always ‘embarked’ and that the grounds upon which one makes judgments are constantly shifting was always close to the centre of Kierkegaardian thinking.

26 See, e.g., C.Jencks, *Postmodernism* (London: Academy Editions, 1987), and P. Portoghesi, *Postmodern* (New York: Rizzoli, 1983).

27 See D.Harvey, *The Condition of Postmodernity* (Oxford: Blackwell, 1989).

28 See K.Frampton, ‘Towards a Critical Regionalism’, in H.Foster (ed.), *Postmodern Culture* (London: Pluto Press, 1983).

29 J.-F.Lyotard, *The Postmodern Condition* [14.44], xxiv. For the suggestion that this is over stated, see Lyotard, *Le Postmoderne expliqué aux enfants* [14.34], 40.

30 W.Benjamin, *Illuminations,* ed. Hannah Arendt, trans. H.Zohn (Glasgow: Fontana, 1973), p. 258.
31 See, e.g., Lyotard, *Rudiments païens* [14.27] and *Instructions païennes* [14.26].
32 Z.Bauman, *Modernity and the Holocaust* (Oxford: Polity Press, 1979), p. 7.
33 *Ibid.,* p. 8.
34 *Ibid.,* pp 202–3.
35 *Ibid.,* p. 203.
36 J.Baudrillard, S*imulations [*14.19], 25.
37 See J.Derrida, *Margins of Philosophy,* trans. A.Bass (Brighton: Harvester, 1982), p. 213.
38 Lyotard and R.Rorty, 'Discussion' [14.49], 581–4.
39 See Lyotard, *Le Différend* [14.30].
40 For a full exploration of this notion of 'judging without criteria', see Lyotard and Thébaud, *Au juste* [14.41].
41 See G.Debord, *La Société du spectacle* (Paris: Buchet-Chastel, 1968); P.Virilio, *L'Horizon négatif* (Paris: Galilée, 1984), esp. cinquième partie.
42 See J.Baudrillard, *La Guerre du golfe n'a pas eu lieu* [14.15], and C.Norris, *Intellectuals and the Gulf War* (London: Lawrence & Wishart, 1991).
43 A.Badiou, *Manifeste pour la philosophie* (Paris: Seuil, 1989), p. 17 (trans. T. Docherty).
44 J.Habermas, *Legitimation Crisis,* trans. T.MacCarthy (London: Heinemann, 1976).
45 E.Levinas, *The Levinas Reader,* ed. Séan Hand (Oxford: Blackwell, 1989), pp. 82, 83.
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Glossary

alterity—a perspective on otherness that goes beyond mere binary opposition. In the work of Emmanuel Levinas, the other is ethically prior to any projection of self.

apodictic—a term used to refer to that which is absolutely certain and necessarily true. Husserl introduced the phenomenological method in order to make philosophy a 'rigorous' science based on apodictic grounds.

aporia—from the Greek *apeiron* (boundless, infinite). Term used for a puzzling question or theme that generates other questions, but has no clear and simple resolution.

apperception—a primary tenet of the philosophy of reflective consciousness that refers to an awareness of one's own changing mental states. For Kant transcendental apperception describes the unity of consciousness (pure ego) that precedes and synthesizes our perceptions, thus grounding any possibility of experience at all.

binary opposition—a principle first explored in the theory of Ferdinand de Saussure, the Swiss linguist whose *Cours de linguistique générale* (1916) pointed out the relational features of language that later influenced the development of structuralism. It identifies the 'phonemic' differences that allow us to recognize significant contrasts between words as spoken (e.g., bat/cat), while at the same time ignoring phonemic differences that are not used to distribute meaning in a particular language (e.g., coat/caught).

categorical imperative—Kant's 'moral law' which is universally binding by self-legislating reason. One formulation would be: 'Act only on that maxim through which you can at the same time will that it should become a universal law.'

critical theory—in its most general application, designates the activity of cultural critique as philosophical *praxis*. This would include *Kulturkritik* as practised by members of the Frankfurt school (Horkheimer, Marcuse, Adorno, Benjamin and Habermas), as well as by French and Italian social philosophy represented by Gramsci, Foucault, Althusser and Lyotard. A broad category encompassing studies using Marxist and Freudian methods of analysis, as well as works focusing on aesthetics and mass culture.

Dasein—Heidegger's term to designate 'that being for whom Being is an issue', a concept most fully developed in *Being and Time*. Originally a word in German simply meaning 'existence', it takes on a contextualized resonance, and Heidegger stressed that *Dasein* was never to be understood simply as the Cartesian 'subject'.

deconstruction—a term used by Jacques Derrida to describe the strategies and tactics which can be used to re-examine the presuppositions of texts which are usually read from a logocentric perspective. It represents a philosophical challenge to the 'metaphysics of presence' by including attention to the negative term which is always left as a trace of supplementary meanings.

différance—more than just the difference *(différence)* that stands in opposition to identity, this term is used by Derrida to describe the prior ground upon which such oppositions are constructed. As such, it always resists binary categories by going

beyond them.

differend ***(différend)***—a term used by Jean-François Lyotard to emphasize the incommensurability of different 'language games' that usually results in the silencing of the weaker participant. A persistent heterogeneity that can never be reduced to sameness.

discourse ethics—a term used by Jürgen Habermas to refer to the linguistic dimension of his project for communicative action. All speakers have the right to freely argue for normative claims that possess universal validity.

eidos—Greek term which has been used in various ways to convey the sense of form, shape, appearance, image or idea. Plato uses this term for his abstract Forms or Ideas reflecting universal essences. For Husserl *eidos* is the essence of a noematic content revealed by the phenomenological method of inquiry. (See also *phenomenology*.)

epochē—the bracketing or suspension of empirical and metaphysical presuppositions of the 'natural attitude'. Husserl proposed such bracketing as the first methodological move of his phenomenology.

être-en-soi—Sartre's term for 'being-in-itself', a mere thing which is acted upon and remains passive. For Sartre this entails inauthentic existence, which evades the responsibility for making choices. Opposed to être-pour-soi, being-for-itself, which actively makes choices and takes responsibility in living authentically.

existentialism—in the twentieth century, the philosophy of existence developed ideas of both Kierkegaard (1813–55) and Nietzsche (1844–1900) that stressed the primacy of individual freedom, choice and responsibility in a world devoid of absolute values. Significant contributors would be Jean-Paul Sartre, Albert Camus and Simone de Beauvoir.

Frankfurt school—founded in 1923, the major centre for critical theory during the 1930s, and re-established after the Second World War, when many of its members were forced to flee to America. (See also *critical theory*.)

fusion of horizons—a concept used by Hans-Georg Gadamer *(Horizontverschmelzung)* to indicate the importance of recognizing historical distance in the activity of philosophical hermeneutics. Approaching any text necessarily brings together the historical horizon of the interpreter, which must be taken into account, with that of an historically distant tradition.

genealogy—a term used first by Nietzsche and later by Foucault to describe the historical interrogation of discursive practices that produce knowledge and shape institutions. Neither predictably evolving nor continuous, these discourses reveal the ultimate locus of power relations that construct the subject.

grammatology—the science of the written sign proposed by Derrida that challenged the dominance of spoken (phonocentric) discourse which privileges presence. The written sign is thus left open to alternative interpretations and meanings.

hegemony—a concept developed by Antonio Gramsci that stresses the ideological importance of cultural institutions in protecting the interests of a dominant class. Apparent consensus is achieved by a political and cultural leadership that transmits and legitimates its own values, which remain unexamined as ideologically neutral. The concept changed the focus of much Marxist theory from the economic base to superstructure.

hermeneutics—a term broadly defined by Paul Ricoeur as 'the art of deciphering indirect meaning'. This philosophical task of interpretation proceeds via the mediations of symbol, myth, dream, image, narrative, text and ideology. For Gadamer as well, all encounters with tradition must be viewed through this structure of interpretation.

hermeneutics of suspicion—the practice of critical or 'depth' hermeneutics that reveals the hidden and often ideological nature of texts, events and social practices. Ricoeur identifies three 'masters of suspicion': Marx, Nietzsche and Freud.

ideal speech situation—a concept suggested by Habermas to describe the required conditions of equality and free, unencumbered speech for participants to reach a universally binding consensus in rational discourse.

ideology—For Marx this meant 'false consciousness', that is, the complex of abstract beliefs that ignore historical and material existence by distorting and concealing social contradictions. The Marxist critiques of religion and German idealism aim to highlight this contradiction. Expanded by the work of Gramsci who recognized the importance of the 'superstructure' in supporting ideological hegemony through cultural institutions. Less negatively, for Ricoeur, the natural inclination within any social grouping to bind itself through foundational myths that appeal to tradition and resist change.

instrumental rationality—a translation of Max Weber's concept *Zweckrationalität,* which identifies goal-oriented rationality as 'the iron cage' from which we cannot escape. It permeates our lives in the form of increasing bureaucracy and narrowing expertise. It greatly influenced Horkheimer's and Adorno's critique of Enlightenment rationality, *Dialectic of Enlightenment*.

intentionality—a concept revived by Franz Brentano from medieval philosophy and later more fully developed by Edmund Husserl in his phenomenology. His emphasis on consciousness as always 'consciousness-of-something' is the foundation for his noetic-noematic structure of the intentional act. Consideration must be given to both the noetic act itself (willing, believing, etc.), as well as to the noematic 'content' of this act. Only in this way is the essence or *eidos* of what is intended revealed. For Husserl, the three modes of intentionality (perception, imagination, and signification) are fully interrelated.

jouissance—While this term is usually translated from the French as 'pleasure', it connotes an orgasmic joy and release that engages the whole body.

life-world *(Lebenswelt)*—a term used in the late work of Husserl (*The Crisis of the European Sciences,* 1937), referring to a shared background of culture, tra-dition and language that contextualizes subjective experience. The prototype of the life-world can be found in the life-philosophy and hermeneutic work of Wilhelm Dilthey who developed Hegel's concept of life and its domain of internal relations. Dilthey also greatly influenced Heidegger's focus on lived, historical experience in *Being and Time* (1927). Most recently, the term reemerges in Habermas's theory of communicative action.

logocentrism—philosophical thinking that privileges 'presence' and attempts to define reality, truth, and knowledge with a concept of 'being' which is rooted in identifiable binary oppositions.

mauvaise-foi—a term used by Sartre that literally means 'bad faith', a mode of living

inauthentically and passively. A refusal to acknowledge that one always has the freedom to choose.

Naturwissenschaft—the German for 'natural philosophy', the study of nature in general. Originally used to refer specifically to the science of investigating mechanistic principles and laws within the field of physics. Opposed to *Geisteswissenschaften* (human sciences) in the work of early hermeneutic theorists such as Dilthey.

noema—see *phenomenology*.

norms—a term referring to the standards or rules invoked to guide human conduct in determining what *ought* to be done, or what one is obliged to do, in an ideal and regulative sense.

ontological difference—for Heidegger, the distinction between 'Being' *(Siein)* and 'beings' *(Seiende),* which emphasizes that merely cataloguing existing beings or 'entities' ignores the ontological priority of Being-qua-Being.

ontology—a branch of philosophy that investigates 'being-as-being'. Questions are raised regarding topics in the metaphysical domain, such as the nature of reality, existence, essence and necessity.

ousia—from the Greek for 'substance'. The term used by Aristotle to indicate the most important and permanent of his ten categories.

phallocentrism—a form of logocentric thinking in which the phallus takes on the identity of *logos* or reason. Women are thereby defined within the context of patriarchal relations which represents them exclusively from a male perspective.

phenomenology—one of the most influential philosophies of the twentieth century, developed by Edmund Husserl. He attempted to secure a rigorous method for describing the vital role of human consciousness in constituting meaning. His project to go 'back to the things themselves' ('zu den Sachen selbst'), first announced in *Logical Investigations* (1900), required a step back from 'the natural attitude' of common sense in an effort to describe the essential contents *(noema)* of our intending acts *(noesis),* Husserl's 'eidetic phenomenology' was later revised by Heidegger into a 'hermeneutic' and 'existential' phenomenology (*Being and Time,* 1927), which in turn influenced numerous philosophers, such as Gadamer, Ricoeur, Merleau-Ponty and Sartre. (See also *intentionality*.)

positivism—the view of scientific methodology that privileges 'neutral' observation and control in experimental procedures. First envisioned by Auguste Comte (1798–1857) as the most developed stage of human development, it is now associated with technological rationalization and control.

postmodernism—a term used by Jean-François Lyotard (*The Postmodern Condition,* 1979) to refer to the radical and constant mutability contained within the concept of modernism itself; not to be understood simply as a 'stage' that comes after or replaces modernism. An influential challenge to the notion of the autonomous subject guided by the metanarratives of historical consciousness, postmodernism has affected varied intellectual domains, such as philosophy, literature and an.

poststructuralism—shares with structuralism the rejection of the paradigm of the human subject as the self-contained *cogito* or consciousness found in phenomenology and existentialism. However, it also rejects the static internal relations of the structuralist model, opting instead for multiple possibilities within the signifier-signified

combinations. The later work of some French philosophers who began as 'structuralists' (e.g., Lacan, Barthes) most closely fits this stance. (See also *semiotics*.)

readiness-to-hand *(Zuhandenheit)*—for Heidegger, *Dasein's* relationship to entities as practical comportment and everyday involvement, e.g., just *using* the hammer and not consciously articulating the process. Contrasts with the concept of 'Presence-at-Hand' *(Vorhandenheit),* whereby *Dasein* regards an 'object' with abstract (circumspective) comportment.

reification—a concept *(Verdinglichung)* used by Marx to describe the reduction of human beings and human relations to 'thing-like' objects, as well as the alienation of human labour from the material objects produced by its own work. Later much developed by Lukács in the longest chapter of *History and Class Consciousness*.

semiotics—a 'science of signs', also known as semiology, developed by Ferdinand de Saussure in Europe and C.S.Peirce in America. Studies the constitutive-relational nature of signs and their communicative properties in society. The linguistic sign is a structural relationship between an acoustic 'signifier' and the concept or 'signified' it refers to. Much extended by Roland Barthes in his analyses of social semiotics where signification is heavily dependent on the connotation or associative powers of the sign, in popular culture and advertising especially.

signifier, signified—see *semiotics*.

social imaginary—for Ricoeur, the symbolic discourses which permit the formation of complex socio-political groupings. Foundational symbols and myths provide the ideological basis for this identity, which is constantly tested by the potential for change and the need for change (Utopian possibilities).

structuralism—a movement focusing on internal structural relations rather than content, based on the linguistic method of analysis developed by Ferdinand de Saussure. He suggested that language constituted a self-contained system, wherein meaning was generated within language itself rather than merely reflecting a 'given' reality. This revolutionary claim, and the methodology it entailed, attracted immense interest across a spectrum of intellectual disciplines. Lévi-Strauss applied de Saussure's insights to anthropology, Lacan to psychoanalysis, Althusser to Marxism and Foucault to his wide-ranging social critique. The exponents of structuralism maintained an adversarial relation with existentialists and phenomenologists, whose belief in a transcendentally free human subject was rejected. (See *also poststructuralism*.)

technē—from the Greek for skill, art, or craft. For Aristotle anything created by humans, as opposed to *physis* (nature) which is anything not humanly crafted. This knowledge of *how* to reach a desired end can be procedural as well, and would include not only the fine arts of music, dance, poetry, drama, etc., but also such special skills as rhetoric and medicine.

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In addition to these papers, the volume contains a helpful chronology to the major scientific and philosophical events in the twentieth century. It also provides an extensive glossary of technical terms in the philosophy of science, logic and mathematics, and brief biographical notes on major figures in these fields.

Stuart G.Shanker is Professor of Philosophy and of Psychology at York University, Canada. He has published widely on the philosophy of Ludwig Wittgenstein and artificial intelligence.

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General Editors—G.H.R.Parkinson and S.G.Shanker

The *Routledge History of Philosophy* provides a chronological survey of the history of western philosophy, from its beginnings in the sixth century BC to the present time. It discusses all major philosophical developments in depth. Most space is allocated to those individuals who, by common consent, are regarded as great philosophers. But lesser figures have not been neglected, and together the ten volumes of the *History* include basic and critical information about every significant philosopher of the past and present. These philosophers are clearly situated within the cultural and, in particular, the scientific context of their time.

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X *Philosophy of Meaning, Knowledge and Value in the C_20*
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Each volume contains 10–15 chapters by different contributors

Routledge History of Philosophy

Volume IX

Philosophy of Science, Logic and Mathematics in the Twentieth Century

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General editors' preface

The history of philosophy, as its name implies, represents a union of two very different disciplines, each of which imposes severe constraints upon the other. As an exercise in the history of ideas, it demands that one acquire a 'period eye': a thorough understanding of how the thinkers whom it studies viewed the problems which they sought to resolve, the conceptual frameworks in which they addressed these issues, their assumptions and objectives, their blind spots and miscues. But as an exercise in philosophy, we are engaged in much more than simply a descriptive task. There is a crucial, critical aspect to our efforts: we are looking for the cogency as much as the development of an argument, for its bearing on questions which continue to preoccupy us as much as the impact which it may have had on the evolution of philosophical thought.

The history of philosophy thus requires a delicate balancing act from its practitioners. We read these writings with the full benefit of historical hindsight. We can see why the minor contributions remained minor and where the grand systems broke down: sometimes as a result of internal pressures, sometimes because of a failure to overcome an insuperable obstacle, sometimes because of a dramatic technological or sociological change, and, quite often, because of nothing more than a shift in intellectual fashion or interests. Yet, because of our continuing philosophical concern with many of the same problems, we cannot afford to look dispassionately at these works. We want to know what lessons are to be learned from the inconsequential or the glorious failures; many times we want to plead for a contemporary relevance in the overlooked theory or to consider whether the 'glorious failure' was indeed such or simply ahead of its time: perhaps even ahead of its author.

We find ourselves, therefore, much like the mythical 'radical translator' who has so fascinated modern philosophers, trying to understand an author's ideas in their and their culture's eyes, and, at the

same time, in our own. It can be a formidable task. Many times we fail in the historical undertaking because our philosophical interests are so strong, or lose sight of the latter because we are so enthralled by the former. But the nature of philosophy is such that we are compelled to master both techniques. For learning about the history of philosophy is not just a challenging and engaging pastime: it is an essential element in learning about the nature of philosophy—in grasping how philosophy is intimately connected with and yet distinct from both history and science.

The *Routledge History of Philosophy* provides a chronological survey of the history of western philosophy, from its beginnings up to the present time. Its aim is to discuss all major philosophical developments in depth, and, with this in mind, most space has been allocated to those individuals who, by common consent, are regarded as great philosophers. But lesser figures have not been neglected, and it is hoped that the reader will be able to find, in the ten volumes of the *History,* at least basic information about any significant philosopher of the past or present.

Philosophical thinking does not occur in isolation from other human activities, and this *History* tries to situate philosophers within the cultural, and in particular the scientific, context of their time. Some philosophers, indeed, would regard philosophy as merely ancillary to the natural sciences; but even if this view is rejected, it can hardly be denied that the sciences have had a great influence on what is now regarded as philosophy, and it is important that this influence should be set forth clearly. Not that these volumes are intended to provide a mere record of the factors that influenced philosophical thinking; philosophy is a discipline with its own standards of argument, and the presentation of the ways in which these arguments have developed is the main concern of this *History*.

In speaking of 'what is now regarded as philosophy', we may have given the impression that there now exists a single view of what philosophy is. This is certainly not the case; on the contrary, there exist serious differences of opinion, among those who call themselves philosophers, about the nature of their subject. These differences are reflected in the existence at the present time of two main schools of thought, usually described as 'analytic' and 'continental' philosophy respectively. It is not our intention, as general editors of this *History,* to take sides in this dispute. Our attitude is one of tolerance, and our hope is that these volumes will contribute to an understanding of how philosophers have reached the positions which they now occupy.

One final comment. Philosophy has long been a highly technical subject, with its own specialized vocabulary. This *History* is intended not only for the specialist but also for the general reader. To this end, we have

tried to ensure that each chapter is written in an accessible style; and since technicalities are unavoidable, a glossary of technical terms is provided in each volume. In this way these volumes will, we hope, contribute to a wider understanding of a subject which is of the highest importance to all thinking people.

G.H.R.Parkinson
S.G.Shanker

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publishing *Wittgenstein and the Foundations of AI,* and with E.S.Savage-Rumbaugh and Talbot J.Taylor, *Apes, Language and the Human Mind: Essays in Philosophical Primatology*.

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Chronology

The following sources have been consulted for much of the material on science and technology: Alexander Hellemans (ed.) *The Timetables of Science* (New York, Simon and Schuster, 1987); Bruce Wetterau, *The New York Public Library Book of Chronologies* (New York, Prentice Hall, 1990).

	Philosophy (general)	Philosophy of science	Science and technology
1840		Whewell, *Philosophy of the Inductive Sciences*	
1865	Mill, *Examination of Sir William Hamilton's Philosophy*		
1866		Lange, *History of Materialism*	
1872		E. Dubois-Raymond, *The Limits of Natural Knowledge*	
1873		Jevons, *The Principles of Science*	Maxwell, *Electricity and Magnetism*
1874		Kirchoff, *Principles of Mechanics*	
1877	Peirce, 'The Fixation of Belief'		
1878	Peirce, 'How to Make Our Ideas Clear' Peirce, 'The Doctrine of Chances'		
1881		Helmholtz, *Popular Lectures*	Michelson–Morley experiment (speed of light found to be the same in perpendicular directions)
1883		Mach, *The Science of Mechanics*	
1885		Clifford, *Commonsense of the Exact Sciences*	
1892	Frege, 'On Sense and Reference'	Pearson, *The Grammar of Science*	Lorentz–Fitzgerald contraction (contraction of objects at high speeds)
1893	Bradley, *Appearance and Reality* Peirce, *Search for a Method* (not completed)	Mach, *Popular Scientific Lectures* Hertz, *The Principles of Mechanics*	
1894	Peirce, *The Principles of Philosophy* (not completed)		

1895			Discovery of x-rays (Röntgen), cloud chamber developed (Thomson)
1897			Discovery of electron (Thomson), charge of electron measured (Thomson)
1898		Peirce, *The History of the Sciences* (not completed)	Term 'radioactivity' coined (M. Curie) Alpha and beta rays (radioactivity from uranium) discovered (Rutherford)
1900	Husserl, *Logical Investigations*		Quantum theory initiated: substances can emit light only at certain energies (Planck)
1902		Poincaré, *Science and Hypothesis*	Rutherford and Soddy: 'The Cause and Nature of Radioactivity'
1903	Moore, 'Refutation of Idealism' Moore, *Principia Ethica* Peirce, 'Pragmatism' (Harvard lectures)		
1904		Duhem, *The Aim and Structure of Physical Theory*	Thomson's model of the atom: electrons embedded in sphere of positive electricity
1905	Russell, 'On Denoting' Mach, *Knowledge and Error*	Boltzmann, *Popular Writings*	Einstein explains Brownian motion (motion of small particles suspended in liquid); seen as first proof of existence of atoms Einstein's papers on the special theory of relativity Einstein postulates light quantum (term 'photon' coined 1926) for particle-like behaviour of light
1907	James, *Pragmatism* Bergson, *Creative Evolution*		
1908			Minkowski, *Space and Time* (proposes 4 dimensional universe)

	Philosophy (general)	Philosophy of science	Science and technology
1910			Marie Curie, *Treatise on Radioactivity*
1911			Rutherford's atomic theory: positively charged nucleus surrounded by negative electrons
1913	Husserl, *Ideas: General Introduction to Pure Phenomenology*		Bohr's model of the atom: electrons revolve around nucleus in fixed orbits, give off fixed quanta of energy by jumping orbit
1914	Russell, *Our Knowledge of the External World* Bradley, *Essays on Truth and Reality*	Broad, *Perception, Physics, and Reality*	Discovery of proton (Rutherford)
1915			Einstein's general theory of relativity
1917		Schlick, *Space and Time in Contemporary Physics*	Existence of black holes predicted (Schwarzschild)
1918	Russell, *The Philosophy of Logical Atomism* Schlick, *General Theory of Knowledge*		Third law of thermodynamics (Nernst)
1920	Whitehead, *The Concept of Nature*	Campbell, *Physics: The Elements*	Existence of neutron (uncharged particle) proposed (Harkins); discovered 1932 Red shift in spectra of galaxies reported (Slipher) Copenhagen Institute of Theoretical Physics founded (Bohr)
1921	Wittgenstein, *Tractatus Logico-Philosophicus*	Haldane, *The Reign of Relativity*	
1923		Broad, *Scientific Thought*	Particle-wave duality of matter proposed (de Broglie); confirmed 1927 (Davisson)
1924			Bose statistics for light quanta (Bose) Galaxies shown to be independent systems (Hubble)

1925		Whitehead, *Science and the Modern World*	Electron spin hypothesized (Goudsmit and Uhlenbeck) Pauli's exclusion principle (electrons of same quantum number cannot occupy same electron) Quantum mechanics given first comprehensive formulation (Born, Heisenberg and Jordan) 'Scopes Monkey Trial' (high-school teacher prosecuted for teaching evolution)
1926			Probability interpretation of quantum mechanics (Born) Fermi–Dirac statistics Planck's law derived from first principles (Dirac) First paper on wave mechanics (Schrödinger); Schrödinger's equation
1927	Heidegger, *Being and Time* McTaggart, *The Nature of Existence*	Russell, *The Analysis of Matter* Weyl, *Philosophy of Mathematics and Natural Science* Bridgman, *The Logic of Modern Physics*	Heisenberg's uncertainty principle (cannot determine simultaneously position and momentum of electron) First version of 'Big Bang' theory of origins of universe (Lemaitre)
1928	Carnap, *The Logical Structure of the World*	Eddington, *The Nature of the Physical World* Reichenbach, *The Philosophy of Time and Space* Campbell, *Measurement and Calculation*	Dirac's equation combines quantum mechanics with special relativity
1929	Carnap, Hahn and Neurath, *The Scientific World View: The Vienna Circle* Dewey, *Experience and Nature* Lewis, *Mind and the World Order*		Heisenberg and Pauli's quantum field theory Hubble's law (more distant a galaxy, faster it is receding from Earth)

	Philosophy (general)	Philosophy of science	Science and technology
1930		Heisenberg, *The Physical Principles of Quantum Theory*	Dirac, Principles of Quantum Mechanics 'Neutrino' postulated (Pauli); term coined 1932 (Fermi); discovered 1955 Discovery of planet Pluto (Tombaugh)
1931	Tarski, 'The Concept of Truth in Formalized Languages'	Neurath, 'Physicalism' Schlick, 'Causality in Contemporary Physics' Carnap, 'Die physikalische, Sprache als Universalsprache der Wissenschaft' (trans. *The Unity of Science*, 1934)	'Positron' (positively charged electron) postulated (Dirac); discovered 1932 (Anderson); first form of anti-matter discovered
1932		Joad, *Philosophical Aspects of Modern Science*	Heisenberg's model of atomic nucleus: neutrons and protons held together by exchanging electrons Discovery of neutron (Chadwick)
1933			Fermi's theory of beta decay (first suggestion of weak interaction) Meisner effect discovered (Meisner)
1934	Carnap, *The Logical Syntax of Language*	Bachelard, *The New Scientific Spirit*	
1935		Popper, *The Logic of Scientific Discovery* Eddington, *New Pathways in Science*	'Exchange particle' causing attraction between particles in atomic nucleus (strong force) proposed (Yukawa); called 'meson' (1939), now 'pion'
1936	Ayer, *Language, Truth and Logic* Schlick, 'Meaning and Verification'	Husserl, *The Crisis of European Sciences and Transcendental Phenomenology*	Bridgman, *The Nature of Physical Theory* Inauguration of *The International Encyclopedia of Unified Sciences* (Neurath, Carnap, Morris)
1937		Stebbing, *Philosophy and the Physicists*	'Muon' discovered (Anderson); initial claim to be Yukawa meson shown false 1945 (Conversi, Puncini and Picconi) Concept of 'charge conjugation' introduced

			for particle interactions (Kramers); in 1958 is shown to be invalid for some interactions
1938		Reichenbach, *Experience and Prediction* Carnap, 'Logical Foundations of the Unity of Science'	
1939	Blanshard, *The Nature of Thought*	Eddington, *The Philosophy of Physical Science*	Method of calculating properties of material objects from quantum principles developed (Herring)
1940	Russell, *An Inquiry into Meaning and Truth* Collingwood, *An Essay on Metaphysics*		
1942			Two-meson theory (Sakata and Inoué) First controlled chain reaction (Fermi) First radio map of universe (Reber)
1943	Sartre, *Being and Nothingness*		Quantum electrodynamics (QED) developed (Tomonaga)
1944		Reichenbach, *Philosophical Foundations of Quantum Mechanics*	
1946		Frank, *Foundations of Physics*	Term 'lepton' introduced for light particles not affected by strong force (Pais and Moller) 'V particle' discovered (Rochester and Butler)
1947	Carnap, *Meaning and Necessity*		'Pion' (Yukawa meson) discovered (Powell and team) Lamb Shift discovered; independent development of quantum electrodynamics (QED) four years after similar theory of Tomonaga Two-meson theory developed independently four years after similar theory of Sakata and Inoué (Marshak & Bethe)

	Philosophy (general)	Philosophy of science	Science and technology
1948			Opposed theories of the universe formulated: steady-state theory (Bond, Gold, Hayle) and Big Bang theory (Gamow, Alpher, Harmon)
1949	Schlick, *Philosophy of Nature*		Atomic nucleus not necessarily spherical (Rainwater)
1950	Strawson, 'On Referring'		
1951	Quine, 'Two Dogmas of Empiricism' Goodman, *The Structure of Appearance*		
1952		Wisdom, *Foundations of Inference in Natural Science* Hempel, *Fundamentals of Concept Formation in Empirical Science*	Bubble chamber for study of subatomic particles developed (Glaser)
1953	Wittgenstein, *Philosophical Investigations* Quine, *From a Logical Point of View*	Toulmin, *The Philosophy of Science* Braithwaite, *Scientific Explanation*	'Strangeness' quantum number introduced (Gell-Mann, Nakano and Nishijina)
1954	Ryle, *Dilemmas*	Reichenbach, *Nomological Statements and Admissable Operations*	European Centre for Nuclear Research (CERN) founded
1955			Neutrinos observed (Cowen and Reines)
1956	Reichenbach, *The Direction of Time*		Anti-neutron discovered (Cook, Lambertson, Picconi, Wentzel)
1957		Bohm, *Causality and Chance in Modern Physics*	Parity not conserved for weak interactions (Yang, Lee, Wu) 'Boson' (W particle) proposed as mediator of weak interactions (Schwinger)
1958	Polanyi, *Personal Knowledge*	Hanson, *Patterns of Discovery* Bohr, *Atomic Physics and Human Knowledge*	

1959	Strawson, *Individuals*	Bunge, *Causality*	
1960	Quine, *Word and Object*		Mossbauer effect discovered (Mossbauer); used to confirm Einstein's general theory of relativity (Pound and Reblan) 'Resonances' (short-lived particles) discovered (Alvarez)
1961		Nagel, *The Structure of Science* Harré, *Theories and Things* Capek, *Philosophical Impact of Contemporary Physics*	First human being to orbit the Earth (Gagarin)
1962	Austin, *How to do Things with Words* Black, *Models and Metaphors*	Kuhn, *The Structure of Scientific Revolutions* Sellars, *Science, Perception and Reality* Maxwell, 'The Ontological Status of Theoretical Entities' Hesse, *Models and Analogies in Science*	
1963	Popper, *Conjectures and Refutations*	Smart, *Philosophy and Scientific Realism* Grunbaum, *Philosophical Problems of Space and Time*	First recognition of a quasar (Schmidt)
1964	Scheffler, *The Anatomy of Inquiry*		Concept of 'quark' introduced (Gell-Mann)
1965		Hempel, *Aspects of Scientific Explanation*	Confirmation of Big Bang theory with accidental discovery of radio-wave remnants of Big Bang (Penzias and Wilson)
1966		Hempel, *Philosophy of Natural Science*	
1967	Davidson, 'Truth and Meaning'	Scheffler, *Science and Subjectivity*	Strong nuclear force shown to violate parity conservation (Lobashov) 'Electroweak theory' unifies weak and electromagnetic forces (Weinberg, Salam, Glashow) First pulsar discovered (Bell)

	Philosophy (general)	Philosophy of science	Science and technology
1969	Quine, *Ontological Relativity*		
1972	Popper, *Objective Knowledge*		Quantum chromodynamics (QCD) initiated (Gell-Mann) Biblical accounts of creation should receive equal attention as evolutionary theory: California State Board of Education
1973			Creation of the universe from absolutely nothing under probabilistic laws of quantum mechanics proposed (Tyron)
1974		Sklar, *Space, Time and Spacetime* Barnes, *Scientific Knowledge and Sociological Theory*	First of GUTs (grand unified theories) unifies strong, weak and electro-magnetic forces (Georgi, Glashow) J/psi particle discovered (Richter; Trug); confirmation of charm theory of quarks
1975	Dummett, *What is a Theory of Meaning?*	Feyerabend, *Against Method*	
1976		Bloor, *Knowledge and Social Imagery*	
1977		Lauden, *Progress and its Problems*	Upsilon particle discovered (Lederman): confirms quark theory of baryons
1978	Goodman, *Ways of Worldmaking*	Feyerabend, *Science in a Free Society*	
1979		Latour and Woolger, *Laboratory Life* Lakatos, *The Methodology of Scientific Research Programs*	
1980	Rorty, *Philosophy and the Mirror of Nature*	van Fraasen, *The Scientific Image*	Neutrinos may have tiny mass, thus representing 'missing mass' thought to hold galaxies together

			'Inflationary universe' model: universe expands rapidly for short time before Big Bang (Guth) Revival of 'catastrophism': collision between Earth and large body results in mass extinctions, including extinction of dinosaurs, (W. and L. Alvarez)
1981	Putnam, *Reason, Truth and History*		'New inflationary universe' theory of the origins of the universe (Linder; Albrecht and, Steinhardt)
1983		Cartwright, *How the Laws of Physics Lie* Hacking, *Representing and Intervening*	Discovery of W and Z particles; further confirms electroweak theory (CERN)
1985		Fox–Keller, *Reflections on Gender and Science*	Hole in ozone layer over Antartica discovered
1986		Harding, *The Feminist Question in Science*	Individual quantum jumps in individual atoms observed Fifth fundamental force, hypercharge, discovered (Fishbach); not universally accepted Discovery of 'Great Attractor', a point towards which a number of galaxies (including ours) are moving
1987	Feyerabend, *Farewell to Reason* Lakoff, *Women, Fire and Dangerous Things*	Latour, *Science in Action* Putnam, *The Many Faces of Realism*	US Supreme Court rejection of equal-time concept of teaching for creationism
1988		Hawking, *A Brief History of Time*	
1989			Controversy over cold-fusion experiments (production of energy through nuclear fusion at room temperature); results subsequently discredited

	Mathematics	Logic	Psychology/Philosophy of mind
1822	Fourier series defined (Fourier)		
1829	First account of non-Euclidean geometry (Lobachevski)		
1837		Bolzano, *Wissenschaftslehre*	
1839			Herbart, *Psychological Investigations*
1843		Mill, *System of Logic*	
1847		Boole, *The Mathematical Analysis of Logic*	
1854		Boole, *Laws of Thought*	
1862	Riemann's non-Euclidean geometry		
1872	Dedekind, *Continuity and the Irrational Numbers*		
1874	Cantor, *Mengenlehre*	Lotze, *Logic*	Brentano, *Psychology from an Empirical Standpoint* Wund, *Foundations of Physiological Psychology*
1879		Frege, *Begriffschrift*	
1882	Dedekind, '*Was sind und was sollen die Zahlen*?'		
1883	Cantor, *Foundations of a General Theory of Manifolds*	Bradley, *Principles of Logic*	
1884	Frege, *The Foundations of Arithmetic*		
1886			Mach, *The Analysis of Sensations*
1889	Peano, *Principles of Arithmetic*		

1890			James, *The Principles of Psychology*
1891	Husserl, *Philosophy of Arithmetic*	Frege, 'Function and Concept'	
1892		Frege, 'Concept and Object'	
1893	Frege, *The Basic Laws of Arithmetic* (vol. 2, 1903)		Freud and Breuer's studies on hysteria
1895	Canton, *Contributions to the Founding of the Theory of Transfinite Numbers* Peano, *Formulaire de Mathematiques* (final vol., 1908) Peirce, *New Elements of Mathematics*		
1899	Hilbert, *Foundations of Geometry*		
1900	Hilbert's address to the International Congress of Mathematicians: 'Mathematical Problems'		Freud, *The Interpretation of Dreams*
1901			Titchener, *Experimental Psychology*
1902	Russell's paradox		Pavlov's dog experiments begin
1903	Russell, *The Principles of Mathematics* Frege, *Basic Laws of Arithmetic*	Peirce, 'Some Topics on Logic' (Lowell lectures)	
1905		Meinong, 'Theory of Objects'	Intelligence test developed, (Binet, Henri, Simon)
1906			Sherrington, *The Integrative Action of the Nervous System*
1908	Axiomatic treatment of set theory (Zermelo)		
1910	Russell and Whitehead, *Principia Mathematica* (1910–13)		
1912	Brouwer, *Intuitionism and Formalism*		Adler, *The Neurotic Character*

	Mathematics	Logic	Psychology/Philosophy of mind
1913			Watson, *Behavior*
1918		Lewis, *Survey of Symbolic Logic*	
1919	Russell, *Introduction to Mathematical Philosophy*		Watson, *Psychology from the Standpoint of a Behaviorist*
1921		Keynes, *A Treatise on Probability*	Russell, *The Analysis of Mind* Rorschach's inkblot test introduced
1923	Skolem: 'Some Remarks on Axiomatic Set Theory'		Piaget, *The Language and Thought of the Child*
1924			Watson, *Behaviorism*
1925			Broad, *The Mind and Its Place in Nature*
1926			Piaget, *The Child's Conception of the World*
1927			Pavlov, *Conditioned Reflexes*
1928		Hilbert, *Principles of Mathematical Logic* von Mises, *Probability, Statistics and Truth*	
1929			Kohler, *Gestalt Psychology*; insulin shock treatment for schizophrenia introduced
1930	Gödel's proof of completeness of first-order predicate calculus		
1931	Gödel's incompleteness theorem Ramsey, *The Foundations of Mathematics* Carnap, 'The Logicist Foundations of Mathematics' Heyting, 'The Intuitionist Foundations of Mathematics' von Neumann, 'The Formalist Foundations of Mathematics'		

1932			Price, *Perception*
1934	Hilbert, *Foundations of Mathematics* (vol. 2 1939)		
1935		Reichenbach, *The Theory of Probability*	Prefrontal lobotomy developed as treatment for mental illness (Moniz) Koffka, *Principles of Gestalt Psychology*
1937		Turing: 'On Computable Numbers' ('Turing machine')	Vygotsky, *Thought and Language* Electro-convulsive treatment (ECT, 'shock treatment') developed for treatment of schizophrenia (Cerlutti, Bini)
1938	Gödel's proof of consistency of continuum hypothesis with basic axioms of set theory	Dewey, *Logic: The Theory of Inquiry*	Skinner, *The Behavior of Organisms*
1939	Wittgenstein's lectures on the foundations of mathematics (published 1975) First volume of *Elements de Mathematique* by 'Nicolas Bourbaki' (pseudonym for group of French mathematicians)	Nagel, *Principles of the Theory of Probability* Carnap, *Foundations of Logic and Mathematics*	
1941		Tarski, *Introduction to Logic, and to the Methodology of the Deductive Sciences*	
1942			Merleau-Ponty, *The Structure of Behavior*
1943		Carnap, *Formalization of Logic*	Skinner and Hull, *Principles of Behavior* Rosenblueth, Wiener and Bigelow, 'Behavior, Purpose, and Teleology' Hull, *Principles of Behavior*
1944			Morgenstern and von Neumann, *Theory of Games and Economic Behavior*
1945	Hempel, 'The Nature of Mathematical Truth'	Waismann, 'Are There Alternative Logics?' Carnap, 'The Two Concepts of Probability'	Merleau-Ponty, *The Phenomenology of Perception*

	Mathematics	Logic	Psychology/Philosophy of mind
1948			Wiener, *Cybernetics* Kinsey, *Sexual Behavior in the Human Male*
1949		Reichenbach, *The Theory of Probability* Kneale, *Probability and Induction*	Ryle, *The Concept of Mind*
1950		Quine, *Methods of Logic* Carnap, *The Logical Foundations of Probability*	Turing, 'Computing Machinery and Intelligence' ('Turing's test')
1951		von Wright, *An Essay in Modal Logic*	
1952		Strawson, *Introduction to Logical Theory* Carnap, *The Continuum of Inductive Methods*	Rapid eye movement (REM) during normal sleep reported (Aservinsky)
1953			Kinsey: *Sexual Behavior in the Human Female* Skinner, *Science and Human Behavior*
1954		Goodman, *Fact, Fiction and Forecast* Savage, *The Foundations of Statistics*	Thorazine introduced for treatment of mental disorders
1955	Homologic algebra developed (Cartan and Eilenberg)		
1956	Wittgenstein, *Remarks on the Foundations of Mathematics*		
1957		von Wright, *The Logical Problem of Induction*	Skinner, *Verbal Behavior* Chisholm, *Perceiving* Hamlyn, *The Psychology of Perception* Geach, *Mental Acts*
1958			Peters, *The Concept of Motivation* von Neumann, *The Computer and the Brain* Malcolm, *Dreaming*

1961	Chaos theory initiated (Lorenz)		Minsky, 'Steps Towards Artificial Intelligence' Grice, 'The Causal Theory of Perception'
1962			Austin, *Sense and Sensibilia*
1963	Independence of Cantor's continuum hypothesis from axioms of set theory demonstrated (Cohen)	von Wright, *The Logic of Preference* Quine, *Set Theory and Its Logic*	Kenny, *Action, Emotion and Will*
1964			Taylor, *The Explanation of Behaviour* Hamilton, 'The genetic evolution of social behavior' (beginning of sociobiology)
1965		Hacking, *Logic of Statistical Inference*	
1966			Masters and Johnson, *Human Sexual Response*
1967	Putnam, 'Mathematics without Foundations'		
1968			Armstrong, *A Materialist Theory of the Mind* Chomsky, *Language and Mind*
1969		Lewis, *Convention*	Dretske, *Seeing and Knowing*
1970		Quine, *Philosophy of Logic* Cohen, *The Implications of Induction*	
1971		Salman, *Statistical Explanation and Statistical Relevance*	Piaget, *Biology and Knowledge*
1972		Kripke, 'Naming and Necessity'	Dreyfus, *What Computers Can't Do*
1973		Lewis, *Counterfactuals* Hintikka, *Logic, Language Games and Information*	

	Mathematics	Logic	Psychology/Philosophy of mind
1974	Wang, *From Mathematics to Philosophy*	Hacking, *The Emergence of Probability* Haack, *Deviant Logic*	Luria, *Cognitive Development*
1975			Fodor, *The Language of Thought*
1977	Putnam, 'Models and Reality' Dummett, *Elements of Intuitionism*		Popper and Eccles, *The Self and Its Brain*
1978			Dennett, *Brainstorms*
1979			Harré, *Social Being*
1980	Exhaustive classification of finite single group completed		
1981			Fodor, *Representations* Dretske, *Knowledge and the Flow of Information*
1983			Searle, *Intentionality* Fodor, *Modularity of Mind* Harré, *Personal Being*
1984			Goodman, *Of Mind and Other Matters*
1985			Harré, Clarke and De Carlo, *Motives and Mechanisms*
1987			Fodor, *Psychosemantics* Johnson, *The Body in the Mind*
1988			Dennett, *The Intentional Stance*

	Biology	Technology
1838	Cell theory established: cell basic structural unit of plant and mammal life (Schleiden, Schwann)	
1832		Babbage's analytical engine
1858	Cell centre of disease processes (Virchow); displaces humoural theory of disease	
1859	Darwin, *The Origin of Species* Role of air-borne bacteria in fermentation (Pasteur); displaces theory of spontaneous generation	First commercial oil well
1862	Spencer, *System of Synthetic Philosophy* ('62–'93)	
1863	Huxley, *Man's Place in Nature*	
1866	Mendel's studies on principles of heredity	
1867		Dynamite patented (Nobel)
1869		Suez canal completed
1871	Darwin, *Descent of Man*	
1876		Telephone patented (Bell)
1880	Germ theory of disease (Pasteur)	
1881	First artificially produced vaccine (Pasteur)	
1885		Electric transformer invented
1891	Ehrlich's diptheria antitoxin establishes field of immunology	
1892	Existence of virus demonstrated (Ivanovsky)	

	Biology	Technology
1900	Rediscovery of Mendel's 1860s work on genetics	Vacuum tube invented
1901	First trans-Atlantic telegraphic transmission (Marconi)	
1902	Human sex chromosome identified	
1903	Chromosomes carry heredity-determining material (Sutton)	First successful airplane flight (Wright brothers)
1906	Existence of 'vitamins' (term coined 1912) postulated (Hopkins); discovered 1928	
1908	Driesch, *The Science and Philosophy of the Organism*	
1909	Term 'gene' coined (Johannsen)	
1912	C. L. Morgan, *Instinct and Experience*	
1913		Henry Ford's assembly line
1914	Driesch, *The History and Theory of Vitalism*	
1915		Sonar developed
1921	Insulin discovered (Banting, Best, McLeod, Collip)	
1923	C. L. Morgan, *Emergent Evolution*	
1925		First analog computer (Bush)
1926	T. H. Morgan, *The Theory of the Gene* C. L. Morgan, *Life, Mind, and Spirit*	First public demonstration of television
1928	Discovery of penicillin (Fleming); production and clinical use not until 1940s	

1929	Discovery of deoxyribose nucleic acids (DNA) Woodger, *Biological Principles*	
1930	Immunization against typhus developed (Zinsser)	
1931	Haldane, *The Philosophical Basis of Biology*	
1932	T. H. Morgan, *The Scientific Basis of Evolution*	Particle accelerator first used to split lithium atom (Cockcroft and Walton)
1933		Vitamin C synthesized
1935		Richter scale developed (Richter) First radar developed (Watson, Watt)
1936	Isolation of DNA in pure state (Belozersky)	Primitive digital computer (Zuse) ABC (Atanasoff-Berry Computer), first electronic computer begun; completed 1939; operational version 1942
1937	Woodger, *The Axiomatic Method in Biology*	
1938	Oparin, *The Origin of Life*	Uranium atom first split (Hahn)
1939		DDT insecticide synthesized (Muller)
1940	Penicillin developed as antibiotic (term 'antibiotic' coined 1941)	
1941		Zuse's Z2 computer: electromagnetic relays and punched tape for data entry
1943		First all-electronic computer, 'Colossus', developed to crack codes (Turing) First operational nuclear reactor (Oak Ridge, TN)

	Biology	Technology
1944	DNA determined as hereditary material for almost all living beings (Avery)	Jet-engine (V-1) and rocket-propelled (V-2) bombs
1945	Lille, *General Biology and Philosophy of the Organism*	Atomic bombs dropped on Hiroshima and Nagasaki ENIAC: first all-purpose, stored-program electronic computer
1946		Radioactive carbon-14 method developed for dating objects (Libby)
1948	Woodger, *Biological Principles*	Discovery of transistor (Shockley, Brattain, Burdeen); will replace vacuum tubes
1950	Sommerhoff, *Analytical Biology*	
1951	Bernal, *The Physical Basis of Life*	UNIVAC I, first commercially available computer Heart-lung machine developed (Gibson)
1952	Plasmid (structure containing genetic material exchanged by bacteria) discovered (Lederberg)	Hydrogen bomb ('H Bomb') developed (Teller)
	Polio vaccine developed (Salk); mass innoculation in 1954; superceded by new vaccine in 1957 (Sabine) Woodger, *Biology and Language*	First nuclear reactor accident (Chalk River, Canada)
1953	Double-helix structure of DNA determined (Crick and Watson)	
1955		FORTRAN, first computer-programming language (Backus, IBM) LISP, computer language of artificial intelligence developed (McCarthy)

1957		Sputnik I, first artificial satellite, launched by USSR
1958		Integrated circuit invented
1960		First laser (Maiman); precursors are Townes' maser (1954), Kastler's 'optical pumping' (1950)
1961	RNA code producing amino acid in cell discovered	First human being in space (Gagarin)
1962	Carson, *Silent Spring* (environmentalist classic)	Disk storage for computer data introduced (IBM)
1964		'Green Revolution' inaugurated with strain of rice generating double yield given sufficient fertilizer
1967		Keyboards used for computer data entry
1968	Discovery of restrictive enzymes (can cut DNA of virus at particular point); would become a basic tool of genetic engineering Becker, *The Biological Way of Thought*	
1969	Single gene first isolated (Beckwith)	First human beings on the moon (Armstrong and Aldrin) First artificial heart used in a human being
1970	First complete synthesis of a gene	
1971	Monod, *Chance and Necessity*	Microprocessor (chip) introduced
1972		CAT-scan (computerized axial tomography) introduced for medical work
1973	Beginning of genetic engineering (Cohen and Boyer)	First Skylab launched

	Biology	Technology
1975		Personal computers introduced (Altair 8800)
1976	Functional synthetic gene constructed (Khorana)	
1977	Earliest known cases of AIDS; disease not recognized until 1981	Apple II personal computer introduced
1978	First 'test-tube' baby (Leslie Brown)	
1979		Partial meltdown of nuclear reactor at Three Mile Island
1980	Bohm, *Wholeness and the Implicate Order*	
1981	First transferrence of genes from one animal to another of a different species	First flight of space shuttle Columbia
1982	First commercial product of genetic engineering (human insulin)	
1984	Baboon heart implanted in human baby	
1984	Genetic fingerprinting technique developed	
1986	First field trials of genetically engineered organisms (tobacco)	Explosion of space shuttle Challenger Chernobyl nuclear reactor explosion
1987		'Warm temperature' superconductor discovered
1989		Exxon-Valdez oil tanker spill off the coast of Alaska

Introduction

S.G.Shanker

In this volume we survey the striking developments that have taken place in the philosophies of logic, mathematics and science in the twentieth century. The very use of a genitive case here bears eloquent testimony to the dramatic changes that have occurred. Prior to this century, few philosophers troubled to break 'philosophy' down into its constituent parts. Nor did they display any pronounced interest in the nature of philosophy *per se,* or the relation in which philosophy stands to science. Indeed, subjects that we now regard as totally distinct from philosophy—such as mathematics or psychology, and even physics or biology—were once all located within the auspices of philosophy.

It is interesting to note, for example, how Hilbert obtained his doctorate from the philosophy department. Now we are much more careful to distinguish between axiomatics, proof theory, categorization theory, the foundations of mathematics, mathematical logic, formal logic, and the philosophy of mathematics. That hardly means that philosophers are only active in the latter areas, however, while mathematicians get to rule over the former. Rather, philosophers and mathematicians move about freely in all these fields. To be sure, it is always possible to distinguish between the work of a mathematician and that of a philosopher: the approach, the techniques, and most especially the intentions and the conclusions drawn, invariably betray the author's occupation. But the fact that philosophers and mathematicians are working side-by-side, that they are reading each other's work and attending each other's conferences, is an intellectual development whose significance has yet to be fully absorbed.

Significantly, the major figures in the philosophies of logic and mathematics this century—Frege, Russell, Wittgenstein, Brouwer, Poincaré, Hilbert, Gödel, Tarski, Carnap, Quine—all moved from logic or mathematics to philosophy. Perhaps more than any single factor, it was

this dynamic that determined the nature of analytical philosophy. For it resulted not only in the importation of formal tools but also in the preoccupation with 'logical analysis', in the search for 'regimentation' and the preoccupation with the construction of 'formal models' of language. Increasingly, an undergraduate education in philosophy began not with the writings of Plato and Aristotle but with the propositional and predicate calculus. Where students were once exposed to the subtle nuances in the concept of truth, they were now trained in the art of axiomatizing the concept of truth. Symposia and dialogues were supplanted by truth tables and the turgid prose of late nineteenth-century German scientific writing.

Perhaps the most noticeable effect of this overwhelming logical and mathematical presence is that philosophical arguments began to be conducted at a very high level of technical sophistication. Those who came to these issues straight from philosophy found themselves forced to master the intricacies of formal or mathematical logic if they wished to participate in the debates. But for all the changes taking place, the underlying philosophical problems remained remarkably constant. Questions such as 'What is the nature of truth?', 'What is the nature of proof?', 'What is the nature of concepts?', 'What is the nature of inference?', or even that much-vaunted issue of analytic philosophy, 'What is the nature of meaning?', have all long been the loci of philosophical interest. Thus, it is not surprising that over the past few years there has been a remarkable surge in historical studies, all motivated by the goal of establishing the relevance of some classical figure or argument for contemporary thought—as Professor Parkinson and I point out in our general introduction to this *History*.

Still, it would be imprudent to conclude from the perennial nature of its problems that philosophy has not in fact changed in some fundamental way this century. It is not so much the pervasive influence of formal and formalist thought (which may in fact already be starting to wane), however, as the relation in which philosophy now stands to science. This issue has been a pre-eminent concern throughout this century: indeed, in some ways, it has been a defining issue for the aspiring philosopher of logic, mathematics, or science.

The two main rival positions have been the Russellian and the Wittgensteinian: scientism, and what has been dubbed (by its critics at any rate) ordinary language philosophy. According to Russell, philosophy should 'seek to base itself upon science': it should 'study the methods of science, and seek to apply these methods, with the necessary adaptations, to its own peculiar province'.[1] There are two basic aspects of scientism as conceived by Russell. First, there is no intrinsic difference between philosophy and science: each is engaged in the pursuit of knowledge (albeit at different levels of generality); each constructs theories and

generates hypotheses. Second, philosophy plays a heuristic role in the evolution of science. As Russell saw it,

> To a great extent, the uncertainty of philosophy is more apparent than real: those questions which are already capable of definite answers are placed in the sciences, while those only to which, at present, no definite answer can be given, remain to form the residue which is called philosophy.[2]

On this picture, the realm of philosophy is constantly being eroded. The more effective philosophers are, the more imminent becomes their demise. For their success entails the active engagement of scientists, rigorously testing and revising the theories that originated in a priori reasoning.

The appeal of Russell's argument stemmed largely from the fact that he had history on his side. The pattern was set in the mechanist/ vitalist debates: in the removal of first the animal heat debate and then the reflex theory debate from the province of philosophy and their resolution in physiology. It was natural for scientistic philosophers to assume that Turing's mechanical version of Church's thesis had set the stage for yet another major step in this process: i.e. the transference of the mind from philosophy's jurisdiction to that of cognitive science. The sentiment began to surface that one could no longer regard philosophy as the driving force behind logical, mathematic and scientific progress. Rather, the feeling was that the 'Queen of the Sciences' had been reduced to the role of handmaiden, initiating perhaps but in no way governing the great advances taking place in logic, mathematics and science. To borrow a term from contemporary concept theory, the fate of philosophy in the twentieth century began to be characterized as the descent from superordinate, to basic-level, to subordinate status.

On the face of it, this argument is rather curious. After all, it takes as its paradigm the displacement of natural philosophy by physics. But the philosophical debates that have been inspired by physics in the twentieth century are amongst the most profound and spirited that philosophy has ever enjoyed. Disputes over the nature of matter and time, the origin of the universe, the nature of experiment, evidence, explanation, laws and theory, the relation of physics to the other sciences: these are but a few of the issues which have been hotly debated this century, and which will continue to stimulate intense debate. And these pale in comparison to the controversies sparked off by Turing's thesis.

If anything, interest in philosophy has grown throughout this century, as is manifest by the rapid growth of philosophy faculties in every liberal arts programme. Like the relation of the Canadian economy to the American, the more science has advanced, the more philosophy has

grown. New scientific breakthroughs—indeed, new sciences—seem to create in their wake a host of new philosophical problems. But then the crucial question which this raises, which the scientistic conception of philosophy obscures, is: what renders these problems *philosophical*? Is it just that they arise at a premature scientific stage, before there is an adequate theory to deal with them? But if that were the case, how could we speak of there being *perennial* philosophical problems?

Wittgenstein sought to come to terms with this latter question throughout his later writings. In 1931 he wrote:

> You always hear people say that philosophy makes no progress and that the same philosophical problems which were already proccupying the Greeks are still troubling us today. I read: '… philosophers are no nearer to the meaning of "Reality" than Plato got,…'. What a strange situation. How extraordinary that Plato could have even got as far as he did! Or that we could not get any further! Was it because Plato was so *extremely* clever?[3]

Wittgenstein's proposed explanation for this phenomenon—viz., 'The reason is that our language has remained the same and always introduces us to the same questions' (Ibid.)—drew from Russell the bitter complaint that this would render philosophy 'at best, a slight help to lexicographers, and at worst, an idle tea-table amusement.'[4] But this criticism rests on a profound misreading of Wittgenstein's conception of the nature of philosophy. Indeed, the very assumption that the philosophers whom Russell cites in *My Philosophical Development* (viz., Wittgenstein, Ryle, Austin, Urmson and Strawson) can be identified as forming a philosophical 'school' is deeply suspect. Admittedly, they all shared certain fundamental attitudes towards the proper method of resolving philosophical problems, but in no way did they all share the same philosophical interests and objectives, let alone subscribe to a common set of philosophical doctrines or theses.

The basic premiss Wittgenstein was advancing is that questions about the nature of concepts belong to logic, and that we clarify the nature of a concept by surveying the manner in which the concept-word is used or learnt. Russell attributed to Wittgenstein the view that philosophical problems can be resolved by studying the ordinary grammar of concept-words. But nothing could be further from the truth. The fundamental principle underlying Wittgenstein's argument is that the source of a philosophical problem often lies in a crucial and often elusive difference between the *surface grammar* of a concept-word and its *depth* or *logical grammar,* or in the philosopher's tendency to treat what are disguised *grammatical propositions* as if they were empirical propositions.

Where Russell was certainly right, however, was in thinking that the later Wittgenstein was fundamentally opposed to the scientistic conception of philosophy. In his 1930 lectures Wittgenstein announced:

> What we find out in philosophy is trivial; it does not teach us new facts, only science does that. But the proper synopsis of these trivialities is enormously difficult, and has immense importance. Philosophy is in fact the synopsis of trivialities.[5]

This means that the task of philosophy is to clarify concepts and theories, not to draw inductive generalizations or to formulate theses. Indeed, Wittgenstein went so far as to insist, 'The philosopher is not a citizen of any community of ideas. That is what makes him into a philosopher.'[6] Wittgenstein did not mean to suggest by this that philosophy does not have a crucial role to play *vis-à-vis* science. In the *Bouwsma Notes* he remarks that 'the consummation of philosophy' in the twentieth century might very well lie in the clarification of scientific theories: in 'work which does not cheat and where the confusions have been cleared up'.[7] But this would seem to limit philosophy to the task of interpreting scientific prose: the 'history of evolving ideas', as it were. And as the following chapters demonstrate, the philosophies of logic, mathematics and science this century took *Principia Mathematica* not *The A.B.C of Relativity* as their standard-bearer.

What's more, there is a real danger in this thought that the principal role of philosophy is to describe and not explain. For it has a tendency to promote the view that philosophers are armchair critics, akin to theatre critics, both professionally and temperamentally set apart from the scientific writings whose shortcomings it is their chief job to expose. Not surprisingly, one frequently hears the complaint from scientists that philosophers have been seduced by the negative: that they criticize a theory without appreciating the subtle difficulties involved, or without making the necessary effort to master the literature underpinning a scientific issue. Yet philosophers, even scientistic philosophers, are in no rush to lose their distinctive identity. There has thus been marked hostility and frustration on both sides of the 'philosophy versus science' divide.

These are important emotions. For if philosophy were irrelevant to the ongoing development of logic, mathematics and science, there would be neither anger nor impatience: only disinterest. But one constantly hears the demand from scientists for positive philosophical input. So the question which this naturally raises is, what is impeding this union? Is it perhaps the very terms in which twentieth-century philosophy has tried to assess its relation to science? Is it not significant that both scientism and ordinary language philosophy have strong nineteenth-century roots: the former in scientific materialism and the latter in hermeneutics? Indeed, is

not the battle between scientism and ordinary language philosophy reminiscent—and perhaps simply a continuation—of the battle between scientific materialism and hermeneutics? If there has not been a decisive victory by either side, is it, perhaps, because each is articulating an important truth: and, perhaps, omitting an important aspect of the development of the philosophy of logic, mathematics and science this century?

We can turn again to Wittgenstein to appreciate this point. At the close of the second book of *Philosophical Investigations* Wittgenstein remarks how, 'in psychology there are experimental methods and *conceptual confusion*… The existence of the experimental method makes us think we have the means of solving the problems which trouble us; though problem and method pass one another by'.[8] Ironically, a few cognitivists actually greeted Wittgenstein's censure as confirming the importance of the post-computational revolution. For example, F.H. George insisted that:

> [Wittgenstein's] criticism of experimental psychology, at the time it was made, [was] almost entirely justified. Experimental psychologists were, at that time, struggling to unscramble their concepts and clarify their language and models: at worst they believed that as long as a well-controlled experiment was carried out, the mere accumulation of facts would make a science. The relation, so vital to the development of psychology, between experimental results, by way of interpretation and explanatory frameworks, models, used largely to be neglected.[9]

On this reading, the mechanist paradigm that Wittgenstein was attacking was fundamentally displaced by Turing's version of Church's thesis. Hence, Wittgenstein's concerns are now hopelessly dated for:

> Almost everyone now acknowledges that theory and experiment, model making, theory construction and linguistics all go together, and that the successful development of a science of behavior depends upon a 'total approach' in which, given that the computer 'is the only large-scale universal model' that we possess, 'we may expect to follow the prescription of Simon and construct our models—or most of them—in the form of computer programs'.[10]

Ignoring his enthusiasm here for the post-computational mechanist revolution, what is most intriguing about George's interpretation of Wittgenstein's argument is the manner in which he seeks to synthesize scientism with ordinary language philosophy. On this argument, philosophy enters a scientific enterprise at its very beginnings; it serves an

important role in clearing away the confusions inhibiting the construction of a comprehensive explanatory framework. But once the new model is in place, philosophy has no further constructive role to play. For, as George puts it, 'much of this conceptual confusion has now disappeared'.[11]

Is this really the case? Has philosophy been even more successful than Russell envisaged? The philosophies of logic, mathematics and science have been driven by five leading problems this century:

1 What is the nature of logic, of logical truth?
2 What is the nature of mathematics: of mathematical propositions, mathematical conjectures, and mathematical proof?
3 What is the nature of formal systems, and what is their relation to what Hilbert called 'the activity of understanding'?
4 What is the nature of language: of meaning, reference, and truth?
5 What is the nature of mind: of consciousness, mental states, mental processes?

I have limited these to five problems to suggest a generational flux. A few philosophers have, of course, been active in all these areas throughout the century, but there is some basis for viewing the development of the philosophies of logic, mathematics and science in the twentieth century in terms of the succession of these five leading problems.

Now, very few philosophers would be willing to consign any, let alone all five, of these problems to the 'History of Ideas'. What the following chapters reveal is not the resolution of these issues, but the deepening understanding we have achieved of the nature of logic, mathematics, language and cognition. Moreover, as the century has progressed, it has become increasingly tenuous to suppose that philosophy is either conceptually prior to science, i.e., that philosophy clears away the confusions so that the proper business of theory-making can proceed—or that philosophy is conceptually posterior to science, i.e., that philosophy is restricted to correcting the errors that occur in scientific prose. For the advances that have been realized in the topics covered in this volume are not simply the result of philosophical reflection, or well-controlled experiments, but rather, are the outcome of a complex interplay of philosophic and scientific techniques as practised by both philosophers and scientists.

Thus, each of the chapters in this volume is as important to science students as the relevant science textbooks are to philosophy students. The point here is not that the categorial difference between philosophy and science—between philosophical and empirical problems, or philosophical and empirical methods—is disappearing, but that the formal, or institutional demarcation of these activities is fast becoming obsolete. All over the world interdisciplinary units are springing up which are

specifically designed to train their students in various cognitive sciences as well as in philosophy. This is a reflection of the fact that scientists themselves are constantly engaged in conceptual clarification, while philosophers have grasped the importance of entering fully into the community of science if their efforts are to serve the needs of scientists. What has been consigned to the 'History of Ideas' are the old terms of the 'philosophy versus science' debate. But the following chapters are not just history; more fundamentally, they are a harbinger of the great changes we can continue to expect in the ongoing evolution of philosophy.

NOTES

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CHAPTER 1

Philosophy of logic

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The relationship between evidence and hypothesis is fundamental to the advancement of science. It is this relationship—referred to as the relationship between premisses and conclusion—which lies at the heart of logic. Logic, in this traditional sense, is the study of correct inference. It is the study of formal structures and non-formal relations which hold between evidence and hypothesis, reasons and belief, or premisses and conclusion. It is the study of both conclusive (or monotonic) and inconclusive (non-monotonic or ampliative) inferences or, as it is also commonly described, the study of both entailments and inductions. Specifically, logic involves the detailed study of formal systems designed to exhibit such entailments and inductions. More generally, though, it is the study of those conditions under which evidence rightly can be said to justify, entail, imply, support, corroborate, confirm or falsify a conclusion.

In this broad sense, logic in the twentieth century has come to include, not only theories of formal entailment, but informal logic, probability theory, confirmation theory, decision theory, game theory and theories of computability and epistemic modelling as well. As a result, over the course of the century the study of logic has benefited, not only from advances in traditional fields such as philosophy and mathematics, but also from advances in other fields as diverse as computer science and economics. Through Frege and others late in the nineteenth century, mathematics helped transform logic from a merely formal discipline to a mathematical one as well, making available to it the resources of contemporary mathematics. In turn, logic opened up new avenues of investigation concerning reasoning in mathematics, thereby helping to develop new branches of mathematical research—such as set theory and category theory—relevant to the foundations of mathematics itself.

Similarly, much of twentieth-century philosophy—including advances in metaphysics, epistemology, the philosophy of mathematics, the philosophy of science, the philosophy of language and formal semantics—closely parallels this century's logical developments. These advances have led in turn to a broadening of logic and to a deeper appreciation of its application and extent. Finally, logic has provided many of the underlying theoretical results which have motivated the advent of the computing era, learning as much from the systematic application of these ideas as it has from any other source.

This chapter is divided into four sections. The first, 'The Close of the Nineteenth Century', summarizes the logical work of Boole, Frege and others prior to 1900. The second, 'From Russell to Gödel', discusses advances made in formal logic from 1901, the year in which Russell discovered his famous paradox, to 1931, the year in which Gödel's seminal incompleteness results appeared. The third section, 'From Gödel to Friedman', discusses developments in formal logic made during the fifty years following Gödel's remarkable achievement. Finally, the fourth section, 'The Expansion of Logic', discusses logic in the broader sense as it has flourished throughout the latter half of the twentieth century.

THE CLOSE OF THE NINETEENTH CENTURY

'Logic is an old subject, and since 1879 it has been a great one.'[1] This judgment appears as the opening sentence of W.V.Quine's 1950 *Methods of Logic*. The sentence is justly famous—even if it has about it an air of exaggeration—for nothing less than a revolution had occurred in logic by the end of the nineteenth century.

Several important factors led to this revolution, but without doubt the most important of these concerned the mathematization of logic. Since the time of Aristotle, logic had taken as its subject matter formal patterns of inference, both inside and outside mathematics. Aristotle's *Organon* had been intended as nothing less than a tool or canon governing correct inference. However, it was not until the mid-nineteenth century that logic came to be viewed as a subject which could be developed mathematically, alongside other branches of mathematics. The leaders in this movement—George Boole (1815–64), Augustus DeMorgan (1806–71), William Stanley Jevons (1835–82), Ernst Schröder (1841–1902), and Charles Sanders Peirce (1839–1914)—all saw the potential for developing what was to be called an 'algebra of logic', a mathematical means of modelling the abstract laws governing formal inference. However, it was not until the appearance, in 1847, of a small pamphlet entitled *The Mathematical Analysis of Logic,* that Boole's calculus of

classes—later extended by Schröder and Peirce to form a calculus of relations—successfully achieved this end.

Boole had been prompted to write *The Mathematical Analysis of Logic* by a public dispute between DeMorgan and the philosopher William Hamilton (1788–1856) over the quantification of the predicate. As a result, Boole's landmark pamphlet was the first successful, systematic application of the methods of algebra to the subject of logic. So impressed was DeMorgan that two years later, in 1849, despite Boole's lack of university education, he was appointed Professor of Mathematics at Queen's College, Cork, Ireland, largely on DeMorgan's recommendation. Five years following his appointment, Boole's next work, *An Investigation of the Laws of Thoughts,* expanded many of the ideas introduced in his earlier pamphlet. In the *Laws of Thought,* Boole developed more thoroughly the formal analogy between the operations of logic and mathematics which would help revolutionize logic. Specifically, his algebra of logic showed how recognizably algebraic formulas could be used to express and manipulate logical relations.

Boole's calculus, which is known today as the theory of Boolean algebras, can be viewed as a formal system consisting of a set, S, over which three operations, $\cap$ (or $\times$, representing intersection), $\cup$ (or +, representing union), and ' (or -, representing complementation) are defined, such that for all a, b, and c that are members of S, the following axioms hold:

(1) Commutativity:
$a \cap b = b \cap a$, and $a \cup b = b \cup a$

(2) Associativity:
$a \cap (b \cap c) = (a \cap b) \cap c$, and $a \cup (b \cup c) = (a \cup b) \cup c$

(3) Distributivity:
$a \cap (b \cup c) = (a \cap b) \cup (a \cap c)$, and $a \cup (b \cap c) = (a \cup b) \cap (a \cup c)$

(4) Identity:
There exist two elements, 0 and 1, of S such that, $a \cup 0 = a$, and $a \cap 1 = a$

(5) Complementation:
For each element a in S, there is an element a' such that $a \cup a' = 1$, and $a \cap a' = 0$.

The logical utility of the system arises once it is realized that many logical relations are successfully formalizable in it. For example, by letting a and b represent variables for statements or propositions, $\cap$ represent the truth-functional connective 'and', and $\cup$ represent the truth-functional connective 'or', the commutativity axioms assert that statements of the form 'a and b' are equivalent to statements of the form 'b and a', and that

statements of the form '*a* or *b*' are equivalent to statements of the form '*b* or *a*'. Similarly, by letting ' represent truth-functional negation, the complementation axioms assert that for each statement, *a*, there is a second statement, not-*a*, such that the statement '*a* or not-*a*' is true and the statement '*a* and not-*a*' is false. A similar interpretation (which identifies electronic gates with Boolean operators) provides the foundation for the theory of switching circuits. Thus, by 1854 the mathematization of logic was well under way.

A second important factor concerning the advancement of logic during this period had to do, not with the mathematization of logic, but with the logicizing of mathematics. The idea of reducing mathematics to logic had been advocated first by Gottfried Wilhelm Leibniz (1646–1716) and later by Richard Dedekind (1831–1916). In general, it amounted to a two-part proposal: first, that the concepts of (some or all branches of) mathematics were to be defined in terms of purely logical concepts and, second, that the theorems of (these same branches of) mathematics were in turn to be deduced from purely logical axioms. However, it was not until the late nineteenth century that the logical tools necessary for attempting such a project were discovered.

Not accidentally, the attempt to logicize mathematics coincided with a process of systematizing and rigorizing mathematics generally. Many commentators had called for such work to be done. Earlier discoveries by Gerolamo Saccheri (1667–1733), Karl Gauss (1777–1855), Nikolai Lobachevski (1793–1856), János Bolyai (1802–60) and Bernhard Riemann (1826–66) in the development of non-Euclidean geometry had led to a new sensitivity about axiomatics and about foundations generally. Thus, by the late 1800s, the critical movement—which had begun in the 1820s—had eliminated many of the contradictions and much of the vagueness contained in many early nineteenth century mathematical theories. Bernard Bolzano (1781–1848), Niels Abel (1802–29), Louis Cauchy (1789–1857) and Karl Weierstrass (1815–97) had successfully taken up the challenge of rigorizing the calculus. Weierstrass, Dedekind and Georg Cantor (1845–1918) had all independently developed methods for founding the irrationals in terms of the rationals and, as early as 1837, William Rowan Hamilton (1805–65) had introduced ordered couples of reals as the first step in supplying a logical basis for the complex numbers. By 1888, Dedekind had also developed a consistent postulate set for axiomatizing the set of natural (or counting) numbers, *N*. Building upon these results, as well as others by H.G.Grassmann (1809–77), Guiseppe Peano (1858–1932) was then able to develop systematically, not just a theory of arithmetic and of the rationals, but a reasonably detailed theory of real limits as well. The results appeared in Peano's 1889 *Arithmetics Principia*.

Beginning with four axioms governing his underlying logic, and the five (now famous) Peano postulates first introduced by Dedekind, Peano

defined the set of natural numbers as a series of successors to the number zero. Letting '0' stand for zero, *'s(x)'* stand for the successor of *x*, and *'N'* stand for the set of natural numbers, the non-logical postulates may be listed as follows:

(1) Zero is a number:
$$o \in N$$
(2) Zero is not the successor of any number:
$$\sim(\exists x)(x \in N \,\&\, s(x) = o)$$
(3) The successor of every number is a number:
$$(\forall x)(x \in N \rightarrow s(x) \in N)$$
(4) No two distinct numbers have the same successor:
$$(\forall x)(\forall y)(((x \in N \,\&\, y \in N) \,\&\, x \neq y) \rightarrow s(x) \neq s(y))$$
(5) The Principle of Mathematical Induction, that if zero has a property, *P*, and if whenever a number has the property its successor also has the property, then all numbers have the property:
$$(\forall P)(((P(o) \,\&\, (\forall x)((x \in N \,\&\, Px) \rightarrow Ps(x)))) \rightarrow (\forall y)(y \in N \rightarrow Py)).$$

Thus, beginning with a few primitive notions, it was in principle possible to derive almost all of mathematics in a rigorous, coherent fashion. Despite this, the task of formally relating most of logic to mathematics remained virtually unadvanced since the time of Boole.

Crucial to further advancement was the introduction of the quantifiers and the development of the predicate calculus. The introduction of the quantifiers resulted from the independent work of several authors, including Peirce and Schröder, but predominantly it came about through the work of Gottlob Frege (1848–1925). It is possible that Peirce was the first to arrive at the notion of a quantifier, although explicit mention of either the universal or the existential quantifier does not appear in his published writings until 1885. Frege, in contrast, first published his account in 1879 in his now famous *Begriffsschrift* (meaning literally 'concept writing'). Hence the date in Quine's famous aphorism. Subtitled 'a formula language, modeled upon that of arithmetic, for pure thought', the *Begriffsschrift* took as its goal nothing less than a rigorization of proof itself. Said Frege,

> My intention was not to represent an abstract logic in formulas, but to express a content through written signs in a more precise and clear way than it is possible to do through words. In fact, what I wanted to create was not a mere *calculus ratiocinator* but a *lingua characterica* in Leibniz's sense.[2]

The result was the introduction of a very general symbolic language

suitable for expressing the type of formal inferences used in mathematical proofs. By combining expressions representing individuals and predicates (properties and relations) with the prepositional connectives ('and', 'or', 'not', etc.) and quantifiers ('all', 'some'), Frege succeeded in producing a language powerful enough to express even the most complicated of mathematical statements. Frege immediately put his language to work, applying it as he did to his project of logicizing arithmetic. By the time his *Die Grundlagen der Arithmetik* appeared in 1884, Frege had arrived at the appropriate logical definitions for the necessary arithmetical terms and had begun work on the essential derivations. The derivations themselves appeared in his two-volume *Grundgesetze der Arithmetik* in 1893 and 1903. Thus, it is Frege, along with Boole, who is generally credited as being one of the two most important founders of modern formal logic.

The *Begriffsschrift* was Frege's first work in logic, but it is a landmark one, for in it he develops the truth-functional prepositional calculus, the theory of quantification (or predicate calculus), an analysis of propositions in terms of functions and arguments (instead of in terms of subject and predicate), a definition of the notion of mathematical sequence and the notion of a purely formal system of derivation or inference. Of these contributions, Frege's unique insight with regard to the predicate calculus was to note the inadequacy of the traditional subject/predicate distinction, and to replace it with one from mathematics, that of function and argument. For Frege, once arguments have been substituted into the free variables of a prepositional function, a judgement is obtained. In short, a word in a statement which can be replaced by other words is itself an argument, while the remainder of the sentence is the function. The fact that the *Begriffsschrift* additionally contains the first formally adequate notation for quantification, together with the first successful formalization of first-order logic, has guaranteed it a position of unique importance in the history of logic.

Unfortunately, for much of his life, Frege's work was met with indifference or hostility on the part of his contemporaries. Response to the *Begriffsschrift* was typified by a rather caustic review by Cantor, who had not even bothered to read the book. Frege's axioms for the propositional calculus (which use negation and material implication as primitive connectives) turned out not to be independent and, in addition to his one stated rule of inference, detachment (also called *modus ponens,* the rule that given well-formed formulas of the form p and $p \rightarrow q$, one can infer a well-formed formula of the form q), an unstated rule of substitution was also used. However, the most important reason for the *Begriffsschrift's* poor reception was the difficulty of working with Frege's rather idiosyncratic and cumbersome logical notation, which has not survived. Thus, it was not until others were able to replace Frege's

notation, and further rigorize his logic, that Frege's discoveries began to receive the prominence they deserved. None the less, it is Frege's analysis of propositions into functions and arguments, along with his introduction of the quantifiers, which to this day remain at the heart of the development of modern logic.

Yet a third factor contributing to the revolutionary advancement of logic during the late nineteenth century was Cantor's discovery of set theory. Intuitively, a set can be thought of as any collection of well-defined distinct objects. In Cantor's words, by the idea of a set 'we are to understand any collection into a whole *M* of definite and separate objects *m* of our intuition or our thought'.[3] The objects which determine each set are called the elements or members of that set. The symbol '$\in$' is used regularly to denote the relation of membership or elementhood. Thus '$m \in M$' is read '*m* is an element (or member) of *M*' or '*m* belongs to *M*'. Two sets are identical if and only if they contain exactly the same elements; thus, if $A=\{1, 2, 3\}$ and $B = \{+\sqrt{1}, +\sqrt{9}, +\sqrt{4}\}$, then $A=B$.

With little more than these beginnings, Cantor was able to show that the cardinality of the set of all subsets of any given set (i.e. the power set of that set) is always greater than that of the set itself, thus introducing the modern hierarchy of sets. In addition, he showed that the set of real numbers is non-denumerable (or, equivalently, that the cardinality of the continuum of reals, *R*, is greater than that of *N*). Cantor proved both results in 1891 by means of a diagonal argument, an argument designed to construct objects, on the basis of other objects, and in such a way that the new objects are guaranteed to differ from the old. Cantor's diagonal argument therefore provides an important example of a modern impossibility proof since, by using it, he proved the non-denumerability of the reals by showing that a one-to-one correspondence between the natural numbers and the reals is impossible. It also followed from Cantor's work that infinite sets could consistently be placed in one-to-one correspondence with proper subsets of themselves, thus disproving Euclid's general axiom that the whole is necessarily greater than the part. Such unintuitive results meant that set theory, like non-Euclidean geometry before it, would soon lead to further questions about the nature of proof. The question of when to rely upon axioms which, up until this point had still regularly been based upon 'clear and distinct ideas', therefore became crucial. The fact that there was also an intuitive identity between the extension of a predicate and its corresponding set meant that developments in set theory were bound to affect logic.

FROM RUSSELL TO GÖDEL

If it is fair to say that by the end of the nineteenth century logic had become invigorated as a result of its connections with mathematics, it is also fair to say that mathematics was becoming similarly invigorated as a result of its connections with logic. In fact, it was the interplay between logic and mathematics which led a host of figures in both disciplines—including most famously David Hilbert (1862–1943), L.E. J.Brouwer (1881–1966), Arend Heyting (1898–1980), A.N.Whitehead (1861–1947), Bertrand Russell (1872–1970), Ernst Zermelo (1871–1953), Kurt Gödel (1906–78), Alfred Tarski (1902–83), Alonzo Church (b. 1903) and W.V.Quine (b. 1908)—to concentrate their efforts upon foundational issues in logic and mathematics. Many were prompted to do so as a result of a problem which affected both logic and mathematics equally, the problem of the antinomies.

In 1900 many of the world's best philosophers met to attend the Third International Congress of Philosophy, held in Paris from 1 to 5 August. Following the Congress, a significant number of philosophers remained in Paris for the Second International Congress of Mathematicians, which was being held immediately afterwards, from 6 to 12 August. It was at these later meetings that Hilbert delivered his famous keynote address welcoming the mathematical world to Paris. Conscious of his place in history, Hilbert took the occasion to remind his audience of the challenges facing them as they entered a new century:

> If we would obtain an idea of the probable development of mathematical knowledge in the immediate future, we must let the unsettled questions pass before our minds and look over the problems which the science of to-day sets and whose solution we expect from the future. To such a review of problems the present day, lying at the meeting of the centuries, seems to be well adapted… However unapproachable these problems may seem to us and however helpless we stand before them, we have, nevertheless, the firm conviction that their solution must follow by a finite number of purely logical processes… This conviction of the solvability of every mathematical problem is a powerful incentive to the worker. We hear within us the perpetual call: There is the problem. Seek its solution. You can find it by reason, for in mathematics there is no *ignorabimus*.[4]

To emphasize his challenge, Hilbert presented his now famous list of twenty-three major unsolved logical and mathematical problems. First on Hilbert's list was Cantor's continuum problem, the problem of determining whether there is a set with cardinality greater than that of the

natural numbers but less than that of the continuum. Second on the list, but equally important from the point of view of the logician, was the problem of proving an axiom set consistent or, as Hilbert put it, the problem of the 'compatibility of the arithmetical axioms'. Although primarily of theoretical interest in 1900, it was a problem which would, within the year, take on new urgency.

It was also at these meetings that Russell met Peano. By all accounts the meeting was a congenial one. As Russell reports:

> The Congress was a turning point in my intellectual life, because I there met Peano. I already knew him by name and had seen some of his work, but had not taken the trouble to master his notation. In discussions at the Congress I observed that he was always more precise than anyone else, and that he invariably got the better of any argument upon which he embarked. As the days went by, I decided that this must be owing to his mathematical logic.[5]

Thus, impressed by Peano and his logic, Russell returned to England, motivated to begin work on his *Principles of Mathematics* and confident that any problem he might set for himself would quickly be solved. As one might guess, Russell's *Principles* was to be heavily influenced, not only by Peano's *Arithmetices Principia,* but also by Frege's *Begriffsschrift* and *Grundlagen*. Russell finished the first draft of the manuscript, as he tells us, 'on the last day of the century', 31 December 1900.[6]

Five months later, in May 1901, Russell discovered his now famous paradox. The paradox comes from considering the set of all sets which are not members of themselves, since this set must be a member of itself if and only if it is not a member of itself. As a result, one must attempt to find a principled way of denying the existence of such a set. Cesare Burali-Forti (1861–1931), an assistant to Peano, had discovered a similar antinomy in 1897 when he had observed that since the set of ordinals is well-ordered, it therefore must have an ordinal. However, this ordinal must be both an element of the set of ordinals and yet greater than any ordinal in the set. Hence the contradiction.[7]

After worrying about the difficulty for over a year, Russell wrote to Frege with news of the paradox on 16 June 1902. The antinomy was a crucial one, since Frege claimed that an expression such as *f(a)* could be considered to be both a function of the argument *f* and a function of the argument *a*. In effect, it was this ambiguity which allowed Russell to construct his paradox within Frege's logic. As Russell explains:

> this view [that *f(a)* may be viewed as a function of either *f* or of *a*] seems doubtful to me because of the following contradiction. Let *w* be the predicate: to be a predicate that cannot be predicated of

> itself. Can *w* be predicated of itself? From each answer its opposite follows. Therefore we must conclude that *w* is not a predicate. Likewise there is no class (as a totality) of those classes which, each taken as a totality, do not belong to themselves. From this I conclude that under certain circumstances a definable collection does not form a totality.[8]

Russell's letter to Frege, in effect telling him that his axioms were inconsistent, arrived just as the second volume of his *Grundgesetze* was in press. (Other antinomies were to follow shortly, including those discovered by Jules Richard (1862–1956) and Julius König (1849–1913), both in 1905.) Immediately appreciating the difficulty, Frege attempted to revise his work, adding an appendix to the *Grundgesetze* which discussed Russell's discovery. Nevertheless, he eventually felt forced to abandon his logicism. A projected third volume of the *Grundgesetze* which had been planned for geometry never appeared. Frege's later writings show that Russell's discovery had convinced him of the falsehood of logicism, and that he had opted instead for the view that all of mathematics, including number theory and analysis, was reducible only to geometry.

Despite his abandonment of logicism, it was Frege's dedication to truth which Russell commented upon in a letter many years later:

> As I think about acts of integrity and grace, I realize that there is nothing in my knowledge to compare with Frege's dedication to truth. His entire life's work was on the verge of completion, much of his work had been ignored to the benefit of men infinitely less capable,…and upon finding that his fundamental assumption was in error, he responded with intellectual pleasure clearly submerging any feelings of personal disappointment. It was almost superhuman and a telling indication of that which men are capable if their dedication is to creative work and knowledge instead of cruder efforts to dominate and be known.[9]

With the appearance of Russell's paradox, Hilbert's problem of proving consistency took on new urgency. After all, since (in classical logic) all sentences follow from a contradiction, no mathematical proof could be trusted once it was discovered that the underlying logic was contradictory. Important responses came not only from Hilbert and Russell, but from Brouwer and Zermelo as well.

The seeds of Hilbert's response were contained in his 1904 address to the Third International Congress of Mathematicians. In this address, Hilbert presented his first attempt at proving the consistency of arithmetic. (Earlier, in 1900, he had attempted an axiomatization of the

reals, R, and showed that the consistency of geometry depends upon the consistency of *R*.) Hilbert recognized that an attempt to avoid the contradictions by formalizing one's metalanguage would only lead to a vicious regress. As a result, he opted instead for an informal logic and metalanguage whose principles would be universally acceptable. His basic idea was to allow the use of only finite, well-defined and constructible objects, together with rules of inference which were deemed to be absolutely certain. Controversial principles such as the axiom of choice were to be explicitly excluded. The programme variously became known as the finitary method, formalism, proof theory, metamathematics and Hilbert's programme. Together with Wilhelm Ackermann (1896–1962), Hilbert went on to publish *Grundzüge der Theoretischen Logik (Principles of Mathematical Logic)* in 1928 and, together with Paul Bernays (1888–1977), the monumental two-volume work *Die Grundlagen der Mathematik (Foundations of Mathematics),* in 1934 and 1939, respectively. This latter work recorded the results of the formalist school up until 1938, including work done following the publication of Gödel's 1931 incompleteness theorems, after which it was concluded that the original finitistic methods of the programme had to be expanded.

Hilbert's finitary method had similarities to a second important response to the antinomies, that of Brouwer and the intuitionists. Like Hilbert, Brouwer held that one cannot assert the existence of a mathematical object unless one can also indicate how to go about constructing it. However, Brouwer argued, in addition, that the principles of formal logic were to be abstracted from purely mental mathematical intuitions. Thus, since logic finds its basis in mathematics, it could not itself serve as a foundation for mathematics. For similar reasons, Brouwer rejected the actual infinite, accepting only mathematical objects capable of effective construction by means of the natural numbers, together with methods of finite constructibility. On this view theoretical consistency would be guaranteed as a result of reformed mathematical practice.

Russell's own response to the paradox was contained in his aptly named theory of types. Russell's basic idea was that by ordering the sentences of a language or theory into a hierarchy (beginning with sentences about individuals at the lowest level, sentences about sets of individuals at the next lowest level, sentences about sets of sets of individuals at the next lowest level, etc.), one could avoid reference to sets such as the set of all sets, since there would be no level at which reference to such a set appears. It is then possible to refer to all things for which a given condition (or predicate) holds only if they are all at the same level or of the same 'type'. The theory itself admitted of two versions.

According to the simple theory of types, it is the universe of discourse (of the relevant language) which is to be viewed as forming a hierarchy. Within this hierarchy, individuals form the lowest type; sets of individuals form the next lowest type; sets of sets of individuals form the next lowest type; and so on. Individual variables are then indexed (using subscripts) to indicate the type of object over which they range, and the language's formation rules are restricted to allow only sentences such as '$a^n\ b^m$' (where $m=n+1$) to be counted among the (well-formed) formulas of the language. Such restrictions mean that strings such as '$x^n \in x^n$' are ill-formed, thereby blocking Russell's paradox.

The ramified theory of types goes further than the simple theory. It does so by describing a hierarchy, not only of objects, but of closed and open sentences (propositions and prepositional functions, respectively) as well. The theory then adds the condition that no proposition or prepositional function may contain quantifiers ranging over propositions or prepositional functions of any order except those lower than itself. Intuitively, this means that no proposition or prepositional function can refer to, or be about, any member of the hierarchy other than those which are defined in a logically prior manner. Since, for Russell, sets are to be understood as logical constructs based upon prepositional functions, it follows that the simple theory of types can be viewed as a special case of the ramified theory.

Russell first introduced his theory in 1903 in his *The Principles of Mathematics*. Later, in 1905, he abandoned the theory in order to consider three potential alternatives: the 'zigzag theory', in which only 'simple' propositional functions determine sets; the 'theory of limitation of size', in which the purported set of all entities is disallowed; and the 'no-classes theory', in which sets are outlawed, being replaced instead by sentences of certain kinds. Nevertheless, by 1908 Russell was to abandon all three of these suggestions in order to return to the theory of types, which he develops in detail in his article 'Mathematical Logic as Based on the Theory of Types'. The theory finds its mature expression in Whitehead and Russell's monumental work defending logicism, *Principia Mathematica*, the first volume of which appeared in 1910.

In order to justify both his simple and ramified theories, Russell introduced the principle that 'Whatever involves *all* of a collection must not [itself] be one of the collection'.[10] Following Henri Poincaré (1854–1912), Russell called this principle the 'Vicious Circle Principle' (or VCP). Once the VCP is accepted, it follows that the claim—first championed by Peano and later by Frank Ramsey (1903–30)—that there is an important theoretical distinction between the set-theoretic and the semantic paradoxes, is mistaken. The reason is that in both

cases the VCP provides a philosophical justification for outlawing self-reference.

Yet a fourth response to the paradoxes was Zermelo's axiomatization of set theory. In 1904 Zermelo had solved one of Hilbert's twenty-three problems of the 1900 Congress by proving that every set can be well ordered. Four years later, in 1908, he developed the first standard axiomatization, Z, of set theory, improving upon both Dedekind's and Cantor's original, more fragmentary treatments.

Zermelo's axioms were designed to resolve Russell's paradox by restricting Cantor's naive principle of abstraction—the principle that from each and every predicate expression a set could be formed. Specifically, Zermelo's axiom of replacement would disallow the construction of paradoxical sets (such as the set of all sets that are not members of themselves), but would still allow the construction of other sets necessary for the development of mathematics. *ZF,* the axiomatization generally used today, is a modification of Zermelo's theory developed primarily by Abraham Fraenkel (1891–1965). When *ZF* is supplemented by the axiom of choice (proved independent by Fraenkel in 1922), the resulting theory, *ZFC,* may be summarized as follows:

1 Axiom of Extensionality:
$$(\forall x)(x \in A \longleftrightarrow x \in B) \rightarrow A = B$$

2 Sum Axiom:
$$(\exists C)(\forall x)(x \in C \longleftrightarrow (\exists B)(x \in B \,\&\, B \in A))$$

3 Power Set Axiom:
$$\exists B)(\forall C)(C \in B \longleftrightarrow A \supseteq C)$$

4 Axiom of Regularity:
$$(A \neq o \rightarrow (\exists x)(x \in A \& (\forall y)(y \in x \rightarrow y \notin A))$$

5 Axiom of Infinity:
$$(\exists A)(o \in A \& (\forall B)(B \in A \rightarrow B \cup \{B\} \in A))$$

6 Axiom Schema of Replacement:
If $(\forall x)(\forall y)(\forall z)(x \in A \& \phi(x,y) \,\&\, \phi(x,z) \rightarrow y = z)$
then $(\exists B)(\forall y)(y \in B \longleftrightarrow (\exists x)(x \in A \,\&\, \phi(x,y)))$

7 Axiom of Choice:
For any set *A* there is a function, *f*, such that
for any non-empty subset, *B*, of *A*, $f(B) \in B$.

As a result of the work of many others, including Thoralf Skolem (1887–1963), Leopold Löwenheim (1878–1957), and John von Neumann (1903–57), it is recognized that many additional axioms variously used to formalize set theory may be derived from the above list of axioms. For example, the separation axioms are derivable from the axiom schema of replacement; the pairing axiom is derivable from the power set axiom together with the

axiom schema of replacement; and the union axiom is derivable from the axiom of extensionality, the sum axiom and the pairing axiom. (Other axioms, such as an axiom for cardinals, that $\mathcal{K}(A)=\mathcal{K}(B)\leftrightarrow A\approx B$, are also occasionally added to the above list to form extensions of *ZFC*.)

Overall, these four responses to the antinomies signalled the arrival of a new and explicit awareness of the nature of formal systems and of the kinds of metalogical results which are today commonly associated with them. Specifically, formal systems are typically said to comprise:

1 a set of primitive symbols, which form the basic vocabulary of the system;
2 a set of formation rules, which provide the basic grammar of the system and which determine how primitive symbols may be combined to form well-formed formulas (sentences) of the system;
3 a set of axioms, which articulate any fundamental assumptions of the system; and
4 a set of transformation rules (or rules of inference), which provide the mechanism for proving formulas of the system called theorems.

Together, 1 and 2 are said to constitute the formal language of the system, 3 and 4 the logic of the system, and 1–4 the primitive basis of the system as a whole. A formal system thus consists essentially of an explicit, effective mechanism for the selection of a well-defined subset of well-formed formulas, known as the theorems of the system. Such systems may be either axiomatic or natural deduction systems, depending upon whether they emphasize the use of axioms at the expense of rules of inference, or rules of inference at the expense of axioms. In either case, each theorem is proved through a finite sequence of steps, each of which is either the statement of an axiom, or is justified (possibly from earlier formulas) by the allowed rules of inference.

Each formal system may be viewed from the point of view of proof theory (i.e. from the point of view of the system's syntax alone), but, following Tarski, it may also be viewed from the point of view of model theory (i.e. from the point of view of an interpretation, in which meanings are assigned to the formal symbols of the system). Given a set, *S*, of well-formed formulas, an interpretation consists of a non-empty set (or domain), together with a function which:

1 assigns to each individual constant found in members of *S* an element of the domain;
2 assigns to each *n*-place predicate found in members of *S* an *n*-place relation between members of the domain;
3 assigns to each *n*-place function-name found in members of *S* a

function whose arguments are *n*-tuples of elements of the domain and whose values are also elements of the domain; and

4 assigns to each sentence letter a truth value.

Logical constants, such as those representing truth functions and quantifiers, are assigned standard meanings using rules (such as truth tables) which specify how well-formed formulas containing them are to be evaluated. Any interpretation that satisfies the axioms of the system is called a model.

Among the most influential of formal systems to be developed were of course those associated with Frege's propositional and predicate logics. Propositional (or sentential) logic may thus be defined as a formal system or logical calculus which analyses truth-functional relations between propositions (sentences or statements). Any such system is based upon a set of propositional (sentential or statement) constants and connectives (or operators) which are combined in various ways to produce propositions of greater complexity. Standard connectives include those representing negation (~), conjunction (&), (inclusive) disjunction (∨), material implication (→), and material equivalence (↔). A standard axiomatization consists of several definitions (including the definitions that $p \rightarrow q =^{df} \sim p \vee q$, that $p \& q =^{df} \sim(\sim p \vee \sim q)$, and that $p \leftrightarrow q =^{df} (p \rightarrow q) \ \& \ (q \rightarrow p))$, the rules of substitution and detachment, and the following axioms:

1 $(p \vee p) \rightarrow p$
2 $q \rightarrow (p \vee q)$
3 $(p \vee q) \rightarrow (q \vee p)$
4 $(q \rightarrow r) \rightarrow ((p \vee q) \rightarrow (p \vee r))$.

Similarly, Hilbert's positive propositional calculus (which contains all and only those theorems of the classical calculus which are independent of negation), Heyting's intuitionistic propositional calculus (which uses intuitionistic, rather than classical, negation), the several systems of modal logic introduced by C.I.Lewis (1883–1964), and many-valued logics, such as those introduced by Jan Łukasiewicz (1878–1956), are all examples of propositional logics. (As Łukasiewicz also pointed out, logics such as the standard propositional calculus may be reformulated, using so-called Polish notation, in such a way as to avoid the need for scope indicators such as parentheses; thus, letting *N* represent negation, *K* represent conjunction, *A* represent disjunction (or alternation), *R* represent exclusive disjunction, *C* represent material implication, *E* represent material equivalence, *L* represent necessity, and *M* represent possibility, sentences such as $\sim(p \rightarrow (p \ \& \ q))$ and $\Box(p \rightarrow p)$ may be represented as *NCpKpq* and *LCpp*, respectively.)

Like propositional logic, predicate logic may also be defined as a

formal system or logical calculus, but one which analyses the relations between individuals and predicates within propositions, in addition to the truth-functional relations between propositions which are analysed within propositional logic. Each such system is based upon a set of individual and predicate (or functional) constants, individual (and sometime predicate) variables, and quantifiers (such as $\exists$ and $\forall$) which range over (some of) these variables, in addition to the standard constants and connectives of the propositional calculus. A standard axiomatization of first-order predicate logic can thus be viewed as an extension of the propositional calculus. One such axiomatization consists of the formulas and inference rules of the propositional calculus, together with the rule of universal generalization (that if A is a theorem, so is $(\forall a)A$) and the following axiom schemata:

1 If A is a uniform substitution instance of a valid well-formed formula of propositional logic (i.e. a formula obtained from a valid formula of propositional logic by uniformly replacing every variable in it by some well-formed formula of the first-order predicate calculus), then A is an axiom;
2 If a is an individual variable, A any well-formed formula, and B any well-formed formula differing from A only in having some individual variable b replacing every free occurrence of a in A, then $(\forall a)A \rightarrow B$ is an axiom, provided that a does not occur within the scope of any occurrence of a quantifier containing b;
3 $(\forall a)(A \rightarrow B) \rightarrow (A \rightarrow (\forall a)B)$, provided a is not free in A.

Other predicate logics include second-order logic (also called the second-order predicate or functional calculus), higher-order logics, in which quantifiers and functions range over predicate (or functional) variables and/or constants of the system, and modal (and other) extensions of both first- and higher-order logics. When the set of individual or predicate constants is empty, a predicate calculus is said to be pure; otherwise it is said to be applied.

With propositional and predicate logic formalized, the systematic metalogical study of formal properties of logical systems, and the investigation of informal, philosophical problems resulting from such results, began to develop. Among the most important metalogical results to be proved at the level of propositional logic are the completeness and soundness results (which show, respectively, that all valid formulas are theorems of the system and that all theorems of the system are valid formulas), the deduction theorem (which states that, if there is a proof from 's_1, s_2,…, sn' to 's_{n+1}', then there is also a proof from 's_1, s_2,…, s_{n-1}' to 'if s_n then s_{n+1}'), and the decidability result (which shows that there is an effective, mechanical decision procedure—such as truth tables—for determining the validity of any arbitrary formula of the system).

Among the metatheorems proved for first-order logic are similar completeness and soundness results, Tarski's theorem concerning the undefinability of (arithmetical) truth, and the now famous Löwenheim-Skolem theorems. These are a family of metatheoretical results proved by Löwenheim in 1915, and extended by Skolem in 1920 and 1922, to the effect that if there is an interpretation in which an enumerable set of sentences is satisfiable in an enumerably infinite domain then the set is also satisfiable in every infinite domain and, similarly, that if there is an interpretation in which a set of sentences is satisfiable in a non-empty domain then it is also satisfiable in an enumerably infinite domain. This latter theorem gives rise to the so-called 'Skolem's paradox', the unintuitive (but ultimately non-contradictory) result that systems for which Cantor's theorem is provable, and hence which must contain non-denumerable sets, nevertheless must be satisfiable in a (smaller) enumerably infinite domain.

Despite such impressive results, Hilbert's goal of discovering a consistency proof for arithmetic remained elusive. The explanation came with a paper published by Gödel in 1931. Today Gödel is remembered for several important results, any one of which would have given him a position of importance in the history of logic. Most famously, these included his proofs of the completeness and compactness of first-order logic in 1930, and the incompleteness of arithmetic in 1931. They also include results in constructive logic in 1932 and computation theory in 1933, as well as his 1938 proof that the continuum hypothesis is consistent with the Zermelo-Fraenkel axioms of set theory—in other words, that the usual axioms of set theory could never prove the continuum hypothesis false. (That the negation of the continuum hypothesis is also consistent with the Zermelo-Fraenkel axioms of set theory, and hence that the hypothesis is independent of the standard axiomatization for set theory, was proved twenty-five years later by Paul Cohen (b. 1934).)

Of these results, several require further comment. It was in Gödel's 1930 doctoral dissertation at the University of Vienna that the completeness of the first-order predicate calculus was proved for the first time. Completeness is the property that every valid formula of the system is provable within the system. This turns out to be equivalent to the claim that every formula is either refutable or satisfiable. Building on the results of Löwenheim and Skolem, Gödel succeeded in proving a result slightly stronger than this, a result which also entails the Löwenheim-Skolem theorem. Gödel then generalized his result to first-order logic with identity and to infinite sets of formulas. At the same time Gödel proved the compactness theorem for first-order logic, which states that any collection of well-formed formulas of a given

language has a model if every finite subset of the collection has a model.

Equally famous, however, are Gödel's two theorems relating to the incompleteness of systems of elementary number theory. The first of these two theorems states that any ω-consistent system adequate for expressing elementary number theory is incomplete, in the sense that there is a valid well-formed formula of the system that is not provable within the system. (A formal system is ω-consistent if whenever it has as theorems that a given property, *P,* holds of all individual natural numbers, then it fails to have as a theorem that *P* fails to hold of all numbers.) In 1936 this theorem was extended by J.B.Rosser (b. 1907) to apply, not just to any ω-consistent system, but to any consistent system of the relevant sort. The second theorem states that no consistent system adequate for expressing elementary number theory may contain a proof of a sentence known to state the system's consistency. Hence, the difficulty in resolving Hilbert's second problem.

Received by the publisher on 17 November 1930 but published the following year, Gödel's theorems were proved in what is, together with *Principia Mathematica,* one of the two most famous logical works of the current century: 'Über Formal Unentscheidbare Sätze der *Principia Mathematica* und Verwandter Systeme I' ('On Formally Undecidable Propositions of *Principia Mathematica* and Related Systems I'). The system Gödel uses is equivalent to the logic of Whitehead and Russell's *Principia Mathematica* without the ramified theory of types but supplemented by the arithmetical axioms of Peano. (A corollary shows that even supplemented by the axiom of choice or the continuum hypothesis, the system still contains undecidable propositions.)

By introducing his famous system of 'Gödel numbering', Gödel assigns natural numbers to sequences of signs and sequences of sequences of signs within the system. This is done in such a way that, given any sequence, the number assigned to it can be effectively calculated, and given any number, it can be effectively determined whether a sequence is assigned to it and, if so, what it is. Metamathematical predicates used to describe the system in this way can be correlated with number-theoretic predicates. For example, the metamathematical notion of being an axiom can be expressed using the predicate *Ax(x),* which in turn corresponds to exactly those Gödel numbers, *x,* which are correlated to the axioms of the system. Referring to the set of axioms can then be accomplished simply by referring to this set of Gödel numbers.

Theorem VI of Gödel's 1931 paper states that in a formal system of the specified kind there exists an undecidable proposition (that is, a proposition such that neither it nor its negation is provable within the

system). It is this theorem which is commonly referred to as Gödel's first incompleteness theorem (G1). In addition to proving G1, Gödel also proves several other corollaries: for example, that among the propositions whose validity is undecidable are both arithmetic propositions (Theorem VIII) and formulas of pure first-order logic (Theorem IX), and that a statement which expresses the consistency of the system and which can be written as a formula in the system is itself among those formulas not provable in the system (Theorem XI). It is this last theorem, Theorem XI, which is commonly referred to as Gödel's second incompleteness theorem (G2). Both of Gödel's incompleteness theorems required that logicians and mathematicians view formal systems of arithmetic in a new light.

FROM GÖDEL TO FRIEDMAN

Hilbert's programme in effect had two main goals concerning the foundations of mathematics. The first was descriptive, the second justificatory. The descriptive goal was to be achieved by means of the complete formalization of mathematics. The justificatory goal was to be achieved by means of a finitary (and hence epistemologically acceptable) proof of the reliability of those essential but non-finitary (and hence epistemologically more suspect) parts of mathematics. Work by both formalists and logicists during the first two decades of the century had effectively accomplished the former of these two goals. Ideally a finitary consistency proof would accomplish the latter.

Gödel's second incompleteness theorem, G2, is often thought relevant to Hilbert's programme for just this reason. Specifically, it is often claimed that G2 implies three philosophically significant corollaries: first, that any consistency proof for a theory, *T*, of which G2 holds will have to rely upon methods logically more powerful than those of theory *T* itself; second, that (in any significant case) a consistency proof for theory *T* can yield no epistemological gain and so cannot provide a satisfactory answer to the sceptic regarding *T*'s consistency; and third, that as a result of this, G2, if not strictly implying the outright failure of Hilbert's programme, at the very least indicates that significant modifications to it are needed. All three of these 'corollaries' are controversial.[11] In fact, Gödel himself explicitly makes the point that the truth of G2 should not be viewed, by itself, as sufficient reason for abandoning Hilbert's goal of discovering a finitary consistency proof:

> I wish to note expressly that Theorem XI (and the corresponding results for *M* and *A*) do not contradict Hilbert's formalistic viewpoint. For this viewpoint presupposes only the existence of a

> consistency proof in which nothing but finitary means of proof is used, and it is conceivable that there exist finitary proofs that *cannot* be expressed in the formalism of *P* (or of *M* or *A*).[12]

Nevertheless, the formalists themselves drew the moral that radical changes to their programme were required; thus, the 1936 consistency proof by Gerhard Gentzen (1909–45) required the use of transfinite induction up to the ordinal ε_0.

Other consequences also followed. Among them was a renewed interest in the problem of decidability, the problem of finding an effective, finite, mechanical, decision procedure (or algorithm) for determining whether an arbitrary, well-formed formula of a system is in fact a theorem of the system. A positive solution to such a problem is a proof that an effective procedure exists. A negative solution is a proof that an effective procedure does not exist. By 1931 it was already well known that a positive solution existed in the case of prepositional logic, that a decision procedure existed in the form of truth tables for determining whether an arbitrary formula was a tautology. However, in 1936 Church proved that there could be no such decision procedure for validity (or equivalently, for semantic entailment) in first-order logic.

Church proved that there does exist a decision procedure for determining that valid first-order sentences are valid. However, at the same time he also proved that there is no corresponding procedure for showing of sentences which are not valid that they are not valid. In other words, although there is an effective, finite, mechanical, positive test for first-order validity, there is, and can be, no such negative test. Thus, given an arbitrary first-order sentence, there can be no effective, finite, mechanical decision procedure for determining whether or not it is valid.

Central to Church's theorem was the idea of computability. Intuitively, a computable function may be said to be any function for which there exists an effective decision procedure or algorithm for calculating a solution. Several suggestions were offered as a means of making this notion more precise, not only by Gödel and Church, but by Emil Post (1897–1954) and Alan Turing (1912–54) as well. One such precise suggestion was to identify effective computability with that given by a Turing machine; another was to identify it with a series of functions identifiable in the lambda calculus; yet a third was to identify it with that of a general recursive function. Perhaps surprisingly, all three notions turned out to be equivalent. As a result, the thesis of identifying computability with the mathematically precise notion of general recursiveness became known alternatively as Church's thesis or the Church-Turing thesis.

Intuitively, a Turing machine can be thought of as a computer which

manipulates information contained on a linear tape (which is infinite in both directions) according to a series of instructions. More formally, the machine can be thought of as a set of ordered quintuples, $\langle q_i, S_i, S_j, I_i, q_j \rangle$, where q_i is the current state of the machine, S_i is the symbol currently being read on the tape, S_j is the symbol with which the machine replaces S_i, I_i is an instruction to move the tape one unit to the right, to the left, or to remain where it is, and q_j is the machine's next state. From this rather impoverished set of operations it turns out that a wide range of functions are computable. It also turns out that the decision problem for first-order validity is capable of being modelled via Turing machines since, by assigning unique numbers to first-order sentences, there will be a function which returns 1 if given a number representing a valid sentence and 0 otherwise. The question of whether this function is finitely and mechanically calculable turns out to be equivalent to the so-called halting problem, the problem of discovering an effective procedure for determining whether the appropriate Turing machine will ever halt, given arbitrary input. Church's theorem is equivalent to the result that such a function is not finitely and mechanically calculable.

Equivalent classes of functions turned out to be identifiable in the lambda calculus and in recursion theory. The former gains its name from the notation used to name functions. Terms such as *'f(x)'* or the 'successor of *y*' are used to refer to objects obtained from *x* or *y* by the appropriate functions. To refer to the functions themselves, Church introduced a notation which yields, respectively, **'$(\lambda x)(f(x))$'** and *'*(λy) (successor of *y*)' Having done so, he then identified a class of functions which turned out to be identical to both the Turing computable functions and the recursive functions.

The latter may be defined as a set of functions whose members are said to be either primitive recursive or general recursive, and which are themselves constructed from a set of more fundamental functions by a series of fixed procedures.

Specifically, a *constant* function is a function that yields the same value for all arguments. A *successor* function is a function that yields as its value the successor of its argument, for example, $s(1)=2$, $s(35)=36$. An *identity* function of *n* arguments is a function that yields as its value the *i*th of its *n* arguments. Together, the constant, successor and identity functions are called the *fundamental* functions.

In addition, given a set of functions h_i, each, of *n* arguments, a new function, *f*, of *n* arguments is defined by *composition* such that the value of the new function is equal to the value of a previously introduced function, *g*, whose arguments are the values of each of the members of the original set of functions when their arguments are the arguments of the newly introduced function. In other words, if *f* is being defined by composition

and g, $h_1,\ldots h_m$ are previously defined functions, then $f(x_1,\ldots,x_n)=g(h_1(x_1,\ldots,x_n),\ldots, h_m(x_1,\ldots, x_n))$.

Similarly, a new function, f, of n arguments is defined by *primitive recursion* as follows: first, if a designated argument is 0, then f is defined in terms of a previously defined function, g, of n-1 arguments whose arguments are taken to be exactly those of f except for the designated argument, 0. In other words, if f is being defined by recursion and g is a previously defined function, then $f(x_1,\ldots,x_{n-1},0)=g(x_1,\ldots, x_n)$. Second, if the designated argument is not 0, and is instead the successor, c+1, of some number, c, then f is defined in terms of a previously defined function, g, of n+1 arguments whose arguments are taken to be exactly those of f except for the designated argument, c+1, together with c and the value of f when its arguments are exactly those arguments already given for g. In other words, if f is being defined by recursion and g is a previously defined function, then $f(x_1,\ldots,x_{n-1}, c+1)= g(x_1,\ldots, x_{n-1}, c, f(x,\ldots,x_{n-1},c))$.

Any function which is either a fundamental function or can be obtained from the fundamental functions by a finite number of applications of composition and primitive recursion is then said to be a *primitive recursive* function.

Next, a new function, f of n arguments is defined by *minimization* such that its value (whenever it exists) is the least c such that, given a previously defined function, g, whose arguments are exactly the arguments of f together with c, g has the value 0. If there is no such c, then f remains undefined for those arguments. In other words, if f is being defined by minimization and g is a previously defined function, then $f(x_1,\ldots, x_n)$=the least c such that $g(x_1,\ldots,x_n, c)=0$, provided that there exists some c; otherwise f is undefined.

Any function which is either a fundamental function or can be obtained from the fundamental functions by a finite number of applications of composition, primitive recursion, and minimization is then said to be a *general recursive* (or simply *recursive*) function.

Examples of recursive functions include familiar arithmetical operations such as addition, multiplication, and others. Thus, letting z refer to the zero function (a constant function which yields the value zero), s the successor function, id^n_i an identity function of n arguments which yields its i^{th} argument as its value, Cn composition, and Pr primitive recursion, such functions can be defined as follows:

1 for sum, where $sum(x, y)=x+y$, we let
$sum = Pr[id, Cn[s, id^3_3]]$
or, more intuitively, $x+0=x$ and $x+s(y)=s(x+y)$
2 for product, where $prod(x, y)=x.y$, we let
$prod = Pr[z, Cn[sum, id^3_1, id^3_3]]$

or, more intuitively, $x.0=0$ and $x.s(y)=x+(x.y)$

3 for exponentiation, where $exp(x, y)=x^y$, we let

$$\boldsymbol{exp = Pr[Cn[s, z], Cn[prod, id^3_1, id^3_3]]}$$

or, more intuitively, $x^0=1$ and $x^{s(y)}=x.x^y$

4 for factorial, where $fac(y)=y!$, we let

$$\boldsymbol{fac = Pr[s(o), Cn[prod, Cn[s, id^2_1], id^2_2]]}$$

or, more intuitively, $0!=1$ and $s(y)!=s(y).y!$.

The proved identification of the class of recursive functions with the other two classes of functions thought to express the intuitive concept of computability lent strong support to the Church-Turing thesis.

Having observed both the incompleteness of first-order theories of arithmetic and the undecidability of first-order validity, questions naturally turned to other issues relating to computability. One such issue is that of computational complexity. Another concerns the extent and nature of arithmetical incompleteness. Recently, advances have been made in both of these areas.

The computational complexity of a problem is a measure of the computational resources required to solve the problem. In this context, the distinction is made between problems solvable by polynomial-time algorithms and problems which, if solvable, have solutions which are testable in polynomial time but which, if not solvable, do not. Problems of the former kind are said to be members of the class of problems P, while problems of the latter kind are members of the class NP. Those problems in NP which are measurably the hardest to solve are said to be NP-complete. Today the problem of whether P=NP remains open. Nevertheless, in 1971 Stephen Cook (b. 1939) proved that the problem of satisfiability (the problem of determining, given an arbitrary set of sentences, whether it is possible for all of the sentences to be jointly true) is at least as difficult to solve as is any NP-complete problem [1.87]. The result is important since it unifies the class of NP-complete problems in a way that was unappreciated prior to 1971.

Similarly, advances have been made concerning the extent and nature of arithmetical incompleteness. Chief among these are the 1981 independence results of Harvey Friedman (b. 1948) [1.58]. Friedman's contributions include the discovery of a series of mathematically natural propositions (concerning Borel functions of several variables) that are undecidable, not just in *ZFC,* but in the much stronger system of *ZFC* together with the axiom of constructibility, *V=L,* as well. This is important not simply because such propositions are of a level of abstraction significantly lower than previous results, but because virtually all propositions previously thought to have been undecidable have been made decidable by the addition of the axiom of constructibility to *ZFC*.

Importantly, Friedman has also shown that some of these propositions, although undecidable in *ZFC*, are decidable in a competing theory, Morse-Kelly class theory with choice. Such results are important since they indicate in what ways competing axiomatizations of set theory in fact differ.

THE EXPANSION OF LOGIC

As long ago as Galen (*c.* 129–*c.* 199) it was recognized that some sound arguments could not adequately be analysed in terms of either Aristotelian or Stoic logic. For example, neither the argument 'if Sophroniscus is father to Socrates, then Socrates is son to Sophroniscus', nor the argument 'if Theon has twice as much as Dio, and Philo twice as much as Theon, then Philo has four times as much as Dio' is provably valid in such systems.[13] Thus, modern first-order logic can be viewed as a means of extending the ancient idea of formal validity, since it successfully displays many formally valid inferences which ancient logic fails to capture.

One way of understanding the advent of contemporary nonclassical and informal logics is to view them in much the same way. Such logics regularly attempt to describe, in a systematic way, additional types of reliable inference not captured in classical first-order logic. They do so in two ways: first, *extensions* of classical logic attempt to exhibit reliable forms of inference in addition to those displayed in first-order logic much as first-order logic exhibits reliable forms of inference in addition to those displayed in ancient logic or in modern propositional logic. Second, *competitors* to classical logic advocate alternative ways of understanding the idea of valid inference itself, rejecting in one way or another the concept of validity as it is described in first-order logic.

Among the most philosophically interesting of the competitors to classical logic are intuitionistic logics, relevance logics and paraconsistent logics. Of these, intuitionistic logics were the first to appear. Motivated by the intuitionistic idea that satisfactory proofs must refer only to entities which can be successfully constructed or discovered, intuitionist logic requires that we find examples, or that we find algorithms for finding examples, of each object or set of objects referred to in a proof. Formalized by Heyting, intuitionistic logic therefore abandons those forms of classical proof (including indirect proof) which do not contain the appropriate constructions. A standard axiomatization consists of rules for substitution and detachment, together with the following axioms:

1 $p\rightarrow(p\wedge p)$
2 $(p\wedge q)\rightarrow(q\wedge p)$
3 $(p\rightarrow q)\rightarrow((p\wedge r)\rightarrow(q\wedge r))$
4 $((p\rightarrow q)\wedge(q\rightarrow r))\rightarrow(p\rightarrow r)$
6 $(p\wedge(p\rightarrow q))\rightarrow q$
7 $p\rightarrow(p\vee q)$
8 $(p\vee q)\rightarrow(q\vee p)$
9 $((p\rightarrow r)\wedge(q\rightarrow r))\rightarrow((p\vee q)\rightarrow r)$
10 $\neg p\rightarrow(p\rightarrow q)$
11 $((p\rightarrow q)\wedge(p\rightarrow\neg q))\rightarrow\neg p$.

It follows in Heyting's logic that the sentence '$p\vee\neg p$' is not a theorem and that inferences, such as those from '$\neg\neg p$' to 'p' and from '$\neg(\forall x)Fx$' to '$(\exists x)\neg Fx$', are not allowed.

Like intuitionistic logic, relevance logic is a competitor to classical logic which emphasizes a non-classical consequence relation. Like intuitionistic logic, too, relevance logic results from a dissatisfaction with the classical consequence relation. Developed by Alan Ross Anderson (1925–73), Nuel Belnap (b. 1930) and others, the logic stresses entailments which involve connections of relevance between premisses and conclusions, rather than simple classical derivability conditions. It is intended that the relevance consequence relation thereby avoids both the paradoxes of material implication and the paradoxes of strict implication. (The former involve the unintuitive but, strictly speaking, non-contradictory results to the effect that whenever the antecedent is false or the consequent is true in a material implication, the resulting implication will be true, regardless of content; the latter involve the unintuitive, but likewise non-contradictory, results that a necessary proposition is strictly implied by any proposition and that an impossible proposition strictly implies all propositions, regardless of content. Following Lewis's 1912 definition, one sentence, p, is said to strictly imply a second sentence, q, if and only if it is not possible that both p and $\sim q$.)

As it is normally formalized, relevance logic turns out to be a type of paraconsistent logic. Such logics tolerate, but do not encourage, inconsistencies. They do so in the sense that a contradiction (the joint assertion of a proposition and its denial) may be contained within the system; at the same time they are consistent in the sense that not every well-formed formula is a theorem. One example of such a logic (as in [1.146]), which is not a relevance logic, may be outlined as follows: Let $M=\langle W, R, w^*, v\rangle$ be a semantic interpretation of a formal system, with W an index set of possible worlds, w_i, R a binary relation on W, w* the actual world, and v a valuation of the propositional constants, i.e. a map from W×P (with P the set of propositional constants) into {{1}, {0}, {1, 0}}, the set

of truth values. (More naturally, we write $v(w, \alpha) = x$ as $v_w(\alpha)=x$ and read '$1 \in v_w(\alpha)$' as 'α is true under v at w' and '$0 \in v_w(\alpha)$' as 'α is false under v at w'.) Valuation v can then be extended to all well-formed formulas as follows:

$\neg$ $1 \in v_w(\neg\alpha)$ iff $0 \in v_w(\alpha)$
$0 \in v_w(\neg\alpha)$ iff $1 \in v_w(\alpha)$

$\wedge$ $1 \in v_w(\alpha \wedge \beta)$ iff $1 \in v_w(\alpha)$ and $1 \in v_w(\beta)$
$0 \in v_w(\alpha \wedge \beta)$ iff $0 \in v_w(\alpha)$ or $0 \in v_w(\beta)$

$\vee$ $1 \in v_w(\alpha \vee \beta)$ iff $1 \in v_w(\alpha)$ or $1 \in v_w(\beta)$
$0 \in v_w(\alpha \vee \beta)$ iff $0 \in v_w(\alpha)$ and $0 \in v_w(\beta)$

$\rightarrow$ $1 \in v_w(\alpha \rightarrow \beta)$ iff for all w_i such that w_iRw,
if $1 \in v_{w_i}(\alpha)$ then $1 \in v_{w_i}(\beta)$, and
if $0 \in v_{w_i}(\beta)$ then $0 \in v_{w_i}(\alpha)$
$0 \in v_w(\alpha \rightarrow \beta)$ iff for some w_i such that w_iRw,
$1 \in v_{w_i}(\alpha)$ and $0 \in v_{w_i}(\beta)$.

Definitions of semantic consequence and logical truth are then introduced in the standard way:

$\Sigma \models \alpha$ iff for all interpretations, *M*, it is true of the evaluation, *v*, that
if $1 \in v(\beta)$ for all $\beta \in \Sigma$, then $1 \in v(\alpha)$
$\models \alpha$ iff for all interpretations, *M*, itis true of the evaluation, *v*, that
$1 \in v(\alpha)$.

Given these semantics, some rules of inference, such as disjunctive syllogism ($P \vee Q$, $\neg P + Q$), fail. As a result, the logic turns out to be paraconsistent in just the sense outlined above.

Other competing logics include combinatory logic (a variable-free branch of logic which contains functions capable of playing the role of variables in ordinary logic); free logics (logics in which it is not assumed that names successfully refer, hence logics which do not make the kind of existence assumptions normally associated with classical logic); many-valued logics (logics which countenance more than the two possible classical truth values, truth and falsity; historically, such logics have been motivated by the problem of future contingents, the problem first raised by Aristotle but popularized by Lukasiewicz of determining whether contingent statements concerning future states have truth values prior to the time to which they refer); and quantum logics (logics designed to take account of the unusual entailment relations between propositions in theories of contemporary quantum physics; hence, a logic in which the law of distributivity fails).

In contrast to the above logics, extensions of first-order logic typically have as their goal the construction of a broader, more inclusive type of consequence relation than that found in classical logic. Formal extensions, such as modal extensions of both prepositional and predicate logic, do so by expanding the concept of formal entailment to include a class of formally valid arguments in addition to those of first-order logic. In contrast, informal extensions do so by expanding the concept of validity to include informal (or material) validity in addition to formal validity. Finally, inductive or non-monotonic extensions do so by expanding the concept of consequence to include, not just entailments, but implications, corroborations, and confirmations as well. Thus it is that logic (in the broad sense) has come to include, not just theories of formal entailment relations, but probability theory, confirmation theory, decision theory, game theory and theories of epistemic modelling as well.

Among the most important extensions to classical logic are the modal extensions. These are extensions emphasizing inferential relations resulting from the alethic modalities, including necessity, possibility, impossibility and contingency. Such logics are obtained from classical prepositional or predicate logic by the addition of axioms and rules of inference governing operators such as $\Box$ and $\Diamond$ in '$\Box\ p$' ('it is necessary that p') and '$\Diamond p$' ('it is possible that p'). The weakest logic generally thought to count as a modal logic in this sense is a logic introduced by Robert Feys (b. 1889) in 1937, system *T*. A standard axiomatization consists of the axioms and rules of inference for classical propositional logic, together with several definitions (including the definition that $\Diamond p =_{df} {\sim}\Box{\sim} p$), the rule of necessitation (to the effect that if p is a theorem, so is $\Box\ p$), and the following axioms:

1 $\Box\ p \rightarrow p$
2 $\Box\ (p \rightarrow q) \rightarrow (\Box\ p \rightarrow \Box q)$.

Additional modal systems, including the 1932 systems *S*1 to *S*5, introduced by Lewis and C.H.Langford (1895–1964), are normally developed as extensions of *T*[1.37]. Since a formula, p, is said to strictly imply another formula, q, if and only if it is not possible that both p and ${\sim}q$, modal logics may be viewed either extensionally as a type of many-valued logic or intensionally as a theory of strict implication. The standard possible world semantics for such logics (in which a proposition is necessary if and only if it is true in all possible worlds, impossible if and only if it is true in no possible world, possible if and only if it is true in at least one possible world, and so on) was developed by Saul Kripke (b. 1940).

Like modal logics, epistemic logics (logics emphasizing inferential relations and entailments which result from epistemic properties of

sentences) may be obtained from classical prepositional or predicate logic by the addition of axioms and rules of inference governing operators such as *K* and *B* in *'Kp'* ('it is known that *p*') and *'Bp'* ('it is believed that *p*'). Similarly, deontic logics (logics emphasizing inferential relations and entailments which result from deontic properties of sentences) may be obtained by the addition of axioms and rules of inference governing operators such as *O* and *P* in *'Op'* ('it ought to be the case that *p*') and *'Pp'* ('it is permissible that *p*').

Other extensions include counterfactual logics (logics which are primarily concerned with conditional sentences containing false antecedents); erotetic or interrogative logics (logics emphasizing inferential relations and entailments pertaining to questions and answers); fuzzy logics (logics concerned with imprecise information, such as information conveyed through vague predicates or information associated with so-called fuzzy sets, sets in which membership is a matter of degree); imperative logics (logics emphasizing inferential relations and entailments which result from imperatives); mereology (the formal study of inferences and entailments which result from the relationship of whole and part); theories of multigrade connectives (logics whose connectives fail to take a fixed number of arguments); plurality, pleonotetic or plurative logics (logics emphasizing inferential relations and entailments pertaining to relations of quantity and involving plurality quantifiers such as 'most' and 'few'); preference logics (logics emphasizing inferential relations and entailments which result from preferences); second-order and higher-order logics (logics carried out in higher-order languages in which quantifiers and functions are allowed to range over properties and functions as well as over individual i.e. individuals); and tense or temporal logics (logics designed to be sensitive to the tense of sentences and to the changing truth values of sentences over time).

In contrast to the above logics, informal logic is the study of arguments whose validity (or inductive strength) depends upon the material content, rather than the form or structure, of their component statements or propositions. (The logical form of a sentence or argument is obtained by making explicit the expression's logical constants and then by substituting free variables for its non-logical constants; logical form is thus typically contrasted with the material content—or subject matter—of the non-logical constants for which the free variables are substituted.) Such logics are extensions of formal logic in that they recognize the significance of formal validity, but also recognize the existence of valid arguments which are not instances of valid argument forms. Thus the argument from 'If Hume is a male parent then Hume is a father' and 'Hume is a father' to 'Hume is a male parent', although valid, is not formally so. In fact, far from being formally valid, it is an instance of the invalid argument form of affirming the consequent. Since all so-called invalid argument forms have

valid arguments as uniform substitution instances, the claim is made that formal characterizations alone will never be able to capture completely the concepts of either validity or invalidity.

Finally, mention should be made of formal systems which expand the traditional consequence relation by weakening it to a relation which is less than that of a valid inference. Such systems include inductive and non-monotonic logics, as well as theories of probability and confirmation. All such systems are concerned with so-called ampliative arguments, arguments whose conclusions in some important sense go beyond the information contained in their premisses. Such arguments are defeasible in the sense that their premisses fail to provide conclusive evidence for their conclusions and, hence, allow for the later overturning or revision of a conclusion. Ampliative arguments include both inductive inferences and inferences to the best explanation. They may be either acceptable or unacceptable depending upon their (inductive or probabilistic) strength or weakness. Similarly, confirmation theories evaluate the degree to which evidence supports (or confirms) a given hypothesis, emphasizing the rational degree of confidence that a cognitive agent should have in favour of a hypothesis given some body of evidence.

Such theories are typically (but not always) based upon probability theory, the mathematical theory of the acceptability of a statement or proposition, or of its likelihood. The standard account, first axiomatized in 1933 by Andrej Kolmogorov (b. 1903) [1.160], can be summarized as follows: Given sentences s and t, probability is a real-valued function, Pr, such that

1 $Pr(s) \geq 0$,
2 $Pr(t)=1$, if t is a tautology
3 $Pr(s \vee t)=Pr(s)+Pr(t)$, provided that s and t are mutually exclusive (i.e. $\sim(s \,\&\, t)$)
4 $Pr(s \mid t)=Pr(s \,\&\, t)/Pr(s)$, provided that $Pr(s) \neq 0$.

Default logics, which permit the acceptance or rejection of certain types of default inferences in the absence of information to the contrary, provide one type of non-monotonic alternative to probabilistic theories.

Defeasible theories often give rise to so-called 'applied logics', including theories of belief revision and theories of practical rationality. Theories of belief revision (for example in [1.123]) are typically designed in such a way as to model changes in one's belief set which come about both as a result of the acceptance of new beliefs and the revision of old beliefs. Thus, if K is a consistent belief set closed under logical consequence, then for any well-formed sentence, S, one of the following three cases will obtain:

1 S is accepted, i.e. $S \in K$ (and $\sim S \notin K$);
2 S is rejected, i.e. $\sim S \in K$(and $S \notin K$); or
3 S is indetermined, i.e. $S \notin K$ and $\sim S \notin K$.

Epistemic changes may then be of any of the following three types:

1 Expansions: given that S is indetermined, either accept S (and its consequences) or accept $\sim S$ (and its consequences);
2 Contractions: given that S is accepted (or that $\sim S$ is accepted, i.e. S is rejected), conclude that S is indetermined;
3 Revisions: given that S is accepted (or that $\sim S$ is accepted, i.e. S is rejected), conclude that S is rejected (or that $\sim S$ is rejected, i.e. S is accepted).

Theories of practical rationality (for example in [1.159]) typically include both decision theory (the theory of choice selection under various conditions of risk and uncertainty, given that each option has associated with it an expected probability distribution of outcomes, gains and losses), and game theory (the theory of choice selection by two or more agents or players when the outcome is a function, not just of one's own choice or strategy, but of the choices or strategies of other agents as well). Such theories may be either bounded or not, depending upon whether they take account of possible cognitive limitations of the decision-makers.

NOTES

1 [1.44], vii.
2 Quoted in [1.84], 2.
3 [1.941], 85.
4 [1.183], 1, 7.
5 [1.194], 1:217–18.
6 [1.194], 1:219.
7 Much the same difficulty is outlined by Cantor in a 1899 letter to Dedekind (1899).
8 Quoted in [1.84], 125.
9 Quoted in [1.84], 127.
10 Or perhaps equivalently, that no collection can be definable only in terms of itself. See [1.77], in [1.197], 63.
11 For example, see [1.177].
12 [1.65], in [1.62], 1:195.
13 [1.35], 185.

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CHAPTER 2

Philosophy of mathematics in the twentieth century

Michael Detlefsen

INTRODUCTION

Philosophy of mathematics in the twentieth century has primarily been shaped by three influences. The first of these is the work of Kant and, especially, the problematic he laid down for the subject in the late eighteenth century. The second is the reaction to Kant's conception of geometry that arose among nineteenth-century thinkers and which centred first on the discovery of non-Euclidean geometries in the 1820s. The third is the new discoveries in logic that emerged with increasing rapidity and force during the latter half of the nineteenth century. In one way or another, the main currents of twentieth-century philosophy of mathematics—and, in particular, the so-called logicist, intuitionist and formalist movements—are all attempts to reconcile Kant's revolutionary plan for mathematical epistemology with the equally revolutionary ideas of Gauss, Bolyai and Lobatchevsky in geometry, and the powerful ideas and techniques developed by Boole, Peirce, Peano, Frege and other nineteenth-century figures in logic.

To understand twentieth-century philosophy of mathematics, it is therefore necessary first to have some knowledge of Kant's ideas and of the ideas that were at the heart of the nineteenth-century reactions to his views. We shall therefore devote the remainder of this introduction to surveying these ideas.

We begin with Kant and the *Problematik* he established for mathematical epistemology. This *Problematik* was focused on the reconciliation of two apparently incompatible features of mathematical thought: namely, its rich *substantiality* as a science, which gives it the

appearance of something that arises from sources external to the human intellect, and its apparent certainty or *necessity*, which gives it the appearance of something that is independent of the one external source which is best founded and understood—namely, sensory experience.

To resolve this difficulty, Kant formulated a theory of knowledge which imported much of what had traditionally been thought of as information arising from external sources (specifically, the basic spatial characteristics of sensory thought, and the temporal characteristics of both sensory and non-sensory thinking) into the human mind itself, representing it as the product of certain deep, standing traits of human cognition. At the centre of this theory was a certain conception of judgement which represented the intersection of two different schemes for classifying propositions. On the first of these, propositions were sorted according to the type of knowledge of which they admitted; those which required sensory experience were called *a posteriori*, those which did not were called *a priori*. On the second, they were sorted according to whether or not their predicate terms were contained in their subject terms (in the sense that one *thinking* the subject term would, as a part of that very act itself, also *think* the predicate term). Those judgements in which the subject term contained the predicate term in this sense were to be called *analytic*. Those in which no such containment obtained were either falsehoods, because there was no connection between the subject and predicate concepts at all, or they were *synthetic* truths. In true synthetic judgements, the subject and predicate concepts were joined not by a relation of containment, but rather by a relation of *association*. The association of a predicate with a subject provided for their being thought together in tandem, though it did not, like containment, require that a thinking of the predicate term of a judgement be a constituent part of any thinking of its subject term (cf. [2.58] for a good discussion of the Kantian doctrine of concepts, specifically in relation to his conception of intuition).

Kant erected his mathematical epistemology upon these distinctions between a priori and a posteriori and analytic and synthetic judgements. He attempted to explain what he referred to as the 'certainty' or 'necessity' of mathematical judgements by showing that our knowledge of them is a priori. Such knowledge, he argued, derives from two standing capacities of the human mind. One of these, which Kant referred to as our a priori intuition of space, was taken to function as a formal constraint on sensory experience by forcing it to be represented in a Euclidean space of three dimensions. The other, the so-called a priori intuition of time, served formally to constrain both sensory and non-sensory experience by representing it as temporally ordered. Both the a priori intuition of space and the a priori intuition of time therefore functioned to control the senses rather than the other way round. It was because of this that Kant believed judgements arising from them (i.e. the

judgements of geometry and arithmetic) to be impervious to falsification by sensory experience.

This, in brief, was Kant's proposal for accounting for the necessity of mathematics. He proposed to account for its substantiality by establishing that its judgements are synthetic rather than analytic in character. If mathematical judgement is synthetic in character, then it cannot be seen as consisting in the mere apprehension of a *containment* relation between its subject and predicate concepts. Rather, it must be seen as the fusion in thought of two analytically unrelated concepts through one of two means: either the conjunction of concepts provided for by repeated sensory experience, or the invariant and inevitable association provided for by an a priori structuring of our minds in such a way as to bring the two together *in thought*. Such a joining of analytically unrelated concepts, in which the thinking of the predicate concept is not, logically speaking, strictly required for the thinking of the subject concept, was, in Kant's view, the essential ingredient of substantiality in judgement. This notion of analytically unrelated concepts necessarily joined in thought enabled Kant to frame an account of the substantiality of mathematical judgements which would allow mathematical judgement to be necessary but, at the same time, not limit the degree and kind of the informativeness of mathematical judgements to the degree and kind of complexity that logical containment relations are capable of displaying. In Kant's estimation, this latter was a limitation that it was important to avoid.

Kant adopted a similarly synthetic view of the nature of mathematical *reasoning*. He maintained that mathematical (as opposed to logical or analytical) inference possesses the same rich substantiality of character that distinguishes mathematical from logical or analytical judgement. He also argued (cf. [2.86], 741–7) that the connection between the premiss(es) and conclusion of a mathematical inference calls for synthetic rather than analytic means of bonding.

To illustrate the point, he elaborated upon an elementary case of geometrical inference; namely, that inference in ordinary Euclidean geometry which takes one from a premiss to the effect that a given figure is a triangle to the conclusion that the sum of its interior angles is equal to that of two right angles. He maintained (Ibid.) that no amount of analysis of the concept of a triangle could ever reveal that its interior angles sum to two right angles. Rather, he said, in order to arrive at such a conclusion (i.e. a conclusion that extends our knowledge of triangles beyond what is given in the definition of the concept itself) we must rely primarily not on the definition of the concept, but on the means by which triangles are presented to us in intuition. In other words, we must construct a triangle in intuition (i.e. represent the object which 'corresponds to' [Ibid., p. 742] the concept of a triangle), and then extract the conclusion

not from the mere concept of a triangle but rather from *the universal conditions governing the construction of triangles* (Ibid., pp. 742, 744) in our intuition. 'In this fashion', said Kant, the mathematical reasoner arrives at his conclusion 'through a chain of inferences guided throughout by intuition' (Ibid., p. 745).

These, in brief, are Kant's proposals for the resolution of what he took to be the central problems facing the philosophy of mathematics. But though the problems themselves have remained a staple of twentieth-century thinking on the subject, Kant's particular proposals for their resolution have not. What caused this decline in the popularity of Kant's ideas was, primarily, the emergence of challenges to his conception of geometry and his view of the relation between geometry and arithmetic that arose in the nineteenth century. It is to these ideas that we now turn, beginning with geometry.

On Kant's conception, geometry was the product of an a priori intuition of space which specified the space in which human spatial experience was 'set', so to speak. The character of this a priori visual space was that spelled out in the Euclidean axioms for three-dimensional space. In calling Euclidean three-dimensional space the space of human visual experience, one does not mean, of course, that it is the only space that is intelligible or logically coherent to the human mind. Visualizability is one thing, intelligibility or logical coherence another. Kant's position was that Euclidean three-dimensional space is the only space that is *visualizable* by humans (cf. [2.57] for a useful discussion of Kant's view of geometry).

Not long after Kant elaborated his views in the *Critique of Pure Reason,* mathematicians expressed doubts about them. Gauss, for example, clearly stated his doubts concerning the a priori character of geometry in a letter written in 1817 to Olbers (cf. [2.60], 651–2). He restated the same view in an 1829 letter to Bessel (cf. [2.59], VIII:200) and added that it had been his view for nearly 40 years. In (my translation of) his words:

> My innermost conviction is that geometry has a completely different position in our a priori knowledge than arithmetic…we must humbly admit that, though number is purely a product of our intellect, space also has a reality external to our intellect which prohibits us from being able to give a complete specification of its laws a priori.[1]

Later, in a letter written in 1832 to Bolyai's father (cf. [2.59], VIII: 220–21), he reiterated this view, saying that Bolyai's results provided a proof of the incorrectness of Kant's views.

> It is precisely in the impossibility of deciding a priori between Σ [Euclidean geometry] and S [the younger Bolyai's non-Euclidean

> geometry] that we have the clearest proof that Kant was wrong to claim that space is only the form of our intuition. [Brackets and translation mine]

There thus arose among nineteenth-century thinkers the belief (given special impetus by the work of Bolyai and Lobatchevsky) that there are fundamental epistemological differences between geometry and arithmetic. Put briefly, the difference is that arithmetic is more and geometry less central to human thought and reason. Arithmetic, on this view, was taken to be wholly a product or creation of the human intellect; geometry, on the other hand, was taken to be determined at least in part by forces external to the human intellect. The difference was implied by a broad epistemological principle (which we might refer to as the *creation principle*) to the effect that what the mind creates or produces of itself is better known to it than that which comes from without.

Belief in the epistemological asymmetry of arithmetic and geometry (though not necessarily Gauss's particular conception of its character) thus became a central tenet of nineteenth-century thinking concerning the nature of mathematical knowledge. It also became a prime force shaping the major movements of twentieth-century philosophy of mathematics. In the main, two basic kinds of reactions emerged, corresponding to the two basic ways of accommodating this asymmetry. One was to retain a Kantian conception of arithmetic (as based on an a priori intuition of time) and adopt a non-Kantian conception of geometry (as based on an a priori intuition of space). The other was to take a non-Kantian view of arithmetic while retaining a Kantian conception of geometry. The former of these two tactics was essentially that which was adopted by the intuitionists Brouwer and Weyl, while the latter became the central idea motivating the logicism of Frege and Dedekind. Hilbert's finitist programme, the third main movement of twentieth-century philosophy of mathematics, in a way adopted and in a way rejected both. It maintained both the epistemological symmetry of arithmetic and geometry and their fundamentally a priori character. It rejected, however, Kant's proposed a priori intuitions of space and time as their bases.

The powerful confirmation of belief in the epistemological asymmetry of arithmetic and geometry that was provided by the nineteenth-century discovery of non-Euclidean geometries was therefore a major factor contributing to the decline of Kant's positive views in the philosophy of mathematics and the emergence of major alternatives in the twentieth century. The second major factor contributing to the weakening of Kant's influence in twentieth-century philosophy of mathematics was the dramatic development of logic during the latter part of the nineteenth and the early part of the

twentieth centuries. This included the introduction of algebraic methods by Boole and DeMorgan, the improved treatment of relations by Peirce, Schröder and Peano, the replacement of the Aristotelian analysis of form based on the subject-predicate relation with the more fecund analysis of form based on Frege's general notion of a logical function, and the advances in formalization brought about by the introduction (by Frege, Russell and Whitehead, and Peano) of precisely defined and managed symbolic languages and systems.[2]

These developments took logic to a point well beyond what it was in the time of Kant, and this caused some to judge that it was the relatively underdeveloped state of logic in Kant's time that was primarily responsible for his belief in the need for a *synthetic* basis for mathematical judgment and inference. Russell, for one (cf. [2.120], [2.123], [2.124]), took such a position, arguing that though Kant's views may have seemed reasonable given the sorry state of logic in his day, they would never have been given a serious hearing had our knowledge of logic been then what it is now. (N.B. But though Russell saw the enrichment of the analysis of logical form brought about by the modern logic of relations and the functional conception of the proposition as being of particular importance to the correction of Kant's deficiencies, he also believed that certain developments in mathematics proper were of great importance. Chief among these were (i) the arithmetization of analysis by Weierstrass, Dedekind and others; and (ii) the discovery by Peano of an axiomatization of arithmetic. These led to what Russell regarded as a codification of pure mathematics within a certain axiomatic system of arithmetic (viz. second-order Peano arithmetic), and so provided for its 'logicization'. Russell reckoned the significance of these developments for Kant's philosophy of mathematics to be as great as that of the discovery of non-Euclidean geometries (cf. [2.120], [2.123].)

For the most part, Russell's views on these matters were taken over by the logical empiricists, who, like Russell, were much impressed with the new logic, and who were also attracted to a logicism like Russell's,[3] because it allowed them to resolve the difficulties that mathematics had traditionally posed for empiricist epistemologies.[4] The new logic, then, in being seen as the basis for the working out of Russell's sweeping form of logicism, eventually led to the resurgence of empiricist epistemologies for mathematics, and these, quite clearly, represented a significant departure from Kantian mathematical epistemology. In addition, it posed what has proven to be an enduring challenge to the Kantian view that mathematical *reasoning* is essentially distinct from logical reasoning.[5]

This completes our synopsis of the major influences shaping twentieth-century philosophy of mathematics. The longer story, which we shall now

tell in greater detail, is, for the most part, the story of the ebb and flow of Kant's ideas as they met and interacted with new developments in geometry, logic, science and philosophy.

THE EARLY PERIOD AND THE DEVELOPMENT OF THE THREE 'ISMS'

We begin our discussion with the first three decades (what we are calling the 'early period'), which, if it was not *the* most active productive period, was certainly one of the most such in the entire history of the subject. The major developments of this period were the three great 'isms' of recent philosophy of mathematics: logicism, intuitionism and (Hilbert's) formalism. All of these, we shall argue, were profoundly influenced by Kantian ideas. In the case of logicism, however, one must take care to distinguish Frege's from Russell's version. Frege's had much closer ties to Kantian epistemology than did Russell's. Indeed, it attempted to retain many of Kant's most important ideas, including, as we shall see, certain of his ideas regarding the nature of reason.

Logicism

Frege was moved by the discovery of non-Euclidean geometries, and dedicated to the task of explaining what he took to be the main upshot of this discovery—namely, the asymmetry between arithmetic and geometry as regards their basicness to human thought. Geometrical thinking, though widely applied in human thought, was not so widely applied as to suggest that it is not based on a Kantian type of a priori intuition. Thus, Frege supported Kant's geometrical epistemology (cf. [2.49], section 89). Arithmetic, on the other hand, was too pervasively applicable in human thought to be ascribed plausibly to the working of a similar faculty of intuition. No, its epistemological source must be sought elsewhere—ultimately, as Frege saw it, in a reconceived faculty of reason.

The basics of this viewpoint were evident in Frege's writings from the very start. Thus, already in his 1873 doctoral dissertation, he emphasized that 'the whole of geometry rests, in the final analysis, on principles that derive their validity from the character of our intuition' (cf. [2.46], 3, my translation). And, in his 1874 *Habilitationsschrift* [2.47], he expanded this observation to include his view of the relation between geometry and arithmetic *vis à vis* their dependency on intuition.

> It is quite clear that there can be no intuition of so pervasive and abstract a concept as that of magnitude (Größe). There is therefore a noteworthy *(bemerkenswerter)* difference between geometry and arithmetic concerning the way in which their basic laws are grounded. The elements of all geometrical constructions are intuitions, and geometry refers to intuition as the source of its axioms. Because the object of arithmetic is not intuitable, it follows that its basic laws cannot be based on intuition.[6]

The same basic point concerning the 'unintuitedness' of the objects of arithmetic is made in the *Grundlagen,* where Frege remarks that:

> In arithmetic we are not concerned with objects which we come to know as something alien from without through the medium of the senses, but with objects given directly to our reason and, as its nearest kin, utterly transparent to it.
>
> [2.49, Section 105]

The same basic contrast between geometry and arithmetic is drawn in sections 13 and 14 of the *Grundlagen* [2.49]. There Frege broached the question of the relative places occupied in our thinking by empirical, geometrical, and arithmetical laws. His conclusion is that arithmetic laws are deeper than geometrical laws, and geometrical laws deeper than empirical laws. He arrives at this conclusion by conducting a thought experiment in which he considers the cognitive damage that one might expect to be done by denying each of the various kinds of laws. Denying a geometrical law, he concludes, stands to do more extensive damage to a person's cognitive orientation than denying a physical law. For it would lead to a conflict between what people can conceive and what they can spatially intuit. It would bring severe disorientation to a person's cognition. It would force them, for example, to deduce things that formerly they had been able just to 'see'. And it would even make the deductions strange and unfamiliar. It would not, however, result in a global breakdown of their rational thinking. Such global breakdown in one's rational functioning is rather that which would follow from a denial of arithmetical law. Denying an arithmetical law would not only keep one from seeing what he had formerly been able to see, it would, according to Frege, prohibit his engaging in deduction or reasoning of any sort. In his words, it would bring about 'complete confusion', so that 'even to think at all would seem no longer possible' (Ibid.).

Frege sought to explain this projected global breakdown in rational thought by arguing that the scope of arithmetical law, unlike that of physical and geometrical law, is universal. It governs not only that which

is physically actual and that which is spatially intuitable, but, indeed, all that which is *numerable*—and that, according to Frege, is the widest range possible, extending to all that which is in any coherent way thinkable or conceivable.[7] The laws of arithmetic must, therefore, he concluded, 'be connected very intimately with the laws of thought' (Ibid.)—that is, the laws of logic.[8]

This alleged difference in the pervasiveness to thought of arithmetic and geometry thus became, in Frege's thinking, the (or at least a) fundamental datum for the philosophy of mathematics. He also believed it to be a datum Kant had overlooked. For, had he been aware of it, Frege felt sure, Kant would never have tried, as he did, to stretch essentially the same epistemology to cover both arithmetic and geometry. Rather, he would have tried to do justice to the 'observable' differences in depth-to-rational-thought of arithmetic and geometry.

Kant's ultimate shortcoming, Frege believed, was that he had acknowledged only two basic sources of knowledge—sensation and understanding. This allowed room only for a distinction between sensory and a priori knowledge. It did not allow for a distinction—at least not a distinction of kind—between different subspecies of a priori knowledge. Frege, on the other hand, distinguished between sensory experience, the source of our knowledge of natural science, intuition, the source of our geometrical knowledge, and reason (cf. [2.49], sections 26, 105), which Frege described as the source of our arithmetical knowledge. This modification of Kant's general epistemology was, Frege believed, necessary if one was to account for the perceivable differences in the relative pervasiveness of arithmetic and geometry.[9]

(N.B. Actually, it is not clear that Kant's epistemology did not enable him to do something of the same sort. Certainly it *did* distinguish two types of experience (cf. [2.86], 37–53), 'inner' and 'outer', and noted that the one (viz., inner) made use of intuitional resources (viz., the a priori intuition of time) that are more pervasive than those (viz., the a priori intuition of space) upon which the other is based. Adding to this the fact that Kant maintained that arithmetical thinking is based on the more pervasive intuition of time and geometrical thinking on the less pervasive intuition of space, it would seem that the distinction between inner and outer experience in Kant is capable of effecting something of at least the same general kind of asymmetry between arithmetic and geometry that Frege believed to be so important to mathematical epistemology. Frege seems never to have considered this point.

We add this remark, however, mainly as an aside. For, clearly, there are important differences between Frege and Kant concerning the pervasiveness of arithmetic. Kant, for example, despite acknowledging arithmetic to be widely applicable, none the less held it to be limited to

that which is *experienceable*. He did not take it to apply to the whole of what is (rationally) imaginable or *conceivable*. Consequently, though he judged arithmetical law to be a priori in character, he also judged it to be synthetic. Frege, on the other hand, believed arithmetic to apply to all that is conceivable, and it was precisely in this departure from Kant that he was led to regard it as analytic rather than synthetic in character.)

Frege thus disagreed with Kant concerning the pervasiveness to rational human thought of arithmetical thinking. This disagreement cannot, however, be taken at face value in explaining why Kant held a synthetic and Frege an analytic conception of arithmetic. For the two employed different conceptions of the notions of analyticity and syntheticity. Thus, to comprehend better the true differences separating Kant and Frege, we must look more carefully at the definitions each used in formulating the key notions of his position.

Kant defined an analytic truth as a truth in which the predicate 'belongs to' the subject as something 'covertly contained' in it, and a synthetic truth as one that is not analytic (cf. [2.86], 9–11). He did not characterize the analytic/synthetic distinction, as he did the a priori/a posteriori distinction, in terms of the characters of the possible justifications of a judgement. Frege, on the other hand, did exactly that. In his scheme (cf. [2.49], sections 3, 17, 87–8), both the analytic/synthetic and the a priori/a posteriori distinctions are parts of a classificatory system regarding the different kinds of *justifications* a given judgement might have.

Each truth, Frege believed, possesses a kind of *canonical proof* or justification. This is a proof which, in its ultimate premisses, goes all the way back to the 'primitive truths' of the subject to which the theorem belongs. It gives 'the ultimate ground upon which rests the justification for holding [the theorem proven] to be true' (Ibid., section 3). It thus presupposes an ordering of truths, and its objective is precisely to retrieve that segment of the given ordering which links the proposition to be proven to those ur-truths of its subject which are responsible for its truth. It aims, in other words, at revealing what might be called the *grounds* of the proven proposition's truth—its Leibnizian *Sufficient Reason,* as it were (Ibid., sections 3, 17).

A proposition or judgement is said to be analytical, in this scheme, if its canonical proof contains only 'general logical laws' and 'definitions' (Ibid., Section 3). It is said to be synthetic if its canonical proof contains at least one premiss belonging to 'some special science' (Ibid.). It is considered a posteriori if its canonical proof includes an 'appeal to facts, i.e. to truths which cannot be proved and are not general' (Ibid.). And, finally, it is considered to be a priori if its canonical proof uses exclusively 'general laws, which themselves neither need nor admit of proof' (Ibid.)

(in other words, if knowledge of it can arise from the Fregean faculty of reason alone).[10]

Frege believed that finding the canonical proofs of arithmetical truths would reveal an intimate connection between them and the basic laws of thought (i.e. the 'general logical laws').[11] At the same time, however, he was keenly aware of the Kantian objection to such a proposal; namely, that it makes it difficult to account for the epistemic productivity or substantiality of arithmetic. Indeed, immediately after having broached the view that arithmetic is analytic in section 15 of the *Grundlagen* [2.49], Frege went on in section 16 to note that the chief difficulty facing such a view is to explain how 'the great tree of the science of number as we know it, towering, spreading, and still continually growing' can 'have its roots in bare identities'. He thus clearly saw his main task as that of explaining how analytic judgement and analytic inference can yield an epistemic product having the robustness that arithmetic appears to have.

His response can be seen as divided into two parts. The first of these consists in the giving of an account of the 'objectivity' of analytic judgements that does not appeal to sensation or intuition. The second concerns the more general problem of explaining how one might get a conclusion that extends the knowledge represented by the premisses of an inference out of premisses that can be inferentially manipulated only by purely logical means.

Regarding the former, Frege's idea was to ascribe special properties to concepts, or to the objectively existing *thoughts* which, via the context principle (the principle that it is only in the context of a proposition *(Satz)* that words have meaning, cf. [2.49], section 60), are prior to them. Numbers were then to be defined in terms of concept extensions, and concept extensions to be treated as 'logical objects' (which we somehow grasp by grasping the concepts of which they are extensions). The epistemologically salient features of this arrangement were summed up in the following remark from the *Grundlagen* (Ibid., section 105).

> reason's proper study is itself. In arithmetic we are not concerned with objects which we come to know as something alien from without through the medium of the senses, but with objects given directly to reason and, as its nearest kin, utterly transparent to it.
>
> And yet, for that very reason, these objects are not subjective fantasies. There is nothing more objective than the laws of arithmetic.[12]

In later writings, Frege elaborated a bit—but only a bit—on his notion of concept extensions as *logical objects*. He wrote, for example, that:

> it is futile to take the extension of a concept as a class, and make it rest, not on the concept, but on single things…the extension of a concept does not consist of objects falling under the concept, in the way, e.g., that a wood consists of trees… it attaches to the concept and to the concept alone…the concept takes logical precedence to its extension.
>
> (cf. [2.53], 455).

Thus, what made a class into a logical object, in Frege's view, was only its relation to the concept of which it formed the extension. He had ultimately, however, to establish the sense in which logical objects exist, since, in his view, they were not actual (i.e. not spatial or 'handleable'). Here he had only analogies to offer, citing such examples as the axis of the earth and the centre of mass of the solar system (cf. [2.49], section 26). These illustrated his generally negative characterization of logical objects as objects 'independent of our sensation, intuition and imagination, and of all construction of mental pictures, memories and earlier sensations, but not…independent of reason' (Ibid.).13

Frege had also to establish that logical objects deserve to be called 'logical'. This he did not do in the *Grundlagen,* being at that time unsure whether he needed concept extensions or just concepts.[14] He pursued the matter to a (for him) satisfactory end only in the 1891 lecture 'Function und Begriff [2.51], where he argued (i) that the notion of concept-extension can be reduced to that of the range-of-values of a function; and (ii) that this latter notion is clearly a logical notion.

Among the more important things that Frege's belief in the logical precedence of concepts to their extensions allowed him to do was to reduce knowledge of infinities to logical knowledge. Along with this he had also to accept a restriction on how we come to *acquire* concepts; namely, that we do so by means other than abstraction from the particulars falling under them (cf. [2.49], sections 49–51). Such a view of concept acquisition was of the utmost importance to his logicism. For, were concepts to be obtainable only via such a process of abstraction, knowledge of the number concept would likewise be obtainable only through prior knowledge of the particulars falling under it. If that were so, however, one would have to give a prior account of how it is that we come by knowledge of the particulars from which knowledge of the abstracted concept is derived. And in order to keep this account from destroying the 'logical' character of numbers, one would have to make sure that it made no appeal to the likes of sensation or Kantian intuition. Moreover, even if it were successful in avoiding appeals to Kantian intuition, such an abstractive account of concept acquisition would cause severe problems for the knowledge of infinite sets. For it is hardly plausible to believe that we could either obtain separate intuitions for each member of an infinite

collection or be given infinite sets of particulars in the space of a single intuition of their members (through devices such as, say, Kant's so-called 'unity of synthetic apperception').[15]

Frege's logicist treatment of number therefore relied heavily on the idea that concepts are given prior to and independent of their extensions. This, indeed, seems to be have been the leading idea behind his notorious Rule V, the principle that every concept has an extension (or, to put it in its original form, the principle that all and only s are s if and only if the extension of is identical to the extension of ψ).[16]

The discovery by Russell (cf. [2.119]) that this way of thinking of the relationship between concepts and (logical) objects is subject to paradox therefore threw Frege's entire 'improvement' of Kant's arithmetical epistemology into crisis. For without a principle that makes concepts prior to their extensions, a Fregean philosophy of arithmetic would have great difficulty in developing an appropriately non-intuitional model of cognition for our knowledge of concept extensions. And without a non-intuitional model of our knowledge of concept extensions, the major novelty (i.e. the major non-Kantian element) would be missing from Frege's proposed explanation of the epistemic robustness or substantiality of arithmetic.

Russell's discovery thus raised the problem of how we might come to apprehend logical objects (and thus numbers), even if it is assumed that they exist. Without a Frege-type scheme of comprehension, which sees apprehension of numbers as derived from apprehension of concepts, and which allows concepts to be apprehended without any prior non-conceptual apprehension of particulars, one is hard-pressed to avoid at least some minimal appeal to non-conceptually based knowledge of sets or extensions—a knowledge which is hard to account for without making some appeal to sensation or intuition.[17] Russell's paradox therefore raised grave problems for the epistemology of Frege's logical objects.

But even supposing these problems to have been solved, there were, by Frege's own admission (indeed, his own insistence!), serious difficulties still to be overcome in explaining the epistemic productivity of mathematical *inference*. To manage these, Frege appealed to the general phenomenon of *Sinn* and to the possibility of rearranging (or 'recarving') the contents of a proposition in such a way as to expose contents that had been hitherto undetected.

Concepts featured prominently in this explanation too. In particular, it included an appeal to an assumed relationship between concepts and propositions which allows a proposition to be both understood and known even though not all the concepts contained in it are apprehended. This crucially important feature of the relationship between propositions and their constituent concepts was taken to be

based on the principles that (i) in order to apprehend a proposition, one need only know a *definition* of its immediate constituent concepts; and that (ii) knowing a definition of a concept does not require that all content tacit in it be apprehended. It is the recovery of tacitly contained content (i.e. discovery of its presence and character) that thus allows the conclusion of an analytic inference to represent something more, by way of cognitive accomplishment, than is represented by the apprehension and knowledge of its premisses. As Frege himself put it, the identification and utilization of such content amounts to something more than merely 'taking out of the box again what we have just put into it' (Ibid., Section 88).[18] For what we put into an inferential 'box' is the knowledge of concepts we use in order to arrive at understanding and knowledge of its premises. What, on Frege's account, we are capable of extracting from such a box is not only judgements formed from those concepts, but also judgements formed from concepts identified, indeed *formed*, through the 'carving up' or conceptual rearrangement of the premises.[19]

However, if Frege required analytic inference to be epistemically productive, he also required (at least some of) it to be rigorous. Therefore, in some sense, he demanded that analytical judgement be *incapable* of concealing content. Indeed, he himself insisted that his logicism required the giving of utterly rigorous proofs for the laws of arithmetic. It is 'only if every gap in the chain of deductions is eliminated with the greatest care', he said, that we can 'say with certainty upon what primitive truths' they rest (Ibid., Section 4; cf. also the introduction to [2.52]). And it is only through seeing with certainty the truths upon which the truths of arithmetic rest that we would be in a position to judge whether or not those grounds are logical in character.

What Frege seems not to have seen so clearly, however, is that we can be certain that a canonically proven proposition is analytic only to the extent that we can be certain that its premisses do not tacitly contain any synthetic content. At any rate, how certainty on this score is to be attained is something about which he seems to have said little. He firmly believed that there are propositions—the so-called 'basic laws' of arithmetic—that are at once so rich as to be capable of delivering the whole of arithmetic and also so clearly analytic as to self-evidently conceal no synthetic content. What he took to be the justification of this confidence is less clear.

(N.B. Leibniz, the original logicist, also believed in such a layer of analytic truths. However, for him, things were different. For, in the first place, he believed that all propositions are analytic. Second, the propositions he saw as making up the 'basic laws'—namely, the so-called logical identities of the form 'A is A'—were transparently analytic. This is

so because, for Leibniz, analyticity consisted in containment of the predicate of a proposition in its subject, and propositions of the form 'A is A' satisfy this containment requirement in a manner in which none clearer or more certain can be conceived. Leibniz therefore had a natural stopping point for his reduction to analytic truth. Frege, on the other hand, having adopted a more complex and sophisticated definition of analyticity, seems to have lost the ability to identify a class of truths which were as clearly and certainly analytic as Leibniz's 'identities'. As a result, he lacked as clear a point at which to terminate the reduction of arithmetic laws to analytic truths.)

Frege's conception of mathematical inference was thus faced with two apparently competing demands: on the one hand, the need to endow analytic judgments with tacit content so as to enable analytic inference to be epistemically productive; and, on the other, the need to restrict the mechanisms producing tacit content in such a way as to guarantee that synthetic content can never be tacitly contained in what passes for analytic content. In the end, I believe, he failed to meet these two demands adequately. He did not succeed in providing a set of basic laws and a criterion of tacit content the pair of which were guaranteed to permit only the production of analytic truths as tacit contents of the basic laws. Nor did he manage to ensure that the epistemic productivity sustainable by means of his mechanisms of tacit content production are capable of matching those which may be observed to hold in arithmetic.

The first failure was clearly illustrated by Russell's paradox, which shows that the latent content concealed by Frege's axioms (in particular, his axiom of comprehension) could include not only synthetic truths, but even analytical falsehoods! The second failure became the pivotal feature of the intuitionists' critique of logicism, which will be discussed later.

Russell's logicism was quite different from Frege's. In the first place, it was not motivated primarily by the discovery of non-Euclidean geometries with its attendant belief in the epistemological asymmetry between geometry and arithmetic. Nor was it based on belief in such things as logical objects, and the associated division of cognition into faculties of sense, intuition and reason. Nor, finally, did it restrict its logicism to arithmetic, but, rather, extended it to the whole of mathematics, and even to certain areas outside traditional mathematics.[20] Rather, it took as its starting points (i) a certain general definition of mathematics; (ii) a methodological principle to pursue ever further generalization in science; and (iii) a belief that pursuing this principle in mathematics would eventually lead one to a most general science of all, namely, logic.[21] It was fuelled in these pursuits by the then rapid and impressive advances in symbolic logic.

In the opening paragraph of *The Principles of Mathematics* ([2.120], 3),[22] Russell offered the following definition of pure mathematics: 'Pure mathematics is the class of all propositions of the form "*p* implies *q*", and neither *p* nor *q* contains any constants except logical constants'. He then went on to describe his logicist project as that of showing 'that whatever has, in the past, been regarded as pure mathematics, is included in our definition, and that whatever else is included possesses those marks by which mathematics is commonly though vaguely distinguished from other studies' (Ibid.). Russell also maintained that, in addition to asserting implications, propositions of pure mathematics are characterized by the fact that they contain variables (Ibid., p. 5), indeed, variables of wholly unrestricted range (Ibid., p. 7).

Russell planned to defend this last claim, which he acknowledged as being highly counterintuitive, by showing that even such apparently variable-free statements as '1+1=2' can be seen to contain variables once their true meaning and form is revealed. The discovery (or, better, *recovery*) of the true meaning and form of such statements was made possible by the vast enrichment of the basic stock of logical forms made available through the work of Peirce, Schröder, Peano and Frege. Using this work, Russell produced analyses of the deep forms of ordinary mathematical statements. '1+1=2', for example, was analysed as 'If *x* is one and *y* is one, and *x* differs from *y*, then *x* and *y* are two.' Analysed in this way, Russell maintained, the supposedly non-implicational, variable free '1+1=2' is seen both to contain completely general variables and to express an implication, just as his logicist theory predicted would be the case (Ibid., p. 6).

Of course, 'if *x* is one and *y* is one, and *x* and *y* are different, then *x* and *y* are two' does not express a genuine proposition at all since it contains free variables. It expresses instead what might be called a proposition form or a proposition schema. Russell called it a '*type* of proposition', and went on to say that 'mathematics is interested exclusively in *types* of propositions' (Ibid., p. 7) rather than in individual propositions *per se*. On this view, the business of mathematics is to determine which propositions can be generalized (i.e. which constants can be turned into variables), and then to carry this process of generalization out to its maximum possible extent (Ibid., pp. 8, 9). This maximum will have been reached when we have penetrated to a level of propositions whose only constants are *logical* constants and whose only undemonstrated propositions are the most basic truths whose only constants are logical constants (Ibid., p. 8).[23] The logical constants themselves, as a class, were to be characterized only by enumeration. Indeed, by their very nature they admitted only of this kind of characterization, since any other kind

of characterization would be forced to make use of some element of the class to be defined.

At bottom, then, Russell's logicism was motivated by a view of mathematics that saw it as the science of the most general formal truths; a science whose only indefinables are those constants of rational thought (the so-called *logical* constants) that have the widest and most ubiquitous usage and whose only indemonstrables are those propositions which set out the most basic properties of those indefinable terms (Ibid). In his view, this provided the only precise description of what philosophers have had in mind in describing mathematics as an a priori science (Ibid). Mathematics is thus in the business of generalization. Its aim is to identify those truths that remain true when their non-logical constants are replaced by variables (Ibid., p. 7). This process of generalization may require some analysis in order to find the genuine form of the sentence to be generalized. But once that form is found, the generalization process should ultimately lead to the realization that the mathematical truth in question expresses a formal truth whose variables are completely general and whose only constants are logical constants.

Ideally, proper method in mathematics requires pursuit of this process of generalization to the ultimate degree.[24] At that point, Russell believed, we will find formal truths of maximum generality—truths of a generality so great as to render them incapable of further generalization—truths, that is, that are so general that they would become non-truths were any of their constants to be replaced, even through conceptual analysis, by variables. This, in Russell's opinion, was the only point at which the method of mathematics (i.e. the pursuit of maximal formal generalization) can properly and naturally be brought to a close. He also believed that it is in this domain of formal truths of the utmost generality, and in this domain alone, that we can rightly expect to meet what are properly regarded as *laws of logic*.

According to Russell, these laws are justified inductively from their consequences.

> in mathematics, except in the earliest parts, the propositions from which a given proposition is deduced generally give the reason why we believe the given proposition. But in dealing with the principles of mathematics, this relation is reversed. Our propositions are too simple to be easy, and thus their consequences are generally easier than they are. Hence we tend to believe the premises because we can see that their consequences are true, instead of believing the consequences because we know the premises to be true…thus the method in investigating the

> principles of mathematics is really an inductive method, and is substantially the same as the method of discovering general laws in any other science.[25]

Thus, contrary to what Kant had maintained, the pursuit of greater generality (or what Kant referred to as 'unification') has a natural and fairly inevitable stopping point; specifically, that level of judgements having broad scope, entirely general variables and utterly ubiquitous constants.

Frege and Russell, then, though they agreed in their rejection of Kantian intuition as the basis of mathematical knowledge, none the less differed with regard to their estimates of the proper scope of logicism and the nature and origins of its basic laws. They also differed on the important question of our knowledge of the infinities with which mathematics deals, and of how, exactly, that knowledge is related to our knowledge of concepts.

Unlike Frege, Russell did not believe that concepts alone can give rise to extensions or sets. Indeed, he responded to his own antinomy by offering a conception of set which assumed a class of individuals as given *prior to* the generation of sets by concepts. In his view, before there can be a rich universe of sets, there must first be a totality of individuals that is given by means other than grasp of a concept. Using this domain of individuals as a base, comprehension by concepts (or what Russell referred to as 'prepositional functions') was then supposed to operate according to predicative principles of collection. There was thus an order of 'priority' of *types* or levels induced among entities, with the domain of individuals constituting the lowest level and the upper levels being formed by application of comprehension operations to the entities lying at prior levels.

This way of thinking of set comprehension differs radically from the way Frege thought of it. Fregean comprehension did not presume an ordering of entities according to some 'priority' ranking, and it was not restricted to collection of entities formed at prior levels. Perhaps even more importantly, it did not posit a '0th-level' domain of entities as somehow given prior to all comprehension by concepts. Indeed, in Frege's scheme, the whole idea was to avoid the need of having a 'starting' collection—particularly an infinite one—to serve as the raw material from which comprehension by concepts is to get off the ground. For, in Frege's view, having a non-conceptually comprehended domain of individuals required something like Kantian intuition, and this is exactly what he hoped to avoid (since he did not see how knowledge of such a domain could rightly be seen as *logical* knowledge).

Russell, though he showed some sensitivity to this difficulty, seems never to have settled on a means of resolving it. In his earlier writings

he sometimes spoke (cf. [2.120], section 5, ch. 1) as if any statement positing a domain of existents, and therefore any axiom positing a domain of individuals, is not to be regarded as a truth of pure mathematics *per se*, but rather as an hypothesis whose consequences are to be investigated.

Later (cf. introduction to [2.120] (2nd edn) and [2.124]), however, he stated both that he believed such a view to be mistaken and that he himself had never held such a view. There are also systematic elements of his thought that would (or at least should) have led him to reject such a view. Chief in this regard was his belief in the need for the 'regressive' method in the foundations of mathematics (defended in both [2.123] and [2.124]).

Use of the regressive method allows the truth of a principle to be inferred from its usefulness in deductively unifying a recognized body of truths. Hence, to the extent that the postulation of a domain of individuals (e.g. an axiom of infinity) has utility as a means of deductively organizing the recognized truths of mathematics, it, too, inherits a certain plausibility and so deserves to be 'detached' and asserted as a truth on its own right. Russell's 'regressive' method thus elevated axioms of existence to the status of justified assertions, and so made them more than mere 'hypotheses' to be used as antecedents of conditionals whose consequents are propositions whose proof requires their use. There would therefore seem to be a tension between Russell's adoption of the 'regressive' method in mathematics and that part of his logicism (suggested by remarks he made in the second edition of the *Principia* [2.126]) which saw axioms of existence (and, in particular, his axiom of infinity) as mere hypotheses to be put into the antecedents of conditionals.

But if there were differences between Russell and Frege regarding the nature and justification of the basic laws of mathematical thought, there was substantial agreement between them as regards the nature of mathematical inference. In particular, there was agreement on the points that the inferences of mathematics are all to be strictly logical in character, and that this is necessary in order to satisfy the demands of rigour.

It is not always easy to see the similarities between their views, however, because they used different definitions of analyticity and syntheticity. For Frege, a synthetic inference was one in which the conclusion could not be extracted from the premisses by any re-carving of their contents, but rather required something like an infusion of intuition in order to connect the conclusion with the premiss(es). For Russell, on the other hand, an inference was synthetic, and, so, epistemically productive (at least in a minimal way), if its conclusion constituted a *different proposition from* its premiss(es). Thus, many inferences that Frege would

have classified as 'analytic', would have been classified by Russell as 'synthetic'.

The standard of syntheticity in inference set forth by Russell was weaker than that set forth by Frege. Consequently, many inferences satisfying Russell's condition would not satisfy Frege's.[26] Indeed, judged by the lights of Russell's definition, even the elementary inferences of syllogistic reasoning, which Frege classified as analytic, would have been counted as synthetic by Russell. This was all to the good so far as Russell was concerned. For it enabled him to meet Kant's challenge to explain the epistemic substantiality of mathematical reasoning while at the same time maintaining, in opposition to Kant, that the inferences involved in such reasoning are of a purely formal, logical nature and make no appeal to intuition (cf. [2.121]). If growth of knowledge through inference is essentially a matter of thereby obtaining a justified judgement whose propositional content is simply *distinct* from those of one's previously justified judgements, then even very elementary logical inferences can be epistemically productive.

The 'logicization' of mathematical inference was thus, in Russell's opinion (cf. [2.120], 4), nothing to be balked at epistemically. What had kept previous generations of thinkers, and, in particular, Kant, from embracing it was simply the relatively impoverished state of logic prior to the late nineteenth century. The old logic with its meagre stock of subject-predicate forms may have been inadequate to the riches of mathematical reasoning, but the new logic with its robust functional conception of form had changed all this. With its help mathematical reasoning could finally be logicized in its entirety, and 'a final and irrevocable refutation' (Ibid.) of the Kantian doctrine that mathematical inference makes use of intuition be given.

Effectively countering Kant's intuitional conception of mathematical inference was thus an important element of both Frege's and Russell's logicist programmes. They seemed to believe that this could be accomplished simply by deriving large bodies of mathematical theorems from specified axioms by purely logical means. On reflection, however, this seems to be mistaken. Kant may well have underestimated the power of logical inference. His main point, however, was not that there are mathematical proofs that have no logical counterparts whatsoever. Rather, it was that such counterparts, even if they were to exist, would not preserve the epistemologically essential features of the mathematical proofs of which they are the 'logicized' counterparts.

Against this essentially epistemological point, detailed *tours de force* (e.g. Frege's *Grundgesetze* and Russell's *Principles of Mathematics* and *Principia Mathematica*) which locate logical counterparts for mathematical proofs on even a grand scale can have but little effect. For the claim to be met is not that there are no counterparts, but rather that they are

epistomologically inadequate substitutes for the mathematical proofs they are to replace.

In summary, let us return to our original claim that logicism in this century arose from two very different sources, to wit, the discovery of non-Euclidean geometries and the development of symbolic logic. Frege's logicism owed the bulk of both its motivation and character to the former, while that of Russell was due primarily to the latter. This is the basic reason why Frege's logicism, unlike Russell's, was able to preserve a remarkable degree of fidelity to the precepts of Kantian epistemology.

Frege did not, however, agree with Kant's idealist conception of the faculty of reason (cf. the remark quoted from [2.49], section 105, p. 14 for an expression of this). To get a realist account, though, he had to get the right sorts of objects into the picture. They had to be independent of the human mind in order to insure the objectivity of arithmetic; but they also had to be intimately related to the basic operation of the human mind in order to avoid an appeal to intuition and thus to account for the greater pervasiveness of arithmetic as over against geometry. His solution was the logical object, the ur-form of which was the class-as-concept-extension. Through its essential relation with concepts, it could be brought close to reason. But through the objectivity of concepts it could also be made objective.

Frege's idea of giving a realist rather than idealist treatment of Kant's faculty of reason foundered on Russell's paradox. Russell's reaction to his paradox was rather different. Far from causing him to give up logicism, it led him instead to seek another basis for it—a methodological basis whose chief principle was one enjoining pursuit of maximal generality in one's theorizing, including one's mathematical theorizing.[27] In the presence of his belief that mathematical claims express generalizations, this principle led him in a natural way to a logicist conception of mathematics. In the end, however, Russell's paradox proved to be nearly as great an impediment to Russell's logicism as it was to Frege's. For just as Frege was unable to find a way to fit classes that do not descend from concepts into his realist logicism of logical objects given directly to reason, so, too, was Russell unable to find a satisfactory way of justifying laws asserting the existence of such classes as genuinely logical laws.

Intuitionism

Like Frege's logicism, the intuitionism of the early part of this century was also dominated by (i) the idea that what the mind brings forth

purely of itself cannot be hidden from it; and (ii) the belief that the existence of non-Euclidean geometries reveals important epistemological differences between geometry and arithmetic. The direct predecessors of the intuitionists appear to have been Gauss and Kronecker, who interpreted the discovery of non-Euclidean geometries differently than Frege. For whereas Frege proposed a realist modification of the creation principle in order to account for the apparent differences between arithmetic and geometry brought to light by the discovery of non-Euclidean geometry, Gauss and Kronecker, and the intuitionists after them, interpreted the difference between arithmetic and geometry in the light of the creation principle (i.e. principle (i) above), of which they adopted an idealist reading.

Thus, instead of maintaining Kant's synthetic a priori conception of geometry and trying to account for the difference between geometry and arithmetic by establishing arithmetic as analytic, the early intuitionist rejected Kant's synthetic a priori conception of geometry and proposed to account for the differences between arithmetic and geometry by seeing the former as a priori and the latter as a posteriori. As Gauss and Kronecker emphasized, arithmetic is purely a product of the human intellect, whereas geometry is determined by things outside the human intellect.[28] Years later, Weyl (cf. [2.148], 22) would reiterate the same theme, remarking that 'the numbers are to a far greater measure than the objects and relations of space a free product of the human mind and therefore transparent to the mind'.

Brouwer, too, expressed similar ideas, identifying as the primary cause of the demise of intuitionism since the time of Kant (cf. [2.16]) the refutation of Kant's belief in an a priori intuition of space by the discovery of non-Euclidean geometries. At the same time, however, he advocated resolute adherence to an a priori intuition of time, and even argued that from this intuition one could recoup a system of geometric judgements via Descartes' 'arithmetization' of geometry. He considered the 'primordial intuition of time'—which he described as the falling apart of a life-moment into a part that is passing away and a part that is becoming—as the 'fundamental phenomenon of the human intellect' (Ibid., p. 127).[29] From this intuition one can pass, via a process of abstraction, to the notion of 'bare two-oneness', which Brouwer regarded as the basal concept of all of mathematics. The further recognition by the intellect of the possibility of indefinitely continuing this process then leads it through the finite ordinals, to the smallest transfinite ordinal, and finally to the intuition of the linear continuum (i.e. to that unified plurality of elements which cannot be thought of as a mere collection of units since the relations of interposition which join them is not exhausted by mere interposition of new units). In this way, Brouwer believed (Ibid., pp. 131–2), first arithmetic and then geometry (albeit only analytic geometry), via

reduction of the former to the latter through Descartes' calculus of coordinates, come to be qualified as synthetic a priori.[30]

The early intuitionists thus retained a semblance of adherence to Kant's belief in the synthetic a priority of arithmetical knowledge while denying his belief in the a priority of our knowledge of the base characteristics of visual space. They were also staunchly Kantian in their conception of mathematical inference. Poincaré and Brouwer, in particular, devoted considerable attention to this point.[31] Indeed, Poincaré, who carried on a well-known debate with Russell in the early years of this century,[32] made the role of logical inference in mathematical proof the centrepiece of his critique of logicism. So, too, in effect, did Brouwer, though his critique was aimed at the use of logical reasoning in classical mathematics generally, and not just at the logicists' programmatic demand regarding the logicization of proof.

At the heart of the view of proof that both criticized is a conception of evidence—the *classical* conception evidence—which sees it as essentially a means of determining the (classical) truth value of a proposition. On this view, evidence is a relatively 'malleable' commodity. Its effects extend to a variety of propositions other than that which forms its direct content. This comes about as a result of subjecting the content of a piece of evidence to logical analysis, which is used to extract 'new' contents from the original content. By this means, the justificatory power which the evidence provided for its content can be transferred to the analytically extracted content. Hence, one and the same piece of evidence can be used to identify the truth value of a variety of different propositions. This holds, moreover, despite the fact that there is no parallel analysis directed at the evidence itself whose purpose is to reveal a separable part of the evidence whose content is precisely the new content brought forward by means of the analysis of its content. On the classical view, then, the prepositional content of a piece of evidence can be 'detached' from that evidence itself. Applying logical analysis to that 'detached' content, one can then transfer the warrant attaching to it to any of the new propositions extracted by means of that analysis.

Both Brouwer and Poincaré reacted sharply to this view of inference. Brouwer's reaction was based on the view that mathematical knowledge is essentially a product of introspective experience (cf. [2.17], 488). The extension or development of such knowledge can therefore not proceed via logical extrapolation of its content, since such extrapolation does not guarantee any similar extension of the experience having the extrapolated content as its content. Extension of genuinely mathematical knowledge thus requires the extension of the mathematical experience serving as the evidence for a given content into a mathematical experience of another content. (Here, experience is understood in such a way as to make it

capable of serving as the evidence for a given content only if it itself has that content as its content.) In other words, inference is not to be seen as a matter of logically extracting new contents from old and thence transferring warrant from old to new. Rather, it is to be seen as a process of *experientally transforming* an introspective construction having one content into an introspective construction having another.

Brouwer thus held that one can never 'deduce a *mathematical* state of things' (cf. [2.18], 524, emphasis mine) by means of *logical inference*.[33] He memorialized this view in his so-called *First Act of Intuitionism*, in which it he declared that mathematics should be completely separated from 'mathematical language and hence from the phenomena of language described by theoretical logic, recognizing that intuitionist mathematics is an essentially languageless activity of the mind having its origin in the perception of a move of time' (cf. [2.21], 4).

Brouwer thus adhered to a basically Kantian conception of mathematical reasoning according to which extension of mathematical knowledge via inference requires development of a new intuition underlying that inference. Poincaré, too, adopted such a conception of inference, though his view differed in certain respects from Brouwer's. Mathematical reasoning, as he put it (cf. [2.99], 32), has a 'kind of creative virtue' by which its conclusions go beyond its premisses in a way that the conclusions of logical inferences do not go beyond their premisses. Logical inference from a mathematically known proposition, therefore, though it may yield *some* kind of extension of that knowledge, will none the less typically not yield an extension of the genuinely mathematical knowledge thereby represented. In short, in order for mathematical knowledge that **p** to be extended to mathematical knowledge that q, it is not enough that **p** be seen logically to imply **q**. Rather, **p** must be seen both to be mathematically different from **q** and to *mathematically* imply **q** (cf. [2.101], bk. II, ch. 2, section 6; [2.100], ch. 1, section 5). In other words, the 'movement' from premiss to conclusion in a mathematical inference is a case of joint comprehension of the premisses and conclusion by a common mathematical 'universal' which is seen to persist in the 'differences' through which it 'moves'.

For Poincaré, then, mathematical reasoning consisted in the synthesis of different propositions by a single, distinctively mathematical structure or architecture. Thus, as with Brouwer, so, too, with Poincaré, we find a view of mathematical reasoning which contrasts sharply with the logicists' conception of mathematical reasoning.

The views of mathematical reasoning or inference of Brouwer and Poincaré are thus Kantian in the sense that they reject the idea that genuine mathematical inference can be logical. They also represent a modification of Kant's views, however. For Kant suggested (cf. [2.86],

741–6) that by means of genuinely mathematical reasoning from a given set of premisses, one can obtain conclusions that are actually *unattainable* by means of purely logical (i.e. purely analytical or discursive) reasoning from those same premisses. Such an idea, however, seems not to have figured at all in the arguments of Poincaré and Brouwer.[34] What they were stressing was a difference in *epistemic quality* between logical and mathematical reasoning—a difference which, in their view, would persist even if the two types of reasoning might prove to be result-wise equivalent. This emphasis on epistemic quality was based on their belief in a difference between the epistemic condition of one whose reasoning is founded on topic-neutral steps of logical inference and one whose inference rests on topic-specific insights into the given mathematical subject at hand. Reasoning of the latter sort presupposes a knowledge of the local 'architecture' of a subject. Reasoning of the former sort does not. To use Poincaré's own figures of speech, the difference is (i) like that between a writer who has only a knowledge of grammar versus one who also has an idea for a story (cf. [2.101], bk. II, ch. 2); or (ii) like that between a chess player who has knowledge only of the permissible moves of the several players versus one who has a tactical understanding of the game as well ([2.100], pt. I, ch. 1, section V).

The intuitionists were thus at odds with the logicists over the question of the nature of mathematical reasoning. The heart of their disagreement, moreover, was not a dispute concerning which logic is the right logic, but rather a deeper difference regarding the role that *any* logical inference—classical or non-classical—has to play in mathematical reasoning. They were, in other words, divided over the Kantian question of whether intuition has an indispensable role to play in mathematical inference. The intuitionists sided with Kant in holding that it does. The logicists took the contrary view.[35]

In the intuitionism of Brouwer, Poincaré and Weyl we thus find an attempt to work out a modified form of Kant's specifically mathematical epistemology. So far, the modifications noted include (i) the jettisoning of Kant's use of spatial intuition as a fundament for mathematical knowledge; and (ii) the extension and elaboration of his use of temporal intuition as a basis for arithmetic (and, relatedly, the reduction of geometry to arithmetic via appeal to Descartes' 'arithmetization' of geometry).

There is, however, one final modification to be noted, and that concerns the intuitionists' (in particular, Brouwer's and Weyl's) conception of existence claims. It is perhaps the most significant of all the modifications made and consists in a shift from Kant's conception of existence claims and our knowledge of them to a conception of existence claims that is more like that found in such post-Kantian romantic

idealists as Fichte, Schelling and Goethe. The basic non-Kantian element of this view was the introduction of a non-sensory, purely intellectual form of intuition *(intellektuelle Anschauung)*.[36] This was conceived as a form of self-knowledge whose key epistemic feature was its immediacy—an immediacy expressing the romantic idealists' concern with the epistemic effects of representation. They saw representation as the basic source of error and uncertainty in cognition and therefore advocated its avoidance.

Their reasoning was basically Kantian. That is, they began with the Kantian premiss that no idea or concept (more generally, no representation) contains the being or existence of that which it represents[37] and concluded from this that no concept or idea (more generally, no representation) could, in and of itself, give the existence of anything falling under it. Indeed, representations only tend to increase the epistemic distance between the knower and the object to be known since they leave the being of the object still to be given while adding grasp of the representation to those things that must be accomplished before the object can be known.

What was wanted, therefore, was some kind of representationless knowledge of being. For the paradigm case of such knowledge, the romantic idealists turned to our knowledge of our willing and acting selves. Their model for knowledge of existence thus became one of self-knowledge; in order to know that something exists, the knower must *live* it or *be* it. In other words, she must incorporate it into herself so that her knowledge of its existence becomes that of her knowledge of her own existence. As Schelling said (cf. [2.12], 344), 'the proposition that there are things external to us will only be certain… to the extent that it is identical with the proposition I exist, and its certainty can only match that of the proposition from which it derives.'

Brouwer, it seems, adopted this romantic idealist conception of knowledge of existence. His so-called *First Act of Intuitionism* can indeed be seen as issuing a call for the mathematical knower to turn into himself and to shun the epistemic indirection of the classical view of mathematics with its involvement in the representation of mathematical thought—that is, mathematical *language*.[38] Thus he reminded us:

> you know that very meaningful phrase 'turn into yourself'. There seems to be a kind of attention which centres round yourself and which to some extent is within your power. What this Self is we cannot further say; we cannot even reason about it, since—as we know—all speaking and reasoning is an attention at a great distance from the Self; we cannot even get near it by reasoning or words, but only by 'turning into the Self' as it is given to us….

> Now you will recognize your Free Will, in so far [as] it is free to withdraw from the world of causality and then to remain free only then obtaining a definite Direction which it will follow freely, reversibly.
>
> ([2.14], 2 square brackets, mine)

Here we clearly see the romanticist idea that representation impedes knowledge—an idea that was expressed in strikingly similar terms by Fichte, who said:

> Look into yourself. Turn away from everything that surrounds you and towards your inner life. This is the first demand that philosophy makes on its followers. What matters is not what is outside you, but only what comes from within yourself.
>
> ([2.41], 422)

Though we lack the space adequately to argue for it here, we believe that Brouwer adhered to this romantic idealist conception of knowledge in his mathematical epistemology. He believed that mathematical existence consisted in construction, that construction was a kind of autonomous 'interior' activity[39] and that mathematical knowledge was therefore ultimately a form of self-knowledge. The key point was summed up well in Weyl's remark (quoted earlier) that arithmetic is a free creation of the human mind and therefore especially transparent to it.

For Brouwer, then, existence claims were to be backed by exhibitions of objects (of the type claimed to exist), where these exhibitions were, at bottom, acts of *creation* by the mathematical subject. He thus departed from Kant's receptive conception of our knowledge of existence claims whose main idea was that judgements of existence must be forced upon a passive cognitive agent and not be the product of its own creative or inventive activity.[40]

Hilbert's position

In the third major 'ism' of the early period, Hilbert's so-called formalism, we find another form of Kantianism, and one which contrasts with the intuitionist position in at least three important respects. The first concerns the conception of our knowledge of existence claims that was adopted. The second concerns the epistemic importance placed on spatial or quasi-spatial intuition in the foundations of mathematics. The third concerns the distinction between genuine judgements and regulative ideals that figured so prominently in Kant's general epistemology.

As was noted above, Brouwer and Weyl conceived of the act of exhibition required for knowledge of an existence claim as, ultimately, an act of creation by the exhibiting subject. The epistemic significance of this act was taken to be based on the special access that a creating subject is supposed to have to his creations. This reduced the epistemic distance between the exhibitor and the exhibited object to that between the willing, acting subject and himself—a distance which, according to romantic idealist lights, is the desirable, optimal or perhaps only tolerable distance to have separating the mathematical knower from the objects of her existential judgements. It also, however, created an irreducible asymmetry between the exhibiting agent and all other agents as regards their knowledge of the exhibited object. Indeed, that was an essential part of the intuitionists' point—namely, that mathematical knowledge is ultimately a form of self-knowledge, and that it is indeed only self-knowledge that possesses the epistemic qualities that we want mathematical knowledge to have.

Hilbert consciously adopted a conception of mathematical knowledge that was more in keeping with what he thought of as the ideal of *objectivity*. He rejected the intuitionists' focus on the inner life and self-knowledge as too subjective a basis on which to found mathematical knowledge. In opposition to the epistemic *individualism* of the intuitionists, Hilbert opted for a more *communitarian* conception of knowledge. Indeed, he believed that it was the very 'task of science to liberate us from arbitrariness, sentiment and habit and to protect us from the subjectivism that already made itself felt in Kronecker's views and…find its culmination in intuitionism' (cf. [2.77], 475).

In Hilbert's view, therefore, there was to be a public domain of objects to which all members of the human (or at least the human-scientific) epistemic community were to have equal access. Hilbert thus stressed the fact that the objects of finitary intuitions were to be *recognizable* (wiedererkennbar) (cf. [2.75], 171). This meant that those intuitions could be re-enacted and confirmed by other intuitions, including other intuitions of the exhibitor's as well as intuitions of non-exhibitors. Consequently, the exhibitor of a finitary object would have no essential epistemic advantage over the non-exhibitor as regards knowledge of the object exhibited.

In Hilbert's finitism, therefore, the 'constructivist' demand that objects claimed to exist be exhibited was to serve the role of taking the object of exhibition out of the exhibitor's head and putting it in the public domain where both exhibitor and non-exhibitor, alike and equally, would be able (and, indeed, required) to judge the object by its intersubjectively confirmable effects. Intuitionistic and finitistic exhibition were thus two very different things. For while the whole intent of the former was to tap the epistemic power of the supposedly

special relation of intimacy that a creative subject was believed to have with respect to his own creative acts and intentions, the latter was intended to function as part of a more communitarian scheme of knowledge—a scheme in which the exhibitor had no epistemic advantage over the non-exhibitor. This parity between exhibitor and non-exhibitor is the kind of thing that is necessary if there is to be meaningful epistemic co-operation (e.g. division of epistemic labour) between them and if there is to be a way of monitoring the quality of each contributor's contribution. Epistemic co-operation, in turn, is desirable because through it the total amount of knowledge at the disposal of the individual community member can be expected to exceed that obtainable by that member himself, acting exclusively on his own.[41]

There are, then, we believe, large and important differences between the finitist and intuitionist conceptions of what is to be accomplished through exhibition. So much so, indeed, that we doubt there is much to be accomplished by describing them both as having adhered to a 'constructivist' conception of existence claims.

The second point of contrast between Hilbert and the early constructivists (which, like the preceding one, we can only mention and not develop here) concerns the very different roles they accorded to spatial intuition. Contrary to both the early constructivists (in particular, Kronecker, Brouwer and Weyl) and Kant, all of whom limited spatial intuition to geometry, Hilbert identified a type of spatial intuition which he took to be the basis of *arithmetical* knowledge. This was the position of his so-called 'finitary standpoint' according to which the basis of our arithmetical (and perhaps also our geometrical)[42] knowledge is a kind of a priori intuition in which the shapes or forms *(Gestalten)* of concrete signs are 'intuitively present as immediate experience prior to all thought' (cf. [2.75], 171; [2.76], 376; [2.77], 464) and 'immediately given intuitively, together with the objects, as something that neither can be reduced to anything else nor requires reduction' (cf. [2.76], 376; [2.77], 465).[43]

Hilbert thus proposed replacing Kant's a priori intuitions of space and time, which he viewed as so much 'anthropological garbage' (cf. [2.78], 385), with a single intuition which was taken to provide a framework of shapes or forms in which our experience of concrete signs was embedded (cf. [2.75], 171). This intuition, being 'prior to' all thought as its 'irremissible pre-condition' (cf. [2.76], 376; [2.78], 383, 385), was the source of all our a priori knowledge.

The third main point at which Hilbert's Kantianism contrasted with that of the early constructivists was in its use of certain key elements of Kant's general (as opposed to his specifically mathematical) epistemology. Of particular importance here is Kant's distinction

between genuine judgements and regulative ideals. Hilbert took this distinction as the basic model for his division of classical mathematics into a *real* and an *ideal* part. The real propositions and proofs were taken to be the genuine judgements and evidence of which our knowledge is constituted. Ideal propositions, on the other hand, though they served to stimulate and guide the growth of our knowledge, were none the less not considered to be a part of it. They did not describe things that are 'present in the world' (cf. [2.75], 190). Nor were they 'admissible as a foundation of that part of our thought having to do with the understanding *(in unserem verstandesmäßtigen Denken)*' (cf. [2.75], 190). They corresponded instead to *ideas* 'if, following Kant's terminology, one understands as an idea a concept of reason which transcends all experience and by means of which the concrete is to be completed into a totality' (Ibid.).

Hilbert's ideal sentences are therefore not to be likened to the indirectly verifiable 'theoretical sentences' of a realistically interpreted scientific theory familiar to us from logical empiricist epistemology. Rather, they are to be interpreted instrumentalistically, as having the same general regulative function as Kantian ideas of reason. The objects and states of affairs described in the 'theoretical sentences' of a realistically interpreted science clearly do not 'transcend all experience'. Kant's ideas of reason, on the other hand, do.

Hilbert's ideal propositions thus function as regulative devices. They do not 'prescribe any law for objects, and [do] not contain any general ground of the possibility of knowing or of determining objects as such' ([2.86], 362, square brackets mine). Rather, they are 'merely subjective law(s) for the orderly management of the possessions of our understanding, that by comparison of its concepts it may reduce them to the smallest number' (Ibid.).

Hilbert also followed Kant in maintaining that the use of ideal methods should be *epistemically conservative*. They should, that is, be only more efficient means of producing real judgements which could, none the less, in principle (though less efficiently) be developed through the exclusive use of real methods. As Kant put it:

> Although we must say of the transcendental concepts of reason that they are only ideas, this is not by any means to be taken as signifying that they are superfluous or void. For even if they cannot determine any object, they may yet, in a fundamental and unobserved fashion, be of service to the understanding as a canon for its extended and consistent employment. The understanding does not thereby obtain more knowledge of any object than it would have by its own concepts, but for the

> acquiring of such knowledge it receives better and more extensive guidance.
>
> ([2.86], 385)

Similarly in Hilbert. Ideal methods, he said, play an 'indispensable' and 'well-justified' role 'in our *thinking*' (cf. [2.76], 372, emphasis Hilbert's). They should not, however, be permitted to generate any real result that does not agree with the dictates of real evidence itself (cf.[2.76], 376; [2.77], 471). Their role is rather that of enabling us to retain in our reasoning those patterns of inference in terms of which we most readily and efficiently conduct our inferential affairs (cf.[2.76], 379; [2.77], 476).

These patterns are the patterns of classical logic. Thus, Hilbert's introduction of the so-called ideal elements was ultimately for the sake of preserving classical logic as the logic of our mathematical reasoning. Introduction of ideal methods was made necessary by the fact that there exist certain real propositions (referred to by Hilbert as *problematic* real propositions) that do not abide by the principles of classical logic. By this it is meant that when these propositions are manipulated by the principles of classical logic, they produce conclusions that are not real propositions.[44] In order to obtain, then, a system that both contains the real truths and also has classical logic as its logic, Hilbert believed it necessary to add the *ideal* propositions. He also believed this to be the minimal modification of real mathematics necessary to restore it to its epistemically optimal classical logical state (cf.[2.76], 376–9; [2.77], 469–71).

However, in thus restoring mathematical reasoning to its classical logical state, Hilbert observed that the logical operators were no longer being conceived of and employed in a semantical or contentual way as expressions for operations on meaningful propositions. Rather, they were being used in a purely syntactical way as part of a larger computationo-algebraic device for manipulating formulas. As he put it:

> we have introduced the ideal propositions to ensure that the customary laws of logic again hold one and all. But since the ideal propositions, namely, the formulas, insofar as they do not express finitary assertions, do not mean anything in themselves, the logical operations cannot be applied to them in a contentual way, as they are to the finitary propositions. Hence, it is necessary to formalize the logical operations and also the mathematical proofs themselves; this requires a transcription of the logical relations into formulas, so that to the mathematical signs we must still adjoin some logical signs, say
>
> | & | ∨ | → | ~ |
> |---|---|---|---|
> | and | or | implies | not |
>
> ([2.76], 381)

We thus find here a final step of abstraction from meaning in Hilbert's ideal mathematics—namely, abstraction from the meanings of the logical constants. It was made necessary by the decision to preserve the psychologically natural laws of classical logic as the laws of mathematical reasoning; a decision which, in turn, was the result of trying to preserve the most effective 'canon' available to us for the development of our real mathematical judgements. Ultimately, then, this 'formalism' of Hilbert's, with its radical abstraction from meaning, derived from his Kantian conception of the distinction between the real and ideal propositions according to which he saw the cognitive or epistemic value of the ideal elements as residing in their utility as instruments for extending our real judgements.

At the same time, however, it is also almost certainly this same radical abstraction from meaning that has tempted so many to misdescribe Hilbert's position as a *formalist* position in the sense of one which sees mathematics as a 'game' played with symbols. The idea behind this 'game' imagery, presumably, is that when every trace of meaning is obliterated, as in Hilbert's view of ideal mathematics, mathematics becomes ultimately a symbol-manipulation activity conducted according to certain rules; rules which, moreover, answer not to anything as serious as a concern for objective truth, but rather only to such less weighty concerns as a subjective or psychological urge for logical unity in our thinking. Even such a well-positioned and astute interpreter of Hilbert as Weyl eventually succumbed to the temptations of this description of Hilbert's views (cf.[2.147], 640). In our opinion, however, such an interpretation fails to take account both of Hilbert's overall Kantian epistemology and of certain quite specific remarks he himself made regarding the syntactical character of ideal reasoning. Hence, while we see no particular reason to deny the title of formalism to Hilbert's position, we would none the less insist that it is formalism of a quite different kind than the 'game-played-with-symbols' formalism. Hilbert stated his view forcefully in the following remark.

> The formula game that Brouwer so deprecates has, besides its mathematical value, an important general philosophical significance. For this formula game is carried out according to certain definite rules, in which the *technique of our thinking* is expressed. These rules form a closed system that can be discovered and definitively stated. The fundamental idea of my proof theory is none other than to describe the activity of our understanding, to make a protocol of the rules according to which our thinking actually proceeds. Thinking, it so happens, parallels speaking and writing: we form statements and place

> them one behind another. If any totality of observations and phenomena deserve to be made the object of a serious and thorough investigation, it is this one.
>
> ([2.77], 475 (emphasis Hilbert's))

This suggests that the rules of the so-called 'game' of ideal reasoning are nothing other than the basic laws of human thought. The heart of Hilbert's proof theory, and the heart of the 'formalism' of his later thought, was thus the belief that much of human mathematical thought is, at bottom, formal-algebraic or syntactical in character. Indeed, as he remarked elsewhere, the custom in mathematical thought, and in scientific thought generally, is to make 'application of formal thought-processes *(formaler Denkprozesse)* and abstract methods' (cf.[2.78], 380). In fact, he noted,

> Even in everyday life one uses methods and conceptual constructions which require a high degree of abstraction and which only become intelligible by means of an unconscious application of the axiomatic method. Examples are the general process of negation and the concept of infinity.
>
> (Ibid.)

What emerges from all this is an idealistically oriented formalism whose goal is to locate and defend (as a sound regulative device) the basic 'forms' of human thought. These forms of thought, which might be thought of as *theory-forms*, represent high-level commonalities of form that our thinking about a wide variety of subjects share. It is less clear whether, in speaking of 'the techniques of our thinking' as being expressible in a 'closed system' of rules that can 'be discovered and definitively stated' ([2.77], 475), Hilbert meant a single system of rules which gives a general algebra of thought, or whether he was thinking of a plurality of different theory-forms, the repository of which is classical mathematics. In either case, however, we obtain a formalism whose forms are fundamentally forms of *thought*—forms of thought, moreover, which, despite their syntactical character, are none the less deep expressions of the nature of human reasoning and therefore much more than a mere 'playing' of a 'game' with symbols.

For Hilbert, then, the ideal methods of thinking constituted a logical mould to whose contours our minds are shaped in their inferential dealings. This makes their use inviting, if not unavoidable. But inviting or not, the legitimacy of ideal reasoning still depends on the satisfaction of a certain condition—namely, its consistency, or, more specifically, its *finitarily demonstrable consistency with the finitarily provable propositions*.[45] As is well known, however, it is precisely the satisfaction of this requirement

that was called into question by Gödel's discovery of his celebrated incompleteness theorems in 1931 (cf. [2.62]).

The proofs of these theorems featured a technique (commonly referred to as the 'arithmetization' of metamathematics) for representing the concepts and statements of the metamathematics of a given formal system **T**[46] in that portion of a formal theory of arithmetic that contains the elementary theory of recursive operations on the natural numbers. For present purposes, the important feature of this fragment of arithmetic is that it appears to be contained in what Hilbert regarded as the *finitary* part of number theory. For that reason, it also appears to be contained in those ideal theories of classical mathematics which it was Hilbert's concern to defend as legitimate.

What Gödel was able to show was first that for any formal system **T** containing the elementary fragment of arithmetic spoken of above, if **T** is consistent, then there is a sentence *G* of the language of **T** such that neither *G* nor ¬ *G* is a theorem of **T**. Using the proof of this *first incompleteness theorem*, Gödel was then able to prove a *second incompleteness theorem* by formulating in **T** a sentence, Con_T, of which there is reason to say that it expresses the claim that **T** is consistent, and of which it can be proven that it is not provable in **T** if **T** is consistent. From this second theorem, and the assumption that **T** contains finitary arithmetic, it is then concluded that the consistency of **T** is not provable by finitary means. From this conclusion it is in turn inferred that no system **I** of ideal mathematics that contains **T** is such that its real-consistency can be proven by finitary means, and from this, finally, it is concluded that Hilbert's intended defence of the ideal reasoning of classical mathematics cannot be carried out.

In the beginning, Gödel shied away from this conclusion, maintaining (with characteristic caution) that his second theorem did 'not contradict Hilbert's formalistic viewpoint' since 'it is conceivable that there exist finitary proofs that *cannot* be expressed' in the classical systems for which that theorem had been proved to hold (cf. [2.62], 615). Eventually, however, he was persuaded by Bernays that these reservations were unwarranted, at which time he then accepted the view that his second theorem did indeed refute Hilbert's programme as it was originally conceived by Hilbert (cf. [2.64], 133).

THE LATER PERIOD

This completes our discussion of the developments of the early period. We turn now to the later period (i.e. the period after 1931), where we shall begin by considering the changes it brought to the 'isms' of the early period.

Hilbert's Formalism

The above-stated argument against Hilbert's programme using Gödel's theorems gained nearly universal acceptance in the later period and has indeed become a commonplace amongst twentieth-century philosophers of mathematics. The few challenges there have been to it have been mainly of two types: (i) those that seek to revive Hilbert's programme by arguing for a less restrictive conception of fmitary evidence (and, hence, a more potent base from which to launch the search for a finitary proof of the real-consistency of ideal mathematics) than was originally intended by Hilbert; and (ii) those that seek a more restricted body of ideal methods whose real-consistency needs to be proven.

Those belonging to the first camp (e.g. Gentzen [2.61], Bernays [2.8], Ackermann [2.1], Gödel [2.64], Kreisel [2.90], Schütte [2.128], Feferman [2.38]; [2.39] and Takeuti [2.138]), in one way or another have all argued that the means used in giving the proof of real-consistency required by Hilbert's programme ought to be extended to means reaching beyond that which is formalizable in what has commonly been recognized as the natural formalization of Hilbert's finitary standpoint (namely, the theory known as *Primitive Recursive Arithmetic,* or **PRA**).[47] Among those, some (e.g. Gentzen [2.61], Ackermann [2.1], and, on one reading, Gödel [2.64]) have questioned the correctness of identifying the finitary with what is formalizable in **PRA,** arguing that finitary reasoning extends well beyond that which is formalizable in **PRA,** and includes such things as forms of transfinite induction which go beyond even what is provable in ordinary first-order Peano arithmetic **(PA)**.

The basic idea of this line of thought is that there are types of reasoning which (a) are not codifiable in **PRA,** but which none the less (b) share the same characteristics believed to give finitary evidence its distinctive epistemological credentials, and which (c) allow us to establish the consistency of much of the ideal reasoning of classical mathematics that cannot be secured by means of proofs formalizable in **PRA**. It is therefore argued that an extension of what is to be counted as admissible reasoning in constructing the required consistency proofs of the various ideal systems of classical mathematics is in order, and that a significant partial realization of Hilbert's original aims can thus be attained.

Others (e.g. Kreisel [2.90] and Feferman [2.39]) in the first camp have argued not so much for a reconsideration of what should be counted as finitary evidence, as for a liberalization and refinement of what are the epistemically gainful means of proving consistency, whether or not they are properly classifiable as finitary. The basic idea here is that the simple distinction between real and ideal methods does not begin to do justice to

the rich scheme of gradations in epistemic quality that separate the various kinds of evidence available for use in metamathematical proofs. Hence, this simple distinction should be replaced by a more refined scheme which distinguishes not only the finitary and the non-finitary, but also the various 'grades' of both constructive and non-constructive methods (and the various reducibility relations which exist between the distinguished kinds of non-constructive methods and the distinguished kinds of constructive methods).[48] When this is done, it is claimed, results amounting to a substantial partial realization of a generalized Hilbert's programme can be achieved (cf. Kreisel [2.90] and Feferman [2.39]).

The same basic conclusion is arrived at by a quite different line of reasoning in the so-called programme of 'reverse mathematics' of Friedman and Simpson (cf. [2.134]). The strategic idea of this programme is basically the opposite of that of Kreisel and Feferman. It does not aim at *beefing up* the methods available for constructing the requisite consistency proofs, but rather at *cutting down* the systems of ideal reasoning whose consistency needs proving. This is to be done by giving a more exact characterization of the core of ideal reasoning that is truly indispensable to the reconstruction of the essential results of classical mathematics.

The reverse-mathematical revision of Hilbert's programme thus begins by isolating those results of classical mathematics that are believed to constitute its 'core'. It then seeks to find the weakest possible natural axiomatic theory capable of formalizing this core. The hope is that this minimal system will eliminate unnecessary strength present in the usual axiomatizations of the core (generally, some version of second-order arithmetic) and therefore that its real-consistency will prove to be more susceptible to finitary proof than that of the usual systems.

So far, significant partial progress along these lines has been achieved. In particular, it has been shown that (i) there is a certain subsystem (known as $\mathbf{WKL}_0$) of $\mathbf{PA}^2$ (i.e. second-order Peano arithmetic) which embodies a substantial portion of classical mathematics; (ii) all the Π_1 theorems (i.e. theorems equivalent to some formula of the form where is a recursive formula) of $\mathbf{WKL}_0$ are provable in **PRA** (cf. [2.133], [2.134]; and (iii) the proof of (ii) can itself be given in **PRA** (cf. [2.132].[49] Assuming the codifiability of finitary reasoning in **PRA** and the importance of the Π_1 class of real truths, this amounts to a finitary proof of the real-consistency of an important part of classical ideal mathematics. This, in turn, would constitute a significant partial realization of Hilbert's programme.

In addition to these two alternatives, it is possible to describe, at least in philosophical outline, a third approach which seems in certain

important respects to be closer to Hilbert's original ideas than either of them. The key element of this third alternative, which is absent from each of the other two approaches just described, takes its lead from the Kantian character of Hilbert's conception of ideal mathematics. In particular, it stresses the point that Hilbert's ideal methods, like Kant's ideas of pure reason, are recommended solely by the efficiency that their instrumental use is supposed to bring to the development of our real judgements.

This means, among other things, that ideal propositions and inferences that fail to bring with them discernible improvements in efficiency (when compared to their real counterparts proving the same results) do not belong to that part of ideal mathematics that need, in principle, be defended by Hilbert. In other words, ideal elements that fail in any significant way to increase the efficiency of the development of our real knowledge have, in principle, no claim to be included among those ideal elements whose real-consistency the Hilbertian must defend. Therefore, in identifying the elements (i.e. axioms and rules of inference) of an ideal system I for whose defence the Hilbertian is to be held accountable, it must be borne in mind that they must figure in some significant way in the production of efficiency; that is, each must be an essential ingredient in some ideal derivation $\mathbf{\Delta}_1$ of a real theorem τ_R such that (i) $\mathbf{\Delta}_1$ (together with the necessary metamathematical proof of soundness for $\mathbf{I}^{50}$) is more efficient than any real proof of τR, and (ii) $\mathbf{\Delta}$1 is the only derivation in **I** that significantly improves upon the efficiency of the real proofs of τ_R. If an item (e.g. an axiom, rule of inference, etc.) of **I** possesses none of the virtues of efficiency for which ideal elements are in general prized, then, in principle, it can and should be eliminated from **I**. With all such eliminations made, one would expect the prospects for a finitary proof of **I**'s consistency to have been improved. Therefore, the question of whether an ideal system is comprised wholly of elements that are essential in the above-indicated sense ought to be of prime importance in determining the make-up of those ideal theories for whose defence the Hilbertian is ultimately taken to be responsible.

Yet, despite its clear importance for the proper reckoning of the ultimate responsibilities and prospects of Hilbert's programme, this question has been either ignored or overlooked by those writing on the subject. Simpson (cf. [2.134], 360–1), for example, readily admits that the proofs of standard theorems in $\mathbf{WKL}_0$ and are sometimes 'laborious' and 'much more complicated than the standard proof(s)'. Yet he takes no notice of the potential this feature of reverse mathematics has to undo its entire rationale for effecting a partial realization of Hilbert's programme. To the extent that the proofs in $\mathbf{WKL}_0$ and $\mathbf{WKL}_{\mathring{0}}$ are *more* laborious than the 'standard' proofs of the

same ideal theorems, to the same extent are $\mathbf{WKL}_0$ and of questionable worth as models of Hilbert's ideal reasoning. Moreover, were the least laborious ideal proofs of real theorems in $\mathbf{WKL}_0$ and $\mathbf{WKL}_0^*$ to reach levels of laboriousness equal to those of the least laborious real proofs for those theorems, they would cease to be ideal proofs that the Hilbertian should want to preserve, and, hence, cease to be proofs whose soundness he should be obliged to defend.

It is thus important for the 'reverse mathematicians' to answer the following questions: (1) Do the ideal proofs of real theorems in $\mathbf{WKL}_0$ and preserve, at least on balance, the kinds of gains in efficiency for which ideal reasoning was prized by Hilbert in the first place?; and (2) Are the ideal proofs of real theorems in $\mathbf{WKL}_0$ and less laborious than their most efficient real counterparts? To the extent that either of these questions is answered in the negative, the reverse mathematicians' use of the systems of reverse mathematics to establish partial realizations of Hilbert's programme becomes implausible. So far as I can see, however, the reverse mathematicians have done nothing to allay fears that such questions as (1) and (2) above may have to be answered in the negative.

It would be unfair, however, to lay too much blame on the reverse mathematicians. For the questions they have neglected have been generally neglected by those writing on Hilbert's programme. This includes philosophers, too (indeed, perhaps primarily), and not just logicians. All have failed properly to emphasize two fundamental points: (i) that the prospects for Hilbert's programme can adequately be assessed only when a suitably accurate means of comparing the complexity of real and ideal proofs has been developed and those systems containing the gainful ideal proofs have been identified; and (ii) the complexity metric figuring in (i) is capable of measuring not only the kind of complexity (call it *verificational complexity*) that is encountered when one sets about the task of determining of a *given* item whether or not it is an ideal proof of a certain kind, but also, and, indeed, primarily, a kind of complexity (call it *inventional complexity*) which constitutes the complexity involved in *discovering* an ideal proof of the desired kind in the first place.[51] Failure to appreciate points (i) and (ii) has, it seems to me, led to inadequate attention being paid to the development of *appropriate* metrics for measuring the complexity of ideal proofs and comparing the complexity thus measured to that for the corresponding real proofs. Without the development of such a theory of complexity, however, it does not seem to me possible to render a compelling final assessment of Hilbert's programme—and by that I mean the programme of Hilbert's *original* philosophical conception.

Logicism

Logicism re-emerged in the 1930s and 1940s as the favoured philosophy of mathematics of the logical empiricists (cf. [2.22], [2.23] and [2.66]). I say 're-emerged' because the positivists did not develop a logicism of their own in the way that Dedekind, Frege and Russell did. Rather, they simply appropriated the technical work of Russell and Whitehead (*modulo* the usual reservations concerning the axioms of infinity and reducibility)[52] and attempted to embed it in an overall empiricist epistemology.

This empiricist turn was a fairly novel development in the history of logicism, and it represented a radical departure from both the original logicism of Leibniz, which was part of a larger rationalist epistemology, and the more recent logicism of Frege, which was strongly critical of empiricist attempts to accommodate mathematics (cf. Frege's criticism of Mill in [2.49], sections 9–11, 23–5). It was, perhaps, less at odds with Russell's logicism with its imputation of a common methodology linking mathematics and the empirical sciences.

Like all empiricists, the logical empiricists, too, struggled with Kant's idea that mathematics is immune to empirical revision. More accurately, they struggled with the Kantian problematic concerning how to account for the apparent certainty and necessity of mathematics while at the same time being able to explain its seeming robust informativeness.[53] Their choice of strategies for trying to accommodate these two data was to empty mathematics of all non-analytic content while, at the same time, arguing that analytic truth can be 'substantial' and non-self-evident.

The logical empiricists thus sacrificed the strict empiricist claim that all knowledge is evidensorily based on the senses. Their empiricism was, therefore, a liberal empiricism, an empiricism making use of a distinction like that of Hume's between 'relations of ideas' and 'matters of fact' (cf. [2.83], section IV, Pt. I). The exact distinction they utilized was one calling for the separation of those propositions whose truth or falsity is determined by the meanings of their constituent terms (and is therefore independent of contingent fact) and those propositions whose truth or falsity is dependent upon contingent, empirical matters of fact.[54] They then appealed to this distinction in arguing that the truths of logic are analytic in character. And from this, and the technical work of Russell and Whitehead, they concluded that the truths of mathematics are analytic.[55]

Thus, though they accepted the traditional Kantian idea that mathematical judgements are immune to empirical revision, and though they made central use of something like Kant's analytic/synthetic distinction in formulating their account of mathematics, the logical empiricists none the less rejected the distinctive thesis of Kantian

mathematical epistemology; namely, that knowledge of mathematics is synthetic a priori in character. Indeed, the denial that *any* knowledge is synthetic a priori in character was a central ingredient of the logical empiricists' epistemological outlook.

Their mathematical epistemology came under heavy attack by Quine in the 1950s. Quine's attack was based on a criticism of the pivotal distinction of the empiricists between analytic and synthetic truths (cf. [2.109], [2.111]). According to Quine, the basic unit of knowledge or judgement—the basic item of our thinking that is tested against experience—is science as a whole. Since mathematical and logical statements are inextricably interwoven parts of the larger body of science, they therefore too, at least to some extent, must derive their confirmation or disconfirmation from empirical sources. Consequently, the statements of logic and mathematics cannot rightly be regarded as true by virtue of meanings alone, if by that there is intended some contrast with statements regarded as true in virtue of the facts. A distinction between truths of meaning (i.e. analytic truths) and truths of fact (i.e. synthetic truths) cannot therefore be maintained. Yet, without some such distinction, the logicism of the logical empiricists does not have a hope of succeeding.

Within a relatively brief period of time, this critique of Quine's became a major influence in the philosophy of mathematics and, under the weight of that influence, the logicism of the logical empiricists began to sink into oblivion. There have, however, been a few attempts to revive (or, perhaps better, to exhume) logicism along other lines. The most systematic and detailed (if, perhaps, not the most convincing) of these is that given in the two-volume work of David Bostock (viz. [2.12]). This is not, however, so much a defence of logicism as it is an attempt to determine a best case for it, so that its plausibility as a philosophy of arithmetic might finally be judged.[56] Indeed, he ends up concluding that logicism is of strictly limited viability as a philosophy of arithmetic. The main point of his argument is that there is no unique reduction of arithmetic to logic, and that this creates problems for any logicism (like, say, that of Frege or Russell) that wants to identify numbers with *objects*.

More nearly defences are the recent attempts by Hilary Putnam, Harold Hodes, Hartry Field and Steven Wagner to establish the plausibility of modified forms of logicism. Putnam [2.102] and Hodes [2.81] both offer defences of a type of logicist position also known as 'ifthenism' or 'deductivism'.[57] The former argues that, though statements of existence in mathematics are generally to be seen as statements asserting the existence of structures, they are not to be taken as assertions of the actual existence of these structures, but only of their possible existence. Existence statements are therefore, at bottom, logical claims,

and they are to be verified by generally logical means (and, in particular, by syntactical consistency proofs).

Hodes takes a somewhat different approach, arguing, in a manner reminiscent of Frege, that arithmetic claims can be translated into a second-order logic in which the second-order variables range over functions and concepts (as opposed to objects). In this way, commitment to sets and other specifically mathematical objects can be eliminated, and, this done, arithmetic may be considered a part of logic.

Field (cf. [2.42], [2.43]) offers what might be regarded as an epistemological form of logicism. He is concerned to defend the claim that mathematical knowledge is (at least largely) logical knowledge. He also argues, contrary to Quine and Putnam (see below), that one can be a realist with respect to physical theory without being a realist with respect to mathematics.[58]

Field begins his argument that mathematical knowledge is logical knowledge by defining mathematical knowledge as that knowledge which 'separates a person who knows a lot of mathematics from a person who knows only a little mathematics' (cf. 2.43], 511, 544). He then goes on to claim that what separates these two kinds of knowers is '*not* that the former knows many and the latter knows few' (cf. [Ibid], 511–12; 544–5) of such claims as those for which mathematicians commonly provide proofs of (i.e., of those claims, such that there are prime numbers greater than a million). Rather, he goes on to say, 'insofar as what separates them is knowledge at all, it is knowledge of various different sorts' (Ibid.).

Some of it is empirical knowledge (e.g. knowledge of what is commonly accepted by mathematicians and what they regard as the proper starting point for an inquiry). The bulk, however, is knowledge 'of a purely logical sort—even on the Kantian criterion of logic according to which logic can make no existential commitments' (Ibid., 512). In the end, Field concludes, mathematical knowledge for the most part comes down to knowledge that certain sentences do and certain other sentences do not follow from a given set of axioms.

Generally, such knowledge would either be understood in a semantical way (as knowledge about a class of models) or in a syntactical way (as knowledge about a class of formal proofs or derivations). Neither of these, however, qualifies as logical knowledge in the sense Field wants. For since models are just a particular kind of mathematical object, knowledge of them must be just a particular kind of mathematical knowledge. Similarly for syntactical derivations. For whether they are conceived of abstractly or concretely, they cannot be known to exist on purely logical grounds, since (so the reasoning goes) pure logic cannot assert the existence of things.

Field is therefore obliged to offer an account of logical knowledge that frees it of the need to be knowledge of semantical or syntactical entities. What he comes up with is a kind of 'modal' analysis according to which knowledge that a given sentence S follows from a given set of sentences A is (i) knowledge that **N** (A→S) (where '**Nϕ**' is to be read as 'it is logically necessary that ϕ'), and knowledge that S does not follow from A is (ii) knowledge that **M**(A&¬S) (where '**Mϕ**' is to be read as 'it is logically possible that ϕ'). The key feature of this analysis is that it treats the sentences 'A' and 'S' as *used* rather than *mentioned*. Hence, it treats **'N'** and **'M'** as operators (indeed, logical operators) rather than predicates that apply to entities like models, possible worlds and/or proofs.

Field identifies the chief task facing this analysis as that of accounting for the applicability of mathematics to physics, and he divides this task into two sub-tasks: namely: (a) that of showing the mathematics applied to be 'mathematically good'; and (b) that of showing that the physical world is such as to make the mathematical theory particularly useful in describing it. Both tasks must be carried out without appeal to the truth of (any parts of) mathematics if Field's logicist ideal is to be met, and it is to the demonstration of this that Field's writings on the subject (cf. 2.42 and 2.43) are primarily devoted.

There is much to question in Field's argument (cf. [2.130], [2.115], [2.27]; but see also Field's responses in [2.44] and [2.45]). For present purposes, however, we shall restrict ourselves to a question concerning the overall place of logical reasoning in mathematical proof. This, we noted earlier, was a point of central concern in Kant's mathematical epistemology, and was taken over as a principal motivating factor of the intuitionist epistemologies of Brouwer and Poincaré. Their belief, and the crux of their disagreement with logicism, was that mathematical and logical inference are fundamentally different—that the former is not only not reducible to the latter, but that it is indeed antithetical to it. As Poincaré put the point: mathematical reasoning has a kind of creative virtue that distinguishes it from the epistemically more 'sterile' reasoning of logic (cf. [2.99], 32–3); the logical reasoner's grasp of mathematics is like the grasp of elephanthood that naturalists would have were their knowledge to be restricted entirely to what they had observed through microscopic examination of their tissue.

> When the logician shall have broken up each demonstration into a multitude of elementary operations, all correct, he still will not possess the whole reality; this I know not what which makes the unity of the demonstration will completely escape him. In the edifices built up by our masters, of what use to admire the work of the mason if we cannot comprehend the plan of the architect? Now

> pure logic cannot give us this appreciation of the total effect; this we must ask of intuition.
>
> ([2.101], 436)

Poincaré therefore believed in a distinctively *mathematical* kind of reasoning. Without it one cannot account for the manifest differences in epistemic condition which separate the logical from the genuinely mathematical reasoner.[59] He would, therefore, have denied Field's assumed starting point that mathematical knowledge is largely logical knowledge and also his claim that the modalities pertaining to mathematical reasoning are *logical* rather than distinctively mathematical in character.[60] Both points, we believe, raise serious challenges for Field's position.

Steven Wagner ([2.145]) offers both a different conception and a different defence of logicism. He seeks to root mathematics in what he takes to be the universal needs and urges of (ideally) rational agents. His argument begins with the presumption of an idealized rational enquirer who seeks not only bodily survival but also understanding. He then goes on to say that counting is indispensable to such a being both in the sense of being partially constitutive of that person's rationality and in the sense of being necessary to his or her assimilation and processing of the elementary data of experience and thought. Nobody, he maintains, can get by without answering a host of 'How many?' questions. Thus, the rational agent must develop a system of counting.

From a system of counting there will eventually emerge a system of calculation. This is so because (i) calculation is essentially a refinement of counting (i.e. it functions to advance those cognitive and bodily ends that are served by the capacity to count); and (ii) there is a rational urge to improve those capacities that one possesses, but possesses in what is perhaps only too rudimentary a form[61].

Thus, from counting, the ideally rational agent passes to calculation. And from calculation, the argument continues, he or she will pass to something like number theory. This is due to the facts that (i) part of the urge to understand consists of an urge to unify, simplify and generalize; and (ii) efforts to unify, simplify and generalize one's system of arithmetic calculation will inevitably lead one to something like the arithmetic of the natural numbers. Therefore elementary number theory may be described as a kind of rational necessity.

As a final stage of rational development, the continued need and capacity to simplify, unify and generalize will eventually lead the ideally rational enquirer to some form of analysis and set theory. Wagner's 'second generation' logicism thus states that (i) any ideally rational enquirer will be under pressure to develop forms of arithmetic and set

theory; and that (ii) the theorems of such theories as are developed in response to this pressure will be analytic in the sense that *any rational being would have a reason to accept them*.

Wagner's position differs in significant ways from both the metaphysical logicism of Frege and the methodological logicism of Russell. It also differs from Field's logicism—particularly over the question of the in-principle dispensability of mathematics as a device for processing empirical information. Field believes that it is dispensable. Wagner, on the other hand, appeals to an alleged explanatory role that at least certain mathematical theories (e.g. elementary number theory, analysis and set theory) play, and he treats that explanatory role as part of the ultimate justification for those theories. He thus treats mathematics as ultimately indispensable for the full cognitive processing (i.e. the full explanation) of empirical information.

Intuitionism

Turning finally to post-Brouwerian intuitionism, there are two main developments to note: (i) the various attempts, initiated by Heyting's work, to formalize intuitionistic logic and mathematics and to develop it into something roughly comparable in power to classical mathematics; and (ii) the more recent attempts by Dummett and his followers to derive a philosophical justification for intuitionism from a kind of Wittgensteinian conception of the meanings of mathematical sentences.

Since (i) is only very loosely connected with philosophical concerns, we shall say little about it here. The reader desiring a relatively up-to-date presentation of technical findings may consult any of a number of recent surveys (e.g. [2.4], [2.13], or [2.143]) of the subject. We shall confine our discussion of (i) to the idea that seems to have been at the centre of Heyting's attempts to formalize intuitionistic reasoning; namely, the supposed distinction between 'a logic of existence' and 'a logic of knowledge'—a distinction Heyting regarded as fundamental to intuitionistic thought ([2.70], 107).

What Heyting meant by a 'logic of existence' is a logic of statements about objects whose existence is to be understood as being independent of human thought. Intuitionists, and other constructivists too, for the most part, reject the idea of a realm of thought-independent mathematical objects. Likewise, they reject the idea that mathematical propositions are true or false independently of human thought. They hold, instead, the view that mathematical propositions express the results of certain kinds of mental constructions.[62] A logic of such propositions—a 'logic of knowledge', in Heyting's terminology—is therefore one whose theorems express relations between mental constructions; specifically, relations of

latent containment among them (where one construction is taken latently to contain another just in case going through the process of effecting the one would automatically either effect the other or put one in a position to effect it).

Given this general outlook, Heyting argued, there is no essential difference between logical and mathematical theorems. Both serve essentially to affirm that one has succeeded in performing mental acts satisfying certain conditions. The former are distinguished only by their relatively greater generality ([2.69], 1–12; [2.70], 107–8).

Intuitionist logic was thus intended by Heyting to serve as an articulation of those most general patterns of latent containment relating our mental mathematical constructions.[63] Since, however, our mental constructional activities constitute 'a phenomenon of life, a natural activity of man' ([2.69], 9), containment relations between them are not conceptually based but rather based on the relations which bind our activities together *behaviourally*, as it were. Thus, a logical theorem to the effect that we know a proof of A only if we know a proof of B would express neither a conceptual connection between our knowledge of a proof of A and our knowledge of a proof of B, nor, except *per accidens*, a conceptual connection between A and B. Rather, it would express a natural fact concerning our (perhaps idealized) mental constructional life, namely, that it is characterized by a disposition to transform proofs of A into proofs of B. As Heyting himself put it, 'mathematics, from an intuitionistic point of view, is a study of certain functions of the human mind' ([2.69], 10). As such, it is akin to history and the social sciences (Ibid.).

Michael Dummett ([2.36], [2.37]) has offered both a different conception and a different defence of intuitionism. He conceives it as a view concerning what is to be regarded as the proper *logic* of mathematics. He argues that an adequate account of the meanings of mathematical propositions reveals that it is intuitionist logic (i.e. the logic set out by Heyting) that is the proper logic of mathematics. This account bears certain affinities to the views on meaning set out by Wittgenstein in his *Philosophical Investigations*. In particular, like Wittgenstein's view, it equates the meaning of a sentence with its canonical use. In mathematics, Dummett believes, canonical use consists in the role that an assertion plays in the central activity of proof. Hence, to know the meaning of a mathematical sentence is ultimately to know the conditions under which it would be proved or refuted.[64]

Dummett's intuitionism is thus far removed from that of Poincaré and Brouwer both in substance and motive.[65] Its defence is also, we believe, open to certain doubts. Dummett argues that since (i) 'that knowledge which, in general, constitutes, the understanding of language…must be implicit knowledge' ([2.36], 217), and (ii) 'implicit knowledge

cannot…meaningfully be ascribed to someone unless it is possible to say in what the manifestation of that knowledge consists—there must be an observable difference between the behaviour or capacities of someone who is said to have that knowledge and someone who is said to lack it' (Ibid.)—that it therefore follows that (iii) 'a grasp of the meaning of a…statement must, in general, consist of a capacity to use that statement in a certain way, or to respond in a certain way to its use by others' (Ibid.).

Premiss (ii), we believe, is inappropriate as a premiss in an argument for (iii). For it seems to beg the crucial question, namely, that concerning whether implicit knowledge (and hence knowledge of meaning) is ultimately to be taken as consisting in a capacity for behaviour or in, say, something like one's being in a mental or psychological or neural state that *underlies* such behaviour. Everyone, it would seem, must agree that (ii') implicit knowledge cannot legitimately be ascribed to someone unless such ascription is warranted by the best total explanation of his or her observed behaviour.[66] But (ii') carries with it no guarantee that, as (ii) requires, an ascription of implicit knowledge be traceable to some specific piece or pieces of speaker behaviour or, indeed, that it will even be traceable to the entire corpus of the speaker's behaviour. Speaker behaviour will, after all, typically underdetermine its best total explanation. Nor is there any reason to believe in advance that the best total explanation of the speaker's behaviour will not differ from its rivals in its ascriptions of implicit knowledge to the speaker.

Thus, to avoid begging the question, premiss (ii) of Dummett's argument would seemingly have to be replaced by something like (ii'). Such replacement, however, would block valid passage to (iii), and (iii) is at the heart of Dummett's defence of intuitionism. To salvage his defence would therefore seemingly require finding something like our (ii') that would (in the company of premiss (i), of course) validly imply (iii). It is not at all clear that this can be done, however.[67]

As noted above, Dummett's defence of intuitionism appeals to certain ideas of Wittgenstein's, or, at any rate, ideas that Dummett and others have attributed to Wittgenstein. It would, however, we believe, be a mistake to identify Wittgenstein's ideas on the philosophy of mathematics too closely with intuitionism.[68] For though it does bear affinities to those forms of constructivism which stress the autonomy of mathematics as a human creation (where creation is understood to consist ultimately of acts of will or decision), it also bears certain affinities to a more conventionalist interpretation. Moreover, in the end, it resists categorization as *either* a constructivist or a conventionalist philosophy.

Wittgenstein's central idea seems to have been that there is a basic kind of construction in mathematics known as a *Beweissystem*. A *Beweissytem* is made up of proofs and theorems, but its theorems function

as rules of logical syntax rather than descriptive truths concerning the terms of the system. These rules constitute autonomous acts of will by which are laid down the rules according to which we agree to play a certain 'language game' involving the terms introduced by the system. Mathematics as a whole, Wittgenstein maintained, is a 'motley' of such *local* activities or games.

For Wittgenstein, then, mathematical proofs (including even the simplest ones) do not play the role of *compelling* us to accept their conclusions. Nor are mathematical propositions in any other way 'forced' upon us as being true. 'Acceptance' of a mathematical statement does not therefore represent an acknowledgment of its truth, but rather represents a *decision* on our part to count something as a convention of a certain language game. Similarly, proof does not function to *remove* doubt through penetration of the truth, but rather to *exclude* doubt as a logical possibility through the establishment of a theorem as a *norm* governing a certain language game.

Thus, though Wittgenstein saw mathematics as essentially a human creation, he did not understand this in the *descriptive* way that constructivists traditionally have understood it. Nor did his normative conception of our mathematical creations lend itself to any of the usual conventionalist interpretations. For those all call for the reduction of mathematical truths to logical truths and this requires the 'co-operation' of the logical forms of mathematical truths, so to speak (since there are logical forms that a statement might have that would prohibit it from being reducible to a logical truth).

Logical form does not, however, appear to form the same kind of constraint on the institution of norms or rules. Moreover, even if it did, there is a big difference between a statement's being a logical truth and its being a norm of logical syntax. The former has to do with whether a statement passes a certain test of truth invariance (i.e. that it be stable under a certain variety of different semantical interpretations of its semantically variable parts), while the latter has to do with whether something is to be seen as one of the *rules* constituting a certain *rule-governed activity*. Sentences failing the requisite tests of the truth-invariance test could none the less, it seems, still at least in principle play the role of rules of a linguistic game. Consequently, it seems that Wittgenstein is not well classified as a traditional conventionalist, though there is a conventionalist element in his philosophy.[69]

Later Developments

Among later developments not having primarily to do with the three 'isms', perhaps the major one is that stemming from Quine's criticism of the logical empiricists in the 1940s and 1950s mentioned above. This criticism resulted in a new empiricist philosophy of mathematics shorn of even those few Kantian ideas that were retained by the logical empiricists—and this new empiricism has been perhaps the dominant theme in the philosophy of mathematics ever since.

The logical empiricists, as was noted earlier, retained Kant's commitment to the necessity of mathematical truth (though they conceived of this necessity as essentially consisting in immunity from empirical revision). Indeed, it was precisely for the sake of accommodating this 'datum' of mathematical epistemology that the logical empiricists put so much effort into nurturing and preserving the Kantian distinction between analytic and synthetic judgements. In their view, only such a distinction could sustain the division of mathematical judgements into those that are and those that are not subject to empirical revision.

Quine (see [2.108], [2.109]) and Putnam (see [2.105], [2.106]) swept even this final Kantian datum aside, offering instead a general empiricist epistemology in which all judgements, those of mathematics and logic as well as those of the natural sciences, are seen as evidentially connected to sensory phenomena and therefore subject to empirical revision. Central to their argument was an observation borrowed from Duhem; namely, that in order to connect science with sensory evidence, logic and mathematics are inevitably required.[70] They are therefore part of what gets confirmed when connection between a theory and a confirming phenomenon is made, and part of what gets disconfirmed when connection between a theory and a disconfirming phenomenon is made. They are, in sum, of an epistemological piece with natural science and, so, broadly speaking, empirical.

To accommodate the lingering conviction that there is at least some difference regarding sensitivity to empirical evidence between mathematics and logic, on the one hand, and natural science, on the other, Quine argued that while both are subject to empirical revision, the precise extent or degree to which this is true is different in the two cases. He backed this view with a pragmatic conception of rational belief revision, and a view of the totality of our cognitive holdings according to which it forms a 'web' whose various parts are interdependent and ordered with respect to their importance to the preservation of the general structure of the web. At the centre of the web lie logic and mathematics, and the beliefs of natural science and common sense for the most part fan out from this towards the periphery where the entire scheme encounters sensory experience.

According to Quine's pragmatic conception of belief revision, it is to be governed by a concern to at all times maximize our overall predictive and explanatory power. A scheme of beliefs which optimizes predictive and explanatory power also optimizes our ability cognitively to cope with our environment(s), and production of such a scheme is generally aided by policies of revision which minimize, both in scope and severity, the changes that are made to a previously successful conceptual scheme in response to recalcitrant experience. If the beliefs of mathematics and logic are therefore typically less subject to empirical revision than are the beliefs of natural science and common sense, this is because revising them generally (albeit not, in Quine's view, invariably) tends towards greater upheaval in the conceptual scheme than does revision of our common sense and natural scientific beliefs.[71] Quine therefore accommodates the traditional Kantian datum that mathematics is necessary by treating logic and mathematics not as being altogether impervious to empirical revision, but only as being more so, on average, than either natural science or common sense.[72] Quine thus merges the epistemologies of mathematics and natural science into a single, albeit quantitatively differentiated, empiricist whole.

In merging mathematics and science into a single explanatory system, Quine's empiricism also induces a realist or platonist view of mathematics. It sees the world as populated by those entities needed to staff the best theory of the totality of our experience. These include not only the medium-sized objects of ordinary experience and the theoretical entities of our best current physical science, but also mathematical entities, since, as was noted above, mathematical claims play an integral role in our best total theory of experience (see [2.108], [2.109], [2.105] and [2.106]).

Quine's views have been challenged on various grounds. Field, for example, has challenged Quine's claim that the roles played by natural science and mathematics are essentially the same and cannot be differentiated. On his view there is an immense difference between the role played by mathematics and the role played by natural science in our overall conceptual scheme. Mathematics, he believes functions basically as a logic, and its theorems do not make claims that are substantive in the way that the laws of natural science are.

Another criticism is that Quine's epistemology leaves unaccounted for those parts of mathematics that are *not* somehow involved in the explanation of sensory experience. It is not clear, however, how serious an objection this is since it is not clear how much, if any, of even the least elementary, most abstract mathematics would play *no* contributory role in the simplification and explanation of sensory experience.

A final criticism is that by Parsons, who has argued that treating the *elementary* arithmetical parts of mathematics (e.g. the truth that 7 +5=12)

as being on an epistemological par with the hypotheses of theoretical physics fails to capture an epistemologically important difference regarding the different kinds of evidentness or 'obviousness' displayed by the two (see [2.95], 151). The kind of evidentness displayed by an elementary arithmetic proposition like '7+5=12' is not the same as that displayed by even such highly confirmed physical hypotheses as 'The earth moves about the sun', says Parsons. To put it roughly, the latter is more highly *derivative* than the former. Consequently, Parsons concludes, it is not plausible to regard the two claims as based on essentially the same kind of evidence and, so, the empiricist epistemology of Quine and Putnam must be regarded as being of questionable adequacy for at least the more elementary parts of mathematics.

In addition to Quine and Putnam, there have been others who have suggested different kinds of mergings of mathematics with the natural sciences. Of those, some have been empiricists, others not. Kitcher, for instance, has presented a generally empiricist epistemology for mathematics in which *history* and *community* are important epistemological forces (see [2.89]). Gödel, too, offered an epistemology in which mathematical justification was conceived along lines structurally similar to those of justification in the natural sciences.[73] In his own words:

> despite their remoteness from sense experience, we do have something like a perception also of the objects of set theory, as is seen from the fact that the axioms force themselves upon us as being true. I don't see any reason why we should have less confidence in this kind of perception, i.e., in mathematical intuition, than in sense perception…
>
> It should be noted that mathematical intuition need not be conceived of as a faculty giving an *immediate* knowledge of the objects concerned. Rather it seems that, as in the case of physical experience, we *form* our ideas also of those objects on the basis of something else which is immediately given. Only this something else is *not*, or not primarily, the sensations. That something besides the sensations actually is immediately given follows…from the fact that even our ideas referring to physical objects contain constituents qualitatively different from sensations or mere combinations of sensations, e.g., the concept of object itself, whereas, on the other hand, by our thinking we cannot create any qualitatively new elements, but only reproduce and combine those that are given. Evidently, the 'given' in underlying mathematics is closely related to the abstract elements contained in our empirical ideas. It by no means follows, however, that the data of this second

> kind, because they cannot be associated with actions of certain things upon our sense organs, are something purely subjective, as Kant asserted. Rather they, too, may represent an aspect of objective reality, but, as opposed to the sensations, their presence in us may be due to another kind of relationship between ourselves and reality.
>
> ([2.65], 483–4)

Gödel then went on to claim (Ibid., 485) that this use of and need for intuition obtains both in high-level abstract areas of mathematics such as set theory, and in the elementary areas of mathematics such as finitary number theory. He noted, moreover, that even without appeal to intuition, mathematics, like the natural sciences, makes use of what are essentially inductive means of justification.

> even disregarding the intrinsic necessity of some new axiom, and even in case it has no intrinsic necessity at all, a probable decision about its truth is possible also in another way, namely, inductively by studying its 'success'. Success here means fruitfulness in consequences, in particular in 'verifiable' consequences, i.e., consequences demonstrable without the new axiom, whose proofs with the help of the new axiom, however, are considerably simpler and easier to discover, and make it possible to contract into one proof many different proofs. The axioms for the system of real numbers, rejected by the intuitionists, have in this sense been verified to some extent, owing to the fact that analytical number theory frequently allows one to prove number-theoretical theorems which, in a more cumbersome way, can subsequently be verified by elementary methods. A much higher degree of verification than that, however, is conceivable. There might exist axioms so abundant in their verifiable consequences, shedding so much light upon a whole field, and yielding such powerful methods for solving problems…that, no matter whether or not they are intrinsically necessary, they would have to be accepted at least in the same sense as any well-established physical theory.
>
> (Ibid, 477)

Higher-level mathematical hypotheses are thus taken to be inductively justified by the simplifying, or, more generally, explanatory effects they have on lower-level mathematical truths. In a later remark, Gödel extended this characterization of inductive justification in mathematics to include not only the 'fruitful' (i.e. simplificatory and explanatory) organization of lower-level mathematical results, but

also the 'fruitful' organization of principles and facts of physics (Ibid., 485).[74]

This extension is significant because it makes a place in Gödel's mathematical epistemology for what is essentially empirical justification of mathematical truths. This does not, however, make him an empiricist like Quine. For Gödel allowed only that some of our knowledge of mathematical truths might arise from empirical sources. He remained staunchly opposed to any suggestion that all mathematical justification must or even can ultimately rest on sensory experience. Indeed, he described the empiricist view of mathematics as too 'absurd' to be seriously maintained (see p. 16 of the manuscript of his Gibbs lecture). More positively, he maintained that there is a fundamental epistemic phenomenon (viz., that of certain axioms—including certain high-level set theoretical axioms—'forcing' themselves upon us as 'being true') that cannot be accounted for by an empiricist epistemology for mathematics. This same phenomenon is apparently also that which caused Gödel to reject idealism and accept a Platonist conception of mathematics. In our estimation, neither this phenomenon nor the related question of its status as a 'datum' for the philosophy of mathematics have received the attention they deserve.

Both the empiricist Platonism of Quine and the non-empiricist Platonism of Gödel have been important influences on recent work in the field. So, too, has been an argument given by Benacerraf in the early 1970s (see [2.6]). According to that argument, mathematical epistemology faces a general dilemma. It must, on the one hand, give a satisfactory account of the truth of mathematics and, on the other, offer a satisfactory account of how mathematics can be known. This constitutes a dilemma, in Benacerraf's opinion, because while to get a satisfactory account of the truth of mathematics seemingly requires that we bring abstract objects into the picture as referents of the singular terms used in mathematical discourse, to get a satisfactory account of mathematical knowledge seemingly requires that we avoid such reference. His argument makes use of the following key claims: (i) the semantics for mathematical language should be continuous with the semantics for non-mathematical language; (ii) the deep logical form of a mathematical expression should not be treated as too different from its surface grammatical form; (iii) the semantics for non-mathematical language is referential; and (iv) the best referential semantics for mathematical language uses abstract objects as referents.

As a result of the alleged need to construe the semantics of mathematical language as referential in character, we are obliged to see the *grounds of truth* of a mathematical sentence as residing in the properties of those abstract objects to which its referring terms make reference. Thus, for example, we are obliged to say that what makes '7 +

5=12' *true* are the properties of the abstract objects 7, 5 and 12, the characteristics of the addition operation as an operation on abstract objects, and the features of the identity relation as a relation between abstract objects.

On the other hand, any epistemology for mathematics that is to avoid susceptibility to Gettier-type problems must link the *grounds of truth* of a mathematical sentence with the *grounds of belief* in it. In other words, if a given belief is to count as genuine knowledge, there must be a certain causal relationship between that which makes it true and our state of belief in it. This causes a dilemma because there is seemingly no way of securing the aforementioned causal connection while at the same time securing a reasonable referential semantics for mathematical discourse. There are mathematical epistemologies—in particular, various Platonist epistemologies—which allow for a plausible account of the truth of mathematical sentences. And there are mathematical epistemologies (e.g. various formalist epistemologies) which allow for a plausible account of how we might come to know mathematical sentences. There is, however, no known way of securing both a plausible account of mathematical truth and a plausible account of mathematical knowledge.

A great deal of recent work in the philosophy of mathematics has been devoted to trying to resolve this dilemma. So, for example, there are Field (see [2.42]) and Hellmann (see [2.68]), both of which offer anti-Platonist resolutions of the dilemma, and Maddy (see [2.92]), who attempts to work out an epistemology which is at once Platonistic and yet naturalistic. To date there is no general consensus on which approach is the more plausible.[75]

An earlier argument of Benacerraf's (see [2.5]) on another topic has been similarly influential in shaping recent developments. Perhaps more than any other single source, this paper has served as the inspiration of that recent position known as 'structuralism'. Applied to mathematics generally, structuralism is the view that

> In mathematics… we do not have objects with an 'internal' composition arranged in structures, we have only structures. The objects of mathematics, that is, the entities which our mathematical constants and quantifiers denote, are structureless points or positions in structures. As positions in structures, they have no identity or features outside of a structure.
>
> ([2.113], 530)[76]

Such a view, Resnik claims (Ibid., p. 529), is in keeping with the fact that 'no mathematical theory can do more than determine its objects up to isomorphism', a fact which seems to have led mathematicians increasingly to the view that (i) 'mathematics is concerned with structures

involving objects and not with the "internal" nature of the objects themselves' (Ibid.), and that (ii) we are not 'given' mathematical objects in isolation, but rather only in structures.[77]

Benacerraf himself applied the idea only to arithmetic, and, in particular, to the question, raised by Frege and others, of the 'deeper' ontological characteristics of the individual numbers. Frege, as is well known, held the view that numbers are objects. Benacerraf opposed this, arguing that such questions as 'Are the individual numbers really sets?' are spurious. 'Questions of the identification of the referents of number words should be dismissed as misguided in just the way that a question about the referents of the parts of a ruler would be seen as misguided.' ([2.5], 292). He then went on to complement this by noting that:

> 'Objects' do not do the job of numbers singly; the whole system performs the job or nothing does. I therefore argue…that numbers could not be objects…; for there is no more reason to identify any individual number with any one particular object than with any other.
>
> …in giving the properties of numbers…you merely characterize an *abstract structure*…and the 'elements' of the structure have no properties other than those relating them to other 'elements' of the same structure.
>
> ([Ibid., 290–1)

The primary motivation for such a view, apart from the desire for a more descriptively adequate account of mathematics, is apparently epistemological in nature. Knowledge of the characteristics of individual abstract objects would seem to require naturalistically inexplicable powers of cognition. Knowledge of at least some (e.g. finite) structures, on the other hand, could conceivably be explained as the result of applying such classical empiricist means of cognition as *abstraction* to observable physical complexes. Such abstracted structures would then become part of the general scientific framework and, as such, they could be extended and generalized in all manner of ways as the search for the simplest and most highly unified overall conceptual scheme is pursued.

Though Benacerraf and the other recent structuralists take no note of the fact, the basic idea behind their position enjoyed widespread popularity among philosophers of mathematics in the late nineteenth and early twentieth centuries. Indeed, Dedekind's essay *The Nature and Meaning of Number* ([2.25], section 73) contains an expression of the same basic idea on which the argument of Benacerraf [2.5] is centred. There Dedekind writes:

> If in the consideration of a simply infinite system *N* set in order by a transformation we entirely neglect the special character of the elements; simply retaining their distinguishability and taking into account only the relations to one another in which they are placed by the order-setting transformation , then are these elements called *natural numbers* or *ordinal numbers* or simply *numbers,* and the base element is called the *base-number* of the *number-series N*. With reference to this freeing the elements from every other content (abstraction) we are justified in calling numbers a free creation of the human mind. The relations or laws which are…always the same in all ordered simply infinite systems, whatever names may happen to be given to the individual elements…form the first object of the *science of numbers* or *arithmetic*.[78]

Similarly, Weyl contains a striking expression—indeed, a strong generalization—of the structuralist idea that mathematical objects have no mathematically important features beyond those they possess as elements of structures. He writes: 'A science can only determine its domain of investigation up to an isomorphism mapping. In particular it remains quite indifferent as to the 'essence' of its objects. The idea of isomorphism demarcates the self-evident insurmountable boundary of cognition' [2.148], 25–6.

Similar, too, were ideas voiced by Hilbert (see, correspondence with Frege in 1899, [2.71] the Paris address of 1900 [2.72] and also by Bernays ([2.9]).[79]

Structuralism as a general philosophy of mathematics is criticized by Parsons [2.98]. There it is argued that there must be some mathematical objects for which structuralism is 'not the whole truth' (Ibid., 301). The objects of which Parsons speaks are those he refers to as 'quasiconcrete'. These are so-called because they are directly 'instantiated' or 'represented' by concrete objects. Examples are geometrical figures, symbols (construed as types) whose instances are written marks or uttered sounds, and the so-called 'stroke numerals' and the like of Hilbert's finitary arithmetic. Such quasi-concrete entities are among the most elementary mathematical objects there are and they are therefore of considerable importance to the foundations of mathematics. Yet they cannot be treated in a purely structuralist way, because their 'representational' function cannot be reduced to the purely intrastructural relations that they bear to other objects within a given system.

CONCLUSION

As noted in the introduction, philosophy of mathematics in this century has been centred on the problematic laid down for the subject by Kant, which is one of the three most important influences. The other two are the discovery of non-Euclidean geometries and the rapid development of symbolic logic.

For the first three decades of the century, the Kantian problematic was for the most part understood in pretty much the way Kant himself had thought of it. That is, necessity was understood as imperviousness to empirical revision, and substantiality was understood as a kind of epistemic non-triviality. What differentiated the rival philosophies of this period, primarily, were the different responses they gave to the discovery of non-Euclidean geometries. Here, three basic alternatives eventually came to be articulated.

The first of these, developed chiefly by Frege, attempted to preserve the basic Kantian judgement that both geometry and arithmetic are necessary. At the same time, however, it sought to distinguish two different kinds of necessity, one for arithmetic, the other for geometry. This it did in response to the discovery of non-Euclidean geometries, which it regarded as having revealed a fundamental asymmetry between geometry and arithmetic—namely, that though there are, at least at the level of conceptual possibility, alternative geometries, there are not alternative arithmetics. Arithmetical thinking was therefore thought to be a more pervasive part of rational thought than is geometrical thinking. Giving a proper account of this asymmetry then came to be seen as the primary duty of a philosophy of mathematics.

The second alternative, favoured by various of the early constructivists, modified the basic Kantian judgement that both geometry and arithmetic are necessary, and maintained instead that only arithmetic is necessary. It therefore also, like the first alternative, regarded the discovery of non-Euclidean geometries as having revealed a fundamental asymmetry between spatial geometry and arithmetic. Unlike the first alternative, however, it took this discovery to be best accounted for by reducing the truly mathematical part of geometry to arithmetic and rejecting its distinctively spatial part as being of an a posteriori rather than an a priori character (which thus means that it is an object *external* to the human mind). Arithmetic, on the other hand, since it admitted of no alternatives like those which non-Euclidean geometries constitute for geometry, was to be seen as arising from a source (viz., a very general kind of temporal intuition) which was wholly internal to the human mind and, so, a priori in nature.

The third alternative, developed by Hilbert, reacted to the discovery of non-Euclidean geometry in a different way still. It sought to put them to

the test in order to determine how deeply into geometrical thinking they truly penetrate. The original non-Euclidean geometries were only shown to be independent of Euclid's axioms for plane geometry. They therefore left open the possibility that there are unknown and/or articulated features of the Euclidean plane such that, were they to be registered as axioms, the axiom of parallels *would* follow from them (together with the other axioms). They also left open the possibility that, even supposing the axioms of the Euclidean plane to be 'complete' in the sense just alluded to, the axioms needed to move from a description of the Euclidean plane to a description of Euclidean space are such that the axiom of parallels would follow from them (in conjunction with the other axioms), and would therefore not signify an independent feature of Euclidean *space*.

It was with the resolution of these matters that Hilbert was concerned. He therefore sought to produce a set of axioms so 'complete' that no axiom could be added to them without turning them into an inconsistent theory. In order to do this, he turned to a certain kind of continuity principle (viz., his so-called *Vollständigkeitsaxiom*) which, in Kantian fashion, he reckoned to belong to the domain of pure reason (or what Hilbert referred to as 'ideal' thought) rather than the domain of judgement (which Hilbert referred to as 'real' thought). This distinction between real and ideal elements in our mathematical thinking became the cornerstone of Hilbert's mathematical epistemology, both for arithmetic and, we believe, for geometry.

Hilbert did not, therefore, affirm the necessity of either arithmetic or geometry in any simple, straightforward way. Rather, he distinguished two *different* types of necessity operating both within arithmetic and geometry. One of these—that which attaches to the 'ideal' parts of arithmetic and geometry—he identified with the kind of necessity that attached to Kant's faculty of reason; a kind of necessity borne of the manner in which our minds inevitably work. The other, that applying to the so-called 'real' parts of mathematics, he saw as consisting in the presumed fact that all our thought assumes as a pre-condition the apprehension of certain elementary spatial features of simple concrete objects (cf. [2.76], 376; [2.78], 383, 385).

This, roughly, was Hilbert's complex conception of the a priority of mathematics. Clearly, it represented a significant departure from Kant's 'idealist' explanation of necessity as residing in the supposed inevitable tendencies of our minds to couch all experience in temporal terms, and all spatial experience in Euclidean terms. Clearly, too, it represented a significant departure from the ideas of the logicists and intuitionists. Its response to the discovery of non-Euclidean geometries (and such related discoveries concerning intuition of time as Einstein's theory of relativity) was not to posit an essential epistemological asymmetry between arithmetical and geometrical knowledge, as did

(the original forms of) both logicism and intuitionism. Rather, or so it seems to us, it was to try and bring both under the authority of a single type of proto-geometric intuition concerning our apprehension of the elementary shapes or forms of concrete figures.

The 1930s witnessed the demise of Hilbert's Kantian programme at the hands of Gödel's theorems. Frege's Kantian logicism had earlier been vanquished by Russell's paradox, and the Kantian philosophies of the intuitionists, too, were under assault from both philosophical quarters (where their idealism was called into question) and mathematical quarters (where their ability to support a significant body of mathematics remained in doubt). Of the programmes of the early period, perhaps Russell's non-Kantian form of logicism remained most intact, being sustained chiefly through its embodiment of the recent advances in symbolic logic and its selection as the preferred philosophy of mathematics of the then-influential logical empiricist school.

Yet, even though the positive ideas of Kant's mathematical philosophy had largely been abandoned by the 1930s, his basic apparatus remained in effect until the early 1950s. It was only with Quine's attack on the analytic/synthetic distinction of the positivists that its influence, too, began to slip.[80] The dominant trend in the philosophy of mathematics since then, if, indeed, there has been one, has been that of empiricism: an empiricism which denies that there is a difference in kind between the necessity of mathematics and that of the rest of our judgements; an empiricism which sees mathematics as governed by the same basic inductive methodology as governs the natural sciences; an empiricism which sees mathematical inference as reducible to logical inference. The ultimate adequacy of this overall empiricist approach as an explanation of the 'data' of mathematical epistemology, however, remains unclear. So, too, does the justification of its view of what these data are. Indeed, the problem of determining what are the data of the philosophy of mathematics is, I would suggest, among the more serious problems facing the subject as the century draws to a close.

NOTES

1 Years later, in his only philosophical essay (see [2.91]), Kronecker would quote this view with approbation.

2 Ironically, it is probably the continued development of logic in the latter three-quarters of this century that has contributed as much as anything to the blindness of present-day philosophy of mathematics to the Kantian question of whether mathematical proof *can* rightly make use of logical inferences.

There are, of course, reasons for this new orientation. There are also, however, some drawbacks as we see it. Cf. Detlefsen [2.28], [2.30], [2.33] and Tragesser [2.142] for attempts to revitalize the Kantian question.

3 In speaking of a logicism 'like Russell's', we mean a logicism which was applied to the whole of mathematics and not just its arithmetic portion. The very different logicisms of Frege and Dedekind would not have been nearly so attractive to the logical empiricists because, though they would have allowed an analytic treatment of arithmetic judgement, they would not have allowed this account to be extended to geometry. The logical empiricists would therefore have had to deal with the seeming 'necessity' of geometrical judgement in some other way.

4 This it did by allowing them to treat mathematical judgement as analytic judgement, which they then treated as arising from the general phenomenon of linguistic convention. More on this later.

5 It should be noted, however, that the logicism of Frege and Dedekind raised a challenge to Kant on this score too. For it programmatically required that all reasoning appearing in a mathematical proof be reducible to logical reasoning and, indeed, logical reasoning of a sort so clear and perspicuous that it could not conceal anything of a non-logical nature.

6 Cf. [2.47], 50. [My translation.]

7 Frege expanded a bit further on this idea in section 24, where similar ideas in Locke and Leibniz are cited. See also [2.50].

8 In a later remark (cf. the introduction to [2.52], xv), Frege clarified further the connection between the laws of logic and the laws of thought alluded to here. 'The laws of logic have a special claim to be called "laws of thought" only because we recognize them as the most general laws, which prescribe universally the way in which thought ought to proceed when it proceeds at all.' (my translation).

9 This criticism of Kant would apply even more powerfully to Leibniz, since the latter acknowledged only *one* basic source of knowledge (namely, reason) and saw all truth as analytic in character (and, so qualitatively the same). It seems likely therefore that Frege would not have found Leibniz's mathematical epistemology as satisfying as Kant's—and this despite the fact that Leibniz advocated a kind of logicist view.

10 Frege says (cf. [2.49], the first footnote in section 3) that he has tried to capture what earlier writers, and, in particular, Kant, had in mind in their usages of the above terms. This is difficult to accept at face value, however, since Frege insists that *both* the a priori/a posteriori distinction *and* the analytic/synthetic distinction 'concern…not the content of a judgement but the justification for making the judgement' (Ibid., section 3), whereas Kant held only that the former is a distinction of this sort. Furthermore, Frege later (cf. [2.49], section 88) says that Kant underestimated the potential epistemic productivity of analytic judgements because he 'defined them too narrowly'. What he seems to mean by this is that Kant, because of his impoverished Aristotelian notion of logical form, defined analyticity only for subject-predicate propositions, whereas, of course, the notion applies to a much wider class of propositions. There is, however, no indication that Frege saw Kant as having intended the analytic/synthetic distinction to concern the content of a judgement rather than its justification.

It should also be noted that in the event that canonical proofs are allowed to be non-unique, the definitions of syntheticity and a posteriority would have to be changed to require that every canonical proof involves recourse to a truth of a special science (resp. involves an appeal to facts). Likewise, the definitions of analyticity and a priority would have to be changed to state that some canonical proof contain only general logical laws and definitions (resp. only general laws which neither need nor admit of proof).

11 Cf. [2.49], section 14.

12 Though Frege does not cite the original source of his inspiration, the main idea expressed clearly reverberates a remark from the preface of the first edition of the *Critique of Pure Reason:* 'in an inventory of that which is acquired by us through Pure Reason…nothing can escape us. For whatever reason brings forth *(hervorbringt)* entirely of itself cannot be hidden from it' (xx).

13 Cf. also section 27 where he says that numbers are neither 'spatial and physical…nor yet subjective like ideas, but non-sensible and objective' and that 'objectivity cannot…be based on any sense-impression, which as an affectation of our mind is entirely subjective, but only…on reason'.

14 Cf. [2.49], sections 69, 107.

15 On this latter, compare [2.49], section 48.

16 Frege's belief in the priority of concepts cannot, however, completely explain his opposition to Kant. For Kant as is well-known, believed in a *form* (as opposed to a *substance* or *content*) of intuition which 'precedes in my subjectivity all actual impressions through which I am affected by objects' (cf. [2.85], section 9, my translation) and held it to be the basis of our mathematical knowledge. He was therefore not committed to a conception of the intuitional basis of our mathematical knowledge according to which it rests on intuitions of particular sensible things. Why, then, did Frege feel that he needed concepts rather than merely Kant's *forms* of intuition? This, I believe, is a difficult question to answer. Such answers as might be given would appear to require recourse to Frege's belief that (i) concepts possess *special* unifying power (and, in particular, unifying power that is superior to that possessed by intuition generally); and that (ii) number is applicable to more than just that which can be sensed. Kant, by contrast, held that

> all mathematical cognition has this pecularity: that it must first exhibit its concept in intuitional form… Without this, mathematics cannot take a single step. Its judgements are therefore always intuitional, whereas philosophy must make do with discursive judgements from mere concepts. It may illustrate its judgements by means of a visual form, but it can never derive them from such a form.
>
> (Ibid., section 7).

17 Of course, quite apart from worries concerning its consistency, one might wonder how Rule V could be defended as a *logical* principle. In his defence, Frege employed his well-known distinction between sense and reference (which is related to his belief in the priority of concepts to their extensions) and constructed an argument to the effect that the two sides of the biconditional in Rule V have the same *sense*.

18 For more on this, as well as some examples, see [2.49], sections 64–66, 70, 88, 91.

19 Frege gives an example of the different ways of carving up content in section 70 of [2.49]. He also discusses it in section 9 of [2.48], where one of the example he considers is the proposition of 'Cato killed Cato'. He remarks there that if we think of this proposition as allowing for replacement of the first instance of 'Cato', we see it as formed from the propositional function 'x killed Cato'. If we think of it as allowing for the replacement of the last instance of 'Cato', we see it as formed from the function 'x was killed by Cato'. And, if we see it as allowing for the replacement of both occurrences of 'Cato' at once, we see it as formed from the function 'x killed y'. No single one of these ways of seeing the proposition is necessary for its apprehension. Hence, each might in its turn be thought of as a 'recarving' of its content.

20 Still, as was mentioned earlier, since Russell believed that the whole of what is ordinarily regarded as pure mathematics can be reduced to (second-order Peano) arithmetic, the distance between him and Frege on this point is not so great as might at first sight appear (cf. Russell [2.123], 275–9 (esp. 276); [2.120], 157–8, 259–60). It should be noted, too, that in these passages, Russell describes the work of the 'arithmetizers' of mathematics (e.g. Dedekind and Weierstrass) as being of greater importance to the cause of logicism than the discovery of non-Euclidean geometries.

21 Even here, of course, one sees vestiges of Kant. For he, too, conceived of reason as impelling one towards ever greater generality in science. He did not, however, think of this procedure as tending towards a terminus—a most general science (the TRUE science!), as it were. Still less did he think of it as tending towards a science of *logic*.

22 Hereinafter we will refer to this as Russell [2.120]. The pagination cited is that of the seventh impression of the second edition, which appeared in 1956.

23 Russell distinguished the level of generality where all constants are logical constants from what we are hero referring to as the level of *maximum* generality. The latter was seen as requiring the former. But in addition, it was taken to require an identification of what Russell referred to as the 'principles' of logic; that is, the most basic truths from which all other truths whose only constants are logical constants can be derived by logical means (cf. [2.120], 10).

24 Russell elaborated on this idea and extended a modified version of it to the case of the empirical sciences in [2.122] and [2.123].

25 Russell [2.123], 273–4. Page numbers are those of the reprint in [2.125].

26 It is not obvious that Russell's condition is weaker. Indeed, it is not weaker at all if a suitably stiff standard of individuation for propositions is adopted. For example, if one were to adopt a criterion of individuation which makes all logically equivalent sentences express the same proposition, then Russell's criterion would become considerably more demanding than he wanted it to be. Moreover, the problems intensify the broader one's notion of logical equivalence becomes. Hence, for the logicist, who requires a very broad conception of logical equivalence, a criterion of propositional identity that identifies logically equivalent propositions would make it virtually impossible for a standard of inferential epistemic productivity like Russell's to succeed. Russell did not explicitly propose any standard of individuation for propositions in his discussion of synthetic inference, but his remarks suggest that he would not have accepted a standard which implies the identity of logically

equivalent sentences (at least for any broad conception of logical equivalence).

27 We must leave for another occasion the explanation of how this differs from Kant's understanding of reason as a regulative ideal that leads us to ever greater generality (i.e. unity) in our judgements.

28 The reader will recall that in 1886 Kronecker famously remarked that while God made the whole numbers, everything else is the work of man *(Die ganzen Zahlen hat der liebe Gott gemacht, alles andere ist Mensckenwerk)*. How do we square that Kronecker with the Kronecker who accepted Gauss's view that the numbers are the product of the human intellect and that geometry is not? The answer would seem to lie in a distinction Kronecker made between arithmetic in a 'narrower' sense and arithmetic in a 'wider' sense. By the former, he meant the arithmetic of the natural numbers, while by the latter he meant to include algebra and analysis as well (cf. [2.91], 265). A resolution of the apparent conflict can be obtained by taking the work of God to be arithmetic in the narrower sense and taking the 'everything else' of Kronecker's remark to refer not to geometry and mechanics and the like, but to arithmetic in the wider sense.

29 Page references to Brouwer's papers are to the reprinting in [2.20].

30 Poincaré, another early constructivist, about whom we shall have more to say later, differed both from Kant, Brouwer and the other early constructivists on this point. He maintained that 'the axioms of geometry…are neither synthetic a priori judgements nor experimental facts… They are conventions…merely disguised definitions' (cf. [2.99], pt. II, ch. 3, section 10). For a statement (not wholly accurate, in my view) of some of the other differences, see [2.21], 2–4.

31 Poincaré, along with Borel and Lebesgue, was described by Brouwer (cf. [2.21], 2–3), as a 'pre-intuitionist'. For present purposes, however, the alleged differences between 'pre-intuitionism' and 'intuitionism' are of no importance.

32 Cf. 'Revue de metaphysique et de morale' 14:17–34, 294–317, 627–50, 866–8; 17:451–82; 18:263–301; [2.121], 412–18, 15:141–3.

33 As he put it elsewhere, it is a mistake to believe in:

> the possibility of extending one's knowledge of truth by the mental process of thinking, in particular thinking accompanied by linguistic operations independent of experience called 'logical reasoning', which to a limited stock of 'evidently' true assertions mainly founded on experience and sometimes called axioms, contrives to add an abundance of further truths.
>
> (Cf. [2.19], 113)

34 Brouwer, of course, believed that there can be significant differences between the class of theorems provable from a given set S of propositions by means of classical logic and those provable from S by means of intuitionistic mathematical reasoning. He would not, however, have maintained the same for the theorems provable via intuitionist logic from S and the theorems provable by genuine mathematical reasoning from S.Still, he saw an important difference between proving theorems by genuine mathematical means and proving them by means of intuitionist logic. Indeed, the central theme of his critique of classical mathematics was that mathematical reasoning is distinct from logical reasoning

generally, and not just from *classical* logical reasoning. For more on this, see [2.28].

35 Poincaré was led to his intuitional conception of inference by his belief in what he took to be a fundamental datum of mathematical epistemology; namely, that the epistemic condition of a purely logical reasoner, who sees none of the local architecture that creates the 'channels', as it were, of mathematical inference, is different from that of the genuine mathematician whose inferences reflect a grasp of these channels. Brouwer, in effect, held much the same view. For he insisted that logical inference reflects only a grasp of the channels of belief-movement provided for by the linguistic representation of belief, whereas genuine mathematical inference moves according to the channels provided by that constructional activity which itself is *constitutive* of mathematics.

36 There are, however, foreshadowings of such a notion in the Christian neoplatonists (e.g. Augustine, Boethius and Anselm) and also in Cusanus. The latter even coined a term for the notion—*visio intellectualis*. Kant, too, spoke of such a notion (cf. [2.86], 307, 311–12; and [2.87], vol., VIII, 389), though he thought that only God and not humans could possess it.

37 As Kant said (cf. ist edn of [2.86] (which was published in 1781), 639, [2.86], 667):

> In whatever manner the understanding may have arrived at a concept, the existence of its object is never, by any process of analysis, discoverable within it; for the knowledge of the existence of the object consists precisely in the fact that the object is posited in itself, outside the mere thought of it.

38 The First Act of Intuitionism says that mathematics is to be 'completely separated…from mathematical language and hence from the phenomenon of language itself described by theoretical logic' ([2.21], 4–5).

39 'to exist in mathematics means: to be constructed' ([2.15], 96). 'Mathematics is created by a free action' (Ibid., 97).

40 Cf. [2.34] for a more detailed development of these and related matters.

41 Cf. [2.34] for a more detailed discussion of these matters.

42 Conclusive textual evidence that Hilbert intended to use finitary intuition as the foundation for both our geometrical and our arithmetical knowledge may not exist. If we are right, however, in thinking that this was Hilbert's view, then, he not only would have regarded both arithmetic and geometry as a priori, but would have taken both as being based on the *same* a priori intuition.

43 Cf. [2.74], 163, and [2.80], 32 for related remarks.

44 Examples of unproblematic real propositions are variable-free equations of arithmetic and prepositional compounds formed from them. The sentences in this class can be manipulated according to the full range of classical logical operations without leading outside the reals. As examples of problematic real propositions, Hilbert offered the following: (i) for all non-negative integers **a, a**+1=1+**a;** and (ii) there is a prime number greater than **g** but less than **g!** +1 (where **'g'** stands for the greatest prime known at the moment), (i) was deemed problematic because its denial fails to bound the search for a counterexample to '**a**+1=1+**a**'. Hence, its denial is not a real proposition, and,

so, the law of excluded middle cannot be applied to (i), making it problematic. In like manner, (ii) classically implies 'there is a prime number greater than **g**'. This was not regarded as a real proposition since it gives no bound for the search for the prime it asserts to exist, and, by the definition of **g** (as being the largest prime known), any such bound would go beyond everything that is known. Hence (ii), too, was regarded as leading to non-finitary conclusions when manipulated according to the principles of classical logic and is therefore problematic. We are not sure that Hilbert's reasoning regarding this last case is ultimately capable of sustaining his conclusion. This does not, however, in our estimation, threaten the cogency of his distinction between problematic and unproblematic reals.

45 To be more exact, what was to be prohibited was the use of ideal methods that conflict with real methods in the sense that they generate real theorems that are *refutable* by finitary means. We will refer to this as *real-consistency*. This may signal a difference between Kant and Hilbert. For while Kant wanted to proscribe all uses of reason that transcend what is determinable by the senses, Hilbert, on the other hand, seems to have been primarily interested in prohibiting uses of ideal reasoning that are refutable by finitary reasoning. What he would have said about ideally proven real theorems that are neither provable nor refutable by finitary means is less clear.

It is also important to note in this connection that there is an asymmetry between the observation sentences of an empirical science and Hilbert's real sentences. This asymmetry consists in the fact that observation sentences are, by their very definition, to be decidable by observational evidence. Real sentences, on the other hand, are not understood as being necessarily decidable by finitary or real means. Thus, while it is possible to pass from a requirement that no observational consequence of an empirical theory be observationally refutable to a requirement that every observational consequence be observationally verifiable, it is not similarly possible to pass from a requirement that no ideally provable real theorem be refutable by real means to a requirement that every real theorem provable by ideal means be provable by real means. For more on this, see [2.29].

46 The salient feature of a formal system for the purposes of this discussion is that its set of theorems is recursively enumerable.

47 **PRA** has as its theorems all logical consequences of the recursion equations for (formalizations of) the primitive recursive functions. In addition, it admits mathematical induction restricted to (formulae formalizing) primitive recursive relations. Cf. [2.135] for an extended argument to the effect that **PRA** is a formalization of finitary reasoning.

48 For a useful discussion of this 'relativized' form of Hilbert's programme, see the very nice expository paper [2.40].

49 $\mathbf{WKL}_0$ is the theory obtained by adding the so-called *weak König's lemma,* (i.e. the claim that every infinite subtree of the complete binary tree has an infinite branch) to a system called $\mathbf{RCA}_0$, which contains the usual axioms for addition, multiplication, 0, equality and inequality, induction for Σ_1 formulae, and comprehension for Δ_1 formulae (i.e. all instances of the schema $\exists X\, \forall n\, (n \in X \leftrightarrow \phi(n))$ where ϕ is any Σ_1 formula such that there is a Π_1 formula ψ to which it is provably equivalent). It should also be mentioned that the proof of (ii); which is due to Harvey Friedman, actually establishes something

stronger than (ii); namely, that all Π_2 theorems (i.e. theorems equivalent to a sentence of the form '$\forall x \exists y\ \phi xy$', where '$\phi xy$' is a recursive formula) of $\mathbf{WKL}_0$ are provable in **PRA**. Finally, it should be noted that these same results are obtainable for a stronger system $\mathbf{WKL}_0^*$, which contains some non-constructive theorems of functional analysis not provable in $\mathbf{WKL}_0$. For more on this, see [2.134]. Cf. [2.133] for a more thorough bibliography concerning the work establishing (i) and (ii).

50 It is not just the ideal derivation of a real theorem τ_P which, by itself, is to be simpler than any real proof of τ_R. For that ideal derivation of τ_R must be supplemented with a metamathematical proof of **I**'s real-soundness if we are to obtain a genuine justification for τ_R from an ideal derivation of it. For a more thorough discussion of this and related matters, see [2.27], chs 2 (esp. pp. 57–73). 3 and 5, and [2.29].

51 Cf. [2.29], 370, 376 for a bit more on this.

52 Stated intuitively, the axiom of reducibility says that for every prepositional function f, there is a predicative prepositional function P_f such that f and P_f have the same extension.

53 Ayer stated the predicament of the empiricist well:

> Whereas a scientific generalization is readily admitted to be fallible, the truths of mathematics and logic appear to everyone to be necessary or certain. Accordingly the empiricist must deal with the truths of logic and mathematics in one of the two following ways: he must say either that they are not necessary truths, in which case he must account for the universal conviction that they are; or he must say that they have no factual content, and then he must explain how a proposition which is empty of all factual content can be true and useful and surprising.
>
> ([2–2], 72–3)

54 The former kind of proposition was called *analytic* and the latter kind *synthetic*.

55 In the case of Carnap (cf. [2.24]), this thesis of analyticity was developed by introducing the notion of a *linguistic framework*, which he understood as a system of rules for talking about entities of a given kind. Linguistic frameworks induce a distinction between *internal* and *external* questions of existence. Answers to internal questions, such as the question 'Is there a prime number greater than 100?', come from logical analysis based on the rules governing the expressions making up the framework. Answers to such questions are therefore logically or analytically true. External questions querying the general existence of the entities associated with a given linguistic framework are to be interpreted as questions regarding acceptance of the framework itself (Ibid., 250). Thus, the question 'Do numbers exist?', is to be understood as 'Should the linguistic framework of numerical discourse be accepted?'. Answers to such questions are to be decided on what are basically pragmatic grounds; that is to say, on the basis of the 'efficiency' of the framework in question as an 'instrument', or, in other words, on the basis of 'the ratio of the results achieved to the amount and complexity of the efforts required' (Ibid., 257). This view has often been described as a form of

conventionalism, though use of this term would seem to disguise its essentially pragmatist flavour. It also tends to confuse the position of Carnap's later writings on the nature of mathematics with that of his earlier writings, which truly was conventionalist in character. For more on this latter point see [2.116].

56 Sharing some of the general spirit of Bostock, but more concerned to defend (a version of) logicism, are Hodes [2.81] and [2.82].

57 This kind of logicism is closely related to the 'structuralist' position discussed below.

58 The views of Quine and Putnam are stated and discussed below. See also the discussion of Benacerraf's dilemma given there. Field seems mainly to be motivated by a desire to find a physicalist solution to this dilemma.

59 For the beginnings of a defence of the Kantian view, see [2.28], [2.30].

60 Cf. Field [2.43], 516, n. 7, where he cites this as the key feature distinguishing his modalization of mathematics from the earlier one of Putnam [2.102].

61 Basically, the idea is that if one has need of a given capacity, and could also benefit from its improvement, then one will be rationally impelled to bring about such improvements.

62 Heyting referred ([2.70], 108) to this thesis as the 'principle of positivity', and acknowledge that it is the chief determinant of the character of his logic.

63 'a logical theorem expresses the fact that, if we know a proof of certain theorems, then we also know a proof for another theorem' ([2.70], 107).

64 There is some question as to what exactly this means. Does it mean that one who knows the meaning of a mathematical sentence S either knows or can readily obtain either a proof or a disproof of S? Or does it mean, instead, that one knows the meaning of S when and only when he or she *would* recognize a proof or a disproof of S *were* he or she to be *given* it? See [2.93], [2.94] and [2.140] for more on this topic.

65 This is not said as a criticism of Dummett. For he states explicitly that his conception and defence of intuitionism is not intended to comport with that of Brouwer or Heyting or any other particular intuitionist ([2.36], 215).

66 (ii') is not altogether uncontroversial, however. For it equates legitimate ascription of implicit knowledge to a speaker with implication by the best total theory of his or her behaviour. In doing so, it fails adequately to reflect the fact that that theory of a speaker's behaviour which, judged by 'local' standards, qualifies as best might have to be sacrificed in order to obtain the best global theory (i.e. the best total explanation of *all* phenomena—not just those constituting the speaker's behaviour). Changing (ii) in this direction would, however, only intensify the objection to Dummett's argument developed here.

67 On occasion when I've presented this argument I've been met with the charge that it presupposes a holistic view of meaning and that that is something Dummett explicitly rejects. This latter claim is clearly true ([2.36], 218–21). It is, however, a misunderstanding of my argument to think of it as presupposing a holistic view of meaning. Indeed, the alternative I suggested above to Dummett's view of implicit knowledge is one that sees implicit knowledge (and hence knowledge of meaning) as consisting in the occupation of a specific mental or psychological or neural state that underlies the behaviour with which Dummett wants to equate it. Our claim is that even such a non-holistic view of meaning as this is subject to underdetermination by the observed facts of speaker behaviour. The basis of our objection is therefore not acceptance of a holistic view of

meaning, but rather acceptance of the general idea of underdetermination of theory by data. Regardless of whether Dummett has produced convincing reasons for rejecting holism (and we believe he has not), he has provided no reasons for rejecting the idea of underdetermination of theory by data.

68 Indeed, in his 1939 Cambridge lectures on the foundations of mathematics ([2.150], 237), Wittgenstein dismissed intuitionism as 'bosh'.

69 For useful discussions of Wittgenstein's views, the reader should consult [2.35], [2.152], and [2.129]. The latter is especially recommended for the many stimulating questions and challenges it raises for the more influential interpretations of the later writings.

70 Putnam [2.106] strengthens this to say that in order even to *formulate* science, mathematics is needed.

71 On the 'web' metaphor, this is what is meant by saying that they are 'centrally located'.

72 Nor is this merely lip service. For Putnam has argued that the best way of clearing up certain paradoxes in quantum physics may be to revise classical two-valued logic or classical probability theory [2.104].

73 His view was not, however, empiricist. This is so because he rejected the idea that sensory intuition is the ultimate basis for (at least most of) mathematical knowledge. He posited instead a distinctively mathematical form of intuition, though this mathematical intuition was interpreted in a realist or platonist manner, as a means of gaining acquaintance with externally existing objects, and not in a Kantian manner, as an a priori form or condition of thought.

74 Gödel notes in the same place, however, that, at present, so little is known about the lower level mathematical and physical effects of such higher level axioms as those concerning the existence of various kinds of so-called 'large cardinals' that inductive justification of the kind just noted is not possible.

75 My own inclination is to think that Benacerraf's dilemma is not a genuine dilemma. In particular, I am inclined to reject claim (i) of the argument leading to the dilemma—that is, the claim that we are under some sort of obligation to treat mathematical language as semantically continuous with non-mathematical language. What does seem to be an obligation is that we treat mathematical language as a congruous element of our larger linguistic system, conceived of as a device for manipulating representations of the world. In general, I take language to play the role in human thought of allowing us to substitute manipulation of representations of the world for manipulations of the world itself. But schemes for substituting manipulations of representations of the world for manipulations of the world itself (conceived in either realist or idealist terms) can certainly be so fashioned as to make room for sub-devices whose significance within the scheme is that of a calculary or computational device rather than that of a referential device. Sometimes syntactical manipulation of signs might be better than direct semantical manipulation as a way of managing what, in the end, is to be a representation-manipulation. That being so, syntactical manipulation might well play an important role in a greater overall scheme of basically semantical representation-manipulation. At the same time, however, it is hardly to be supposed that such devices are to be treated as semantically continuous with the more referential parts of the linguistic scheme. Nor is

there any reason I can see for denying that the role of mathematical language within our overall linguistic scheme is that of a calculary or computational device. As a result, I see little grounds for accepting Benacerraf's (i) and the ensuing 'dilemma' that is built upon it.

76 For another statement to this general effect, see [2.131], 534.

77 See the remarks from Weyl quoted below for a relatively early statement of just this idea.

78 For more on the ideas expressed here, the interested reader should consult the correspondence with H. Weber in volume III of Dedekind's *Gesammelte mathematische Werke*. For worthwhile discussions of Dedekind's views, see [2.136], [2.137] and [2.98], section 2.

79 The general prevalence of such views around the turn of the century is also noted in [2.148] and [2.10].

80 I would except Hilbert's later philosophy of mathematics (and, in particular, that expressed in [2.78]) from this generalization.

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CHAPTER 3

Frege

Rainer Born

LIFE IN INTELLECTUAL CONTEXT

Gottlob Friedrich Ludwig Frege was born on 8 November 1848 at Wismar Mecklenburg, Germany and died on 26 July 1925 at Bad Kleinen (south of Wismar). He was initially a mathematician and logician and finally became a very important philosopher in the field of analytical philosophy (depending of course on one's understanding or conception of philosophy).

Today it is usually undisputed that Frege was the real founder of modern (mathematical) logic, i.e. he is considered to be the most important logician since Aristotle. In his philosophy of mathematics (more precisely his philosophy of arithmetic), the so-called 'logizism', in which he attempted to reduce arithmetic to logic alone, depending on one's understanding of logic), Frege was concerned with the foundations of mathematics and provided the first contribution towards a modern philosophical discussion of mathematics.

Furthermore, Frege is considered to be the founder of philosophical logic and analysed language from a philosophical-semantic point of view (philosophy of language). In this respect he can be considered to be the grandfather of a modern, linguistically orientated analytical philosophy.[1]

Frege studied mathematics, physics and philosophy at Jena and Göttingen. Among his teachers was Hermann Lotze, who by some (e.g. Hans Sluga) is considered to have influenced the development of Frege's 'functional' conception of logic.[2] He wrote his doctoral thesis in 1873 at Göttingen about a geometrical representation of the imaginary entities in the plane *(Über eine geometrische Darstellung der imaginären, Gebilde in der Ebene)*[3] and was appointed University Lecturer in mathematics in 1874 at Jena with a second dissertation about 'Methods of calculation founded

upon an extension of the concept of magnitude', *(Rechnungsmethoden, die sich auf eine Erweiterung des Größenbegriffes gründen)*.[4] He was professor at Jena from 1879 to 1918 and in 1879 he was made extraordinary (and in 1896 ordinary) honorary professor.

During his lifetime Frege received little scientific acknowledgement and he died an embittered man.

Russell, Wittgenstein and Carnap, tried to promote Frege's ideas, but entitled the chapter *Gottlob Frege* in Philip E.B.Jourdain's 'The Development of The Theories of Mathematical logic and the Principles of Mathematics', which drew attention to Frege's work. It was not until the publication of the 'Philosophy of Arithmetic' *(Grundgesetze der Arithmetik)*, which Frege himself read and supplemented with commentaries, that his reputation was established. Frege considered it to be his life's work to produce incontestable foundations for elementary number theory and analysis.

Frege's published work can be divided into three important periods:

Early period:	*(1879–1891)*	*Reference number*
Begriffsschrift *(BS)*	(1879)	[3.3]
Grundlagen der Arithmetik *(GLA)*	(1884)	[3.6]
Mature period:	(1891–1904)	
Grundgesetze der Arithmetik I *(GGAI)*	(1893)	[3.11]
Grundgesetze der Arithmetik II *(GGAII)*	(1903)	[3.14]
Funktion und Begriff *(FB)*	(1891)	[3.8]
Sinn und Bedeutung *(SB)*	(1892)	[3.9]
Über Begriff und Gegenstand *(BG)*	(1892)	[3.10]
Was ist eine Funktion *(WF)*	(1904)	[3.15]
Late period:	(1906–1925)	
Der Gedanke *(LUI)*	(1918)	[3.16]
Die Verneinung *(LUII)*	(1918)	[3.17]
Das Gedankengefüge *(LUIII)*	(1923)	[3.18]

Further important insights can be gained by studying the *Nachlaß (NL)* [3.19] and the *Briefwechsel (BW)* [3.19]. These abbreviations are used internationally.

FREGE AND MODERN LOGIC

Summing up Frege's contribution to logic retrospectively speaking, i.e. from a modern point of view and with the knowledge of modern developments, one could say that Frege in his *BS* [3.3] for the first time produced a logical system with formalized language, axioms and rules for inference. The later logical system of the *GGAI* [3.11][6] is concerned with what today we call the second-order predicate calculus (quantification over objects and properties). The fragments of sentence and predicate logic of first order contained in the *BS* build—as we know today—a complete formalization of deductive logical theories. Frege's achievement in logics is comparable to Aristotle's with respect to 'syllogistics'. From the point of view of philosophy of science one can interpret the *BS* as a sort of preparation for the logical foundation of arithmetic, as the development of the instruments to achieve this aim.

In this section, I shall give a short survey of Frege's achievements in formal logic from a modern point of view.[7] Then, I shall deal with some philosophical considerations, which are especially important for our investigations. Finally, I shall briefly touch upon predicate logic and the transition from Frege's *BS* to his *GGA*. In doing so, I would like nevertheless to emphasize that one first has to make oneself familiar with a given field of knowledge,[8] so that one has a fund of examples at one's disposal and, while analysing and thinking about it, is able to gain new insights.[9] This is in accordance with posthumus interpretations of Frege's procedures, with what might be called his constructivist approach,[10] and which one should distinguish from Husserl's abstractivistic approach.

Frege's essential contribution to modern logic consists in the introduction of (logical) quantifiers, which helped to solve problems that hitherto had turned up in the logical analysis of general sentences, i.e. sentences containing expressions like 'for all', 'some', 'there exists one' (and perhaps only one), 'there exists at least one', etc.[11] The unsatisfactory attempts to analyse these sentences in a formal logical way had prevented substantial progress in logics since Aristotle.[12]

One can argue that from a logical point of view Frege analysed these sentences in such a way that they could be considered as names for truth-values. This means that he considers just judgeable expressions, i.e. sentences which possess a 'judgeable content', an idea that later, in connection with problems concerning the identity-relation between statements, led to the invention of the term 'sense' *(Sinn)* as distinct from 'reference' *(Bedeutung)*.

One can interpret this in the following way: when Frege uses '-' in front of some A (he calls '-' the content stroke) this means (to Frege, reconstructively speaking) that in analysing A one is abstracting from everything except from the fact that the expression A must be judgeable and that one can positively assert it, i.e. turn it into a statement, whereby the sentence (in the logical sense) thus 'created', i.e. being considered as a sentence,[13] can be true or false. In this case Frege uses what he calls judgment-stroke '|'and writes '⊢A' (asserting *that* A).

The way in which A is related to its content-A is then (explanatorily speaking) simulated by relating it to (letting it refer to) ⊢A, to a truth value. Thus '⊢A' (in modern language) can (very cautiously and for reasons of reconstruction) also be considered as an expression for a truth value variable. The 'truth values' themselves can be interpreted/considered as belonging to the 'realm of the objective' (in Frege's sense).

From an external, theoretico-explanatorical point of view, we are here concerned with simulations, and the truth values are so-called 'constructs'. From an internal, so-to-speak philosophical point of view, we have to consider that the idea of sentences as 'names for truth values' can be useful or not, i.e. as an explanatory concept which can be projected onto our understanding of what it is to be a sentence.

Kutschera, however, insists that Frege's logical operations are not defined for truth values or judgeable contents but for sentences, and sentences are not analysed as names but are names for truth-values ([3.46], 24).

Perhaps one should empasize that in the context of logic the expression 'sentence' has a primarily technical meaning, i.e. grammatical sentences are replaced (thought of) in such a way that their relation to real objects (our intimate experience of where it makes sense to talk of real objects) is simulated by the relation of sentence signs (names) to truth values, i.e. a sentence can be a name for a truth value. So the point is that sentences are analysed *as* functions.

The greatest difficulty in presenting Frege's 'logic'—especially if one analyses the original papers—is that one cannot simply immerse oneself in the background knowledge of Frege's time. We cannot really ignore our so-called modern knowledge, it will always influence our interpretation, as Kutschera illustrates in [3.46].

In the following considerations, I shall therefore resort to an approach that does not rest purely on linguistic means.

Frege in *BS* starts by introducing the distinction between variables and constants, then introduces an expression for judgements and goes on to introduce 'functions' as a new means for analysing linguistic expressions (a means distinct from the classical subject—predicate

analysis). He is thus able to circumvent the classical approach to logic, which starts with concepts, goes on to judgements, and ends with inferences.

Frege explicitly starts with judgements and later, after extending the mathematical concept of functions, shows that concepts can be analysed as special functions. In regarding a linguistic expression as a function, he considers the expression as the result of the application of a function, i.e. as the value of a function (in the modern sense).

In *BS* Frege talks only of signs and sign sequences which announce the content of a judgement, i.e., if A is such a sign in our language (a meaningful linguistic expression that refers to some fact in the world), then '-A'[14] is an expression for the idea to consider the sign A under the aspect that A expresses some content. Frege himself circumscribes this in normal language as 'the sentence that' or 'the fact that'. Later in *GGA* Frege very precisely distinguishes between a sign and what it designates and develops a logic of terms. In *BS* a judgement seems to be a statement that claims to be true or false.

But not every 'content' '–A' can be turned into a judgement (using the judgement stroke '|' as a means of expression, '⊢A'), i.e. turned into a claim about a fact that obtains/contains (or not) a true or false statement. According to Frege, one has therefore to distinguish between 'contents' that can be turned into judgements and contents for which this is not the case. The following remark by Frege in the *BS* is important:

'The horizontal stroke "–" in the sign "⊢" combines the signs or sign sequences following upon it into a *whole* (my emphasis). And the affirmation which is expressed by the vertical stroke at the left of the horizontal line concerns the sign sequence considered as a whole' [3.3], 2.[15] 'What follows upon the content stroke therefore must always be a "judgable content"' (Ibid.).[16] Thus, '⊢A' expresses the fact that the content '–A' is claimed or can be claimed.

In Frege's calculus one more or less stays within the given language. One considers linguistic expressions under a certain aspect of analysis but has to enrich the ontology, i.e. to locally refine the expressive power of the means of expression, the language. In other words, we are talking within a language about that language.

One can understand this procedure as a sort of simulation, i.e. as the picture that, just as a language is referring to the/some world, the claim '⊢A' refers to some content ' –A' as existing within the world our natural language refers to from the beginning. This means that the special matters in a natural language are simulated by some mapping or assignment '⊢A $\mapsto$ –A' within the given language.

It is interesting to see how Frege introduces what today are known as logical operators. Frege uses only two: negation and what today is called material implication, and uses a two-dimensional notation in analogy to

arithmetics, as he explains in '*Berechtigung,* 54' ([3.4]). The logical operators are defined for sentences or for linguistic expressions.[17] To my mind, however, and for matters of analysis, one should distinguish between a 'sentence' in the logical reconstruction/analysis and a sentence as element of a natural language.

Today, even in working with natural languages we regard the concatenation of sentences to form new sentences (with the help of some copula like and, or etc.) as produced by operators 'and', 'or', 'if, then', which from a logical point of view are considered as two-place operators that combine two given (logical) sentences into a new one, such that, considered as a whole, this new sentence possesses a definite truth value. It is clear that the theoretico-explanatory logical analysis is somehow (mis-)projected as descriptive of (or operative within) the inner process of a natural language. Language does not work in that way, but it can be *analysed* in that way, though not in a global manner and only under restrictive assumptions.

Summing up that part of *BS* which makes up sentential logic one can transcribe Frege's result in the following way:[18]

Axioms:
(A_1) $A\rightarrow(B\rightarrow A)$
(A_2) $(C\rightarrow(B\rightarrow A))\rightarrow((C\rightarrow B)\rightarrow(C-A))$
(A_3) $(D\rightarrow(B\rightarrow A))\rightarrow(B\rightarrow(D\rightarrow A))$
(A_4) $(B\rightarrow A)\rightarrow(\neg A\rightarrow\neg B)$
(A_5) $\neg\neg A\rightarrow A$
(A_6) $A\rightarrow\neg\neg A$

Derivation rule:
R 1: $A\rightarrow B, A\vdash B$

Frege was important in developing predicate logic. In *BS* he introduces a general concept of functions where his mathematical experience may have been essential. He had the idea that it is possible to express the utmost generality with respect to the *truth* of statements/propositions by using the analytical and expressive power of functions (as generalization of the mathematical use the latter). Thus, the introduction of functions amounts to introducing a new means and aspect of analysing linguistic expressions, in so far as the latter refer to or are concerned with the world, i.e. refer to a judgeable content. This method of analysis ought to be considered (with some qualms, of course, cf. G.Patzig vs. J.Lukasiewicz with respect to interpreting Aristotelian logic[19]) as a generalization of the subject-predicate analysis as exemplified by Aristotelian syllogistics.

Logic should—with respect to mathematics—be able to solve problems which hitherto could not be solved. Thus, a sentence such as 'there are infinitely many prime numbers' cannot even be analysed in Boolean logic.

Anyway, the merit of Frege's approach was to be able to exhibit Aristotelian logic as a sort of borderline case (e.g. [3.3], 22–4, where syllogistics is reconstructed).

Usually the sentence 'all men are mortal' is analysed (with respect to subject and object) as '(Bx→Ax)'. The functional analysis is $(\forall x)$ (Bx→Ax) meaning that 'for all x, if x is human then x is mortal'. But according to Patzig ([3.50], 47) there is more to it, since in the Aristotelian case the subject of a sentence is not the universal class of individuals but the class of individuals of which B holds, i.e. the class B. A is the predicate. In Aristotle the 'universe of discourse' is restricted to objects of which B holds.

The Transition from the Logic of Concepts and Functional Expressions (BS) to a Logic of Value Ranges (GGA)

In GGA ([3.11], [3.14]), Frege's main *oeuvre,* which is explicitly concerned with his so-called logicist programme of 'reducing' arithmetic to logic (given his conception of logic), Frege once more formulates his logic (cf. sections 1–48). The main differences with respect to *BS* concern:

1 The introduction of so-called value ranges for functions (see below).[20]
2 Sentences are consistently considered as names for truth (values), i.e. a logic of terms is developed.
3 Syntax and semantics are defined much more precisely.

Preparatory works for GGA ([3.11]) are *Funktion und Begriff* ([3.8]) in which Frege introduces value ranges, *Über Sinn und Bedeutung* ([3–9]), and *Über Begriff und Gegenstand* ([3.10]), which are all generally regarded as already belonging to Frege's linguistic philosophy.

In [3.8] Frege minutely dissects the concept of function (and its generalization) and for the first time introduces value ranges of functions (actually as undefined basic concepts). He also formulates a first version of what later became the notorious Axiom 5 in his GGA, opening up the possibility for the derivation of Russell's paradox. In the introduction to the *GGA* Frege discusses exactly that axiom and its possibilities as problematic.

To pick out just a few aspects which are interesting for shedding additional light on Frege's conception of logic in the later stages of his life, consider the following: Amongst other things, Frege shows how one can get from expressions for functions (remember they are values of the application of a rule of ascription/assignment) to the 'actual essence of a function'. Taking expressions like '2.1^3+1', '2.2^3+2', '$2.4^3 + 4$', one can see

what those expressions have in common, namely, what in the 'unsaturated' (see below) expression '$2\cdot x^3+x$' is present besides the 'x' and what could be written in the following way: '$2\cdot(\ )^3 + (\ )$'.[21] Into the empty slots one can insert names of numbers, such that again, a name of a number is the result. Thus a function by itself can only be *alluded* to but cannot be (literally) denominated.

The expression '$2\xi^3 + \eta$', and thus any *function* ξ,η (which today would be called dummy variables), is therefore incomplete or, as Frege calls it, 'unsaturated', which means it is in need of supplementation.

And it is this property that principally distinguishes functions from objects, or from what, in a model, can play the role of an object. So, if one wants to be clear about what is meant when we talk about an object, one could say that an object is something that can be put into an empty slot in a function, is able to play the role of an argument in a function, is something to which a name can refer.

Only in applying a function to an object does a function yield something independent in itself, namely the value of the function, which again is something that can play the röle of an object or, in Frege's diction, is an object, though this 'is' need not be interpreted in a Platonistic, realistic way but can also be understood as being simply explanatory with no ontological commitment.[22]

Nevertheless it makes sense to say that for Frege the distiction between function and object plays the röle of a basic ontological distinction.

Concepts especially (remember that Frege's starting point are judgements) are considered as special functions, whereas propositions (thoughts) are considered as objects. Thus, the unsaturatedness of functions means that functions are not objects. Any value of a function, however, is an object.

With respect to the plainly mathematical concept of functions it is essential to note that not only numbers are admitted as arguments and values. In Frege's 'technical' language 'truth values' especially are admissible as arguments and values, which means that concepts (technically speaking) can be characterized as specific functions, i.e. as functions whose value is always a truth value [3.8], 15.

Frege therefore insists that we should see how close what in logic is called concept is connected with what he (and we today) call functions. Especially the idea of the extension of a concept, i.e. the characterization of something as 'falling under a concept', can be grasped by the idea of a function (or be realized/actualized in a different way) in a more general way, i.e. as being the value of a function where the concept of 'value range' proves decisive.

We say, for example, that the value of the function $2x^3+x$ for the

argument 1 is 3. As we can see in Figure 3.1 below, we can identify the value range for two functions, which also allows us to talk about equivalence of function (i.e. if they produce the same value ranges).

	argument	0	1	2	3	4	5	6	
$x\ (x - 4)$	value (1)	0	–3	–4	–3	0	5	12	value range (1)
$x^2 - 4x - 2$	value (2)	0	–3	–4	–3	0	5	12	value range (2)

Figure 3.1

REFLECTIONS ON FREGE'S PHILOSOPHY OF ARITHMETIC

With the previous chapters at the back of our mind, we can now concentrate on the definition of numbers. I shall be very explicit in order to convey what it means to give a logical definition and once more shall shed some light upon Frege's concept of logic in general[23]. It is essential here to get a feeling for the formal tools in use, especially the epistemic resolution level provided by them, which I think is distinct from the epistemic resolution level of ordinary language. As background, I shall use primarily *GLA* and *GGA* and discuss the important distinction between sense and reference, into which Frege's *beurteilbarer Inhalt*[24] decomposed in the *GGA* and which is essential for his philosophy of language. I shall also briefly touch upon the so-called Axiom 5 (from the *Grundgesetze,* the principle of abstraction, cf. *Grundgesetze,* pp. 36, 69, 240 and 253 ff.), which led to Russell's paradox with respect to consequences for Frege's programme.

First, I shall try to develop a technical, theoretico-explanatory understanding of Frege's definition of a number, which is deliberately not to be understood in historical terms but rather as an explanatory reconstruction. The picture thus developed should assist in an understanding of how to understand the philosophical significance of Frege's definition.

Frege's starting point in his context of conveyance, i.e. the presupposition he uses to get off the ground in a discussion, is that the realms of application for the concept of number are usually one-place concepts (i.e. predicates), which means that he already presupposes his analysis/ understanding of concepts *as* functions. In short: since one-place concepts can be empty as well, the number zero [0] can be defined as a statement (actually a number statement) concerning an empty concept, i.e. a concept under which no objects fall or belong.

Furthermore, since a concept to which there belongs one and only one

object is definitely distinct from that object, one can consider the number one [1] as the *property* of a concept, and thus primarily not as the property of an object. And if one knows what it means to ascribe the number *n* to a concept, one also knows what it means to ascribe the number *n*+1 to a concept.

Now all this is not as simple as it sounds. An essential presupposition for an understanding of the approach is to have a 'logical picture' of what it means to talk about the immediate succession in a series/sequence of objects (cf. [3.3] *Einiges aus der allgemeinen Reihenlehre*). This logical analysis can be used to make clear in a most general way what the succession of one number to the next one in the sequence of natural numbers amounts to (cf. [3.6], 67, section 55). One can then very clearly express what it means to talk about the ascription of the number *n*+1 to a concept F. From a purely logical point of view it means that if there is at least one object *a* belonging to F, such that one can build the following concept G, defined as 'belongs (also) to F but is distinct from *a*', then the number *n* is ascribed to G; in symbols, the cardinality of G is *n* (card (G)=n).

This construction can be applied to any *a*, even those not belonging to F.[25] Therefore one can define G more precisely as G[*a;* F] and then the following holds: for any *a* from the extension ext(F)=[F] of F it is the case that card (G[*a;* F])=*n*. This means that by using purely logical means, i.e. in the most general way, one has expressed what it means that the number *n*+1 is ascribed to a concept F. And this logical understanding is independent with respect to its claim of validity of any *Anschauung* in the Kantian sense and therefore, as Frege claims, not synthetic a priori but, as he still claims in *Logik in der Mathematik,* analytically a priori.

Let us now informally come back to the case of the number zero: one can choose an inconsistent concept (e.g. $\alpha x\ (x \neq x)$, the concept of all *x* distinct from themselves) and recognize that it does not make sense to consider any object as belonging to that concept—which means that we cannot conceive of the existence of such an object. Now we may consider the 'class of all concepts F which have the same extension as Λ' (I shall write $[\Lambda]$). We assume that there exists a one-to-one mapping between the elements of the extensions $[\Lambda]$ and [F] of the concepts Λ and F, respectively. This mapping defines an equivalence relation between concepts and the class $[\Lambda]$ is an equivalence class of second order and as such an expression of the extension of the concept 'equinumerous to L'. It is only by a detour via this class [L] in its entirety that one ascribes the numeral 0 as a number to the concept Λ. In n: card: $\Lambda \vdash\!\!\rightarrow [\Lambda]$ such that card $(\Lambda) = 0$.

This kind of reconstruction factually corresponds very closely to

Frege's ideas, since his concern is to define the number which should belong to a concept as the extension of the concept 'equi-numerous to the concept F' (cf. [3.6], 79/80).

It definitely does not mean, however, that one needs to count the elements of $[\Lambda]$ or needs to know $[\Lambda]$ in its entirety or to understand, in a plainly logical manner, what is intended by a number. The logical 'intuition' behind all this seems simply to be that one can say someone has grasped what is meant by some number card. (F) ascribed to a concrete concept F, if they have grasped the latter for all concepts with the same extension as F, which means that that kind of grasping is independent of the choice of a special representative as element of $[\Lambda]$.

Now all this talk of 'grasping a concept' (e.g. the concept of a number) is not intended as empirical psychological talk. It rather aims at showing that it is not necessary to be concerned with philosophical introspection (or, for that matter, a private language) in order to grasp what in general is meant by a number. What is claimed is that this kind of grasping is independent of the special choice of an empirical visualization/intuition (in Kant's sense of *Vorstellung*), or of an empirical ability to understand mathematics.

Let us return to zero and consider the transition from 0 to 1. If one wants to understand Frege's approach, one has to try to recognize something as succeeding immediately upon zero; something which will be able to play the röle of 1. Frege uses a one-place concept (a predicate) '$\psi(x)$' defined as ψ := 'equal to 0'. But since 'equal to 0(0)' holds true of 0, we can see that 0 belongs to ψ.[26]

Consider the concept 'equal to o'. This does only mean that some object 1 immediately succeeds upon o. One can then determine that 1 is the number which belongs to the concept 'equal to 0'.

Counting thus is reduced *qua* logical understanding of what is going on to a simple procedure of ascription *f*, contrary to an introspective understanding of how one personally perceives oneself in the process of counting—how one actualizes counting—or how one tries to teach children to count properly.

Presupposing Frege's functional interpretation or rather reconstruction of the idea of a concept, a number is attached to a concept in the sense that the objects which need to be counted fall under (belong to) that concept. (The objects are put together under a concept. The number attached to the concept is itself an object in two ways: first, as a sign to which we are accustomed, i.e. as something we have learnt to manipulate; second, as an abstract object such that any kind of realization/actualization will help us to use the abstract concept (of number) correctly.)

What seems important is the logical step of abstraction that is explicated by Frege's analysis. Already in his habilitation/second

dissertation ([3.2], 1) he is concerned with a similar problem concerning measurements of length. Length should no more be considered as some kind of 'matter' filling up a line between its starting point and its end point. This means that what is important (in modern terms) is solely the beginning and end point and the attachment of a value, as was later clearly elaborated by Hausdorff, Frêchet and others[27], when they were defining distance 'functions' d(a,b), if a and b designate points.

One clearly sees how Frege is against 'introspection' as an intuitive (visualizable, *anschaulich* in Kant's way of talking) source of logical knowledge and how he, despite remaining extensional in his logical outlook, is able to grasp what goes on in mathematical thought, considered as an abstractum.

Frege therefore insists, for example, that the number 1 assigned to the concept 'moon of the earth' does not express any content about the moon, but only means that there is just one object falling under the concept, no statement about the moon as such.

The role of abstraction in the process of counting becomes clear in the following way: corresponding to a concept (but not identical with it, it should be considered rather as a replacement or expression of a concept) there is the extension of a concept, a sort of class of well-defined objects (at least considered in that way) belonging to that object. Counting amounts to identifying a concept F such that the objects to be counted fall under this concept (considered as a function!) and then to ascribe a number to that concept; a function $f(x)$ is actualized as card (F).

The intuition explicated by Frege consists of the idea that what counting *amounts to* is the fact that one subsumes the objects to be counted under a concept (remember this talk is to be understood interpretatively or explanatorily and is not literally descriptive) and then one can say that to the so identified concept there belongs that number which we in our practice regard as the result of a process of counting, or have learnt to generate as such.

Now if one thinks that this is really essential for a theoretical understanding of the idea of number, then it is good for a start to be clear about what it means that no number belongs to a concept or further, that there is exactly one object falling under a concept. This is exactly what we said before, namely that one formulates a logical analysis about what it means, e.g., that no object belongs to F—but need the extension of the concept be given literally?

According to Frege, numbers are (simply) objects and not concepts, i.e. they should be regarded as arguments in a function and one should be able (logically speaking) to quantify over them.

In order to be able to define numbers as objects in a logical sense, Frege invents what today is called definition by abstraction. In [3.6], 74 ff. he

illustrates his idea by the transition from the concept of two parallel lines to the concept of the direction of lines in the Euclidian plane.

In principle, such a definition by abstraction (generation of equivalence classes) works in the following way:[28] one starts with a basic domain B of some kind of entities one is intimate with and of which one has practical experiences. It should be possible that one is able to experience there the fact of a real partition of that domain, i.e. of subclasses/aggregates of objects consisting of elements of the original domain, which under a certain aspect of consideration, i.e. *modulo* this aspect (which means by disregarding other distinguishing features), are considered as equal, i.e. identical with respect to some value of a function, or indistinguishable for a certain aim, demand, application or whatever one wants to do with these entities.

Consider again the set of parallel lines (replaced by 'lines of the same direction' in *GLA*) in the Euclidean plane (here the basic area B) or perhaps a set of small wooden blocks for children, which can be distinct in size, thickness, colour, roundness, etc., such that only length is the essential aspect to choose in order to regard them as equal or not (cf. Frege's Habilitation).[29] If one wants to generate an object with the length of, say, 7 units and considers two groups of objects of length 3 and 4, respectively as characteristic length, then it is inessential which special representatives of the corresponding groups one chooses and places together such that the length of the concatenation will be 7 units.

The point in question, which leads to definition by abstraction with the help of equivalence classes, is exactly the explication of just that procedure, i.e. the steps of abstraction involved, a procedure that does not rest upon introspection or upon an intuition built upon inner perception.

Abstractly speaking, this means that one assumes the existence of an equivalence relation 'R' between the elements of B (in our case, identity or indistinguishability with repect to some evaluation) in that domain.[30]

One can define such equivalence classes [x] as the sets of all those elements y which are in relation R to some chosen *x*, i.e. by setting [x] := {*y*/ *x* R *y*}. [or written as {*y*/*x*~*y*}].

In this way one can attach to each element *x* from B a (new abstract) object [*x*] (from M). One can understand this especially as a mathematical function

$$\mathbf{f : B \rightarrow M;\ } x \mapsto \mathbf{f}(x) = [x].$$

This means that the elements *x* and *y* are in the relation R [*x* R *y*] if and only if they are assigned the same 'value' f*(x)*=f*(y)*, i.e. *x* R *y* : <=> f*(x)*=f*(y)*, i.e. if and only if [x]=[y]. The relation R thus induces a partition of objects in B.

The result is that one can choose a more or less abstractly distinguished or even constructed set of objects as a replacement of some concretely chosen realm B and use the replacement to talk (simulatively) about the situation, relations and concerns in the original realm B. This is, more or less, the theoretico-explanatory understanding underlying Frege's whole approach as it is used today in many areas of mathematics (definition by abstraction).

As a point of departure for his construction, Frege chooses the concept 'equinumerosity' of concepts, i.e. as an equivalence-relation upon some realm containing concepts referring to some realm of effective experience. Equinumerosity is constructed as a one-to-one mapping between the objects falling under some concepts F and G, respectively. For tactical reasons I use [F] as an abbreviation for the equivalence-class of all the concepts with the same extension as F, such that [F]:= $\{G/F \underset{R}{} G\}$. This class [F] is then mapped onto card (F). If one introduces the mapping 'card', i.e.

$$[F] \mapsto \text{card (F)} : = \{G \text{ / F equivalent to } G\} = [F],$$

One can say that

> F is equinumerous to G if and only if card (F)=card (G)

In the *NL* paper *Erkenntnisquellen der Mathematik und der mathematischen Naturwissenschaften,* Frege retrospectively writes:

> The disposition to produce *proper names not corresponding to any object* is a property of language that proves disastrous for the reliability of our thinking. If it happens in the context of art or literature where anybody knows that they are dealing with literature it does not lead to disadvantages… An especially remarkable example however is the creation/formation of a proper name following the pattern of '*the extension* (Umfang) *of the concept F*', e.g. in the case 'the extension of the concept fixed star'. This expression seems to designate an object because of the use of the definite article 'the'. But *there is no such object which in a linguistically correct manner could be designated as such* (i.e. as literally corresponding to the expression). From thence the paradoxa of set theory developed, which killed this set theory. I myself have been deceived in that way as well, i.e. when I tried to produce a logical foundation for the numbers, *in so far as I wanted to conceive of numbers as sets*[31]
>
> ([3.19], Vol. 1, 288, my emphasis)

It surely was the use of classes/value ranges within logic (i.e. quantification over value ranges) that actually paved the way for the

possibility of the derivation of Russell's paradox by using the abstraction principle (cf. [3.11], [3.14] and addendum: 253).

Perhaps one should pay attention to some minor points in *GLA* and not only to the fact that Frege in *GLA* still uses his old conception of 'judgeable content' (to which correspond *BS* expressions, i.e. concept-script expressions as logical analysis of ordinary language expressions), which later, due to the introduction of sense and reference, decomposed into 'thought and truth value'.[32]

First, however, one might explain the intuition in order to grasp the concept of number in the context of a general strategy and try to make available the meaning of abstract knowledge by means of using our logical/analytical abilities. This makes the claim of 'general validity' (*Allgemeingültigkeit* or general truth) of knowledge (cf. Kant) a matter of controlled reproduction and therefore to be generally obligatory even in thinking of ethics.

The intuition is that one thinks that one has understood or grasped what, e.g., the number 'three' amounts to if one has grasped the equivalence class of sets of three elements each. This means that speaking of 'three' can be represented by a set of three elements.

In the *GLA* definition this is chosen in such a way that the 'number of F' [card (F)] is defined by means of the extension (used as an undefined basic concept) of the concept 'equinumerous to F(X)'.[33] But 'equinumerous to F(X)' can be given by an equivalence-class of concepts:—what does it amount to to talk about someone having grasped the concept of number or at least of having grasped what it means to detect that a certain quantity of objects belongs to or falls under a concrete concept F*?—independently of the special choice of a concrete concept (a special representative from the repertoire [F]), one can always decide whether F* belongs to the extension of 'equinumerous to F', which means that there is a G from [F] such that G is equinumerous to F*, i.e. one should be able to ascribe the correct number to F*.

Actually, one explains the behaviour of a person in the process of counting by saying that this person needs to have grasped the equivalence class [F] (in one go, so to speak) and by providing a necessary condition (as the 'condition for the possibility of knowledge' in the Kantian sense) which (theoretico-explanatorily speaking) needs to be actualized in order to be able to count.

Now all this may sound extremely complicated and hardly any one will claim that they have learned to count in just that way. One of the problems in philosophy of science is that we look for (universal) explanations which at the same time can be understood as descriptive, i.e. as (even introspectively) action-guiding, even if they are not. So the problem of 'grasping' in our case the meaning (here sense) of numbers by

grasping the equivalence class [F] in one go may lead to a lot of basic empirical misunderstandings in ordinary-language reception. Of course, in philosophy one has the impression that one seeks a theoretical understanding (e.g. of numbers) that just allows for a descriptive projection into ordinary language, without doing much harm as long as we stick to ordinary realms of experience. But sometimes we need to be able to see those misapplications and be able to correct them—provided we do not presuppose some universal, god-given, pre-established harmony between language and the world. Frege paved the way for stepping out of (a universal) language. A diversity of local language games, which are not to be considered as language-relativism, may be a good thing to which to remain alert, i.e. sensitive to reflective correction and prepared to overcome the problems just hinted at, without, however, falling into the traps of scepticism.

So again, all this may sound extremely complicated and again hardly anyone will claim that they have learned to count in that way, but that is not the point. Actually one only expresses what (theoreticoexplanatorily, i.e. from a logical point of view) it means to say of someone that they can count. The real problem is whether this theoretical explanation is close enough to our everyday understanding to be helpful.[34]

So the point is that our theoretico-explanatory talk must not be projected in an action-guiding way upon reality/experience, i.e. it must not be considered as a description of our effective actions or thinking. Otherwise one would really have to be able to grasp the whole class [F] in one go and for all times. In principle there are many actions which may be compatible with one theoretical explanation.

In this context a short discussion of Frege's distinction between sense and reference may be of interest.[35] In the sequel I shall use the special expressions F-sense (F-*Sinn*=Frege-*Sinn*) and F-reference (F-*Bedeutung*=Frege-*Bedentung*) for Frege's special use of them.

Frege uses a discussion of claims of equality (as different to the position in the *BS*) to introduce the distinction—between sense and reference as two technical/theoretical components for the determination of meaning (as the general expression for an undifferentiated understanding) of linguistic expressions.

I shall here try to link up with the former discussion, especially the relevance to build equivalence classes. A very good discussion of the technical reasons for introducing the distinction between sense and reference in the transition from the logic of the *BS* to the logic of the *GGA* can be found in [3.46]. A discussion that links the logical and the philosophical aspects from a philosophical point of view can be found in Stekeler-Weithofen ([3.56], 272), whose approach I would like to adapt and modify.

The F-reference of a name is the named object.[36] Truth values as F-references are therefore attributed to the 'sentences' in logical concept-script-notation (expressions of a logical analysis, eternal sentences). The F-sense of a name or a sentence consists in the way (of being given) in which the F-reference of a sentence is determined, i.e. the reference of a name towards an object is mediated by the F-sense. Thus: a sign *expresses* its F-SENSE and *designates/gives/provides* its F-REFERENCE.

One can understand this in the following way: in the realm of the names (anything that can act/work as a name in some distinguished realm) the F-sense stipulates an *equivalence-class* of names with the same 'F-reference'.[37] The sign 'morning star' expresses its F-sense (F-*Sinn*) (i.e. the way of givenness of the object Venus, e.g., as morning star) and assigns (literally gives to us, provides us with) its F-reference (F-*Bedeutung*) (i.e. designates the object 'Venus'). The expression 'the number of children in this room' thus designates, e.g., the *number 3* and it *gives* '3' as an application of the *concept* 'children in this room *(x)*'. Expressions with the same F-reference thus should allow for a replacement *salva veritate*.[38]

In grasping the sense-component of the meaning of a linguistic expression, as it should show itself (explanatorily speaking) in the grasping of the corresponding equivalence class, first of all the so-called 'context' (of knowledge) is brought in. Thus, with the help of the mediating rôle of sense in determining the reference, it becomes clear how it is possible (i.e. in which way it is meaningful or in which way one can talk about it meaningfully) to refer to an object unambigously (in so far as it is an actual object), even without knowing the object as such.[39]

Anyhow, one can explain what it means to say that there is attributed one and only one truth value to a sentence without knowing which value that may be. Of course that does not mean that this is possible in all contexts (cf. intuitionistic or constructive mathematics today).

Frege's logical investigations are quite often of a theoretico-explanatory kind, as I have tried to emphasize several times. But many of his papers (like 'Sense and Reference' [3.9]) seem to deal with the context of the so-called ordinary language, though he just uses it to introduce technical terms with the help of nice-sounding commonsensical names. In understanding the philosophical consequences (depending on the aim of the philosophical investigations) one should also do justice to the technical meaning and not purely the commonsensical reception of expressions like 'sense' and 'reference'. Still, the philosophical interests in the latter have proved

fruitful, even though sometimes they are put out of context and seem to have gained a life of their own.

Understanding the theoretico-explanatory moment of Frege's idea of sense can help us to focus not just on questions concerning the meaning of linguistic expressions in the 'ordinary language context', but also to take into account some constructive elements of, say, ascending definitions of concepts ([3.19], vol. 1, 217–72). This can help to counter the tendency to universalize common sense and to correct dogmatisms of any given time. It can help to produce flexibility and adaptability to new situations and positively influence and balance the interplay between science and common sense—ordinary life. Frege himself explicitly emphasized that talk about numbers is talk concerned with content. The constructions used to grasp the sense of mathematical expressions or claims are not literal descriptions of what one thinks if one uses certain words. Meanings usually are not given literally. The constructions used are 'objects of comparison' which surely need to be supplemented by some 'approximation from within' the actual use of language. But only the interplay between both sides can lead to a rewarding 'reflexive dealing' with some realm of objects.

REMARKS CONCERNING THE CONTEXT OF FREGE'S PHILOSOPHY OF LANGUAGE

One starting point for an approach to Frege's philosophy of language can be the question, 'how one could talk or communicate about abstract entities/objects in such a way that one can understand what abstract objects are' and also in such a way that one can *handle* those objects (so to speak) reasonably.[40] This presupposes an evaluation by both common sense and scientific understanding and furthermore a connection between both, since via his prose, even a scientist uses common sense when making sense of his findings. If one poses the question in such a way, one clearly has a picture, a sort of understanding, in mind of how language actually works.

It is to Michael Dummett's credit that he has focused especially on the linguistic interests of Frege's *oeuvre,* i.e. the philosophical origins and consequences of Frege's philosophy of language, and thus to have led to philosophy of language, although his presentation or emphasis is controversial and not everyone wants to follow in his footsteps.

Dummett emphasizes the rôle of the so-called 'context principle', which, roughly, says that only in the context of a sentence does a word have a proper meaning, and thus contradicts any understanding of Frege

that elaborates his conception of language as naive and as simply a picture of the world.

The context principle plays an important part in Frege's *GLA:* 'to fix the…conditions of sentences in which numerical terms occur'.[41] In the *GLA* it is finally quoted in [3.6], section 106, 'to remind the reader of an indispensable step in the preceding argument' ([3.37], 200). The consequences of the context principle for the philosophy of language, i.e. the consequences it has for our modern understanding of language and thus for our 'understanding of meaning', leads towards a 'truth-functional semantics', i.e. one needs to know the truth conditions of sentences containing 'expressions of interest', i.e. expressions, whose meaning we want to grasp.[42]

The context principle can be used and applied in this sense as a theoretical starting point to produce a modern, linguistically orientated reconstruction of Frege's philosophy.

There is another sense in which the significance of Frege's 'semantic theory' can be viewed. Truth-functional semantics can be used only as the result of a technical necessity to understand the meanings of the parts of sentences from *outside* (by way of meaning partitions of sentences) because in the course of logical analysis and reconstruction of the sentence one has attributed exactly one truth value to the sentence as a whole. This does not mean that the extension of the context principle is wrong or unimportant; the aim is rather to focus, in a stronger sense, on Frege's anti-psychologism and the possibilities for a non-introspectivistic philosophy, a philosophy not resting upon psychological abstraction, in contradistinction to Husserl who might be interpreted in this way.

The problem especially concerns the discussion about the determination of the domain of reference of some language—talking, for example, about abstract objects. Dummett writes: 'there *is* a further question to be settled, especially when a term-forming operator, and therewith a whole range of new terms (or items/entities), are being introduced: the question of suitably determining the domain of quantification,' [3.37]. This, however, argues Dummett, was 'persistently neglected [by Frege], a neglect which, as we shall see, proved in the end to be fatal' (Ibid.).

Stekeler-Weithofer puts this straight in arguing that Frege was shifting to and fro between two incompatible points of view:

> (1) that the universe of all objects of speech be pregiven such that (e.g.) the meaning of equality has (already) a fixed/precise/ ready meaning and (2) that the meaning of a name be given purely by its use within sentences.
>
> ([3.56], 272)

The problem concerns the constructive character of Frege's means of expression—his language, i.e. its characteristic of being constitutive for objects both in the case of the abstraction principle and in the case of the talk of equality.[43]

If not for reasons of defence, at least to put matters straight, one should point out the fact that Frege again and again is wavering between a mathematical use of language, between mathematical practice and its projection onto commonsensical matters. This holds especially for originally logico-technical concepts like sense and reference, which only later (in the context of introducing the terms and giving examples from ordinary language to show their applicability and importance) gain an enormous significance for philosophy of language.[44]

Later in his life Frege was well aware of this fact of language division. In his posthumus paper concerning 'logics in mathematics' (cf. [3.19], 1:219), Frege explicitly talks about a distinction between technical terms and commonsensical expressions. In this context, one could talk of a sort of 'split semantics' ([3.28] and [3.29]), which Dummett somehow seems to admit when he writes: 'The language of the mathematical sciences differs markedly from that of everyday discourse: it could be said that the semantics of abstract terms bifurcates, according as we are concerned with one or the other' [3.37].

Phrased more generally, our problem is the *constitution of objects* by means of using a language—considering Frege's experience and background as a mathematician, one can interpret his findings in the following way. Frege provides us with a theoretico-explanatory analysis of how language works, an analysis which then is compatible with several concrete and effective procedures to determine, e.g., a 'domain of quantification' (a favourite problem in modern linguistically orientated philosophy—'To be is to be the value of a bound variable' [3.52]).

Expressed, however, in Kantian terms, i.e. in the way that is relevant to Frege considering his philosophical background and upbringing, one could say that Frege tried to formulate the 'conditions for the possibility of determining the realm of reference (the [logical] domain of quantification), or in a more modern way: giving formally determined *necessary conditions* for just that. In interpreting and trying to understand Frege, one has to take into account the language of his time and his background of experience, and therefore need not take everything too literally when viewed from a modern understanding of language.

Considering the determination of the reference of 'numbers', it is, from a mathematical point of view, essential first to state/identify the formal properties that must be fulfilled by something that should be able to work as a number (presupposing that they link up to our ordinary intuitions or those of the mathematicians, just in case one wants to reconstruct those

intuitions).[45] Afterwards, say after the definition of 'zero', some entities—quite often not a single object—will be presented in a way that the possibility is formulated as to how to identify and use something as 'zero'. One more or less keeps an open mind about what might be expected as a definite determination of a realm of reference.

Dummett is concerned with this in so far as he writes:

> On the *Grundlagen* view, we can ask whether the truth-conditions of sentences containing a term of the kind in question have been fixed, and (we can ask) for a statement of those truth-conditions; *we cannot ask after the mechanisms by which the truth-values of those sentences are determined, nor, therefore, after the rôle of the given term in that mechanism*.
>
> ([3.37], 207, my emphasis)

The aim of a logical definition (e.g. of numbers), however, should be that it should hold in any possible world (as it is usually attributed to Leibniz and taken up by Frege), which means it should be *independent* of the *special choice* of the *mechanisms* for the determination of the truth value of a sentence containing a word for designating, so to speak, a number.

This also means, however, that it is enough to know one single counter-example, one single concept, such that there does not exist a mechanism to determine whether an object falls under the concept, to quash the claim for utmost generality, i.e. for universal logical validity.

Now if one presupposes that in demanding (Frege's proposal) to start logic with 'judgements'[46] means that a sentence (as a whole) gets attributed a truth value and that one determines 'meaning' starting from the outside, with the surface, so to speak, and not by abstracting from introspective experiences, i.e. by decomposing a sentence into meaningful components (only in the context of a sentence do words have a meaning/reference), then one can understand this matter in the following way. One expresses only what it means (theoretico-explanatorily speaking) to talk about a word having reference, what it means to ascribe some reference to a word, but still has to determine or define the truth conditions for the sentence containing the word in question. So one (might) know that it should have some reference but has not yet specified it. One knows what it means/amounts to look for some reference, but one still has to determine compatible mechanisms, which may be context-dependent and which attribute the truth values by way of judgement.

This can either (wrongly!) lead to projecting the theoretico-explanatory structures onto the world, i.e. turning them into effective procedures, as it is sometimes the case in classical philosophy—although there 'theories'

tend to be rather introspective-abstractive. Alternatively, one can deal with unreflected (?) skills, which are then considered to make up for the effective use of some language.

According to Frege, the distinction between sense and reference can be extremely important, especially in the context of philosophy of language, in so far as on the one hand it can help to systematize the referring habits of human beings in a theoretico-explanatory way. On the other hand, this distinction can, if it does not just project a theoretical understanding, help to take care of the actual mechanisms to fix the reference of the expressions of something used as a language. These actual mechanisms stand in contradistinction to those one seems to *use* consciously (or one appeals to), and which enable one to keep in mind those many facets of understanding and communicating 'meaning' (in a modern sense) that seem to be relevant today.

REFLECTIONS ON THE CONSEQUENCES OF FREGE'S WORK

Apart from perhaps the second section in this chapter, I have placed the emphasis on the philosophy of logic because I think that the other important aspects of Frege's work, such as the philosophy of mathematics or the philosophy of language, become more or less self-explanatory if one has a clear picture of Frege's conception of logic. This, however, is not true of the history of Frege's influence, especially if one tries to distinguish between a logical or objective core of Frege's philosophy and its reception.

Though many of Frege's ideas, for example, his notation of logic, were taken up and transformed outside Germany (by, for example, Jourdain and Russell) he might have suffered a fate similar to Wittgenstein with regard to Austria. Perhaps the best-known influences and effects of his work can be found in 'analytical philosophy', of which he has been considered the 'grandfather' by Dummett (with Wittgenstein as the link between).

I shall now leave the well-trodden paths of traditional analytical philosophy and consider Frege from a meta-philosophical point of view. In doing so, I shall closely analyse Frege's anti-psychologism.

Let us presuppose that one can interpret/reconstruct Frege so that we can say that it was his aim to gain access to an *understanding of the meaning* of mathematical or of abstract knowledge in general. Furthermore, this access should not be considered to *rest upon* synthetical (empirical) sources of knowledge and especially not upon some introspective perception.

In order to do this, one tries to make use of an analytical source of knowledge, which, in the Kantian sense, should also produce the

justification of something as knowledge. Thus, one could interpret Frege's approach as a new method, or rather, way of reflective thinking, leading to a new kind of actualization/realization of an essential act of philosophy, namely the provision of a possibility for a *correction of knowledge by reflection* with the help on an analysis of meaning. In other words, Frege's approach would lead to a literal understanding of how knowledge comes/is brought about.[47]

With respect to a reconstructive interpretation, i.e. trying to make sense (of Frege's approach) within a modern perspective (on philosophy) and with hindsight (of the experiences of this century), we simply cannot abandon, these considerations and presuppose an understanding or perhaps conception of philosophy that is at least twofold (see below) and definitely goes beyond the idea that even modern philosophy is nothing but footnotes to Plato:

1 In our thinking about and in viewing the world, we have to do justice to philosophical attitudes in attributing an important quality to them, namely that philosophical thinking should help us reflectively to correct mistakes and guide our view towards possible solutions if we are stuck; i.e. if we do not know how to go on (in Wittgenstein's sense).
2 This means that one presupposes that occasionally we can be deceived (or experience being deceived), that we can have the insight into mistakes and the experience of errors and again, at least occasionally, we can reduce these experiences to the fact that in some cases in our behaviour we are misguided by some false picture or wrong sort of information about the world.

But it is exactly the second point which already presupposes some sort of explanation (eventually leading to a locally applicable theory) why and how some behaviour in others and ourselves, experienced as a mistake, came about. It aims at a reflective correction (of both the theory and the behaviour) in trying to correct the cause (the picture in use).

Loosely speaking, in developing such a (reflective) theory, we will eventually turn it into 'effective use', i.e. the theory will be projected upon the level of individual acting and finally will be activated in an action-guiding manner.

At the level of daily life there may turn up philosophically motivated but individually coloured questions. These questions about the pictures that (might) have seduced us (in our actions) will have a rather constitutive character and, if we want to talk about them consciously, it will be unreflected skills (classified as such from 'outside') which guide our behaviour; skills that may be replaced by other, more successful or effective ones according to the tasks we have to settle. If those skills are

reflected they will become effective, i.e. can be 're-' followed/ re-instantiated consciously.

On the other hand, one can characterize the (research?) programme of classifical/traditional philosophy quite crudely as 'philosophical reflection'—whether at a theoretical level or in the context of daily life. In any case it takes 'inner perception' as a point of departure. This is the situation when one asks to *understand* the content of some 'message', of something intended for communication. Then it seems to be essential to understand what it is that is 'meant'. If one asks 'what is actually the case?' (if one is insecure) one is more or less said to be trying to grasp the truth by getting behind the screen of the appearances, trying to tear (away) the veil hiding reality from our view (to use the old metaphor).

But the aim of this enterprise (whether conscious or not) was to provide knowledge for *correcting* mistakes, so that explanatorily one might speak of corrective reflection.

Especially with respect to logic and the coming about of mathematical knowledge, Frege seems to reject a plainly introspective-abstractive access to an understanding of the content of the meaning of arithmetic or, more generally, abstract knowledge (given the interpretation proposed in this article). For an understanding of the so-called content of arithmetical knowledge, Frege presupposes an 'analytical source of knowledge', which in the case of arithmetic should accomplish what in the the case of the 'psychologistic logicians' was achieved by the use of 'inner perception'.

Frege's method can now be regarded as having consisted in providing the general core (meaning), resting on objective thought, of 'abstract/ mathematical entities' by using a 'logical' (i.e. a concept script) analysis (presentation). Frege tried to achieve it by cutting up 'truth' *(from outside so to speak)* and building up meaning (understanding the content of an expression) externally, by realizations in a model, as one might say today. This procedure of building up meaning should help to make *accessible* (in a controlled and reproducible way) the meaning of abstract concepts (of mathematics), which leads to the problem sometimes called 'paradox of analysis'.[48]

Given this understanding,[49] the problem is now how fruitfully to apply Frege's methodology to the 'reflective' concern of modern 'philosophical thinking' as described above, thus getting from the so-called 'What is (really the case)?' question and the question, 'What can I know?' to the more promising questions, 'What can I understand?' and 'How (depending on the language in use) is understanding brought about?'

This last question is important for the 'coming about' of an'understanding of scientific knowledge', in which abstract

knowledge plays an essential part, especially so with respect to 'reflective corrections' in the context of the application of science and technology.[50]

Frege's approach can now be understood (with respect to interpreting the consequences of his work and taking care of some misunderstandings and the historical context of his achievements) as pointing towards a new way of dealing with reflection; a new way of *actualizing* reflection.

Occasionally one has equated this approach with a purely 'logical analysis' of language, an interpretation which some of Frege's remarks at the end of the introduction to *BS* somehow seem to support.[51] The question should rather be 'How can the task of "reflective correction" be met by or, methodologically speaking, be instantiated by linguistic analysis?'

I think one can credit Wittgenstein with having executed the turn to linguistic analysis as a philosophical programme, though the method needs some elaboration or maybe improvement (given the road to linguistically orientated analytical philosophy).

A very good analysis concerning the connections between Wittgenstein's *Tractatus-logico-philosophicus* and Frege (primarily with respect to logic!) can be found in Stekeler Weithofer ([3.56], 248).

The *replacement* of the reflective-abstract method assumed to be characteristic of the primarily classical/traditional approach in philosophy as, for example, demonstrated in Husserl, by the method of *linguistic analysis* (as demonstrated by the 'Wittgenstein of the Philosophical Investigations') leads to a *replacement* of Frege's 'concept script' analysis of 'expressions', produced by using and thus provided by the 'objective' language of *BS*, by a meaning analysis within ordinary language.[52]

This kind of replacement of the original Fregean approach can now, as a system of rules for its use, be followed up on its own as a new programme for doing philosophy. Today, though, one sometimes has the impression that the programme serves just 'as an end in itself'. Not only the general context and aims of philosophy but also the connection to Frege's original aims, and thus to the idea of Wittgenstein's theory of names as a reaction to Frege (cf. [3.58]), have been lost from sight.

The possibilities of newly actualizing the reflective task(s) of philosophy with the help of an analytical approach, especially in the sense of Wittgenstein's later philosophy, are not yet exhausted. Though we have to keep in mind that in comparison with the traditional (introspectively abstractive) approaches these possibilities are just one-side-of-the-coin 'philosophy' and must not be treated dogmatically, i.e. be taken as an absolute method for pursuing philosophy (just as on the other hand,

performing philosophy in the traditional way sometimes gives that impression).

I think that today, perhaps more than ever before, it is essential to take into account the interplay of both sides, analytical and traditional philosophy, science and everyday-life, analysis and tradition, because otherwise we—considered as flies in Wittgenstein's famous picture—will definitely not be able to find our way out of the fly-bottle and will perhaps end up on a Möbius strip[53], the prototype of a 'single or just one-sided surface'.

NOTES

1 Cf. [3.36], (11–12) and [3.37], 111.
2 Cf. [3.53] and [3.54] for the use of 'functional', cf. [3.47], 47.
3 Repr. in [3.24], 1–49.
4 Repr. in [3.24], 50–83.
5 Repr. in [3.19], 2:275–301.
6 The *GGA* contains decisive developments with respect to Frege's logical ideas, i.e. the introduction of value ranges and the distinction between sense and reference (first introduced in *SB* [3.9]).
7 In doing so, I follow the rather technical presentation of Frege's achievements in [3.46] fairly closely.
8 I use the term 'epistemic resolution-level' for this phenomenon and it may be interesting that Frege was befriended by Ernst Abbé who developed the formula for the resolution level of microscopes (working with Zeiss) and that Frege did use the metaphor of the microscope in the introduction of the *BS* [3.3], xi and later in *SB* [3.9].
9 Cf. the problem of the *Paradoxon der Analyse* as discussed in [3.49], and in [3.35] and [3.37], 141. This paradox concerns a fundamental difference about the basics of traditional and analytical philosophy, which can be illustrated aptly with a comparison between Husserl's and Frege's.
10 I refer to his 1914 paper 'Logik in der Mathematick' in [3.19], 1:219–72, esp. p. 277.
11 Cf. Frege's dealing with Boole in *Boole's rechnende Logik und die Begriffsschrift* (1880/81) in [3.19], 1:9–52 and *Boole's logische Formelsprache und meine Begriffsschrift* (1882) in [3.19], 1:53–9.
12 As an example take the sentence There are infinitely many prime numbers, i.e. to each prime number there exists a greater one.' This sentence could not be analysed in classical logic nor in Boolean logic either.
13 To consider a sentence as a sentence means to regard it under a special aspect, i.e. not to consider the content of the sentence as such but solely whether it is true or false (as a sort of attributable property of a sentence, i.e. if an expression is classified as a sentence).
14 I mention that particular sign combination here but the use of quotation marks as a metalinguistic way of talking 'about' was not known to Frege, although there are hints in a later paper, *Logische Allgemeinheit* (not before

1923) [3.19], I: 278–83; esp. p. 280, where he uses the expressions *Darlegungs- und Ililfssprache*.

15 'Der waagrechte Strich, aus dem das Zeichen "⊢" gebildet ist, verbindet die darauf folgenden Zeichen zu einem *Ganzen* und auf dies Ganze bezicht sich die Bejahung, welche durch den senkrechten Strich am linken Ende des waagrechten ausgedrückt wird' ([3.3], 2; my emphasis).

16 'Was auf den Inhaltsstrich folgt, muß immer einen beurteilbaren Inhalt haben' (Ibid.).

17 That seems to be the prevailing interpretation, e.g. [3.46], 24.

18 [3.46], 14.

19 Cf. [3.48] and [3.50], Figs 2/3.

20 [3.11], 15: 'Die Einführung der Bezeichnung für die Wertverlaufe scheint mit eine der folgenreichste Ergänzung meiner Begriffschrift zu sein' (From the way in which we talk about abstract entities it can follow what abstract entities are for us, what they mean, how we should treat them).

21 It is interesting to see that Frege himself here already uses quotation marks in the modern sense and therefore shows an intuitive understanding of the difference between object language and meta language.

22 An ontological problem arises: Is it possible to understand 'is' just in an explanatory manner?

23 One needs to get a feeling from the definition to understand what he means by logical.

24 Judgeable content.

25 If *a* is not element of ext(F), then G[*a*:F]=card (F) or *n*+1 according to our presupposition. We will need that below in connection with Russell's paradox.

26 0 is an element of [ψ] or rather [equal to 0[(X)], the extension of the concept ψ. But 0 is not an element of [equal to 0].

27 [3–39], [3–40].

28 Taking up an idea from *Mathematik in der Logik,* I would like to call these definitions 'ascending' and not 'constructive', as the term *aufsteigend* is sometimes translated in this context.

29 [3.24], 2: esp. p. 51.

30 The formal conditions for an equivalence relation are: if *a*, *b* and *c* designate elements of B such that the relation may hold between them, then the relation R [*a* R *a*] obtains between any element with itself: '*a* R *a*' (reflexivity), further: '*a* R *b* implies *b* R *a*' (symmetry) and last but not least: '*a* R *b* and *b* R *c* imply *a* R *c*' (transitivity).

31 'Eine für die Zuverlässigkeit des Denkens verhängnisvolle Eigenschaft der Sprache ist jhre Neigung, *Eigennamen zu schaffen,* denen kein Gegenstand entspricht. Wenn das in der Dichtung geschieht, die jeder als Dichtung versteht, so hat das keinen Nachtei.... Ein besonders merkwürdiges Beispiel dazu ist die Bildung eines Eigennamens nach dem Muster *"der Umfang des ßegriffes a"*, z. B. "der Umfang des Begriffes Fixstern". Dieser Ausdruck scheint einen Gegenstand zu bezeichnen wegen des bestimmten Artikels *aber es gibt keinen Gegenstand, der sprachgemäß so bezeicbnet werden könnte*. Hieraus sind die Paradoxien der Mengenlechre entstanden, die diese Mengenlehre vernichtet haben. Ich selbst bin bei dem Versuche, die Zahlen logische zu begründen, dieser läuschung unterlegen, *indem ich die Zahlen als Mengen auffassen wollte*'. [3.19], 1:288, my emphasis, I have deliberately produced a very free translation here!)

32 The picture or idea that sentences are ascribed a truth value as their *Bedeutung*= 'reference' will then be projected upon our natural language and eventually leads to a holistic conception of the *meaning* (*t* can be instantiated as reference/*Bedeutung* or sense/*Sinn*) of sentences and finally to the context principle in determining the *Bedeutung*/reference of expressions by decomposition.
33 I sometimes deliberately use the language of functions to highlight the theoretical, i.e. functional, understanding of concepts.
34 It is definitely helpful if we want to construct computers and if we want to be clear about ascribing the ability of counting or computing to them. But even there the physical operation is quite distinct from our way of talking about or ascribing some property to it. What may be interesting, however, is whether a certain mental disposition or attitude may be helpful if we interact with machines, i.e. if we want to handle them, if we want to use them appropriately—whatever that may be.
35 Explicity introduced in [3.9] but indicated already in [3.8].
36 Name is here considered as attributed 'value' like f*(x);* an object *x* being something that can be an argument in a function.
37 To such a class can be attributed a truth value. All this does not concern indirect speech!
38 Cf. the famous Leibniz principle (e.g. [3.6], 76 ff.).
39 Remember that in mathematics and even physics there are defined/calculated objects (finite groups, positrons) which one knows exist, though it sometimes takes years to find examples of them.
40 I.e. makes uses of them or applies them in accordance with everyday needs or perhaps in agreement with arguments to show the necessity of the application of some scientific tools as the means to gain results that are desirable by standards of daily life. Now all that is a tricky matter and only makes sense with hindsight from this point in time.
41 According to Dummett, this leads to essential consequences for the philosophy of language in general ([3.37], 209–22), although in the *GGA* it is only used in a generalized form. (Ibid., ch 17, 'The Context Principle in *Grundgesetze*'.)
42 'The context principle in fact also governs terms for actual objects, since a grasp of a proper name involves an understanding of its use in sentences' (Ibid., 207).
43 Stekeler-Weithofer ([3.56]) thinks that Frege did not give, up the context principle in the *GGA,* while Kutschera ([3.46]) believes that it does not play any further role in the *GGA,* cf. also [3.37].
44 In Frege's paper *Der Gedanke* [3.16], which is concerned with logical investigations. This paper has been taken up in modern 'philosophy of mind'.
45 One may wonder of course whether 'numbers' are anything we encounter in an ordinary life that is not guided by our cultural upbringing with its set of instituted knowledge.
46 Remember that the classical approach to logic was the partition into: concept, judgement, inference (in syllogistics: deduction, induction, etc.).
47 The expression 'coming about' needs some consideration: its meaning is ambiguous, i.e. it can be understood as literally descriptive, i.e. as the presentation of a set of rules about how to achieve a result (like an algorithm in a computer program) but also as theoretico-explanatory. In the latter case several ways to turn the theoretical understanding into advice for action (making it an action-guiding device) are compatible with the theory.

48 Cf. [3.35]. This means that, as in the case with Plato, a mathematical method in a more general sense has been made fruitful for philosophy.
49 This presentation of the problem situation is of course not 'true to the historical facts'. Frege was interested in anti-psychologism (from our point of view) and as we see from his thesis in analytical sources of knowledge.
50 Except one has the opinion that human beings cannot make mistakes and therefore reflective corrections are inessential and only disturb the peace of the ordinary mind on the positivistic pillow.—'Everything is what it is' as Bishop Buttler is reported to have said—and so we need not care to think about the world.
51 Cf. [3.3], vi-vii, introduction.

> Wenn es eine Aufgabe der Philosophie ist, die Herrschaft des Wortes über den menschlichen Geist zu brechen, indem sie die *Täuschungen* aufdeckt, die durch den Sprachgebrauch über die Beziehungender Begriffe oft fast unvermeidlich entstehen, indem sie den Gedanken von demjenigen befreit, womit ihn allein die Beschaffenheit des sprachlichen Ausdrucksmittels behafter, so wird meine Begriffschrift, für diese Zwecke weiter ausgebildet, den Philosophen ein brauchbares Werkzeug werden können.

Freillich gibt auch sie [die *BS*], wie es bei einem *äußeren* Darstellungsmittel wohl nicht anders möglich ist, den Gedanken nicht rein wieder…

> If it is one of the tasks of philosophy to break the domination of the word over the human spirit by laying bare the misconception that through the use of language often almost unavoidably arise concerning the relations between concepts and by freeing thought from that which only the means of expression of ordinary language, constituted as they are, saddle it, then my ideography, further developed for these purposes, can become a useful tool for the philosopher. To be sure, it too will fail to reproduce ideas in a pure form, and this is probably inevitable when ideas are represented by concrete means.
>
> ([3–57], 7)

52 Cf. [3.59], 43 'The meaning of a word is its use within the language.'
53 Or some sort of topological generalization of it, e.g. Klein's bottle: a closed, one-sided surface that penetrates itself.

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CHAPTER 4

Wittgenstein's Tractatus

James Bogen

I INTRODUCTION

Containing material (mainly on logic and language) dating back at least to 1913 when Wittgenstein was twenty-four, the *Tractatus* was first published in 1921. In 1922 a somewhat revised version was published with a translation by C.K.Ogden and an introduction by Bertrand Russell. The last significant correction to the German text was made in 1933. The second major English translation (by Pears and McGuinness) was published in 1960.[1] It is a short, oracular book. Much of it is aphoristic; some of it, formidably technical. Few of its claims are explained or argued in any detail. Its core is a theory of language which Wittgenstein applies to topics as diverse as ethics, religion, the foundations of logic and the philosophy of science.

The major components of the *Tractatus* theory of language are: (T1) a theory of meaning and truth for elementary propositions *(Elementarsätze)* (*T*4.03, 4.0311; 4.2I–4.24).[2]

(T2) a *construction thesis,* which holds roughly that because all meaningful statements are truth functions of elementary propositions, if we were given all of the elementary propositions, there is no proposition *(Satz)* which could not (in principle at least) be 'constructed' or 'derived from' them (*T*4.26–5.01; 5.234–5.45; 5.5–5.502; 6–6.01); and (T3) a development of the idea that propositions can express every possible fact.

All of this applies only to language as used to say what is true or false. The *Tractatus* does not deal with questions or commands, jokes, riddles, etc—a limitation emphasized in the early sections of *Philosophical Investigations* [4.47].

All three of these involve problematic notions which Wittgenstein criticized harshly in his later work. For example, elementary propositions are supposed to be composed of names which refer to objects, but the

Tractatus supplies no examples of names, and its characterization of objects is fraught with difficulties (see Section XI below). There are neither examples nor clear characterizations of the propositions of T1 and constructions of T2. Indeed, the very notion of a Tractarian proposition is problematical (see Section IX below). To get started, I will use a simple, idealized model which departs from the *Tractatus* as needed to postpone consideration of the difficulties.

II ELEMENTARY PROPOSITIONS

The model features language which describes 'states of affairs'. Tractarian states of affairs *(Sachverhalte)* are possible concatenations of simple elements. A state of affairs obtains *(besteht)* if the relevant objects are concatenated in the right way; otherwise, it does not obtain (2–2.01). For now pretend that states of affairs are arrangements of two-dimensional objects with the following shapes.

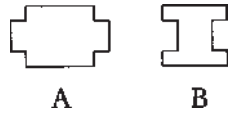


Figure 4.1

Any B-shaped object can connect at either end to any A. Objects of the same shape cannot connect to each other. No object can curve around to connect to itself or to both ends of another object.

Names are signs which refer to objects. Elementary propositions are strings of names (cp. *T*4.21, 4.22, 4.221). Figure 4.2 assigns names ('a_1', 'b_1', etc.) to objects and illustrates three states of affairs (possible concatenations).

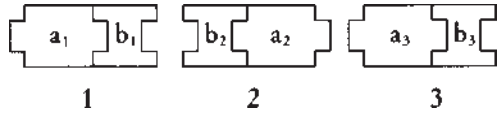
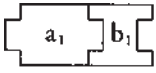


Figure 4.2

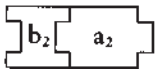
The syntax of a Tractarian language allows as elementary propositions all but only arrangements of names which are isomorphic to possible concatenations of the objects they refer to. In our model the isomorphism is spatial: for example, what we get by writing 'a_1' to the left of 'b_1' is an elementary proposition because object a_1 can be connected to the left side of object b1.'a_1a_2', and 'a_1a_1' and '$b_1a_2b_1$' are not elementary propositions.

Neither is a single name; the model does not talk about objects apart from concatenations. Thus, the syntax of elementary propositions mirrors the geometry of the states of affairs.

Each elementary proposition pictures the isomorphic concatenation of the objects it mentions. Thus 'a_1b_1' pictures



and 'b_2a_2' pictures



(cp. *T*2.13–2.14, 2.15, 2.201, 4.01)

An elementary proposition is true just in case the objects it mentions are concatenated as it pictures them; otherwise it is false (cp. $T_{2.21}$, 4.022, 4.25). An elementary proposition has a sense just in case it portrays a state of affairs (i.e. a concatenation which can obtain). Thus, the relation between the geometries of elementary propositions and states of affairs established by the syntax of our model guarantees a state of affairs (hence a sense) for every elementary proposition and an elementary proposition for every state of affairs. This corresponds to the Tractarian doctrine that elementary propositions cannot portray anything which is impossible, and can portray all possible concatenations of objects because the constraints which determine how symbols can be combined into elementary propositions are identical to the constraints which determine how objects can combine with one another (*T*2.151, less 2.17–2.182).

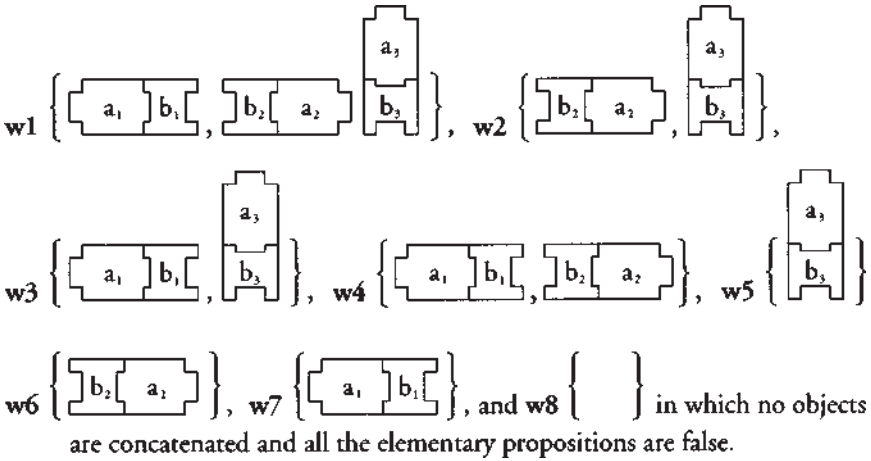
I emphasize that this model is non-Tractarian. Its names and propositions are *marks* (signs) while Tractarian names and propositions are not (see Sections IV and IX below). Two dimensional spatial objects are not Tractarian simple objects (see Section XI below). Bearing this in mind the foregoing illustrates T1—including some crucial features of the *Tractatus* picture theory of language (see Section VIII below)—for elementary propositions.

III T_3 AND THE CONSTRUCTION THESIS

The *Tractatus* says reality is the totality of all 'positive' and 'negative facts'. Positive facts are obtainings of states of affairs and negative facts are their non-obtainings (*T*2.06B). For example if a_1 is connected to the left of b_1, it is a positive fact that a_1b_1. If they are not concatenated it is a negative fact that they are not.[3] Possible worlds are collections of possible facts. The positive facts a world includes, and its including no others, determine which negative facts belong to it (*T*1–1.13; 2.04–2.06).[4]

To illustrate T_2 and T_3, let p be 'a_1b_1', the elementary proposition which pictures the obtaining of state of affairs 1 in Figure 4.2. Let q be 'b_2a_2'. Let r picture the obtaining of 3 in Figure 4.2. If a_1, a_2, a_3, b_1, b_2 and b_3 are the only

objects, and 1, 2 and 3 are their only possible concatenations, the possible worlds are:



According to T_3 and the construction thesis, every positive and negative fact in every possible world can be pictured by propositions included in or constructed from a complete list of elementary propositions. To show how this could be, the *Tractatus* employs the truth table, a gadget which is known and loved by every beginner logic student.[5] In a truth table 'T' indicates truth, and 'F', falsity. Each elementary proposition can be true or false independently of the others. The first three columns of Figure 4.3 represent the possible combinations of truth values for p, q and r. (The ordering of the permutations is idiosyncratic to Wittgenstein. (*T*4.31 ff). Thus in line 1, columns 1, 2, 3, represent the possibility that all of our elementary propositions are true. In line 2, columns 1, 2, 3, p is false while q and r are true. Etc. Each subsequent column represents the truth conditions of non-elementary propositions. Thus ¬ p is true whenever p is false, and false whenever p is true, regardless of the truth values of q and r, p&q is true whenever both p and q are true, regardless of whether r is true, etc.

	p	q	r	¬p	¬q	¬r	pvq	pv¬q	p&q	p⊃q	(pvq)⊃(p&q)	Taut.	Contr.
1	T	T	T	F	F	F	T	T	T	T	T	T	F
2	F	T	T	T	F	F	T	F	F	T	F	T	F
3	T	F	T	F	T	F	T	T	F	F	F	T	F
4	T	T	F	F	F	T	T	T	T	T	T	T	F
5	F	F	T	T	T	F	F	T	F	T	T	T	F
6	F	T	F	T	F	T	T	F	F	T	F	T	F
7	T	F	F	F	T	T	T	T	F	F	F	T	F
8	F	F	F	T	T	T	F	T	F	T	T	T	F

Figure 4.3

Each row corresponds to a different possible world. If p is 'a_1 b_1', q is 'b_2a_2' and r is 'a_3b_3' row 1, represents w 1 in which p, q and r are all true, row 2 corresponds to W2, etc. For each different proposition there is a column which specifies its truth value in each world. Thus, by column 10, **p⊃q** is true in w1, w2, w4, w5, w6, w8, and false in w3 and w7. A proposition is contingent if it is true in at least one world and false in at least one other. Necessarily true propositions ('tautologies') are true in every world. Necessarily false propositions ('contradictions') are false in all worlds (*T*4.46). Because objects are extra-linguistic entities whose natures determine which states of affairs (and therefore which possible facts) there are, the *Tractates* does not think that all necessity and impossibility is propositional (*T*2.014, 2.0141; cp. section XI). But tautology, contingency and contradiction exhaust its propositional modalities.

If (as in our model) there were only a limited number of truth possibilities for elementary propositions, we could prove the construction thesis by simply writing a truth table with a column for every possible proposition. Wittgenstein offered no such proof, presumably because he thought he could not list all of the elementary propositions, and could not rule out the possibility that there are infinitely many of them (*T*4.2211, 5.571). Instead, he suggested that every proposition (elementary as well as non-elementary) can be expressed by one or more applications of an operation he called joint negation and symbolized 'N ' **(ξ)**. ξ is a variable whose values are collections of propositions. The bar indicates that the order of the propositions is indifferent. The joint negation of any ξ is the conjunction of the denials of every proposition in ξ (*T*5.5–5.51). For example, N(p,q,r)=

(1) ¬p&¬q&¬r,
and N([¬p&¬q&¬r], p, q, r)=

(2) ¬(¬p&¬q&¬r)&(¬p&¬q&¬r), a contradiction (cp. 5.5–5.51) ξ can be a one-member collection. For example, we can jointly negate (2) to obtain a tautology,
(3) ¬[¬(¬P&¬q&¬r)&(¬P&¬q&¬r)].

The first step in the construction of any proposition is the joint denial of all of the elementary propositions (*T*5.2521–5.2523, 6–6.6001). Wittgenstein doesn't say what comes next, but we could proceed as follows. At each successive step replace $\bar{\xi}$ by any proposition or propositions you feel like choosing from the elementary propositions and whatever non-elementary propositions have already been constructed. By common sense we shouldn't replace $\bar{\xi}$ with propositions whose joint negation will duplicate results already obtained, and we should keep trying different substitutions until we get a proposition for every column.[6] Such policies might enable someone with enough ingenuity to construct all of the truth functions of a finite number of elementary propositions. But since the choices for $\bar{\xi}$ (and therefore the outcomes of joint negation) are not determined after the first step, Wittgenstein's construction procedure is ill-defined.[7]

In addition to this there is the possibility that there are infinitely many elementary propositions.[8] Wittgenstein mentioned this later as an insurmountable problem for his account of universal and existential quantification. [4.24], 279 The *Tractatus* treats universally quantified propositions of the form $\forall x(Fx)$ as if they were conjunctions expressing agreement with every value of Fx and existentially quantified propositions as if they were disjunctions which are true just in case at least one value of Fx is true. Since the values of the function are propositions, they must themselves be elementary propositions or their truth functions. Suppose the truth conditions of each value of Fx involved a different elementary proposition. If there were infinitely many of them, Wittgenstein argued, they could not be enumerated, and Wittgenstein thought this would rule out constructing universally and existentially quantified propositions by treating them as conjunctions and disjunctions.[9] Indeed, if there were infinitely many elementary propositions, the first step in the construction of any proposition whatever—unquantified or quantified—would have to begin with the joint denial of a group of propositions whose members could not be enumerated. Wittgenstein apparently decided the *Tractatus* could not be adjusted to allow for this. Why didn't he consider construction methods which would not require enumerating all of the elementary propositions? It is plausible that by this time changes in Wittgenstein's ideas about elementary propositions (see section IX below) had not only complicated the problem, but had also led him to doubt whether it was worth pursuing.

If *all* propositions can be constructed (*T*4.51, 4.52, 5) we must be able to construct elementary as well as non-elementary propositions. In effect that would mean detaching each elementary proposition from the set of all elementary propositions. How can repeated applications of joint negation accomplish this? If p, q and r were the only elementary propositions we could construct a proposition with exactly the same truth conditions as p as follows.[10] Having obtained (1) by jointly negating p, q and r, select (1) together with all of the elementary propositions to form the collection [(¬p&¬q&¬r), p, q, r)]. Its joint negation is the contradiction (2) obtained above. Now the joint negation of (2) and p is the conjunction of ¬p and a tautology:

(4) 3&¬p. Finally, N(4)=
(5) ¬(3&¬p). This expression is true just in case (3) is false or ¬¬p is true. Since ¬3 is false in all worlds, (5) is true exactly when ¬¬p is true. Thus (5) has exactly the same truth conditions as p (column 1, Figure 4.3). But this is not the only way to express the truth conditions of p. For example, after the mandatory joint denial of the elementary propositions we can substitute p for $\bar{\xi}$.[11] N(p)=¬ p and N (¬p)=
(6) ¬¬p

which has the same truth values as p.

IV 'A PROPOSITION IS A QUEER THING!'[12]

But in constructing (5) and (6) did we reall y construct p, or just different propositions with the same truth conditions? I he same truth conditions. Furthermore, if propositions are sentences, then, contrary to Wittgenstein, the order of the propositions in $\bar{\xi}$ is not indifferent; N(p, q, r)=¬p&¬q&¬r, and N(r, q, p)=¬r&¬q&¬p have the same truth conditions but '¬p&¬q&¬r' and '¬r&¬q&¬p' are different sentences. Apparently, then, propositions are not sentences. Wittgenstein says that what is 'essential' to a proposition is not the shapes of its signs but rather, the features 'without which the proposition could not express its sense' (*T*3.34B) and which are common to 'all propositions which can express the same sense' (*T*3.341A). Because the sense of a proposition is its truth conditions (*T*2.221, 4.022–4.03, 4.1) propositions with the same truth conditions must have the same essential features. If propositions whose essential features are identical, are themselves identical, Wittgenstein need not worry: p would differ no more from pv2 than Thelonius wearing a hat would differ from Thelonius bare-headed (cp. *T*5.513A, 5.141). Thus, differences between sentences used to express the same

truth conditions need not constitute an objection to the construction thesis.

But if different sentences (marks and sounds) can be counted as one and the same proposition, what *is* a proposition? One thing Wittgenstein says a proposition is is a written or spoken sign in use ('in its projective relation to the world') to picture the world as including a particular situation *(Sachlage)* (*T*3.11, 3.12). A situation is a congeries of obtainings and non-obtainings of states of affairs (*T*2.11). But if different sentences are used to picture the world as including the same situations, they have the same truth conditions and therefore, they must have the same essential features. How can exactly the same essential features belong to all the different sentences which can be used to say the same thing? For example, since a proposition must contain 'exactly as many distinguishable parts as…the situation which it presents' (*T*4.032A) sentences presenting the same situation must somehow have the same number of distinguishable parts. This applies to the 'propositions of our everyday language' for Wittgenstein considered them to be 'in perfect logical order just as they stand' (*T*5.5563A) even though their outward form completely disguises their logical form (*T*4.002CD). Thus, all artificial and natural language sentences which can say the same thing must have the same number of distinguishable parts when they are so used. The question of what these parts are and how to count them exemplifies the difficulty of understanding what propositions are and what they have to do with sentences.[13]

Wittgenstein says other things about propositions which seem to promise help with the counting problem. First, at *T*3.31 propositions and their parts are said to be 'symbols' or 'expressions'. And the symbol (expression) is said to be everything 'essential to their sense' which propositions expressing the same sense 'can have in common'. Thus, where sentences of different lengths are used to express the same sense, the number of words in a sentence need not equal the number of symbols in the relevant proposition. Second, Wittgenstein says pictures, propositions and sentences are not just words or symbols, but facts—the facts that their elements stand to one another in certain relations (*T*2.141, 2.15, 3.14ff). Thus what pictures or asserts that a stands in some relation to b is not the complex sign 'aRb', but the fact that 'a' stands in a certain relation to 'b' (*T*3.1432). The sign 'R' is not treated as a part of the fact (that 'a' and 'b' stand to one another in a certain relation) which says that aRb. This promises some help with the counting problem, for if the symbol is a fact, the number of elements it contains need not be the same as the number of words used make the assertion. But how are the parts of such facts to be counted, and why is not their number directly determined by the number of

signs they involve? The third characterization of the proposition suggested in the *Tractatus* is relevant to this.

As a group of names arranged to depict the world as including a concatenation of the objects to which they refer (*T*4.0311) the elementary proposition resembles what is supposed to have suggested the picture theory to Wittgenstein—a model[14] composed of toy cars, pedestrians, etc, representing real automobiles, people, etc., and used to allege that an accident had occurred in a certain way.[15] But it is an important fact about such representations that one and the same picture or model can be used to claim that this is how an accident occurred, or that this is how it *did not* occur. (It can also be exhibited as a representational sculpture which makes no claim at all.) Strictly speaking, truth conditions belong to assertions ordinary pictures can be used to make. By itself, apart from any such use, the picture has no truth conditions. By the same token if propositions represented facts in the same way the model represented the accident, they would have no truth conditions. The reason the proposition has a sense is that, in addition to picturing, it asserts that the world is as pictured (*T*4.022, 4.023E, 4.06). If the proposition is an assertion which can be made with more than one sentence instead of a sentence used to assert, the number of its parts would depend upon the number of things done with signs instead of depending on the number of signs used. For example, the countable parts of the an elementary proposition would be references to objects. At *T*3.3411 'the real name of an object is what all symbols which designate it have in common'. The suggestion is that what they have in common is their use to refer. Indeed this promises a way to disregard as inessential not just the number of signs in sentences used to say the same thing, but *any* features possessed by some of those sentences but not others.[16]

How do the different things the *Tractatus* says about propositions hang together? The later Wittgenstein thought they do not. In the *Philosophical Investigations* [4.47], he spoke of the tendency to think of the proposition as 'a pure intermediary between the prepositional *signs* and the facts. Or even to try to purify, to sublime, the signs themselves'.[17]

It is plausible that the Tractarian symbol exemplifies the first tendency. It is plausible that the conception of a proposition as a sign or a fact involving signs whose essential features are determined by what it is used to say exemplifies the second. It is plausible that the picture theory of language exemplifies both.

V FALSE ASSERTIONS

The *Tractatus* attempts to solve a puzzle about falsehood dating back to Plato's Theaetetus:

> [If]…a man who is judging some one thing is judging something which is…that means that a man who is judging something which is not is judging nothing…But a man who is judging nothing is not judging at all…And so it is not possible to judge what is not, either about the things which are or just by itself.[18]

To get the problem of false assertion Wittgenstein addressed, replace Plato's talk of judgement and what is judged with talk about assertion and what people assert. To say that some specific state of affairs or situation ('some one thing') belongs to the actual world a proposition must tell us *which* state of affairs or situation its truth value depends on. Otherwise, for example, state of affairs ab would have no more bearing on the truth or falsehood of the proposition 'ab' than any other concatenation of a and b or the concatenation of other objects. But a proposition is false only if what it claims to be the case is not one of the positive or negative facts which make up the actual world. The problem of false assertion is the problem of explaining how a proposition can specify the putative fact it claims is the case (as it must do to have a sense) if it is false and there is no such fact. For example, how can a proposition say that ab obtains when it is false and the actual world does not include that concatenation? And if ab obtains, how can '¬ab' specify the negative fact required for its truth?

The picture theory solves the problem by rejecting the assumption (which generates it) that a proposition cannot specify which fact its truth requires unless that fact is actually there to be specified. Elementary propositions are pictures whose elements are names of simple objects (*T*3.203). 'One name stands for one thing, another for another thing, and they are combined with one another. In this way the whole group—like a *tableaux vivant*—presents a state of affairs' (*T*4.0311). Instead of naming (standing in a referring relation) to a putative fact, a proposition specifies what its truth requires by 'picturing' it, where picturing does not require the actual existence of the putative fact. In order for an elementary proposition to say that ab, the names 'a' and 'b' must refer to objects a and b, respectively, and those objects must be *able* to be arranged as the proposition shows them to be. But this does not require the state of affairs (ab) to actually obtain. And because the possibility of its obtaining consists of nothing more than the possession by a and b of the abilities required for concatenation, the state of affairs (the possible fact that ab obtains) is not an entity the proposition must refer to in order to claim that ab is the case.

Thus the proposition 'ab' can be false as long as there are objects (capable of concatenating) for its names to refer to, and an actual world which fails to include the obtaining of ab.

Complex situations, including non-obtainings of states of affairs, are pictured by non-elementary propositions whose construction—Wittgenstein thought—requires nothing more than the joint negation of collections of propositions. Whatever difficulties this may involve, there is no reason to think, e.g., that the construction of '¬ab' should require ab to obtain any more than would the assertion 'ab'. Thus, Wittgenstein can say that 'a proposition which speaks of a complex' is false rather than 'meaningless *(unsinnig)* if the complex does not exist' as it would be if complexes had to be named in order to be mentioned (*T*3.24B). With regard to the problem at hand, the non-existing complexes are the putative facts mentioned by false propositions.

The notion of picturing involved in this solution is a primitive. Instead of trying to define it Wittgenstein designed his account of elementary propositions and their truth functions to secure that, as long as there are objects for names to refer to and an actual world for the proposition to represent, the proposition can picture the world as including a putative fact regardless of whether it belongs to the actual world. In order to appreciate the elegance of this solution to the problem of false assertions and also to introduce some of its difficulties it helps to look at the competition.

VI SOME REJECTED ACCOUNTS OF FALSE JUDGEMENT

Wittgenstein intended his account to avoid problems he found in the solutions of Frege and Russell, and a theory of Meinong's they all rejected. Before he became Wittgenstein's teacher Russell entertained and rejected Meinong's idea that a proposition has meaning by virtue of doing what amounts, ignoring details, to referring to the fact whose existence is required for its truth.[19] Meinong called these 'Objectives'. The Objective signified by a false proposition like 'Napoleon was defeated at Marengo' must enjoy a shadowy grade of existence—robust enough to give meaning to the proposition, but not robust enough to make it true. Russell rejected this because he believed philosophy must be constrained by a 'Vivid sense of reality', and was convinced that 'there is no such thing as [the fact that] Napoleon was defeated at Marengo'.[20] In addition to dispensing with the Objective, his treatment of the *Theaetetus* problem[21] was (like Wittgenstein's) intended to avoid the ontological commitments of the account Frege

devised before the turn of the century.[22] Let us look at Frege's before turning to Russell's.

In Fregean semantics propositions can have meanings of two sorts—sense and reference. All propositions have senses. Frege calls the sense of a proposition a 'thought'—an unfortunate term because his 'thoughts' are structures which are as they are quite independently of anyone's psychological states. Their study belongs not to psychology, but to logic and the philosophy of language. Logical relations (like entailment) are grounded in structural features which Fregean thoughts possess regardless of whether anyone grasps them, and which they would have had even if there had never been any minds. Frege says the existence and structure of a thought depends no more upon anyone's thinking than the existence of a mountain depends upon anyone's travelling over it.[23]

According to Frege not all propositions have truth values.[24] Those that don't have sense but no reference. A proposition is true if its referent is an object Frege calls The True, and false if its referent is The False. Which (if either) a proposition refers to depends upon the thought it expresses together with how things are. For example, the sense of 'Bud played faster than Thelonius' is such that this proposition refers to The True if Bud actually did play faster (he did) and to The False if Thelonius played faster (he did not).[25] Which thought a string of words is used to express depends upon the psychology of those who use it. But once this is established its truth conditions, i.e. what is required for it to name The True (and what is required for it to name The False), depend entirely upon the structure of the thought. The judgement (assertion) that a proposition is true commits one to its naming The True. If it does, the judgement (assertion) is true; if not it is false. But whether or not the proposition is true does not depend upon whether it is judged or asserted.

This solution is Platonistic. But because it does not posit different grades of existence it is not Meinongian. Consider the false proposition 'Thelonius played faster than Bud'. Its referent (The False) and its sense enjoy exactly the same kind of existence as Thelonius Monk, Bud Powell and the proposition itself.[26] Thus, the price Frege pays to avoid Meinong's two grades of existence is Platonism required to posit Fregean thoughts, The True, and The False.

Wittgenstein rejected the Platonism of Frege's account, and along with it, the Fregean idea that propositions are names, let alone names of The True and The False (*T*3.143, 4.063, 4.431, 4.442).[27] He tells us not to say propositions have senses—as if a sense were a Fregean thought which could exist even if no proposition had it, and as if having a sense involved a two-term 'having' relation between a proposition and its sense. Instead of saying a proposition has a sense we can simply say it pictures the world

as including the situation it presents (*T*4.031B). For a proposition to be true is not for it to name The True but rather, to picture the world as containing a situation it actually contains. Russell's alternative to Frege and Meinong was to maintain that truth and falsity belong primarily to complex structures assembled by a person in the course of believing, disbelieving, doubting, understanding, questioning, or any of the other mental states which Russell later called 'attitudes to ideas' and which are now called 'prepositional attitudes'.[28] In what follows I will use the term 'judgement' generically for all of these attitudes. A Russellian judgement is not a mind's attitude toward a pre-existing, pre-structured Fregean thought. Russell eschewed these as well as Meinongian Objectives. Instead, he treats judgement as consisting of a many-termed relation between the judging mind and a number of (what he considered less exotic) items. In judging that one of these items, a, stands in some relation, R, to another item, b, one puts together what Russell calls a proposition. Unlike Fregean propositions whose constituents were words, and Wittgensteinian propositions composed of symbols, a Russellian proposition is composed in this case of the objects a and b themselves, the relation, R, and a gadget which orders them into a proposition and thereby determines its structure.[29] These constituents exist on their own whether or not anyone makes a judgement about them.[30] If they actually are as judged (e.g. if someone believes that a is louder than b, and a actually is louder) the proposition is true. But since their collection into a proposition requires nothing more than judgement, false propositions can be put together in exactly the same way as true propositions. This treatment of the problem of false judgement does not commit Russell's ontology to anything beyond the minds which judge, the relation which constitutes judging, and the constituents which judgement puts together to form propositions. Thus, Russell avoided positing the Meinongian Objectives and Fregean thoughts which offended his ontological sensibilities by plucking out of his account of judgement the notion of prefabricated contents of judgement (Objectives, Fregean thoughts) which do not depend upon judgement for their existence, their logical structures, or their truth conditions. The development of the picture theory was driven by Wittgenstein's dissatisfaction with this no less than with Frege's and Meinong's theories.

In 1913 Wittgenstein argued that Russell's theory was inadequate because it could not rule out the possibility of judging nonsense, i.e. believing, affirming, etc., what lacks truth conditions. The problem was that Russell's account does not constrain the items which can belong to propositions or the ways in which judging can arrange them as needed to rule out such nonsense judgements as 'that this table penholders this book'.[31] This defect is hard to remedy. Even if Russell had a principled way to limit the selection of constituents to items which could belong to a

fact his theory would not know how to prevent someone from judging a disorganized jumble.

Well then, how does Wittgenstein avoid the possibility of nonsense judgements? He says what is needed to avoid Russell's mistake is a correct 'explanation of the form of the proposition, 'A makes the judgement p'…[which shows] that it is impossible to judge a nonsense *(einen Unsinn)*' (5.5422). The mistake, says Wittgenstein, was to analyse 'A believes that p is the case', 'A thinks p', etc.', as claiming that a proposition p stands in some relation 'to an object, A' (T5.541C-D).[32] Properly analysed, 'A judges p' and the rest turn out to be…of the form '"p" says p' (5.542). In 'A judges p', 'A' appears to be a name which refers to a judging subject. But the only names the Tractarian analysis of a proposition can include refer to Tractarian objects, and Wittgenstein believes that judging subjects are not objects (*T*5.5421). Thus neither 'A' nor anything else which purports to name a judging subject can occur in the analysis of 'A judges p'. More surprisingly Wittgenstein's analysis does not mention judgement either. If '"p" says p' is the proper analysis of 'A judges p' then the situation Russell analysed as including a judging subject, the judging, and a Russellian proposition consisting of objects arranged by the judging reduces to a situation consisting just of a picture, sentence, or proposition, 'p', and its expression of its sense, 'p' says that it is the case that p because its elements are 'correlated with' the elements of the putative fact that p (*T*5.5421). Thus, where Russell purged his ontology of Meinongian Objectives and Fregean senses by reducing the content of a prepositional attitude to a collection of objects assembled by judging, Wittgenstein reduced judging (believing, and all other sorts of thinking) to a proposition's (picture's, or sentence's) expression of a sense.[33] Instead of analysing someone's judgement that ab as a relation between a judging subject (mind, soul, etc.) and objects a and b, Wittgenstein analyses the judgement as consisting essentially of a Tractarian picture (proposition or sentence) which depicts a and b as concatenated.[34] This reduction of judgement to the expression of a sense transforms the problem of explaining why there can be no nonsense judgements into the problem of explaining why propositions cannot assert nonsense on the order of 'the table penholders the book'.[35] Because Tractarian names can only combine to form elementary propositions which picture possible concatenations of their referents (*T*2.16–2.17, 2.18–2.203)[36] elementary propositions cannot lack senses. Since all non-elementary propositions are truth functions of elementary propositions, no proposition can be nonsensical. If judgement can be analysed as the *Tractatus* proposes, this rules out the possibility of nonsense judgements.

VII UNASSERTED PROPOSITIONS

The question of how there can be false propositions has a counterpart in the question of how there can be judgements about and logical relations between propositions which are not themselves judged. How can I believe that (p) Theophrastus wrote the book we know as Aristotle's *Politics* only if (q) Theophrastus held inexcusably stupid political views, even though I disbelieve p and have no opinion about q? How can it be the case that every conjunction entails its conjuncts regardless of whether anyone ever has or will ever even grasp the sense of a given conjunction, its conjuncts or the claim that the one entails the others?

Frege's theory allows for all of this by treating the sense of a proposition as a structure whose composition does not require judgement. Thus I do not have to believe that Theophrastus wrote the *Politics* in order for the sense of p to be such that p is true only if he did. The same holds for q. I happen to believe the hypothetical but my doing so is not what gives it the truth conditions it has. And if logical relations depend upon senses whose existence and structure are quite independent of judgement, no judgement is required for the entailment of p by p&q.[37]

Hypotheticals and entailments raise problems for non-Fregean accounts which provide no contents to judge apart from someone's judging them. One such account is Kant's theory that the antecedents and consequents of hypothetical judgement are themselves judgements, rather than pre-existing contents.[38] Because the contents of Russell's judgements are creatures of the judging mind, it is astonishing to find the multiple-relation theory of judgement in *Principia Mathematica* whose very programme assumes that logical relations are not psychological and that their explanation requires no reference to the judging mind.[39]

By reducing judgements to the expressions by propositions of their senses, the *Tractatus* turns our questions about hypotheticals and logical connections into questions about unasserted propositions. For example, the question of how I can believe a conditional without believing its antecedent and its consequent becomes a question about how a conditional proposition can fail to assert its antecedent and its consequent. Since Wittgenstein holds that '… propositions occur in other propositions only as bases of truth operations' (*T*5.54)—i.e. as members of jointly denied collections of propositions (*T*5.21)—he need not worry, e.g., about how propositions p and q can occur unasserted in p⊃q; his answer is that they do not. But the construction of any proposition requires the joint negation of the elementary propositions. Therefore just as Kant needs to explain how we can judge that a hypothetical is true without

judging the truth of its component judgements, Wittgenstein must interpret an expression like 'N(p,q,…) as including p and q without including the assertion that it is the case that p (or that q).

Tractarian operations take us from propositions to propositions (*T*5.21–5.23). Even though we can express a negative proposition without using the sign for the proposition it denies, the negative proposition must still be constructed 'indirectly' from the positive proposition (*T*5.5151). Thus, in order to say that state of affairs ab does not obtain, we must use the *proposition* 'ab' (in joint negation, I suppose) not just the sentence (sign) customarily used to say that ab obtains. But elementary propositions do not just show states of affairs; they also say that they obtain (*T*4.022, 4.023E, 4.06). The *Tractatus* does not address the question of how to use the proposition 'ab' to construct '¬ab' without asserting what we wanted to deny—that ab is the case.

Since we can write down a sentence without asserting anything, things would be easier if Wittgenstein had treated joint denial as taking us from sentences to sentences instead of propositions to propositions. But he does not, and it is not clear how he could have. The joint denial of p and q has no definite truth conditions unless p and q each have definite truth conditions (*T*5.2314). For Frege, propositions were sentences which could have truth conditions without benefit of assertion just by virtue of their assignment to Fregean thoughts. But Wittgenstein rejected Frege's account of the senses of propositions and treated sentences as having senses only as used to assert.[40] It seems to follow that if the 'p' and the 'q' in 'N(p, q)' are sentences, then 'N(p, q)' has no definite truth conditions unless 'p' and 'q' are used to assert something. It would be nice if a sentence could have the obtaining of ab as its truth condition just in virtue of its employment in the construction of the proposition which says that ab does not obtain. But the *Tractatus* does not set out a mechanism for this.

In the 1913 theory of knowledge manuscript which Wittgenstein criticized, Russell himself said the 'chief demerit' of his theory of judgement was that it could not explain logical relations among unjudged propositions.[41] But Wittgenstein's objections centred on the problem of nonsense judgements. I find no record of objections based on the question of logical relations between unjudged propositions. This is surprising, for Wittgenstein certainly knew the relevant parts of Frege's work. No less surprisingly, the *Tractatus* does not indicate how to avoid the analogous problem of how logical relations can obtain between unasserted propositions.

VIII LOGIC, PROBABILITY, AND THE CONSTRUCTION THESIS

In spite of this difficulty, the construction thesis provided an interesting and influential treatment of logical and probabilistic relations between propositions. By the construction thesis, the truth value of every proposition is determined by the truth values of elementary propositions, and elementary propositions are truth functions of themselves (*T*5). Wittgenstein calls each combination of truth values of elementary propositions sufficient for the truth of a proposition a truth ground of that proposition (*T*5.1241C, 5.01). Thus, for elementary propositions p, q, r_1, r_2,…r_n, the truth grounds of p&q are ⟨true p, true q, true r_1⟩, ⟨true p, true q, false r_1⟩, ⟨true p, true q, true r_2⟩, ⟨true p, true q, false r_2⟩, and so on for every r_i. Since the truth values of the rs are irrelevant to the truth value of the conjunction we can write '⟨true p, true q⟩' as an abbreviation for the full list of its truth grounds. The truth grounds of **p⊃q** are ⟨true q, true p⟩, ⟨true q, false⟩ and ⟨false q and false p⟩. And so on.

Wittgenstein explains deductive inference as resting on nothing more than relations between truth grounds (*T*5.12). For example, since the truth ground of p&q, includes ⟨true p⟩ , p is true in every possible world in which p&q is true. This explains why p&q entails p, and accounts for the validity of the argument: p&q; therefore p. On the other hand, because p is made true by ⟨true p, false q⟩ as well as by (true p, true q), p&q is false in some worlds in which p is true. That is why p does not entail p&q and we cannot infer the latter from the former. ¬p entails **p⊃q** because both its truth grounds (⟨false p, true q) and (false p, false q⟩) are truth grounds of **p⊃q**. One proposition contradicts another just in case their truth grounds exclude one another.

Russell called this, 'an amazing simplification of the theory of inference, as well as a definition of the sort of propositions that belong to logic'. ([4.33], xvi). The simplification consists of the fact that if Wittgenstein is right there is no need for laws of logic as traditionally conceived. Russell's idea that '(p or p) implies p' is analogous to such '…particular enunciations in Euclid' as '…let ABC be an Isosceles triangle; then the angles at the base will be equal' is an example of the traditional view.[42] According to this the inference of the disjunction 'John Carter played the clarinet' from the disjunction 'John Carter played the clarinet or John Carter played the clarinet' is justified by its falling under the law '(pvp)⊢p' in the same way that the claim that the angles at the base of a particular isosceles triangle are equal is justified by its being an instance of the Euclidean principle. Without such maximally general truths (axioms and their consequences) it would be impossible to explain entailment or inference. But if Wittgenstein is right and logical relations are nothing more than relations between truth grounds, what justifies the inference of

one proposition from another is the propositions themselves and '"laws of inference"…supposed to justify inference…[by]…Frege and Russell…[are]…superfluous' (*T*5.132). The connections between truth grounds which constitute logical relationships between propositions can be established and exhibited by constructing them from the elementary propositions. And this would suffice to establish whether one entails or contradicts the other. And given a logically perspicuous notation, propositions could be written down in a form which clearly exhibits relations between their truth grounds (*T*5.1311). Finally, the propositions (like '(pvp)—| p' and *modus ponens*) which Russell called laws of logic turn out on Wittgenstein's view to be nothing more than tautologies (*T*6.1 13ff.) whose truth can therefore be fully explained by construction.

Wittgenstein applies the same strategy to the explanation of probabilistic relations between propositions.

> If T_r is the number of the truth grounds of a proposition 'r', and if T_{rs} is the number of the truth grounds of a proposition 's' that are at the same time truth grounds of 'r', then…the ratio T_{rs}: T_r is the degree of *probability* that the proposition 'r' gives to the proposition 's' (T5.15).

For example, by rows 1, 2, 5 in Figure 4.3, three of the four truth grounds of r are also truth grounds of $(pvq) \supset (p\&q)$, and its probability given r is ¾. By rows 1, 3, (p&q) is probabilistically independent of r: (p&q) shares half of the truth grounds of r. The fact that the probability of q given p is 1 if p entails q, and 0 if p contradicts q is similarly explained, as is the fact that conditional on any consistent proposition, the probability of a tautology is 1 and the probability of a contradiction, 0 (cp. *T*5.152 C, D).[43]

Elementary propositions are probabilistically independent because the truth value of each one depends on the obtaining of a different state of affairs. 'States of affairs are independent of one another'; the obtaining or non-obtaining of any given state of affairs has no influence whatever on the obtaining or non-obtaining of any other (*T*2.061, 2.062). If r and s are elementary propositions, their respective truth grounds will be {⟨true r, true s⟩, ⟨true r, false s⟩} and {⟨true s, true r⟩, ⟨true s, false r⟩} (ignoring irrelevant propositions), r and s share just one truth ground so T_{rs}=1. Since r has two truth grounds, T_r=2, and the probability of r conditional on s=T_{rs}/T_r=1/2 (*T*5.252).

This makes all probability conditional and construes conditional probability as a logical relation determined by the truth grounds of the relevant propositions. Since truth grounds are completely determined by meanings, Wittgenstein's account makes probability assignments a priori and analytic. Tractarian probability is objective as well. The probability you assign to a proposition will depend upon what you take

the relevant truth grounds to be. But there is an objective fact of the matter as to what the relevant truth grounds actually are, and that makes real probabilities objective and independent of subjectively influenced assignments.[44]

This sort of approach dates back to Jacques Bournoulli (1713) and Laplace (1812). It was revived by Keynes in 1921. As discussed by the Vienna Circle from 1927 on, and modified by Waisman, Wittgenstein's version gained its influence by attracting Carnap's interest.[45] Its importance turns in part on Wittgenstein's second thoughts about the independence of elementary propositions. By 1929 his thinking about 'the logical analysis of actual phenomena' persuaded him that in order to explain, e.g., why the same colour cannot have different hues or degrees of brightness at the same time, he must suppose that numbers can occur in elementary propositions.[46] This would make some elementary propositions mutually incompatible. But if one elementary proposition can confer a probability of 0 on another, it is natural to ask whether elementary propositions can entail one another,[47] and more to the point, to consider the possibility of conditional probabilities among elementary propositions ranging all the way from 0 to 1. These possibilities became essential to Carnap's thought, and thus to the development of the logical treatment of probability in this century.

Despite a number of attractive features (including its conformity to standard conditions on a probability calculus)[48] the *Tractatus* story has two remarkable drawbacks. First, it is silent about what empirically observed frequencies could have to do with probability estimates. This renders it incapable of application to statistical reasoning from sample populations and to learning from experience. Second, if probabilistic relations between natural language propositions (including those of the sciences) depend upon relations between their truth grounds, the assignment of probabilities to them is impossible unless they can be analyzed to determine which elementary propositions and states of affairs are involved in their truth conditions. As will be seen below, the *Tractatus* discussion of objects and names, states of affairs and elementary propositions does not indicate what such an analysis would involve, how, or even whether it could be accomplished.[49]

XI TRACTARIAN PHILOSOPHY OF SCIENCE

If states of affairs are mutually independent there are no causal connections (deterministic or stochastic) between them (*T*5.135–5.1361, 6.37). If elementary propositions are mutually independent, they cannot influence each other's probabilities any more than they can entail or

logically exclude one another. Thus, the *Tractatus* is no place to be a realist concerning laws of nature.

But although states of affairs are independent of one another, complex situations—patterns of obtainings and non-obtainings of states of affairs—are not. If they were, non-elementary propositions would be as logically and probabilistically irrelevant to one another as elementary propositions. By allowing non-trivial, logical and probabilistic connections between truth functions, Wittgenstein leaves open the possibility, e.g., that universal gravitation might be a law of nature which embodies probabilistic and logical connections between non-elementary propositions and objective dependencies among complex situations.

Instead of denying this possibility, Wittgenstein says the belief that 'the so-called laws of nature' explain natural phenomena is an illusion *(Täuschung)* (*T*6.371). This is because he thinks 'the so called laws of nature' (a mixed lot including 'laws of conservation' (*T*6.33), the 'law of least action' (*T*6.3211), 'the principle of sufficient reason' and 'laws of continuity in nature' (*T*6.34), as well as the laws of Newtonian mechanics (*T*6.341A, 6.342B) and other such theories) are creatures of convention. Here is why.

If states of affairs are mutually independent, scientifically interesting deterministic and stochastic dependencies can hold only between complex situations. But complex situations are collections assembled by linguistic practice from a fixed stock of possibilities for obtainings and non-obtainings of individual states of affairs. In the absence of natural connections between the obtainings and non-obtainings of any states of affairs, the only connection the *Tractatus* allows, e.g., between ab and cd, would be constituted by linguistic conventions. Different natural and artificial languages need not allow for the expression of all or of the same truth functions of elementary propositions. Thus, one language might enable its speakers to say things whose truth values depend on the joint obtaining of ab and cd while another language does not. Wittgenstein thinks of scientific theories as embodying conventions for describing the world. These conventions determine how states of affairs will be collected and thus what complex situations the science will treat. Thus Newtonian 'mechanics determines one form of description of the world by saying that all propositions used in… [its] description must be obtained in a given way from…the axioms of mechanics' (*T*6.341A). Wittgenstein illustrates this by analogy to a procedure for describing a surface covered with an irregular pattern of black spots by laying a square-meshed net over it and saying for each square whether it is black or white. The coarseness of the net will influence the accuracy of the descriptions, but in different ways for differently shaped meshes. But even so we can allow for this by adjusting the degree of coarseness to the

shape of the mesh, and equally accurate descriptions can be obtained through the use of at least some different nets. Thus, even if some meshes would not permit accurate enough descriptions for our purposes, the pattern of spots does not uniquely favour any one net. By analogy the world is nothing more than the obtainings and non-obtainings of situations which do not uniquely favour the descriptive conventions of any particular scientific language. The laws of Newtonian mechanics do not explain the obtainings or non-obtainings of any of the states of affairs of which any world is composed. Instead, they constrain their organization into complex situations by requiring, e.g., that we describe motions in terms of mass, force and acceleration—all of which involve convention-driven groupings of naturally independent states of affairs.

So much for Newtonian laws of motion. Laws like the principle of sufficient reason do not explain anything either; they are higher-level constraints on description (*T*6.35B).[50] We can learn something about the world from the fact that it 'can be described more simply with one system of mechanics than with another' and by 'the precise *way* in which it is possible to describe it' by Newtonian mechanics (*T*6.342B).[51] That is because obtainings and non-obtainings of states of affairs which do not depend upon linguistic conventions constrain the scientist's ability to construct and use theories and the results their use can bring. But all the same 'the possibility of describing the world by means of Newtonian mechanics tells us nothing about the world' (*T*6.342B). The possibility of describing the spotted surface did not require the shapes or spatial arrangements of the spots to resemble the shapes or arrangements of the mesh of the net chosen to describe them. By analogy, if states of affairs are mutually independent and if theory and theory choice are conventional as Wittgenstein thinks they are, the possibility of Newtonian descriptions does not require states of affairs to fit any more naturally into Newtonian groupings than into complex situations resulting from the groupings of any other theory.

The idea that regimenting and organizing descriptions of phenomena is the real function of the explanatory principles of physics is a venerable one held by philosophers who understood and respected the sciences no less than Duhem did. But motivated as it was by Wittgenstein's conventionalism and his views on mysticism (see Section XII below), Tractarian philosophy of science contains the seeds of what became an increasingly unsympathetic attitude towards the natural and behavioural sciences. The 'whole modern conception of the world', said Wittgenstein, 'is founded on the illusion…that the so-called laws of nature' and by extension, the sciences which invoke them 'explain natural phenomena' (*T*6.371–6.372). People who hold this conception treat the laws of nature 'as something inviolable, just as God and Fate

were treated in past ages'. Wittgenstein preferred the 'view of the ancients' for its acknowledgement of the inexplicability of God and Fate over 'the modern system…[which] tries to make it look as if *everything* were explained' (*T*6.372). Time brought no rosiness to Wittgenstein's opinion of 'the modern system'. According to the later works, science is grounded just as much in 'forms of life' and social practices as any other activity involving language use. And it is no better justified by such grounding. This picture, along with Wittgenstein's distaste for the arrogance he attributed to science descends directly from the philosophy of the *Tractatus*.[52]

X TROUBLES WITH OBJECTS

Unlike the two-dimensional objects in my simplification (see Section II above), the objects Tractarian names refer to are 'simple' and 'indivisible' (*T*2.02), unalterable and unchanging, and eternal (*T*2.022, 2.024–2.0271). Sense data, ideas, sensations, direct experiences and other such mental items posited by psychologists and philosophers lack these virtues. According to the theories which appeal to them they are all evanescent, most of them are complex, and some are changeable. This marks a crucial difference between the *Tractatus* and a good deal of the empiricist philosophy commonly associated with it. G.E.Moore, Bertrand Russell, members of the Vienna Circle and others Wittgenstein encountered both before and after the *Tractatus,* held that the analysis of ordinary and scientific language terminates in perceivable objects which belong to the foundations of empirical knowledge. For Russell these were sense data. He believed that only statements whose fully analyzed versions mention sense data can be empirically tested. And he believed we could not understand our own utterances unless they made reference to such objects of direct acquaintance. In contrast to all of this and to Wittgenstein's later work as well, the *Tractatus* is not greatly concerned with epistemology.[53] Tractarian objects belong to an ontological theory about the ultimate composition of the world rather than an epistemological theory about our knowledge of it. Tractarian objects are the ultimate components of the facts we form beliefs about rather than the evidence we use to justify empirical beliefs. And even though they are the ultimate objects of reference according to Tractarian semantics, the *Tractatus* does little or nothing in the way of appealing to objects to explain how languages are actually learned and utterances understood.[54] Wittgenstein's later remark concerning Socrates' dream of analysing complexes into simple components that '[e]xperience certainly does not show us these elements' is quite faithful to the objects

of the *Tractatus,* and was probably meant to apply to them [4.47], 59; [4.25], 202 A-C).

Things were not always so. Wittgenstein's pre-*Tractatus,* notebooks sometimes suggest that 'patches in our visual field' might be the referents of genuine names.[55] Wittgenstein's conversations with Schlick and Waisman, after his return to Vienna clearly suggest an epistemological development of Tractarian ideas. Around 1930 Waismann wrote 'Theses', an epistemologically oriented adaptation of the *Tractatus* which appears to have had Wittgenstein's (temporary) blessing.[56] But the notebooks also consider the possibility of objects as non-Russellian as watches and mass points.[57] The *Tractatus* is remarkable for its lack of any such suggestions. In spite of Wittgenstein's willingness to speculate elsewhere about what objects might be, the *Tractatus* leaves this as an exercise to the student. It is plausible that this is because Wittgenstein had hit upon an approach to semantics which required objects without providing any guide whatever to what they might be.[58] It is also plausible that the *Tractatus* is not driven by interests which required Wittgenstein to continue his pre-Tractarian speculations about what the objects are (see Section XII below).

Because states of affairs are just concatenations of objects, we cannot know what the states of affairs are unless we know what the objects are. But if we do not know what objects there are, we cannot know the meanings of simple names. But then we cannot understand elementary propositions either, for an elementary proposition is an arrangement of names whose sense is a function of their meanings. Furthermore, although the *Tractatus* speaks of knowing 'on purely logical grounds' that there must be elementary propositions (*T*5.5562), it says it is impossible to determine a priori what the elementary propositions are (*T*5.5571) or what their forms might be (i.e. how many different names they can contain, and in what arrangements) (*T*5.5541–5.555). Instead, '…the application of logic decides what elementary propositions there are' (*T*5.557). I suppose this means the only way to discover the elementary propositions would be to try analysing non-elementary propositions (cp. *T*4.221A). You might start with a list of arbitrarily chosen candidates for elementary propositions and try to express the truth conditions, for example, of colour claims, by joint negation, modifying the original list of putative elementary propositions as needed to obtain the required results. If that worked you could repeat the process, adjusting the list as needed to construct other propositions, and so on.

Be that as it may, no such project is undertaken in the *Tractatus,* and the *Tractatus* does not provide the materials for any of the reductions or analyses the construction thesis might lead us to expect (including, e.g.,

the application of its treatment of logic and probability to natural language claims (see Section IX above)).

A survey of the kinds of features Tractarian objects are supposed to have raises questions about whether one object (hence one state of affairs) can be discriminated from another. If they cannot be discriminated, it is hard to be optimistic about the prospects for undertaking the constructions the *Tractatus* neglects. The features of Tractarian objects are of three kinds.

1 Each object has trans-world, 'internal features' constituted by its ability to concatenate with one or more other objects (and its inability to concatenate with still others). Thus, the internal features of objects determine which states of affairs they can belong to (*T*2.0123B). The natures of all of the objects taken together determine what worlds are possible; possible worlds differ from one another just in virtue of the concatenations of objects they contain and fail to contain. Although configurations of objects change from world to world, the internal features of an object remain constant over all possible worlds including even worlds in which no situation to which it can belong obtains.
2 Wittgenstein mentions 'external' properties (*T*2.01231, 2.9233, 4.023). He doesn't say much about what they are, but we can guess. Since an object's internal properties are features it has in all worlds (*T*4.123), its external features should be properties it has in the actual world but lacks in some other worlds. What would these be? Because no elementary proposition is true in every world, no concatenation to which an object can belong obtains in all worlds. Thus the external features of an object should consist of its belonging to whatever concatenations it actually belongs to along with the non-obtaining of other states of affairs to which it can belong. Perhaps there are other sorts of external features, but Wittgenstein does not mention them.[59]
3 The *Tractatus* needs to ascribe features of another sort to objects in order to allow for colours and other properties which Wittgenstein calls 'material' (*T*2.0231). Since it is impossible for 'two colors to occupy the same place in the visual field' or for a particle to have two different velocities or spatial positions at the same time (*T*6.3571) being red and being blue (being here and being there, having this velocity and that velocity) exclude one another and therefore cannot *all* be states of affairs. It is plausible that according to the *Tractatus* none of them are. Colour, velocity and position are material properties and it is 'only by the configuration of objects that…[material properties]…are constructed *(gebildet')* (*T*2.0231). Thus, the fact that my Dodger cap is Dodger blue should reduce to

> complex situations made possible by the natures (concatenation abilities) of the objects they involve. The natures of the relevant objects must also rule out complex situations which would give my cap different colours (or give its colour different degrees of brightness) all over at the same time. This is an example of how 'empirical reality is limited by the totality of objects' (*T*5.5561A). I will call the features of objects which make possible and constrain the material properties of familiar things 'material capacities'.[60] These are, or should reduce to internal features of objects.

In the next section, I suggest that objects with no features but these cannot be discriminated one from another as required to understand their names.[61] If so, it will be impossible to interpret sentences used to picture states of affairs or complex situations. Because states of affairs are simply concatenations of objects, it will also be impossible (for theoreticians as well as speakers) to discriminate between states of affairs which constitute the truth grounds of different propositions. The meaning of a Tractarian name is exhausted by its reference to an object (*T*3.203) and elementary propositions are nothing more than names arranged to picture states of affairs which are nothing more than arrangements of the bearers of the names. Thus, it looks as though we will not be able to determine the truth conditions of elementary propositions. That makes it hard to see how we could construct (or interpret constructions of) their non-tautologous, logically consistent truth functions—including the truth functions expressed in technical and everyday natural languages. Over and above the fact that no construction is actually undertaken in the *Tractatus*, this makes it look as though the construction of any informal or technical natural language proposition would require considerable adjustments in its theory of objects.

XI TRACTARIAN ANTI-DISCRIMINATION

A first thing to say about this is that while Tractarian objects neither are nor possess material properties, these are the only features which our senses and instruments of observation and measurement are capable of registering or recording (at least in any form that we can recognize). Thus, there is no reason to think that our senses or our equipment can observe perceive, photograph or otherwise register or record any particular object or its features. If we have any empirical access to objects, it must be by way of the analysis of whatever states of affairs or situations we (and our equipment) can observe and record.[62]

The next thing to notice is that objects cannot be discriminated unless they have different features (*T*2.02331) and all features of

objects are external or internal (including material capacities). But even if we could pick out an object by way of its external features, they would not suffice for its re-identification. Setting aside the fact that our senses and our equipment are not attuned to objects suppose we could somehow examine single states of affairs and give the name 'a' to the object we find presently concatenated with another object, to which we give the name 'b'. This gives us one external feature of a and b—the fact that they are concatenated. But that will not enable us to recognize a in any other state of affairs. And even if it did, we would not be able to tell whether or not any other object concatenated with a in any other state of affairs (in this or any other world) is the object we originally called b. (Since we do not know any internal properties we have no reason to think a and b cannot belong to other states of affairs, and no idea of which ones they can belong to.) The fact that b was concatenated with a will not allow us to discriminate b from any other object concatenated with a in any other state of affairs. Thus, Wittgenstein seems to be quite right to say we cannot know an object unless we know its internal properties (*T*2.01231).

How could we detect the internal features of an object? If a and b are concatenated we know that they can concatenate with one another; that's one internal feature. But to find out what other internal features they have, we must find out what other objects they can or cannot concatenate with. Suppose we knew somehow that ac does not obtain, where c is yet another object, ac might fail to obtain because the concatenation is impossible. (That would be an internal feature of a and c.) But its non-obtaining could be just a contingent fact (external feature). To decide between these possibilities, we would have to find out whether ac obtains in any non-actual world. But there is no way to find that out unless the objects have marks which enable us to identify them across worlds. External features are limited to properties objects have in the actual world, and so they cannot serve this purpose. Internal features (including material capacities) would do the job, but they cannot be detected without marks by which objects can be identified across worlds. If we cannot detect the internal features which distinguish a from b, we will not be able to discriminate state of affairs ab from ba, or be, where c is any other object you please.

If (as seems impossible) we had some way to assign names (i.e. signs to be used as names) to objects belonging to actual facts, we might try to avoid trans-world identity questions by stipulation. For example, in thinking about how the object concatenated with b in this world might be situated in other possible worlds, we would give it a name and stipulate its inclusion (under the same name) in the relevant alternative worlds. On this approach possible worlds are constructed by the theoretician, and their contents are '*stipulated*, not *discovered* by powerful

telescopes'.[63] But because states of affairs are completely independent, there are any number of possibilities for different systems of stipulations. We could not discriminate between different objects called by the same name and states of affairs portrayed by the same sentence under different stipulations. But Wittgenstein was a realist about objects; according to the ontology of the *Tractatus* our inability to detect their differences would not make the differences any less real. The *Tractatus* considers no such possibility, let alone how such stipulations might be constrained.

If the identities of objects rest on stipulation, so do the senses of elementary propositions. Different stipulations will allow the same propositions to be analysed as truth functions of different elementary propositions. Under different stipulations material properties will reduce to deployments of different objects. This need not sound so bad from the standpoint of model semantic techniques which do not require discriminations to be made among all of what the *Tractatus* would count as different collections of possible worlds. But this is not Wittgenstein's point of view; the relevant semantic techniques were developed after the *Tractatus*.

It need not sound so bad from the standpoint of programmes of reduction and construction developed by the logical positivists. These programmes allow the theoretician's purposes to dictate the choice of items to be treated as objects. For example, although Carnap's epistemological concerns led him to choose 'experiences' as the basic elements of the *Aufbau,* he thought that given other interests, 'physicalistic' items could have been treated as basic.[64] Wittgenstein rejected this approach, at least in so far as the choice of basic elements involves stipulations or assumptions concerning the forms of elementary propositions. In 1931 he said it had always been clear to him that 'we cannot assume from the very beginning, as Carnap, does, that the elementary propositions consist of two-place relations, etc'.[65]

It is ironic that such construction programmes are still commonly associated with the *Tractatus*. It is historically important that their treatment of objects, states of affairs, and the interpretation of names and elementary propositions is profoundly non-Tractarian.

XII THE MEANING OF LIFE, THE UNIVERSE, AND EVERYTHING

If Wittgenstein did not mind the incompleteness of the *Tractatus* treatment of topics so many readers believed it taught them about, what did he want his book to accomplish? Its preface (echoed by its closing

line) says what the *Tractatus* shows is that the posing of philosophical problems:

> rests on the misunderstanding of the logic of our language. One could capture *(fassen)* the whole sense of the book in something like the words: What can be said at all can be said clearly; and that whereof one cannot speak, thereof one must be silent.
>
> ([4.45], 3; cp. p. 7)

This applies, for example, to 'mystical' questions about why there is a world (*T*6.44), the nature and concerns of God (*T*6.432) and the source of ethical and aesthetic value. (*T*6.41–6.421) It applies to questions about the meaning of life (*T*6.52) and why we should do what is good rather than what is wrong (*T*6.422). It applies to questions raised by philosophical skepticisms (*T*6.51), solipsisms and realisms (*T*5.62–5.641). Propositions can represent everything which can be the case (*T*3, 4.12A). But philosophical problems are not questions about what is the case (*T*6.52, 6.4321, 4.1, 4.11). For the *Tractatus,* philosophy properly understood is an activity aimed at resolving problems by the clarification of thoughts, rather than a body of doctrine (T4.112ff.). The *Tractatus* and Wittgenstein's later works agree as much on this as they disagree about the nature of the activity.[66]

For the *Tractatus* a crucial part of the activity would involve setting out propositions in a logically perspicuous symbolism (*T*4.1213) which reveals the essential features of the relevant symbols which must be exhibited to clear away a philosophical problem. There are illustrations of this for the case of problems whose resolution does not require us to construct natural language propositions, use names for objects or grasp the truth conditions of elementary propositions. For example, the notation for joint negation resolves questions about what sorts of things such logical constants as '¬','⊃', '&' represent by showing that the expression of truth functions does not require these signs to represent anything (*T*4.0312, 5.4). Similarly for any p and q, the connections between the truth grounds of q and (p & **p⊃q**) which explain why the latter entails the former can be exhibited without interpreting any elementary propositions. This allows Wittgenstein to dissolve questions generated by the assumption that *modus ponens* reports very general extra-linguistic facts—and similarly for other logical laws (see section VIII above).

Wittgenstein thinks the cure for these and all other philosophical problems (including the mystical ones) lies not in what propositions *say,* but rather, in what is *shown* by various uses of signs—including the use of logically perspicuous notations to say the same things as less perspicuous ones. The employment of signs shows what the signs fail to say (*T*3.262). While the employment of signs tells us *(spricht)* 'what the signs conceal'

(*T*3.262) it does not literally say it: 'what *can* be shown *cannot* be said.' (*T*4.1212). It looks as though these ineffables are conveyed in a number of different ways. For example, although we cannot say of a proposition (symbol) that it has such and such a sense, the proposition shows us what its sense is by picturing it (*T*4.022). But presumably if the way Newtonian mechanics allows us to describe the world shows us something about world, it does not show us in the same way (*T*6.342)—or in the same way that a proposition displays its pictorial form (*T*2.172). All that these and other sorts of showings need and have in common is (a) that what is conveyed is not the obtaining and non-obtainings of states of affairs, and (b) that it is not conveyed in the same way that a proposition expresses its sense.

A particularly important kind of showing is required for the sentences of the *Tractatus* which Wittgenstein says 'clarify' *(erläutern)* the functioning of language even though they are 'nonsensical' (*T*6.54). This includes, e.g., the sentences which present the picture theory, the ontology and the method of construction by joint negation. It would include any locution offering any semantical or syntactical analysis. Wittgenstein's treatment of identity illustrates the difference between this and another sort of showing. 'Roughly speaking, to say of *two* things that they are identical is nonsense' (*T*5.5303). This does *not* mean such expressions as 'a=b', '$\forall x(fx \supset x = a)$' convey nothing. Instead, they convey what they convey by showing rather than saying it. But the employment of a notation with no identity sign can show the same thing in another way which 'also disposes of all the problems that were connected with such pseudo-propositions' (*T*5.535). A. logically perspicuous notation would employ exactly one name for each object. The differences between the names would dispense with the need to write down any thing like 'a=b' (*T*5.53). The number of different names would show the same thing a non-perspicuous notation would show (in a different way) by means of such nonsense expressions as 'there are (are not) infinitely many objects' (*T*5.535). And it would show us that identity is not a relation if it provided a way to analyse identity signs away from formulas which contain them.[67] This—as opposed to the showing done by some nonsense sentences—is the sort of showing illustrated by the use of joint negation to show that the logical constants do not represent and that the justification of an inference does not depend upon laws of logic (above). Wittgenstein appeals to these (and other sorts of showing) in hopes of avoiding the need for a hierarchy of languages, each one of which is described by expressions belonging to the next language up. Instead of constructing a metalanguage to *say*, e.g., that 'ab' is true just in case a is concatenated with b, Wittgenstein's idea was that this could be *shown* by nonsense sentences in the same language we use to say 'ab' or by features of that language. In effect, Wittgenstein

appeals to different ways of communicating (saying and showing) in place of metalanguages constructed to describe object languages.

But I do not think this is the only, or the most important, motivation for the doctrine of showing. Wittgenstein was deeply concerned with mystical issues including those the logical positivists called 'metaphysical' and hoped to eliminate by employing methods they believed the *Tractatus* contained. Carnap said Wittgenstein gave him the 'insight that many philosophical sentences, especially in traditional metaphysics are pseudosentences devoid of content'.[68] This sounds like something you could learn from the philosopher who wrote that because answers to '*all possible* scientific questions' would leave the 'problems of life… completely untouched…there are then no questions left, and this itself is the answer.' (*T*6.52).

But Wittgenstein wrote to an editor to whom he had submitted the *Tractatus* that its 'point is an ethical one'. It consists, he said:

> of two parts: the one presented here [i.e., the complete text of the *Tractatus*] plus all that I have *not* written. And it is precisely the second part that is the important one… I believe that where *many* others today are just *blathering (schwefeln)* [about the sphere of the ethical] I have managed…to put everything firmly into place by being silent about it.[69]

This suggests that when Wittgenstein spoke of the vanishing of mystical problems (*T*6.521) all he really meant was the vanishing of the blather about them. He says 'the sense of life' has become clear to people after long periods of doubt even though 'they have been unable to say what constituted that sense' (*T*6.521)[70] Far from denying the reality of what these people could not express, the next passage affirms it: 'there are, indeed things that cannot be put into words. They show themselves. They are the mystical' (*T*6.522).

In contrast to these, what we can say, namely: '…*[h]ow* things are in the world is a matter of complete indifference for what is higher' (*T*6.432).

Wittgenstein seems to have felt that what can be said is insignificant in comparison to what can be shown.[71] If this is so, what Wittgenstein's readers thought they learned was not what he hoped to teach. The *Tractatus* exerted its greatest influence through the works of empiricists who thought that what cannot be said is nothing at all. They believed that what is important can be discovered and expressed by the natural sciences. They believed the mystical concerns of the unwritten part of the *Tractatus* were delusions. They valued the *Tractatus* as a cache of weapons to combat them.[72]

NOTES

1 [4.45]. The original title was *Logisch-Philosophisce Abhandlung*. The title *Tractatus Logico-Philosophicus* was suggested by G.E.Moore. For a composition and publication history, see [4.48], 1–33, 255ff. For the history and circumstances of its composition, see [4.22] chs 7–8 and [4.23], chs 5–8.
2 Numbers in parentheses marked *T* are *Tractatus* section numbers.
3 Wittgenstein's usage differs from Russell's. For Russell, G.E.Moore's having recorded with Thelonius Monk is a negative fact. For Wittgenstein it is not a fact of any kind and the relevant negative fact is that Moore did not record with Thelonius.
4 I use 'world' for what [*T*2.06] calls 'reality'; Wittgenstein's worlds include only positive facts.
5 Wittgenstein wrote a version of the truth table in 1912 on the back of a paper Russell presented to the Cambridge moral sciences club [4.22], 160. Quine says truth tables were used to set out truth functions independently of the *Tractatus* in papers by Lukasiewicz, and Post in 1920–1, and that Peirce described a non-tabular version of essentially the same method in 1885 [4.26], 14.
6 For example since N (3) has the same truth conditions as (2), we had best pick another once we have got (3). For a complete discussion for the case of two elementary propositions see [4.1], 133ff.
7 See [4.38], 480ff.
8 For details, see [4.1], 135ff.
9 [4.24], 297.
10 Cp. [4.1], 133–4.
11 [4.2], 312. We need the next steps because merely to select p as a value of is not to construct it by joint denial.
12 [4.47], section 94.
13 For a discussion of this problem for the case of quantified propositions, see [4.19].
14 A model according to von Wright; a diagram according to Malcolm. [4.21], 8, 57.
15 Cp. [4.46], 7, 27.
16 Cp. [4.37], [4.38].
17 [4.47], Section 94.
18 [4.25], 321. Anachronistically speaking, to judge 'one thing' is to believe something definite enough to determine the truth conditions of the belief. Wittgenstein's quotation of some of this in connection with picturing at [4.47], section 518, makes it plausible (without proving) that he knew the passage when he wrote TS. For another version of the argument see [4.3], 6ff.
19 [4.28], 28–33, [4.30], 528–33, [4.35], 193ff.
20 [4.6], 144.
21 [4.31], ch. XII, [4.34], 43, [4.36], part II, chs i-iii.
22 [4.12], 56–78. For a concise statement of Frege's version of the problem, see [4.14], 117ff. See also [4.1].
23 [4.14, 127].
24 For example, if there is no such person as Odysseus, the name 'Odysseus' lacks a reference and propositions like 'Odysseus was set ashore at Ithaca…' have sense but no reference [4.12, 63].

25 [4.12]. This ignores many important details, most notably Frege's treatment of indirect reference.
26 See [4.8], 197, 280–1.
27 The last sentence of 4.442 rejects (and mis-states) Frege's idea that to assert a proposition is to commit oneself to its naming the True. For other points of contact with Frege, see [4.2], 182–3.
28 [4.3], 104ff.
29 The constituents of Russell's propositions are not the constituents of Tractarian states of affairs. For example, (section X) Russellian objects are sense data, not Tractarian simples and Tractarian situations contain no relational constituents. For this and other differences between Russellian and Tractarian atomism see [4.4], ch. 1.
30 Russell depends upon the theory of descriptions to analyse judgements which seem to involve non-existing things. Thus my judgement that unicorns live outside of Boulder, Colorado, relates me not to non-existent unicorns—but to a collection of existing things at least one of which would be a unicorn *if* my judgement were true.
31 [4.22], 174. Wittgenstein's pressing of this point was not only decisive, but remarkably harsh. In 1916 Russell wrote to Ottoline Morrell that they 'affected everything I have done since. I saw he was right and I saw that I could not hope ever again to do fundamental work in philosophy. My impulse was shattered like a wave…against a breakwater'. [4.22], 174–7.

The following from a letter to Russell from Austria in 1913 is a good place to start trying to imagine what it might have been like to be personally involved with Wittgenstein.

> The weather here is constantly rotten, we have not yet had two fine days in succession. I am very sorry to hear that my objection to your theory of judgement paralyses you. I think it can only be removed by a correct theory of propositions.
>
> ([4.49], 24)

32 I assume Wittgenstein is using 'proposition' here for collections of objects to which Russell thought judging relates the mind of the judger. This would accord loosely with both Russell's and Moore's usage during this period.
33 [4.27]. 13.
34 Cp. 3.11: If 'the method of projection' by which signs are used to picture possible situations is identical to 'the thinking of the sense of the proposition' and if the sense of the proposition is that such and such is the case, then judging, thinking, believing, etc. that such and such is the case should be reducible to the relevant uses of signs. A 1919 letter to Russell says that the elements of the thought are 'psychical constituents which have the same sort of relation to reality as words', [4.49], 72.

Wittgenstein's analysis has its problems. Wittgenstein does not say what 'p' has to do with the person who judges, thinks, etc., that p. Thus, if all claims of the form 'A believes p' are to be analysed as '"p" says p', how is the analysis supposed to capture the difference between the claim that Thelonius believes p and the claim that Bud believes p? What sorts of signs are involved in judging? Ramsey thought (quite plausibly) that they should belong to some sort of mentalese, but Wittgenstein does not go into this. Presumably, we can say that Thelonius believes that p, and what we

say is contingently true or false. But the *Tractatus* seems to treat such claims as that such and such proposition has such and such a sense as unspeakable, and what is unspeakable should not be contingently true or false.

35 See note 43.

36 This would be much easier to understand if it were a matter of syntactical constraints on signs than it is to understand in connection with Tractarian symbols.

37 See [4.41], 1–36 for an enlightening discussion of this and the importance of Frege's approach.

38 [4.17], 109.

39 [4–6], 145–6.

40 Cp. [4.45], Shwayder discusses this in detail, suggesting that part of Wittgenstein's point (at *T*3.5) in calling the applied propositional sign *der Gedanke* (which should be translated '*the* thought', rather than '*a* thought') and then saying that the thought is the meaningful proposition (4), was to show how he proposed to get along without the Fregean sense ('the thought') [4.38], vol II, 4–7).

41 [4.36], 115.

42 cp. [4.34], 93.

43 For example, the ratio of truth grounds common to and p&¬q (there are none) to truth grounds of p&¬q is true is . Since tautologies are true in every world, their probability is 1, given any non-contradictory proposition. Wittgenstein does not tell us what to do about the fact that the probability of any proposition given a contradiction will be .

44 Or so it seems; see section XI.

45 Not only in *Tractatus,* but also in discussion from 1927 on, and as expanded and modified by Waismann in 1929 [4.5], 71ff.

46 [4.44], 33, 35.

47 Cp. [4.43], 93.

48 For example, by requiring every probability to equal 0, 1, or some number in between.

49 Cp. [4.2], 256.

50 It is important that Wittgenstein's conventionalism does not require him to think that developing, accepting or using a scientific theory requires anyone actually to find out what states of affairs there are and decide how to group them, or to inspect the elementary propositions and decide which sorts of truth functions to construct from them. The construction of truth functions and complex situations is something the scientist must accomplish in order to do his work. But just as people can speak without having any idea of which muscles must be made to contract in order for them to utter words, the scientist—like any other language user—can construct and employ languages to describe phenomena 'without having any idea of how each word has meaning or what its meaning is' (*T*4.002). This does not explicitly mention science but there is no reason to think it does not apply to scientific language.

51 I suppose 'the precise way' involves, e.g., how the Newtonian physicist must think of time and space, what he must do, e.g., in choosing and employing a reference system to locate bodies in the space and describe their motions—as well as what must be done to calculate values of such quantities as Newtonian force, acceleration and mass from observational data, what kinds of computations are required for prediction, etc. See [4.2], 354–60.

52 See, for example, [4.50], 5–7, 10, 17, 27, 62, 63, and [4.23] ch. 23.
53 [4.1], 25–9.
54 4.062 is typical of what little he does say on such subjects: it contrasts propositions which we can understand without having their senses explained with 'the meanings of the simple signs (the words)' which cannot be understood without explanation. But he has just said that foreign language dictionaries help us translate propositions by translating 'substantives,…verbs, adjectives, and conjunctions, etc.', rather than whole propositions (4.025). Since these are not Tractarian names, it is not clear whether 4.062 is a remark about Tractarian names.
55 [4.46], 65
56 [4.42], Vienna Circle, pp. 233 ff. Among other things, this includes the 'verification theory', (one of the most important ideas attributed by the logical positivists to Wittgenstein) in the form of the claim that 'a proposition cannot say more than is established by its method of verification' and that 'to say that a statement has sense means that it can be verified' (p. 244). No such thing occurs in the *Tractatus*. But cp. 'On Dogmatism' (1931) in which Wittgenstein decides that writing the 'Theses' was not such a good idea after all [4.43], 182
57 [4.46], 60, 67
58 Ibid., 60, 62
59 Constituted for example, by the way states of affairs an object belongs to are collected into complex situations
60 This may explain why 'space, time, and color…are forms of objects' (2.0251). Even though Tractarian objects neither are nor have colours Wittgenstein may think that certain objects figure uniquely in states of affairs which determine colour possibilities, and have colour as their form in just this sense. Similarly, objects which figure uniquely in the construction of (physical) spatial facts could be said to have space as their form even though they are not themselves either physical spaces or spatial objects.
61 [4.16], ch 2 is an excellent (and as far as I know, the first) discussion of difficulties in the individuation of *Tractatus* objects.
62 Ibid., 15–19.
63 [4.20], 44.
64 [4.5], 18.
65 [4.43], 182 This passage also eschews 'hypotheses' (i.e. 'law[s] for constructing statements' (p. 255) concerning elementary propositions).
66 This may be one reason Wittgenstein wanted the *Tractatus* and the *Investigations* to be published together [4.47], x.
67 Wittgenstein's example of replacing (1) '$\forall x(Fx \supset x = a)$' with (2) '$(\exists x)(Fx) \supset Fa) \;\&\neg(\exists x,y)(Fx\&Fy)$' (5.5321) is troublesome unless he can rule out the substitution of 'a' for both variables to obtain ' & ¬(Fa&Fa) as an instance of (2). For other issues involving the elimination of identity see [4.10], 60–9; [4.11], *passim*.
68 [4.5], 25.
69 Adapted from McGuiness' translation in [4.9], 143.
70 Wittgenstein's use of the word 'sense' is surely intended to make us contrast this sort of meaningfulness with the meanings of propositions.
71 [4.10], 90. [4.9] includes sympathetic and persuasive support for this reading.

72 My understanding and appreciation of Wittgenstein's early work has been greatly enhanced by conversation with and help from David Shwayder, Robert Fogelin, Jack Vickers, Jay Atlas, and David McCarty. I am also indebted to Howard Richner for spotting disasters in an earlier version of this chapter.

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CHAPTER 5

Logical Positivism

Oswald Hanfling

I INTRODUCTION

'Logical positivism', writes a leading historian of twentieth-century philosophy, 'is dead, or as dead as a philosophical movement ever becomes' (Passmore [5.42]). Most philosophers today, and indeed for some time past, would endorse this statement. In one sense it is absolutely dead, for it lost its cohesive membership with the break-up of the group of philosophers known as the 'Vienna Circle', due to political pressures in the 1930s. It was here that the philosophy known as logical positivism had been initiated, developed and energetically propounded to the philosophical community throughout the world.

The 'death' of the movement was due, however, not only to the dispersal of its members, but also to a widespread recognition of the defects of its ideas. Now in this sense, probably most of the philosophy studied in our universities is dead, for most of it is open to more-or-less fatal criticisms; and criticism is regarded as one of the main approaches to the great philosophers and movements of the past. However, what hastened the widespread rejection of logical positivism was not merely the (unsurprising) discovery that its doctrines were open to criticism, but the aggressive and even arrogant way in which those doctrines were propounded to the world. Chief among these was the 'elimination of metaphysics'. It was claimed by members of the movement that they had noticed something about existing and traditional philosophy, which would completely overturn it and render it largely otiose. There appeared articles with such titles as 'The Elimination of Metaphysics through the Logical Analysis of Language' (Carnap [5.5]) and 'The Turning Point in Philosophy' (Schlick [5.24]). Carnap posed the question: 'Can it be that so

many men, of various times and nations, outstanding minds among them, have devoted so much effort, and indeed fervour, to metaphysics, when this consists of nothing more than words strung together without sense?' International conferences were called with a view to disseminating the new 'insights', and a grandiose project, *The Encyclopedia of Unified Science,* was launched to give definitive expression to the new 'scientific' era in which philosophical and other discourse would become part of the discourse of science. In these circumstances it was not surprising that critics of the new ideas were more than usually prompt, forthright and thorough in their criticisms.

Nevertheless, logical positivism has an established place in the history and continuing development of philosophy. At least three reasons might be given for this. One is purely historical, regarding the considerable impact and influence of the movement in its heyday. A second lies in the intrinsic interest of its ideas, which I hope to bring out in what follows. A third lies in the fact that even if no one today would call himself a logical positivist, some of its main positions, such as verificationism, and emotivism in ethics, are still referred to as parameters within which discussions of particular topics, such as ethics or the philosophy of religion or of science, are to be conducted. Again, it can be argued that even if the parent plant is dead, many of its seeds are alive and active in one form or another. In an interview in 1979, A.J.Ayer, a leading philosopher of our time, who had been an advocate of logical positivism in the 1930s, was asked what he now saw as its main defects. He replied: 'I suppose the most important…was that nearly all of it was false'. Yet this did not prevent him from admitting, shortly afterwards that he still believed in 'the same general approach' ([5.70], 131–2).

In a number of ways 'the same general approach' is still widespread today, and indeed was so long before the advent of logical positivism. Empiricism, in one sense or another, is a major thread running through Western philosophy since the seventeenth century, including logical positivism and much of the philosophy of today. The same is true of 'reductionism', and especially the assumption that mental phenomena can be reduced, in some sense, to the vocabulary of the material or physical. Another idea, which was central to logical positivism and remains of central importance today, is that philosophical questions are largely questions of language, and that theories of meaning are therefore of central importance.

The movement originated in the 1920s among philosophers and scientists of the 'Vienna Circle', under the leadership of Moritz Schlick, professor at the University of Vienna. After some years of writing and discussion, the Circle organized its first international congress in 1929, attracting sympathizers from many countries. In 1930 it took over a journal, renamed *Erkenntnis,* for the publication of its ideas. The British

philosopher A.J.Ayer attended its meetings in 1933 and made its ideas widely known in the English-speaking world with the publication of *Language, Truth and Logic* in 1936 [5.1].

By that time the dispersal of the Circle was already under way, a number of members having emigrated, mainly to the United States and Britain. But there were also fundamental intellectual differences within the Circle. One of these, between Schlick and Carnap and Neurath, will be described below in section V.

An important influence was that of Wittgenstein, though he was not a member of the Circle. Having retired from philosophy after the publication of his *Tractatus Logico-Philosophicus* in 1922 [5.28], he was coaxed back into the subject by Schlick in 1927 and had regular meetings with Schlick and Waismann, another member of the Circle. (Their conversations are recorded in [5.27].) But from 1929 he declined to meet with other members of the Circle, whose views he found unsympathetic—a sentiment that was reciprocated by Otto Neurath, for one. Nevertheless, the *Tractatus* was regarded by the Circle as a classic statement of the new outlook in philosophy, and the work was read out and discussed sentence by sentence in the period 1924–6. It was, moreover, Wittgenstein who first formulated the 'verification principle' by which the new philosophy became known. Nevertheless it was he who made the most decisive break from these ideas when embarking on his 'later' philosophy in the early thirties.

The philosophy of the Circle became known as 'logical positivism' or 'logical empiricism'. The former name is more usual, but the latter, preferred by Schlick, seems to me to be more appropriate. It has the advantage of indicating the affinity of the Circle's ideas with those of the empiricist tradition begun by Locke in the seventeenth century, and later represented by such thinkers as Mill and Russell. It is also readily connected with the Circle interest in empirical science. Hence, although this article is entitled 'logical positivism', I shall prefer to use the term 'logical empiricism'.

The term 'logical' indicates a primary interest in language and meaning, as opposed to knowledge. The main questions for such philosophers as Locke and Descartes had been about the sources and extent of knowledge, and the empiricist Locke claimed that sense experience was the only source. In the new empiricism, by contrast, the primary question was not 'How do we know that *p*?', but 'What does "p" mean?'

The new approach may be illustrated by the problem of 'other minds'. How can I know that other people really have thoughts and feelings, when I can only observe their bodily movements and the sounds they utter? In the new philosophy this problem of knowledge is transformed into one about meaning. What does it *mean* to say that another person has such and

such a feeling? According to the new philosophy, it can mean *no more* than what is observable. Any statement about feelings as distinct from what is observable will be meaningless. 'It is not false, be it noted, but meaningless: we have no idea what it is supposed to signify' ([5.24], 270).

The logical empiricists recognized two, and only two, kinds of meaningful statements. They are, first and mainly, empirical statements, verifiable by observation. Second, there are statements, such as those of logic and mathematics, whose truth can be known a priori; but these were regarded as not presenting 'new' knowledge, but merely an analysis of what was known already. Any other statements were to be dismissed as meaningless 'pseudo-statements'.

II THE VERIFICATION PRINCIPLE

'The meaning of a proposition is the method of its verification.' So ran the principle as formulated by Wittgenstein and Schlick. (It was first formulated by Wittgenstein, but its most frequent use occurs in the writings of Schlick.)

In this sentence we have an answer to a long-standing question of philosophy, namely, What does meaning—the kind of meaning that language possesses—consist in? This question has sometimes been answered in terms of words and sometimes in terms of sentences or speech-acts. Locke answered it by reference to mental entities corresponding to words, claiming that 'words…signify nothing but the Ideas that are in the mind of the speaker' [5.78], 3.2.4). Wittgenstein, in the *Tractatus,* had postulated 'names' as the fundamental units of meaning, these 'names' being correlated with fundamental 'objects' in the world; with a further 'picturing' relation between propositions and corresponding 'states of affairs' in the world. The verificationist answer, as I have said, was in terms of the method of verification of a given proposition. Here was an apparently simple principle which could provide a focus for both adherents and critics of the new movement.

As well as providing an answer to the question 'What is meaning?', the principle was intended to provide a criterion to distinguish what is meaningful from what is not. Thus, if there is *no* method of verification—no way of verifying the proposition—then it must be meaningless.

It seems obvious that there is something right about the verification principle; that there is, at least, an important connection between meaning and verification. Thus, if we are unsure what someone means by his words, we can often find out by asking how one would verify what he said. And sometimes, at least, the admission that there is no conceivable method of verification will lead us to conclude that what was said is meaningless.

On the other hand, there are a number of difficulties with the principle, which may be divided into three, corresponding to the terms 'proposition', 'is' and 'method of verification'.

The original German word for 'proposition' is *Satz,* and the straightforward translation of this is 'sentence'. There is a difficulty, however, about treating sentences as objects of verification. Such a sentence as 'It is raining' cannot be regarded as true or false in itself. It is only when someone *uses* the sentence on a particular occasion that *what he says* is true or false. In answer to this and other difficulties philosophers have used the term 'proposition' to mean, roughly, what is asserted by means of a declarative sentence. It is, according to this usage, propositions that are true or false, and not the sentences by means of which they are asserted.

But now another difficulty may arise. 'Proposition' is sometimes defined as meaning an entity that is necessarily true or false. But if this is so, then the question of meaningfulness has already been decided in using the term 'proposition', for only what is meaningful can be described as true or false. In other words, it would be self-contradictory to speak of a meaningless proposition.

One way of overcoming this would be to put 'putative' before 'proposition'; another, which I shall adopt, is to use the word 'statement'. In ordinary English we can ask of a statement, made by someone, both whether it means anything and, if so, whether it is true. Some philosophers have also defined 'statement' to mean what is necessarily true or false (and hence meaningful), but there is no need for a verificationist to follow this usage. In this article I shall prefer the word 'statement', but will sometimes follow the writers under discussion in using 'sentence' or 'proposition', as the case may be. This seems the least confusing way of proceeding. (For further discussion of the difficulty about sentences and propositions, see [5.59] and [5.42].)

My next difficulty was about the word 'is', in the claim that meaning 'is' a method of verification. How are we to understand this identification? 'Meaning' and 'method' are concepts of different types. 'One can sensibly talk about *using* a method, but [not] "using a meaning"' ([5.52], 36). A method may be easy or difficult to carry out, it may take a long or a short time, etc.; but these things cannot be said about the meaning of a statement.

Nevertheless, it was thought essential to account for the meaning of verbal expressions by reference to something other than verbal expressions. Otherwise what would be the connection between language and reality? This need was expressed as follows by Schlick:

> in order to arrive at the meaning of a sentence or proposition we must go beyond propositions. For we cannot hope to explain the

> meaning of a proposition merely by presenting another proposition… I could always go on asking 'But what does this new proposition mean?'… The discovery of the meaning of any proposition must ultimately be achieved by some act, some immediate procedure.
>
> ([5.24], 219–20)

A similar thought was sometimes expressed with reference to words as distinct from propositions, and here the notion of 'ostensive definition' (as distinct from verification) was invoked, as when we point to an object to explain the meaning of a corresponding word, such as the word 'red'. Wittgenstein expressed this thought as follows: 'The verbal definition, as it takes us from one verbal expression to another, in a sense gets us no further. In the ostensive definition however we seem to take a much more real step towards learning the meaning' ([5.79], 1). This passage, however, was written after Wittgenstein's break from verificationism, and in the ensuing pages he argued that such appeals to 'reality' as distinct from language could never supply the desired detatchment from language. He imagined someone trying to explain the word 'tove' by pointing to a pencil and pointed out that, in the absence of all verbal information, this act might be taken to mean all sorts of different things.

This brings us to the third difficulty; about 'method of verification'. What would be the relevant method in the case of, say, the statement 'It is raining'? I might verify this by putting my hand out of the window. But this act might serve to verify all sorts of statements; and, on the other hand, all sorts of methods might be used to verify the statement.

I began with a difficulty about identifying meaning with a method, as indicated by the word 'is' in the verification principle. Suppose now that we removed this word and spoke instead of a 'correspondence' between meaning and method. This would still leave us with the difficulty just mentioned. It is hard to see how Schlick's requirement of 'going beyond propositions'—breaking out of the circle of language—could ever be satisfied.

III THE CRITERION OF VERIFIABILITY

Not every verificationist was concerned, or mainly concerned, about the question of what meaning consists in. One of the main aims of the movement, as I said, was to distinguish what is meaningful from what is meaningless, with the special aim of showing statements of metaphysics to belong to the latter class. Now such a criterion can easily be deduced from the verification principle. If the meaning of a

statement is the method of its verification, then it will follow that if it lacks such a method—if it is not verifiable—then it will, likewise, lack meaning. It is possible, however, to advocate this criterion independently, without deduction from the verification principle. Thus, one might claim that unverifiable statements are meaningless, without putting forward an account of what meaning consists in; and this was the position of A.J. Ayer. He expressed the *criterion of verifiability*, as I shall call it, as follows:

> We say that a sentence is factually significant to any person if, and only if, he knows how to verify the proposition that it purports to express—that is, if he knows what observations would lead him, under certain conditions, to accept the proposition as being true, or reject is as being false.
>
> ([5.1], 48)

(Sometimes the term 'verification principle' has been used for the criterion of verifiability, but the two tenets should not be confused.)

It should be noted that the word 'verify' is used here in the sense of 'verify whether…' and not 'verify that…' The latter would presuppose that the proposition in question is *true*. But a proposition that is known to be true is, by the same token, known to be meaningful; so that the criterion would be redundant. The relevant sense of 'verify' is that in which this is *not* known, so that, as Ayer implies, we do not yet know whether the proposition will turn out true or false. Moreover, either of these results would satisfy the criterion: what is at stake is not the truth of the proposition, but whether it has meaning. Unverifiable propositions, being meaningless according to the criterion, would be neither true nor false.

By means of such a criterion it was hoped to proceed immediately to the 'elimination of metaphysics', without getting involved in questions about what meaning consists in. The discovery that the propositions in question are meaningless would explain why philosophers who had wrestled with them through the ages had never, apparently, succeeded in getting anywhere, while, at the same time, providing the key to a resolution of their problems.

It soon appeared, however, that the criterion was beset with difficulties. First, there is simply the question of acceptance. In a broadcast debate with F.C.Copleston, A.J.Ayer introduced the word 'drogulus' to stand for 'a disembodied thing' whose presence could not be verified in any way. He put it to Copleston: 'Does that make sense?' But Copleston replied that it did make sense. He claimed that he could form an idea of such a thing and that this was enough to give it meaning ([5.50], 747).

Second, it proved difficult to formulate the criterion in such a way as to yield the desired results—to exclude the statements of metaphysics while admitting those of 'science' (including everyday empirical statements). The formulation I quoted from Ayer was too weak, because all sorts of observations might 'lead' someone to regard a proposition as true or as false. In a further formulation he introduced the more rigorous notion of 'deduction'. A statement is meaningful, he held, if 'some experiential propositions can be deduced from it', the latter being defined as propositions 'which record an actual or possible observation' ([5.1], 52). A typical example would be 'This is white', which might result from the fact that it is snowing. But while it is clear that this fact and this statement are related, the relation does not seem to be one of deduction. There is, for example, no logical deduction from the statement 'It is snowing' and, say, the fact that I am looking out of the window, to the conclusion that 'this is white', or the conclusion that I am seeing something white.

Suppose, however, that this difficulty could be resolved. In that case 'It is snowing' would be vindicated because 'This is white' is deducible from it. But clearly there is more than that to the meaning of 'It is snowing'. And might not the remainder be merely pseudomeaning, for all that Ayer's criterion has shown? This difficulty was illustrated in a striking way by Carl Hempel, who supposed that some straightforward empirical statement, such as 'It is snowing', had been *conjoined* with a piece of 'metaphysical nonsense', such as 'The absolute is perfect'. This conjunction would yield the same deductions as the empirical component by itself; so that the conjunction as a whole would have to be declared meaningful ([5.14]).

Various formulations were attempted by Ayer and others to escape these and other difficulties, but it seems that what is required is not merely deduction, but *analysis*. There must be a way of showing that the *whole* meaning of a statement is, somehow, accounted for by observations and the corresponding observation statements. Moreover, as we shall see, this affects all kinds of ordinary statements and not just the rather fanciful example constructed by Hempel.

IV ANALYSIS

According to Waismann, ordinary empirical statements were to be analysed into 'elementary propositions', whose whole meaning would consist in corresponding verificatory experiences.

> To analyse a proposition means to consider how it is to be verified. Language *touches* reality with elementary propositions… It is clear

> that assertions about bodies (tables, chairs) are not elementary propositions… What elementary propositions describe are: phenomena (experiences).
>
> ([5.27], 249)

There is a difference between this and verification in the ordinary sense. The latter is an activity of some kind, and hence it made sense to speak of a *method* of verification. But what seems to be meant in the passage just quoted is that elementary propositions are to be verified by *having* the corresponding 'experiences', as distinct from any activity.

But how is such analysis to proceed? From the true statement that there is a table in my room, it would not follow that anyone is having a relevant experience, since there may not be anyone in the room. The view adopted, known as 'phenomenalism', allowed for this possibility. According to it, a crucial role is played by *hypothetical* statements, such as 'If someone were in the room, he would have such and such experiences'. But in what sense are such statements entailed by the statement under scrutiny? Even if I am in the room, and endowed with normal eyesight, I may fail to see the table. 'You can't miss it' is notoriously unreliable.

There was also a difficulty about entailment in the other direction. From the fact that I am having the experience of seeing something brown, etc., it would not follow that there is a table in the room; and neither would it follow from my having the experience of seeing *a table*, for I might have these and other experiences in the course of a dream or hallucination. Just how far this kind of scepticism may be taken is a matter for debate, but the sceptical view is encouraged by the empiricist reliance on 'experience', conceived as something that occurs in us, is 'imprinted by the senses', etc. This problem has been recognized from the beginnings of empiricism, and in the case of logical empiricism it led to the view that statements about tables and chairs are not 'conclusively' verifiable. Wittgenstein spoke of them as 'hypotheses' which could not be 'definitively verified' ([5.80], 282–5).

A similar development took place with regard to general statements, such as 'All men are mortal'. The 'all men' in this statement is not analysable into any finite conjunction of names, and the truth of the statement would not follow from any finite number of verificatory experiences. The same is true of scientific laws, such as 'Water expands below 4°C', whose meaning is not confined to any finite number of observations.

The discovery that the meaning of scientific laws, in particular, went beyond any finite verification, was especially serious for a philosophy which regarded scientific statements as paradigms of meaningful discourse. One solution, advocated by Schlick, was to deny that a

scientific law is a statement: it is really, he maintained, 'an instruction for the forming of statements'. A genuine statement must be 'conclusively verifiable', and this would be true only of the particular experiential statements which would be produced under that 'instruction'. A statement, he insisted, 'has a meaning only in so far as it can be verified; it only *signifies* what is verified and absolutely *nothing* beyond this'; there cannot be a 'surplus of meaning' beyond that ([5.24], 266–9).

Another approach was used to deal with statements whose verification is impossible for technical reasons. Consider a statement about the far side of the moon. When Schlick and Ayer considered this example, verification was impossible and, for all they knew, might always remain so. The same is true, for us, about speculations concerning life on other planets. But it would seem absurd to claim that whether such questions have meaning depends on the present technology of space exploration. The answer was to describe the relevant statements as 'verifiable in principle'. 'I know what observations would decide it for me, if, as is theoretically conceivable, I were once in a position to make them' ([5.1], 48–9).

But what should we say about scientific statements or theories whose meaning seems to go far beyond their verificatory content, even 'in principle'? Consider the statement that the universe is expanding, and assume that it is based on the observation of a 'red shift' in the light emitted from remote galaxies. It seems clear that the statement is not merely about red shifts. Yet such a 'reduction' of meaning seems to be required by the verificationist analysis. In this connection verificationists enlisted P.W.Bridgman's idea of 'operationism'. On this view, the meaning of statements about distant parts of the universe, for example, would indeed correspond to the relevant scientific 'operations'; there would be no more to it than that. This meant, as Bridgman pointed out, that ordinary words might change their meaning when used in a scientific context. The meaning of 'length', he claimed, 'has changed completely in character' in the context of astronomy. 'Strictly speaking, length when measured…by light beams should be called by another name, since the operations are different' ([5.4], 3).

A further difficulty arose about the analysis of statements about the past. The statement 'It rained yesterday' might be verified, in the ordinary sense, by present evidence including, perhaps, asking other people. But the statement obviously does not *mean* any of these present things ([5.67], 329). Ayer offered a variety of analyses in attempting to meet the difficulty, including the bold claim that the tense of a statement is not part of its meaning, so that there would be no difference of meaning between 'George VI was crowned in 1937', 'George VI is being crowned in 1937', and 'George VI will be crowned in 1937' ([5.1], 25, [5.3], 186).

V THE ELIMINATION OF EXPERIENCE

In one way or another, the analysis of different kinds of statements would lead to the ultimate 'elementary propositions', variously described as 'experiental propositions', 'observation-statements' etc., whereby, as Waismann put it, 'language *touches* reality'. At this stage the speaker or hearer passes from linguistic activity to the occurrence of a suitable experience or sensation which is supposed to give meaning to the words. But here arose a problem which produced a serious split in the ranks of the Circle. Experience and sensation are personal and in some sense private; must not the same be true, then, of meaning? On this view, the sentence 'I am thirsty', as Carnap argued, 'though composed of the same sounds, would have different senses when uttered by [different people]'. But what, in that case, becomes of the claims of science, and of language itself, to be communal activities? There was, thought Carnap, a ready way of disposing of such awkward questions. 'These pseudo-questions', he declared, 'are automatically eliminated by using the formal mode.' By the 'formal mode' he meant a discourse that confined itself to statements and did not try to go beyond these, to what he called 'the material mode'. There was, he held, no need to talk about 'the content of experience', 'sensations of colour' and the like; we should instead refer to the corresponding *statements,* which he called 'protocol statements'. These, and not the corresponding experiences, would occupy the fundamental role in the system—that of 'needing no justification and serving as the foundation for all the remaining statements of science' ([5.7], 78–83).

Carnap was uncertain about the form that these protocol statements should take, proposing such expressions as 'Joy now', 'Here now blue' and 'A red cube is on the table' (Ibid., 46–7). But Otto Neurath argued that such expressions could not be fitted into the system of science, unless the reference of 'now' and 'here', and the identity of the speaker, were known to others. He gave the following as a suitable example: 'Otto's protocol at 3:17 o'clock: [At 3:16 o'clock Otto said to himself: (at 3:15 o'clock there was a table in the room perceived by Otto)] ([5.17], 163). This example, however, is still not sufficiently purged of personal elements. We who read it today would not know where in the system to place '3:17' or 'the room'; and the same would be true of 'Otto', were it not for independent knowledge of who Otto was. But perhaps Neurath was indicating the way towards a still more complex kind of statement, which would be wholly independent of reflexive reference.

Now it is clear that Neurath's example is meant as a protocol statement, because the term 'protocol' is used in it. But, now that the connection with experience has been cut, what entitles it to this

designation? Why should such statements be regarded as 'needing no justification and serving as the foundation' of science? Neurath's answer was that there are, indeed, no statements having this status. 'No sentence', he declared, 'enjoys the *"Noli me tangere"* which Carnap ordains for protocol sentences' (Ibid., 164–5). To illustrate the point he asked the reader to imagine an ambidextrous person writing down two contradictory protocols at the same time.

After the elimination of experience, what becomes of verification and truth? Neurath proposed that we might think of the system of science as a kind of 'sorting machine, into which the protocol sentences are thrown'. When a contradiction occurs, a bell rings, and then some exchange of protocol sentences must be made; but it does not matter which (Ibid., 168). This conception of truth, known as the 'coherence theory', would strike most people as paradoxical and is open to various objections. An objection made by Schlick was that on this view we 'must consider any fabricated tale to be no less true than a historical report' ([5.24], 376).

Schlick, describing himself as 'a true empiricist' (Ibid., 400) was resolute in his opposition to the elimination of experience. 'I would not', he declared, 'give up my own observation propositions under any circumstances… I would proclaim, as it were: "What I see, I see"' (Ibid., 380). In a number of writings he tried to overcome the difficulty about the subjectivity of experience without giving up this cardinal tenet of empiricism. In one of them he maintained that statements have both a 'structure' and a 'content'. The former they share with corresponding facts; and 'my propositions express these facts by conveying to you their logical structure' (Ibid., 292). But there is also a private 'content', which 'every observer fills in' for himself, and which is 'ineffable' (Ibid., 334).

In this matter too, logical empiricism was anticipated in the writings of 'classic' empiricists. According to Locke, we commonly think that words have shared meanings, but this is a mistake, given that meaning is tied to mental entities which he called 'ideas':

> Though words, as they are used by men, can properly and immediately signify nothing but the Ideas that are in the mind of the speaker, yet [men]…suppose their words to be marks of the ideas in the minds also of other men, with whom they communicate.
>
> ([5.78], 3.2.4)

Locke accepted this difficulty rather lightly, claiming that it was not a serious obstacle to communication. Such a treatment may seem acceptable for a philosophy which concerned itself primarily with

questions of knowledge. But in the new *logical* empiricism the matter could not be passed over so lightly.

A further development, beyond the scope of this article, was the celebrated 'private language' argument of Wittgenstein's later work, in which he made a decisive break from empiricist ideas about language, arguing that the alleged 'private' meaning would not be meaning, in the required sense, at all ([5.29], 1–243ff.).

VI THE UNITY OF SCIENCE

Another common feature that the new empiricism shared with the old was its 'reductionism'. Locke, for example, had insisted that the various kinds and aspects of knowledge could all be reduced to a single type and source, namely the 'sensations' with which our sense organs furnish us in 'experience' ([5.78], 2.1.24). In the case of the new empiricism a similar but linguistic reductionism led to a grandiose project known as the *International Encyclopedia of Unified Science*. In this work it was hoped to show that all the different sciences, including the physical, biological and human sciences, could be expressed in a fundamental common vocabulary. Carnap's proposal for this purpose was what he called the 'thing-language'—that which we use 'in speaking about properties of the observable (inorganic) things surrounding us': such words as 'hot', 'cold', 'heavy', 'light', 'red', 'small', 'thick' etc. (It will be noticed that this proposal, unlike the verification principle, is about words rather than statements.)

One aspect of the 'unity of science' that is of particular interest is its application to human beings. It was thought that descriptions of human feelings, for example, could be reduced to statements about observed behaviour ('behaviourism'), or other physical occurrences such as those in the brain. (Here we see the beginnings of the 'physicalism' which, in various forms, is prominent in the philosophical literature of today.) The difficulties of behaviourism can be brought out by their effect on Wittgenstein in his 1930–33 lectures as recorded by G.E. Moore. 'When we say "He has toothache"', asked Wittgenstein, 'is it correct to say that his toothache is only his behaviour, whereas when I talk about my toothache I am not talking about my behaviour?' This cannot be so, because 'when we pity a man for having toothache, we are not pitying him for putting his hand to his cheek'. Again, 'is another person's toothache "toothache" in the same sense as mine?'. He now saw that according to the verification principle, the meanings, following the difference in methods of verification, must indeed be utterly different. Indeed, the difference was not merely *between* methods of verification, since there is no verification at all in case of the first person: 'there is no such thing as verification for "I

have", since the question "How do you know you have toothache?" is nonsensical' ([5.16], 307).

Carnap tried to accommodate such difficulties in a number of writings. In one of these he admitted that a person N_1, 'can confirm more directly than N_2 a sentence concerning N_1's feelings, thoughts etc.'; but, he went on, 'we now believe, on the basis of physicalism, that the difference…is only a matter of degree' ([5.10], 79).

VII THE 'ELIMINATION OF METAPHYSICS'

One of the main objectives of logical empiricism was to provide a way of demarcating the meaningful statements of science and ordinary life from the 'pseudo-statements' of metaphysics. Now the word 'metaphysics' may mean various things. The verificationists used such examples as Heidegger's statement 'The nothing nothings', and F.H. Bradley's talk about 'the Absolute', as in the statement: 'The Absolute enters into, but is itself incapable of, evolution and progress'. This, said Ayer, was 'a remark [he had] taken at random' from Bradley's *Apperance and Reality*. It was, he claimed, 'not even in principle verifiable', and therefore nothing more than a 'metaphysical pseudo-proposition' ([5.1], 49).

Now such a sentence, plucked 'at random' out of its context, might well strike the reader as meaningless. But is this so because it is unverifiable? Perhaps, if we read Bradley's argument, we would find there the means of assessing the truth of his statement. *That* would be the appropriate method of verification in this case. In taking the statement out of its context, Ayer had merely denied us access to the relevant method of verification.

Perhaps what Ayer had in mind was that the method of verification would not be *empirical*. Now this might well be true; but what would it show? It might show that the statement itself is not empirical; but perhaps it was never intended to be so. Merely to classify it as non-empirical is not to show that it is a 'pseudo-proposition', nor even that it is unverifiable.

Another class of statements to which verificationists turned their attention were those about God. Such statements, it was argued, were not necessarily meaningless, but the meaning ascribed to them should not exceed their verificatory content. Carnap spoke of an early phase of the concept of God, in which He was conceived as a corporeal being dwelling, say, on Mount Olympus. Such statements would satisfy the verificationist criterion, but this would not be true of the metaphysical accretions of later phases of the concept. Ayer put the matter thus:

> If the sentence 'God exists' entails no more than that certain types of phenomena occur in certain sequences, then to assert the existence of a god will be simply equivalent to asserting that there is the requisite regularity in nature.
>
> ([5.1], 152)

Here again the requirement is that of sense experience, of the observation of phenomena by means of the senses. But is this the only kind of experience? In a further passage Ayer spoke of 'mystical intuition'. He would not, he said, deny that 'the mystic might be able to discover truths by his own special methods'. But, he went on, the mystic's statements, like others, 'must be subject to the test of actual experience'. But is not the mystic's experience itself a kind of 'actual experience'? Some further argument would be needed to show that such experiences cannot count as verificatory.

This difficulty is part of a fundamental problem about the whole empiricist programme. How is their preference for empirical statements, and empirical methods of verification, itself to be justified? John Locke, the father of empiricism, posed the question: 'Whence has [the mind] all the materials of reason and knowledge?', to which he replied: '… in one word, from *experience:* in that, all our knowledge is founded; and from that it ultimately derives itself ([5.78], 2.1.2). But if this were so, how could this knowledge itself have been obtained? The claim that all knowledge comes from experience cannot itself be derived from experience.

A similar difficulty arises if we turn the verification principle or the criterion of verifiability on themselves. They are not themselves empirical statements: must they not suffer the same fate as other non-empirical statements? As Bradley observed, 'the man who is ready to prove that metaphysics is wholly impossible…is a brother metaphysician with a rival theory of first principles' ([5.77], 1).

This difficulty was recognized by verificationists, who made various proposals to overcome it. Schlick claimed that the verification principle was 'nothing but a simple statement of the way in which meaning is *actually* assigned to propositions, both in everyday life and science' (5.24], 458–9); while Ayer said that his criterion of verifiability was to be regarded 'not as an empirical hypothesis, but as a definition' [5.1], 21). But what reason would there be for accepting this definition or Schlick's claim? As we have seen, they are not confirmed by the various ways in which the word 'meaning' is actually used.

Another idea was to describe the principle or the criterion as a 'proposal' or 'methodological principle'. This would exempt them from self-application, since a proposal cannot be described as true or false, verified or unverified. But what would it mean to adopt the proposal in

question? According to it, I am to describe certain statements as meaningless. But how can I do that unless I *believe* them to be meaningless? (Of course I could *say the word* 'meaningless', but that is a different matter.)

Leaving this difficulty aside, we may ask what would be gained if such a proposal were to be adopted. One of the motives behind it, as we have seen, was that of reductionism and the 'unity of science'. It was thought, and hoped, that the multifarious jungle of human discourse could all be reduced to a single type. Wittgenstein, in his later writings, spoke disparagingly of such aspirations as due to a 'craving for generality'. He now maintained that the uses of language—'language-games', as he called them—are irreducibly various, and that the philosopher's task was to notice and expound the differences, resisting any temptation to impose an artificial uniformity.

VIII THE ACCOMMODATION OF ETHICS

How are ethical statements to be accommodated under verificationist criteria? Should they be accommodated at all? Carnap, at one stage, declared: 'we assign them to the realm of metaphysics'. But while it might be thought that metaphysical discourse can safely be set aside as unnecessary for the conduct of human life, this could hardly be so in the case of moral discourse. Could the latter be regarded, perhaps, as a kind of empirical discourse?

According to Schlick, this was the proper way of regarding it, as is clear from the first sentence of his book on the subject: 'If there are ethical questions which have meaning, and are therefore capable of being answered, then ethics is a science' ([5.22]). He went on to maintain that all of these conditions are fulfilled in the case of ethics. Words such as 'good', he claimed, are used to express desires; and these belong to the science of psychology. The 'proper task of ethics' was to examine the causal processes, social and psychological, which would explain why people have the desires they have.

But cannot something be described as morally good or desirable even if people do not desire it? According to Schlick, this would make no sense. 'If… I assert that a thing is desirable simply in itself, I cannot say what I mean by this statement; it is not verifiable and is therefore meaningless' ([5.22], 19). There is no place in Schlick's account for the aspect of morality on which Kant laid so much emphasis: the conflict between desire and duty, which is such a familiar aspect of moral life. He rejected Kant's account of moral discourse, accusing him of being out of step with the ordinary meaning of 'I ought' (Ibid., no). Yet it makes good sense for a

person to say, for example, that he ought to do X because he promised, even though it is contrary to his desire.

A more common approach among logical empiricists towards moral statements was to deny that they are really statements. In a paper published in 1949, Ayer referred to his earlier view, 'which I still wish to hold, that what are called ethical statements are not really statements at all, that they are not descriptive of anything, that they cannot be either true or false'. This view, he now admitted, 'is in an obvious sense incorrect', since in ordinary English 'it is by no means improper' to speak of ethical statements as statements or descriptions, or to describe these as true or false. Nevertheless, he continued, 'when one considers how these ethical statements are actually used, it may be found that they function…very differently from other statements'. Yet, after all, 'if someone still wishes to say [they] are statements of fact, only it is a queer sort of fact, he is welcome to do so' ([5.3], 231–3). Here again is the craving for uniformity—a wish to deny that ethical facts are facts, because they do not conform to a preferred model.

To support his denial Ayer resorted to the existence of moral disagreement. 'Let us assume that two observers agree about all the circumstances of [a] case…, but that they disagree in their evaluation of it.' In that case, he claimed, 'neither of them is contradicting himself (Ibid., 236). Now in such a case we might indeed conclude that there is 'no fact of the matter'. But there are many other cases in which this is not so. If I have said I will do you a favour, then I *would* be contradicting myself if I denied responsibility for doing what I said. In that case it would be true, and a fact, that I am under an obligation to do what I said. And, as Ayer recognized, the word 'true' is freely used in moral discourse, in various contexts.

As we have seen, Schlick regarded moral statements as factual and verifiable, while Carnap and Ayer tried to dispose of them in other ways. Another writer tried to analyse them into factual and non-factual components. This was the moral philosopher C.L.Stevenson, whose works were cited with approval by logical empiricists. According to the first of Stevenson's 'working models', the statement 'This is wrong' means 'I disapprove of this; do so as well'. (He dealt similarly with the words 'ought' and 'good'.) The first part of this, he pointed out, is amenable to verification, while the second, being an imperative, is not ([5.25], 21, 26).

A difficulty with which Stevenson wrestled was about applying this account to someone who is *asking* himself whether X is wrong. This would not be a factual psychological question, about whether he does in fact approve of X; the question for him would be whether he *ought* to approve of it. Another difficulty is that of making sense of the imperative 'do so as well'. A person can be requested to do something only if he can choose to

do it; but this is not the case with approval. If you give me suitable reasons, I may *come to see* that X is wrong; but I cannot do so at will, in response to an imperative.

The connection with reasons was, however, denied by Stevenson. He admitted that 'a man's willingness to say that X is good, and hence to express his approval, will depend partly on his beliefs', but pointed out that 'his reasons do not "entail" his expression of approval' ([5.26], 67). Now this is true enough; indeed, it is not clear in what sense an expression can be 'entailed'. But it remains the case that on the basis of suitable reasons I may come to see (recognize, know it to be a fact) that X is wrong and ought not to be done. If such facts do not conform to the reductionist programme of logical empiricism, then it may be the programme that should be questioned, rather than the status of moral facts.

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CHAPTER 6

The philosophy of physics

Rom Harré

WHAT ARE THE BRANCHES OF THE PHILOSOPHY OF PHYSICS?

One convenient way of dividing up the investigations that make up the philosophy of physics could be the following:

1 Analytical and historical studies of the development and structure of the leading concepts used in the science of physics, such as 'space-time', 'simultaneity' and 'charge'.
2 Naturalistic and formal studies of the methodologies that have been characteristic of physical science, including experimentation and theory-construction, assessment and change.
3 Studies of the foundational principles of significant examples of physical theory.

These three sorts of investigations can be found throughout the long history of philosophical reflection on the nature of physical science. For instance, in the writings of Aristotle [6.2] (*c.* 385 BC) there are extensive discussions of many of the questions that still concern philosophers of physics about the nature of the properties of matter. Conflicting views about the methodology of physics are easily identified in the writings of the ancients. For example, Plato's remark that the task of astronomers is to 'save the appearances' has been contested, interpreted and reinterpreted. In Lucretius' *De rerum natura* [6.31] there is a sketch of a metaphysical foundation for a general physics supposedly applicable everywhere in the universe based on the idea of a world of unobservable material atoms.

It seems that these three clusters of studies could also be found in the philosophy of chemistry. To disentangle what it is that is characteristic of studies in the philosophy of physics, I shall have to say something about

what distinguishes physics from all other natural sciences. Nowadays, one would be reluctant to try to draw a hard-and-fast line between physics and the other sciences. But for the purposes of this article, a rough division might be effected as follows. Physics is the study of the most general properties of matter. In chemistry and biology the unique properties of particular kinds of matter are examined. With this rather vague prescription in mind, we can pick out as physics studies of such ubiquitous features of the material universe as its spatio-temporal structure, and of the common properties that every material being shares with every other, such as mass-energy and mobility. This way of distinguishing subject by scope is rather simplistic. It is only very recently that matter and radiation have been found to be mutually convertible and so to have common properties. But the study of optics and the study of mechanics have always been or almost always been branches of physics.

It is worth emphasizing the antiquity of philosophical investigations of the science of physics. It has never been free of some philosophical content. In times of crisis questions about ontology and about method come to the surface. By a time of crisis, I mean a moment in the history of the investigation of the physical universe in which the best theories that we can construct according to the local criteria for identifying a good theory, are in apparently irresolvable conflict with one another while they are indistinguishable by reference to the results of observation and experiment. In these circumstances, philosophical speculation returns to the centre of the stage. Physics, more dramatically than any other science, develops through the interplay between philosophical analysis of conceptual foundations and what, at first sight, seems to be an independent scientific research programme. I shall illustrate this feature of the history of physics from time to time in the course of making my more detailed remarks.

Before I turn to sketching some particular examples of conceptual analysis, there is one further general distinction to be borne in mind. Since the days of Euclid's formalization of the science of geometry, mathematics has played a central role in the development of physics, but this role has not been uncontroversial. There is an important distinction between different ways of interpreting mathematical formalisms [6.47]. Is the abstract mathematical representation of the laws of physics auxiliary or representational? Auxiliary mathematics consists of formal devices by which the knowledge of the physicist can be conveniently summarized and manipulated. I owe to John Roche a very simple example of auxiliary mathematics. This is the grid of lines of lattitude and longitude which geophysicists have laid over the earth. A more complex example is the system of deferent circles and epicycles with which Ptolemy calculated the ephemerides, the risings and settings of the heavenly bodies. We are not justified in assuming a priori that all

the technical devices employed in some mathematical formulation of a law or theory have physical counterparts. The laws and principles of quantum mechanics can be expressed mathematically in terms of vectors in Hilbert space. But what could the physical meaning of the leading concepts of the Hilbert space representation possibly be? What physical sense could one give to the idea of a vector rotating in an infinite dimensional 'space'? Equally, it is a misunderstanding of the second Bohr theory of the atom to ask for the physical counterparts of the charged oscillators which replaced the planetary electrons of the earlier theory. On the other hand there are plenty of theories in physics, such as the Clausius-Maxwell theory of the behaviour of gases in which every element in the mathematical representation is taken to be the counterpart of some determinate feature of the physical system. Each variable in pv=⅓ nmc^2 can be given a physical meaning in terms of the molecular model of gas.

I shall illustrate the three branches of the philosophy of physics by outlining some recent discussion of topics of perennial interest. To illustrate analytical and historical studies, I shall draw on problems of the interpretation of relativity theory. An alternative example could have been the concept of 'mass' which has also had a long and interesting development. It has been sharpened, subdivided and differentiated in response to experimental and theoretical advances ([6.28]). To illustrate methodological studies I shall take some very recent work on the role of experiments in physics ([6.20]). I shall also outline the debates between realists and anti-realists, concerning the interpretation and role of theories in physics. Do they describe unobservable but real entities and processes or are they merely devices for predicting more phenomena ([6.46])? If the former, how could we ever know whether we are getting a better and better picture of the hidden world of.causal processes if we can never observe it directly ([6.33], [6.12], [6.3])? To illustrate foundational questions I shall turn from the development of the dispositional treatment of the foundations of Newtonian matter theory to debates about the meaning of the leading concepts of quantum field theories ([6.10]). An alternative example could have been the discussions of the significance of the Bell inequality and the status of the EPR experiment ([6.16], [6.6], [6.5], [6.4]).

THE ANALYTIC AND HISTORICAL STUDIES OF CONCEPTS

I shall divide the topics that fall under this heading into two broad groups. There are those which are concerned with the analysis of concepts which at first sight are taken to be independent of the

particular theories within which they fall. So there are analyses of space, time, causality, property, etc., which, though influenced by particular theories in physics seem to be in some respects, independent of them. On the other hand, there are analyses of leading concepts such as mass, momentum, charge, force, etc., which it is hard to imagine being carried out independently of the particular theories in which they have, from time to time, been embedded.

These analyses, whether generic or specific, are usually conducted with respect to larger questions. So, for example, developing and arguing for analyses of concepts such as space and time, are part of long-running controversies between absolutists and relationists. Do the concepts of 'absolute space' and 'absolute time' make sense? Some relationists would argue that these hybrid concepts are logically incoherent. Discussions about the proper interpretation of the concepts of mass, charge, force and so on, are related to the broad issue of whether the physical properties of things are best understood as dispositions, powers and propensities ([6.23], [6.43]). I shall take up this question again in the foundations section.

In investigating the status of the kinds of concepts that I have mentioned, it is important to bear in mind that these analyses are relative to the state of physical science at the time that they are being carried out. Yet they bear upon such general questions as whether we should favour an absolutist or a relationist theory of space and time, or whether all physical properties are really dispositions. Debates such as that between Leibniz and Clarke ([6.1]) over the nature of space and time, though set in the context of Newtonian physics, nevertheless have universal significance.

One cannot say that there is no philosophy of physics independent of the state of physical theory. The generality of the concepts involved sometimes allows us to investigate concepts and to develop arguments which transcend particular epochs in the history of the science itself.

At the beginning of this century relativity theory seemed to present a radical challenge to a well-established conceptual system for expressing spatial, temporal and causal relations. The community of physicists had become accustomed to the idea of an absolute frame of reference, though it was hardly ever necessary to invoke it in solving any actual problem in physics. According to the popular myth, relativity theory was something extraordinary and utterly radical. I hope to show that such a picture is far from an adequate portrayal of the way in which theories of space, time and space-time had evolved in the course of the development of post-Aristotelian physics. Among many deep questions that can be asked with respect to space and time is whether there is a relation between the spatial and temporal location of an experimenter or observer and the forms that experimenters or observers would use to

express the laws of nature. Are they or are they not the same when an experimental apparatus is run at one place and time rather than another? Would the laws of nature seem to be the same if studied on a moving platform as on one which was stationary relative to some apparently fixed frame of reference? Or on one which was accelerating with respect to some other platform on which stood the apparatus with which the experiments had previously been done? Ultimately the deepest question would be—could we discover which system of bodies was moving or accelerating and which was *really* stationary by looking for indicative changes in the laws of nature?

There are two ways in which absolutist views on space and time have been challenged. Relativity theory challenges the idea that there is a privileged reference frame, absolutely at rest, to which all motions uniform or accelerating could be referred. There is also the 'relationist' challenge to that idea which can be mounted independently of the question about reference frames. Relationists believe, with Leibniz, that space and time do not exist independently of the material system of the world. They are among the relational properties of that system. Absolutists (lately called 'substantivalists' to distinguish them from those who favour ultimately a non-relativist position in physics) believe that the space-time manifold is a substance which exists independently of the material world of charges, forces and fields ([6.11]). My illustrative example concerns the absolutist/relativist issue, not the substantivalist/relationist debate.

Let me briefly sketch how one now sees the historical progression that leads to the contemporary interpretation of relativity theory. The idea that the forms of laws of nature are independent of spatio-temporal location is expressed in the technical notion of covariance of the law under a coordinate transformation. To take a simple example: changing the coordinates of a location in a Cartesian plane each by a fixed quantity is a transformation. If the coordinates were x and y before the transformation and are x-a and y-b after, it is as if we moved the whole reference frame a units to the right and b units upwards. If a law of physics has the same form before and after the transformation is applied to the coordinates, we say that it is 'covariant under the transformation'. However, that technical idea is a version of a more fundamental conception. It expresses the idea that the forms of the laws of nature are indifferent to (that is unaffected by) changes in location, epoch or relative velocity of the frame with respect to which they are studied. We can detect the very beginnings of the covariance or indifference to location idea in the writings of Nicholas of Cusa ([6.4]). Contrary to the Aristotelians, who believed that space and time had instrinsic structures, the laws of nature differing with the location in which they are studied within that structure, Cusa introduced a general principle of

indifference. His elegant epigram ran as follows: 'the centre and the circumference of the universe are the same', or in other words, physical laws are indifferent to their location in space and also, he believed, in time.

The next step in freeing physical processes from the influence of space and time came with the work of Galileo ([6.18]). In a striking image, he asked us to imagine conducting experiments inside a ship on a smooth sea. He argued that it would be impossible to discover whether the ship was in motion or at rest relative to the sea, by experimenting in a closed cabin. The relative motion between ship and ocean would have no effect upon the results of our experiments. Physics would always be the same inside the ship, no matter what its uniform velocity was relative to the ocean. This is the principle of Galilean relativity. Newton certainly subscribed to this principle. The laws of mechanics were thought to be indifferent, or covariant, as we might say to the Galilean coordinate transformation. In that transformation we can change the mathematical expression for uniform motions by any amount we like, the mathematical equivalent of slowing down or speeding up the ship by a definite amount relative to the ocean, and the laws of nature will preserve their form when expressed in the new coordinates.

All went merrily until the development of a comprehensive set of laws for electromagnetism by Clark Maxwell. Voigt showed in 1891 that Maxwell's laws were not covariant under the Galilean transformation. This implied that it might be possible to find electromagnetic evidence of our real or absolute motion through some uniform and universal background. It seemed that, in principle, one could find one's way about and perhaps even determine one's velocity with respect to some absolute frame of reference. Since it was the electromagnetic laws which were not covariant under the Galilean transformation, perhaps an electromagnetic aether might serve as just the absolute background that physicists needed. This was the project of Michelson and Morley (for an exposition of the work of Michelson and Morley, emphasizing the importance of the apparatus see [6.22]).

By the end of the nineteenth century, however, it had become clear that there was a coordinate transformation under which the laws of electromagnetism were covariant. This was the Lorentz transformation. The situation had now become very interesting. The Maxwell laws of electromagnetism are covariant with respect to the tranformation of Lorentz but not with respect to that of Galileo. The laws of mechanics are covariant with respect to the transformation of Galileo but not with respect to that of Lorentz. Both are covariant with respect to the Cusan

transformation, but this was taken to be so obvious as not to be worth remarking. This was the situation that Einstein confronted.

Essentially, Einstein had to solve two problems ([6.15]). How to make a reasoned choice between electromagnetism on the one hand and mechanics on the other as the most basic physical science. His reasons for choosing the electromagnetic option have to do with the need he felt to preserve a thorough-going symmetry between the process of electromagnetic induction that occurs when a moving conductor cuts the lines of force of a stationary magnetic field and that which occurs when a moving magnetic field interacts with a stationary conductor. If we assume an electromagnetic aether, the processes will be different in each case. He thought this intolerable. So he chose to privilege electromagnetism by denying the necessity to postulate an aether. This choice served not only to eliminate the aether from physics but to elevate the Lorentz transformation to be the dominant principle of covariance. His second problem was to find a new form for the laws of mechanics so that they too would be covariant under the Lorentz transformation. If this could be done, physics would be unified. There would be one physics and all its laws would be independent of the place, moment and relative velocity of the material system in which they were tested. He found these laws and they are none other than the laws of the special theory of relativity.

But now we can see that there was a third problem. With respect to what spatio-temporal structure are the new laws of mechanics, together with the laws of electromagnetism, indifferent? Einstein did not solve this problem himself. We owe its solution to Minkowsky ([6.36]). In the Minkowsky manifold, space and time are not independent systems of locations and moments. There is a four-dimensional manifold in which physical processes are imagined to take place. Minkowsky coordinate systems, moving with uniform relative velocity with respect to one another, now become the frames of reference with respect to changes between which the laws of nature must be indifferent. Wherever and whenever an experiment is conducted in the Minkowsky manifold, the result should be the same.

General relativity simply extended the same idea one step further. Einstein pursued the project of finding a formulation for the laws of nature which would leave them covariant under the general coordinate transformation, including that between frames of reference accelerating with respect to one another. Corresponding to the Minkowski manifold of special relativity came the famous curved space of general relativity which represents a manifold, with respect to which the laws of nature are absolutely indifferent.

The story of relativity is the story of one programme progressively developed, acquiring a more and more sophisticated form as the history

of physics has unfolded. It begins in 1440 with Cusa's *Of Learned Ignorance* ([6.41]) and culminates in general relativity. At each step yet another candidate for the one absolute space-time manifold was deleted from physics.

There is a connection with the absolutist (substantivalist)/relationist debate. Clearly, if the laws of nature are indifferent to their presumed locations in manifolds of space or time or space-time, then those manifolds can play no role whatever in the physical sciences. Absolute space, absolute time and absolute space-time are redundant. Experimental proof of this redundancy by Michelson-Morley is not in fact part of the history of relativity theory. It was, so to say, a comforting result that confirmed Einstein in the wisdom of privileging electromagnetic laws and their properties in his programme of research.

Relativity has turned out to be a cousin of relationism. But the triumph of relationism is by no means the foregone conclusion. There are still some reasons for thinking that there may yet be a place for an absolutist space-time in the physical sciences. These have to do with the status of the space-time manifold as required by general relativity. It is argued ([6.38]) that even in the absence of all matter-fields this manifold would still have a structure. Therefore, it cannot be just one of the sets of relations that order the material stuff of the world.

Exemplary cases of conceptual analysis of other physical notions have occurred throughout the history of physics. One notices in the Clarke-Leibniz controversy, as a footnote, a conceptual investigation into the notion of quantity of motion, in which the distinction between momentum and energy is foreshadowed.

METHODOLOGICAL PROBLEMS IN THE SCIENCE OF PHYSICS

From the earliest days of mathematical astronomy, the nature of physical theory has been a matter of perennial dispute. The arguments have turned on the balance that one can draw between epistemology and ontology. Clearly, in some sense, that which is known through perception, the observable, has some kind of privileged ontological status, even though we know that many of our ontological claims made on the basis of perception are disputable and have sometimes had to be revised. Physical theory, however, characteristically seems to refer to processes such as the orbiting of the planets, entities, such as subatomic particles and structures, such as the curvature of space-time, that lie beyond perception. What, then, is the status of our knowledge of these beings and what of their standing as existences alongside and perhaps as components of that which we can perceive? Anti-realists have tended

to privilege the deliverances of the senses, particularly the sense of sight, both ontologically and epistemologically. Realists, more cautious epistemologically, have nevertheless been bolder ontologically, and have tried to find ways in which attributes of physical theories, particularly their power to engender new kinds of experiments, have been taken as grounds for interpreting them realistically, and thereby adding to our ontology, enlarging the list of kinds of things we believe to make up the world. However, sceptics have little difficulty in finding grounds for pressing the interpretation of physics back in the anti-realist direction. They ask how we can be sure of the truth of our laws, when we have very limited grounds for accepting them, the classical problem of induction. How we can be satisfied with theories when our grounds for accepting them are only their predictive and retrodictive powers, since it is easy to demonstrate that there are infinitely many theories with the same predictive and retrodictive power, the problem of under determination, first formulated by Christopher Clavius. Quite recently a new mood has spread among philosophers of physics. Diagnosing the source of the weakness of realism as a commitment to the principle that science aims to establish the truth of the propositions of physical theory, a new school of neo-pragmatist philosophies of science animated to some extent by a reading of the philosophy of Niels Bohr ([6.27], [6.37]) has appeared. These philosophers have argued that a realist interpretation of physical theory should be taken as doctrine that theories are good in so far as they give us just sufficient understanding of the unobservable to allow us to manipulate it ([6.21]). Manipulability is the concept which allows us to penetrate beyond the bounds of perceptibility.

There are some important consequences that flow from the new 'pragmatic' realism. In one respect it harks back to an eighteenth century conception of the logical status of physical properties. At that time, the popular philosophy of physics decreed that our knowledge of the physical world was a knowledge of the powers and disposition of otherwise unknown entities. We knew them through what they could bring about. In very much the same way, the Bohrian philosophy of physics asks us to consider the world in so far as it appears to us through the dispositions it displays in apparatus of our own devising. There is another consequence which follows from this point of view. The early ecologists developing concepts to understand the way in which species of animals are related to their physical environment have coined the concept of *umwelt*. The *umwelt* of a species is that region of the world which is available to the species by virtue of its biological endowments. The physical world is broader and richer than the sum of the *umwelten* of the animals which inhabit it. This concept was used to explain how it was possible for different species of animals

to occupy the same physical environment. Each carved out its own *umwelt*. In a similar way, one could treat the worlds of physics as *umwelten* and the development of the physical ontology as the successive marking-out of an ever-changing *umwelt* for humankind with respect to the experimental apparatus and conceptual systems with which they explored it. So the new philosophy of science is realist in a new way. The world is that which we make available to ourselves and our knowledge of it is our knowledge of what it is capable of doing and being made to do by our manipulations.

The next question that obviously arises in relation to the move from anti-realist to realist conception of physical science concerns the nature of physical theory. If we think of physics in the anti-realism manner as the statistics of perceptual experiences or even the statistics of the performance of instruments, while all else is of no ontological significance and merely serves the role of intervening variables to carry us from one empirical statement to another, we would be inclined to follow the philosophies of science of Mach ([6.32]) and Duhem ([6.14]). According to these philosophers theory performs only a logical role: an inference machine for Mach, a taxonomical system for Duhem. However, when one examines physical theory and considers the development of the theorizing in a certain field of enquiry, one is struck by the fact that the theories of physics do not seem to be about the world at all. They are at least, ostensibly, about models of the world. A model, in this sense, can be either an abstract representation (a homeomorph) or a paramorph, which is an analogue of something we do not yet know but believe to exist. A law of nature like pv=a constant, is an idealised description of the behaviour of an abstract version of a real gas. The corresponding theoretical proposition, $pv={}^1/_3\, mc^2$, is a description of the molecular model of what a gas might be like. This view of theory has been about for more than three decades ([6.48], [6.26]). It is now becoming popular again. A philosophical question that is immediately evident if we think about theory in this way, is how this view fits with realism. Thinking it through, the fit is rather nice. Having given up the idea that realism must be defined in terms of the truth of propositions but rather thought out with reference to the manipulability of objects to which theory guides us, the idea of theory centred on a model of reality is very attractive. Model and reality are, so to say, beings of the same sort, and we can consider the fit of a model to that of which it is a model in terms of similarities and differences. The problem of which similarities are to be counted as important is itself readily soluble by reference to the structure of the theoretical concepts which constitute the discursive part of the theory. Some properties will appear as essential and some as accidental. Similarities and differences gain their importance from the extent to which they are drawn from the real and nominal essences of the beings in question, that is from our ideas about their inner

constitutions and from our criteria for assigning them to kinds on the basis of their observable properties.

The shift from positivism to realism to what one might call post-realism or neo-pragmatism also involves rethinking of the role of experiments. In the logistic account of science, whether positivistically conceived or developed in the fallibilist mode by Karl Popper ([6.42]), gives a logical account of experiment. An experiment is done in order to provide a rational being with a proposition of the form 'Some A are B' or alternatively, if it so turned out, 'Some A are not B'. The significance of the experiment is determined by logical relations between those propositions which describe the experimental results and the general hypotheses to which they are considered relevant. So the logical account requires us to accept either inductivism or fallibilism. In the former we would have to accept the force of some pattern of inductive reasoning, in which the result in some cases, those that have been studied, are generalized to all cases, a notoriously shaky inference. In the latter we would have to rely upon the fallibilist pattern, that while we can draw no certain conclusion from a positive result, a prediction that turns out to be false justifies us in rejecting the hypothesis from which it was drawn. Neither is satisfactory.

The evident mismatch between the logicist way of construing experiments with the neo-pragmatist view of science, suggests the possibility of conceiving of experimentation in a much broader fashion. If we are endeavouring to see by experiment how well our models match reality, then we should not think of experimenting as a way of producing propositions to stand in a logical relation to a theory. We should think of the performance of an experiment as doing work in the world directed towards producing a certain outcome under the guidance of the theory. The question is not whether the theory in use is true or false, but whether, read as a set of instructions, it enables us to do what we aim to do. There is a sense to be given to the verisimilitude of a theory, but not in the prepositional mode, not centred on truth. In particular we are concerned with manipulating the world as if it were well-matched to our model. Indeed, there are specific model-matching experiments, some of which have been of enormous importance in the development of science. One which I find particularly instructive is the Page and Townsend experiments, by which a model of the flow of fluids with respect to bounded media is matched against a subtle experimental revelation of what the structure of such fluid motion 'actually' is (that is what the motion appears to be by the use of an ultramicrosope). Interesting cases arise where our faith in the iconicity of our models is based only upon their power to suggest manipulations. It seems to me that our main reason for believing in the reality of the magnetic field is the set of effects we can bring about by

procedures which, we believe, act directly on that field. Changes so induced then bring about effects we can observe, such as the swing of the pointer of a galvanometer.

The notion of 'model' which I have been assuming in this discussion so far is the familiar one of analogue. One system is a model of another if it is analogous in relevant ways. But there is another, connected, sense of 'model' which has also been prominent in the writings of some philosophers of science ([6.49], [6.50]). In logic a model is a set of entities and relations which can be used to interpret an abstract calculus. If the formulae of the calculus, interpreted as meaningful sentences by the use of such a domain of entities and relations, are all true when used of that domain, then that set of entities and relations is a model for the calculus. In logic there is a calculus and a model is needed to give it meaning; in physics a model or analogue of reality is imagined and a theory is subsequently created by describing the model. At the end of the day, so to say, the relation between calculus, theory and model is the same in both cases. However, in the order of creation, logic and physics run in opposite directions.

Disputes about how physical theory should be presented can be found throughout the history of physics. They were particularly prominent in the sixteenth century when many philosophers treated the heliocentric and geocentric astronomies, many versions of which were on offer in the mid-sixteenth century, as alternative mathematical systems. Ways of answering the question as to which formal system was to be preferred were interestingly divided between those who thought that anti-realist criteria, like simplicity and logical coherence, were of prime importance and those who favoured realist criteria, like the ontological plausibility of the model of the solar system that the mathematical structure represented.

In the late eighteenth, through the nineteenth century, Newtonian mechanics became the focus of a considerable effort to rework its formal representation. This was in part animated by the discovery of Maclaurin's paradox, perhaps more justly attributed to Boscovich. Boscovich [6.8] noticed that the grand Newtonian theory was internally incoherent, indeed, self-contradictory. The concept of action, 'force × time', which was essential to setting up Newton's third law, that in action by contact action and reaction are equal and opposite, required all such action to take place in a finite time. But the Newtonian ontology required the ultimate material particles to be truly hard, that is incompressible. It follows that all action by contact must be instantaneous, since the ultimate contacting surfaces cannot deform. Forces in instantaneous Newtonian impact would, according to the mechanical definition of action, be infinite. But there is no place for infinite forces in the Newtonian scheme. A variety of strategems were

developed to try to resolve the difficulty. In general physicists in France tended to favour theories without forces ([6.13]), whereas the English and some of their continental allies tended to favour a mechanics without matter, the so-called dynamical interpretation ([6.24]).

Great advances were made in the mathematics of physics, in the course of the working out of these alternatives. The Lagrangian formulation, the Hamiltonian formulation and Hertz's immensely influential reformulation of mechanics were all attempts in one way or another to come to terms with the same fundamental problem.

But there is another kind of investigation which we could classify as foundations of physics. This is the project of finding the minimal or most elegant formal representation of a scientific theory. In these cases, the mathematician-philosopher is driven by an interest in the aesthetics of formalisation rather than by some metaphysical paradox, such as the one uncovered by Boscovich and Maclaurin. In the present century some very interesting developments have hinged on attempts to provide alternative formal representations in which the very foundations of a theory are revealed in a clear and unambiguous way. For example, the matrix theory of Heisenberg and the wave mechanical formulation by Schrödinger of the laws of quantum mechanics, though they were shown to be mathematically equivalent in some sense, were animated, in part at least, by ontological differences between their authors. Lucas and Hodgson [6.30] sum up an enormous variety of ways of arriving at the Lorentz transformation. There are many different paths by which this important group can be arrived at. Sometimes exercises of this sort, the formulation of an alternative mathematical representation, are significant. But sometimes they seem to be little more than formal exercises, mere auxiliary mathematics.

The way that the results of experimenal manipulations enter into the record of physics as *phenomena* is exceedingly complicated. Goodings [6.20] has analysed the paths by which the personal experience of the discoverer of a new phenomenon makes it available, conceptually and manipulatively to the community of scientists and ultimately to everyone. A key move in the transformation of personal experience into public phenomenon is the elimination of all traces of the human hand that was involved in the early occasions of its production. Goodings shows that the circularity of the motion Faraday demonstrated as a natural electromagnetic effect was extremely difficult to produce on the laboratory bench, let alone understand. To explain how this transformation is achieved Goodings introduces the idea of a 'construal'. It could be a way of describing, a picture, a diagram or anything by which a scientist, in interaction with others, makes the phenomenon available as such. In applying construals the great scientists of history transform complex chains of fragile steps

into simple sequences of surefire manipulations. Faraday describes seventy-five steps in recording how he first produced circular electromagnetic motion in his own laboratory. The published description of the procedure mentions only forty-five steps. The final simplification to a mere twenty steps occurs in his set of instructions for anyone to reproduce the effect.

FOUNDATIONAL DEBATES

The indeterminacy of subatomic processes that had first appeared in experiments with electrons was eventually canonized rather than resolved in the mathematical theory of quantum mechanics. Quantum mechanics has been the source of one of the major conceptual problems which has beset physical science for the last seventy years. At the heart of Newtonian physics was an assumption of the strict causality of all physical processes and the determinate character of all physical effects. Quantum mechanics provides a formalism by means of which a description of the state of preparation of a system can be linked to predictions about the probabilistic distribution of the effects of certain treatments of that system. The theory provides no way in which determinate outcomes can be predicted from knowledge of the original state of the system. Here is the dilemma. Is this because the way we now understand the state of any physical system is actually complete? This would seem to imply that there are real propensities to vary the outcomes of identical operations performed on identically prepared systems, contrary to the ordinary notion of determinate causality. Or is there something missing in our knowledge of electrons and other subatomic particles, knowledge which would restore the determinate structure of physical theory? Perhaps there are 'hidden variables' which do behave deterministically.

Arguments about the viability of hidden variable theories are almost as old as quantum mechanics itself. Can we find a theory based on the assumption of the existence of a set of attributes which we can ascribe to subatomic particles and their states of preparation from the determinate mathematics of which we could recover the probabilistic results for quantum theory as it is now understood?

So far, the answer has been equivocal. It is now clearly understood that there is no way in which a theory employing the familiar classical concepts of momentum, energy and so on, could be formulated, to provide a determinate hidden variable theory ([6.5]). Every experiment so far conducted has only given stronger and stronger support to the 'Bell inequality', the mathematical condition that expresses the principle of no hidden variables. On the other hand, there have been hidden variable

theories constructed using exotic concepts from which the existing quantum mechanical results can be recovered [6.44]. However, they lack any serious degree of physical plausibility.

In quantum field theory, another and yet more fascinating conceptual problem has arisen. It is now some fifty years since the idea of expressing field interactions as the exchange of particles was first proposed. The idea has been, one might say, extremely successful, at the cost of the development of theories of incredible mathematical sophistication. The quantum theory of fields is now a very well-developed speciality in physics, but it leaves us with a tantalising conceptual problem. The particles which are exchanged in interactions, say, the photons that are exchanged in an interaction between two electrons, are not identical with the photons, the flux of which is the light with which we are familiar. These photons are virtual, that is, they exist in and only in the interaction, if they exist at all. Furthermore, as imagined, they have properties which differ from the familiar properties of the photon of light. They are like light quanta, but not quite like light quanta. Are they real?

Recently, the idea of using the analogy between the light photon and the photon of quantum electrodynamics as a basis for developing theories of other kinds of fundamental interaction, the weak interaction, the strong interaction and even gravity has led to the proliferation of such 'virtual particles'. I think it would scarcely have crossed the minds of most physicists to ask about the reality of virtual particles, were it not for the use of the structure of reasoning through which the light quanta became the models for quantum electrodynamics. In quantum electrodynamics, the virtual photon is modelled on the real photon, if I may be permitted to put the matter that way. Then weak interaction particles, the w+ and w-, and z_0 particle are modelled upon the virtual photon. They are all species of the same genus. Then, in a reversal of the reasoning which led to the conception of the virtual photon, the idea of a real w particle, or a real z particle seemed to be a natural development from the quantum field theory of the weak interaction. The programme for hunting the w's and z's was defined, and in the manner in which such events are achieved, they were eventually 'discovered'.

I believe that this pattern of reasoning which is characteristic of quantum field theory was at least in part responsible for raising the question of the reality of the intermediate vector particles which carry the forces of interaction. If there are real versions of these particles, then surely there is some sense to the reality of the particle as the physical bearer of the field ([6.10]).

A clear formulation of the idea that there is a distinctive set of properties, the behaviour of which defines the subject matter of physics

first appears in the seventeenth century. At that time the perceptible attributes of material things were classified as primary or secondary depending on their relation to human sensibility. Those which existed only in the act of perceiving were classified as secondary. Those which were thought to exist independently of the perceptual capacities of human beings were taken as primary. Galileo [6.17] seems to have so tightly tied the primary qualities to the science of physics as to make the one definitive of the other. Secondary qualities were marked by the way that they varied in quality, intensity and duration with the state of the human perceiver. Locke [6.29] completed the philosophical treatment of the distinction by carefully analysing the relation that must be supposed to obtain between secondary qualities, such as the power of a body to induce a colour sensation in a human observer, or an observable change in another material body, such as the power of fire to melt ice, and states of material bodies by virtue of which they had these and other powers. He sharply distinguished between ideas and qualities. Ideas are mental, including, for instance, sensations of colour. Qualities are material, including the properties of coloured things. This distinction enabled Locke to come at the distinction between primary and secondary qualities by a different route from that followed by Galileo. Ideas of primary qualities resembled the qualities as they existed in the material world. But the ideas of secondary qualities did not. Red, as a perceptible quality, does not resemble whatever property it is that causes a human being to see an old Soviet flag as red in hue. Generalizing the theoretical use of the concept of primary quality, Locke took the qualities that 'in the material body' caused corresponding ideas of secondary qualities as just those which are central to the conception of matter as it is used in the science of mehanics. All this is tied together by the thesis that the quality in the perceived thing that corresponds to the idea of colour, say, that is the secondary quality itself, is nothing but a power, a power to induce the relevant sensation. What the word 'red' refers to in the thing that is seen as red is a disposition. But it is grounded in an occurrent state of the perceived thing. According to this metaphysical scheme that state must be some combination of primary qualities.

For the scientist-philosophers of the seventeenth century, physics was mechanics. It was the study of the primary qualities of material bodies. Friction, for instance, as a mechanical disposition, must be grounded in the atomic structures of the interacting bodies. Mechanics, the basic science, was based on an absolutist metaphysics. Locke's philosophical account of the foundations of physics required two main categories of concepts. One set of concepts were relational. Many of the qualities of material things are dispositions to cause perceptible effects in a human being or in other material things. Whether they are activated or not depends on the contingent existence of suitable targets for their activity.

The other category of qualities was absolute. The properties on which the dispositions are grounded are primary. Primary qualities are so defined as to be independent of the relations between the material things which possess them and human beings or to anything else. Boyle [6.9] sums them up as the 'bulk, figure, texture [arrangement] and motion' of the elementary material things or corpuscles. The word 'corpuscle' was preferred to the word 'atom' by the sophisticates of the period, since it left open the question of whether the constituents of matter that were elementary for chemistry or mechanics were truly atomic, that is, indivisible in principle. Though Newton listed many dispositions amongst the primary qualities of matter, he shared the assumption of his contemporaries that there were *some* absolute physical properties. In the second edition of the *Principia* the list of the mechanical properties of matter are a mixture of the occurrent and the dispositional. Newton (1690) writes of the 'extension, hardness, impenetrability, mobility, and inertia of the whole [body] which 'result from' the corresponding properties of the parts. To have inertia, says Newton, is 'to be endowed with certain powers' [6.39]. Inertia appears in the list of primary, mechanical properties as the power to resist acceleration. But inertia is not mass in Newton's metaphysics. Mass is an occurrent property. It is that which grounds the disposition identified as inertia. To give mass its occurrent character Newton defines it as 'quantity of matter'. Since the mass per unit volume differs from material to material, a universal matter, serving as a basic common substance, would have to exist in different states of diffusion. In a substance of low density the matter is rarefied, while in a substance of high density it must be compressed. One physical scheme to accommodate this difference would be basic atoms in a void with more or less pores between them. There would be fewer such atoms in a given volume of a light substance than in a similar volume of one that was more dense. Newton seems to favour this account. The basic atoms would be full, and so of uniform density. Lacking pores they must be incompressible and impenetrable. I have emphasized above the problem this thesis raised for Newton's general mechanics.

Though most of Newton's primary qualities are dispositions, they are nevertheless absolute in one of the dimensions on which the notion of the absolute figures. In Rule III Newton asserts that they 'are to be esteemed the universal qualities of all bodies whatsoever' whether or not they are 'within the reach of our experience'. As primary qualities they are not relative to human sensibility, but by the same token they are a mix of the relational and the absolute. In Newton's scheme mass, inertia, extension and mobility must exist even in a body wholly isolated from all other material beings. It seems to follow from the definition of mass that Newton's physics includes at least two absolute properties of matter. The

quantity of matter would seem to be unaffected by the presence or absence of other material things. Since the quantity of matter of a body is related to its spatial extension, and that to absolute space, it would seem that extension and mass are both absolutes in Newton's scheme. The close conceptual tie between absolute space and mass is further underlined in Newton's argument for the intelligibility of the concept of absolute motion:

> if two globes, kept at a given distance one from the other by means of a cord that connects them, were revolved about their centre of gravity, we might, from the tension of the cord, discover the endeavour of the globes to recede from the axis of their motion.
>
> ([6.39])

By testing to see in which direction impressed forces bring about the greatest increase in that tension, we can find not only the angular velocity of the globes in absolute space but also the true plane of the motion with respect to that space. To suppose that a force will appear in the cord when the globes are set rotating, Newton must be assuming that the masses of the globes are unaffected by the absence of all other matter. The masses are absolute qualities. If mass is a quantity of matter, then indeed that assumption seems natural and also inevitable.

The generality with which Newton uses the notion of 'power' is evident in Query 31 of the *Opticks*.

> And thus, Nature will be very conformable to herself and very simple, performing all the great motions of the heavenly bodies by the attraction of gravity which intercedes those bodies, and almost all the small ones of their particles by some other attractive and repelling powers which intercede the particles.
>
> ([6.40])

There is yet another root idea in Newton's conception that gravity cannot be a primary quality because it suffers 'intensification and remission of degree'. So there must be a more basic power, 'an agent acting constantly' which is the absolute, because non-relational element, in the physics of gravity.

Mach's (1883) criticism of Newton's metaphysics is usually presented as an attack on the assumption that mass is an absolute property ([6.32]). But Mach's argument develops in two steps. He first shows that mass is best considered as a relational property in his analysis of the basic laws of mechanics. The argument goes as follows: consider an impact of tensions. The body A is falling under gravity. When the string joining it to the body B, resting on a smooth surface becomes taut, A will decelerate and B

accelerate. Since the string is taut at the moment of 'impact' the force decelerating A will be equal to that accelerating B, so Mach argues. Let that force be *'F'*. Then if the mass of B is m_b, the mass of A is m_a, and the accelerations f_b and f_a respectively, the equation of motion for the whole system is $m_a.f_a=-m_b.f_b$

Mass appears here, and in all other contexts of mechanics, as a ratio. In this case the ratio is equal to the negative inverse of the quotient of the accelerations. Mass and inertia are the very same relational disposition. Given this prior analysis, Mach's treatment of the experiment of the globes (and of the more complicated argument of the thought experiment we call Newton's bucket, which involves a refutation of the Cartesian conception of locally real motion) in which the assumption of the persistence of inertial properties into the isolated system of the globes is entirely consistent. It simply involves the generalization of the relationality of the mass concept to the components in the simple system of the impact of tensions to the structure and contents of the universe as a whole. Mach completes a trend that began in the sixteenth century, a trend to replace absolute versions of the properties of material things with relational properties. Not only are these properties dispositions, manifested only in the interactions between material bodies, they are also relational in the sense that they are not grounded in some intrinsic property of isolated material individuals but in their relations to all the rest of the bodies of the universe.

One can tie together the seemingly disparate mechanics of Newton (read relationally) with quantum field theory by the realization that there is a common structure to their deep ontologies. In what sense do *any* of the 'particles', actual or virtual, exist? It seems obvious that only a dispositional account of their manner of being makes any sense. By that I mean that our claims about the world-in-itself made on the basis of the experiments by which apparatus, has (permanently) a disposition to display itself in such and such a way in the behaviour of that apparatus. Or to put it in Popper's terms only the set-up has propensities to yield this or that phenomenon. The phenomena are ephemeral, but it is they which are particulate or wavelike or whatever it might be. In this treatment we have both of Bohr's famous principles, that of complementarity and that of correspondence. Complementarity because set-ups which exclude each other produce, as a matter of fact, disparate and complementary phenomena; correspondence because the state of an apparatus-world set-up can be described for a human community only in the terms made available in classical physics, the physics the concepts of which are paradigmatically defined by the things and events of the ordinary world.

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CHAPTER 7

The philosophy of science today

Joseph Agassi

THE PHILOSOPHY OF SCIENCE HAS A REMARKABLY LOW STANDARD

Science began in Antiquity as a branch of wisdom, and philosophy (= the love of wisdom) was distinguished from wisdom only by philosophers. Cultivators of science in its early modern times (*c.* 1600–1800) called themselves philosophers, and their activity was called not science but natural philosophy. What we call today the philosophy of science includes the theories of knowledge (epistemology) and of learning (methodology), as well as the study of the principles of science (metaphysics, the philosophy of nature). The first two disciplines were at the time neglected as they were considered marginal; the third, metaphysics, was deemed distinctly dangerous. Natural philosophers did not consider their work impractical; they called themselves 'benefactors of humanity', as they were convinced that their activities, in addition to their intrinsic merits, will bring peace and prosperity to the whole world. But they insisted that the practical aspects of science, significant as they surely are, can only appear as by-products, not as the outcome of study directed to any goal other than the search for the truth: any other goal will render research biased and so worse than nothing.

It is not that applied science evolves all by itself, as the application of knowledge for practical purposes certainly requires efforts, including research. But the research for any practical purpose need not, it was taken for granted, be a search for knowledge. To make this clear, it may be useful to contrast the classical, typically eighteenth-century view with today's view: today we recognize within science not two but three

categories; we recognize basic research in addition to the classical pure and applied research, where pure research is disinterested and applied research is the use of the fruits of pure research for practical ends; basic research is pure research directed at material which is not very interesting in its own right but which is expected to be very useful in practice. There is little doubt that today research claims prestige for itself because of its potential usefulness. That is to say, all research is claimed to be more-or-less basic.[1] In the classical vein this was unthinkable, the value of science was deemed almost exclusively personal and research was deemed edifying.

Obviously, of the many thousands of citizens engaged in research proper, most are engaged in small tasks—which Thomas S.Kuhn has labelled 'normal'. And, he stresses, normal science is practical. He probably means by this that normal science is all practical, but let us admit that it can also be basic. The practical attitude to science is very modern; it is at most the result of the industrial revolution, and so nineteenth-century at the earliest; more likely it is post-Hiroshima. Kuhn is a historian of science and so he should know the obvious fact that normal science in the eighteenth century was more for individual entertainment than for practical ends. This was not always so: anyone familiar even with the mere illustrations in the literature in the history of science in the eighteenth century will know that. This is reflected in the third edition of *Encyclopedia Britannica* of the early nineteenth century. The article 'Science' there is extremely brief, reporting that an item of knowledge belongs to the body of science if and only if it is certain. Though the article gives no instances, clearly, the best instances are either from logic and basic mathematics or from extremely common and undoubted experiences, though, of course, some high-powered scientific theories should count as well. Today, incidentally, it is generally acknowledged that of these seemingly most certain items, none is exempt from doubt and revision (except perhaps logic; this is still a contested matter). Next to that brief third-edition *Britannica* article on science is a long article on science as amusement, in which the contents of a famous popular eighteenth-century book (by Ozanam) is reported. We would recognize today the contents of this article as vaguely within the domain of high-school sciences, as it includes somewhat amusing experiences with mechanics, electricity, magnetism and the like. Probably these two articles were not conceived of together and they were put together by sheer lexicographic rules.

The picture which emerges from this description presents a concern with science which is pre-critical. It was at times purely intellectual, at time practically oriented, always with great implication for life in general, for daily life and for peace, but with hardly any concern for the problems and issues in the philosophy of science as recognized today. Today, many

of the concerns of the field, epistemological, methodological and metaphysical, are traced back to writers of the classical era, especially David Hume and Immanuel Kant. There was a major difference between these two thinkers. Hume is typical of his class: he was a private scholar who was clearly concerned with the social sciences (politics and economics, in particular), whose contributions to the philosophy of science he himself saw as marginal and preparatory. Not so Kant, who was most uncharacteristic; he was a university professor, who was on the side of science, and who was reputed to be a polymath proficient in fourteen different branches (some of which he inaugurated as academic subjects, such as geography and anthropology). He was still primarily a philosopher, and even primarily a philosopher of science.[2]

It is hard to examine this, quite generally received, assessment, since the expression 'the philosophy of science' is new. To repeat, traditionally the word 'philosophy' designated learning in general and empirical science in particular. After the defeat of the French Revolution, some fashionable reactionary philosophers swore allegiance to unreason. Other, more old-fashioned philosophers understandably attempted to distance themselves from the new advocacy of unreason, and one way they did this was by naming their own views 'scientific philosophy'. This name usually designated mechanistic philosophy; its adherents considered theology to be typically metaphysical and so they branded all metaphysics evil; this enhanced their claim for scientific status for their own, mechanistic metaphysics. This way the philosophy that upheld the traditional esteem of reason centred mainly on science and on reasonability in the moral life of the individual and the nation. It naturally tended to centre increasingly on epistemology, methodology and rational metaphysics as a main tool to combat unreason. The philosophers of unreason had—still have—their own philosophy of science, but this is scarcely recognized: the philosophers who defend reason against the attack on it from the advocates of unreason took a monopoly on science and its defence.

The philosophy of science thus evolved into a specific activity of philosophers of the rationalist persuasion—the activity of defending science against its detractors. This explains the poverty of the field today: today science has no worthy detractors to combat; and no dragons to slay, no heroic deeds.

Even the philosophers of science themselves are aware of this fact, as they defend science not only by singing its praise, but also by attempting to solve problems in epistemology and in methodology, and by seeking newer and better arguments to combat metaphysics with. They do this as a mere pious act, paying no heed to the possibility that the problems they pose are insoluble, at least insoluble as long as they are presented in the traditional manner and settings. They cling to the pre-critical, optimistic

view of science in the face of the risks to the very survival of humanity which scientific technology has originated: they relegate these risks to the new field of the philosophy of technology (which is less than half a century old), as if their philosophy of science does not include the philosophy of technology and as if their philosophy of science does not credit science with scientific technology as a great achievement. It really is a cheap trick to admit to the field of the philosophy of science the praise for science as the source of the benefits from scientific technology and its great achievements, and to banish to the philosophy of technology the possible and actual ill-effects of the same scientific technology.

David Stove is exceptional. The efforts to solve the traditional problems of the philosophy of science, he says, are commendable even if these should turn out to be insoluble. For, he explains (in his book against those who have given up the traditional struggle, including Sir Karl Popper and Thomas S.Kuhn), the struggle is the ongoing defence of science and thus of traditional rationalist philosophy and thus of rationalism as such.

This is a charming admission, but of a position that is obviously pathetic.[3]

PUBLIC RELATIONS FOR SCIENCE IS MEANINGLESS

In the year AD 1600 St Roberto Cardinal Bellarmino consigned Girdano Bruno to be burnt at the stake—allegedly because he taught that the universe is infinite, so that in all likelihood there exist other worlds like ours. Later on the said Saint issued an official threat to Galileo. Science was then rightly militant. Today science is triumphant; even the Church of Rome has recently admitted the superiority of Galileo's case over that which was contrived against him and officially endorsed there and then. However embarrassing this repudiation was, science became too strong to continue evading it.[4] Today, science surrounds us and appears on all levels from the sublime, through the mundane to the abject.

In the sublime mood science is what Bertrand Russell called ([7.53]) 'Promethean madness' and what Albert Einstein considered to be the scientific undertaking: 'tracing the Good Lord's blueprint of the universe'. In the mundane world of the modern industrialized metropolis, the impact of science on the intellectual, political, social and technical aspects of life is overwhelming; especially, the impact of scientific technology is so very prominent. The abject aspect of the impact of science on daily life has attracted a certain kind of philosopher of unreason, whose hostility to reason is expressed as a hostility to science, transformed into a hostility to scientific technology—on the

grounds of prophecies of gloom and of apocalypse that should be blamed on scientific technology, *the* cause of the alienation of Modern Man. These prophets of unreason identify science with the foolish attempt to conquer and subjugate Nature and they are confident that Nature will soon avenge this treatment by devastation. They advocate the replacement of the Western harsh, indifferent attitude to Nature with a soft, intuitive, irrational, oriental attitude. This mixture invites very urgently the sifting of the grain from the chaff.[5]

This quick survey of the impact of science on society that goes from the sublime to the ridiculous, has omitted the ridiculous. This dimension is normally absent: science is no cause for levity. The entertainment world is as much under the influence of science as any other component of our small universe, in its shaping of our tastes and opinions and values and in its stupendous media technology. But not as an object of hilarity; even as sedate entertainment it is almost entirely confined to the juvenile. Yet they raise in a fresh manner the question, what is science? The question seems to require an answer that is easy to apply to what we usually call science, including high-school science and nuclear physics and electronic engineering. This is an error: we may have a thing and the received model of that thing, and the two need not agree. In the literature on social anthropology, this is taken for granted. In that literature, the paradigm for the difference—between a thing and the received idea of it—is the difference between magic and the received idea of it: in every society that has been described by some anthropologists, there are magicians, and yet (unless we deem the scientists as powerful magicians as did Sir Francis Bacon in the early seventeenth century), we all agree that real live magicians never fitted the characterization of magic admitted in their society (except possibly contemporary modern society). Magicians like Merlin do fit the image of the magician, but they never existed (except perhaps among modern scientists). Do the modern scientists fit the image of science?

It is the image of science that is rather ridiculous, as it is put forward by the spokespeople for the public relations of science. This is not peculiar to science. The practice of public relations evolved unawares and uncontrolled as a part of the advertising world of the free market, where the shortest of the short-term interests govern, so that the most cynical opportunists set the tone. This is harmless enough when pertaining to the sales of soap, but not to the sales of the higher things in life, be they the arts, the sciences or religion. Whoever the individuals are who take upon themselves to express the social concerns of science, they are these days powerful individuals and they control the appointment of suitable individuals to the positions of spokespeople of science. The leading positions in

this matter are well-paid professorships in the leading universities in the subject called the philosophy of science.

In brief, official philosophy of science, the philosophy of science boosted by the scientific establishment, is much less tolerable than the commercials on television which sell soap and other cosmetics. They are as remote from the Promethean madness of the search for the secret of the universe as eroticism is from the (intellectual) love of God.[6]

If we grant this, and it is hard to deny it as we will soon have the occasion to notice, then we may begin by denying that there is anything more specific to science as such than to cosmetics as such. And the best characterization of science that can be given is in that vein: science is the Promethean madness, the attempt to trace God's blueprint of the universe, the search for the secret of the universe.[7]

SCIENCE IS A CULTURAL PHENOMENON

There are some immediate, obvious objections to the view of science as a quest, and they centre on the missing object of the quest and on its trail, expressed in the following two questions. What will satisfy the scientific quest? Which way does one turn to be on its trail? These questions are reasonable and should be taken seriously, but they are presented as objections, and as objections, I will now show, they are residues from the pathetic public-relations department—by illustrating their immediate socio-political implications—on the assumption that there are no competitors within human culture.

The first objection is dominant in the semi-official literature on the matter: what exactly are we in search of? Are we in search for information or for knowledge? If for mere information, will any information do? If yes, why not be pleased with the information contained in primitive lore and in Scriptures? This series of questions looks so straightforward, but it is not. It begins well and degenerates: what exactly are we looking for? This is the right question even though obviously we do not know: we know what we look for when we look for a lost penny, but not when we look for a masterpiece while roaming in a foreign museum, much less when we seek the secret of the universe. The question is right, but we should not expect too much for an answer: anything remotely resembling a possible answer may be a tremendous excitement. But look where the series of questions ends. It ends with an insult to the competition. This is not serious; it is public-relations frivolity—especially since repeatedly the self-appointed public-relations spokespeople of science often find the quest formidable and even exasperating, so that they finally settle for the mere physical comforts

that science-based technology has to offer to the modern world. (The leading public-relations spokesperson of science in the previous generation was Rudolf Carnap, the famous debunker of all speculations; his *magnum opus* was his *The Logical Foundations of Probability* of 1950; it starts with the formula for finding the truth about the world and ends by giving up the task, with the excuse that science is a mere instrument.) And so, when the circle is closed and science is praised as a mere instrument, the conclusion is not drawn but remains all the same: the mere physical comforts that science-based technology has to offer the modern world is superior to the primitive lore and to the Scriptures. This is hard to take seriously. Primitive lore and the Scriptures do not compete with modern science-based technology as conveyors of physical comforts, but they still are very interesting and deserve attention in many ways and on many levels. This is the end of the objection from the hostility to the idea of science as a quest from popular lore and the Scriptures: the quest is obviously not replaced by the study of popular lore and of the Scriptures; rather, the study is a part of the quest.

The public-relations spokespeople do not allow themselves to be dismissed so easily, and they respond with forceful objections to the dismissal here suggested: they want reason, namely science, to be the guide for life; they want science to offer but better technology and better education, and the two should go together (as the proper education for the next generation is essential for the technological challenges they will face), yet the competition will not agree. Admittedly taking the Scriptures as a science substitute is frivolous. Yet, however frivolous the competition is, its hostility to scientific technology and to scientific education must be taken seriously in the interest of the wellbeing of us all.

This rejoinder seems very serious and very responsible, but it is not. Responsibility will be served if the question of education and of the place of technology in the modern world be discussed not apropos science but apropos the design of a better education policy, the study of education and its purposes. And the same holds for the problems that are specific to high-tech society. Here we are discussing science, and as the search for the secret of the universe, not the implication this has for education and for the training for high-tech. True, science shares with other domains the search for the secret of the universe, including magic and religion. Do the public-relations spokespeople of science want to distinguish between the search conducted in a manner becoming science and in alternative ways? Or will the comparison suffice of the results of the search along different lines? Today it is agreed that the results tell the important tale: by their fruits ye shall know them. Do we know the difference in the results? Of course we do: even the most ignorant among the public-relations spokespeople of science have no difficulty in

telling a magic text from a scientific one! To be precise, the semi-official literature of the public-relations spokespeople of science is not that advanced: only a few philosophers of science discuss magic proper in a manner which is up to the standard of current social anthropology, the scientific field of study which retains an exclusive claim over magic. Rather, the semi-official literature of the public-relations spokespeople of science is concerned to a large extent with the unmasking of items of pseudo-science as merely pseudo, namely, not the genuine articles they masquerade as.

SCIENCE NEEDS NO PROMOTERS

It should be granted that this is more challenging: the public-relations spokespeople of science can easily distinguish a genuine amulet or talisman from a page of a scientific paper, but lamentably all too often they cannot distinguish a phony page of a manuscript that deserves publication in a scientific journal from one that is not. This is why the public-relations spokespeople of science are never invited to act as referees for judging the merits of scientific research any more than the public-relations spokespeople of a financial concern will be asked to adjudicate on matters financial. This is why the public-relations spokespeople of science are so pleased and so proud when a scientist proper joins their ranks, even though they should know better. For, a scientist can contribute to the philosophy of science without joining the ranks of the philosophers, as many scientists often do. Hence, scientists become philosophers only as an admission of defeat as scientists, often after retirement. Max Born, the great physicist of the early twentieth century, who was also a somewhat less-great public-relations spokesperson of science, said that all able-bodied researchers should devote all their energies exclusively to science and permit themselves to turn to philosophy, if at all, only after retirement.[8]

All this sounds rather evasive, yet it is the heart of the matter: analysing the means for distinguishing between the genuine research from the pseudo sounds a reasonable task, yet it clearly is very questionable, and probably it cannot be done: even scientists of the best repute are not very good at it. Proof: young Albert Einstein was deemed phoney by many scientists, and he was taken as suspect for well over a generation—while those who took him seriously debated hotly the question, was he right?

The great historian of physics, Sir Edmund Whittaker, who was himself a serious scientist (he was the Astronomer Royal for Northern Ireland) was hostile to Einstein all his long life, and as late as in the mid-century, long after the heated debate had subsided, he declared that there never

was an Einsteinian revolution and overlooked the heated debate completely. In a review of Whittaker's book Born said, I was there, I witnessed the heated debates and took part in them.[9]

To return to the items that may be masqueraded as parts of science. These items are, among others, magic, theology and metaphysics. What is so pathetic about all the many studies dished out year in and year out by the public-relations spokespeople of science is precisely this: were they right, then there would be no regular problem in refereeing, and in the rare cases of such a problem, these very public-relations spokespeople of science should be the experts to consult. Such cases do not exist.

To be precise, one such case does exist: in the long history of the public relations of science, one such spokesperson was invited to speak as an expert on the matter at hand. It was the second 'monkey trial' so-called, the court case a few decades ago, in which a judge in Little Rock, in the State of Arkansas, USA, was called to adjudicate between the education department of that state and a religious sect which demanded that the official biology text books should include proper reference to scripture. It is a priori obvious that both parties were lamentably in the wrong: the education department was in error in proscribing such reference and the other party was in error in trying to bring in, not the Scriptures, but a certain dogmatic attitude.[10] The judge had little choice but to side with the education department, simply because the public-relations spokespeople of the religious sect in question were even more inept than the public-relations spokesperson of science who was invited to speak for the department. He argued that the religious are dogmatic and the scientists are not. Even apart from the fact that many individuals are religious scientists, this is a naked falsehood: there are non-dogmatic religious sects and dogmatism is lamentably too common among scientists, religious and non-religious, and more so among science teachers. When it comes to the curse known as science-education inspectors, it seems that for them dogmatism is obligatory, though, as many obligations, it is at times not carefully observed.[11] This is no complaint about the judge: he was facing in court dogmatism on both sides and had to choose the lesser evil. In that Arkansas court on that day, science appeared the lesser dogma and the lesser evil; but with the help of the public-relations spokespeople of science this will soon change—unless something is done about it. These public-relations spokespeople of science are not powerful at all, but they may do harm anyway, as they cover up some powerful evils: the more powerful science is, the more success it brings about, the more the dangers of its abuses, and unchecked it will be abused. This, after all, is the major lesson we learn from all science fiction, and Mary Shelley, H.G.Wells and Isaac Asimov spun yarns to let us absorb this lesson. Except that under the pious guidance of the public-relations spokespeople of science, readers of

science fiction take the lesson to be mere fiction with no moral to it or as fiction with futile moral against the abuse of magic, not a real moral against the abuse of science.[12]

We have arrived back at the claim of the self-appointed public-relations spokespeople of science that the evil of magic is in its masquerading as science, in its being pseudo-scientific. This is most parochial as an attitude: most magicians and theologians, even most metaphysicians, operated (and still do) in societies in which there is no familiarity with science so that they do not masquerade as scientific and so they do not qualify as pseudo-scientific. Even cargo cults, the magic rituals involving wooden copies of aeroplanes and other modern artefacts in the hope of inducing the gods to grant them to the worshippers, scarcely qualify as pseudo in any sense.[13] To say of Moses the Law-giver and of Jesus Christ that their theology masqueraded as science defies the imagination. Only in response to the assertion of Maimonides, that Moses the Law-giver was a scientist, could anything like the charge of masquerading be launched—validly or not.[14] *The* philosophers of science, however, that is to say, the semi-official public-relations spokespeople of science, are not interested in all this: they care little about societies overseas; they are here to advertise science here and this task includes the discrediting of the competition here. They therefore permit themselves at times to be agreeably tolerant to theology and to metaphysics—after proof is issued to their own satisfaction that the parties involved do not compete with science. Usually, that is, theology and magic are deemed competitors, and then *the* philosophers of science, that is to say, the self-same semi-official public-relations spokespeople of science, find themselves acting as bouncers for the exclusive club of science. The leading sociologist of science, Robert K.Merton, prefers the term 'gate keepers', as he deems it the less offensive of the two; it is more offensive, as will be clear when we find the answer, which should guide the bouncer, to the central question of the philosophy of science: who is and who is not a *bona fide* member of the club? What is science? Is there a quality of science that sets it apart from what the bouncers consider as the competition? For, clearly, science is open and gate-keeping makes it a closed club.

SCIENCE IS NOT SUPER MAGIC

What is science? Science is a body of knowledge; science is what scientists do *qua* scientists; science is a tradition; science is any empirically involved research activity; science is a faculty in the university. All these answers are true and meet the question, yet they are highly unsatisfactory. Hence,

the question was ill-put. Here it is in its proper wording: what is the essence of science?

This is a tricky question; without entering the hoary matter of the critique of essentialism we can re-word it: what differentiates science from……? Taking it seriously requires the study in depth of many competitors to science. The study of alien cultures is, of course, highly recommended and even the bouncers will not object to it unless it is done from the viewpoint of the competition. Yet controversy about alien cultures abounds in the scientific departments devoted to it, and consequently the task of characterizing science in opposition to them gets increasingly harder. Example: is Claude Lévi-Strauss, who has created a revolution in the current view of myth and of magic, is he a bouncer or a competitor? He says he is a friend of science, a scientist indeed. Is he? The question is very difficult to settle and the anthropological literature is still struggling with it.[15] Let us try to alter our strategy, then. Can we look at science rather than at the competition and find there some clear-cut characteristic that sets science clearly apart from all the competitors? If so, what is it?

This is the problem of the demarcation of science as semi-officially understood.[16] The most traditional answer to it, to repeat, is that science is a body of theories, and what characterizes them is their certitude, our ability to prove their perfection and finality. The more modern answer is the theory that science is a prestigious social class which lends prestige to its ideas. These two answers are contested these days, though the first is advocated mainly by philosophers of science and contested mainly by sociologists and historians of science, and the second suffers the reverse role—we have here two groups of self-appointed public-relations spokespeople of science competing for the same territory. Let us take the first answer first.

In the twentieth century the impact of logic led to a shift on this matter. The scientific character of a sentence shifted: it was deemed not proof but provability. Now generally one cannot know if a sentence will prove true or false before it is compared with experience. So, a sentence was deemed not quite provable, but merely decidable; a sentence is decided if it is either proved or disproved.[17] This doubled the number of entries: not only a proven sentence but also its negation is scientific, as the negation of a proven sentence is disproved, and the couple of sentences taken together is decidable. Now the claim was that though generally a sentence cannot be declared a priori provable, it was declared that every well-formed sentence is a priori decidable. The justification for the relaxation of the criterion of demarcation of science to the extent of letting the negation of scientific claims be scientific was the wish to corner the competition once and for all by permitting the competition to contradict science openly. If the

competition does contradict science, they will put themselves to ridicule, and if not, we will be able to expose them as saying nothing. The very idea that one can permit the competition or not, and decide that they say something or not, shows that the advocates of this view took anti-science to be passé, that they were serving science in the supposition that it is winning anyhow. In any case, they met the surprise of their lives when they learned (from Kurt Gödel) that even in mathematics decidability is unattainable. In computer science it is at times an empirical affair: many tasks given to a computer for deciding the truth or falsity (called the truth value) of a sentence are performable, and demonstrably so; at times the demonstration is purely abstract, as when the time the task takes to complete is much too long. And some tasks are not known to be performable or not. And then, if such a task is given to a computer, then, if the computer finishes the task, it is performable and the truth or falsity of the sentence in question is decidable; but until the task is completed it cannot be decided whether the task will be completed soon or not.[18]

At this juncture the story of contemporary philosophy of science gets much too involved. First, there are modified conceptions of the empirical character of science: the requirement from a sentence that may claim (empirical) scientific status is lessened by leaps and bounds. The exercise of the lessening of the requirement is curious: the input into it increases all the time, yet the output becomes less and less satisfactory, to the point that its own advocates are too unhappy about it to conceal their displeasure with it. Briefly, the idea of certitude is replaced by probability, by a limitation on the domain of the validity of the proof, and by the abandonment of the very concept of proof, which imports finality, in favour of the concept of relative truth.[19] What all of these substitutes for the idea of decidability share is the following incredibly fantastic idea: though a sentence is not usually decidable, its scientific character is. (In other words, though finding the truth or falsity of a sentence is not generally assured, the truth or falsity of the claim that it is scientific is easily assured.) This is a fantastic idea, since one way or another science is linked to truth, no matter how tenuously. Yet it is accepted upon faith. What accepting a sentence on faith means is not clear, but its political implication usually is: the society of the elect are known by their faith.

This is how the first answer, the idea of decidability, upheld by philosophers of science, slowly degenerates into the second answer, the idea that science is a social status of sorts, upheld by the sociologists of science.

Can we ignore all this? Can we ask as curious observers, what is the root of the success of science? Is there some activity peculiar to science?

SCIENCE IS PUBLIC AND EMPIRICAL

Our question has undergone some transformations. First we asked, what is science? This was replaced by, what is the essence of science? And this was translated to, what differentiates science from other intellectual matters? And this was narrowed down to, what characteristic is peculiar to science? And rather than go over the same exercise yet again we should translate this into the following, final wording: what is the specific characteristic of science? (The word 'specific' in the question by tradition hides an essentialist gist, but let us not be too finicky.)[20]

There are two very generally accepted answers to this last question, what is the specific characteristic of science? This would be very comforting, except that the two answers do not overlap. The one is, science is public; the other is, science is empirical.[21]

Take the public character of science first. The claim made here is that most intellectual activities are esoteric, closed to the general public, that entry is conditioned—whether on some natural gift or some specific preparation not given to all or both. Is this true? If so, then by what virtue do the public-relations spokespeople of science dare bounce people who wish to be or appear scientific? More than that: if science is open—exoteric—then why does science need public relations in the first place? It needs recruiting officers, talent scouts, instructors; but why bouncers? What does it matter to science that some esoteric groups appear to be exoteric and other groups have esoteric reasons to oppose science? What does it matter to science, asked Einstein, if this or that church opposes it? If it is necessary to expose and unmask those who masquerade as scientists, is it not best to do so by examining the question, how open are their clubs? Perhaps the bouncers suggest that this is not such a good idea as it may deprive them of their jobs; if so then they are disqualified from debating this question because of a conflict of interests![22]

The second answer is that science is empirical. Now surely Sir Karl Popper is quite right when observing, as a matter of historical fact, that astrology and alchemy and even parapsychology, are empirical as well. The public-relations spokespeople of science are outraged by this observation, and they protest that the empirical evidence in question is highly questionable, and often it is simply lies. This complicates matters immeasurably by raising two tough questions. What evidence is not questionable? Are all scientific reports honest and all parapsychological ones lies? It has been reported that some people pose as parapsychologists and are liars; it has also been reported that some people are genuine parapsychologists and are not liars. Are the reported liars not simply pseudo-parapsychologists? Since people who falsely

call themselves scientists are unmasked as pseudo-scientists, and science is free of responsibility for them, surely the same privilege should be granted to parapsychology! The question here is not who is a liar (this question belongs to sociology, to criminology, to cultural history), but, what grants a theory the right to scientific status, namely, what is the characteristic of science? Supposing it is claims to empirical character. Are we to alter this supposition in the light of criticism to say that it is the employ of scientific empirical evidence?[23] This, surely, is hardly helpful, unless we know what makes evidence scientific. Whatever it is, two obvious, extreme answers are unacceptable. The one is that scientific evidence is true: history is full of (historically important) empirical evidence that is known to be false. The other is that empirical evidence is *bona fide*. For it is undeniable that some parapsychology is *bona fide;* indeed, some famous individuals whose contributions to empirical science is unquestionable were known parapsychologists. William Crookes is the standard example for that.

The matter of alchemy or of astrology is even more complex: historians of alchemy and of astrology tell us that the better practitioners of these activities were *bona fide,* and that some of them even contributed to what is now deemed chemistry and astronomy.[24] And we have still not said whether all the *bona fide* empirical evidence should count as scientific. There is a vast literature, going back to the writings of Galileo Galilei as to this question. It is called the literature on theory-ladenness, and for the following reason: if empirical evidence is based on theoretical suppositions, then it may be false unless the suppositions are known to be true. Suppose they are known to be true. On what grounds? Suppose they are known to be true a priori? Then science cannot be said to be thoroughly empirical; assuming, as we often do, that no intellectual activity is utterly devoid of some empirical component, and empirical character ceases to be the differentiating characteristic of science. Suppose, then that the theocratical suppositions are known to be true on some empirical grounds. Then, are these free of theoretical supposition? If no, then the question returns full strength. If yes, then there is some empirical evidence based on nothing but experience. Can this exist? If so, do we have an instance of it?[25]

Public-relations spokespeople of science hardly ever stay to hear all of these objections. Usually they or their seniors are in charge of (politically significant) discussions and they curtail them long before they are exposed that much.[26] They have a strong technique to justify their impatience: no matter how abstract and distant from real life their discussion is, they sooner or later turn the complaint that their opponents are remote from real life. In real life, they intimate, science is successful. This success should be analysed. And profound analysis tells us that the success is predictive, i.e. it yields successful forecasts. Thus, if we have no

proof, we have systematic probability: the earthly success of science is too systematic to be merely accidental; rather, this systematic earthly success is due to the systematic success of science in its efforts to confirm its theories.

SCIENCE POWER WORSHIP IS HILARIOUS

The discussion thus leads to the question, how come science is so systematically successful in its efforts to confirm its theories? What is the trick? Can it be learned? Can it be emulated by parapsychology? The answer must be, it can be learned, or else the success would not be so systematic. How can it be learned? There are two answers to this question, that of the traditional philosophers of science and that of the sociologists of science led by Michael Polanyi and his follower Thomas S.Kuhn. The one is exoteric, and so should be able to describe the formula that makes science an ongoing success; the other is esoteric and describes the knowledge of the formula an ineffable personal knowledge of the trade secret which is transmitted by master to apprentice.[27] This is the worst aspect of the philosophy of science as currently practiced, as public-relations mulch: science is predictive success or it is nothing. If the worse comes to the worst, then scientists are better viewed as exoteric magicians who simply deliver the goods and no questions asked. But the trick is to take as much time as possible getting to the worst, and in the meantime perform the real function as bouncers. Let us review the discussion which leads to this blind ally and see clearly that it is but killing time, that the only serious, *bona fide* ideas involved in the time-killing activity are long dead.

There are two schools of thought in the establishment of the philosophy of science, inductivists and instrumentalists, so-called. Inductivism is the preferred view, as it suggests that scientific theories are probable, even if not provable. It is not clear what this probability of theories means, and, regardless of what exactly it is, it is not clear which evidence raises it and how. It will soon be shown that this is all sham. When inductivism is relinquished, its touchstone, the idea that the goodness of science is shown as it yields useful predictions, or probable forecasts, becomes more than a touchstone; it becomes the criterion of goodness: science, it is then suggested, is nothing but applied mathematics; its merit is practical. Consequently, it turns out, its merit is not theoretical but merely practical—it is merely instrumental.[28]

Assuming for the moment that the value of science is nothing but true forecasts does not yield the conclusion that all true forecasts are desirable. The approval of true forecasts runs against the very well-known very commonsensical facts, first, that some forecasts are

terrible and are better not fulfilled and second, that a true forecast may mislead.

There is no question that this is the case, and the public-relations spokespeople of science are not in the least unaware of it. They do not deny this either. They only ignore it. What this oversight amounts to is clear: we are in control and there is no reason to fear that our forecasts are alarming or that we are misled by them. This *is* establishment talk. The world is threatened by destruction from pollution, from the proliferation of nuclear weapons, from population explosion and from the ever-increasing gulf between the rich nations and the poor nations. But there is nothing to worry about. All will turn out to be well.

Query: is this a scientific forecast or false prophecy? It is neither; it is cheap public-relations mulch.

To see how unserious this mulch is one only needs see the low level of the current debates in the leading literature on the matter. The topic common to both inductivists and instrumentalists is the question, are there any items of empirical information free of theoretical bias? Is there any 'pure' evidence? Or is all evidence theory-laden?

The onus here is on the party that says there is 'pure' evidence: they should offer instances. There are none. The only candidates in history were Bacon's naive realism and Locke's sensationalism. Naive realism is refuted: the naive see the sun rise and set, and, to cite an example of Erwin Schrödinger, the sun appears as not bigger than a cathedral, which means, given some simple trigonometry, that the distance between east and west is less than one day's walk. In an attempt to replace naive realism in view of the criticism from Copernicanism, Locke revived sensationalism, claiming that motion is not perceived. It is. Sensationalism is refuted, anyway, by myriads of experiments. This is the end of that discussion.

The next discussions concern theories. There is hardly a debate between the inductivists who ascribe to theories informative contents and the instrumentalists who deny that and read the theories as a mere *façon de parler*. Rather, each struggles with its own problems.[29]

The theory of induction contains two competing sub-theories, which deal with the question, what kind of evidence confirms a given theory? They both violate the only rule of science universally endorsed within science since its enactment in the early days of the scientific revolution: both sub-theories do not confine their discussion to repeatable, (allegedly) repeated observations, but rather they refer to unique items of experience. In addition to this, each of these sub-theories is easily refuted by very simple arguments. A vast literature is devoted to these refutations in an effort to get rid of them; worse, still, as usual with public-relations spokespeople in a defensive mood, they do not state the difficulties they struggle with and so sound arcane.

The first of these two sub-theories of inductive evidence is the instantiation theory of inductive evidence: a scientific theory is confirmed by instances to it. What then, is an instance to a given theory? What is an instance to a theory of gravity? Anything falling? Decidedly not: a falling feather disobeys even Galileo's theory of gravity. What then counts? Rather than discuss gravity, the public-relations spokespeople of science discuss such generalizations as, 'All ravens are black', forgetting that when asserted, these are items of evidence, not theories. What, then, counts as an instance? Every item that does not contradict a theory is an instance of it, since theories can be stated as prohibitions: there exists no perpetual-motion machine, for example; no gas deviates from the gas-law equation, etc. And then every item that is not a perpetual motion machine instantiates the law of conservation of energy! It sounds very counter-intuitive to admit every non-refutation as an instance, since this invites all irrelevancies into the picture. This is known as Hempel's paradoxes (in the plural) of confirmation. The counter-intuitive character of this fact is taken to be powerful criticism of the theory, despite the obvious fact that the theory is anti-intuitionist and so its advocates should not be disturbed in the least by its counter-intuitive character. For, were it permitted to rely on intuition, then the intuition that the world is law-governed is strongest, and so it dispenses with the problem of induction *ab initio*. A vast literature is devoted to efforts to rescue the instantiation theory of induction from its (seemingly?) counter-intuitive character.[30]

The second sub-theory of inductive evidence has for its background the musing that the function describing confirmation is a unique [!] function of both theory and all [!] extant evidence and of nothing more—or, if not uniquely determined, at least all such functions must [!] conform to the mathematical calculus of probability.[31] The theory, if it can be called that, is that the desired evidence is that which renders a theory probable in accord with this musing. The musing has two advantages. First, it identifies the vague concept of probable hypothesis with the clear concept of conformity to the mathematical calculus of probability. Second, it offers a clear-cut estimate of probability—on the further musing that the probability of an event equals the distribution to which it belongs. Except that this musing has no room for distributions other than those offered by theories whose probability this musing should help us estimate.

But evidence does play a great role both in research and in practical life, the self-appointed public-relations spokespeople of science exclaim in exasperation. Indeed, this is so, and from the very start; what they have promised to expose us to is not this profundity but the answer to the questions how and why? They even overlook the more basic question, which is, does evidence play the same role in research as in

practical life? It is more than reasonable to assume that the answer to this question is in the negative. The public-relations spokespeople of science take it for granted that the answer is in the affirmative. So much so, that they refuse to ask it—or to hear anyone who asks it. For, clearly, investigators, be they detectives or scientists—from popular fiction or from real life—do pay great attention to minute details, as they must, and then, when their search is concluded, they ignore most of the minute details and blow up the others. How else can the small details of scientific discovery grow so large as to cover the whole of our city-scape?

When researchers—detectives or scientists—follow a clue, they do so at their own risk. Hence, science is not as successful as it looks. Even in fiction detectives do lots and lots of legwork that ends up in blind alleys. But when successful, results have to be confirmed, and their confirmations have to be easily repeatable. When the success in question is scientific, it matters little to the practical world what these are.

When the success is claimed to be worldly, then there are legal standards for confirmation, that philosophers of science assiduously ignore. In medicine, for example, a claim for success has to be repeated *in vitro,* then *in vivo* on laboratory animals, then on human specimens under specified controls, and then proved satisfactory by some complex standards.[32]

Is this not the inductive canon that the philosophers of science seek? No. It is not any philosopher's stone, but the real, human, limited, at times highly defective system. The established philosophers of science ignore it as it is no use to them in their self-appointed function as public-relations spokespeople of science, as self-appointed bouncers of the haughty club of science.

POPPER'S CRITIQUE OF INDUCTIVISM IS OVERKILL

Popper's critique of the instantiation theory of induction is simple: there are practices accepted in the scientific community concerning what counts there as confirmation, and these should be taken into account when a theory of confirmation is presented: not all instances confirm theories but, at most, those which were expected to refute it and failed. This is admitted obliquely by Carl G.Hempel, the chief discussant of the matter of instantiation and its afflictions, but not openly. Yet, he is not satisfied with the situation as he seeks a formal criterion for confirmation. He thus cannot fully admit Popper's (empirical) assertion

that at most only failed refutations of a theory confirm it, as failure is not a formal criterion.[33]

The more extensive criticism of Popper is directed against the identification of confirmation with some function abiding by the calculus of probability. This is surprising, since the probability sub-theory of confirming evidence and the instantiation sub-theory of confirming evidence are, of course, but variants of the theory of induction. (Indeed, the common way to dismiss the paradoxes is to dismiss most of the confirming instances as practically irrelevant by the claim that they scarcely raise the probability of the theory which, strictly speaking, they hardly confirm.) Perhaps he does so on account of its lingering popularity. For decades Popper presented criticisms of this idea, and it would have been dropped from the agenda, were the public-relations spokespeople of science able to exhibit some sensitivity to devastating criticism.[34]

First, says Popper, confirmation cannot be probability as it reflects the force of the evidence and not the informative content of the theory prior to evidence. Therefore, at least confirmation should be probability increase, not probability. (This, he embarrassingly adds, resembles Galileo's announcement that gravity is proportional not to velocity but to its increase.) And probability increase is certainly not a function abiding by the formal calculus of probability. The point is easy to demonstrate. Here is Popper's demonstration.

Let us write *'P (h)=r'* and *'P (h, e)=r'* to denote absolute and relative probability in the usual way; suppose a theory h_1 is absolutely probable and some evidence e_1 reduces its probability, whereas h_2 is improbable yet some evidence e_2 (which may be the same as e_1 if you wish) raises its probability, but not much, so that

$$P(h_1) \geq P(h_1, e),$$
$$P(h_2) \leqslant P(h_2, e),$$

yet

$$P(h_1, e) \geq (h_2, e).$$

Clearly, though h_1 is more probable than h_2 it is more confirmed by the evidence. The objection that this is impossible is groundless. Moreover, a model for it is easy to construct. Here is one.

Consider event E which is the next throwhof a die. Take the following cases:

h_1: E is not a 1.
h_2: E is a 2.
e: E is 1 or 2 or 3 or 4.

and

$e_1 = e_2 = e.$

Now,

$$P(h_1) = 5 / 6,$$

and

$$P(h_2) = 1 / 6,$$

so that

$$P(h_1) \geq P(h_2)$$

and

$$P(h_1, e) = 1 / 2.$$

and

$$P(h_2, e) = 1 / 4,$$

Now,

$$P(h_1) \geq P(h_1, e).$$

so that the evidence undermines h_1, whereas

$$P(h_2) \leq P(h_2, e).$$

so that the evidence supports h_2, yet

$$P(h_1, e) \geq P(h_2, e).$$

Hence, h_2 is supported by the evidence yet is less probable than h_1, which is undermined by the evidence.

This elaborate proof is superfluous, as is the model for it. It is merely a tedious if striking application of the point made by Popper in 1935 and since then generally received: probability is the inverse of informative content and science is the search for content; hence, science is not a search for probability.[35]

The more serious criticism of the identification of confirmation with probability is directed at the identification of probability with distributions. The probability of a hypothesis concerning a distribution cannot possibly be the same as the distribution it depicts, since we have competing hypotheses concerning a given distribution, and the sum of their probabilities is a fraction, but they can each ascribe a high distribution so that the sum of their distributions will exceed unity. Attempting to escape this criticism one may seek refuge in the preference for equi-distribution. This lands one in the classical paradoxes of probability. Attempting to escape this criticism one may seek refuge in the preference for confirmed distributions. This not only begs the question: it raises the paradox of perfect evidence: the evidence that fits a given distribution perfectly both raises its probability and keeps it intact—which is absurd.

How can one go on examining the defunct option that science equals probability? Only on the supposition that science is a success story and the public-relations spokespeople of science are convinced that the

difficulties piled on their road to present science as a success story are marginal.

Is science a success story? Decidedly yes. What kind of success story? It is hard to specify exactly in all detail, but the first details are clear: science is a success story in that it needs no public-relations spokespeople and it is a success story not in their (vulgar) sense of the word.

SCIENCE IS MORE THAN SCIENTIFIC TECHNOLOGY

The vulgar view of science as success is the view of the scientist as a person with a powerful insight, a sort of a magician. Surprisingly, this view does not conflict with the view of science as esoteric, since it alleges that only scientific research is esoteric, not the fruits of science, which are for all to see. The idea that scientific research is somewhat mysterious does conflict with the inductivist idea that research, too, is open to all. This is the idea that science is open to a simple algorithm that can be mastered by everybody. This view of science is dismissed by Popper derisively as the idea of 'science-making sausage machine'. Under the influence of Einstein it is now generally rejected as too simplistic—by all except some zealous adherents to the original idea of artificial intelligence. Today, there is a vast and exciting literature on techniques to aid the process of developing ideas that may lead to discovery ('heuristic', is the Greek word for this, which was coined by William Whewell, the great nineteenth-century philosopher who was the first to criticize the idea that there can be a science-producing algorithm). (There are examples of supposedly useful heuristic computer programs, but they are far from having been tested in the field and, anyway, heuristic is the very opposite of an algorithm proper.)[36]

The idea of a science-producing algorithm proper was recently replaced by, or rather modified as, the idea of normal science, so-called, developed around 1960 by Thomas S.Kuhn. The popularity of his philosophy, if it can be called that, rests on his conception of science, normal and exceptional. The exceptional scientist is the leader who prescribes a paradigm, namely a chief example, and a normal scientist solves problems following it. This suggests that the real magic rests in the leadership, the scientific character of the enterprise they lead rests on the obedience of their followers, the normal scientists, and the problems the normal scientists solve are quasi-algorithmically soluble: they are not so simple that a computer or a simple mind can solve, but they are not so difficult as to defy solution.

It is easy to see the allure of this philosophy: it balances a few ideas that seemingly conflict with each other but which share the goodness of being

both popular and useful for the celebrated self-appointed public-relations spokespeople of science; it presents science as assured but not without some expertise and hard work; it assures science its openness to a reasonable degree, so that the public-relations spokespeople of science can see a little of the mystery involved—just enough to advocate it but not enough to partake in it actively.

What is missing in the concoction is the mystery—not the alleged mystery of the leaders of science who cannot and would not divulge the secrets of their craft, but the unmistakable mystery that is the secret of the universe.

It is not that the self-appointed public-relations spokespeople of science are not willing to praise science as the big search; after all they will say anything to glorify it. But they will use the public-relations criteria to judge when it is advisable to praise the search as the intellectual frontier and when to present it in a mundane fashion. Except that they claim to be philosophers, and thus bolster each move with a principle, and thus render complementary compliments into contradictory credentials.

Let us see if this serious matter cannot be approached somewhat more seriously and without the tricks of the trade of the public-relations spokespeople of science.

SCIENCE IS A NATURAL RELIGION

There is so much to do other than gate-keeping. Certain grounds may perhaps be cleared. Certain assertions should be endorsed as a matter of course or clearly dissented from, though, of course, we may also examine them in great detail if we wish. It should be conceded that traditionally science admits as evidence only repeatable evidence, though we may examine this characteristic in great detail if we wish. It should be admitted that traditionally science admits only items open to the general public, though we may examine this characteristic in great detail, too, if we wish. It should be admitted that some of the evidence which science traditionally admits as true is later on deemed false, but not overlooked; rather they are qualified and readjusted. Though we may examine all this in great detail, if we wish, we may want to know right now why these rules are deemed obligatory. The answer to this question is simple: it is taken to be the role of empirical science to explain known facts.[37]

More should be stressed at once: the rules are introduced not as taboos but as reasonable commonsense ideas. It should be clear that one may break any of these rules, but openly and at one's own risk. The

paradigm is Max Planck, who took upon himself a most unusual research project and voluntarily and as much as he could ignored all items that he could not square with it. This was his own private road to quantization.[38]

Past this we are ignorant, and it is advisable to admit ignorance in many areas and open them up for genuine research that may get the philosophy of science out of its recently acquired role as gate-keeper and bouncer and into a proliferation of researches. We do not know how empirical empirical science is, though we have the feel that some technologically oriented researches are much nearer to common experience than some speculative studies of first principles. We do not know how a research report is judged scientific and/or deserving of publication. We know that some erroneous criteria are used, and that much latitude is exercised in the matter; but more information is needed and more deliberation and experimentation.[39] We do not know how much of science is empirical and how much is guided by general principles, by the culture at large and even by politics—international, national or of the local chapter of a scientific society or the local department in the university.[40] We simply do not know enough about how science intertwines with other activities, and we only have an inkling as to what is the minimum requirement for a society that wishes to allow it to flourish, namely, freedom of speech and of dissent and of criticism and of organization to that effect.

It is hard to say what other item, if any, is generally admitted as a basic tradition.

This invites one to scout beyond the current horizon, and seek in the past some heuristic that might be helpful. And the point to start with should, perhaps, be the roots of the unbecoming hostility to metaphysics and to religion that is so characteristic of contemporary philosophy of science that induces its practitioners to undertake the lowly task of bouncers-with-a-sense-of-mission. The rise of modern science is the starting point, as the heritage from that noble period is in great need for revision.

Here, only one aspect of that period will be mentioned, the idea of natural religion. It is the idea that religion comprises a doctrine plus a ritual, that the doctrine is either revealed or natural to all thinking humans as such, and that ritual is prescribed in accord with doctrine. All of these items are nowadays known to be false, but let us overlook this for a while.

The idea of natural religion was that it is supplemented by revealed religion, not inconsistent with it. This cannot be admitted without some qualification on the religion under discussion, but here no specific religion is discussed.[41] The idea of natural religious doctrine, natural theology or rational theology, so-called, is the proof of the existence of

God. This proof is now dead. The idea of the natural or rational ritual is the idea of research as worship. This idea has a tremendous attraction to some researchers, including Einstein, and other researchers consider it silly. The main obstacle in this matter is not the item under consideration, but the idea of religion as belief. The involvement of belief as a central item in any religion is a very strong item of all Western religions—not of all Eastern ones. It also led to the idea that superstitions are prejudices, namely beliefs in ideas that are objectionable or at least not warranted. It is well-known that superstitious people are sceptical, not dogmatic as the philosophers of science describe them, though, of course, what they particularly lack is the ability to be critically minded about their guiding ideas.[42]

Traditional philosophy of science took it for granted that the dogmatic and the superstitious share the errors of clinging to erroneous metaphysical systems, now better known as intellectual frameworks. It recommended not to endorse any unless it is proven. Then Kant proved that a proven intellectual framework is a set of synthetic propositions a priori proven. Then Russell and Einstein between them proved that such propositions do not exist, and the gate-keepers decided to oust all intellectual frameworks. These were reintroduced by social anthropologists and by the posthumous writings of Ludwig Wittgenstein, who spoke of them, somewhat enigmatically, as of 'forms of life'. As far as science is concerned, they were discovered by various historians of science of the Koyré school, and were then sanctified by those who identified them with Kuhnian paradigms. This is a gross error, of course, since the whole point of Kuhn's idea of the scientific paradigms is to prevent the conflict between the diverse scientific systems, especially the classical Newtonian and the modern. To use the jargon expression, he insists that paradigms are incommensurable. (They can be compared, he stresses, but not contrasted.) The whole confusion, and the bouncing that goes with it, will be cleared once we notice that intellectual frameworks do compete, and that science may both use some of them and be used as arguments for and against some of them.[43]

Obviously, a researcher may consciously and clearly follow two different guiding ideas, employ competing intellectual frameworks—from not knowing which of them is true. Taking notice of this simple, commonsense fact will free the theory of scientific research from its obsession with rational belief.[44] Current philosophy of science is fixated on the study of rational belief without any criticism of traditional ideas of belief in general and of scientific or rational belief in particular. The source of this idea was Sir Francis Bacon's superbly intelligent and highly influential doctrine of prejudice: the prejudiced cannot be productive researchers, since theories colour the way facts are observed, so that facts

cease to act as refutations and as correctives of views, so that the prejudiced are blinded to contrary evidence and can only perpetrate their prejudices by endlessly multiplying evidence in their favour. This theory still animates the pseudo-researches of the self-appointed gate-keepers, even though it is amply refuted.[45] The worst of it is that philosophy of science centres on the problem, what theory deserves acceptance, where acceptance means credence. Yet it is well known that we are unable to control our credence, certainly not to confine it to a simple algorithm. It is here that the roots of the erroneous view of science as a competitor of religion can be found and corrected. This is not to deny that scientific research can be a thoroughly religious affair, a dedication to the search of the secret of the universe. This is not to deny that the religious aspect of research is not obligatory either.

Once this is realized, the avenue is open to the study of science as a central item in our culture and to see the interaction of other items in our culture with science. It is interesting to view the philosophy of science as part-and-parcel of our culture rather than as an isolated item in philosophy. What isolates the philosophy of science from the philosophy of human culture in general is the idea of the gate-keepers that any item not quite scientific is beneath the dignity of the philosopher. This idea is not quite philosophical. Nothing human is alien to any philosopher—of science or of any other aspect of human culture.

NOTES

1 See for more details my 'Between Science and Technology', *Philosophy of Science* 47 (1980):82–99.

2 For the best presentation of this image of Kant see Stanley Jaki's edition of Kant's writings on cosmology.

3 For more details see my review of David Stove, *Popper and After, Philosophy of the Social Sciences* 15 (1985):368–9.

4 See my 'On Explaining the Trial of Galileo', repr. in [7.4].

5 For this task of sifting the grain from the chaff in the claims of the ecological and the peace movements, see my *Technology: Philosophical and Social Aspects,* Dordrecht, London and Boston, Kluwer, 1985.

6 For more details see my 'The Functions of Intellectual Rubbish', *Research in the Sociology of Knowledge, Science and Art* 2 (1979):209–27.

7 For more details see my 'On Pursuing the Unattainable', in R.S.Cohen and M.W.Wartofsky (eds) *Boston Studies in the Philosophy of Science,* II, Dordrecht, London and Boston, Kluwer, 1974, pp. 249–57; repr. in [7.4].

8 References to Max Born's writings will not convey the definiteness and decisiveness with which he said this as he explained to me his refusal to gratify my request for his help in my struggle with the philosophical problems of quantum theory.

9 See Max Born's review of vol. II of Sir Edmund Whittaker's *A History of the Theories of the Aether and Electricity, The Modern Theories,* 1900–1926

(Edinburgh, Nelson, 1953) in *The British Journal for the Philosophy of Science,* 5 (1953):261–5.

10 In the original 'monkey trial' matters stood quite differently: not dogmatism but obscurantism was at issue, as the contested demand (of the state of Tennessee) was to forbid the teaching of evolutionism in school, not the demand (of a sect) to allow schools to teach creationism. The original defence was run by Clarence Darrow, who would not dream of inviting expert scientists, as his attitude was old-fashioned, as is clear from his autobiography.

A curious example of the use of an expert in science occurred when Faraday introduced his theory of ionization: he introduced a new terminology and this aroused displeasure which he dispelled by reporting that the terminology was suggested by William Whewell. Faraday stressed on that occasion that science is one thing and words are another. See my *Faraday as a Natural Philosopher,* Chicago IL, Chicago University Press, 1971.

11 It was Samuel Butler who asked, at the end of his classic *The Way of All Flesh,* how do we survive the educational system? His answer is tremendously intelligent: he says, we owe the survival of our culture to the imperfections of the educational system. (This explains his attitude to Matthew Arnold, the leading educationist and educational reformer of his age.)

12 For more details see my 'Science in Schools', a discussion note in *Science, Technology and Human Values,* 8 (1983):66–7. As far as I know there was no response to this note of mine, especially not by the expert witness in the Arkansas court, whom I criticized there. That expert obviously relied on his (mis)reading of the works of Karl Popper, which he found necessary to ridicule on other occasions. This, I suppose, exempts him from the charge of dogmatism: the practice of public relations is hardly an expression of a dogma.

13 For more details about cargo cults see I.C.Jarvie, *The Revolution in Anthropology,* London, Routledge, 1964, and other editions.

14 This is questionable, as the reason Maimonides claimed that Moses was a scientist was more in order to boost science than to boost religion. See for more details my 'Reason within the Limits of Religion Alone: the Case of Maimonides', forthcoming.

15 For details and references concerning the controversial status of the works of Claude Levi-Strauss, see my [7.3], ch. 2.

16 Sir Francis Bacon introduced 'the mark of science' (*Novum Organu,* Bk. I, Aph. 124: 'the goal and mark of knowledge which I myself set up'; 'Truth… and utility are here the very same thing'; see also his *Works,* 1857–74, 3, 232: 'I found that those who sought knowledge for itself, and not for benefit or ostentation or any practical enablement…have nevertheless propounded to themselves the wrong mark, namely satisfaction (which men call truth) and not operation.' Unfortunately this was often read as relativist, despite clear antirelativist remarks of Bacon, say, in his *Novum Organum,* Bk. I, Aph. 129 and throughout his writings, from his early manuscript, *Valerius Terminus,* onwards. Yet he clearly said, the mark of science is its success: alchemy promises the philosopher's stone and science proper will deliver the goods.

17 The exception is Popper's criterion of demarcation which is within language rather than of language, so that he could afford the luxury of ascribing scientific status to some theories and not to their negations. For more details

see my 'Ixmann and the Gavagai', *Zeitschrift für allgemeine Wissenschaftstheorie* 19 (1988):104–16.

18 For more details see [7.31].

19 It certainly is important, both theoretically and practically, to find out as best we can, which of the regularities we observe is due to changeable local conditions and which is unalterable. The relativists cannot even pose this question intelligibly. See my *Technology,* (note 5).

20 For all this see Karl Popper, *Objective Knowledge,* Oxford, Clarendon Press, 1972, Ch. 1.

21 There is precious little discussion of these two points, of the openness of science and of the repeatability of scientific experiment, and these are brief, as if to intimate that these matters are both too obvious and non-negotiable. Though they appear originally as one in the writings of Robert Boyle, such as the Preface to his *The Skeptical Chymist,* they usually appear as separate if at all. The attempt to (re)unify them occurs first in Karl Popper, *Logik der Forschung,* Vienna, 1935, and later in the writings of Robert K.Merton.

22 Einstein asked, in his preface to Stillman Drak's translation of Galileo's *Dialogue on the Two World Systems,* why did it matter to Galileo that the Church of Rome rejected Copernicanism? There are two sufficient reasons for that, I think, one that he was an obedient son of that Church, and the other is that science at the time was under attack and had to fight back. This does not constrain, however, the correctness of the distaste towards bouncers that Einstein exhibited in that discussion.

23 Sir John Herschel suggested in the early nineteenth century that scientific evidence is *bona fide*. This is wonderful but no longer valid, as so many court cases testify. For more details see my 'Sir John Herschel's Philosophy of Success', *Historical Studies in the Physical Sciences* 1 (1969):1–36, reprinted in [7.4].

24 This was stressed in Robert Eisler, 'Astrology: The Royal Science of Babylon', which has since gained significance despite its defects from the studies of Derek J. de Solla Price's studies of the import of Babylonian science for the rise of Greek science. See [7.21].

25 See my 'Theoretical Bias in Evidence: A Historical Sketch', *Philosophica,* 31 (1983):7–24.

26 For more details see my 'The Role of the Philosopher Among the Scientists: Nuisance or Necessary?' *Social Epistemology* 4 (1989):297–30 and 319.

27 See for all this my 'Sociologism in Philosophy of Science', *Metaphilosophy* 3 (1972):103–22, reprinted in [7.4].

28 For the difference between criteria of demarcation and touchstones see [7.2].

29 For more details concerning the fact that the contents of some theories but not of all of them are read as a *façon de parler,* see my 'Ontology and Its Discontents' in Paul Weingartner and Georg Dorn (eds) *Studies in Bunge's Treatize,* Amsterdam, Rodopi, 1990, pp. 105–22. (This book appeared also as a special issue of *Poznan Studies,* Vol. 18).

30 For details see my 'The Mystery of the Ravens', *Philosophy of Science,* 33 (1966):395–402, reprinted in my *The Gentle Art of Philosophical Polemics: Selected Reviews,* LaSalle, Ill., Open Court, 1988.

31 The demand that all (relevant) information be considered is a safeguard against prejudice. It does not work, since it permits the refraining from the search for instances to the contrary. In the absence of any background

knowledge, the demand that all competing hypotheses be examined nullifies their initial probabilities, since there are infinitely many hypotheses and the sum of their probabilities is unity. The introduction of any background hypotheses may easily alter this and render the problem very easily soluble. The literature debates the principle of simplicity (John Stuart Mill), otherwise known as the principle of limited variety (John Maynard Keynes), or of the redistribution of initial probabilities (Sir Harold Jeffreys). These do not work, but other hypotheses work very comfortably. For example, analytic chemistry works inductively very nicely against the background of the table of elements—provided its refutations are ignored, and to the extent that this is possible. Nuclear chemistry, of course, requires different background hypothesis.

The amazing thing is that a whole movement in the philosophy of science evolved when a suggestion was made to study the problem not in the abstract but as against given background hypothesis.

32 For all this see my *Technology* (note 5).

33 See my The Mystery of the Ravens' (note 30). In that essay I did not discuss the folly of the requirement that the criterion of confirmation should be formal. It clearly has to do with the theory of demarcation of science by meaning, presented above, which presents science as in principle utterly decidable and the competition as unable to articulate except by either endorsing or rejecting some scientific verdict or another. In brief, it is the idea that a formal criterion makes the life of a bouncer easy. In a public discussion at the end of a session of the Eastern Division of the American Philosophical Association in Boston some years ago, devoted to the contributions of C.G.Hempel to the philosophy of science, I said that researchers do not require licence from the philosopher before they dare employ a metaphysical theory in their researches. To this Hempel answered that at least his theory of confirmation was intended to oust theology, and did so rather well.

34 For the critique here cited see Popper's 'Degree of Confirmation', 1955, reprinted in [7.45], Appendix IX and many later editions.

35 This should be stressed. Popper's point is that informative content (not in the sense of information theory but in Tarski's sense) is the reciprocal of probability. R.Carnap and Y.Bar-Hillel have endorsed it and yet Carnap insisted on the identification of confirmation with probability.

36 For more detail, see my 'Heuristic Computer-Assisted, not Computerized: Comments on Simon's Project', *Journal of Epistemological and Social Studies on Science and Technology* 6 (1992):15–18.

37 See [7.2].

38 See my *Radiation Theory and the Quantum Revolution,* Basel, Birkhäuser,

39 For the question of refereeing see my essay on it in my [7.4].

40 See my The Politics of Science', *J. Applied Philosophy* 3 (1986):35–48.

41 See my 'Faith in the Open Society: the End of Hermeneutics', *Methodology and Science* 22 (1989):183–200.

42 See my review of *Recent Advances in Natal Astrology,* Towards a Rational Theory of Superstition', *Zetetic Scholar* 3/4 (1979):107–20. See also my review of H.P.Duerr's, *Dreamtime,* 'The Place of Sparks in the World of Blah', *Inquiry* 24 (1980):445–69.

43 See for more details my 'The Nature of Scientific Problems and Their Roots in Metaphysics', in [7.13], 189–211. Repr. [7.2] See also my *Faraday as a Natural Philosopher* (note 10).

44 For more details see my 'The Structure of the Quantum Revolution' *Philosophy of the Social Sciences* 13 (1983):367–81.
45 See my 'The Riddle of Bacon', *Studies in Early Modern Philosophy* 2 (1988): 103–36.

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CHAPTER 8

Chance, cause and conduct: probability theory and the explanation of human action

Jeff Coulter

INTRODUCTION

Human actions remain at the core of most serious explanatory work undertaken within the behavioural sciences, but there still remain major obstacles blocking an appreciation of the truly unique status of the phenomena we subsume under this rubric. In particular, an abiding theme in explanatory strategies continues to be the objective of explaining human actions by invoking *probabilistic causality* as an epistemic solution to the problem of the failure of deductive-nomological causal schemata in this domain.[1]

Deductive—nomological explanation takes the form of the logical derivation of a statement depicting the phenomenon to be explained (the *explanandum*) from a set of statements specifying the conditions under which the phenomenon is encountered and the laws of nature applicable to it (the *explanans*). A typical example of such a form of explanation would be: The occurrence of photosynthesis in plants with green leaves is explained by (i) the law which states that sunlight interacting with chlorophyll (the active agent in the leaves) generates complex organic materials including carbohydrates; and (ii) the actual conditions which obtain, viz., the exposure of green leaves to sunlight. The *explanandum* (e.g., an instance of photosynthesis) is thus a conclusion strictly deducible from a set of premisses which state the relevant law(s) and the antecedent condition(s). Despite its limitations as a model for many natural-scientific causal (deterministic) generalisations, this conception of explanation became a model for social-scientific emulation.[2]

Explanatory research in the contemporary human sciences concerning human behaviour rarely employs the terminology of *determinism:* categories such as 'causes' or 'determines' are routinely eschewed or modified in favour of such 'quasi-causal' contenders as: 'shapes', 'affects' or, perhaps the favourite contender, 'influences'. In a widely used text on social research, Earl Babbie observes: 'Most explanatory social research utilizes a *probabilistic* model of causation. *X* may be said to *cause Y* if it is seen to have *some* influence on *Y*.'[3]

Although Babbie is not primarily thinking of human *actions* as explananda here, it is apparent that they are included in the scope of probabilistic-causal reasoning in the behavioural sciences. This conceptual move requires a serious reappraisal. There are many alternative theoretical resources for explaining human conduct which neither require nor employ causal or 'quasi-causal' constructions, and this will be the theme of the closing section of this chapter. However, the continued appeal of 'quasi-causal' models, schemata and theory-building enterprises obscures the relevance and adequacy of *procedural explanation* as an alternative theoretical objective. It is the primary purpose of this discussion to document the *logical* obstacles which prevent explanatory programmatic ambitions in probabilistic clothing from achieving fruition. The prospects for the acceptance of procedural explanation as a (uniquely) appropriate goal for the behavioural sciences clearly depend upon the demonstration of the logical inadequacy of nomological *and* probabilistic approaches to the project of explanation in this domain.

I shall not belabour here the many arguments designed to demonstrate that there are fundamental logical incompatibilities between the grammar of the concepts of human action and the grammar of deductive-nomological (or 'covering law') explanatory propositions.[4] Suffice to say for the purposes of this discussion that very few contemporary theorists and researchers would follow a Homans[5] or a Lundberg[6] in advocating a strictly deductive-nomological programme of enquiry into human social behaviour. The issue I seek to engage in this essay is the idea that a subsidiary form of 'quasi'-causal explanation—a version of what is sometimes called 'weak causality'—can be made intelligible in the explanation of human conduct.

The idea that causation can be conceptualized probabilistically has been the subject of much discussion in the philosophy of the social sciences in recent years. There are two principal positions at stake in the field. Some propose a version of probabilistic causation as an attenuated version of what they consider to constitute 'full-fledged' nomological causation. That is, nomological causation is conceived of as consisting in any contingent relationship between an antecedent event/state-of-affairs and a subsequent event/state-of-affairs which is *invariant* within 'scope

modifiers' (*ceteris paribus* conditions which are determinately circumscribable for most practical purposes), while some probabilists claim that *all* causal connections in nature are species of conditional probabilities such that all 'causes' merely probabilify their effects to a degree that is statistically significant. In what follows, the former point of view will be considered most extensively, since this is the position which has been thought to justify a range of theoretical claims about human conduct in the non-biological human sciences. I shall, however, also make some comments about the latter position.

Hempel argued that there exists a logical alternative to the deductive-nomological (D-N) model of explanation in scientific work, and he referred to this as the 'inductive-statistical' (I-S) model.[7] According to Hempel, we can explain some particular action/event by showing that a statement which predicts it is supported with a high degree of inductive probability by some set of antecedent conditions. The burden of this chapter will be to show that this conception of 'probabilistic explanation' is defective, and that human actions, for reasons to be laid out, are not susceptible to *explanation* by *any* 'probabilistic' account. Before we can appreciate the point of such a demonstration, however, some historical ground must first be covered.

BASIC ASSUMPTIONS IN THE APPLICATION OF PROBABILISTIC ANALYSIS

A central axiom of classical probability theory holds that if any event can occur in X ways and fail to occur in Y ways, where all possible ways are assumed to be equally likely, then the probability of its actual occurrence can be computed according to the formula $X/(X+Y)$ and the probability of its non-occurrence is given by $Y/(X+Y)$.[8] An alternative formulation makes reference to relative frequencies of events defined in advance as successes and failures: the probability of a given event's occurrence (success) is given by *the limit of its relative frequency* approached as the number of trials, samples, draws, etc., increases (approaches infinity). Jakob Bernoulli's golden theorem suggests that the relative frequency of successes continually approaches a stable value as the number of trials (experiments, samples taken, draws made, coins tossed, etc.) increases and that this stable value is equal to the probability of success in a single trial.[9] Bernoulli drew strikingly *deterministic* metaphysical conclusions from the applicability of his theorem:

> If thus all events through all eternity could be repeated, by which we could go from probability to certainty, one would find that everything in the world happens from definite causes and

> according to definite rules, and that we would be forced to assume amongst the most apparently fortuitous things a certain necessity.[10]

This kind of reasoning has come to be known as an 'order from disorder' principle, and it has received modern support of sorts from considerations of the following kind. If you time the decay of the nucleus of a radioactive isotope, it can be determined that its radiation decreases by exactly one half every *N* seconds. For example, thorium C has a 'half-life' (the time it takes for a 50 per cent reduction of its radiation decay) of exactly 60.5 minutes. However, the actual emission of any particular ray/particle by the radioactive isotope is an utterly unpredictable, singular event. It appears that Bernoulli's theorem provides for exactly this sort of determinacy-from-indeterminacy reasoning, and many quantum theorists have projected probabilistic or 'stochastic' attributes to the sub-atomic domain itself as among its 'intrinsic properties'.[11]

The invocation of 'order-from-disorder' reasoning was to play a very significant intellectual role in the social and behavioural sciences. Indeed, Adolphe Quetelet, Durkheim's illustrious nineteenth-century precursor and the founder of 'social physics', sought to argue that while individual social acts (such as committing a crime) cannot be predicted, or perhaps even explained at all, social *regularities* can be detected in rates of crime for a given population. The stability of aggregated statistics, and hence of mean values, encouraged Quetelet to pronounce the possibility of a quantitative social science according to which an abstraction, *l'homme moyen*, or 'the average person', was to figure as the fundamental theoretical concept. As Gigerenzer *et al.* put it:

> Quetelet and his successors believed that large-scale regularities were quite reliable enough to serve as the basis of science. Skilled statisticians would naturally continue to make use of analysis to find how crime or fertility or mortality varied with wealth, occupation, age, marital status, and the like. But even these figures would be averages whose reliability would not grow but decline when the numbers became too small. Quetelet's statistical approach was the purest form of positivism, requiring no knowledge of actual causes, but only the identification of regularities and, if possible, their antecedents. *Such causation was much like the imaginary urn drawings posited by Jakob Bernoulli to model contingent events of all sorts*.[12]

So powerful was the 'order-from-disorderly-events' ontology projected from the tenets of probability theory that James Clerk Maxwell and

Ludwig Boltzmann came to embrace 'statistical laws' in formulating new theoretical foundations for gas physics. Gigerenzer *et al.*, again, document the way in which both Maxwell and Boltzmann 'independently invoked the well-known regularities shown by Buckle and Quetelet to justify their statistical interpretation of the gas laws'.[13] Francis Galton was also employing 'normal curve' conceptions derived from Quetelet. 'Both Galton and the gas theorists also derived their use of the astronomer's error law, or normal curve, indirectly from Quetelet. This is a striking instance of the importance of social science for the natural sciences.'[14] For the *social* sciences, however, it was to be Emile Durkheim who most forcefully propounded a conception of social causation of individual human actions on the basis of Quetelet's achievements.[15] Durkheim's *Suicide* (1897) was to become the *locus classicus* of a newly-forming statistical social science—sociology. The Durkheimian model for sociological explanation exemplified in that work became so influential that even Auguste Comte's contribution was rapidly eclipsed as a resource for the actual conduct of sociological enquiry. Comte had been the actual founder of 'sociology' whose opposition to statistical reasoning had led him to abandon the earlier nomenclature which he had shared with Quetelet ('social physics'), but it was Durkheim and his successors (especially in the United States) who were to assume the mantle of a 'scientific sociology'.

While it is true that Quetelet's 'moral statistics' and 'social physics' played a major role in the formation of the idea that social conditions predetermine differential rates of human actions, and that Durkheim's work on suicide clearly embodied such reasoning, Durkheim distanced himself from Quetelet's assumption of the intervening variable of *l'homme moyen*.[16] None the less, he elevated to the status of a new paradigm of enquiry the precept of 'order-from-disorder' by repudiating individual-level explanations of suicide (e.g., suicidees' reasons as available in, e.g., suicide notes and/or other pre-suicidal communications, or within the terms of some purely 'psychological' theory) in favour of an approach to explaining the *rates* of suicide in given populations, rates which Quetelet and others had determined to exhibit certain regularities.

An important question in interpreting the specifically Durkheimian appeal to the 'order-from-disorder' principle—the claim that macro-level regularities emerge from micro-level unpredictabilities—has been that of whether or not we must construe his resulting explanatory propositions about suicide rates to be *causal* in form. From Durkheim's writings, especially his *Rules of Sociological Method* (1895), it was clear that what he sought were nomological—causal—laws of social behaviour. In *Suicide,* there are references to the necessity of producing 'real laws…[the better to demonstrate] the possibility of sociology',[17] and elsewhere in that text we

encounter frequent allusions to 'social causes', 'real, living active forces' and even 'suicidogenic currents'.[18] However, many commentators select as his central explanatory proposition the following: 'Suicide varies inversely with the degree of [social] integration of the social groups of which the individual forms a part.'[19] Indeed, in a paper written in 1948, the influential American sociologist Robert Merton sought to codify Durkheim's sociological explanation in a classical deductive-nomological format.[20] Others followed this lead.

Although much has been made (and rightly) of Durkheim's neglect of the role of coroners' judgments and the decisions of other public officials in the 'construction' of a statistical rate of suicides,[21] and of his occasional tendency to commit the 'ecological fallacy' of inferring individual-level causation from aggregated data,[22] the more fundamental question of the logical status of any such 'sociological law' of human action has less often attracted the same intensity of critical attention. The fundamental equivocality of Durkheim's formulation has been masked by invocations of what has come to be known as 'probabilistic causality', and this is espoused as a more reasonable/attainable objective for the social sciences than nomological explanation.

Recall Durkheim's major theoretical proposition: suicide varies inversely with the degree of integration of the social groups of which an individual forms a part. From here it is concluded that, for example, anomie (lack of social integration) is a causal factor in explaining suicides. Irrespective of the purely empirical and methodological questions of data selection and interpretation, what could this proposition *mean?* As noted, Durkheim and many subsequent interpreters conceived of it as akin to what we would characterize today as a 'deductive—nomological' explanation, some even comparing it to the laws of thermodynamics, but it clearly cannot satisfy the rigorous prerequisites of a *causal* law. As it stands, it states what amounts to a relationship of co-variation: Durkheim did not have access to the modern statistical tool of the correlation coefficient,[23] but even if he had possessed such a tool and had been able to compute, say, a Pearson *r* from his data, the gulf which logically separates correlation from causation still looms large.

In recent years, then, a kind of 'fall-back' position has been developed within the social and behavioural sciences to cover Durkheim's and much contemporary macro-level explanatory work of a statistical type, whatever the precise statistical tool in use. This is the conception of 'probabilistic causation'. The use of this theoretical construct is supposed to achieve several objectives. First, and most importantly, it is claimed to preserve the *explanatory point* of behavioural research. Second, it is supposed to facilitate a symmetry of explanation and prediction, construed as an especially strong form of theoretical

objective already widely achieved in the natural sciences. Third, it relaxes the demands made by the pursuit of deductive-nomological explanation, the only other form of explanation which carries predictive power. Fourth, it preserves the sanctity (and supremacy) of statistical methods of investigation, of quantitative modes of data gathering and presentation, within the behavioural sciences. Fifth, it makes an appeal to what it construes as cognate forms of explanation elsewhere in the sciences, especially in micro-physics, epidemiology and biomedical science.

In considering the claims made on behalf of the conception of 'probabilistic causality', then, much is at stake. In what follows, a detailed exploration of the logical problems attendant upon the use of 'probabilistic causality', as either a goal or a claim, will be undertaken.

THE INDUCTIVE-STATISTICAL APPROACH TO THE EXPLANATION OF HUMAN ACTIONS

Keat and Urry, in their well-known work, *Social Theory as Science*,[24] point out several obstacles to a full-fledged *explanatory* role for probabilistic statements in relation to events. They observe that, according to Hempel's conception of inductive-statistical explanation, one can:

> explain some particular event by showing that a statement describing it is supported with a high degree of inductive probability by a set of premisses, at least one of which is a statement of the statistical probability that an event of one kind will be followed by, or associated with, an event of another kind.[25]

Drawing upon a discussion of this issue by Donagan,[26] they argue that such an account conflates the distinction between what it is to have a *reasonable expectation* that an event *E* will occur and what it is to have *an explanation* for event *E*. Suppose, they suggest, that we are drawing a marble from an urn that contains a thousand marbles, one of which is black and the rest are white. We draw a white one, and then try to 'explain' this event by reference to the high inductive probability of so doing (p=0.999). As Donagan remarks, however, reasonable expectations differ fundamentally from explanations:

> It is more reasonable to expect at the first attempt to toss heads with a coin than to win at roulette on a given number; but the grounds why it is more reasonable do not *explain* why you succeeded in tossing heads and failed to win at roulette. After all,

> you might have won at roulette and tossed tails. *With respect to explanation,* chance situations where the odds are equal do not differ from those where the odds are fifty to one or a thousand to one.[27]

Any actual *explanation* of the drawing of the white marble from the urn in our example will have to include such considerations as the spatial distribution of the marbles in the urn *vis-à-vis* the angle of trajectory of the fingers of the one seeking to make a draw, the degree of friction of fingers in relation to marbles with respect to the possibility of grasping any given marble, and so on, none of which is given in the probabilistic analysis of the draw. Hempel had assumed that there is a symmetry between the capacity to predict an event and the capacity to *explain* that event. This example shows that the relationship *cannot* be symmetrical, since while a prediction may be forthcoming, explanation is not yet in sight. Notice, in all of this, that the *explanandum* is an *event*—the selection of a white marble. Are human actions properly conceived of, for purposes of explanation, as events? Was the 'selection of a white marble' an action or an event? This will be an issue to which we shall return further on. For the moment, though, I shall focus upon a somewhat different although related conception of 'probabilistic explanation'.

Many commentators have compared, *inter alia,* Durkheim's explanatory proposition about suicide, that anomie is a cause of suicide, to what they conceive of as a comparable one from medical science, that smoking cigarettes is a cause of lung cancer. This comparison is made because in both cases something 'short of a nomological law appears to be at issue. Lung cancers can occur in cases when the victim has never smoked a cigarette in his/her life, and some heavy cigarette smokers fail to contract lung cancer in their natural lifetimes.[28] Similarly, some very 'highly socially integrated' people (by reasonable measures) have committed suicide and some exceptionally anomically situated folk have died purely of natural causes. Cases can be ramified: throughout modern criminology, educational psychology, family sociology, psychopathology and related disciplines, one encounters propositions purporting to explain specific forms of human conduct in terms which fall short of lawfulness but which are still displayed as having explanatory power. The device frequently employed is to invoke probabilistic causality. A transition is made from a statement such as: Under conditions C_1…n, there is a probability of *O.N* that persons *P* will engage in action/activity *A,* to one such as: Conditions C_1…n cause persons *P* to engage in action/activity *A* with a probability of *O.N.* Or, if the conditional probability *p* (X/Y) is significant on the basis of a sufficiently large number of cases of *x*-type events, given *y*-type conditions, then *Y* is causally implicated in the

production of *X*. (Whether specific probability values are actually computed is a separate issue). A standard way of 'interpreting' multiple-regressions or path-analytic models is to extrapolate a 'probabilistic causal' statement of the form: a person's educational level of attainment is a (determinate) probabilistic-causal function of father's educational level, family income, etc., through a range of 'variables'. 'Educability' is assumed to be, thereby, an *equipossible* property. Rom Harré made a very important but often neglected comment upon the problems raised in trying to justify such a theoretical transition from a probability frequency to an explanatory proposition:

> It has long been pointed out (though the phenomenon has only recently been named) that statistical generalizations can lead to two distinct conclusions. For instance, if it is known that 80 per cent of a population have developed property A in certain circumstances and that 20 per cent have not, this can imply:
>
> 1 the probability law that every individual is 0.8 likely to develop the property A in the circumstances; or
> 2 the two non-probabilistic laws that every individual of the domain A determinatively develops A, while every individual of the domain B determinatively develops some property which excludes A, or perhaps no determinate at all of the determinable over A.[29]

Harré's argument proceeds to note that case (1) involves properties which are said to be *distributively reliable*. This means that the propensity to develop the property A can be attributed as an objective property to every member of the original domain. 'The probabilistic distribution is explained as an effect of individual fluctuation.'[30] Adopting this approach presupposes that *'every member of the domain has A amongst its repertoire of possible properties'*.[31] By contrast, case (2) involves properties that are *distributively unreliable*. *'Frequency cannot be automatically transformed into an individual propensity.'*[32] Statistical frequency is to be understood as a measure of the relative size of two or more domains in each of which the mode of manifestation of the property/properties under study is determinate. If a specific property is distributively unreliable, then 'individuals in that domain might not have that property in their repertoire of *possible* properties'.[33]

Now let us reconsider Durkheim's suicide example (although it is to be understood here that *many* other human actions might be equally considered in this context, such as, for example, raping, murdering, behaving 'schizophrenically', selecting occupation *O*, asking for a divorce, studying successfully, etc.). Is the capacity to 'commit suicide' a

distributively reliable property of persons in any sampling domain? Since probabilities presuppose possibilities, the question may be recast as: is the *possibility of committing suicide* equally distributed throughout any given sampled population? How could *that* be determined a priori? To vary the case for a moment in order to get a better perspective on its significance, is it true, as some radical feminist theorists have argued, that it is possible for *any* adult male of reasonable physiological fitness to rape a female? Is that *possibility* equally distributed throughout a population of physiologically capable males?[34] Is 'physiological capacity' itself a sufficient indicator of the existence of the 'capacity to rape' as a part of adult males' repertoire of *possible* properties? Would 'moral values' have to be added in? And what about educational level? How could they be weighted? Remember that we are not yet dealing with probabilities, but with possibilities. The point here is surely that such a 'possible property' (i.e., the capacity to commit rape or to commit suicide) cannot be *determined empirically* in advance *either way*. It cannot be determined that such possibilities are equally distributed in any population by any method. *A priori* specifications of *possibilities* undergird *any* meaningful application of probabilistic reasoning, especially the derivation of probabilities for individual events. Thus, as far as the applicability of probabilistic reasoning to human behaviour is concerned, we confront a problem here which does not arise in those much more familiar cases in which prior possibilities *can* be determined empirically; for example, the number of sides of a coin, the number of marbles in the urn, the physically possible outcomes of a critical experiment, etc. The assumption that, for example, the capacity to commit suicide under some conditions is equipossible, is non-demonstrable, and thus a central requirement for the derivation of a determinate conclusion from the application of probabilistic reasoning to a sample of such cases is not satisfied *and not satisfiable*.

Although, as Pollock has remarked, '[i]t is generally recognised that existing theories of probability do not provide us with an account of a kind of probability adequate for the formulation of probabilistic laws',[35] none the less some philosophers continue to pursue such a theoretical formulation. One interesting theme has been to reformulate *causality* itself in wholly probabilistic terms, thereby denying that causal laws are ever genuinely specifiable as invariances within scope modifiers. Instead, 'the idea is that a cause should raise the probability of the effect; or in other words, that an instance of the type taken to be the cause should increase the probability that an instance of the effect type will occur.'[36] A problem with any such formulation is that the concepts of 'cause' and 'causal' (as well as 'effect') are not given any independent specification apart from their putative 'probability-raising' function. The analysis thus tends to assume what it needs to demonstrate, namely

that the meaning of 'cause' is wholly explicable within the language of probability theory without illegitimate conflation with other, well-established probabilistic concepts and without circularity. What is also being assumed is the *invariant* inapplicability of the concept of 'certainty' to *all* causal propositions, an assumption which places a strange restriction upon our use of the word.[37]

Wittgenstein's exploration of the logical grammar of the concepts of 'certain' and 'certainty' is usually ignored in this context.[38] However, a serious problem confronting efforts to analyse all lawful, causal relationships into stochastic ones involves the presupposition of a causal field about which one may be 'certain' in the sense that 'doubt' is *logically* excluded. For example, the proposition that the probability value of getting heads in one toss of a coin is 0.5 itself depends upon the indubitability (certainty) of the causal effects of the gravitational field as a component of the conditions within which any such toss is to be made (or envisaged, to cover the possible-worlds extension of the case in point). To use a Wittgensteinian argument, one cannot treat as hypothetical, as subject to doubt, as *merely probable, every* facet of a system or field of operations within which a probability is being estimated.[39] Thus, *some* causal relationships must be assumed as beyond doubt, as not themselves susceptible to merely probabilistic formulation: attempts to characterise *all* causal relations in probabilistic terms, therefore, subvert the very possibility of establishing a stable domain within which any *particular* probability can be computed.

HUMAN ACTIONS AND NATURAL EVENTS

The abiding assumption of almost all of the work in the field which employs probabilistic concepts in the context of formulating theoretical explanations of human conduct is the equation of 'human action' with 'event'. It will be remembered that probability theory was formed as a device (or array of devices) for facilitating predictions—of events, outcomes, consequences, successes/failures, states of affairs, etc., with numerical indices informing our degree of confidence, level of (legitimate) expectation, etc. Its extension in the service of ruling out *null hypotheses* or 'chance set-ups' by Fisher and his successors in the conduct of agricultural and subsequent modes of experimentation still rested upon the deployment of the concept of 'expectation'. Explanation, itself, was to be a subsequent matter of interpreting the results, using the alternative-to-null hypothesis, given an achieved 'significance level' (expressing the probability that the outcome occurred 'by chance' or not).[40] However, the

appeal to 'probabilistic causation' has encouraged behavioural scientists to conceptualise human actions of various kinds as *in principle* amenable to treatment as 'events' or 'occurrences' to which the concept of 'chance' (and 'chance distribution') might be a priori applicable.

The idea that someone *did* something 'by chance' is often confused with the ordinary notion of someone *achieving* something in, through or by their action (some (unintended) outcome, result, transformation, upshot, effect, consequence etc.)[41] 'by chance'. The intelligible claim that people can do some particular sort of thing *arbitrarily* is, in turn, sometimes confused with the notion that people who have behaved arbitrarily in some sense have thereby behaved *randomly*. However, even the 'random murder' committed by the psychopath is scarcely comparable to the random emission of a particle by an isotope: the probabilistic concept of 'randomness' does not fully reduce to that of 'arbitrariness',[42] any more than the concept of a human action reduces to that of an event in nature.

An event is something that *happens* (sometimes *to* someone), whereas an action is something that someone *does*.[43] Events do not have motives or intentions, whilst actions (routinely) do: events occurring in nature, independently of human agency, are not governed by social rules, norms, conventions or stipulations, whereas most of the actions of human agents are.[44] Zeno Vendler has observed that 'the breaking of the window' may be *either* simply an event description (amenable to a causal explanation) *or* a description of something that someone did. What decides the matter is whether the case being described is one in which the window breaks or one in which someone breaks the window. Compare this case with one such as 'the walking of the dog' in which the potential event/doing ambiguity can be brought out more sharply: either the dog was walking (intransitive) or someone was walking him (transitive). Vendler comments that some verbs exhibit a morphological transformation in the verb root which marks the purely transitive occurrence (e.g., rise-raise, fall-fell, lie-lay), and he concludes that 'the rising of the flag is not the same thing as the raising of the flag, the falling of the tree is a different thing from the felling of the tree'.[45] The falling of the tree may have been (probabilistically) predicted, or even given a causal explanation, but my felling of the tree is to be explained in wholly other terms.

Now let us reconsider the earlier case of 'selecting a white marble'. This can, as it stands, be construed in at least two ways: either the agent intentionally selected a white marble, or he selected a marble 'blindly' and it turned out to be a white one. It is clearly the latter case alone which is the relevant case for a probabilistic analysis. The former case may properly be considered, *in its entirety*, to be an (intentional) action. The latter case, however, differs significantly (grammatically) from it.

There, the agent's *action* may be described as, for example, making a random selection. The *outcome* of this action (and it is *this* which is the exclusive target of the probabilistic analysis) was that *a white marble was drawn*. The *event* is the *outcome,* and this is detachable, for the purposes of the analysis of reasonable expectation, from the agent's action. After all, one could say that whether or not the outcome of the act of selecting had been a white *or* a black marble, i.e., if the (target) *events* had differed, the same act of 'randomly selecting' had been performed. While the universe of possible event outcomes may be determinable in advance, the universe of possible actions cannot be. This is not because there is an *infinite* number of possible actions which human beings can perform or undertake: rather, it is because the number of possible human actions is *indefinite:* there is no *closed set* whose elements contain every possible human action, and no set containing as elements every situatedly possible option, even though there are *preferred* options, *rule-ordered* options, and the like. The magician who requests of an audience-member that he 'select a card from the pack' cannot *determine the possibility* of his or her compliance to his request in advance in the way in which he could determine the domain of outcome possibilities (and hence the probability of *any* particular outcome as 1/52).

Because there *are* patterns, regularities, orderlinesses, in human conduct (over and above the mechanistically analyseable *biological* processes subserving such conduct, though not identical to it), the failure of nomological explanation in the social and behavioural sciences has been compensated for by invoking probabilistic causation: but the alternatives are not restricted to 'cause' or 'chance'. The actions in which people engage are differentially amenable to characterisation in terms of a very large set of assessment options in respect of their contingencies of production. A given action of a specific sort may be undertaken as a matter of rule, convention, habit, obligation, preference, disposition, coercion, spontaneity or caprice, among many other contextually relevant dimensions. There are many gross and subtle distinctions to be observed between these characterizations, and even caprice and spontaneity will not reduce to 'pure chance' nor coercion to strict nomological causality. One's expectations may be raised about the prospect of someone's doing something if it can be said of him that he 'is liable to' do such-and-such as distinct from merely 'tends to' or even 'is disposed to' do it, but such a raising of one's expectations hardly qualifies for analysis in terms of a calculus of probabilities.

STATISTICAL METHODS PRESUPPOSING CAUSALITY DO NOT DEMONSTRATE IT

There are many critical treatments of the application of statistical methods of analysis and explanation in the non-biological human sciences, and it is not the purpose of this essay to review these arguments. Most of them focus upon the problems involved in relating the demands or assumptive requirements of statistical analysis to the actual 'data' or empirical observations and their conceptualizations provided by researchers,[46] or upon the vexed question of the *relevance to agents* of correctly identified 'variables'.[47] These are deep issues, but proponents of quantitative inquiries in the behavioural sciences have become accustomed to treat them as technical ones, assuming that the fundamental logical appropriateness of statistical inference in the domain of explaining human behaviour emerges unscathed.

The transition from the original loci of inferential-statistical applications to their modern fields of use is sometimes treated as a process of successful intellectual cross-fertilization. The 'fertilization' metaphor is apt: some of Fisher's most important work was undertaken 'in the context of the practical demands of agricultural research'.[48] Indeed, genetics and agriculture were the two chief domains for the development and application of mathematical statistical theory in the early twentieth century. Francis Galton and Karl Pearson were primarily concerned with the analysis of genetic inheritance.[49] The founder of 'path analysis', Sewell Wright, was concerned with problems of population genetics. Biological and medical applications became increasingly common, and immensely productive, but it was through the transposition of inferential-statistical analysis to problems in psychology that the first link with the study of human conduct was established.[50]

In the domains for which inferential statistics had been developed and employed, 'causality' and 'chance' were two epistemic axes for thinking about event *explananda*. During the transposition to the study of human behaviour, these epistemic axes or presuppositions were preserved intact, just as, earlier, with classical mechanics as the model for emulation, a search for 'laws' had been the primary explanatory objective in the behavioural sciences. B.F.Skinner, for example, reacted negatively to the introduction of inferential statistics into psychological methodology, insisting upon the formulation of 'functional laws' governing organism-environment transactions as the proper goal for experimental psychological research. Rapidly, however, one inferential-statistical technique, *the analysis of variance,* rose to prominence as perhaps the most widely used of the battery of methodological devices in the behavioural sciences.

The deployment of the 'analysis-of-variance' (ANOVA) technique is

designed to show whether or not a 'null hypothesis' about the *effect* of some 'treatment' variable (e.g., a pre-specified level of alcohol consumption) *upon* some 'statistical population' (e.g., a set of scores of measured reaction times) should be *rejected*. This depends upon the satisfaction of a range of assumptions, including the possibility of conducting a rigorous experiment in which the variables under study can be manipulated; the assumption of a 'normal' distribution (bell-shaped distribution) of trial scores were there an infinite number of such experiments conducted, and the assumption of 'variance homogeneity', i.e., the assumption that each set of scores has the same variance or 'dispersion about the mean'. To test the null hypothesis (e.g., that the given level of alcohol consumption has no effect upon reaction times), we compute two estimates of score variance, one of which is independent of the truth or falsity of the null hypothesis while the other is dependent upon it. If the two estimates concur, then we have no reason for rejecting the null hypothesis, whereas if they disagree, we may reject the null hypothesis and are entitled to infer a *causal contribution from the underlying 'treatment differences'* (e.g., the level of alcohol consumption) to our second estimate.

Reaction-time studies were among the earliest to be conducted using the ANOVA technique. However, they posed few epistemological difficulties: the effect of a given fertilizer upon a given crop yield is a problem with a sufficiently similar conceptual structure to the problem of the effect of a given level of human alcohol consumption upon reaction times as measures of alertness. It is when human *actions* are the explicit *or, more commonly, implicit,* focus of explanatory attention that problems arise. Many explananda in the behavioural sciences are thought to comprise discrete *states* or measurable *properties* of persons whereas in fact they comprise arrays of *human actions and their socially ascribed adverbial qualifiers* (often with only 'family resemblances' between them). This shows itself most forcefully in the area of studies of human intelligence.[51]

Considering the claim that differences in 'IQ' ('measured intelligence quotient') are caused by genetic differences,[52] a typical interpretation of the results of some ANOVA studies of this presumed relationship, Alan Garfinkel has argued that special consequences, often overlooked, ensue from the fact that the concept of 'heritability' being used is a statistical one.

> The heritability of a trait in a population is defined as the amount of variation in that trait which is due to genetic variation. The trouble with this definition is that it uses the concept 'due to', a causal concept. This causality is analyzed away statistically by talking instead about correlations between

> genetic variation, on the one hand, and variation in the trait, on the other.[53]

What Garfinkel characterizes as the 'slide into correlationism' is problematic here: in the case of a society which discriminates against red-haired people, poverty has a high 'heritability' because it is highly correlated with a genetic trait, red hair:

> But this is obviously misleading. Intuitively, there are two distinct types of situation: on the one hand, the situation where there really is some genetic cause of poverty, and on the other, the type above, where the cause of poverty is social discrimination. *By its nature the concept of heritability cannot distinguish between the two.* Since it is a correlational notion, it cannot distinguish between two different causal configurations underlying the same covariance of the genetic trait and the social property.[54]

'Intelligence' would seem to be a concept of an *intrinsic* property, closer perhaps to 'having red hair' than to 'being poor' on a scale of biological-to-sociological attributes. Granting Garfmkel's point about the suppression of 'the true causalities which underlie these correlations' by the invocation of ANOVA studies of 'heritability', the question appears to remain: what is the 'true causality' for a given variation in levels of intelligence? The problem, however, is with the phenomenon of 'amount of/level of intelligence' conceptualized as an intrinsic property of a person: this is not just a function of overlooking the tenuous connections between 'intelligence quotients' and 'actual intelligence'; it is a more basic function of overlooking the fact that *any* ascription of 'intelligence' whatsoever, lay *and* 'professional', is predicated upon normative assessments of situated *actions,* their modalities and their consequences. 'Intelligence' decomposes into a variety of *praxiological* phenomena. One's intelligence is not a concrete endowment like one's nervous system. It is that which is attributable to someone who does certain things 'intelligently', or who does 'intelligent things'. Activities performed intelligently are very diverse, but even if we restricted ourselves to those activities performed as constituents of 'IQ tests' (e.g., basic arithmetical calculations, precising/paraphrasing texts, matching words to pictures, etc.), it is clear that one cannot sensibly seek to partition them into biological and cultural 'components' any more than one could determine 'how much' of what a person says is 'due to' his vocal chords and how much is 'due to' his knowledge of the language he speaks. Assuming that 'intelligence' or 'amount of intelligence' are phenomena which *could* be *causally* explained (by genetic, environmental or conjoint genetic-environmental 'factors'), as ANOVA studies routinely do, simply

presupposes the chief point of contention, viz., that *human actions can be causally explained*.

Let us consider more closely the capacity to 'speak intelligently' as a feature of someone's 'intelligence'. In exhibiting this capacity, in saying something 'intelligent' or in 'speaking intelligently', a person can be said to be doing something, engaging in the production of a rule-governed communicative activity (a speech act of a specific sort, or series of such speech acts) with its attendant, ascribable possibilities of evaluation from among which 'intelligently/unintelligently' may be appropriately selected as relevant assessment options. (Contrast this with an action such as 'tying his shoelaces', for which the options 'deftly/clumsily' might apply, but hardly those of 'intelligently/unintelligently': the actions assessable as 'intelligent/unintelligent' are restricted by both natural *and* conventional criteria). To be able to speak in a manner which qualifies for assessment in these terms, the speaker must be saying something in a natural language (or derivative system), and this obviously means that a constitutive component of his behaviour, his grasp of English, for example, is a product of socialization. His range of vocabulary and command of syntactical complexity also are contingent upon the kinds of life experiences in a society to which he has been exposed (e.g., educational opportunities and encouragement, level of educational attainment, distribution of fluent speakers *vis-à-vis* non-fluent ones in his biographical history, their differential impact upon him as models for emulation, etc.). The topic of his discourse must be recognizably of a type which can be assessed in terms of the relevant dimensions ('intelligent/unintelligent') and not be one that is *not* susceptible to the use of such criteria (e.g., coining a quip, as distinct from repeating a joke: developing an argument, as distinct from hurling an insult). Consider these features—vocabulary, syntax, topic (and many related ones)—as 'environmentally derived'. Now consider the following. To be able to speak at all requires a vocal apparatus, a functioning laryngeal system with intact motor functions in the mouth and throat. There is a complex physiological apparatus, extending deep into the cortex, which *facilitates* (but does not cause)[55] the production of normal speech, most of which may be thought of as components of a person's genetic endowment. Consider these features as 'genetically derived '. Now, for any case *or sequence of cases* in which a person can be *interpersonally assessed* as 'speaking intelligently', itself a common (although by no means exclusive or necessary) criterion for 'having intelligence', how is one to proceed to *partition* and *weight* those contributions made by an 'environment' and those made by 'genetic endowment' to the action or sequence of actions so assessed? Remember that, for the purposes of defining 'intelligence', an 'environment' has been argued to include not only the activity (activities) of the target

individual(s) but also the evaluative assessment of others, made against a background of conventional criteria of complex kinds.

'Intelligent discourse' is hardly the sort of 'phenomenon' which can be analysed into discrete 'components' making their 'causal contributions' in a linear, additive manner. Should the amount of variation between people with respect to their 'speaking intelligently' be parcelled out into the amount due to 'genetic' variation (80 per cent? 40 per cent?) and that due to 'environmental' differences (20 per cent? 60 per cent?)? Even now to reconsider the question is to see that its basis is entirely wrong, and the mistake is a function either of failing to appreciate the complexity of human conduct, the varieties and range of human actions with their adverbial potentials, which are glossed by categories such as 'intelligence', *or* of presupposing without question the applicability of causal reasoning to, *inter alia*, rule-governed behaviour. Usually, the one error is committed *pari passu* with the other.

Inferential-statistical studies of the kind known as 'analysis of variance' have been exceptionally illuminating in their domains of proper application, but the extension of this technique into the field of human conduct is fraught with logical difficulties and anomalies which are only obscured by treating human actions as phenomena of the same fundamental logical types as natural events, discrete states, quantifiable differences or fixed or variable properties/attributes.

CONCLUDING REMARKS

The uses (and abuses) of probability theory are many and varied. In this discussion, I have restricted myself to the consideration of some fundamental but interrelated issues which are not often addressed directly by proponents of inferential-statistical analysis as the *sine qua non* of explanatory work in the sciences of human action. Convinced that the conceptual or logical credentials of probabilistic reasoning about human behaviour are impeccable, theorists and researchers alike tend to give much less credence to alternative, non-statistical, approaches to the study of human conduct. It is high time that this unfortunate proclivity were abandoned: the logical foundations of statistical-inferential work in the social sciences are not nearly as impeccable as some of its influential champions would have us believe, and the detailed investigation of the properties, logical and empirical, of *in situ* human conduct which have been conducted over the past twenty or thirty years in more 'qualitative' areas of the behavioural sciences attest to the comparative crudity of the models of behaviour which have been constructed solely to facilitate a preferred methodological strategy of an inferential—statistical sort. Reifications of the kind seen above in

the statistical study of the heritability of 'intelligence' are partly a function of insensitivity to the properties of the praxiological phenomena glossed by such categories and partly a function of the over-extension of techniques such as ANOVA to domains for which it had not originally been developed.

If the arguments presented here are correct, then the project of formulating probabilistic-causal explanations is indeed questionable. The further point could be made that it is largely irrelevant. Explanation is a motley affair: if probabilistic-causal explanation is the poor step-child of nomological explanation, then it is time to look again at the explanatory project and ask: what *sort* of scientific (abstract, general, observationally based) explanations are logically appropriate, methodologically defensible and manageable for the scientific study of the domain of human conduct?

One very important alternative contender for the explanatory stakes these days is *procedural* explanation. Here, the theorist or researcher seeks to develop an empirically grounded characterization of *how* human beings produce whatever forms of conduct they produce, including their behaviour of 'explaining their behaviour', of producing 'reasons-for-their-actions'. The form of scientific explanation here is basically a *grammatical* one. That is, the objective becomes to specify a set of abstract rules, principles, procedures or 'methods' (not necessarily of an *algorithmic* kind) which explain how conduct is (re)produceable in its details, to any desired level of such detail.[56]

Advocating the pursuit of alternative forms of explanation is not an invitation to endlessly 'reflexive' self-examination or 'deconstructive' nihilism: the fundamental goals of any empirical science of human action worth its salt should remain those of illuminating the nature of the phenomena and relating any such insights to relevant areas of interest and significance in the other life sciences. Anything less would be to substitute for the demanding project of truly scientific inquiry the fads and vagaries of an ideological quest.

NOTES

1 Carl Hempel, *Aspects of Scientific Explanation,* New York, Free Press, 1965.

2 See [8.6], 4–24.

3 Earl Babbie, *The Practice of Social Research,* 4th edn, California, Wardsworth Publishing Company, 1986, p. 65 (emphasis in original). Babbie also remarks: 'A perfect statistical relationship between two variables is *not* an appropriate criterion for causation in social research. We may say that a causal relationship exists between *X* and *Y,* then, even though *X* is not the *total* cause of *Y*' (Ibid.). The idea that a probabilistic cause is expressible as a fraction (e.g., the idea of something like a 'two-thirds cause' of a given variable) is a

function of extrapolating theoretically from path-analytical models, as we shall see later on.

4 I shall assume, for the purposes of this essay, that Humean-Hempelian causal programmes for the explanation of human actions have been shown to be incapable of coming to terms with many of the constitutive properties of *praxis*. For an early, but still pertinent, treatment of some of the central problems in this area, see [8.31]. Also, see Hanna F.Pitkin's excellent review of the issues in her 'Explanation, Freedom and the Concepts of Social Science', [8.35], ch. 10. Some more recent issues, especially those associated with Putnam, Dennett and Davidson and are discussed in my *Rethinking Cognitive Theory* New York, St Martin's Press, 1983, ch. 1 and 5 and *Mind in Action,* New Jersey, Humanities Press, 1989, ch. 7.

5 George C.Homans, *The Nature of Social Science,* New York, Harcourt Brace Jovanovich, 1967.

6 G.A.Lundberg, *Foundations of Sociology,* 1939, rev. ed, New York, David McKay 1964.

7 See note 1.

8 This is the 'classical' interpretation associated with the Marquis de LaPlace whose philosophical essay on probability was first published in 1819. For a thorough review of the problems raised by extending the scope of application of the classical interpretation, see W.C.Salmon, *The Foundations of Scientific Inference,* Pittsburgh, University of Pittsburgh Press, 1966. In this chapter, I do not discuss 'subjective' probability. In particular, I shall not be concerned with the assessment of the claim that human agents are crypto-Bayesians. For a good introduction to Bayesian probability, along with some comments on the use of Bayes' theorem as a standard by which to assess 'intuitive probability judgements' made by non-specialists, see Ronald N.Giere, 'Scientific Judgment', ch. 6 of his *Explaining Science: A Cognitive Approach,* Chicago, University of Chicago Press, 1988. For an extensive discussion of the Kahneman-Tversky thesis about putative 'biases' in ordinary human reasoning, informed by the Bayesian model as a criterion, see [8.20] 214–33.

9 The derived binomial theorem holds that the probability of *X* successes in *N* trials is given by: *N* factorial over the product of *X* factorial and *(N–X)* factorial, multiplied by the product of (the probability of a success in any single trial raised to the power of *X*) with (the probability of a failure in any single trial raised to the power of *(N–X)*).

10 Jakob Bernoulli, quoted in F.N.David, *Games, Gods and Gambling,* London, Macmillan, 1962, p. 137.

11 This is the basis of the dispute between the Copenhagen interpretation and its rivals. Some physicists still maintain what could be termed a 'hidden-variable(s)' view of the matter, arguing that the indeterminacies encountered at the sub-atomic level are functions of our current ignorance of forces yet to be discovered which will, once revealed, enable us to reason causally about the phenomena.

12 [8.20], p. 42, emphasis added.

13 Ibid., p. 45.

14 Ibid.

15 For extensive historical documentation of this claim, see Stephen P.Turner, *The Search for a Methodology of Social Science: Durkheim. Weber, and the Nineteenth-Century Problem of Cause, Probability, and Action,* Dordrecht, Reidel, 1986.

16 For some discussion and documentation of this, see Steven Lukes, *Emile Durkheim: His Life and Work,* Stanford, California, Stanford University Press, 1985, p. 194, n. 18. See also Jack D.Douglas, *The Social Meanings of Suicide,* Princeton, Princeton University Press 1967, p. 16. It should also be noted that Quetelet, for his part, was later to become highly critical of 'Durkheimians', to some extent for their espousal of 'causal' forms of explanation.

17 Emile Durkheim, Preface to *Suicide: A Study in Sociology,* trans. J.Spaulding and G.Simpson, London, Routledge and Kegan Paul, 1952.

18 For a detailed and carefully documented discussion of the nature of Durkheim's 'explanation' in *Suicide,* see Steven Lukes, op. cit., pp. 213–22.

19 Ibid., p. 209. Cf. R.W.Maris, *Social Forces in Urban Suicide,* Homewood, Illinois, Dorsey Press, 1969.

20 R.K.Merton, 'The Bearing of Sociological Theory on Empirical Research', in [8.29], 87.

21 There is now quite a large, post-Durkheimian research literature on suicide, much of which begins with criticisms of Durkheim's methodological procedures. For an extensive review of this material, see J.M.Atkinson, *Discovering Suicide,* London, Macmillan, 1978.

22 This is the well-documented and, by now, orthodox, complaint initially made by H.C.Selvin in his well-known paper, 'Durkheim's Suicide and Problems of Empirical Research', *American Journal of Sociology* 63 (1958). 607–19; repr. as rev. in R.A.Nisbet (ed) *Emile Durkheim,* Prentice-Hall Englewood Cliffs, NJ, 1965.

23 This is something noted by Selvin in his critical discussion in Nisbet (ed.), ibid., p. 113.

24 [8.29], 2nd edn.

25 Ibid., p. 12.

26 Alan Donagan, 'The Popper-Hempel Model Reconsidered' in W.H.Dray (ed.) *Philosophical Analysis and History,* New York, Harper and Row, 1966. See Paul Humphreys, 'Why Probability Values Are Not Explanatory' in *The Chances of Explanation,* New Jersey, Princeton University Press, 1989, pp. 109–17, for a more recent statement of this position.

27 Ibid., p. 133.

28 A great deal has been made of these 'shortcomings' in the popular debate about smoking and its relationship to lung cancer, but I do not wish to be understood here as giving credence to any kind of *principled* scepticism about the possibility of a strong, causal relation. Even though it is true that the precise *causal mechanism* involved in the generation of cancerous tumours in lung tissue by the nitrites discovered in cigarette smoke has not yet been determined, the claim for a causal relationship of a nomological kind is still a reasonable hypothesis. The problem arises because of the complexity of the scope modifiers required to buttress the strong nomological claim. That lung cancers can occur in the absence of carcinogenic smoke inhalation only shows that this disease can have more than one kind of cause: it does nothing to limit the generalization that smoking causes lung cancer. The problem with the invocation of 'probabilistic causal statements' as 'explanations' in this domain is precisely that it might operate to *foreclose* the search for genuine causal mechanisms and hence for genuine causal-explanatory propositions. This presupposes, of course, that the *domain* within which such a type of explanation is being sought is an appropriate one for such a search. In the case of the smoking/

cancer relationship, all of the evidence points in that direction. This is not always the case, however.

29 Rom Harré, 'Accounts, Actions and Meanings: The Practice of Participatory Psychology' in M.Brenner *et al.* (eds) *The Social Contexts of Method* New York St Martin's Press, 1978, pp. 53–4. It should be noted here that Harré's use of 'law' in the description of the first conclusion carries no causal implication, and the passage might be paraphrased into the generalization: for every individual in the population sampled there is a probability of 0.8 that he/she will develop property A under conditions C, or: there is an 80 per cent chance that he or she will develop property A under conditions C.

30 Ibid., p. 54.

31 Ibid., emphasis added.

32 Ibid., emphasis added.

33 Ibid.

34 I owe this example to Tim Costelloe.

35 John L.Pollock, 'Nomic Probability' in Peter A.French *et al.* (eds) *Midwest Studies in Philosophy,* vol. IX, Minneapolis, University of Minnesota Press, 1984, p. 177.

36 John Dupré, 'Probabilistic Causality Emancipated', in Peter A.French *et al.* (eds), *op. cit.,* p. 169.

37 For a more technical discussion of these difficulties, see Ellery Eells, *Probabilistic Causality,* Cambridge, Cambridge University Press 1991.

38 L.Wittgenstein, *On Certainty,* G.E.M.Anscombe and G.H.von Wright (eds) Oxford, Blackwell, 1969.

39 Ibid. para. 105.

40 There is a long tradition in the behavioural sciences of insisting upon a significance level of at least 0.05 for results derived from the use of the ANOVA technique as a prerequisite for serious consideration and/or publication. For some critical commentaries upon this practice within the social sciences themselves, see, *inter alia,* J.M.Skipper jnr., A.L.Guenther and G.Nass, 'The Sacredness of .05', *The American Sociologist* 2 (1967):16–18 and R.P.Carver, 'The Case Against Statistical Significance Testing', *Harvard Educational Review* 48 (1978):378–99.

41 Part of the difficulty here was noticed by Joel Feinberg who remarked that 'upshots' are sometimes ascribed to persons with the use of singular but complex verbs, such as: 'he frightened him', 'she persuaded you', 'they startled her', etc. This can lead to failures in distinguishing between *actions* and other things 'done' by people. A parallel confusion would be to imagine that 'he slept soundly', being something that he 'did', was an action he undertook. See the treatment of these issues in his 'Action and Responsibility' in Alan R.White (ed.) *The Philosophy of Action,* Oxford, Oxford University Press, 1977. Interestingly, J.L.Austin's categozry of 'perlocutionary *acts*' appears to suffer from such a conflation of act/upshot, or action/consequence.

42 For an event to be 'random' in the terms of probability theory is for it to be *equally as likely to occur* as any other. As Signorile has remarked, 'what we discover at work here is the round-robin of using "random" to arrive at the meaning of equiprobability, and equiprobability to arrive at the meaning of "random"' (Vito Signorile, 'Buridan's Ass: The Statistical Rhetoric of Science and the Problem of Equiprobability' in H.Simon (ed.) *Rhetoric in the Human Sciences,* Newbury Park, California, Sage, 1989, p. 79. Signorile quotes M.G. Kendal and W.R.Buckland (from their

Dictionary of Statistical Terms, New York, Hafner, 1960) as insisting that: 'Ordinary, haphazard or seemingly purposeless choice is generally insufficient to guarantee randomness when carried out by human beings and devices'. And he adds: 'What the statistician is trying to guarantee is strict equality of opportunity. We all know that this just doesn't happen by chance' (Ibid.).

43 Bearing in mind, of course, the *caveats* in the preceding footnote. Of course, on occasion we can speak of someone's doing something as an 'event' (think of one's child's production of his first word, or of the delivery of an historic speech, etc.). However, *these* 'events' have a different logical status from 'events-in-nature'.

44 This point is worth directing against extrapolating from behaviouristic studies of the conditional probabilities of 'responses' given specific stimuli and conditioning histories to the domain of human actions. Most *actions* are not properly construable as 'responses' to *anything,* and, when they *are* so construable, they cannot be specified in properly behaviouristic terms. How could one analyse, for example, the human action of 'answering a question' (which surely would qualify as a sort of 'response') into bio-behavioural event sequences alone? There are no context-free indicators in the stream of speech which alone specify an utterance as an 'answer to a question'.

45 Zeno Vendler, 'Agency and Causation', in Peter A.French *et al.* (eds), *op. cit.,* p. 371. See note 35.

46 An excellent review of the issues raised by dependent/independent-variable analysis, especially the Lazarsfeldian statistical programme in sociology, is provided by Douglas Benson and John A.Hughes in their chapter, 'Method: Evidence and Inference' in [8.13]. For a discussion of a range of issues involved in implementing quantitative strategies of sociological inquiry, especially as they bear upon the problem of data representation, see Stanley Lieberson, *Making It Count,* Berkeley, University of California Press, 1985.

47 On this issue, Herbert Blumer's classic discussion remains unsurpassed: see his 'Sociological Analysis and the "Variable"' in his *Symbolic Interactionism: Perspective and Method,* Englewood Cliffs, NJ, Prentice-Hall, 1967.

48 Donald A.MacKenzie, *Statistics in Britain 1865–1930* Edinburgh, Edinburgh University Press, 1981, p. 211.

49 MacKenzie's outstanding study *(Ibid.)* is a rich source of documentation of the stimuli which powered both the initiatives and the disputes characteristic of the developing field of inferential statistics. Especially interesting is his attempt to relate these directly to the growth of the 'eugenics' ideology of human inheritance and its internal controversies.

50 See Gerd Gigerenzer *et al.,* 'The New Tools' in [8.20], 205–11.

51 I have discussed this issue elsewhere. See my 'Intelligence as a Natural Kind' in *Rethinking Cognitive Theory,* London, Macmillan, and New York, St Martin's Press, 1983 and 'Cognition in an Ethnomethodological Mode' in [8.13], 190–2.

52 It is worth noting at the outset that 'IQ' scores themselves are a function of tests:

> so constructed that the frequency distribution of test scores in the reference population conforms as closely as possible to a normal distribution…centred on the value of 100 and having a half-width or

> standard deviation (the square root of the variance) of 15 points. To call IQ a measure of intelligence conforms neither to ordinary educated usage nor to elementary logic.

(David Layzer, 'Science or Superstition? A Physical Scientist Looks at the I.Q. Controversy' in N.J.Block and Gerald Dworkin (eds) *The I.Q. Controversy,* New York, Pantheon Books, 1976, p. 212)

53 [8.19], 119.

54 Ibid., pp. 119–20. Emphasis in original.

55 I mean this in the sense in which my having legs enables me to walk, but my having legs does not *cause* me to walk (or run, hop, etc.).

56 For a representative collection of founding papers in the area of social science called 'ethnomethodology', see my edited volume *Ethnomethodological Sociology,* London, Edward Elgar, 1990. Perhaps the most important contributions to this area of enquiry after Harold Garfinkel's originating work have been the studies of Harvey Sacks. See Gail Jefferson (ed.) *Lectures on Conversation by Harvey Sacks,* vols 1 and 2, Oxford Blackwell, 1992. This set is perhaps misnamed, however: Sacks's investigations ranged over modes of human (largely communicative) *praxis* broader than those glossed by the category 'conversation'.

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CHAPTER 9

Cybernetics

K.M.Sayre

HISTORICAL BACKGROUND

Cybernetics was inaugurated in the 1940s expressly as a field of interdisciplinary research, in reaction to the specialization that already had begun to encumber the established sciences. Chief among the disciplines initially involved were mathematics (represented by N.Wiener, the leader of the movement), neurophysiology (W.Cannon, A.Rosenbleuth, later W.McCulloch), and control engineering (J.Bigelow). The interdisciplinary base of the group was soon expanded to include mathematical logic (W.H.Pitts), automaton theory (J.von Neumann), psychology (K.Lewin) and socioeconomics (O.Morgenstern). While activities of the group at first were centred around Harvard and MIT, its subsequent expansion led to several meetings at other locations along the northeastern seaboard. Notable among these was a conference on teleology and purpose held in New York in 1942 under the auspices of the Josiah Macy Foundation (followed by other meetings under those auspices resuming in 1946), and a meeting on the design of computing machinery held in Princeton in 1944. The role of these early meetings was like that of a community forum, allowing participants to share insights into common problems and jointly to explore novel means of resolution.

Need for a forum of this sort arose first in connection with problems being studied by Wiener and Bigelow in the design of mechanisms for controlling artillery directed against fast-moving aircraft, which Rosenbleuth saw to be similar to problems he had been studying in the erratic control of goal-directed motor behaviour in human patients. The topic of feedback processes (see below) on which the group subsequently focused attention thus arose from a comparative study of biological and artifactual control systems. Invariably associated with

problems in the design of effective control systems are problems of communicating data to the system on which its corrective responses can be based, and of communicating these responses to the appropriate effector mechanisms. In the biological organism these communication functions are served by the afferent and the efferent nervous systems, respectively, parallel to the radar and the aiming mechanisms of the anti-aircraft battery. This joint emphasis upon communication and control systems accounts for the somewhat inelegant subtitle of Wiener's seminal book: *Cybernetics, or Control and Communication in the Animal and the Machine* ([9.5]).

The name 'cybernetics', chosen by Wiener for this new field of study, derives from the Greek *kubernētēs*, meaning steersman or pilot. Inasmuch as 'governor' derives (via the Latin *gubernare*) from the same root, cybernetics was provided with a ready-made technological ancestry, beginning with James Watt's invention in the late eighteenth century of devices (called 'governors') regulating the rotational speed of steam engines. Political antecedents can be traced back to Plato, who several times in the *Republic* and the *Statesman* likened the leader of a well-run political order to the *kubernētēs* of a ship. A recognizably philosophic lineage also goes back to Plato, with his reference in the *Phaedrus* (247C7–8) to reason as the *kubernētēs* of the soul (prefiguring the Phi Beta Kappa motto *philosophia bion kubernētēs*—'philosophy the guide of life').

Wiener's interest in technical problems of communication had been anticipated by H.Nyquist and R.Hartley, progenitors of the statistical concept of information. Despite Wiener's having numbered C.Shannon among his original group, contributions to this area after publication of the latter's article 'The Mathematical Theory of Communication' ([9.16]) tended to be categorized under the title 'communication theory' (or 'information theory') rather than 'cybernetics'. Another emerging field of research in which cybernetics was initially involved, but soon suffered loss of name-recognition, was the theory of computing machinery. Although Wiener was a key contributor, along with V.Bush (MIT), H.Aiken (Harvard) and J.von Neumann (Princeton), to planning sessions leading to the construction of the first electronic digital computers, he remained more interested in possible neurological parallels with these mechanisms than in their logical design. Subsequent contributions to the field of digital computation owes relatively little to its broadly cybernetic origin.

Cybernetics' early emphasis upon functional parallels between biological and mechanical control systems soon led, in industrial circles, to its identification with factory automation and other forms of robotics. In academic circles, by contrast, cybernetics came to be associated with the then arcane field of artificial intelligence (AI), which took its start as part of an effort to reduce human involvement in the large-scale computer-

based air-defence systems under development at MIT's Lincoln Laboratory in the 1950s. Key contributors to AI at this early stage were O.Selfridge, a younger member of Wiener's original group, along with M.Minsky and S.Papert, all of MIT. Philosophers who became involved with AI through their association with MIT in the 1950s included H.Dreyfus, who was generally critical of the enterprise, and K.Sayre, who saw potential in AI as a new approach to traditional problems in the philosophy of mind. The first institutional centre for combined research in philosophy and AI was established by the latter in the early 1960s at the University of Notre Dame.

Despite its history of involvement with technological developments, the major spokesmen of cybernetics from Wiener onward have been explicitly concerned with its broader philosophic implications. The following discussion treats both its philosophic antecedents and its potential for further philosophic contributions. Remarks on the current interaction between AI and cybernetics are reserved for the final section below.

BASIC CONCEPTS

Philosophy before Plato was marked by a series of attempts to find a small set of basic principles in terms of which the manifest variety of the observable world could be understood as coherently integrated. Cybernetics returns to this task with a set of explanatory concepts based upon the presence of variety itself. Primary among these are the concepts of feedback, of entropy and of information.

Feedback

Any operating system functions within a variable environment with which it interacts through its input and output couplings. Feedback occurs whenever variation at the output works upon the environment in such a fashion as to produce a corresponding variation at the input of the system as well. Of primary concern to cybernetics are two kinds of feedback pertaining specifically to deviation from a stable state of the operating system. Positive feedback occurs when deviation from a stable state produces outputs that lead to yet further deviation. An example is an increase in membership of an interbreeding population which produces an even greater increase in subsequent generations. Feedback of this sort is labelled 'positive' because it tends to increase deviation from stability of the system in which it occurs. Negative feedback occurs, by contrast,

when momentary deviation from a stable state leads to inputs that counteract further deviation. Common examples of negative feedback are the operations of a thermostat to maintain a steady temperature within an enclosure, and the subtle shifts in bodily posture by which a skier maintains balance on a downhill run.

Types of negative feedback may be further differentiated with respect to the bearing of the regulatory mechanisms that maintain a system in a stable mode of operation. Homeostasis is a type of feedback by which deviation from stability is counteracted by adjustments internal to the system itself. Among familiar forms of homeostasis in biological organisms are mechanisms regulating body temperature and chemical composition of the blood. Another type of negative feedback is exemplified by the heat-seeking missile that changes direction with a manoeuvring target, and by the daisy that aims its blossom to catch the full light of the sun. Feedback of this latter sort has been labelled 'heterotelic', for its role in adjusting the system's external relations to factors in its operating environment.

All organic and most mechanical systems incorporate variables that must be restricted to a narrow range of values if the system is to remain operational. A mammal will soon die, for example, if the oxygen content of its blood falls below a certain level, just as a reciprocating engine will soon freeze if it loses oil pressure. Negative feedback may be conceived generally as a type of regulatory restraint by which the values of a system's crucial variables are maintained within a range compatible with sustained operation. The central role of negative feedback in the economy of an operating system, to paraphrase Ashby ([9.7], 199), thus is to block the transmission of excessive variety to a system's protected variables. An important result of feedback regulation is to maintain the system at a state of low entropy relative to its operating environment.

Entropy

As originally defined by Clausius, entropy measured the proportion of total energy within an isolated system that is available for doing useful work. If part of a system is significantly hotter than another part (e.g., a steam chamber), then work can be done as heat passes from the hotter to the colder part (e.g., the pistons of a steam engine). If all parts of the system are at approximately the same temperature, however, the heat energy within the system is incapable of accomplishing useful work. According to the first law of thermodynamics, the total energy within a closed system remains unchanged through time. But as its energy available for work becomes expended through irreversible physical

processes (e.g., discharge of steam into the pistons), its capacity to produce additional work progressively decreases. This means that the entropy of the system, in Clausius's sense, progressively increases. The second law of thermodynamics, originally stating that the energy available for useful work within a closed system tends to decrease with time, thus received concise restatement to the effect that the entropy within a closed system tends always to increase.

The concept of entropy was provided with a statistical basis through the work of Boltzmann and Planck, beginning with Planck's definition of 'complexion' as a specific configuration of its components on the microlevel of a physical system. Boltzmann developed techniques for quantifying the proportion of a system's possible complexions correlated with each of its distinguishable macrostates. Under the assumption that all complexions of a system are equiprobable, he then established the a priori probability of its existing in a given macrostate as equal to the proportion of complexions associated with that macrostate to the total number of possible complexions of the system overall. In this treatment, the greater the proportion of complexions associated with a given macrostate (i.e. the greater its probability), the less highly organized the system will be when existing in that macrostate, and the less capable accordingly of producing useful work. This enabled a redefinition of entropy in terms of probabilities. If P is the probability of a system's existing in a given macrostate, and k is the quantity known as Boltzmann's constant, then the entropy S of the system in that macrostate is given by the equation '$S=k \log P$'. (Logarithms were used in this function to make entropy additive.)

As a result of Boltzmann's treatment, an increase in entropy came to be understood not only as a decrease in energy available for useful work, but also as a decrease in organization (structure, order) of the system concerned. Yet another formulation of the second law of thermodynamics now became appropriate: closed systems tend to become configured into increasingly more probable macrostates, which is to say macrostates exhibiting increasingly less order. What this means in practical terms is familiar to anyone responsible for cleaning house, or for keeping weeds out of a vegetable garden.

Further development of the concept of entropy came with its extension into the mathematical theory of communication. The relevance of this extension appears with the reflection that our information about the specific microstructure of a given system derives largely from observation of its macrostates, and that the more complexions there are that might possibly underlie a given macrostate the less information we have about its actual microstructure in particular. The situation is analogous to that of a detective with a general description only of a wanted person: the more people there are who fit

the description, the less information at hand about the actual culprit. When entropy is taken as a measure of the variety of microstates that might underlie an observable macrostate of a system, as in Boltzmann's application, then it also provides a measure of our lack of information about the structure of the system on the microlevel.

Information

Communication theory, pioneered by Nyquist and Hartley in the 1920s and formulated systematically by Shannon in 1948, is the study of the efficient transmission of messages through a communication channel. In its most general form, a communication channel consists of an input ensemble (A) of symbols (a_1, a_2…a_r) and an output ensemble (B) of symbols (b_1; b_2,…b_s), statistically interrelated by a set of conditional probabilities ($P(b_j/a_i)$ specifying for each output bj the probability of its occurring in association with each input a_i. For purposes of formal descriptions, both A and B are assumed to include a variety of symbol events, one and only one of which occurs at a significant moment of system operation. A simple illustration is a telegraph circuit, where A and B are comprised by events at the key and sounder, respectively, with conditional probabilities $P(b_j/a_i)$ determined by the physical characteristics of transmitting medium.

Because of the variety of symbol events at the input, there is uncertainty in advance (a priori probability less than 1) about what event (E) will actually occur there at a given moment of operation. This uncertainty is removed when E actually occurs (with an a posteriori probability of 1). The removal of this uncertainty is designated 'information'. Information varies in quantity with the amount of uncertainty removed by E's occurrence, according to the formula 'I(E)=log 1/P(E)'. (As in the equation defining thermodynamic entropy S, logarithms are employed here to achieve additivity. Logarithms to the base 2 are commonly used for convenience in application to digital computers.) If E has an a priori probability, say, of 50 per cent (think of a flip of an unbiased coin), then the information provided by its occurrence measures log 1/0.5 (=log 2), which amount to 1 bit (for '*bi*nary unit') of information. In general, the amounts of information provided by the occurrence of a given event is identical to the number of times (e.g., 1.74 for an event 30 per cent probable) its a priori probability must be doubled to equal unity.

The average information (H(A)) available at A is the sum of the quantities of information provided by its individual events, each multiplied by the event's probability of occurrence. It is easily shown mathematically that H(A) increases both with number of independent

events at A and with the approach of these events to randomness, i.e., to equiprobability. Because of this (and because of the similarity of the mathematical définition of H(A) to that of thermodynamic entropy S), the quantity H(A) is often called the 'entropy' of A.A related measure is the 'equivocation' (H(A/B)) of A with respect to B, which is the average amount of uncertainty remaining about events occurring at input A after the occurrence of associated events at output B. This quantity is given by the sum of the conditional probabilities of each event a; given each event b_j in turn, each probability being multiplied by the logarithm of its reciprocal. This quantity approaches zero as events at B increase in reliability as indicators of events at A, which makes H(A/B) a negative indicator of a channel's reliability as a conveyor of information. The capacity of a channel overall for the conveyance of information is directly proportional to the information available at its input and indirectly proportional to its equivocation. A channel's capacity in this regard is referred to as its 'mutual information' (I(A;B)), and accordingly is measured by the quantity H(A)-H(A/B).

While communication theorists typically are concerned with the design of channels for technological applications, communication channels play prominent roles in many natural processes as well. Communication of information in a natural setting often involves complex sets of channels known as 'cascades'. A cascade of channels consists of a sequence of individual channels so arranged that the output of the first serves as the input of the second, and so on *seriatim*. A perspicuous illustration is the cascade beginning at the cornea, and proceeding serially through the lens, the several layers of the retina, the optic chiasma, and eventually to the optical cortex. Each individual channel along the way has an integral part to play in the information-processing that constitutes visual perception.

A fact stressed by Shannon and other pioneers of communication theory, but too often unheeded by cognitive theorists employing an 'information-processing' vocabulary, is that information in this technical sense (information(t)) has very little to do with meaning or cognitive content. The symbol events with which communication theory deals might receive meaning under interpretation by human users, but by themselves have no semantical characteristics whatever. One of the major challenges of cybernetics is to gain insight into how information(t) can be converted by processes in the nervous system into information with cognitive significance (information(s))—into information in the sense of knowledge or intelligence. It is no service to clarity to assume, as is common in cognitive theory today, that information(s) appears 'ready-made' at the inputs of the central nervous system.

Negentropy

As entropy is a measure of a relative lack of information(t), so information(t) corresponds to a lack of entropy. The expression 'negative entropy' was used by Wiener ([9.5], 64) in describing information(t) as the absence of entropy, and was later shortened by Brilluoin to 'negentropy'. Other forms of negentropy are structure (departure from random arrangement of a system's components) and productive energy (capacity within a system for useful work). These three forms of negentropy are mutually convertible.

Energy is converted into structure when water is pumped into an elevated reservoir. And structure is converted to energy in turn when water falls to drive the turbines of a generator. Energy is converted into information(t) with the detection of a signal on a modulated radio wave. Structure is convertible to the same effect in the operation of a computer by a coded punch card. Inasmuch as information(t) is basically a statistical quantity, its conversion into structure and energy is harder to illustrate; but an intuitive sense is provided by the thought-experiment known as 'Maxwell's demon'. The 'demon' in question is situated along a passageway connecting two containers of gas, and operates a trapdoor controlling access of individual molecules to either chamber. Initially this (closed) system is in a state of maximum disorder (maximum entropy), with gas molecules distributed randomly from moment to moment. The 'demon', however, is capable of receiving information(t), distinguishing slow-from fast-moving molecules, and of admitting only fast into one chamber and only slow into the other. As an eventual result of the trapdoor's operation, the system reaches a state of maximum structure (segregation of molecules by rate of motion) and of maximum usable energy (temperature difference between chambers due to molecular impact), both purchased by the information(t) that enables the 'demon' to discriminate rates of motion. Entropy re-enters the picture with the observation that actual transformations of this sort among forms of negentropy generally involve some loss of usable energy, in accord with the second law of thermodynamics.

An important principle of communication theory (Shannon's tenth theorem) states that a system can correct all but an arbitrarily small fraction of errors at its input if its equivocation H(A/B) is no greater than the mutual information I(A;B) of its correction channel. An equivalent formulation is Ashby's law of requisite variety, to the effect that a device's capacity to serve as a regulator (to block variations producing instability) cannot exceed its capacity as a communication channel (marshalling variation for the communication of information (t)).

EXPLANATORY PRINCIPLES AND METHODOLOGY

Cybernetics has been conceived from the start as a unifying discipline, providing continuity across the borderlines of more specialized sciences ([9.5], 2). It has drawn freely upon the explanatory resources of other disciplines, but always with an eye towards applications beyond the boundaries of their original employment. As the biological concept of homeostasis was extended by Ashby ([9.17]) to the design of machines with adaptive capacities *(Design for a Brain),* for instance, so the physical concept of entropy was extended into biology with the work of Schrödinger ([9.14]). Observing that all natural processes produce increases of entropy in their general vicinity, Schrödinger characterized life as the capacity of an organism to resist progressive entropy in the form of structural loss by 'continually sucking orderliness from its environment' (Ibid., 79). The 'essential thing in metabolism' he remarked, 'is that the organism succeeds in freeing itself from…the entropy it cannot help producing while alive', which it accomplishes by 'feeding' on negentropy at the expense of an accelerated progression of entropy in its immediate locale. This characterization highlights the remarkable ability of living organisms to receive energy from foodstuffs existing at lower energy levels than themselves, comparable in effect to a toaster being warmed by a cold piece of bread. It is by reversing otherwise natural flows of energy in this manner that a living system maintains itself, as Wiener puts it, 'as a local enclave in the general stream of increasing entropy' ([9.6], 95).

Another biological concept with broad application in cybernetics is that of adaptation. Homeostasis itself is an adaptive process, as are other forms of negative feedback. Among organisms functioning in variable environments, moreover, there is a tendency to adjust their feedback capacities in response to pervasive environmental change, which amounts to an adaptation of adaptive capacities. Species evolution itself provides examples of this higher-level adaptation, as in the development of spiny leaf structures by plants adjusting their moisture-conserving procedures to increasing levels of infrared radiation. While the interest of evolutionary biologists in such adjustments is likely to focus upon the underlying genetic mechanisms, however, interest from the cybernetic point of view will lie more with their effect upon the interchange of negentropy between organism and environment. The primary role of such adaptive processes, from this point of view, is to maintain an efficient coupling between organisms and environment by which the organism can gain the negentropy needed to sustain its vital processes. By way of augmenting Schrödinger's characterization, it may be said that a living

organism not only is capable of receiving negentropy from its proximate environment, but also belongs to a reproductive group that tends to preserve this capacity throughout its membership by adaptive changes in the feedback mechanisms involved.

While relying upon other disciplines for certain of its explanatory principles, cybernetics also has developed explanatory resources of its own which would not fit comfortably into the specialized sciences. One is the principle of mutual convertability among energy, structure and information, cited above as being due largely to Brillouin. Another is the aforementioned law of requisite variety, in which Ashby reformulated Shannon's tenth theorem of communication theory in terms directly germane to the feedback capacities of living organisms. According to this law, the range of environmental variation to which an organism can adapt is limited by the capacities of its information(t)-processing systems. A consequence is that a large amount of the negentropy received by highly adaptive organisms like the human being must come in the form of information(t), and that a large portion of their physiological structure must be devoted to processing this information(t). This result is basic to a cybernetic analysis of human mental capacities.

These considerations make clear that the sense in which cybernetics is a unifying discipline has little in common with the 'unity of science' projected by logical positivism in the early twentieth century. While this latter was to have been achieved by way of reduction to physics, cybernetic theorists from the beginning have been explicit in denying primacy to the physical sciences ([9.6], 21; [9.7], 1). The biological principles upon which cybernetics relies are no more reducible to physics than its physical principles are reducible to biology; and neither science can deal with information(t) as a form of negentropy. The manner of unification offered by cybernetics is rather that of a context in which comparable phenomena from diverse disciplines can be studied in common terms, without loss of autonomy of the part of the disciplines concerned.

Because of its essentially interdisciplinary character, there is no single method or set of methods by which cybernetics can be distinguished from related fields of enquiry. The experimental techniques of neurophysiology and control engineering were important to cybernetics at its inception, along with the more formal methods of mathematical logic, calculus and the theory of computation. In recent years, cybernetic studies have employed techniques of systems analysis, organizational theory and computer modelling as well. From this it follows not that anyone employing these techniques of investigation *ipso facto* is engaged in cybernetics, nor that being engaged in cybernetics requires employing one or more of these techniques, but only that someone might employ any of these methods in cybernetic inquiry.

What is methodologically distinctive about cybernetics is rather the way in which it undertakes to bring the diverse resources of allied fields of study into mutual relevance. As an integrative discipline, cybernetics is more philosophy than science. In his quasi-autobiographical account of how the discipline came into being, Wiener cites Leibniz time and again (at one point naming him 'patron saint' of the field ([9.5], 12), and mentions the influence of Royce and Russell as former teachers. Among other philosophers favourably noted are Pascal, Locke, Hume and Bergson. While acknowledging debt to these thinkers in various respects, Wiener seems particularly sympathetic with their interest in metascientific issues, and with their sense of how philosophy informs the foundations of science. The way in which cybernetics was pursued by Wiener is not unlike the way philosophy has been pursued by its major exponents throughout the centuries. Its manner of proceeding, in most general terms, was to adopt a few basic concepts and principles of elucidation, and in terms of these to elaborate a coherent picture of the world at large. For Wiener, the basic concept was that of system or organization, and the principles of elucidation those of feedback and communication. Due perhaps to the predominantly scientific orientation of other members of his original group, however, there seems to have been little incentive to work out the ramifications of this methodological perspective in detail.

A specific mode of enquiry that has proven serviceable to cybernetics in its more recent development is patterned after a familiar method of philosophic analysis. In its typical philosophic application, the method begins with a necessary feature of the concept or kind being analysed, and proceeds by adding other features until a combination is found that characterizes all and only instances of the thing in question. Successfully completed, the procedure yields a characterization unique to the thing being analysed, in terms of its necessary and sufficient conditions. In its specifically cybernetic application, the procedure is concerned instead with complex systems and their modes of behaviour, and the techniques of analysis might be experimental (e.g., in mechanical or computer simulations) as well as conceptual; but in other respects the procedure is similar. Beginning with a component of the complex structure under investigation, it proceeds by combining other components in some appropriate order until the structure in question has been exhibited (mechanically or conceptually) as a combination of parts. What marks the procedure as specifically cybernetic is the character of the components with which it deals, and (in application to biological systems especially) the order in which these components are appropriately combined. The components will have to do typically with the regulation of the system, and with its management of information(t) and other forms of negentropy. In biological applications, moreover, and in any other where

the structures being studied show signs of having evolved from less complex substructures, the order of combination should follow lines of plausible evolutionary development.

This procedure overall might be characterized as a form of analysis by synthesis, or what in recent philosophy of mind has been called 'bottom-up' (in contrast with 'top-down') analysis. The synthetic or integrative bearing of the method is philosophical in character, and is directed towards understanding a complex structure in terms of its functional components. The components themselves are understood, as indicated above, according to the explanatory resources of the specialized sciences. The methodology of cybernetics thus is both philosophic and scientific, and might be pursued in a study as well as in a laboratory.

ANALYSIS OF GOAL-DIRECTED BEHAVIOUR

Among the earliest indications of the interdisciplinary and more broadly philosophic implications of the concept of negative feedback was the paper 'Behavior, Purpose, and Teleology' published by Rosenblueth, Wiener and Bigelow in 1943 ([9.12). The seminal idea of this paper, in Wiener's estimation ([9.5], 8), is that the central nervous system does not function as a self-contained organ, taking inputs from the senses and issuing outputs into the musculature, but that it characteristically acts instead as part of a negative feedback loop circling from the effector muscles out through the environment and back again through the sensory system. The neurological research that led to this insight had been concerned with goal-directed behaviour like picking up a pencil, and the authors saw fit accordingly to illustrate the type of feedback involved by the target-seeking missiles being developed as part of the current war effort. Weapons of this sort are guided by some sort of communication link (sounding-echoing, magnetic, thermal, etc.) with the intended object, through which an error-correcting mechanism operates to maintain the missile on a course leading to contact with the target. In their initial enthusiasm for this analogy between human and overtly mechanical feedback operations, the authors proposed target-seeking behaviour of this sort as a model for goal-directed (purposive, teleological) behaviour generally.

A telling difficulty of this model raised in subsequent criticism is that target seeking of this sort requires the physical presence of the intended goal, whereas human purposive behaviour (e.g., searching for a lost earring) is often directed towards goals that are absent. What has been taken as teleological activity in biological processes (e.g., growth of an oak from an acorn), similarly, appears to be directed toward goal states

(e.g., the morphology of a mature tree) that are present, if ever, only late in the process. A model of goal-directed behaviour better suited to this wide range of examples is based upon the concept of equilibrium or stability, and stresses the manner of direction rather than the (external) goal itself. The missile is guided to its target by feedback mechanisms designed to maintain a stable correspondence between its actual motion and the path leading to impact with the target; from the guidance system's standpoint (although not the designer's) the resulting impact is coincidental. When loss of an earring disrupts a person's morning toilet, the search-behaviour ensuing is guided by feedback procedures (search patterns) directed towards restoring equilibrium to the person's dressing routines. And when an acorn begins to sprout and sends down its roots, its subsequent growth is guided by genetically established feedback processes towards a state of stable homeostasis (that of a fully leaved tree) within its living environment. Goal-directed behaviour in each case is governed by negative feedback, and is aimed at establishing or maintaining some facet of the operating system in a state of equilibrium.

Sharing this general form of goal-directed behaviour does not relegate either human purpose or biological teleology to the mechanical status of target-seeking missiles. Artifacts like guided missiles typically are engineered to perform certain predetermined operations when functioning properly under certain conditions, such that failure to perform accordingly under those conditions would be an indication of system malfunction. Human acts performed on purpose, however, are to some extent discretionary, which means *inter alia* that failure to perform when conditions warrant does not indicate a breakdown of the feedback systems involved. Human purpose in this sense is not deterministic, and thus is in accord with the general restriction in the cybernetic framework against deterministic explanations of natural processes at large (see below). Teleological growth is distinguished from target-guided behaviour, in turn, not only by being directed toward an absent goal, but also in that the goal-directed activity involved takes the form of morphological change rather than change in vectored motion. At any stage of its morphological development, an organism must relate to its immediate environment with sufficient stability to acquire the negentropy it needs to remain alive. Only at a relatively advanced stage of growth, however, does an organism achieve homeostasis in a form that can be maintained without further morphological change (exfoliation of leafy structure, growth of teeth, etc.). The sense in which biological growth is ideological is that it is directed toward a goal state which arrives literally only towards the end of the growth process itself, which is a state of stable homeostasis within the living environment. In view of the fact that such growth is guided by feedback mechanisms set

in place by the organism's genetic structure, however, there is no call to interpret biological teleology as a causal process in which cause follows effect. The biological basis of teleology and its causal structure are examined more fully in [9.9].

FORMS OF ADAPTATION

Morphological development is guided primarily by the genetic mechanisms of the individual organism. Another form of change to which organisms submit is adaptation, which occurs primarily in response to environmental variations. Among modes of adaptation that had been studied systematically before the advent of cybernetics are evolution and natural selection among biological species, and the behavioural conditioning of individual organisms. Cybernetic analysis of the feedback characteristics shared by these modes of adaptation led to the discovery of another mode pertaining to the formation of perceptual patterns, which appears significant for our understanding of cognitive processes.

Evolution and Natural Selection

A biological species is a group of interbreeding individuals with traits transmitted genetically to succeeding generations. Membership of a local subgroup (deme) of a given species fluctuates with changes in local conditions, as more or fewer members live to maturity in response to variations in food supply, predation, etc. Adjustments to short-term environmental variations of this sort generally occur without significant alteration of the group's genetic pool, and hence without alteration of the traits typically shared by its membership. Adjustment to more pervasive environmental changes like geophysical upheaval or shift in climate, on the other hand, may require alteration of a group's specific traits, enabling its members to take advantage of new food sources (e.g., thicker beaks for cracking seed shells) or new means of protection (e.g., lighter colouration for a snow-covered habitat). Long-term adaptation of this sort may be initiated by a shift in reproductive dominance to individuals within the group already approximating the features in question, which thereby become proliferated among members of subsequent generations. An eventual result may be the emergence of a reproductive group based on a genetic pool sufficiently altered to constitute a new species. Species evolution thus may be viewed as the product of a homeostatic process that enables reproductive groups to maintain stability under changing environmental circumstances. The mechanism of adjustment is alteration

of the genetically controlled traits affecting the group's viability within its immediate environment.

Whereas species evolution is an adaptive process operating on the level of the reproductive group, natural selection in turn is an adaptive process on the level of the biota or ecosystem. A biota is a system of species interacting within a shared environment, each occupying a distinctive role or niche in which it can maintain stable relationships with its companion species. Niches are distinguished by the kinds of living space (trees, meadows, etc.) and food source (seeds, insects, etc.) they provide. The normal state of a biota is to provide all the niches needed to keep its community in balance, and at the same time to keep its existing niches full with as many individuals as the negentropic resources of its locale can sustain. Momentary decreases in population within a given niche may be countered by increased reproduction on the part of its occupying species, or by the immigration of competing species from adjacent locales. Excessive increases in population, on the other hand, will be countered by decreased reproduction, perhaps in the form of the extinction (or severe depletion) or one or another competing group. When competition for the limited resources of a niche puts a newly emerged species at hazard, the eventual result will be either its irradication by a more competitive species or its establishment as part of a well-balanced ecosystem. Natural selection thus may be viewed as a homeostatic process by which an ecosystem maintains integrity in a changing environment by changes in relationship among its constituent species.

Learning

Failure of a newly emerged species in its original biota does not preclude success in some other locale to which it may have migrated. Characteristics that enable a group to perform competitively in various locales (part of what above was termed 'negentropic flexibility') thus provide multiple opportunities for success, and are likely to become part of the group's genetic endowment. A major provision of this sort appeared in the course of species evolution with the ability of individual organisms to adapt their behaviour to local changes in their immediate environment. Whereas adaptation of primitive life-forms like bacteria and protozoa depends upon genetic mutations affecting the species at large, and hence requires a period of several generations, adaptation of individual behaviour to immediate contingencies can occur repeatedly within the lifetime of a single organism. This ability is known in behavioural science as 'conditioning' or 'learning'.

Any operating system produces outputs that are conditional to some

extent upon its inputs. A system is capable of learning when it can adjust this conditional association between input and output to its own benefit. While a biological system in an entirely fixed environment would gain nothing by such an adjustment, a complex organism in a variable environment will generally benefit from some behaviour patterns and be harmed by others. Organisms capable of learning have been genetically disposed to avoid adversive (painful or 'punishing') stimuli and to seek stimuli they find agreeable (pleasant or 'reinforcing'). Inasmuch as natural selection will favour species whose members are reinforced under beneficial circumstances, and are punished by harmful, the effect of this disposition in an enduring species is to support survival of the individuals in which it operates. Learning then boils down to a process of shaping the behaviour of organisms to elicit predominantly agreeable stimuli from their current environments, and to minimize the occurrence of adversive stimuli, with the long-term result of enhancing the survival probabilities of the species involved.

In favourably conditioned organisms, stimuli indicative of beneficial circumstances will tend to elicit behaviour likely to secure those benefits, while stimuli indicative of harmful circumstances will tend to elicit avoidance behaviour. But when an organism begins to find adversive stimuli associated with previously beneficial circumstances (e.g., a once clear stream showing signs of contamination), or vice versa, the organism will undergo significant changes in the probabilities of its behavioural outputs conditional upon inputs signalling the presence of those circumstances. Inputs previously prompting the organism to take advantage of the circumstances they signify will now tend to elicit avoidance behaviour instead, or perhaps will simply lose their power to elicit any distinctive behaviour whatever. And vice versa for inputs previously leading to avoidance behaviour. By thus adjusting its conditional probabilities between sensory inputs and behavioural output in response to changing 'contingencies of reinforcement' (the phrase comes from Skinner ([9.23])), the organism adapts its behaviour to a changing environment. In its most general cybernetic description, learning is a feedback process in which the environmental effects of an organism's behaviour are channelled back through its sense receptors, and used to shape that behaviour in patterns conducive to the organism's advantage under current environmental circumstances.

Perceptual Patterning

According to Ashby's law of requisite variety, the range of environmental variation to which an organism can adapt its behaviour is limited by its capacities as an information(t)-processing system. A straightforward

consequence is that the variety of adaptive responses an organism can make to a fluctuating environment is limited by the variety of circumstances distinguishable within its afferent nervous system. Cybernetically inspired experiments at MIT in the 1950s indicated that frogs, for example, are capable of distinguishing only five or six different patterns of stimulation in their visual environment, one being a spot the size of a fly moving a frog's tongue-length away in front of its eyes. The frog's behaviour in its biotic niche is confined to responses to these distinctive patterns (and a few others like them pertaining to other sense modalities), each of which is communicated through a set of nerve fibres dedicated to that pattern specifically. With this method of information(t)-processing requiring a one-to-one correspondence between message channel and message type, a radical extension in the number of patterns distinguishable by the animal's afferent system would require additional bulk that could impair its mobility. Perceptual patterning of this sort might be described as 'hard-wired', rather than adaptive in the manner of more advanced visual systems.

A major advance in adaptive capacity came with the evolution of organisms able to extend radically their range of discriminable circumstances without corresponding increase in bulk of their afferent nervous systems. The manner of information(t)-processing making this possible permits different stimulus patterns shaped in response to different environmental circumstances to pass through a single integrated network of afferent channels. This expedient of adaptive pattern-formation is similar in its feedback characteristics both to evolution and natural selection (adaptation on the species level) and to behavioural conditioning (adaptation on the level of the individual organism), and might be conceived alternatively as a very rapid evolution of afferent neuronal structures or as a much accelerated learning of the sensory system.

By 'perceptual pattern' here is meant a more or less specific set of neuronal events that occur interactively in response to a more or less specific configuration of external events in the perceptual environment. Between the external configuration and the neuronal pattern will extend a cascade of information (t)-channels (e.g., external object to cornea to lens to retina to optic chiasma, etc.), each serving both to convey relevant information(t) into the upper reaches of the afferent system and to help forge the features of the resulting pattern along the way. The key function of the cascade overall is to fashion a configuration of neuronal events that stands in a relation of high mutual information (see above) with the configuration in the external environment. If the mutual information between external and neuronal configuration is sufficiently high (i.e., they are sufficiently alike in information(t)-structure), then the latter will serve the organism as an effective guide of behaviour it undertakes with respect

to the former. The latter in this respect is an adequate 'representation' of the former.

A corollary of Ashby's law cited above is that organisms under selective pressure to increase their variety of adaptive behaviours will be under pressure as well to employ their information(t)-processing channels as efficiently as possible. Efficiency might be served by various 'noise reductions', 'boundary tracing' and other information(t)-processing techniques of sorts well studied by communications engineers, performed at various stages along the cascade (e.g., at the retina or optic chiasma). The result is a neuronal representation of largely 'schematic' character, incorporating less detail than might be had at earlier stages in the cascade. If more detail proves necessary for successful guidance of behaviour undertaken with regard to what is represented, or if different representations are required to guide other behavioural projects, adjustments are made throughout the cascade to produce patterns at the upper afferent levels with informational(t)-features adequate to the task at hand.

Pattern-formation procedures of this general sort join with the efferent faculties of the behaving organism to constitute a homeostatic system, the normal state of which is a series of afferent patterns providing perceptual guidance for the organism's ongoing behaviour. Deviation from the norm is indicated by incipient loss of perceptual control, and the system regains stability by restructuring the representations by which this behaviour is currently being guided. Recent theoretical analysis suggests that perceptual pattern-formation of this sort provides a basis for certain cognitive processes typical of the human organism specifically.

HIGHER COGNITIVE FUNCTIONS

Similarities in feedback characteristics among the processes of natural selection, learning and perceptual patterning, have been extensively explored in cybernetic literature. Parallels in natural selection and learning were pointed out by Wiener [9.5], 181), and were further developed by Skinner ([9.23]). An empirical basis for the account of perceptual patterning outlined above was proposed by Sayre ([9.9]). Extensions of this line of analysis to higher cognitive functions like language use and reason remain more conjectural. The brief discussion following is an indication of potential rather than actual accomplishment.

In a perceptual environment providing regularly recurring stimulus configurations, the afferent system of a perceptually adaptive organism may develop standard representations which find employment time and again in the pursuit of its perceptually guided

projects. Such representations, which might be labelled 'percepts', are normally activated by stimulation of the external sense organs, and in this sense are controlled by the external environment. Percepts available to a given organism would typically include representations of familiar plants, animals, etc. Individuals of species capable of language will also form percepts responding to symbol configurations issued by other members of their linguistic community. To learn the language of one's community is to learn to associate percepts representative of familiar objects with other percepts representing the standard symbols of the language (at first vocal, later written, etc.), in such a fashion that the former percepts are capable of being activated by the latter. Percepts that in this fashion have been brought under the control of linguistic symbols, as well as of the objects they standardly represent, may be referred to as 'meanings'.

Meanings in this sense are not abstract entities, but rather well-entrenched neuronal patterns capable of functioning in the actual information(t)-processing activities of linguistically competent organisms. Since the essential feature of a given meaning structure is its relation of mutual information with the object it represents, and since physically different structures can share in this relation with a single given object, the same meanings can be present in different organisms. Linguistic communities emerge as many individuals learn to activate the same meanings upon presentation of the same symbol configurations, and to associate those symbols with the same objects in their shared environment.

Meaning B may be said to be redundant relative to meaning A when all features of the world represented by B are represented by A as well. The meaning 'ripe' applied to grapefruit, for instance, renders the meaning 'yellow' redundant. Conversely, applicability of 'yellow' to a given grapefruit is required for 'ripe' to be correctly applicable. The former controls the latter in this connection by restricting the circumstances of its correct application. Concepts may be conceived as meanings that have been removed from exclusive control of perceptual configurations (either linguistic symbols or objective circumstances), and brought under the control in this fashion of other meanings. While the percept 'yellow' is activated only by yellow objects, and the meaning 'yellow' either by objects or their linguistic symbols, the concept 'yellow' can be activated not only by objects and symbols, but in certain applications also by the meaning 'ripe'. Understood in this fashion, percepts, meanings and concepts are all stable structures of neuronal activity, distinguished with regard to their manner of control.

Concepts may be said to participate in a shared linkage if they are mutually relevant to each other's application, perhaps conditional upon the applicability of other concepts within the same linkage. The concepts

'ripe', 'yellow' and 'soft' thus share linkage with the concept 'grapefruit', reflecting the coincidence of colour and tactual properties discovered through the experience of a linguistic group with palatable grapefruit. If a variety of grapefruit were encountered in which a colour other than yellow (say, pink) turned out to be a more reliable sign of palatability, however, the relevant conceptual linkages of the individuals undertaking to eat this fruit would soon adapt to this novel set of circumstances. Due to the public nature of the language from which these concepts are derived, it would not be necessary for other individuals to undergo the same experiences themselves for their conceptual linkages to be appropriately modified. They can be modified through conversation with the individuals first affected. Conceptual linkages thus serve as facilities of information storage, subject to homeostatic adjustment and augmentation through the experiences of subgroups within the linguistic community. Such linkages in effect are neuronal mappings of regularly associated objective circumstances, subject to adaptation by continued encounters with a shared living environment. By using these maps to chart the course of anticipated behaviour, rational agents can explore alternatives before committing themselves to action.

RELATION TO ALTERNATIVE PARADIGMS

Cybernetics has been guided from the outset by the conviction that a wide range of human mental functions can be reproduced mechanically. Among Wiener's original associates in the 1940s were several figures (e.g., O.G.Selfridge, W.H.Pitts, W.S.McCulloch) who subsequently became known for contributions to AI. Spokesmen for cybernetics up through the late 1970s, (e.g., F.H.George, K.Gunderson, K.M.Sayre) still considered AI to be an integral part of that discipline. The original ties between cybernetics and AI were effectively severed during the 1980s, however, to the extent that early contributors to machine intelligence who had remained closely identified with the former movement (e.g. W.R.Ashby, D.M.MacKay, F.H.George, Wiener himself) are seldom cited in current histories of the latter. This divorce appears to have been due largely to the recent takeover of AI by the computational paradigm, and to an ideological slide towards materialism on the part of its advocates.

Materialism, in its bare essentials, is the doctrine that everything in the universe comes under the purview of physical science. The primacy of physics in this regard was challenged in Wiener's original manifesto ([9.5], ch. 1; see also [9.6], 21), and was explicitly rejected in Ashby ([9.7]). Wiener's disavowal was based in part upon his realization that the determinism implicit in classical physics is

incompatible with the variety inherent in biological processes. A theoretical basis for rejecting determinism in the natural world generally lies in the principle (a version of the second law of thermodynamics) that all irreversible processes tend to involve a loss of negentropy, which entails that causes generally tend to be more highly structured (involve less variety) than their effects. A consequence, as Wiener puts it, is that even the most 'complete collection of data for the present and the past is not sufficient to predict the future more than statistically' ([9.5], 37). Ashby's repudiation of materialism was more direct, pointing out ([9.7], 1) that the materiality of the systems studied by cybernetics is simply irrelevant. Some organized systems (e.g., computers) are strictly physical, while others (e.g., linguistic communities) quite probably are not; and the fact that systems of both sorts can perform comparable feedback and information(t)-processing functions is no indication that they share the same ontological status. It should be noted at the same time, however, that the likely non-physical status of some cybernetic systems does not convert automatically into evidence for dualism. Contrary to current dogma in some quarters that materialism and dualism are the only ontological options on the horizon, a more plausible alternative from the cybernetic point of view is some version of neutral monism (as in Spinoza or early Russell). Sayre attempts to articulate a monism in which neither information(t)-functions of cognitive activity nor probabilistic functions at the quantum level of matter are further reducible to mental or physical features, making mathematical (statistical) structures more basic ontologically than either mind or matter [9.9].

The computational paradigm in recent AI and cognitive science rests upon the thesis that cognitive processes are computations performed upon representations, where the computations in question are of the sort typified by a standard digital computer. Barring the arbitrary introduction of randomizing elements, the computations performed by a properly operating digital computer are deterministic in outcome, which means that the same input invariably produces the same output. Even when the machine is computing probabilities, its procedures of computation are deterministic in this fashion. This makes mechanical computation an inappropriate model for indeterministic natural processes in general, and especially so for the highly negentropy-intensive (entropy producing) cognitive functions of human organisms. This difficulty, coupled with the well-known conceptual problems computationalists have encountered trying to account for the semantic properties of mental representations (discussed in [9.22]; [9.21] and elsewhere), should dispose anyone

approaching cognition within a cybernetic framework towards disfavour of the computational model.

A more sympathetic reception may be accorded the connectionist paradigm that emerged during the late 1980s, which portrays various forms of cognitive activity as informational exchanges within a network of interconnected nodes with varying weights and excitation levels. Description of these networks is often couched in terms of conditional probabilities, and hence could be recast without distortion in the technical terminology of communication theory. Connectionist researchers have already begun to study certain feedback characteristics of such systems, along with certain ways in which they might function in the control of motor behaviour ([9.19], 84). If attention were directed as well towards how these networks might adjust homeostatically in response to changes in a cognitively stimulating environment, connectionism might produce significant insight into the cybernetic workings of our cognitive faculties.

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CHAPTER 10

Descartes' legacy: the mechanist/vitalist debates

Stuart G.Shanker

I DESCARTES' DOMINION

> Why, man, he doth bestride the narrow world
> Like a Colossus, and we petty men
> Walk under his huge legs and peep about
> To find ourselves dishonourable graves.
> Men at some time are masters of their fates.
> The fault, dear Brutus, is not in our stars,
> But in ourselves, that we are underlings.
>
> (*Julius Caesar* Act 1, Scene 4)

Rare is the philosopher of psychology who has not felt like Cassius at some point in his career. For there is no other port of entry into the field than through the legs of Descartes. Even those—or perhaps, especially those—who have sought a completely different route have ended up delivering eulogies to Descartes' greatness. Mechanist or vitalist, dualist or materialist, introspectionist, behaviourist, computationalist or cognitivist: succeeding generations have found themselves responding to Cartesianism in one way or another.

It is becoming virtually impossible these days to open a monograph in the philosophy of psychology without beginning with a chapter on Descartes. 'Descartes' Myth', 'Descartes' Dichotomy', 'Descartes' Dream', 'Descartes' Legacy': one begins to yearn for the chapter announcing 'Descartes' Demise'! But the problem is that Descartes really is a Colossus, and the final word in the history of his ideas will belong to a Marc Antony and not to a Brutus.

Descartes epitomises—and was widely seen by his contemporaries as having inspired—the enormous social, scientific and even religious

changes taking place in the Enlightenment. When Newton explained to Hooke how it was by standing on the shoulders of giants that he had been able to see further, it was specifically 'further than Descartes'. No doubt when the 'Newton of the mind' longed for by so many contemporary psychologists appears on the scene, he will say much the same thing.

Descartes represents the appeal to reason and self-responsibility over authority. It is in this respect that the *Discourse on Method* is such a revolutionary text: the paradigm of a modern revolutionary text. Not just the content, but even the very style in which it is written marks a radical break from the past. Descartes tells of how:

> returning to the army from the coronation of the Emperor, the onset of winter detained me in quarters where, finding no conversation to divert me and fortunately having no cares or passions to trouble me, I stayed all day shut up alone in a stove-heated room, where I was completely free to converse with myself about my own thoughts.
>
> ([10.4], 116)

We have grown so accustomed to the voice in which this is written that it requires a conscious effort to recover the period eye necessary to appreciate the full significance of this 'fragment of autobiography': i.e. that it is a fragment of *autobiography* (see [10.1]). Moreover, the tone of what follows in the text cloaks the extent to which Descartes was deliberately challenging the established order. Far more is at stake here than Descartes' anxiety to avoid a similar fate to that which befell Galileo. Hence, we must be careful not to allow the stories about Descartes' reluctance to publish *The World* to blind us from seeing what an extraordinarily bold work the *Discourse on Method* is: not so much because it provides us with any serious grounds to question Descartes' attitude towards the soul, but because of the truly revolutionary implications of the argument presented at the end of Part Five.

Descartes is here repudiating the orthodox doctrine of the 'Great Chain of Being'. He is insisting that there is a hiatus between animals and man that cannot be filled by any 'missing links'. The body may be a machine (which was itself a heretical view), but man, by his abilities to reason, to speak a language, to direct his actions and to be conscious of his cognitions, is categorically *not* an animal. There is no hint in the *Discourse* that any of these attributes can be possessed in degrees. Rather, Descartes' universe, unlike that of the Ancients, is bifurcated. And at its centre stands neither the Earth, nor the Sun, but the mind of the individual, responding to the world around it.

When Aristotle tells us that 'Man is by nature a political animal', or Seneca that 'Man is a reasoning animal', the emphasis is on *animal:* one analyses man as an *animal species* (see the opening chapter of Aristotle's *Metaphysics*). But all this is changed in the *Discourse*. Here we begin, not with humanity, but with René Descartes: with the thoughts of a solitary individual who has come to distrust the teachings of the finest minds of his time; who has renounced the blind homage to Aristotelian thought which so dominated medieval and Renaissance thought; who decided to continue his studies by reading from the 'great book of the world' rather than from the classics, and whose 'real education' has taught him to accept as certain only those ideas which he himself can see clearly and distinctly: *in his own mind's eye*. Descartes' revolutionary epistemology thus goes hand-in-hand with the social revolution; for what need is there for 'privileged access' when one has the writings of The Philosopher to fall back on?

The shock waves which this argument set off—and which it was intended to set off—were every bit as great as the effect of the *Cogito:* if not more so. What was initially hailed by the Cambridge Platonists as an act of heroism was soon to be castigated as an act of hubris. For the Great Chain of Being was not a doctrine which Western thinkers were about to abandon without a struggle. Gassendi swiftly recounted the classical line (in the Fifth set of Objections), seemingly unaware that Descartes' heresy was intentional (see [10.3], II:188). Similarly, the objections compiled by Mersenne in the sixth set defend the Great Chain of Being from what he perceived as Descartes' self-defeating sceptical attack (Ibid., 279). And in the third book of *An Essay Concerning Human Understanding* we find Locke arguing that: 'In all the visible corporeal world we see no chasms or gaps. All quite down from us the descent is by easy steps, and a continued series that in each remove differ very little one from the other.' The crucial corollary of this argument is that:

> There are some brutes that seem to have as much reason and knowledge as some that are called men; and the animal and vegetable kingdoms are so nearly joined, that if you will take the lowest of one and the highest of the other, there will scarce be perceived any great difference between them.
>
> ([10.11], III, vi, Section 12)

Significantly, when La Mettrie ridiculed 'all the insignificant philosophers—poor jesters, and poor imitators of Locke', it was not for defending this continuum picture, but for doing so on the wrong terms. He felt that the real lesson to be learnt from Descartes' 'proof that animals are pure machines' is that 'these proud and vain beings, more distinguished by their pride than by the name of men however much they

may wish to exalt themselves, are at bottom only animals and machines which, though upright, go on all fours' ([10.10], 142–3).

In other words, the defence of the Great Chain of Being could proceed in either of two directions: show how the behaviour of animals is intelligent, or that of man, mechanical. Two versions of the *continuum picture* thus emerged: the vitalist and the mechanist. The former sought to blur the lines between the higher animals and man via a *continuum of sentience;* the latter sought to reduce man to the level of the beasts by eschewing the appeal to consciousness. What was perhaps the greatest irony in the emerging debate between these two polarities is that both sides were to claim Descartes as their spiritual guide.

For the next two hundred years, the life sciences were dominated by the battle over Descartes' picture of the body. To begin with, the debate centred on Descartes' claim that 'It is an error to believe that the soul gives movement and heat to the body' ([10.6], 329). With the successful mechanist resolution of the theory of heat in the middle of the nineteenth-century (see section 2 below), attention shifted onto Descartes' picture of reflexive behaviour (see section 3), and thence, to psychology (see sections 3–4 below). For Descartes' attack on the Great Chain of Being is grounded in the fundamental distinction which he draws between *actions* and *reactions*.

Despite the common assumption by Cartesians that Descartes intended his argument to be read as an inductive hypothesis, it is never quite clear whether Descartes' denial of the possibility of purposive animal behaviour was meant as an empirical or as a conceptual thesis. Certainly it was interpreted and disputed as a hypothesis. In essence, his argument is that all bodily movements are caused by 'agitations in the brain', which in turn are triggered by two different kinds of event: external objects impinging on the senses, or internal mental acts or states. It is the fate of animals/automatons that they only experience the former phenomena while man experiences the latter phenomena as well.

This argument may seem to be directly opposed to the sentiments expressed in the above quotation from *The Passions of the Soul,* but the point Descartes is making there is simply that reflex movements are not volitional (cf. his reply to Arnauld in [10.3], II:161). The distinction operating here is that between *voluntary* and *involuntary movements*. Those that are involuntary occur 'without any intervention of the will', while 'the movements which we call "voluntary"' are those which 'the soul determines' (Ibid, 315). These 'volitions, in their essence (pure acts of the soul, terminating in itself) are limitless and disembodied, but all existing volitions (acts of the soul terminating in the body) are limited by the structure of embodiment' ([10.13], 109)- Most important of all: to the eye of the observer, voluntary and involuntary movements *look* exactly the same. It is only because each individual is able to see and report on his

own volitions that we are able to make this fundamental distinction between *voluntary* and *involuntary* movements, and because animals lack a similar capacity that they are ruled automata.

The argument that these acts of will are transparent to reason amounts to a doctrine of *epistemological asymmetry:* while I can *know directly* what causes my own actions, I can only *infer* that someone else's bodily movements are brought about by similar mental events. Hence, for all intents and purposes, the behaviour of other human beings stands on the same epistemological footing as that of animals. But the fact that

> There are no men so dull-witted or stupid…that they are incapable of arranging various words together and forming an utterance from them in order to make their thoughts understood; whereas there is no other animal, however perfect and well-endowed it may be, that can do the like.'
>
> [(10.4], 140)

warrants our adopting a stance of semi-solipsism towards our fellow man, but not towards the beasts. For even madmen can report on their volitions (the bodily movements caused by their will), but no animal possesses such a capacity.

This argument invited the obvious response that animals do indeed communicate, but in a language which we cannot understand (a point which led Gassendi to reiterate the orthodox line that, 'although [animals] do not reason so perfectly or about as many subjects as man, they still reason, and the difference seems to be merely one of degree' ([10.3], II:189)). But Descartes had already anticipated this objection when he argued that animals lack the sort of creative behaviour necessary to be credited with such an ability ([10.4], 141; cf. [10.2]).

It is highly significant for the history of psychology that Descartes immediately tied this theme in to the claim that reflex movements cannot be adaptative; for from this issue was to ensue the prolonged debate over the purposiveness of reflex behaviour. But before we examine the consequent evolution of mechanism, it is important to see how, despite all the modifications which reflex theory was to undergo, there is a sense in which this entire controversy completely missed Descartes' point.

In the second *Meditation* Descartes remarks how:

> If I look out of the window and see men crossing the square, as I just happen to have done, I normally say that I see the men themselves, just as I say that I see the wax. Yet do I see any more than hats and coats which could conceal automatons? I judge that

> they are men. And so something which I thought I was seeing with my eyes is in fact grasped solely by the faculty of judgement which is in my mind.
>
> ([10.5], 21)

This last sentence is absolutely crucial to understanding Descartes' argument, which is that *our minds* assume, on the basis of the similarity between the observed behaviour and our own, that the men crossing the square are not automatons. Our minds cannot *see* the causes of their behaviour, any more than they can see the causes of an animal's movements. But given the observable disparity between human and animal behaviour, there is no justifiable ground (psychological compulsion?) for the mind to extend its mental-causal schemata to the latter case.

For some idea of the extent to which this argument continues to dominate modern thought, one need only look at attribution theory. Heider approached the analysis of social interaction in terms of an inferential theory of perception: social no less than object judgements involve the classification of sensory information. Actions are 'stimuli' which must be 'categorized': they are seen as the effects of external or internal causes (where the latter are comprised of the mental processes and states with which the agent is acquainted in the case of his own actions). Our minds construct and continually revise inchoate theories as to how attitudes cause intentions and intentions cause actions; whether we are aware—whether we *could* be aware—of this mental activity is another matter (see [10.8]).

On this cognitivist reading of the continuum, we begin with the paradigm of the scientific mind, and work our way backwards through a descending level of 'cognitive schemes' until we arrive at a brute level of non-verbal processing. On the converse behaviourist picture of the continuum, there is no logical need to postulate such 'mental constructs' to explain the behaviour of other agents or lower organisms. At the beginning of this century, H.S.Jennings wrote about the continuity of 'the psychological processes' that constitute 'the bridge which connects the chemical processes of inorganic nature with the mental life of the highest animals' ([10.12], 508; cf. [10.9], ch. XX). This provoked a sharp rebuke from the young John Watson:

> Have we any other criterion than that of behavior for assuming that our neighbor is conscious? And do we not determine this by the complexity of his reactions (including language under behavior)?… If my monkey's adjustments were as complex as those of my human subjects in the laboratory, I would have the same reason for drawing the conclusion as regards a like

> complexity in the mental processes of the two…Jennings has not shown, nor has any one else shown that the behavior of lower organisms is objectively similar to that in man.
>
> ([10.14], 289–90)

But that is exactly what Descartes was saying!

To be sure, this does not signify that Watson was really a closet dualist. By 1913 he was arguing that we could eschew the use of 'all subjective terms' in human as well animal contexts (first-person cases included; see [10.15] and [10.17]). But what this parallel does reveal is that, whether or not there is a continuum of purposive reflexive behaviour has no bearing on the question of the criteria that license our judgment that our neighbour—or an animal—is conscious, intends to ϕ decided to Ψ believes, thinks, sees, feels ξ . At best it merely suggests the thesis that, should we all become familiar with this mechanist explanation of animal/human behaviour, the Cartesian might be forced into a much more extreme form of solipsism in which all human behaviour other than one's own would have to be treated on the same plane as animal.

What this means is that Descartes' attack on the Great Chain of Being is one that no amount of experiments on decerebrated frogs, hungry dogs, chimpanzees, blind interaction tests or learning programs can hope to resolve. This may sound a bizarre claim, given the three centuries of controversy devoted to the exact opposite premisses. Perhaps the reason for this anomaly is that Descartes himself was far from clear on the nature of his argument: is it *a priori* or *a posteriori, conceptual* or *empirical*? Hence, all the dissension over his motives in consigning animals to the realm of the mechanical. Many have suspected him of harbouring a hidden materialist agenda, while an equal number have accused him of devising his argument with the sole intention of thwarting such a development. But virtually all parties were agreed that Descartes launched a sceptical attack on the intelligence of animal behaviour which must be scientifically discredited if man's mental processes are to be understood: either by reinstating animals into the cognitive fold, or by redefining 'intelligent behaviour' so as to return man to his proper place among the natural order.

In what follows we shall be concerned with both the historical and the philosophical sides of this issue: viz., how Descartes' attack on the Great Chain of Being influenced the development of the mechanist picture of the continuum, and how, despite the mounting complexity of mechanist theories, culminating with AI, they have come no closer to refuting Descartes' attack on the continuum picture. But the goal here is neither to praise nor to bury Descartes. It is simply to understand the nature of his argument in order to understand the foundations upon which psychology has been built: to clarify the *type of theory* whereby

succeeding generations of mechanists, up to and including AI, have sought to free themselves from what they see as the Cartesian yoke that is stifling the science of mind.

II THE ANIMAL HEAT DEBATE

The philosopher of psychology's concern with the mechanist/vitalist debates sparked off by Descartes' attack on the Great Chain of Being is no mere exercise in the history of ideas and/or *Weltanschauungen*. That is not to deny the importance of this topic for the sociology of knowledge. But our immediate philosophical objective is to clarify the conceptual framework in which psychology has evolved, and equally important, the attitudes which we have inherited.

To be branded a vitalist is the ultimate in analytic invective: it is to be found guilty of allowing primitive metaphysical urges to overcome one's scientific rigour. No doubt there were countless country parsons and gentleman scholars who were attracted to vitalism because of their theological anxieties (just as there are many today who misguidedly believe that evolutionary theory has a bearing on the Creation myth). But no such charges could be laid against such scientists as Müller, Liebig or Bernard without grossly distorting their intentions, and thereby misconstruing the very essence of the issues with which they were concerned.

A proper treatment of the complex themes involved in the permutations of mechanist and vitalist thought would undertake to trace their history in light of the development of both the natural and the life sciences, and intimately connected with this, the shifting conceptions of man's nature and autonomy. But in so far as post-computational mechanism represents the culmination of nineteenth-century mathematical, physical, psychological and biological advances, there are strong grounds for confining our attention here to the mechanist/vitalist debates of that period. And yet, the very fact that the question from whence both schools proceed—viz., what is the difference between living and non-living matter?—had been a source of controversy for two millennia should surely give one pause; for much of what follows turns on the question of whether such an issue is to be resolved philosophically or physiologically. Or rather, it turns on the difference between a philosophical and a physiological approach to a question that is far from clear, nor constant in the succession of disputes which it has aroused.

The basic problem here is that philosophical and empirical questions should have been so closely intermingled in the two issues which dominated the period: the debates over the causes of an

animal's ability to maintain a state of thermal equilibrium, and the question whether reflex actions are in some sense purposive. Of course, on the scientistic conception of philosophy—the idea that, in Russell's words, 'those questions which are already capable of definite answers are placed in the sciences, while those only to which, at present, no definite answer can be given, remain to form the residue which is called philosophy' ([10.39], 70)—this is not a problem in the least; if anything, it is one of the primary catalysts for the scientistic outlook.[1]

The point is that the mechanist resolution of these two debates turned on the elimination of spurious a priori theories, which created a momentum that carried over into all remaining aspects of the mind/ body problem (as is epitomized, for example, in Russell's *The Analysis of Mind*). This is made clear in Section 3.4 of the *Vienna Circle Manifesto*. Here the overthrowal of vitalist theories in biology is equated with the imminent removal of similar 'metaphysical burdens and logical incongruities' from psychology ([10.36], 314). Thus, if we are to do justice to the scientistic conception of the mind/body problem—the gradual displacement of philosophical theories by psychological theories—we must address both aspects of the historical antecedents on which this view is based: i.e. vitalist as well as mechanist attitudes towards the nature of conceptual versus empirical problems.

It is not difficult to see what position Descartes must take on the above two issues. The whole thrust of his animal automaton thesis demands that he show how animal heat and movement can be explained without appeal to vital forces. Hence, he must show how, in animals, neither the production of heat nor bodily movements depend upon the activities of a soul (see [10.6], 329). In the *Discourse* he introduces his theory of heat as a paradigm for explaining all animal functions. ('[Understand this] and it will readily enable us to decide how we ought to think about all the others' [10.4], 134).) The heart, he argues, is like a furnace which produces its heat by a process similar to 'fires without light' (viz., spontaneous combustion or fermentation). This heat causes the blood entering the ventricles to expand and contract ('just as liquids generally do when they are poured drop by drop into some vessel which is very hot' (Ibid., 135)). Note that the reason why Descartes rejects Harvey's explanation of the contractile nature of the heart muscle is precisely because:

> if we suppose that the heart moves in the way Harvey describes, we must imagine some faculty which causes this movement; yet the nature of this faculty is much harder to conceive of than whatever Harvey purports to explain by invoking it.
>
> ([10.7], 318)

Here, Descartes claims, is an explanation that can be seen to follow from

> the mere arrangement of the parts of the heart (which can be seen with the naked eye), from the heat in the heart (which can be felt with the fingers), and from the nature of the blood (which can be known through observation). This movement follows just as necessarily as the movement of a clock follows from the force, position and shape of its counterweights and wheels.
>
> ([10.4], 136)

Yet few agreed with Descartes' hypothesis. To begin with, his 'fire without light' merely seemed to replace an enigma with a mystery. Second, the heart of a newly dissected animal did not feel as hot as Descartes' theory would suggest. Third, the argument overlooks the fact that the hearts of cold-blooded animals beat in the same way as those of warm-blooded animals. And fourth, the argument does not account for the ability of a warm-blooded animal to maintain a constant heat within a broad range of temperature extremes.

It was precisely in order to account for this last phenomenon that Barthez (re-)introduced the so-called *principio vitalis* in 1773, but in vastly different terms from what one finds in classical writings. Barthez postulated a 'special causal "principle of life", which was not to be confused with the origins of thought' ([10.27], II:87). He specified the 'role of the vital principle in digestion, circulation, the pulse, heat production, secretion, nutrition, respiration, the voice, genital function development, the senses, movement, sleep, perception' (Ibid.). In place of dualism, Barthez distinguished three separate elements: soul, body and vital principle, and thence two separate issues: the mind/body problem and the life/matter problem (Ibid., 89).

At stake for late eighteenth-century biology was the question of whether the so-called 'vital phenomena' were to be explained by special physiological laws or could be subsumed under the general laws of nature. The seventeenth-century search for a mechanical account of matter had obviously received a tremendous impetus from the Newtonian revolution: not simply because Newton had succeeded in presenting a unified account of the physical laws governing both the heavens and the earth, but had done so using concepts whose justification lay in their mathematical consistency and explanatory power. At one and the same time this was to have a profound effect on both mechanist and vitalist thought: the former because it would fix attention on the motion of matter, the latter because it would appear to license the use of 'forces' on a par with gravity to explain vital phenomena.

What was primarily an empirical problem concerning the location and generation of animal heat merged, during the nineteenth century, into a

philosophical debate on the mind/body problem, mainly because the amorphous notion of *vital phenomena* indiscriminately grouped together those biological processes which typify living organisms (e.g. reproduction, growth, respiration, metabolism) with the so-called 'psychic processes' experienced by man. To exclude the latter from the biochemical successes that were rapidly eliminating vitalist explanations from physiology seemed, as far as the scientific materialists were concerned, to abandon the mechanist spirit of the age in favour of dualist obscurantism. But we must be careful not to generalize on the basis of their example.

Several historians of science have warned of the dangers of over-simplifying the mechanist/vitalist debate during the nineteenth century. There are subtle but significant distinctions to be drawn between the scientific materialism espoused by Vogt, Moleschott and Büchner (see [10.26]), the reductionist materialism of the mechanist quadrumvirate (Brücke, Du Bois-Reymond, Helmholtz and Ludwig (see [10.21], [10.27])) and Liebig and Bernard's vital materialism (otherwise known as 'physical' or 'descriptive' materialism (see [10.41], [10.25], [10.32])). These differences were a consequence of the fact that the two prevailing theories of mechanism from the seventeenth century to the beginning of the nineteenth century—the physical and the physiological—not only seemed to be independent of one another, but if anything, in opposition to one another.

The former was the direct consequence of the search for the universal laws of nature. The latter saw man, animals and plant life as machines exhibiting a uniquely self-regulating behaviour. This was particularly true of that most quintessential feature of living organisms: their ability to maintain a constant heat (generally) above that of their surroundings, whereas inanimate matter rapidly tends towards thermal equilibrium with its environment. But despite the attention which this issue received, it proved impossible 'to bring a former "vital function", animal heat, into accord with the mechanical theories of heat so prominent in the years following Newton' ([10.34], 91).

The problem of animal heat is important in more ways than one for the foundations of psychology. Not only did it dominate the mechanist/vitalist debate up to the 1870s (cf. [10.33], 6–7), but as a direct result, created a focus which continues to influence critical attitudes towards psychology. This line of thought can be pursued in two different directions. One leads through Helmholtz's work on the conservation of energy to the debate on the second law of thermodynamics, the bearing which the kinetic theory of gas had on vitalist thought, and ultimately to the development of information theory. The reason why Helmholtz's work was so pivotal is partly because of his close relations to the Berlin

mechanists, and partly because of his unique position to bridge the physical and the physiological in the theory of heat, as is amply demonstrated by his publication in 1847 of 'Über die Erhaltung der Kraft' and 'Bericht über die Théorie der Physiologischen Wärmeerscheinungen' (see [10.24] and for a reminder of the number of participants involved [10.30]).

For present purposes, we shall concentrate on the consequences of the physico-chemical transformation of physiology. Although this set the stage for the unification of the two species of mechanism, it served in the process to sunder materialist thought. The problem was that animal heat was but one of the vital phenomena which had divided the two schools of mechanism. The Darwinian revolution encouraged a new generation of materialists to assume that the successes demonstrated in the physiological explanation of the theory of heat could be extended to the mechanisms governing growth and reproduction. But what of the host of problems contained under 'psychic processes', for example, conscious and unconscious mental processes, thought, intentions, volition, beliefs, reasoning, problem-solving, insight, memory, perception and sensation?

The answer to this last question lies partly in the changing attitude towards neurophysiology. At the beginning of the century Berzelius had portrayed the brain, not as the last frontier, but rather as inherently impenetrable. Hence, it was natural to respond to the 'Brodie hypothesis' (viz., that animal heat is in some way caused by the nervous system) with the vitalist dogma that the secret causes of animal heat would prove to be equally impenetrable (see [10.25], 98). The rapid development of experimental methodology and technology in physiological studies of respiration dating from the 1830s was matched, however, by a growing interest in anthropometry and the anatomy and pathology of the brain (cf. [10.20], 263–302).

The major breakthroughs which took place independently in both fields in the 1860s not only dealt a devastating blow to vitalist attitudes towards the problem of animal heat (and hence other biological vital phenomena), but also had a dramatic effect on mechanist attitudes towards the brain. While Liebig, Helmholtz and Bernard were successfully identifying the complex mechanisms involved in the organic conservation of energy, Broca, Fritsch, Hitzig and Wernicke were discovering (or at least, were seen as discovering) the neural localization of specific motor and language functions. Thus, it was increasingly tempting to conclude that what was relevant to homeostatic vital phenomena would apply no less forcefully to 'cerebral' vital phenomena. It was the assumption that any explanation of the nature and causes of psychic processes would have to be one which pursued the same lines as

the theory of heat which, more than anything else, divided late nineteenth-century materialist thought.

Just as Vogt, Moleschott and Büchner had deliberately distanced themselves from their mechanist predecessors, so, too, the reductionists were to repudiate what they regarded as the excesses of the scientific materialists. To be sure, there is considerable overlap between the writings of La Mettrie and the scientific materialists, if only because of the broad spectrum of activities grouped together under the notion of 'vital phenomena'. But, as even Lange concedes, there is also a marked discontinuity as a result of the revolutions occurring in biology, physiology and chemistry ([10.31], ii:240–1). And the exact same thing can be said of the relationship between the scientific materialists and the reductionist materialists. Although the two groups shared a strongly anti-dualist bias, they evinced very different temperaments and objectives.

Whereas the former saw themselves as popularizers and prosyletizers of a new ethos, the latter were first and foremost experimentalists intent on instituting new technological and methodological principles. For the reductionists, the dualist issue at stake was largely (if not exclusively) confined to the removal of 'vital forces' from biochemical explanations of physiological processes. But for the scientific materialists, this spilled over into mind/body dualism; there could be no categorial distinction between mental causes of animal heat and mental causes of behaviour. This resulted in what has proved the most memorable quotation from scientific materialist writings: Vogt's infamous remark that 'thoughts stand in the same relation to the brain as gall does to the liver or urine to the kidneys' ([10.26], 64).

Vogt may have been satisfied with the reaction which he clearly intended to provoke with this comment (which he did not in fact originate), but the other scientific materialists were far from pleased with the brouhaha that ensued. Büchner could not 'refrain from finding the comparison unsuitable and badly chosen'; thought 'is no excretion, but an activity or motion of the substances and material compounds grouped together in a definite manner in the brain' ([10.20], 303–4). Despite the variations which this theme was to undergo in materialist writings from Cabanis to Czolbe (see [10.35], 469–70), the basic point which remained constant is that cognition, *qua* 'mental' phenomenon, must permit the same type of causal explanation as any of the other biological vital phenomena. And it was ultimately this theme which led to the formal rupture between the two mechanist groups.

As far as the reductionists were concerned, this was to confuse philosophical speculation about an empirical problem with empirical speculation about a philosophical problem. The latent tension between them which was present from the start came to a head in 1872 when Du

Bois-Reymond insisted in his infamous lecture on 'The Limits of our Knowledge of Nature' that the real:

> faultiness with Vogt's expression…lies in this, that it leaves the impression on the mind that the soul's activity is in its own nature as intelligible from the structure of the brain, as is the secretion from the structure of a gland.
>
> ([10.22], 31–2; cf. [10.28], I, 102–3)

This led Du Bois-Reymond to close on a note that was to prove no less provocative: 'as regards the enigma what matter and force are, and how [the brain gives rise to thought, the scientist] must resign himself once for all to the far more difficult confession—"IGNORABIMUS!"' (Ibid., 32).

Du Bois-Reymond was not hereby abandoning, but was rather seeking to contain mechanism. His 'Ignorabimus' was putatively set by the bounds of materialism: i.e. what cannot be explained by 'the law of causality' (viz., the nature of matter, force and thought) cannot be explained at all. The argument was thus intended to circumscribe the parameters of the mechanist/vitalist debate.[2] Far from wishing to lend any support to the vitalist approach to 'psychic processes', his intention was rather to remove the latter from the scientist's legitimate concern with Vital forces' (Ibid., 24). In other words, the mechanist/vitalist debate is strictly confined to the life/matter problem; to conflate this with the mind/body problem is to confuse an empirical with a conceptual issue, which cannot but result in a materialist metaphysics. (Which in turn, as Du Bois-Reymond rightly anticipated, would give rise to idealist responses.) The only issue that involves the mechanist is that:

> What distinguishes living from dead matter, the plant and the animal, as considered only in its bodily functions, from the crystal, is just this: in the crystal the matter is in stable equilibrium, while a stream of matter pours through the organic being, and its matter is in a state of more or less perfect dynamic equilibrium, the balance being now positive, again approaching zero, and again negative.
>
> (Ibid., 23)

This argument draws heavily on Bernard's theory that 'All the vital mechanisms, varied as they are, have only one object, that of preserving constant the conditions of life in the internal environment' ([10.37], 224). This in turn had evolved from Liebig's 'state of equilibrium',[3] demonstrating yet again how difficult it can be to distinguish between the various schools; for Liebig is commonly identified as a vitalist, largely because he was prepared to countenance the presence of vital forces in physiological explanations.

According to Liebig, 'the state of equilibrium [is] determined by a resistance and the dynamics, of the vital force' ([10.25], 136). Like Barthez, however, he divorced this vital-causal agency from the mind/ body problem,[4] and justified its heuristic role by comparing it to the concept of gravity which, 'like light to one born blind, is a mere word, devoid of meaning'. In a passage in *Animal Chemistry* which clearly serves as a precursor for Du Bois-Reymond's 'Ignorabimus', Liebig explicitly drew on the methodological precedent established by gravity in order to defend the explanatory role which vital forces play in physiology:

> Natural science has fixed limits which cannot be passed; and it must always be borne in mind that, with all our discoveries, we shall never know what light, electricity, and magnetism are in their essence, because even of those things which are material, the human intellect has only conceptions. We can ascertain, however, the laws which regulate their motion and rest, because these are manifested in phenomena. In a like manner, the laws of vitality, and of all that disturbs, promotes, or alters it, may certainly be discovered although we shall never learn what life is. Thus the discovery of the laws of gravitation and of the planetary motions led to an entirely new conception of the cause of these phenomena.
>
> ([10.25], 138)

Similarly, Bernard emphasized 'the vital point of view' in contrast to those scientific materialists who 'paid too much attention to the purely physical side of nervous and muscular action' ([10.37], 149). And like Liebig, he maintained that, 'When a physiologist calls in vital force or life he does not see it; he merely pronounces a word' ([10.25], 151). Bernard was careful, however, to chastise those who would invoke 'a vital force in opposition to physicochemical forces, dominating all the phenomena of life, subjecting them to entirely separate laws, and making the organism an organized whole which the experimenter may not touch without destroying the quality of life itself' ([10.37], 132–3). And yet, contemporary physiologists saw in Bernard's *directive idée* which governs the activities of the *milieu intérieure* a return to just such a vitalist position.[5]

To historians of science, the real question which these 'mere words, devoid of meaning' raises is not so much whether Liebig and Bernard's theories should be classified as vitalist or mechanist, as whether they signal the imminent demise of the mechanist/vitalist debate as far as the problem of animal heat was concerned (see [10.32]; [10.21]). Bernard sought to distinguish between organic and inorganic processes without postulating the existence of special laws or kinds of

matter to explain the former ([10.25], 158–60; [10.32], 457). The mechanical laws of heat are indeed universal, but 'life cannot be wholly elucidated by the physico-chemical phenomena known in inorganic nature'. But while there are Vital phenomena [which] differ from those of inorganic bodies in complexity and appearance, this difference obtains only by virtue of determined or determinable conditions proper to themselves' ([10.25], 151). That is, the explanation of these unique biological processes must conform to established 'scientific method': i.e. to the laws of causality.

In an obvious sense this had done nothing to eliminate the core of the mechanist/vitalist debate; rather, its decline *vis-à-vis* the life sciences is to be sought on the sociological, not philosophical grounds that 'Ultimately vitalism disappeared with the emergence of a new set of questions' (Ibid.) in much the same way and at much the same time that

> Physical research had been diverted…into an entirely new channel. Under the overmastering influence of Helmholtz's discovery of the conservation of energy, its object was henceforward to refer all phenomena in last resort to the laws which govern the transformations of energy.
>
> ([10.29], 46)

Once again we must be careful not to oversimplify the situation. Given the diversity of processes grouped together under 'vital phenomena', the mechanist/vitalist debate was far from curtailed by this development: what occurred was rather a significant realignment in its focus. Animal heat was now relegated to the secondary status of a subsidiary metabolic activity. What took its place as far as the controversy over a 'life force' was concerned was the controlling agency overseeing the various homeostatic mechanisms that sustain life.

The theory of animal heat had left its mark, however; for the very nature of the problem invited the model of a self-regulating system which, as Arbib points out, was instrumental in the evolution of the notions of control mechanism and intelligent automata ([10.18], 80–1). It is thus no coincidence that the thermostat should have come to play such a central role in the elucidation of cybernetics. When Liebig first articulated the principle that all matter is governed by the same thermal laws, he used the example of food and oxygen as the fuel which enable the animal/furnace to maintain a stable temperature. It is also interesting to note that in 1851 Helmholtz and Du Bois-Reymond simultaneously (and independently) compared the nervous system to a telegraph system 'which in an instant transmit[s] intelligence from the outposts to the controlling centres, and then convey[s] its orders back to the outlying

posts to be executed there' ([10.29], 72; see Helmholtz's remark about Wagner (Ibid., 87) and Du Bois-Reymond's letters ([10.23], 64)).

This proto-cybernetic picture provided the obvious starting-point for a new generation of mechanists who were eager to respond to the furore provoked by Darwin and, even more importantly, the renewed vitalist attack inspired by Du Bois-Reymond. For Du Bois-Reymond's lectures offered an opportunity which no vitalist was likely to forgo, and a challenge which no mechanist could afford to ignore. Yet another reading of Du Bois-Reymond's *ignorabimus*, therefore, is that while it marked the end of the physiologist's biochemical involvement in the physical/physiological thermal debate, the very terms in which he presented his argument served notice that the issue was shifting to a different arena: one in which physiologists and psychologists would do battle with philosophers over the structure of those teleological and 'psychic' processes which Du Bois-Reymond had dogmatically declared out of materialist bounds.

III THE REFLEX THEORY DEBATE

The debate over the theory of heat established a paradigm for the scientistic outlook. Here was a case where conceptual progress, made possible by technological advances, had enabled scientists to eschew any appeal to 'logical fictions'. The movement in this issue was from the study to the laboratory, as a question in which philosophers had originally played a leading role was ultimately removed altogether from their sphere of influence. Unlike the case of animal heat, however, the philosophical problem in the debate over reflex actions concerns the question whether it *makes any sense* to suppose that these underlying neural processes could explain the nature of purposive behaviour.

At first sight the debate over reflex actions appears to be—or at least was conceived by Descartes to be—of exactly the same order as that over the theory of heat. Behaviourists, and indeed cognitivists, have cast themselves in much the same role as the mechanist reductionists. The whole point of the so-called top-down/bottom-up distinction is to suggest that, as with the case of animal heat, it would be possible to resolve this problem experimentally if only we had sufficient 'information about the physiological states of the *twelve billion neurons* in the human brain, each with up to *five thousand* synapses' ([10.44], 476). But at our present level of understanding:

> This vast amount of information and its fantastic complexity would utterly dumbfound us; we could not hope to begin creating much order out of such vast quantities of particulate information.

> Rather, we would need some very powerful theories or ideas about how the particulate information was to be organized into a hierarchy of higher-level concepts referring to structure and function.

Hence:

> Many psychologists feel that their task is to describe the functional program of the brain at the level of flow-charting information-processing mechanisms. What is important is the logical system of interacting parts—the model—and not the specific details of the machinery that might actually embody it in the nervous system.
>
> (Ibid.)

No better example of the paramount role which the Cartesian framework plays in the evolution and the continuity of mechanist thought can be found than in the persisting mechanist preoccupation with the nature of purposive behaviour. Goals and intentions are more than just an embarrassment for the mechanist thesis. They have become the testing ground which decides the success or failure of entire theories.

The roots of this fixation lie in Descartes' attempt to explain reflex actions in such a way as to encompass all animal behaviour, while excluding a significant portion of human behaviour. According to Descartes, a reflex action is the result of the automatic or machine-like release of animal spirits that are stored in the brain: a point which applies to all reflex movements, whether these be animal or human. But humans, unlike animals, are endowed with a mind that is able to modify the reflection of animal spirits in the pineal gland, thereby resulting in voluntary or conscious actions.

The obvious response for the vitalist champion of the Great Chain of Being to make to this argument was to establish that animals are at least capable of purposive behaviour (or, on the extremist position, that *all* animal behaviour is purposive). There was another option available to the defender of the continuum picture, however, which was certainly not conceivable before Descartes: viz., that all human, as well as all animal behaviour, is automatic, albeit governed by mechanisms that might be vastly more complex than those which occur in simpler life forms. And given the reductionism which defined eighteenth- and nineteenth-century materialism, it was only natural to present this 'mechanist thesis' in the same terms as applied in the animal heat debate, with 'goals', 'purposes', 'intentions' and 'volitions' dismissed as akin to 'vital forces'.

What makes this issue so difficult is that there is an important parallel to be drawn between the debates over animal heat and reflex actions: viz.,

both were first and foremost biological problems riddled by a priori preconceptions which led into philosophical concerns over the mind/body problem. As we saw in section 1, at the heart of Descartes' attack on the Great Chain of Being is his idea that the subject is conscious of the operations of his mind: of his cognitions, perceptions, sensations, imaginings and affects. We experience these 'actions of the soul', or, in more general terms, 'volitions', as 'proceeding directly from our soul and as seeming to depend on it alone' ([10.6], 335). But although immediately acquainted with the 'actions of our souls', we are not conscious of the intervening mechanisms involved in the bodily movements brought about by our volitions (i.e. the mechanisms activated by the animal spirits that are released when the soul deflects the pineal gland). That does not mean that the processes involved in the maintenance of body heat and in bodily movement are *unconscious,* however; rather, they are *non-conscious*. For to suppose that they might be 'unconscious' would imply that these processes take place beneath the threshold of an animal's—as well as man's—consciousness (where Descartes has already excluded the former possibility a priori).

What we have to remember in the reflex theory debate is that almost everyone was opposed to Descartes' attack on the Great Chain of Being, but not to his presupposition that all actions are the effects of causes. Thus the burden which Descartes' argument imposed on vitalists and mechanists alike was to establish that man and animals are equally capable of purposive behaviour: in significantly different senses. In the case of vitalists, this meant showing how the mental causes of purposive behaviour are shared by animals; for mechanists, that whatever is responsible for the 'purposiveness' of human 'voluntary' behaviour is a feature that is also present in animal movements.

Both sides were agreed, therefore, that the 'purposiveness' of purposive behaviour must lie in the *originating causes* of that behaviour, not in the actual movements of that behaviour. This means that there is nothing in the movements of purposive behaviour to account for the purposiveness of that behaviour; we can at best *infer,* not *observe* that that behaviour is purposive (has such-and-such a cause). Yet, both sides were also (tacitly) agreed that the purposiveness of purposive behaviour must be evident in the behaviour; otherwise, it would make no sense to distinguish between 'purposive' and 'non-purposive' behaviour, and without such a distinction, no sense to speak of 'purposive' behaviour. Hence our 'inability' to observe someone else's, or an animal's, 'originating causes'—either because of the intrinsic privacy of minds (in which case our 'inability' is a priori) or because these causes are neural (in which case our 'inability' is what Russell called 'medical')—has no bearing on the classification of someone or something's behaviour as purposive.

Furthermore, both sides were committed to demonstrating that the various bodily movements which Descartes had identified as reflexes are in fact purposive: again, for vastly different reasons. As far as the vitalists were concerned, this was solely in order to establish that these movements are not mechanical, i.e. that, as Stahl put it, 'the very purposiveness of the so-called "reflex actions" proves that, even if we are unaware of the fact, the soul controls all bodily movements' (see [10.27], ch. 25). For mechanists, the challenge was to show that to describe a reflex action as purposive in no way entails that it must have been brought about by the 'actions of a soul'; i.e. that animals and perhaps even plants are capable of such movements. But before the implications of this issue for dualism could be properly addressed, it was first necessary to confirm that reflex actions are indeed purposive, and to do that required an understanding of the mechanics of automatic behaviour.

Descartes' views had a profound impact on the seventeenth-century conflict between iatro-physicists and iatro-chemists on the life/ matter issue. What had hitherto been regarded as a debate over the universality of the laws of mechanics (the question whether the operations of the body are subsumed under the laws of physics, or call for special chemical laws) was now forced to account for the similarities and/or differences between plant, animal, and human 'responses to stimuli'. The emerging consensus accepted a sharp division between the behaviour of living and non-living matter, but as far as the continuity of animal and human life forms was concerned, most 'true philosophers' agreed that 'The transition from animals to man is not violent' ([10.10], 103).

Both sides in this transformed mechanist/vitalist debate accepted that Descartes was wrong, but for vastly different reasons. Apart, that is, from the question of Descartes' remarks on anatomy, which virtually everyone saw as antiquated. The mechanists were of course disturbed by Descartes' commitment to a metaphysical soul; the vitalists by the suggestion that a large element of human and animal behaviour is automatic.

The conflict between the two sides centred on three key problems with Descartes' argument. First, the dubious role assigned to 'animal spirits'. As Stensen put it, 'Animal spirits, the more subtle part of the blood, the vapour of blood, and juice of the nerves, these are names used by man, but they are mere words, meaning nothing' (quoted in [10.45], 8). Second, there was the fact that decerebrated animals can continue to move, which was difficult to reconcile with Descartes' premiss that animal spirits are stored in the brain. And third, the fact that animals are capable of adapting to their environments, which was

difficult to reconcile with the seventeenth-century conception of 'machine'.

This last point became the focus of attention throughout the eighteenth century. Vitalist attitudes are summed up by Claude Perrault's belief that:

> although the movements of plants in turning towards the sun, and the flowing of the river which 'seems to seek the valley', appear to indicate choice and desire, in reality these movements are of a wholly different nature than those of animals. In the latter there is a soul which is concerned with sensation and movement.
>
> ([10.47], 33)

The exact same issue—the overriding concern with the mechanics of 'choice and desire'—recurs throughout the ensuing debates over mechanism (and indeed, lie at the heart of Turing's thesis[6] (see [10.55])).

The crux of the vitalist position was that, in the words of Samuel Farr, the body is more than 'a simple machine, instigated by no spiritual agent, and influenced by no stimulus'. Even if 'custom and habit[7]' should have made us oblivious of the fact, all movements—voluntary and involuntary—are 'controlled by the wil' ([10.47], 102). The proof lay in the dogmatic *modus tollens* that, if the body were a machine, its movements could not *per definiens* be purposive; but since the latter is patently false, so too must be the premiss. This is the reasoning underlying Alexander Monro the younger's assertion that, 'The more we consider the various spontaneous operations the more fully we shall be convinced that they are the best calculated for the preservation and well-being of the animal' (Ibid., 106). Hence Stahl's conclusion that:

> Vital activities, vital movements, cannot, as some recent crude speculations suppose, have any real likeness to such movements as, in an ordinary way depend on the material condition of a body and take place without any direct use or end or aim.
>
> (Ibid., 32–3)

The mechanist response to this argument received a major boost from Hartley's *Observations on Man*. The strength of Hartley's argument lay in the manner in which he turned a central theme in vitalist thought to mechanist advantage. Perrault and Leibniz had argued that there are two different kinds of movement under the control of the soul: those that are consciously dictated, and those which through habit no longer require an act of choice for their performance, and have thus become unconscious (see [10.47], 33). This, too, is an issue which has remained at the forefront of post-computational mechanist concerns. What is particularly

interesting, when tracing the continuity in mechanist thought on the problem of insight, is to locate the origin of Newell and Simon's models of the mechanics of 'pre-conscious selection' in Hartley's account 'Of muscular Motion, and its two Kinds, automatic and voluntary; and of the Use of the Doctrines of Vibrations and Association', for explaining these respectively ([10.50], 85; see [10.54]).

According to Hartley, voluntary movements are brought about by ideas, automatic movements by sensations. Sensations are caused by the vibration of minute particles in the nerves which ascend to the brain where, if repeated a sufficient number of times, frame an image or copy of themselves. These images, or 'simple ideas of sensation', constitute the building material for complex ideas. Images of regularly occurring sensory vibrations can also form in the nerves. These 'vibratiuncles' are 'the physiological counterparts of ideas'. This yields Hartley's famous (isomorphic) laws of association: any sensation/vibration A,B,C, by being associated with one another a sufficient number of times, get such a power over corresponding ideas/vibratiuncles a,b,c that any one of the sensations/vibrations A, when impressed alone, shall be able to excite in the mind/brain b,c the ideas/vibratiuncles of the rest.

Although prepared to describe himself as a mechanist, Hartley was no determinist. The problem posed by his argument was simply that, while voluntary actions are caused by ideas, the latter are themselves the product of experience. (The price he pays for free will is an unconvincing defence of a Cartesian soul that is able to originate causes of actions.) As far as the evolution of mechanism is concerned, the significance of his emphasis on the role of past experience is twofold: first, it opened up the prospect of a scientific study of the laws governing the succession of thoughts; and second, it suggested a method of breaking down the barrier between voluntary and involuntary movements.

On Hartley's account, what were originally voluntary motions can become automatic, and vice versa: 'Association not only converts automatic actions into voluntary, but voluntary ones into automatic' ([10.47], 85). To illustrate the former phenomenon, Hartley cites the example of a baby automatically grasping a rattle:

> after a sufficient repetition of the proper associations, the sound of the words *grasp, take, hold,* etc., the sight of the nurse's hand in a state of contraction, the idea of a hand, and particularly of the child's own hand, in that state, and innumerable other associated circumstances, i.e. sensations, ideas, and motions, will put the child upon grasping, till, at last, that idea, or state of mind which we may call the will to grasp, is generated, and sufficiently associated

> with the action to produce it instantaneously. It is therefore perfectly voluntary in this case.
>
> ([10.42], 94)

Here is an explanation of what, in the early twentieth century, would be referred to as the 'stamping in' of volitions. To illustrate this phenomenon, Hartley offers the example (now familiar in cognitivist writings) of someone learning how to play the harpsichord: at the beginning he exercises 'a perfectly voluntary command over his fingers', but with time 'the action of volition grow[s] less and less express…till at last [it] become[s] evanescent and imperceptible' ([10.47], 85).

Hartley made clear that his paramount intention in this argument was to restore the continuum picture. An entire section is devoted to showing how 'If the Doctrines of Vibrations and Association be found sufficient to solve the Phenomena of Sensation, Motion, Ideas, and Affections, in Men, it will be reasonable to suppose, that they will also be sufficient to solve the analogous Phænomena in Brutes' ([10.50], 404). He even went so far as to claim that 'the Laws of Vibrations and Association may be as universal in respect of the nervous Systems of Animals of all Kinds, as the Law of Circulation is with respect to the System of the Heart and Blood-vessels' (Ibid.).

The impetus for this latter argument lay in the fact that eighteenth-century vitalists had based their objection to mechanism on the classical Newtonian exclusion of teleological considerations from mechanical explanations. This had placed the onus on mechanists to account for the organization, adaptativeness and directedness of 'spontaneous movements' in strictly physical terms. And that is exactly what remains most problematic in Hartley's argument; for Hartley had remained enough of a Cartesian to see the progression from voluntary to secondarily automatic actions as the movement from actions caused by volitions to those instigated by mechanical causes (as is brought out by his use of the term 'secondarily *automatic*'). But then, this does nothing to counter the terms of Descartes' attack on the Great Chain of Being, since the objection still remains that behaviour bifurcates into mechanical and volitional.

Fortunately for mechanists, the apparent key to removing the latter obstacle was to be provided, two years after the publication of *Observations on Man,* by Hartley's vitalist peer, Robert Whytt. The central theme in Hartley's account of involuntary movement is given the same prominence in *An Essay on the Vital and other Involuntary Motions of Animals*. Indeed, not only does Whytt emphasize the importance of involuntary actions which we 'acquire through custom and habit,' but he does so using the same example as Hartley. In standard vitalist fashion, Whytt insists that such 'automatic actions' are not mechanical. Hence he

warns that the term 'automatic' is dangerously misleading, since 'it may seem to convey the *idea* of a mere inanimate machine, producing such motions purely by virtue of its mechanical construction' (Ibid., 75). But unlike earlier vitalists, Whytt was not suggesting that all purposive movements must *ipso facto* be under the direct control of the will. Rather, these automatic actions-whether reflex or secondarily automatic—are controlled by a 'sentient principle' which is co-extensive with the mind but is below the threshold of consciousness, and can thus be neither volitional nor rational.

This third type of causal factor enables Whytt to complete the anti-Cartesian attack which eluded Hartley. The key to defending the continuum picture was to define a continuum of voluntary and involuntary actions. Hartley could only speak of actions 'esteemed less and less voluntary, semi-voluntary, or scarce voluntary at all' (Ibid., 84). For the orthodox Cartesian, this would mark the break-off point between human and animal behaviour. But Whytt could superimpose on this a continuum of animal and human sentient behaviour. It is precisely on this basis that we find Whytt emphasizing how:

> It appears, that as in all the works of nature, there is a beautiful gradation, and a kind of link, as it were, betwixt each species of animals, the lowest of the immediately superior class, different little from the highest in the next succeeding order; so in the motions of animals…the mix'd motion, as they are called, and those from habit, being the link between the voluntary and involuntary motions.
>
> (Ibid.)

By thus extending reflex theory to encompass both voluntary and involuntary movements in such a way as to have the one shade into the other, Hartley and Whytt had paved the way for what would henceforth be seen by mechanists as the continuum of unconscious/ conscious purposive behaviour: not just in man, but throughout the chain of self-regulating life forms. Not the perfect continuum demanded by the *scala naturae,* however; rather, a continuum made up of a myriad different branches (as would, of course, become the primary picture at the end of the nineteenth century with Darwin's tree metaphor).

This provides the (barest fragment of the) background to Marshall Hall's controversial claim at the beginning of the nineteenth century that reflex actions are 'independent of both volition and sensation, of their organ the brain, and of the mind or soul' ([10.47], 139)- Hall's model was highly schematic, leading Sherrington to warn at the end of the century that 'there are a number of reactions that lie intermediate between [Hall's] extreme types, "unconscious reflex" and "willed action"' (Ibid., 140). A

large part of the experimental progress made over the century was stimulated by the obvious need to fill in these lacunae. But even more important, for philosophical purposes, are the misleading terms in which Sherrington described Hall's contribution. In the above quotation Hall stresses that reflex actions take place 'independent of both volition and sensation'. Had he described these movements as 'unconscious', it would certainly not have been in the sense which Pflüger understood when he criticized Hall's theory, nor that which Lotze intended when he responded to Pflüger's attack on Hall *(infra)*.

The use of the term 'unconscious' is a source of endless confusion when discussing the reflex theory debate; for it is indiscriminately applied to those who held that consciousness plays no causal role in involuntary movements and those who insisted that all purposive behaviour must—by definition—be under the control of a 'degenerated will'.[8] Furthermore, we must distinguish within the former category between those who held that it makes no sense to speak of a creature or agent being aware of mechanically responding to a stimulus, and those who regarded reflex and secondarily automatic movements as unconscious sentient reactions. Thus, we must distinguish between two concurrent mechanist/vitalist debates on reflex theory in the nineteenth century: one over the question whether purposive automatic acts are mechanical or sentient, and the other whether the very notion of a *purposive automatic act* is a contradiction in terms.

Bearing in mind its Cartesian antecedents, it is not quite so curious that this issue should have been fought out over the question whether the reflexes of decerebrated animals are voluntary, and thus—contra Hall—under psychic control. In the Pflüger-Lotze version of this debate, the issue was largely confined to the question of whether the reflex movements of a decerebrated frog are conscious. As far as Pflüger was concerned, the very fact that a decerebrated frog can shift from its favoured leg to the other limb in order to remove acid placed on its back renders it self-evident that its actions are intelligent, and hence, that consciousness is co-extensive with the entire nervous system. Lotze's objection to this 'spinal soul' theory turned on the familiar theme that what appear to be voluntary actions are in fact secondarily automatic motions, resulting from originally intelligent actions that were stamped into the frog's brain by previous experiences.[9] In order to constitute genuinely intelligent action, we would need proof that the frog is capable of responding to demonstrably novel circumstances.

Both sides were agreed, however, that such movements are legitimately described as 'purposive': a premise from which much of the confusion sustaining the mechanist/vitalist debate was to follow. Moreover, the very terms of this conflict ensured that such confusion was to follow. For to agree with Pflüger was to concede the applicability of

volitional concepts to spinal reflexes, whereas to side with Lotze was to accept, not merely that such movements can be described as 'unconscious' (in the sense that originally mental causes have become automatic), but equally serious, that learning is a form of neurological imprinting.

Boring dismissed this whole controversy as nothing more than a squabble over whether to 'define consciousness so as to exclude spinal reflexes or to include them' ([10.43], 38). Were this simply a dispute over semantic proprieties this issue would now belong to the history of psychological ideas, not philosophy. But this is not at all the pseudo-problem which Boring contended. For the problem was not just concerned with the boundaries of the concept of consciousness: more importantly, it was a debate over the *causes* of the behaviour that had been so delimited (as well, of course, as a debate over the 'nature and location' of consciousness).

From a modern perspective, perhaps the most striking feature of the reflex theory debate is that, the more physiologists began to understand the mechanics of the autonomic nervous system, the more prominent became philosophers' interest in Descartes' attack on the continuum picture. One reason for this reaction was their mounting concern over the determinist implications which scientific materialists were drawing from reflex theory (as is evident, for example, in the writings of Mill, Green, Sedgewick and Spencer). Thus, we find Carpenter insisting in *Principles of Mental Physiology* ([10.46]) that what mechanists had ignored in their quest to 'elucidate the mechanism of Automatic action' were

> the fundamental facts of Consciousness on which Descartes himself built up his philosophical fabric, dwelling exclusively on Physical action as the only thing with which Science has to do, and repudiating the doctrine (based on the universal experience of mankind) that the Mental states which we call Volitions and Emotions have a causative relation to Bodily changes.
>
> ([10.47],

Well into this century we encounter Descartes' argument for 'semisolipsism', but with one notable difference: gone is any hint of Descartes' consequent attack on the continuum picture. Herrick, for example, explains in *Neurological Foundations of Animal Behavior* (1924) that:

> Consciousness, then, is a factor in behavior, a real cause of human conduct, and probably to some extent in that of other animals… This series of activities as viewed objectively forms an unbroken graded series from the lowest to the highest animal species. And

> since in myself the awareness of the reaction is an integral part of it, I am justified in extending the belief in the participation of consciousness to other men and to brutes in so far as the similarities of their objective behavior justify the inference.
>
> ([10.47], 179)

This overturning of Descartes' intentions was based on an argument which one finds in such self-styled defenders of Descartes' 'animal automata' thesis as Lewes and Huxley: viz., the doctrine that animals, and indeed man, are 'sentient automata' (see [10.51]).[10]

What these neo-Cartesians thought they were doing was correcting an empirical oversight on Descartes' part on the basis of the two centuries of physiological advances that had intervened. They proposed to replace Descartes' *mechanical* distinction between conscious/voluntary and non-conscious/involuntary movements with a *sentient* distinction between conscious/voluntary and unconscious/involuntary movements. The major benefit of this strategy is that it enabled them to reconcile the existence of volitions with the continuum picture, and thus, remain in step with the dawning Darwinian revolution.[11]

This does not mean, however, that they were about to anthropomorphize animals by assigning them voluntary acts as defined by Descartes. The 'similarities of objective behaviour' between animals and man lay rather at the level of sentient—equals unconscious or automatic—reactions. This leads one to suspect that perhaps the real point which Boring was driving at was that this controversy was not so much over the definition of 'consciousnes' as over the definition of 'machine'. For both sides of the mechanical/sentient debate were committed to a mechanist framework which was to survive the particulars of the Pflüger-Lotze dispute.

According to the vitalist outlook, secondarily automatic actions are the result of neural mechanisms that had been imprinted in the frog's cerebrum. When the animal was first undergoing these experiences it might have been conscious of its sensations; but consciousness, on this model, is deprived of any causal agency suggested by its inclusion in the group of 'vital phenomena', and reduced to the role of passive bystander.[12] In which case, should this behaviour become habitual, there is no reason to retain this 'ghost in the machine' in order to account for its residual purposive character.

On this argument, the difference 'between conscious, sub-conscious, and unconscious states…is only of degree of complication in the neural processes' ([10.52], 407). That is, consciousness is an *emergent property,* and 'There is no real and essential distinction between voluntary and involuntary actions. They all spring from Sensibility. They are all

determined by feeling' (Ibid., 420-2). The purposiveness of the behaviour exhibited by decerebrated animals results from the fact that 'sensations excite other sensations'. But while such movements may not be 'stimulated by cerebral incitations, and cannot be regulated or controlled by such incitations—or as the psychologists would say, because Consciousness in the form of Will is no agent prompting and regulating such actions'—they nonetheless 'have the general character of sentient actions' (Ibid., 416). Hence, the flaw in the mechanist argument lies in the fact that reflex acts are 'consentient' and for that reason 'not *physical* but *vital*' (Ibid., 366).

Mechanists were quick to point out that the only rationale for this use of 'vital' is that the laws governing the mechanics of unconscious purposive behaviour are biological rather than physical; and the mechanical sense of 'cause' which underpins this objection was already being replaced by a new conception that could embrace both types of phenomena. But what is perhaps most significant in the reflex theory debate as it stood at the end of the century is the mechanist use of 'unconscious'. Far from considering what it would mean to attribute consciousness to an intact—much less a decerebrated—frog, this was accepted as a question about the 'divisibilit' of consciousness. Certainly no one ever considered what sort of actions would license the assertion that these mutilated creatures were conscious or unconscious.[13]

What is not at first clear is why mechanists should have allowed themselves to be coerced into this position, rather than making the entirely sound point (which seems to have been Hall's original intention) that it makes no sense to describe such behaviour in terms of either the presence or suspension of consciousness. To characterize such movements as either *unconscious* or *involuntary* presupposes the logical possibility of consciousness or volition. But that was the last thing that mechanists wanted to suggest: for reasons which had nothing to do with considerations about the rules governing the application of the concepts of consciousness and unconsciousness. Rather, the whole thrust of the mechanist thesis had derived from the pressure to explain how 'purposive actions may take place, without the intervention of consciousness or volition, or even contrary to the latter' ([10.51], 218).

As would soon become apparent, the key word in this passage was 'intervention'. For there was no reason why mechanists should object to epiphenomenalism. Their quarrel was solely with the dualist notion of 'psychic directedness' to account for automatic motions. Thus, as far as the mechanist/vitalist debate over the nature of automatic acts was concerned, this was soon to become a dispute in name only. But then, why not extend exactly the same strategy to the remaining pillar of the vitalist argument: why eschew volitions when all you need to do is redefine them?

Thus it was that from one confused debate was born another. The problem was that all were agreed that the frog was trying to remove the acid placed on its back. But it is not at all clear what it means to speak of a creature trying to accomplish some goal of which it is not—*and could not be*—aware. Nor does it make any sense to suppose that we can at best 'infer' whether such a disfigured creature is or is not aware of a pain sensation and is trying to alleviate its discomfort. This very assumption is a reminder of the Cartesian origins of this debate: of the premiss that it is only our inability to observe the frog's mind (or at least, what was left of it!) which prevents us from resolving this issue.

Our judgements of a frog's sentience or its intentions are based on the rules governing the use of the concepts of consciousness and intention: rules which are grounded in the paradigm of human behaviour. In so far as human beings serve as the paradigm subjects for our use of psychological concepts, any question about the application of these concepts to lower organisms demands that we compare the behaviour of such creatures with the relevant human behaviour which underpins our use of that concept. For example, it is the complexity of the behaviour displayed by an organism which determines whether or not there are sufficient grounds for the attribution of a perceptual faculty. Thus, in order to establish that *Porthesia chrysorrhoea* can *perceive* light, Jacques Loeb had to show, not just that they react to certain stimuli, but that they are able to *discern* various features of their environment, i.e. that these caterpillars are able to employ what is in fact a *perceptual organ* to acquire knowledge about their environment. Otherwise the relevant concept here is not *perception* but rather, what Loeb so aptly described as a 'heliotropic mechanism' (see Section 4 below).

The corollary of this argument is that only of the caterpillar itself would it make sense to say that it 'perceives': not its 'photo-receptive organ' (or, in the case of the Pflüger—Lotze debate, the frog's central nervous system). The same holds true whether we are talking of more complex sensori-motor structures and perceptual organs, or indeed, the 'mind', 'soul' or 'consciousness'. For in none of these cases does it make sense to say that the organ or faculty in question demonstrates its ability to discriminate features of its environment. The rule of logical grammar rendering such a usage meaningless is that, only of the organism as a whole does it make sense to apply our psychological and cognitive concepts.[14]

It was only their preoccupation with salvaging the continuum picture which prevented the various mechanist and vitalist protagonists from realizing from the start just how curious were the questions which had inspired their bizarre debate.[15] It was this common nineteenth-century priority which led them to assume that the difference between sensori-motor

excitation, sensations, and perceptions is itself one of degree rather than of kind. But the difference between these three concepts is categorial, not quantitative. Hence, the source of the mechanist version of the continuum picture lay in the distortions which resulted from this illicit attempt to relate the concept of sensation to that of perception on a scale of neural complexity rather than discerning the logico-grammatical distinctions operating here.

There are indeed important lessons to be learnt from this debate: lessons about the application of psychological as well as physiological concepts. Mechanists were quite right to argue that, from the premiss that I can be unconscious of responding to a stimulus, it does not follow that that response was volitional. But exactly the same holds true if I am conscious of an automatic response to a stimulus. Conversely, I can respond mechanically to some signal (e.g. a conversational cue), but it does not follow that my response was determined by a causal mechanism. If my response to a stimulus was 'willed' (e.g. I stifle a yawn), then it was not a reflex. And if this behaviour should become habitual, then it is no longer willed.

Are these empirical observations? A similar question arises with respect to the Pflüger-Lotze debate. What Pflüger's experiments tell us is not that the frog was unconsciously trying to remove the acid placed on its back, but that we must be careful of how we apply the same concepts to a normal frog. For just as the decerebrated frog was neither *responding unconsciously* to a stimulus nor *trying* to remove the acid, so we have to reconsider what it means to say of an ordinary frog that it was *consciously trying* to remove acid placed on its back.[16] (Consider the experiments on the signal detectors in a frog's eye which are activated by any movement at the periphery of its visual field, and not just that of a fly.) That is not to say that we could never attribute such a psychological capacity to a frog but only, that experiments such as those performed by Pflüger and Goltz remind us of the defeasibility of our judgements of animal behaviour, i.e. force us to register the difference between instincts or reflexes and actions.

It was only by treating the categorial distinctions between sensorimotor excitation, sensations and perceptions as gradations on the scale of consciousness that the way was then open to regarding purposive behaviour as an ascending causal mechanism in which the relations to intentions and learning are rendered external rather than internal, and adaptation is misconstrued as a cognitive process. But there is no evolutionary continuum of purposeful behaviour such that, e.g. the contraction of the pupil of the eye belongs to the same category as striving for a goal; for the former is not a more 'primitive' form of purposive behaviour but rather, a reflex movement *as opposed to* purposive behaviour.

With the growing interest in comparative psychology which resulted from the Darwinian revolution, and the emphasis on evolutionary associationism that accompanied this, it was natural for mechanists to proceed from the opposite direction. Thus, it was held that consciousness and volition develop by degrees, and that the resemblance between the behaviour of a decerebrated frog and that of man is not and could not be expected to be pronounced. Rather, the correspondence lies at the sub-behavioural level: in particular, at the neurological structure where associations between sensations are imprinted. But then, such an argument only makes sense against the premiss that this mechanism is that which guides purposive behaviour *simpliciter,* and to *assume* that the reactions of a lower organism are purposive is to presuppose all of the foregoing argument. As indeed it must, for only of a human being and what resembles (behaves like) a human being can one say: it behaves in a purposive manner. Thus the crucial issue which such an argument overlooks is the need to explain in what sense such causal reactions can be termed purposive. And this was an omission which beset both sides of this mechanist/vitalist debate; or rather, a product of the Cartesian framework which governed their outlooks, and those who were about to follow in their footsteps.

IV THE RISE OF A 'NEW OBJECTIVE TERMINOLOGY'

Lewes once observed that:

> We can conceive an automaton dog that would bark at the presence of a beggar, but not an automaton dog that would bark one day at a beggar, and the next day wag his tail, remembering the food the beggar had bestowed.
>
> ([10.00], 304)

Well, why not? Does this not reflect the manner in which the currently prevailing techology seems to limit the powers of one's imagination? Certainly, Lewes's objection would pose no formidable obstacle to today's science of robotics. Moreover, from his own point of view, Lewes seems to have succumbed to a vitalist conception of mental states. What could be easier than to expose Lewes's regression by decerebrating a dog and then watching its behaviour after being repeatedly fed (as Goltz had in fact done). No doubt tail-wagging will turn out to have as mechanical (sentient!) an explanation as salivating. And yet, Lewes would seem to have placed his finger on a troubling problem: one which is impervious to conditioning experiments.

In place of Lewes's question we might ask: could an automaton dog

restrain itself from wagging its tail? Or better still, deliberately wag its tail in order to elicit food when it couldn't care less about seeing the beggar once again, or when it wasn't even hungry? For that matter, how can we be certain that the movements of a decerebrated animal are identical to those of an intact animal without observing its mind: perhaps reflexes step in when the mind ceases to control?

The real problem here is that, while Lewes and Huxley had succeeded in drawing an important distinction between mechanical and animal automata, this does not suffice to silence Descartes' attack on the continuum picture. One would hardly want to argue that the behaviour of a frog (the 'Job of physiology')—with or without its cerebrum—mirrors that of a human being when, for example, he has burnt himself. And while designating consciousness an emergent property may overturn the Cartesian picture of mental states and processes, it does nothing to reduce the Cartesian gulf between voluntary and involuntary behaviour. One can simply argue that voluntary actions are determined by preconscious mental causes.

The only way that the argument that 'There is no real and essential distinction between voluntary and involuntary actions, they all spring from Sensibility, they are all determined by feeling' could remove the Cartesian assumption that man, unlike any of the lower life forms, is endowed with a soul which determines 'those movements which we call "voluntary"', was by abandoning *mental causes* as conceived by Descartes altogether. Thus Huxley argued that:

> volition…is an emotion *indicative* of physical changes, not a *cause* of such changes. [T]he feeling we call volition is not the cause of a voluntary act, but the symbol of that state of the brain which is the immediate cause of that act.
>
> ([10.51])

But in order to sustain the voluntary/involuntary distinction, it was necessary to superimpose on this the premiss that the former are associated with a distinctive state of consciousness.

In *Hume* Huxley insists that 'volition is the impression which arises when the idea of a bodily or mental action is accompanied by the desire that the action should be accomplished' ([10.51], 184). Hence, the difference between voluntary and involuntary movements is phenomenological, not causal: the former are simply those actions accompanied by a special mental state (which is itself determined by past events). But then, this only serves to revive Descartes' attack on the continuum picture; for animals must also be capable of experiencing these attendant desires ('purposes'), and Huxley remained enough of a Cartesian to embrace the impossibility of knowing whether or not this

was the case (see [10.51]). This meant that there was only one direction in which a mechanism committed to continuity could proceed: dispense entirely with any causal distinction between 'voluntary' and 'involuntary' movements, and define the *apparent* difference between them in terms of experience.

Thus it was that the birth of psychology, like that of modern India, was marked by a bloody clash between two rival factions: in effect, those who wanted to confront Descartes' problem and those who wanted to deny it—James versus Loeb. This may seem an oversimplification of the conflict over whether this new science should be governed by physiology or philosophy, especially as far as the fathers of behaviourism are concerned. But the fact is that, one way or another, the prospects of the mechanist thesis depended at this point on the abolition of volitions. And this was precisely the move which Jacques Loeb pursued.

Frustrated with philosophy, Loeb had turned first to neurophysiology, then biology, in his quest to solve the 'problem of will'. Studying under Goltz, he became convinced that consciousness is irrelevant to behaviour, and could be eliminated from an exclusively associationist explanation of the purposiveness of automatic actions. 'What the metaphysician calls consciousness are phenomena determined by the mechanisms of associative memory' ([10.69], 214). He found the tool for implementing this programme in the work of Julius Sachs, who had employed the notion of *tropism*—the explanation of the 'turning' of a plant in terms of its physico-chemical needs in direct response to external stimuli—as a means of extending the reductionist outlook of the mechanistic quadrumvirate to botany. Seeing in tropisms a biological parallel to automatic movements, Loeb undertook to advance mechanism by employing Sachs' approach as a starting-point for the psychology of animal behaviour (Ibid., 1ff, 77).

The aim of Loeb's subsequent research on animal heliotropism was to exhibit various organisms as 'photochemical machines enslaved to the light'. To accomplish this, he demonstrated that when the caterpillars of *Porthesia chrysorrhoea* are exposed to light coming from the opposite direction to a supply of food, they invariably move towards the former, and perish as a result. Such experiments undermined the vitalist premiss that all creatures are governed by an unanalysable instinct for self-preservation: 'In this instance the light is the "will" of the animal which determines the direction of its movement, just as it is gravity in the case of a falling stone or the movement of a planet' ([10.70], 40–1).

Since it was in principle possible to explain 'on a purely physico-chemical basis' a group of 'animal reactions…which the metaphysician would classify under the term of animal "will"' (Ibid., 35), the answer to nothing less than the 'riddle of life' must lie in the fact that 'We eat, drink,

and reproduce not because mankind has reached an agreement that this is desirable, but because, machine-like, we are compelled to do so' (Ibid., 33). But surely, one wants to argue, Loeb's experiments had nothing to do with the 'problem of will'; in his own words, 'Heliotropic animals are…in reality photometric machines' (Ibid., 41). The fact that the caterpillars expired for want of food was no more a demonstration of (perverse!) purposive behaviour than the converse result would have supported vitalism. To suppose that their motor responses could exhibit the complexity of human purposive behaviour is once again to assume *ab initio* that *intentions* and *volitions* are simply part of a causal chain, from which the ability to choose, decide, select and deliberate are excluded a priori. But that was exactly what Loeb intended! This was not to be an isolated attack on the notion of *will:* all of the 'mentalist' concepts were to be removed from the eliminativist analysis of purposive—equals self-regulatin—behaviour.

That is not to say that the distinction between voluntary and involuntary movements would also have to be abandoned: only that it would have to be redefined accordingly. Loeb could only hint at the direction in which he thought this should proceed: it would indeed be in terms of 'associated memories', but Loeb was careful to explain that what he meant by the term was the (experimentally observable) 'mechanism by which a stimulus brings about not only the effects which its nature and the specific structure of the irritable organ call for, but by which it brings about also the effects of other stimuli which formerly acted upon the organism almost or quite simultaneously with the stimulus in question' [10.68], 72). In other words, a conditioned response.

Thus, Loeb, unlike Huxley, was able to salvage the continuum picture precisely because he eschewed the principle of sentient continuity. All that matters is that 'If an animal can be trained, if it can learn, it possesses associative memory' (Ibid., 72). This tied in with the Darwinian shift which occurred in late nineteenth-century mechanism.[17] In the conclusion to *Origin of Species,* Darwin had proclaimed that 'Psychology will be based on a new foundation, that of the necessary acquirement of each mental power and capacity by gradation' ([10], 488). And in *Descent of Man* he declared that 'the difference in mind between man and the higher animals, great as it is, certainly is one of degree and not of kind' [10.6]. Loeb was simply removing the 'mentalist' obstacles to this version of the continuum picture.

Mechanists quickly embraced this explanation of continuity (although there was considerable disagreement over whether this implied a single continuum, such as Spencer favoured,[18] or the picture of branching continuity championed by Darwin). What is perhaps most interesting, when looking at the development of mechanist thought at the beginning

of this century, is how quickly and thoroughly Loeb's outlook came to dominate American psychology. That is not to say it went unchallenged. Perhaps the most famous opposition came from Jennings in *The Behavior of the Lower Organisms* ([10.9]). But ironically, even though Jennings may be said to have won the biological battle, this only resulted in the further entrenchment of the mechanist as opposed to the psychic continuum which Jennings advocated (see [10.74]).

Jennings demonstrated, on the basis of Thorndike's trial-and-error experiments on the 'stamping in' of behaviour into cats, how it is possible to overcome tropic through conditioned responses. Hence purposive behaviour should be seen as an ongoing process in which an organism's physico-chemical needs interact with and are shaped by its environment.[19] But whatever damage this might have inflicted on the science of animal tropism, Jennings' opposition only served to promote even further Loeb's definition of purposive behaviour as a species of neurological adaptation and control, and the mechanist expectation that:

> the more complex activities of the body, which are made up by a grouping together of the elementary locomotor activities, and which enter into the states referred to in psychological phraseology as 'playfulness', 'fear', 'anger', and so forth, will soon be demonstrated as reflex activities of the subcortical parts of the brain.
>
> ([10.75], 4)

This was not intended to be read as a logical behaviourist thesis. Loeb and Pavlov were not urging that propositions about purposive or volitional behaviour can be reduced to or translated into propositions about molar or molecular behaviour. Rather, they were arguing that the former type of constructions are literally *meaningless* (although poetically resonant), while the latter capture the only sense in which the causes of behaviour can be intelligibly explained and thence controlled. The model for this argument was constituted by the mechanist resolution of the animal heat and reflex theory debates. Propositions about the homeostatic mechanisms sustaining thermal equilibrium, or about the sensori-motor system, did not supply the meaning of propositions citing vital forces, but rather, demonstrated the vacuity of the latter.

Pavlov made clear at the start of *Conditioned Reflexes* how his endeavour to 'lay a solid foundation for a future true science of psychology' (Ibid., 4) was the end-result of nineteenth-century mechanist thought: 'such a course is more likely to lead to the advancement of this branch of natural science' if it embraces the conception that:

> Reflexes are the elemental units in the mechanism of perpetual equilibration. Physiologists have studied and are studying at the present time these numerous machine-like, inevitable reactions of the organism—reflexes existing from the very birth of the animal, and due therefore to the inherent organization of the nervous system.
>
> (Ibid., 8)

In other words, so-called 'purposive' behaviour should be understood as the physico-chemical balance that an organism maintains by means of a complex system of 'Reflexes [which,] like the driving-belts of machines of human design, may be of two kinds—positive and negative, excitatory and inhibitory' (Ibid., 8).

In Pavlov's eyes, the key to this breakthrough lay in the advance of physiology from the study of bodily reflexes into the operations of the cerebral cortex. Pavlov saw himself as advancing Loeb's work by explaining animal behaviour in terms of what Charles Richet had called 'psychic reflexes' (Ibid., 5). He undertook to extend 'recent physiology['s]…tendency to regard the highest activities of the hemispheres as an association of the new excitations at any given time with traces left by old ones (associative memory, training, education by experience)' (Ibid.).

Significantly, Pavlov endorsed the 'new objective terminology to describe animal reactions' introduced by Beer, Bethe, and Üxküll, on the grounds that not only is there no justification for ascribing psychic processes to animals: there is simply no need. Hence the term 'purpose' is conspicuously missing from his writings. Indeed, early behaviourist thought was largely governed by this unwritten injunction to ignore and wherever possible redescribe the role of goals and intentions in human and animal behaviour. For the new psychology was to be an engineering science, unconcerned with any of the spurious issues bequeathed by the mind/body problem.

Nevertheless, their commitment to the continuum picture entailed that they could not avoid philosophical involvement, however acerbic their comments on the sterility of a priori reasoning. For the only way a mechanist continuum of purposive behaviour could be instituted was via an implicit analysis of the family of psychological concepts involved, such that the difference between *voluntary* and *involuntary* behaviour could be treated as one of causal complexity rather than kind. Thus, we find the leading behaviourists forced to deal with these philosophical problems which, so they repeatedly claimed, did not concern them in the least.

Watson exemplifies the pattern. In 'Psychology as the Behaviorist Sees It' [10.82] he makes it clear that his sole interest is in the issue of control.

This is still the primary focus in *Behavior* [10.83], but subsidiary concerns about the nature of thinking are beginning to creep in. By the time we get to *Behaviorism* [10.85] the book has become a fullscale defence of a 'behaviourist' philosophy of mind (the exact same progression can be traced in both Hull and Skinner's writings).

It may seem that all this was overturned by the transition to cybernetics, but as Volker Henn points out, the history of cybernetics really begins with Maxwell and Bernard [10.64], 174ff; cf. [10.18] 8if). The publication of 'Behavior, Purpose, and Teleology' [10.77] rnarks the consummation rather than reorientation of a prolonged conceptual evolution: viz., of the notion of machine *qua* homeostatic system that employs negative feedback to regulate its operations. (This is already clearly implicit in the passage from *Conditioned Reflexes* [10.75], quoted above.)

According to cybernetics, purposive behaviour is that which is 'controlled by negative feedback' in the 'attainment of a goal' (see [10.77]). We must be careful here, first, that we do not suppose that this thesis instituted a sharp break from behaviourism,[20] and second, that we do not impute the naive materialist outlook which guided the founders of behaviourism to all of their followers.[21] Nor should we suppose that the central theme of 'Behavior, Purpose, and Teleology'—viz., the relationship of teleological to causal explanation—had never before been broached. In fact, this problem had been a focus of mechanist concern for over three decades. What was primarily unique about 'Behaviour, Purpose, and Teleology' was rather the manner in which the authors sought to render teleological explanation scientifically respectable by rendering the feedback mechanisms in 'purposive' systems subject to the laws of causality. But far from just rewriting the logical form of teleological explanation (in order to bring out what they saw as its fundamental contrast with the antecedent—consequent form of causal laws), there are several points which stand out in the cybernetic analysis of 'purpose' or 'goal'.

To begin with, there are the central claims that 'purposive' behaviour be defined in terms of the goal-directed movements of a system interacting with its environment, where the goal itself is said to be a part of the environment with which the system interacts. The system is thus controlled by internal and external factors, and the existence of a goal is a necessary condition for the attribution of purposive behaviour. But 'goals' on the cybernetic model are simply the 'final condition' towards which a system is directed.

This represents a radical change in the meaning of 'purposive' or 'goal-directed behaviou'. In purposive behaviour, the relevant goal can be far removed, or even non-existent, without undermining the purposiveness of that behaviour. Indeed, it even makes sense to speak

of purposive behaviour occurring 'for its own sake' (as, e.g., in the case of singing (see [10.79], [10.80])). Moreover, the internal relations which bind the concept of purpose to those of consciousness, cognition, belief and volition, are rendered external. Hence the upshot of Rosenblueth, Wiener and Bigelow's argument is that there is no logical obstacle to describing cybernetic systems as 'purposive', even though they can exercise no choice, cannot be said to be trying to attain their goal, or even aware that such is their goal (as, e.g., in the case of guided missiles).

There is, of course, nothing to stop the mechanist from introducing a technical (cybernetic) notion of 'purpose' or 'goal', by which will be understood the state of equilibrium that the feedback mechanisms of a homeostatic system are designed or have evolved to maintain. But, as with the case of eliminative materialist theories, if the logico-grammatical distinction between 'purposive' and 'caused behaviour' is undermined, the result is not a new understanding of but rather, the abandonment of 'voluntary behaviour' and the creation of yet another misleading homonym.

Perhaps the most important aspect of cybernetics to bear in mind when assessing its significance for psychology is its continuity with behaviourism. Rosenblueth and Wiener insisted that:

> if the term purpose is to have any significance in science, it must be recognizable from the nature of the act, not from the study of or from any speculation on the structure and nature of the acting object…[Hence] if the notion of purpose is applicable to living organisms, it is also applicable to non-living entities when they show the same observable traits of behavior.
>
> ([10.76], 235)

As a corollary to this, they articulated the standard behaviourist thesis that multiple observations are needed to verify the existence of purposive behaviour (Ibid., 236). The judgement that an agent is is said to be an *inductive hypothesis* which, as such, must be supported by evidence. Most importantly, the theory remained committed to the continuum picture of purposive behaviour, now said to be governed by the 'orders of prediction' displayed by a system.

In typical Cartesian fashion, Rosenblueth, Wiener and Bigelow argued that:

> It is possible that one of the features of the discontinuity of behavior observable when comparing humans with other high mammals may lie in that the other mammals are limited to

> predictive behavior of low order, whereas man may be capable potentially of quite high orders of prediction.
>
> ([10.77], 223)

Reflex acts and tropisms can indeed be seen to be purposive (albeit of a lower order), complex actions are treated as nested hierarchies of bodily movements, and consciousness cannot be a necessary condition for purposive behaviour. For the theory does not distinguish between mechanical and biological systems; hence consciousness must be *emergent* and *epiphenomenal* (Ibid., 235; see [10.78]).

There are a number of important objections that have been raised against the cybernetic analysis of 'purposive behaviour' by AI scientists as well as philosophers (see [10.55]). From the standpoint of the former, the root of these problems lies, not in its mechanist orientation but rather, in the absence of 'a mechanistic analogy of specifically psychological processes, a cybernetic parallel of the mind/body distinction' ([10.57], 107). This lacuna is to be filled by the cognitivist distinction between embodied schemata and their neurophysiological components. These 'internal representations' are models of reality which 'mediate between stimulus and response in determining the behavior of the organism as a whole' ([10.56], 58). An organism uses these 'encoded descriptions' of its environment to guide its actions, and it is this which accounts for the purposiveness of its behaviour: not the misguided cybernetic supposition that there must be a goal which is a part of the environment with which a system interacts.

Assuming a fundamental analogy between computer programs and these 'internal representations', the crux of the post-computational version of the mechanist thesis lies in the premiss that, 'Insofar as a machine's performance is guided by its internal, perhaps idiosyncratic model of the environment, the overall performance is describable in intensional terms' ([10.57], 128).[22] The AI scientist endeavours to provide a mechanist account of purposive behaviour by postulating a species of 'action plans', neurally embodied, that are 'closely analogous to the sets of instructions comprising procedural routines within a computer program'. That is, internal representations both of 'the goal or putative end-state of an intention' and a possible plan of action for bringing about that state ([10.], 134; cf. [10.]).

Although this argument is committed to the (remote) possibility of discovering the neurophysiological mechanisms of these internal models, and thus of the discovery of causally sufficient conditions for purposive behaviour, all of the emphasis is on the manner in which these models guide an agent's behaviour (see [10.57]). While post-computational mechanists are committed, therefore, to the logical possibility of reducibility, they need not regard this as anything more

than a distant prospect. Hence, the much-celebrated shift from bottom-up to top-down approaches, i.e., to the computer simulation of the internal representations that guide purposive behaviour. For 'We can only postulate such models on behavioral grounds, and hypothesize that they correspond to actual neurophysiological mechanisms' ([10.56], 60).

On this picture, the 'explanatory power of a machine model of behavior depends on the extent to which the details of the underlying information-processing are functionally equivalent to the psychological processes actually underlying behavior' ([10.57], 144). Once the mechanics of human and animal purposive behaviour have been discovered, it will be seen that philosophical objections to the mechanist analysis of the 'continuum of purposive behaviour' are vacuous. Not because intentional and volitional concepts are eliminable, but because there is room for both purposive and causal categories in the explanation of human behaviour. The problem is, however, that this very premiss is denied by reductionism.

For all the technical sophistication of AI, it is interesting to see how little it has moved beyond the terms of Descartes' original argument. Indeed, so much so that the mentalist overtones of cognitivist theories have already sparked off strong eliminativist counter-movements in connectionism and neuropsychology. But the very fact that, for three centuries now, psychology has been dominated by these ceaseless 'paradigm-revolutions', with neither side able to refute Descartes' attack on the continuum picture, suggests that it is the framework established by Descartes' argument which needs to be addressed, not its results. That is, that the resolution of the problem created by mind/body dualism lies in the province of conceptual clarification *as opposed* to empirical theories: philosophy as opposed to psychology. And philosophy's chief concern here is with the persisting influence of the continuum picture: with the crucial premiss that all actions, animal and human, are complex sequences of movements brought about by hidden causes, the nature of which the science of psychology must discover.

V THEORY OF MIND

The latest effort to deal with the problems raised by Cartesianism involves a subtle attempt to retain the Cartesian picture of cognition while avoiding the eliminativism and reductionism which, as we saw in the preceding sections, has so dominated the evolution of psychology. Consider the case of a child suddenly becoming aware of its mother's feelings and interacting with her accordingly, or a child beginning to use

gestures or symbols to signal its intention. Cognitivism has a ready explanation for this type of phenomenon: the child's mind was busy all the while observing and recording regularities. What *looks* like a sudden moment of insight or development is really the end-result of preconscious inferences the child has drawn in which he has mapped causes onto effects. (E.g., 'Whenever S has this look on its face x invariably follows', or,'If I do x then y will happe', or,'If S believes x then S will ϕ'.) The argument is not committed to the premiss that beliefs, desires or intentions cause actions; only to the thesis that the child treats beliefs, desires or intentions as the causes of actions, which as such purportedly amounts to the claim that the child has formulated a theory of mind.

We are not supposed to worry overly about the use of *theory* here. Nothing terribly scientistic is intended (although one might feel otherwise when one reads the five points comprising the theory of mind which the child is supposed to have acquired: viz., (i) the mind is private; (2) mind is distinct from body; (3) the mind represents reality; (4) minds are possessed by others; and (5) thoughts are different from things (see [10.89]; [10.86] Wellman 1990)). But really, the use of the term is only meant to draw attention to the fact that in order for a child to be able to predict another agent's actions on the basis of his beliefs, the child must already possess such concepts as *self* and *person* or *desire* and *intention*. And, of course, the child must possess the concept of causation. So why, then, is the theory of mind thesis so drawn to the use of 'theory' to describe its thesis?

The answer is that the argument treats the ability to predict an agent's actions on the basis of his beliefs as a sub-category of the ability to predict events in general. That is, to predict S's actions on the basis of S's intentions, desires or beliefs is just a special case of predicting that x will cause y. The actual *theory* which the child must construct is simply the framework filling out the conditions of this 'special case'. The emphasis here is on treating human behaviour as a different kind of phenomenon from physical. Intentions, desires and beliefs are postulated because they prove to be such useful constructs for predicting human—and only human—behaviour (where this, too, is something the child must learn; i.e., at first he blurs the lines between human actions and physical events, or between human and animal behaviour, but he soon learns the ineffectiveness of using mental constructs to predict the latter types of phenomena). But prediction is prediction, whether it be in regards to human actions or physical events, i.e., regularities must be observed, causal connections perceived.[23]

This is precisely what the argument is driving at when it talks of how 'a theory provides a causal-explanatory framework to account for, make understandable, and make predictable phenomena in its domain' (Ibid., 7). We can see how this is supposed to work by looking

more closely at the actual type of theory which the child is supposed to create.[24] The process of constructing such a theory is said to take place on two planes: the child is making discoveries about itself at the same time that it is observing regularities in the actions of other human beings. So first, the child has to discover that it is a *self*, and then, that another is an *other*. To do this the child has to discover that intentional actions are not reflexes, i.e., that there are two basic kinds of movements in the realm of human behaviour. We get a residue of the orthodox Cartesian account of 'privileged access' in the emphasis on a child's learning that it can manipulate objects—or its caretakers—and extrapolating from this the concepts of *self* and *object;* or learning what its own beliefs, desires or intentions are, and then, what beliefs, desires or intentions are. While all this is going on, the child is busy observing the difference between the way its caretakers and other humans move about and the way inanimate objects are moved. In this sense, the discovery of the distinction between voluntary and involuntary behaviour is seen as a complex synthesis of self, social and object perception.

We should, perhaps, be more careful about using the term 'discover'; for according to the theory of mind, it is not so much that the child observes that voluntary movements are different from involuntary as that the child discovers that it is more useful, when interacting with humans, to make this distinction. That is, it is not so much that the child discovers what intentional behaviour *is* as that it discovers the value of postulating beliefs, desires or intentions for predicting human behaviour. In so doing, the child is said to realize that other agents have minds. For since beliefs, desires and intentions are not visible, the child treats them as hidden causes of behaviour. That is, the child establishes for itself that beliefs, desires and intentions are mental entities. It establishes that the difference between two seemingly identical actions done with different beliefs, desires or intentions must reside in the concealed mental causes.

As we saw in the preceding sections, mechanism soon discovered that the distinction between voluntary and involuntary movement must be more complex than this brief sketch suggests. The child must also discover the importance of postulating purposes, and goals, and decisions, and choice, and effort. The child must discover that voluntary actions, unlike reflexes or accidents, are somehow willed and not externally caused. The child must determine that, like ordinary causes, an agent can have a belief, a desire or an intention in advance of acting on it, but unlike ordinary causes, an agent can form a belief, a desire or an intention without necessarily acting on it; i.e., the child must discover that beliefs, desires and intentions can be treated as causing but not as forcing actions. And unlike the case of ordinary

causes, the child must learn that only he can know what his beliefs, desires or intentions are.

The entrance of language—or rather, the entry into language—is thought to add still more complexity into the child's construction of a theory of mind. To begin with, the child must learn how to map his beliefs, desires and intentions onto words. He must learn the effect of using avowals of belief, desire or intention on others. As the child gets more cognitively sophisticated, he learns how to use expressions of belief, desire or intention to conceal his real feelings or intentions. Verbal habits or routines can then begin to take over, so that language becomes, not just a vehicle for deception, but an actual barrier to genuine communication. The child also learns how to read things into other agents' avowals. It must learn that beliefs, desires and intentions can be the grounds for judging the morality of an action: an element which forces the child to sharpen his 'fundamental, ontological distinction… between internal mental phenomena on the one hand and external physical and behavioral phenomena on the other' ([10.89], 13).

The more one reads about this 'fundamental ontological distinction', the more apparent it becomes that the theory of mind thesis rests on a subtle tension. The very premiss that the ability to recognize another agent's beliefs, desires or intentions—to grasp that other agents have beliefs, desires and intentions—amounts to the construction of a *causal-explanatory framework,* turns on the presupposition that the ability to predict an agent's actions on the basis of his beliefs, desires or intentions is a sub-category of prediction in general. But in effect, all of the above contrasts represent an attempt to divorce intention from prediction. That is, the 'theory' which the child must construct is one which carefully marks the various distinctions between predicting an agent's behaviour on the basis of his beliefs, desires or intentions, and predicting causal events.

Thus, the child must learn that when an agent says 'I'm going to ϕ ' he is not making a prediction which is akin to 'It's going to rain'. If an agent says 'I'm going to ϕ' in all sincerity, and then fails to do so because something prevented him, that doesn't mean his intention was *wrong* (as is the case if he predicts it is going to rain and we get sunny skies instead). More fundamentally, a child does not learn what his beliefs, desires or intentions are inductively. He neither infers from his own behaviour that he had the intention to ϕ, nor does he observe that whenever he forms the intention to ϕ he invariably ϕs (in the way that he observes how the same effects result from the same cause). He does not discover that, should he want to ϕ, all he has to do is form the intention and the state of his ϕing will subsequently occur. The child learns that when he says 'I'm going to ϕ' he is committing himself to a course of

action, i.e., that the act of uttering these words arouses certain expectations in his listener as to how he will behave. He learns that, should an agent fail to ϕ after announcing his intention to do so, this may indicate the presence of countervailing factors, or it might signify that the agent changed his mind, but whatever the reason, it licenses the demand for some explanation as to why the agent failed to ϕ (without entailing that there must be an answer). That is not to say that one cannot be wrong about one's beliefs, desires or intentions. But the child learns that to be wrong about about one's beliefs, desires or intentions is a very particular language game. It is not at all like being wrong about the weather. It suggests hidden motives, or that one is driven by forces or factors of which one is unconscious, or that one suddenly has a new insight into one's own behaviour or needs.

The theory of mind trades on the fact that there is often (but not necessarily) a temporal relation between intending to ϕ and ϕing. If an agent decides at t to ϕ at t_1 and then does so there is clearly a temporal relation between his initial decision and subsequent behaviour. But that neither entails that there is a causal relation between two events—a mental and a physical—nor that we construe an agent's behaviour in these terms. For we must be careful to distinguish between the temporal relation between the time (if there is one) at which an agent formed the intention and the time at which he acted, and the rule of grammar which stipulates that this action represents the satisfaction of this intention. It is the rule of grammar 'The intention to ϕ is satisfied by the act of ϕing' which governs our accounts of what counts as acting in accord with the intention. But on the causal picture embraced by the theory of mind, we would be forced to accept that whatever S does at t_1 must be deemed the consequence of his intention to ϕ. If S ψs then his intention to ϕ was satisfied by his act of ψing. Hence the child is conceived as learning, not only that it is highly likely that an agent will ϕ if he intends to ϕ, but that it is highly likely that ϕing represents the satisfaction of the intention to ϕ! (see [10.55]).

Suppose we view a child's burgeoning social awareness, however, not as a species of causal perception, but something entirely—categorially—different, i.e., a skill which demands a totally different grammar—for example, the grammar of agency and intentionality as opposed to causality—for its proper description. All of the above statements outlining the 'contrasts' between predicting an agent's actions on the basis of his beliefs, desires, or intentions and predicting the effects of a given cause can be seen as the rules which formulate this grammar. For example, the above statement 'The child learns that only he can know what his intentions are' exemplifies what Wittgenstein calls a *grammatical proposition:* '"Only you can know if you had that intention." One might tell someone this when one was explaining the meaning of

the word "intention" to him. For then it means: *that* is how we use it. (And here "know" means that the expression of uncertainty is senseless.)' ([10.91], section 247) Treat this as an *empirical proposition*, however, and you find yourself mired in sceptical problems: not just with regard to third-person knowledge (viz., you can never be certain that you know what another person intends), but even with respect to first-person knowledge (unless one decides to hold fast—despite all the evidence gathered in [10.87]—to the doctrine of privileged access to one's own mental states).

Remove the Cartesian starting point that predicting an agent's actions is a sub-category of prediction in general, and it is no longer tempting to suppose that a child who knows what another agent believes, wants or intends has inferred the existence of an antecedent mental cause guiding that agent's behaviour. That does not vitiate the importance of the larger point that the theory of mind is making, which is that to say that a child grasps another agent's beliefs, desires or intentions is to say that he grasps or even shares what they see or feel, and can thus anticipate what they will do if given the opportunity. But this, too, is a *grammatical*, not an empirical proposition; one might tell someone this when explaining the meaning of the expression 'to grasp another agent's beliefs, desires or intentions'. Likewise, the theory of mind's basic claim that to possess the concept of false belief a child must possess the concepts of self, person, desire and intention is a grammatical, not an empirical proposition or hypothesis. Whether it is the *right* grammatical proposition is another matter: something which can only be resolved by a philosophical, not a psychological investigation.

It is important to note that, to know what another agent believes, wants or intends does not entail that one must know what beliefs, desires, or intentions are; for the criteria for saying 'S knows what R believes' are very different from the criteria for saying that 'S knows what a "belief" is'. As the quotation marks indicate, the latter demands the ability to speak a language. When a child learns how to *describe* the beliefs, desires or intentions which guide an agent's actions, what he learns are the grounds for attributing such a belief, desire or intention when explaining the nature of someone's actions. He learns how appropriate behaviour *justifies* but does not entail the attribution of beliefs, desires or intentions. Thus, the child learns when it is correct to cite those beliefs, desires, or intentions as one's reasons for ϕing (e.g. when justifying one's actions or explaining someone else's). And he learns that the fact that one can appear to be acting intentionally without having any definite intention in mind, or conversely, conceal one's beliefs, desires, or intentions, merely attests to the fact that such criterial evidence is defeasible: not that in assigning beliefs, desires or intentions

one is framing hypotheses or forming inductive generalizations about the probable causes of S's ϕing.

As far as the voluntary/involuntary distinction is concerned, we might say that what the child learns is how, by describing an agent's beliefs, desires or intentions, the possibility that his behaviour was caused or accidental is excluded. The attribution of beliefs, desires and intentions 'explains action', not in the causal sense that it identifies the factors that *brought about* someone's behaviour, but in the *constitutive* sense that it establishes the *meaning* or the *significance* of an action. If beliefs, desires or intentions were hidden causes, then a statement like 'The intention to ϕ is satisfied by the act of ϕing' would be '*hypothetical* in the sense that further experience can confirm or disprove the causal nexus' ([10.90], 120). And if that were the case, then it would indeed make sense to speak, without qualification, of having beliefs, desires or intentions without knowing what they were in the same way that one can be ignorant of the causes of *x,* or of inferring, learning, suspecting or being wrong about what one believes, wants, or intends. But '"I know what I want, wish, believe, feel,…" (and so on through all the psychological verbs) is either philosophers' nonsense, or any rate *not* a judgement *a priori*' ([10.91], 221). That is, apart from such cases as when an agent is undecided (and in that sense uncertain) as to which course of action to pursue, or when prodding someone to question or confront their real desires or beliefs, it is inappropriate to ask someone whether he is certain that he knows what he believes, wants, or intends. For in ordinary circumstances, how else could one respond to such a question other than: my intention to ϕ is the intention that *I* should really ϕ? If a further explanation of this assurance is wanted I would go on to say 'and by "I" I mean myself, and by "ϕ" I mean doing this…': 'But these are just grammatical explanations, explanations which *create* language. It is *in language* that it's all done' ([10.], 143).

Wittgenstein's point here is that, in ordinary circumstances, the only response one can make to persistent doubt is to explain or reiterate the rules of grammar which govern the use of *belief, desire* or *intention*. He is not suggesting that an understanding of other agents' beliefs, desires or intentions can only be attributed to creatures that possess the ability to speak a language. Nor is he seeking to inculcate scepticism; quite the contrary, he is seeking to undermine epistemological scepticism by demonstrating that the issue that concerns us here is not *whether we can ever be certain that S can ϕ* (where ϕ might be *think,* or *feel,* or *intend,* or *understand,* or *mean,* etc.), but *how we describe what S is doing* or *what S understands*. In paradigmatic contexts this distinction is (typically) of no concern; it is in the borderline cases, and especially, in primitive contexts, where it becomes easy to confuse the question of whether S's behaviour satisfies the criteria for describing him as ϕing with the sceptical question

of whether we can ever be certain that S is really or merely appears to be doing so. This is the reason why Cartesianism has become such a dominant force in comparative primatology and developmental psychology, and why both behaviourism and cognitivism—i.e., the denial of higher mental processes or the assignment of these higher mental processes to the preconscious—have flourished in these domains. But far from lamenting the indecisiveness which seems to characterize these discussions, we might see this uncertainty as a crucial aspect of psychological concepts.

This last point demands clarification. One of the more glaring problems with the theory of mind is that the terms of the discussion seem so remote from the reality of an infant's behaviour. For example, we are asked to accept, not just that a baby observes regularities, but even, that a baby *makes observations*. The baby does not just suck whatever comes into its purview; it *discovers by trial and error* which things in its world are suckable; it *frames hypotheses* as to the *class of suckable objects* and then *performs experiments* to *test its hypotheses*. The child who is sharing or initiating joint attention is actually *constructing laws* of human behaviour. And indeed, the human infant, virtually from birth, is *predicting* events; what changes as it develops is not this innate scientistic drive, but the power of the constructs whereby it makes its predictions.

It is little wonder that this picture of prediction (of going beyond the information given) summons up a thesis like the theory of mind. For it seems to make little sense to speak of an agent as predicting something unless he possesses the requisite concepts involved. Thus, the theory of mind insists that, if we are dealing with predicting physical events, then at the very least the subject must possess the concepts of causation, object and object permanence; if we are talking about predicting social events, then the subject must possess the concepts of self, agent, intention and desire. But we lose sight here of what a rarefied concept the concept of concept is. A 2-year-old can do some very extraordinary things which, as Tomasello shows, bear fundamentally on what the theory of mind thesis is trying to explain (see [10.88]). For example, a 2-year-old can share and can even direct attention. But does a 2-year-old jointly attending to something possess the concept of *joint attention*? Does he even know or understand that other agents have thoughts or desires which may differ from his own? Does he possess the concepts of *self* and *person* and *intention*? And most important of all, are these sceptical questions?

Once again we are in danger of straying too far from what we are observing: of reading too much into a child's primitive interactive behaviour. To be sure, there are significant events in the child's development, cognitive feats which stand out as 'developmental

milestones'. But does a child's becoming aware of its mother's feelings and interacting with her accordingly satisfy the criteria for saying that it possesses the concept of person? Does 'passing' the Wimmer—Perner test satisfy the criteria for saying that it possesses the concept of false belief? How else, the Cartesian wants to say, could the child perform these acts unless he possessed these concepts, or at the very least, was capable of representing human behaviour in different terms from physical. Granted, it is always possible—irrevocably possible—that we are misrepresenting the child's representation. But the one thing that is certain, according to Cartesianism, is that the child's behaviour must be concept-driven.

It would take us too far outside the scope of this chapter to chart the origins and conceptual problems involved in the view of concepts as the 'repositories of featural analysis' on which this argument rests. What principally matters to us here is that this view of concepts goes hand-in-hand with the view that social awareness is grounded in a theory of mind. Indeed, in recent years concept-formation has itself come to be seen as a species of theory construction. But these problems disappear when we regard an agent's behaviour, not as *evidence* of the concept which he has formed, but as constituting a *criterion* for saying that he possesses the concept ϕ. That is, when we view the statement 'Doing x, y, z constitutes the criterion for saying that "S possesses the concept ϕ"', or more generally, 'Saying that S possesses the concept =Saying that S can do x, y, z' is a rule of grammar, not an empirical proposition. For this means that the statement 'S possesses the concept ϕ' does not describe or refer to a mental entity but rather, is used to attribute certain abilities to S.

For example, to say that S possesses the concept *number* is to say that S can do sums, can apply arithmetical operations, can explain what a number is, can correct his own or someone else's mistakes, etc. Doing all these things does not count as evidence that S possesses the (or a) concept of number; rather, it satisfies the criteria for saying 'S possesses the concept *number*'. Similarly, if a child hides the treat which his mother has given him in the hopes of getting another from his father, this is not evidence that he has acquired the concept of *pretence*—which, according to the theory of mind, entails a theoretical understanding of desire and intention, and possibly, of belief—but rather, a criterion for saying that the child is capable of pretence. Where the theory of mind has been so valuable is in drawing attention to the importance of the conceptual relations enshrined in the above statement. For this is not an empirical proposition: a description of the end-result of the step-by-step process whereby a child has built up a complex construct like 'pretence' (in the same way, for example., that one could describe the mechanics of a pattern recognition system). It is rather a grammatical proposition,

stipulating that it makes no sense to speak of a child as *pretending to* ϕ unless it also makes sense to describe the child as *intending to* ϕ, *wanting* x, etc. Thus, theorists of mind have been actively engaged in a twofold enterprise: that of mapping the conceptual relations entailed by the application of some psychological concept, and then studying a child's behaviour to ascertain whether it satisfies the necessary criteria or perhaps can be said to satisfy a still more primitive version of the concept in question.

To insist that a subject's behaviour fails to satisfy the criteria for applying some concept, for example, that directing its mother's attention to an object does not satisfy the criteria for saying of a 2-year-old child that it possesses the concept of *person*, does not entail that this behaviour can only be described in causal terms, i.e., that the child did not, after all, *direct its mother's attention*. Wittgenstein makes a point about the origins of causal knowledge which is highly pertinent here. There is, Wittgenstein observes, 'a reaction which can be called "reacting to the cause"' ([10.94]). Consider the case of a small child following a string to see who is pulling at it. If he finds him, how does he know that he, his pulling, is the cause of the string's moving? Does he establish this by a series of experiments? The answer is No: this is rather a primitive case of what is called 'seeing that x was the cause of y'. Only a strong Cartesian bias could induce one to construe this phenomenon as a manifestation of a form of induction. But in order to make sense of the notion of the child exhibiting in such behaviour his mind's 'pre-linguistic causal inferences', it would also have to make sense to speak of the child's exhibiting pre-linguistic manifestations of doubt: of making mistakes in his causal reasoning and taking steps to guard against error, of testing, comparing, and correcting previous judgements. But none of his behaviour satisfies the criteria for attributing these abilities: all he did was react to the cause.

The language game played with 'cause' exemplifies Wittgenstein's point in *Last Writings* about how:

> A sharper concept would not be the same concept. That is: the sharper concept wouldn't have the *value* for us that the blurred one does. Precisely because we would not understand people who act with total certainty when we are in doubt and uncertain.
>
> ([10.93], Section 267)

For example, the very notion of *reacting to a cause* is blurred; the child *saw* that x caused y, whereas the caterpillars in Loeb's experiments merely *reacted* to the light. Just as the cases where it is appropriate to speak of a *conditioned response* merge into circumstances where it is appropriate to speak of *seeing that x caused y*, so, too, the cases where it is appropriate to

speak of *seeing that x caused y* merge into circumstances where it is appropriate to speak of *knowing that x will cause y*. We can indeed speak of a continuum here, therefore, but it is *grammatical,* not cognitive: a language game ranging from *reacting to a cause* to *counterfactual reasoning*. This grammatical continuum demands ever more complex behaviour to license the attribution of ever more complex abilities and skills. At the lowest end of this spectrum is that behaviour which satisfies the criteria for what is called 'reacting to a cause'. At this primitive level, S's behaviour satisfies the criteria for describing him as being aware of the cause of *y,* but his behaviour comes nowhere close to satisfying the criteria for saying that he possesses the concept of *cause*. As the child acquires linguistic abilities, we teach him how to use 'cause' and 'effect'. It is his growing understanding of causal relations, as reflected in his growing mastery of the family of causal terms that satisfies the criteria for describing him as possessing the concept of *cause,* i.e., as possessing the ability to infer and predict events, to doubt whether *y* was caused by *x* and to verify that *x* causes *y*. We continue to move up the grammatical continuum as the subject learns the importance of observation and experiment, culminating in the advanced abilities to engage in counterfactual reasoning or *Gedankenexperimente,* to construct theories and models, and theories of theory and model making.

The important point here is that, rather than following Descartes' lead and beginning with the paradigm of the scientist—of the scientist's mind—and reading this into all the lower forms of behaviour as we work our way backwards through a descending level of cognitive abilities, so that the mere reaction to a cause is construed as manifesting a 'pre-conscious causal inference', we proceed by clarifying the relation between primitive expressive behaviour and primitive uses of psychological concepts, and show how the roots of *causal inference* lie, not in 'mental processing' but rather, in these primitive uses:

> The origin and the primitive form of the language game is a reaction; only from this can more complicated forms develop. Language—I want to say—is a refinement, 'im Anfang war die Tat'…it is characteristic of our language that the foundation on which it grows consists in steady ways of living, regular ways of acting… We have an idea of which ways of living are primitive, and which could only have developed out of these … The simple form (and that is the prototype) of the cause-effect game is determining the cause, not doubting.
>
> ([10.94])

Similarly, the roots of *social understanding* lie in primitive reactions and interactions, e.g. in the fact that at 9 months old a child can be

conditioned to follow a caregiver's gaze and to share a caregiver's emotions; at 12 months the child begins to follow the caregiver's gaze spontaneously, and shortly after this, to initiate and direct joint attention; while at much the same time it begins to use imperative pointing, and soon after this, declarative pointing. But the fact that the infant is able to look where another agent wants, to attend to directed objects and situations or direct another where to look, or to use certain gestures and then conventionalized sounds to initiate exchanges, does not in itself constitute theoretical or pre-theoretical knowledge. The infant is learning how to participate in very particular kinds of social practices (giving and requesting objects, playing peek-a-boo, asking and answering simple questions). As the child's mastery of these practices advances, it makes increasing sense to describe the child as 'intending or trying to ϕ', as 'looking or hoping for x', as 'thinking or believing p', and so on.

In other words, what people say and do is what constitutes the justifying grounds for psychological ascriptions. Scepticism about other minds stems from misconstruing this logical relation as inductive evidence. It turns on Descartes' idea that what we see are 'colourless movements' from which we infer a hidden cause. But we do not see *mere behaviour,* we see, for example, pain behaviour, i.e., that behaviour which satisfies the criteria governing the application of 'pain'. The sense in which pain behaviour 'falls short of certainty' is solely that it does not *entail* that someone is in pain. But this has nothing to do with perceptual limitations.

Descartes capitalized on the fact that psychological concepts cannot be applied to lower lifeforms. Unfortunately, he misconstrued the nature of this 'cannot'. For these limits are imposed by logical grammar, not experience. Descartes was quite right to draw attention to the importance of the fact that animals do not utter avowals: but for reasons that have nothing to do with his animal automaton hypothesis. The application of psychological concepts is intimately bound up with the ability to speak a language: to describe one's state of mind, express one's desires and intentions, report on one's feelings (or conceal them). But that does not mean that animals are incapable of manifesting primitive expressive behaviour; for a dog's howling, like a baby's, may indeed be a criterion for saying that it is in pain.

The result of misconstruing the grammatical propositions or rules governing the use of psychological concept words as empirical propositions has been three centuries of conflict over whether intentions, desires, beliefs, etc. in some way cause the actions they are thought to accompany or precede, and whether these mental phenomena correspond to or are caused by neural events. The persisting assumption has been that we start off with these mental events and then try to

discover the cerebral mechanisms with which they are correlated or by which they are caused. But the lesson to be learnt from studying the mechanist/vitalist debates is that the real evolution of this psycho-physical parallel thesis was the exact opposite: it was by proceeding from the premiss that all involuntary movements are caused by external and internal stimuli, and the persisting desire to restore the continuum picture by reducing voluntary actions to the same terms, that the notion of 'mental cause' was created: the conception of intentions, desires, beliefs as mental events that bring about actions precisely because they initiate or are isomorphic with the cerebral drive train that provides the motor power. The goal of this chapter has been, not just to chart the development of these ideas, but more importantly, to reverse this way of thinking: to establish the unique and non-causal character of mental concepts in order to clarify why it is so misleading to assume that 'psychology treats of processes in the psychical sphere, as does physics in the physical' ([10.91], section 571). Thus, my intention here has been, not to praise Descartes' legacy, but to bury it: to relegate the mechanist/vitalist debates once and for all to the *history* of psychological ideas.

NOTES

1 It is highly significant that Russell should have written an introduction to Lange's *History of Materialism,* in which he states that: 'Ordinary scientific probability suggests…that the sphere of mechanistic explanation in regard to vital phenomena is likely to be indefinitely extended by the progress of biological knowledge' ([10.38], xvii–xviii).

2 Du Bois-Reymond followed up on his argument with an expanded account in 1880 of the 'seven world problems'. In addition to the matter force and brain thought problems he now included the origins of motion, life, sensation and language, the teleological design of nature and the problem of free will (see [10.23]).

3 Spencer's explanation of the 'continuous adjustment of internal relations to external relations' also reflects the influence of Liebig's views ([10.40]).

4 In *Animal Chemistry* he warned that:

> The higher phenomena of mental existence cannot, in the present state of science, be referred to their proximate, and still less to their ultimate, causes. We only know of them, that they exist; we ascribe them to an immaterial agency, and that, in so far as its manifestations are connected with matter, an agency, entirely distinct from the vital force *with which it has nothing in common*.
>
> ([10.25], 138)

5 As indeed do cognitivists, albeit for vastly different reasons. In their eyes Bernard's metaphor manifests the latent tendency to regard biological phenomena 'in terms of categories whose primary application is in the

domain of knowledge' [10.19]. It thus illustrates the inadequacy of physico-chemical concepts to explain such biological phenomena as embryological development; for as Bernard himself was to explain:

> In saying that life is the directive idea or the evolutive force of the living being, we express simply the idea of a unity in the succession of all the morphological and chemical changes accomplished by the germ from the beginning to the end of life. Our mind grasps this unity as a conception which is imposed upon it and explains it as a force; but the error consists in thinking that this metaphysical force is active in the manner of a physical force.
>
> [([10.37], 214)

But where the cognitivist sees the organism itself as the intended bearer of Bernard's *directive idée,* Bergson had earlier insisted that it is a 'principle of interpretation': in modern usage, a paradigm whereby a scientific community construes its data (Ibid., 148–9). As we shall see, this is a recurring theme in this whole debate. One suspects, however, that for a proper understanding of how Bernard himself viewed his *directive idée,* one should look at the psychistic theory of growth whose antecedents date back to Proutt and Bichat (see [10.27], 238–9, 250).

6 Even Turing's attempt to discover the algorithms determining the evolution of plant life betrays an underlying goal of laying classical vitalist themes to rest.

7 A young player upon the harpsichord or a dancer, is, at first very thoughtful and solicitous about every motion of his fingers, or every step he makes while the proficients or masters of these arts perform the very same motions, not only more dexterously, and with greater agility, but almost without any reflexion or attention to what they are about' ([10.47], 79).

8 Cf. Herbert Mayo's argument that:

> there are many voluntary actions, which leave no recollection the instant afterwards of an act of the will. I allude to those, which from frequent repetition have become habits. Philosophers are generally agreed, that such actions continue to be voluntary, even when the influence of the will is so faint as to wholly escape detection. We are therefore not authorized to conclude that instinctive actions are not voluntary merely because we are not conscious of willing their performance.
>
> ([10.47], 125)

9 According to Lotze:

> When, under the influence of the soul life an association has once been formed between a mere physical impression of a stimulus and a movement which is not united with that stimulus by the mere relation of structure and function, and when that association has been firmly established, this mechanism can continue the activity without requiring the actual assistance of intelligence.
>
> ([10.47], l64)

10 After describing in 'The Spinal Cord a Sensational and Volitional Centre' (1858) how he had replicated Pflüger's experiment, Lewes concluded:

> If the animal is such an organized machine that an external impression will produce the same action as would have been produced by sensation and volition, we have absolutely no ground for believing in the sensibility of animals at all, and we may as well at once accept the bold hypothesis of Descartes that they are mere automata. If the frog is so organized, that when he cannot defend himself in one way, the internal mechanisms will set going several other ways—if he can perform, unconsciously, all actions which he performs consciously, it is surely superfluous to assign any consciousness at all. His organism may be called a self-adjusting mechanism, in which consciousness finds no more room than in the mechanism of a watch.
>
> ([10.47], 168)

11 Thus Lewes explains:

> The Actions cannot belong to the mechanical order so long as they are the actions of a vital mechanism, and so long as we admit the broad distinction between organisms and anorganisms. Whether they have the special character of Consciousness or not, they have the general character of sentient actions, being those of a sentient mechanism. And this becomes the more evident when we consider the gradations of the phenomena. Many, if not all, of those actions which are classed under the involuntary were originally of the voluntary class—either in the individual or his ancestors; but having become permanently organized dispositions—the pathways of stimulation and reaction having been definitely established—they have lost that volitional element (of hesitation and choice) which implies regulation and control.
>
> ([10.53], 416–17).

12 Thus William Graham explained how:

> consciousness is only, as Professor Tyndall has termed it, an accidental 'bye-product'—something over and above the full and fair physical result, which by an accident, fortunate or otherwise, appeared to watch over and register the whole series of physical processes, though these would have bone on just as well in its absence.
>
> ([10.48], 122)

It is noteworthy in light of the interrelatedness of the various issues involved in the mechanist/vitalist debate that he concluded: 'In this case, thought or consciousness would not consume any of the stock of energy; the law of conservation of energy would not be threatened in its generality; and man would be a true automaton, with consciousness added as a spectator, but not as a director of the machinery' (Ibid., 123; cf. [10.51], 240 ff.).

13 The closest one comes to even a hint of awareness of this issue is George Paton's insistence that 'if these movements be not of a perceptive character then there is no meaning in language, and we must give a new definition to the term perception' ([10.47], 154).

14 The failure to grasp this point marred Haller's otherwise penetrating observation in *First Lines of Physiology:*

> that the nature of the mind is different from that of the body, appears from numberless observations; more especially from those abstract ideas and affections of the mind which have no correspondence with the organs of sense. For what is the colour of pride? or what the magnitude of envy or curiosity?
>
> ([10.49] 11, p. 45)

But, of course, it is the human being who feels pride, envy and curiosity, not his mind or brain.

15 The height of this absurdity was reached by T.L.W.Bischoff. Fearing recounts how, in his 'Einige Physiologisch-anatomische Beobachtungen aus einem Enthaupeteten' Bischoff states that:

> he was especially concerned with the question of the persistence of consciousness in the head segment [of recently executed criminals]. The experiments were performed during the first minute after decapitation. The results were wholly negative. The fingers of the experimenters were thrust towards the eyes of the decapitated head, the word 'pardon' was called into the ears, tincture of asafoetida was held to the nose, all with negative results. Stimulation of the end of the severed spine did not result in movement.
>
> ([10.47], 152)

16 In what reads as the vitalist anticipation of the objection from Watson cited at the beginning of Section i above, Lewes maintained:

> All inductions warrant the assertion that a bee has thrills propagated throughout its organism by the agency of its nerves; and that some of these thrills are of the kind called sensations—even discriminated sensations. Nevertheless we may reasonably doubt whether the bee has sentient states resembling otherwise than remotely the sensations, emotions, and thoughts which constitute human Consciousness, either in the general or the special sense of that term. The bee feels and reacts on feelings; but its feelings cannot closely resemble our own, because the conditions in the two cases are different. The bee may even be said to think (in so far as Thought means logical combination of feelings), for it appears to form Judgments in the sphere of the Logic of Feeling… although incapable of the Logic of Signs… We should therefore say the bee has Consentience, but not Consciousness—unless we accept Consciousness in its *general* signification as the equivalent of Sentience.
>
> ([10.53], 409; cf. 434).

17 Interestingly, Erasmus Darwin had argued at the end of the eighteenth century that animals are no less capable than man of reasoning (of concatenating sensory ideas according to the laws of association ([10.62], 15.3). Indeed, the fact that an organism like the fruit fly often mistakes the carrion flower for carrion is proof of its ability to sustain correct reasoning (Ibid., 16.11).

18 'In tracing up the increase we found ourselves passing *without break* from the phenomena of bodily life to the phenomena of mental life' ([10.40], section 13).

19 All of the attention here has been fixed on the notion of purposiveness, but it

bears noting in the sequel how the so-called ambiguity between 'behaviour as movement' and 'behaviour as action' was becoming an established fact. When Rosebleuth, Wiener, and Bigelow introduced cybernetics they could simply assume without qualification that 'By behavior is meant any change of an entity with respect to its surroundings… [A]ny modification of an object, detectable externally, may be denoted as behavior' ([10.77], 18). It should be noted, however, that this long-established usage of 'behaviour' was, in fact, originally regarded as metaphorical.

20 Rosenblueth, Wiener and Bigelow insisted that their goal was 'a uniform behavioristic analysis [which] is applicable to both machines and living organisms, regardless of the complexity of the behavior' ([10.77], 18, 24, 22). Cf. George:

> It must be emphasized very strongly that cybernetics as a scientific discipline is essentially consistent with behaviourism, and is indeed a direct offshoot from it. Behaviourists, in essence, are people who have always treated organisms as if they were machines.
>
> ([10.63], 32)

21 There is a tendency to rule that anyone straying from the orthodox materialist course is automatically excluded from the behaviourist fold; an obvious example is Tolman, but even a figure such as Hull, who expresses cybernetic sentiments in *Principles of Behavior* (see [10.65], 26–7) is often regarded as only a partial (i.e. neo-) behaviourist (and *de facto* 'father' of cybernetics). But what is one to make of a figure such as Lashley (see [10.67])?

22 It should be noted that this argument marks a shift in focus from the subject of machine intelligence to that of cognitive modelling. For the very fact that these internal representations can be mechanically simulated, thereby enabling us to describe cybernetic systems in purposive terms, might also 'provide a key to understanding the way in which the corresponding [human or animal] behavior is actually produced' ([10.57] 142).

23 Since perception can also be treated as a constructive, or an inferential process, this reference to *causal perception* does not need to be qualified.

24 Nativist arguments are ignored in what follows, but really they are just as much a concern of this discussion. For the emphasis here is not on *construction,* it is on *cognition:* on what the child must putatively know in order to display the various abilities recorded by developmentalists.

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Glossary

GENERAL

ab initio—Latin, 'from the beginning'.

absolute—From the Latin *absolutus,* meaning 'the perfect' or 'completed'. The term further means independent, fixed and unqualified, and stands opposed to the relative, often as its negation; i.e., as that which is independent of relation. At various times, principally in METAPHYSICS, it has been used to describe time, space, value, truth and God, or the totality of what really exists as a unitary system somehow both generating and explaining all apparent diversity. It is associated with IDEALISM.

absolute space and time—The view that space and time exist independently of the objects and events in them. This was NEWTON'S position which was rejected by EINSTEIN, among others.

absolutist/relativist debate—Relativism is the position that there is no one correct view of things. Relativists argue that views vary among individual people and among cultures ('cultural relativism'), and that there is no reliable way of deciding who is right. This contrasts with absolutism, the view that there is an objectively right view. Although the most common relativist views concern morality, these terms also apply to ONTOLOGY and the question of the nature of reality itself. Ontological relativists hold that there is no external fact about what sorts of basic things exist: we decide how to categorize things, and what will count as basic, depending on the context and manner of thinking that suits us. By contrast, absolutists hold that there is a basic SUBSTANCE which characterizes the unity of reality (i.e. LEIBNIZ'S 'simple substances' or 'monads'). See RELATIVE TRUTH/RELATIVISM.

acquaintance and description, knowledge by—Popularized by RUSSELL, the terms used to describe two ways in which objects are known. According to him, we have 'acquaintance' with anything of which we are directly aware (namely sense data). This is to be distinguished from knowledge by description, which includes our knowledge of those whom we would normally call our acquaintances. In the normal sense, I would claim to be acquainted with a colleague; but according to Russell, my colleague is for me the body and mind connected with certain sense data.

ad hoc—Latin, 'to this', i.e., 'specially for this purpose'. An *ad hoc* assumption isone that is introduced illicitly in an attempt to save some position from a contrary argument or counter example, intending to show that the position is false. It is illicit because it is designed especially to accommodate the argument or example, and has no independent support.

aesthetics—From the Greek *aisthesis,* 'sensation'. This term, which was coined by Baumgarten in the eighteenth century, has come to designate not the whole domain of the sensible, but only that portion to which the term beauty may apply. In a more general and contemporary sense, it refers to the philosophical study of art, of our reactions to it, and of similar reactions to things that are not works of art. Typical questions here are: What is the definition of art? How can we judge aesthetic worth? Is this an OBJECTIVE matter?

a fortiori—Latin, 'from the stronger'. A phrase used to signify 'all the more' or 'even more certain'. If all men are mortal, then *a fortiori* all Englishmen—who constitute a small sub-class of all men—must also be mortal.

agent—One who acts, or has acted, or is contemplating action. In ETHICS, it is usually held to be a moral agent, i.e., one to whom moral qualities may be ascribed and treated accordingly. The agent is generally a normal (even ideal) adult: free and responsible with a certain degree of maturity, rationality and sensitivity.

alchemy—The ancient art and science of transmutation; the precursor to modern CHEMISTRY and metallurgy. It is also a mystical art (see MYSTICISM for the transformation of consciousness, symbolized by the transmutation of base metals into gold or silver. Drawing on the Hermetic tradition and Greco-Egyptian ESOTERIC teachings, alchemy assumed its historical form by AD 4, but it did not spread throughout Europe until the twelfth century.

algebra—The study of mathematical structure. Elementary algebra is the study of NUMBER systems and their properties. Algebra solves problems in arithmetic by using letters or SYMBOLS to stand for quantities and includes CALCULUS, LOGIC, the theories of numbers, equations, FUNCTIONS and combinations of these.

algorithm—A systematic procedure for carrying out a computation; any step-by-step method for the solution of a particular type of problem.

analysis of variance (ANOVA)—A statistical method (see STATISTICS) for making simultaneous comparisons between two or more means. An ANOVA yields a series of values (*F* values) which can be statistically tested to determine whether a significant relation exists between the experimental variables.

analytic/synthetic—These terms were introduced by KANT, referring to the difference between two kinds of judgement. Kant called a judgement analytic when the 'predicate was contained in the subject'; thus, for example, the subject bachelors contains the predicate unmarried. Some might hold that this distinction is better made in terms of sentences: a sentence is analytic when the meaning of the subject of that sentence contains the meaning of the predicate (i.e. is part of the definition of the subject). In other words, an analytic sentence is one that is true merely because of the meanings of the words. A synthetic truth is a sentence that is true but not merely because of the meaning of the words. 'Pigs don't fly' is true partially because of the meaning

of the words, of course, but since the definition of pigs says nothing in the first case about flying, the sentence is synthetically true. An analytically false sentence is also possible as in 'There is a married bachelor'.

In another sense, a statement is an analytic truth or falsehood if it can be proved or disproved from definitions by means of only logical laws, and it is synthetic if its truth or falsity can be established by other means. This was the distinction postulated by FREGE, and followed by the logical positivists (see POSITIVISM) for whom all the truths of mathematics and LOGIC are analytic.

analytic philosophy—A term covering a variety of philosophical schools which emphasize language and share the view that the primary function of philosophy is to clarify statements. It is usually associated with English-speaking philosophers, and is contrasted with speculative or continental philosophy. Some philosophers have regarded it as opposed to METAPHYSICS but others have held metaphysical views. This includes RUSSELL, who was one of its earliest adherents when the distinction first arose in the first decades of this century.

anthropometry—Literally, the measurement of man, in terms of anatomical height, girth, width, length, etc.

anti-realism—See REALISM.

a priori/a posteriori—Latin, 'from before/from after'. In the early eighteenth century, knowledge was called a priori if it was acquired by reason, not observation, or by DEDUCTION, not INDUCTION. It is a posteriori if it can be known on the basis of, and hence, after, sense-experience of the fact. The terms are associated with KANT who claimed that a priori knowledge can be known independently of any (particular) experience, i.e., every event has a CAUSE.

Archimedes—(*c.* 287–212 BC) Greek mathematician, physicist and inventor; gener ally regarded as the greatest mathematician of antiquity. His rigorous geometrical technique of measuring curved lines, areas and surfaces anticipated modern CALCULUS. He also laid the foundations of mechanics, statics and hydrostatics.

Archimedes' axiom—The order AXIOM for the real line that states that if a, and b are real NUMBERS such that $a < b/n$ for all natural numbers n, then $a \leqslant 0$, or equivalently, that for any positive a and b there is a positive integer n such that $a < nb$, and thus that every real number is less than some natural number. This is equivalent to the assertion that the real numbers are conditionally complete. An infinitesimal is non-Archimedean as it is less than any positive non-zero number.

Aristotle—(384–322 BC) Profoundly influential Greek philosopher and scientist. He was PLATO'S student; like his teacher, he was centrally concerned with knowledge of reality and of the right way to live. Unlike Plato, however, he accepted the reality of the EMPIRICAL, changing world, and attempted to discover what sort of understanding we must have in order to have knowledge of it. He argued that individual things must be seen as belonging to kinds of things, each of which has essential properties (see ESSENTIALISM) that give it potential for change and development. Investigation into the essential properties of humans can tell us what human good is: he conceived it as a life lived in accord with the moral and intellectual

virtues. Although he is recognized for beginning the systematic study of LOGIC, Aristotle's writings cover diverse areas in NATURAL SCIENCE and philosophy.

artificial intelligence (AI)—An area of study in computer science and psychologythat involves the building (or imaging) of machines, or programming computers, to mimic certain complex intelligent human activities. AI is of philosophical interest in so far as it might shed light on what the human mind is like, and in so far as its successes and failures enter into arguments about MATERIALISM.

assertion—FREGE introduced the assertion sign to indicate the difference between asserting a PROPOSITION as true and merely naming a proposition (i.e. in order to make an assertion about it, that it has such and such consequences, or the like). RUSSELL and WHITEHEAD adopted the sign in approximately Frege's sense, and from this source, it has come into general use. Russell requires that the sign be followed by a formula denoting a proposition (see DENOTATION), or a truth value, while Frege requires that it be followed by the syntactical name of such a formula. Some recent writers omit the sign, either as understood, or on the grounds that the distinction is illusory.

attribution theory—In social psychology, the study of the factors that determine how people in everyday life situations come to assign CAUSES, particularly for their own actions and those of others, and the HYPOTHESES arising from that study. The analysis of action as analogous to experimental methods, was first suggested by HEIDER, who remains influential on this theory.

Austin, J(ohn) L(angshaw)—English (Oxford) philosopher; a leading figure in ORDINARY LANGUAGE PHILOSOPHY. He drew philosophical conclusions from analyses of our uses of language in general, and of philosophically relevant words.

automaton/automaton theory—From the Greek *automatos,* 'self-moving'. An automaton is a physical mechanism which exhibits seemingly goal-directed behaviour, but is generally construed to be mindless, a mere machine governed by the laws of physics and mechanics (i.e. a robot). The theory holds that living organisms may be considered machines which primarily abide by mechanistic laws. In METAPHYSICS, this theory is also known as automatism and holds that both animal and human are automata. It was propounded by DESCARTES who considered the lower animals to be pure automata, and man, a machine controlled by a rational soul. Pure automatism for both man and animal was advocated by LA METTRIE (1748), and combined with EPIPHENOMENALISM, found its way into the nineteenth century, in the work of Hodgson, HUXLEY and Clifford.

axiom—A basic statement for which no proof is required, and is a starting point, or premiss, for deriving other statements. An axiomatic theory is one in which all the claims of the theory are presented as theorems derivable from a specified collection, the set (or system) of axioms, which are the axioms of the theory. Axioms are often considered self-evidently true, as those of Euclidean GEOMETRY were for a long time, or as constituting and/or contributing to an implicit definition of its terms.

Ayer, A(lfred) J.—English philosopher, known mainly for his work in EMPIRICISM and linguistic analysis. He rejected METAPHYSICS and

confined the function of philosophy to analysis. His *Language, Truth and Logic* (1936) presented logical POSITIVISM in a rigorous and influential way.

Bacon, Francis—English philosopher and scientist. He was also a legalist and political figure (Baron Verulam [1618] and Viscount St Albans [1620]). Best known for his work on scientific method, he is often considered the father of modern science. In his attempts to establish a 'first philosophy', an axiomatic body of truth as the foundation of science, he sought to restore man to mastery over the natural world.

Barthez, Paul Joseph—French physician who introduced the VITALISM principle in 1778.

Bayesian probability—The Bayesian approach to philosophical problems of scientific method is based on the observation that belief is not a simple yes or no matter, but involves gradations. Its fundamental principle can be stated as follows: the degrees of belief of an ideally rational person conform to the mathematical principles of PROBABILITY theory. According to this view, many methodological puzzles (see METHODOLOGY) arise from a preoccupation with all or nothing belief and may be resolved by means of a more inclusive probabilistic LOGIC of partial belief.

behavioural science—A general label pertaining to sciences that study the behaviour of organisms including psychology, sociology, social anthropology, ethology and others. It is often used as synonym for social science.

behaviourism—Early in the twentieth century, many psychologists decided that introspection was not a reliable basis for a science of the mind; instead they decided to concentrate only on external, observable behaviour. METHODOLOGICAL (psychological) behaviourism is the view that only external behaviour should be investigated by science (see METHODOLOGY). METAPHYSICAL or analytical behaviourism is the philosophical view that public behaviour is all there is—that this is what we are talking about when we refer to mental events or characteristics in others, and even ourselves (see METAPHYSICS). It is a form of MATERIALISM, J.B.WATSON and B.F.SKINNER were two American psychologists who were very influential in arguing the first viewpoint.

Bell inequality—The mathematical condition that expresses the principle of no HIDDEN VARIABLES. It was theorized by John Bell in the early 1960s and refers to the lack of full agreement between QUANTUM MECHANICS and a particular class of hidden variable theories. It is a component of 'Bell's theorem' which promoted philosophical questions about hidden variables to the level of experimental verifiability (although it remained difficult to conceive of specific experiments that could be undertaken in order to demonstrate their VALIDITY). The inequalities in question derive from attempts to account for spin CORRELATIONS between particles: if one is up, the other must be down. The difference between such a theory and quantum mechanics is that in the former, the spins are predetermined (by the hidden variables) before any measurement, and hence, are objectively real.

Bergson, Henri—French philosopher. Dynamism characterizes his philosophy; his dualist view posits a vital principle *(élan vital)* in contrast to inert matter; (see DUALISM); he rejects mechanistic or materialistic approaches to understanding reality and any deterministic view of the world, and claims that the creative urge, not natural selection, is at the heart of evolution (see

MECHANISM, MATERIALISM, DETERMINISM). He draws a distinction between the CONCEPT and the experience of time; the former might be subjected to the kind of analysis applied to the concept of space, but 'real time' is experienced as duration and apprehended by INTUITION. He championed the latter against rationalistic 'conceptual' thought.

Berkeley, George—Irish philosopher, Bishop of Cloyne; known for his empiricist and idealist METAPHYSICS and EPISTEMOLOGY. He rejected the idea that a world independent of perceptions can be inferred from them (see EMPIRICISM, IDEALISM, INFERENCE); mental PHENOMENA, the mind and its contents (spirit and idea), are all that exists. These may be external to us, in the universal mind of God, with the ideas it contains constituting the natural world. His views may be construed as a form of PHENOMENALISM.

Bernard, Claude—French physiologist, who established physiology as an exact science and laid the foundations of experimental method in that field.

Bernoulli, Jean—Swiss mathematician; an important figure in the development of the CALCULUS.

Berzelius, Jöns Jacob—Swedish chemist, recognized for determining the direction of CHEMISTRY for nearly a century. Educated in medicine, he brought organic nature within the atomic concept, while maintaining a vitalist position. See VITALISM.

Bohr, Niels—Highly influential Danish theoretical physicist. He formulated the QUANTUM theory of the electronic structure of the hydrogen atom and of the origin of the spectral lines (corresponding to the energy transition levels) of hydrogen and helium. Bohr became the Director of the Institute for Theoretical Physics in the University of Copenhagen, which rapidly became a mecca for physicists from all over the world. A major development of his philosophical views was put forth in a 1927 lecture when he introduced the idea of COMPLEMENTARITY. He pointed out the impossibility of any sharp separation between the behaviour of atomic objects and their interaction with the measuring instruments which define the conditions under which the phenomena appear. This tended to promote a more realistic interpretation of unobservable conditions.

Bohr's principles—See COMPLEMENTARITY, CORRESPONDENCE.

Bohr's theory—A pioneering attempt to apply QUANTUM theory to the study of atomic structure (1913). It postulates an electron moving in one of certain discrete circular orbits about a nucleus with emission or absorption of electromagnetic radiation, necessarily accompanied by transitions of the electron between the allowed orbits (see ELECTROMAGNETISM). This revised the classical electrodynamic model in which the electrons would theoretically irradiate, lose energy and spiral into the nucleus. Although it was soon shown to be false, Bohr's theory was successfully extended far enough over the next twelve years to suggest that many facts in physics and CHEMISTRY might be explained in these terms, and even led to the modern theory of QUANTUM MECHANICS. Thus, even though it has been superseded, it revolutionized theoretical physics and is today of outstanding historical and philosophical interest.

Boltzmann Ludwig—Vienna-born and educated physicist. He is celebrated for his contribution to the kinetic theory of gases and to statistical mechanics, the

latter of which he was the founder. His great talents as a theoretical physicist focused primarily on the kinetic theory of gases, PROBABILITY THEORY and ELECTROMAGNETISM. The beginning of his career in 1866 belonged to the most creative and revolutionary period in physics since NEWTON, two centuries earlier.

Boltzmann, constant—When the ENTROPY of a system, a gas for example, is divided by the natural LOGARITHM of its statistical instability, the result is the constant named after Boltzmann. It is symbolized by *k*.

Bolyai, Johann—Hungarian mathematician, who at the age of 22 wrote 'Absolute Science of Space', a complete system of GEOMETRY. He showed that EUCLID'S parallel postulate was not necessary. Although he was one of the founders of non-Euclidean geometry, he had been preceded (unknown to him) by GAUSS and LOBACHEVSKY.

Boole, George—English mathematician responsible for the development of the idea of treating variables in LOGIC in ways analogous to those in ALGEBRA; this was the first real step in the development of modern logic. He was one of the first mathematicians to realize that SYMBOLS of operation could be separated from those of quantity. He showed that classes or sets could be operated on in the same way algebraic symbols or numerical quantities can and applied ordinary algebra to the logic of classes.

Born, Max—German physicist who made fundamental contributions to QUANTUM MECHANICS. He invented matrix mechanics and put forward the statistical interpretation of wave function.

Boring, Edwin Garrigues—American psychologist, who won distinction for his *History of Experimental Psychology* (1929), which traces the genesis of this recent academic discipline from its origins in early nineteenth century philosophy and physiology.

Boyle, Robert—English chemist and physicist. He gave clear qualitative expression to the notion of heat as due to an increase in the motion of the particles of a gas. He is also known for advancing an atomistic theory according to which the ultimate constituents of matter were made up certain primitive, simple and perfectly unmingled bodies, which by combining together gave all the natural variety of matter.

Bradley, F(rancis) H(erbert)—English idealist philosopher, known for his works on LOGIC, METAPHYSICS and ETHICS. Outside the British empiricist tradition, his work is more in the continental Hegelian spirit. His central metaphysical notion is 'the ABSOLUTE'—a coherent and comprehensive whole that harmonizes the diversity and self-contradictions of appearances.

Brouwer, Luitzen Egbertus Jan—Dutch mathematician, the founder of mathematical INTUITIONISM, who did important work in the philosophy of MATHEMATICS.

Bruno, Giordano—Italian philosopher and supporter of the Copernican (heliocentric) system. He was arrested by the inquisition and burned at the stake for his radical scientific and religious views.

Büchner, Ludwing—German philosopher, who through his book *Power and Matter,* made MATERIALISM a popular doctrine in central Europe. He opposed DUALISM, claiming that the soul is merely a function of the brain.

Cabanis, Pierre Jean Georges—French physician and philosopher, who pioneered physiological psychology.

calculus—An abstract system of SYMBOLS, with definitions, AXIOMS and rules of INFERENCE, aimed at calculating something. A calculus is interpreted when its symbols are given meaning by relating them to things in the real world, and some philosophers think of the various sciences as interpreted calculi. Questions of completeness, consistency, decidability and criteria for decisions are among the theoretical considerations of this subject. There are many different kinds of calculus and each symbol system of symbolic LOGIC may be called a calculus: sentential or propositional, quantifier or predicate calculus, as well as the calculus of identity, of classes and of relations. Infinitesimal calculus, an invention of NEWTON and LEIBNIZ in the second half of the seventeenth century, is one of the greatest achievements in the history of mathematics. It is based on the concepts of limits, convergence and infinitesimals (variables which approach zero as a limit). See PROPOSITIONAL/ PREDICATE CALCULUS.

Carnap, Rudolf—German-born philosopher who taught at the universities of Vienna, Prague and Chicago. He transplanted logical POSITIVISM when the VIENNA CIRCLE disbanded in pre-World War II Austria. He is important for his work on formal LOGIC, philosophy of SCIENCE and their applications to the problems of epistemology, and helped to develop a new science of logical SYNTAX and SEMANTICS. He espoused the doctrine of PHYSICALISM and sought to construct one common unified language for all branches of empirical science so that problems of language would no longer be an impediment to knowledge.

Cartesian doubt—A philosophical method associated with DESCARTES in which one begins by assuming that any belief which could be doubted is falseeven the most ordinary assumptions of common sense. One then searches for a starting point that is indubitable.

Cartesian plane—A two-dimensional flat plane, the points of which are specified by their position relative to orthogonal axes. It is named after DESCARTES, who established the plane and its coordinates as a basis for analytic geometry.

causality—The principle that every effect is a consequence of an antecedent CAUSE or causes. For causality to be true it is not necessary for an effect to be predictable since uncertainty about it may be attributed to the fact that the antecedent causes may be too numerous, too complicated or too interrelated for analysis. In QUANTUM theory, the classical CERTAINTY of causality is replaced at the sub-atomic level by probabilities that specific particles exist in specific positions and take part in specific events. This involves the uncertainty principle which states that the position and MOMENTUM of an electron cannot be established precisely and it is only following consecutive observations of what may be two particles, that probabilities may be determined. See PROBABILITY.

cause—From the Latin *causa*. A term correlative to the term 'effect'. That which occasions, determines, produces or conditions an effect; or is the necessary antecedent of an effect. Long-standing philosophical problems are concerned with the nature of cause, and how we go about establishing it. HUME argued

that we think that *A* causes *B* when *A's* have regularly been followed by *B's* in the past (i.e. have been 'constantly conjoined' with *B's*); but the notion that *A* has a 'power' to produce *B* 'necessarily', is not something we can observe, such that this is not a legitimate part of the notion of cause. It is argued that this fails to distinguish between causal connections and mere accidental (contingent), but universal regularities.

certainty—From the Latin *certus*, 'sure'. The alleged indubitability of certain truths, especially of LOGIC and mathematics. The concept of certainty plays an important role in the philosophy of DESCARTES, where it applies to a belief or proof which is beyond rational doubt, as in the case of the *COGITO*.

ceteris paribus—Latin, 'other things being equal'. This expression is used in comparing two things, assuming they differ only in the one characteristic under consideration. For example, it could be said that, '*ceteris paribus*, a simple theory is better than a complicated one'; though if everything else is not equal—if, for example, the simpler theory has fewer true predictions—then it might not be better.

(The Great) Chain of Being—A metaphor for the order, unity, and completeness of the created world, thought of as a chain extending from God to the tiniest particle of inanimate matter. The idea has a long history, originating with PLATO'S *Timaeus* and forming the basic medieval and Renaissance image for a hierarchical arrangement of the universe. It is also the title of a book written by Arthur Lovejoy (1873–1962) in 1936, which traces, from Plato onwards, the 'principle of plenitude'—the notion that all real possibilities are realized in this world.

chance—This is an uncalculated and possibly incalculable element of existence concerned with its contingent as opposed to necessary aspects. For example, something happens by chance when it is not fully determined by previous events—when previous events do not necessarily bring it about, or make it the way it is; in other words, when it is a random event. Sometimes, however, we speak of chance events as those we are unable to predict with certainty, though they might be determined in unknown ways. We can sometimes know the PROBABILITY of chance events in advance. See NECESSARY/CONTINGENT TRUTH, RANDOMNESS.

channel—In communications, a specified band of frequencies, or a particular path, used in the transmission and reception of electric signals. See COMMUNICATION THEORY.

charge—A property of some elementary particles that causes them to exert forces on one another, in terms of positive and negative (the natural unit of negative charge is that possessed by the electron and the proton has an equal amount of positive charge). Like charges repel and unlike charges attract each other. The force is thought to result from the exchange of PHOTONS between the charged particles. The charge of a body or region arises as a result of an excess or defect of electrons with respect to protons.

chemistry—The scientific discipline concerned with the investigation of many thousands of substances which exist in nature or can be made artificially (synthetic chemistry). Traditionally, it is subdivided into various branches with specific concerns: physical (dealing with the physical laws governing chemical behaviour); organic/inorganic (the study of substances containing/

not containing carbon); nuclear or theoretical (applications of statistical and QUANTUM MECHANICS); analytic (the detection and estimation of chemical species) and micro-chemistry, a breed of the former (where minute amounts are involved).

circular definition/reasoning—A definition is circular (and thus, useless) when the term to be defined, or a version of it, occurs in the definition; for example, the definition of 'free action' as 'action that is freely done'. Circular reasoning defends some statement by assuming the truth of that statement. It is also known as 'begging the question'.

Clarke, Samuel—English philosopher who championed a Newtonian philosophy in opposition to the prevailing CARTESIAN climate of thought in the Cambridge of his day. In a famous correspondence with LEIBNIZ, he maintained that space and time were INFINITE homogenous entities, as against Leibniz's claim that they were ultimately relational.

Clausius, Rudolf Julius Emmanuel—German theoretical physicist. He ratified Carnot's theory of THERMODYNAMICS which was shown to be inconsistent with the rapidly developing mechanical theory of heat. Preceding Thomson's equivalent formulation, he held that Carnot's theorem could be maintained provided that heat could not by itself pass from one body to another at a higher temperature. As a result, he developed a precise mathematical expression of the second law of thermodynamics in 1854, and later coined the term ENTROPY to express the law of dissipation of energy in terms of its tendency to increase. In 1858, he introduced the important concepts of mean free path and effective radius of a molecule which was later taken over by MAXWELL. Clausius was able to show that these concepts accounted in principle for the observed small values of diffusion rates and heat conductivities in gases in spite of the very large mean speeds of the gas molecules. This theory based on the laws of dynamics and PROBABILITY theory, provided a significant contribution to the kinetic theory of gases. He was one of the most original physicists of the nineteenth century.

Cogito—Latin, 'I think'. An argument of the type employed by DESCARTES *(Meditation IF)* to establish the existence of the self. His *Cogito, ergo sum* ('I think, therefore I exist') is an attempt to posit the existence of the self in any act of thinking, including even the act of doubting. It is not so much INFERENCE as a direct appeal to INTUITION, but it has commonly been construed as an argument, because of Descartes' formulation.

cognition—From the Latin *cognitio,* 'knowledge' or 'recognition'. The term refers both to the act or process of knowing and the knowledge itself. Competing theories of knowledge are the subject matter of EPISTEMOLOGY.

cognitivism—Any theory that deals with COGNITION scientifically. Also known as cognitive science, it is an umbrella term for a cluster of disciplines including cognitive psychology, EPISTEMOLOGY, linguistics, computer sciences, ARTIFICIAL INTELLIGENCE, mathematics and NEUROPSYCHOLOGY. As a new approach to psychological problems, usually making use of experimental data, cognitivism attempts to create theories adequate to explain cognitive processes. In that it uses mental concepts, it constitutes a break from BEHAVIOURISM which has come to be viewed as incomplete in the study of cognition.

communication theory—See INFORMATION THEORY.

complementarity—The principle which states that a system, such as an electron, can be described either in terms of particles or in terms of wave motion. According to BOHR these views are complementary. An experiment that demonstrates the particle-like nature of electrons will not also show their wave-like nature, and vice versa.

computation, theory of—See COMPUTATIONALISM.

computationalism—In psychology, this refers to the use of computers as models of human functioning, and to the extended notion that human COGNITION is a computational process of the sort typified by a standard digital computer. See CONNECTIONIST/COMPUTATIONAL PARADIGM.

computer modelling—A method of transferring a relationship or process from its actual situation to a computer. Computer models are selective approximations of a real situation which, because of their simplification, allow those aspects of the real world which are under examination to appear in a generalized form.

Comte, Auguste—French philosopher, the founder of positivistic philosophy. He began his first series of public lectures on POSITIVISM in 1826, the first volume of which appeared in 1830. He traced the development of human thought from its theological and metaphysical stages to its last positive stage: the systematic collection and CORRELATION of observed facts and abandonment of unverifiable speculation about first CAUSES and final ends. He is credited with having coined the terms altruism and sociology.

concept/conceptualism—While some philosophers conceive of a concept as a mental entity, it is generally regarded as the meaning of a word or phrase, as in the 'concept of man'. Conceptualism is a theory about the nature of UNIVERSALS as mental representations. For instance, a universal term such as animal, is not *merely* a word which applies to a number of particular animals, nor a special kind of entity, a 'universal' which exists outside the mind. It does indeed stand for an entity, but an ideational one which exists only in the way that concepts exist.

confirmation theory—This is closely associated with VERIFICATION theory, although it is concerned with the truth of scientific hypotheses, rather than statements. Many philosophical doctrines (e.g., scientific EMPIRICISM) hold that a certain hypothesis is said to be confirmed to a certain degree by a certain amount of evidence. It depends upon inductive reasoning: the fact that every known *A* is *B* confirms the hypothesis that every *A* whatever is *B*, but does not establish it conclusively, since it is possible that some as yet undiscovered *A* is not *B*, and thus that the unrestricted generalization is false. Evidence in this case merely confers PROBABILITY and the degree of confirmation is thus dependent upon the bulk and variety of the evidence. CARNAP has made elaborate attempts to develop comprehensive formal theories of confirmation on the basis of such principles. See HYPOTHESIS, INDUCTION.

connectionist/computational paradigm—'Connectionism' is Edward Thorndike's term for the analysis of psychological phenomena in terms of association between, not ideas, but situations and responses. Working within a PARADIGM of this sort, recent connectionist theory portrays cognitive activity as information exchanges within a network of interconnected nodes,

studied in terms of the FEEDBACK characteristics of such systems. It may provide an alternative to the DETERMINISM of the computational paradigm which bases its study of human cognitive activity on the basis of a digital computation without environmental interaction.

conservation, laws of—These laws deal with the conservation of mass and energy and relate to the principle that in any system the sum of the mass and the energy remains constant. It follows from the special theory of RELATIVITY and is a general statement of two classical laws. The principle of conservation of energy states that the total energy in any system is constant, while the principle of the conservation of mass states that the total mass of any system remains constant. According to the general principle of conservation it is held that mass and energy are interconvertible according to the equation $E= MC^2$, EINSTEIN'S law.

constructivism—The view that mathematical entities exist only if they can be constructed (or, intuitively, shown to exist), and that mathematical statements are true only if a constructive proof can be given. It is thus opposed to any view that sees mathematical objects and truths existing or being true independently of (our) apprehension (i.e. PLATONISM). Constructivism encompasses INTUITIONISM, FINITISM and FORMALISM.

contingent truth See NECESSARY/CONTINGENT TRUTH.

continuity in nature, laws of—That by which variable quantities passing from one magnitude to another, pass through all the intermediate magnitudes without passing over any of them abruptly. Many philosophers have asserted the probable conformity of natural operations to this composite law, but Boskovich went so far as to prove it a universal law. Thus, the distances or velocities of two bodies can never be changed without their passing through all the intermediate distances or velocities. The movement of the planets are said to abide by these laws, as well as magnetism, electricity, the passage of time, and strictly speaking, all things in nature.

control engineering—The field of engineering concerned with the establishment of objectives for the manipulation of a system's resources in a rapidly changing environment so that command objectives, in the interests of maintaining the system, may be implemented.

conventionalism—Any doctrine according to which A PRIORI truth, or the truth of PROPOSITIONS (or of sentences) demonstrable by purely logical means, is a matter of linguistic or postulational convention (and thus not ABSOLUTE in character). It entails the view, first expressed by POINCARÉ and developed by MACH and DUHEM, that scientific laws are disguised conventions reflecting the decision to adopt one of various possible descriptions.

Copernicus, Nicolas—Polish astronomer. Architect of the heliocentric theory of the solar system, Copernicus found it necessary to retain seventeen of PTOLEMY'S epicycles, while supposing that planetary orbits were circular. The later work of Tycho Brahe and KEPLER dropped these entirely and transformed the orbits into ellipses.

correlation—In STATISTICS, this is a relationship between two or more variables such that systematic increases in the magnitude of one variable are accompanied by systematic increases or decreases in the magnitude of the other. More loosely, it refers to any relationship between things such that

some concomitant or dependent changes in one (or more) occur with changes in the other(s). Note that in both of these usages one properly withholds the presumption of CAUSALITY between the variables. Correlations are statements about concomitance; they may suggest but do not necessarily imply that the changes in one variable are producing or causing the changes in the other(s).

correlation coefficient—A number that expresses the degree and direction of relationship between two (or occasionally, more) variables. The correlation coefficient may range from -1.00 (indicating a perfect negative correlation) to +1.00 (indicating a perfect positive correlation). The higher the value either negative or positive the greater the concomitance between the variables. A value of 0.00 indicates no correlation; changes in one variable are statistically independent of changes in the other. A large number of statistical procedures exists for determining the correlation coefficient between variables, depending on the nature of the data and their methods of collection. See STATISTICS

correspondence—The principle due to BOHR which states that since the classical laws of physics are capable of describing the properties of macroscopic systems, the principles of QUANTUM MECHANICS, which are applicable to microscopic systems, must give the same results when applied to large systems.

co-variance/co-variation—Co-variation is a literal synonym for co-variance which refers to changes in one variable being accompanied by changes in another.

covering law—A general law applying to a particular instance. The covering law theory of explanation states that a particular event is explained when one or more covering laws are given that (together with particular facts) imply the event. For example, we can explain why a piece of metal rusted by appealing to the covering law that iron rusts when exposed to air and moisture, and the facts that this metal is iron, and was exposed to air and moisture. See 'DEDUCTIVE-NOMOLOGICAL MODEL'.

cybernetics—From the Greek *kubernētēs,* meaning 'steersman'. The science of systems of control and communication in animals and machines in terms of FEEDBACK mechanisms. The term was coined by WIENER to designate this field of study, which was a burgeoning interdisciplinary movement led by him in the 1940s. It initially involved mathematics, neurophysiology and CONTROL ENGINEERING, but expanded to include MATHEMATICAL LOGIC, AUTOMATION THEORY, psychology and socioeconomics.

Darwin, Charles—The great English naturalist who gave shape to his evolutionary HYPOTHESIS in *The Origin of Species* (1859). He was not the first to advance the idea of the kinship of all life but is memorable as the expositor of a provocative and simple explanation in his theory of natural selection. He served to establish the fact of evolution firmly in all scientific minds.

Dedekind, Julius William Richard—German mathematician. His major contribution is the 'Dedekind Cut', which allows irrational NUMBERS to be defined in terms of rational numbers, marking the place and filling in the gaps between the set of rational numbers as points on a straight line. It implies that the number series is compact and continuous.

deduction/induction—From the Latin *de,* 'from', and *in* 'in', combined with *ducere* 'to lead'. In an outdated way of speaking, deduction is reasoning from the general to the particular and induction is reasoning from the particular to the

general. In a more contemporary way, the distinction between them is made as follows: correct deductive reasoning is such that if the premisses are true, the conclusion must be true; whereas correct inductive reasoning supports the conclusion by showing only that it is more probably true. A common form of induction works by enumeration: as support for the conclusion that all p's are q's, one lists many examples of p's that are q's. It also involves 'ampliative argument' in which the premisses, while not entailing the truth of the conclusion, nevertheless purports good reason for accepting it.

deductive-nomological model—This mode of explanation takes the form of the logical derivation of a statement depicting the phenomenon to be explained (explanandum) from a set of statements specifying the conditions under which the phenomenon is encountered and the laws of nature applicable to it (explanans). It is also known as the 'COVERING LAW' method of explanation.

De Morgan, Augustus—English mathematician and logician; a noted teacher and founder of the London Mathematical Society. He wrote on PROBABILITY, trigonometry and PARADOXES. De Morgan's rule is used in SET THEORY.

denotation/connotation—The denotation or reference of a word is what that word refers to—the things in the world that it 'names'. By contrast, the connotation or sense of a word is its meaning. Thus, a word can have connotation but no denotation: 'unicorn' has meaning but no reference. The distinction is synonomous with EXTENSION/INTENSION. See also SENSE AND REFERENCE.

Descartes, René—French philosopher and mathematician, the founder of modern philosophy. Earlier scholasticism saw the job of philosophy as analysing and proving truths revealed by religion; Descartes' revolutionary view was that philosophy can discover truth. His famous recipe for doing this is the method of systematic doubt; this is necessary to begin the search for the 'indubitable' foundations for knowledge, the first of which is the truth of his own existence as a thinking (not a material) thing. Although he was a champion of mechanistic thinking about the external and material world, and in fact contributed substantially to the new science and mathematics, he was a DUALIST, and believed that minds are non-material. See MECHANISM.

descriptions, theory of—RUSSELL'S attempt to show how a definite description can have meaning even when there is nothing that answers to that description. How, for example, can one say meaningfully 'The present King of France is bald'? A non-Russellian analysis of the sentence would attempt to isolate a non-existent individual and predicate baldness of him, giving rise to a descriptive FALLACY. It renders the sentence meaningless because, having failed to perform an act of reference, the sentence could not be said to be either true or false. Russell's strategy is to move the definite description out of the position which it occupies, i.e., that of the subject of the PROPOSITION. So, for 'the present King of France is bald', Russell would substitute, 'There is at least one individual which is at present a King of France, and there is at most one individual which is at present a King of France, and that individual is bald'.

determinism—From the Latin *determinare,* 'to set bounds or limits'. The view that every event has previous CAUSES, such that given its causes, each event must

have existed in the form it does. There is some debate about how (and whether) this view can be justified. The view that at least some events are not fully caused is called 'indeterminism'. Determinism is usually a PRESUPPOSITION of science; KANT thought it was necessary; but quantum physics holds that it is false. One of the main areas of concern about determinism arises when it is considered in connection with or in contrast to free will.

dualism/monism—These terms characterize views on the basic kind(s) of things that exist. Dualists hold that there are two sorts of things, neither of which can be understood in terms of the other. In particular, 'dualism' often refers to the view in the philosophy of mind in which the two distinct elements are the mental and the physical. By contrast, monists believe in only one ultimate kind of thing. While the term dualism was initially introduced in 1700 by Thomas Hyde to characterize the good-evil conflict, the term monism was introduced by Christiann Wolff in a discussion of the MIND/ BODY PROBLEM.

Duhem, Pierre Maurice Marie—French theoretical physicist.

Du Bois Reymond, Emil—German physiologist, pioneer of the study of the electric phenomena of living tissues.

Durkheim, Emile—French positivistic sociologist. Influencing French sociology in an EMPIRICAL direction, he stressed the importance of the group as the origin of the norms and goals of individuals, and the source and reference of religious symbols. The function of religion in his view is the creation and maintenance of social solidarity. See POSITIVISM.

Eddington, Sir Arthur Stanley—English astronomer and physicist. He is celebrated for his pioneering work on stellar structure (1926) and for his attempts to unify general RELATIVITY and QUANTUM MECHANICS, with a marked ability to convey complex mathematical ideas to the layperson.

effector—Generally, a muscle or gland at the terminal end of an efferent neural process which produces an observed response or effect.

efferent/afferent nervous system—Efferent is from the Latin, meaning 'carry away from'. Hence, in neurophysiology it refers to the conduction of nerve impulses from the central nervous system outward toward the periphery (muscles, glands). Efferent neurons and neural pathways carry information to EFFECTORS and are called motor neurons or pathways. The afferent nervous system, by contrast, refers to the conduction of nerve impulses from the periphery (the sense organs) the central nervous system.

Einstein, Albert—German-born theoretical physicist whose major contribution was the theory of RELATIVITY. He was educated in Zurich and in 1901 he completed his studies, became a Swiss citizen, and made his first contribution to physics. This was followed in 1905 by three important papers: one was on Brownian movement and provided the most direct evidence for the existence of molecules; another dealt with the spectrum of radiation and provided the basis of QUANTUM MECHANICS; and one presented the special theory of relativity. The fundamental paper on general relativity came in 1915, and was followed by a Nobel prize for his work on quantum theory in 1922. He taught in Zurich, Prague and Berlin, but in 1932 found himself in the United States where he spent the rest of his life, eventually becoming a citizen and holding

a position at the Princeton Institute of Advanced Study. See QUANTUM FIELD THEORY.

electromagnetism—One of the four fundamental FORCES of nature characterized by the FIELDS produced by the elementary charged particles, i.e. protons and electrons. More generally, it is also one of the main branches of physics, linking the phenomena of electrostatics, electric currents, magnetism and optics into a single conceptual framework. The final form of the theory was devised by MAXWELL and is one of the triumph of the nineteenth century science. See CHARGE.

elementary number theory—A branch of pure mathematics concerned generally with the properties and relationships of integers.

elementary proposition—In WITTGENSTEIN'S philosophy these are possible concatenations of simple elements which feature 'states of affairs'. They are composed of strings of names which are ISOMORPHIC to the concatenations of the objects they represent. An elementary PROPOSITION is true, if the objects it mentions are concatenated the way it pictures them, otherwise it is false and the state of affairs does not obtain. The SYNTAX of elementary propositions thus mirrors the geometry of states of affairs.

emotivism—A position in meta-ETHICS that holds that ethical utterances are to be understood not as statements of fact that are either true or false, but rather as expressions of approval or disapproval and invitations to the listener to have the same reactions. HUME might be construed as holding a form of emotivism; in this century, the position is associated with AYER and the American philosopher STEVENSON.

empirical—Relating to sense experience and experiment; having reference to actual facts. In EPISTEMOLOGY, empirical knowledge is not innate, but is knowledge we get through experience of the world; thus it is A POSTERIORI. In scientific method, it is that part of the method of science in which the reference to actuality allows an HYPOTHESIS to be erected into a law or general principle. It is contrasted with NORMATIVE which means regulative or constituting an ideal standard.

empiricism—From the Greek *empeiria,* which is from *empeiros,* meaning 'experienced in', 'acquainted with', 'skilled at'. The doctrine that the source of all knowledge is to be found in experience. One of the major theories of the origin of knowledge, empiricism is usually contrasted with rationalism, the doctrine that reason is the sole, or at least the primary, source of knowledge. Although this term is associated with the denial of innate CONCEPTS and a SYNTHETIC A PRIORI, in general it refers to stressing the role of experience instead of pure reason in the acquisition of knowledge.

entropy/negentropy—Entropy is the measure of the proportion of total energy within a closed system that is available for useful work. If part of the system is hotter than another part then work can be done as the heat energy passes from the hotter to the colder part; but if the temperature is relatively consistent throughout, the system is incapable of accomplishing work. This property follows from the second law of THERMODYNAMICS in that, as a result of irreversible changes to a system in which it expends energy, its capacity to produce additional work decreases and its entropy thereby increases. The absolute value of the entropy of a system—which remains an

arbitrary zero with only changes in its value being significant—is a measure of the unavailability of its energy.

Negentropy is also known as negative entropy and thus refers to the absence of entropy. While entropy is a measure of a relative lack of information, negentropy corresponds to its presence. In the form of structure, it means the departure from the random arrangement of a system's components, to an orderly situation in which is it capable of productive work. See RANDOMNESS.

epiphenomenalism—Theory of the body-mind relation which holds that consciousness is, in relation to the neural processes which underlie it, a mere epiphenomenon, or 'by-product'. This view was advanced by Clifford, HUXLEY and Hodgson.

epistemology—From the Greek *episteme,* 'knowledge' or 'science', and *logos,* 'knowledge'. This term designates the theory which investigates the origin, structure, methods and VALIDITY of knowledge. It is one of the main branches of philosophy. Among the central questions studied here are: What is the difference between knowledge and mere belief? Is all (or any) knowledge based on sense perception? How, in general, are our knowledge claims justified?

EPR experiment—The 1935 work of EINSTEIN, Podolsky and Rosen (EPR) which concluded that QUANTUM theory did not constitute a 'complete' theory, the necessary condition of which, according to EPR, being that 'every element of the physical reality must have a counterpart in the physical theory'. The concept of reality was defined with the claim that if we can predict the value of a physical quantity with certainty (i.e., with PROBABILITY equal to unity) and without in any way disturbing a system, then there exists an element of physical reality corresponding to this physical quantity. The EPR experiment can be criticized on the ground that 'the system' must be understood in its totality and cannot refer to just one of the particles of a two-particle system. A measurement of one of them does indeed disturb the system and alters the quantum mechanical description. Thus, motivated by the EPR argument one may ask whether it is possible to formulate a theory in which physical quantities do have OBJECTIVELY real values 'out there', independently of whether any measurements are made.

equivocation—From the Latin *aequia-vox* meaning 'same name'. Any FALLACY arising from the ambiguity of a word, or of a phrase playing the role of a single word in the reasoning in question, the word or phrase being used at different places with different meanings. The INFERENCE drawn is formally correct if the word or phrase is treated as being the same word or phrase throughout.

esoteric/exoteric—From the Greek *esotero*, 'inner'/'interior', and *exoterikos,* 'outside'. The first implies belonging to the inner circle of initiates, or experts, an exclusive system (i.e., the esoteric doctrines of the Stoics, or the esoteric members of Pythagorean brotherhoods). It is contrasted with exoteric, which connotes that a doctrine or system is open to the public.

essence/essentialism—Essentialism may apply to PLATO'S philosophy of the Forms, but more generally, it is the metaphysical view dating back to ARISTOTLE, maintaining that some objects—no matter how described—have essences;

that is they have, essentially or necessarily, certain properties, without which they could not exist or be the things they are. There is also a related view, originally presented by Locke, that objects must have a 'real'—though as yet unknown—'essence', which (causally) explains their more readily observable properties (or 'nominal essence'). Recently, essentialist considerations have been applied to problems raised in LOGIC and to issues in the philosophies of science and of language. See also METAPHYSICS, CAUSE.

ethics—From the Greek *éthikos,* which is from *ethos,* meaning, 'custom' or 'usage'. As employed by ARISTOTLE, the term included both the idea of 'character' and that of 'disposition'. *Moralis,* a term which was considered equivalent to *éthikos,* was introduced by Cicero. Both terms imply connection with practical activity. It is widely understood that ethical behaviour concerns acting in terms of the good and the right, and the philosophical analysis known as ethics tended to centre on these terms.

ethnomethodology—A term originally coined by GARFINKEL to describe the study of the 'resources' available to participants in social interactions and how these are utilized by them, focusing on the practical reasoning processes that ordinary people use in order to understand and act within the social world. The term is generally used to apply to a body of sociological and psychological research on conversational rules, negotiation of property rights and other socially motivated interactions.

Euclid of Alexandria (3rd century BC).—Greek mathematician, founder of Euclidean geometry and probable founder of the Alexandrian School of geometry. For over 2,000 years his work in geometry held unlimited VALIDITY. Even with the development of non-Euclidean systems of geometry, Euclid's work retains great mathematical importance. In modern mathematics, Euclidean space can have any number of dimensions where the distance between two points is interpreted in the same way as that in two or three dimensions. See 'GEOMETRY, EUCLIDEAN'.

explanandum/explanans—See DEDUCTIVE-NOMOLOGICAL MODEL.

extension—From the Latin *ex,* 'out', and *tendere,* 'to stretch'. The extension of something is its dimensions in space. Having extension is characteristic of things composed of extended SUBSTANCE. Mental substance is unextended since it has no spatial dimensions.

extension/intension—In contemporary LOGIC, 'extension' is sometimes used synonymously with 'DENOTATION', and 'intension' with 'connotation'. The extension of a CONCEPT—a term or a predicate—is the set of things to which that concept applies, while its intension is its meaning in the sentence. An extensional context is a referentially transparent context. This occurs in a sentence where the substitution of an expression does not affect the truth value of the sentence: (1) a singular term *a,* where *b* for *a* have the same denotation; (2) a predicate *F* where *G* for *F* have the same extension; (3) a sentence *p,* where *q* for *p* have the same truth value. Contexts which are not extensional, due to the substituted concept's different meaning in the context, are intensional and opaque. For an example, see OPACITY AND TRANSPARENCY, REFERENTIAL.

fallacy—From the Latin *fallacia,* 'deceit', 'trick' or 'fraud'. Any unsound step or process of reasoning, especially one which has a deceptive appearance of

soundness or is falsely accepted as sound. The unsoundness may consist either in a mistake of formal LOGIC, or in the suppression of a premiss whose unacceptability might have been recognized if it had been stated, or in a lack of genuine adaptation of the reasoning to its purpose. There are many recognized kinds of fallacies. For examples, see *AD HOC,* DESCRIPTIONS, THEORY OF, EQUIVOCATION, MODAL LOGIC, *POST HOC.*

fallibilism—A doctrine of the pragmatist Charles Pierce that ABSOLUTE CERTAINTY, exactitude, or universality is available in no area of human concern or enquiry, but that movement towards these characteristics is available in every case.

family resemblance—By analogy with the ways members of a family resemble each other, this is the sort of similarity that things classified into certain groups share: each shares characteristics with many but not all of the others, and there are no necessary or sufficient conditions for belonging in that classification. WITTGENSTEIN argued that many of our CONCEPTS are family-resemblance concepts, such that they cannot be defined by necessary and sufficient conditions. His best-known example is the concept of a game.

Faraday, Michael—English physicist, the main architect of classical field theory. His work was rejected by his contemporaries and was only later made respectable by MAXWELL. See FIELD.

feedback, positive/negative—While all operating systems function through input and output couplings, feedback is the process of returning a fraction of the output energy or information to the input by producing a corresponding variation between them. Positive feedback occurs when deviation from a stable state produces outputs that lead to yet further deviation, i.e., when an increase in population which produces a greater increase in subsequent generations. With negative feedback, by contrast, the input energy is decreased. It is like a regulatory restraint which tends toward stabilizing the system, as in HOMEOSTASIS.

fideism—The view of Abbé Louis Bautain (the nineteenth-century French Catholic philosopher) that faith precedes reason with respect to knowledge of God, and that in this respect reason is metaphysically incompetent. The doctrine was condemned in an 1855 decretal. See METAPHYSICS.

field—A region under the influence of some physical agency, such as the electric field resulting from an electric CHARGE.

finite—See INFINITE/FINITE.

finitism—An approach to mathematics that admits to its domain only a FINITE number of objects (numbers), each of which must be capable of construction in a finite number of steps. Any general theorem that asserts something of all members of the domain is acceptable only if it can be proven, in a finite number of steps, to hold of each particular member of the domain. HILBERT was the major proponent of finitistic methods in mathematics.

force—Any action that alters or tends to alter a body's state of rest or velocity.

formal/truth/logic—In the traditional use, formal truth means valid independently of the specific subject matter; having a merely logical meaning. In the narrower sense of formal LOGIC which works by exhibiting, often in symbolic notation, the logical form of sentences, it means independent of, without reference to meaning. See VALIDITY, SYMBOLS.

formalism—The tendency to emphasize form as over against content. In ETHICS, the term is sometimes used as equivalent to INTUITIONISM, and is often used to designate any ethical theory, such as KANT'S in which the basic principles for determining our duty are purely formal. In mathematics, formalism refers to a programme of deriving all of mathematics from the smallest possible number of AXIOMS by rules of formation and rules of INFERENCE.

formal/material mode of discourse—The distinction put forth by CARNAP to eliminate the necessity of experience in evaluating the truth of statements. By the formal mode he meant a discourse that confined itself to statements and did not try to go beyond these in reference to things, as in the case of the object sentences of the material mode.

Frege, Gottlob (1848–1925). German logician and philosopher of language, the founder of modern MATHEMATICAL LOGIC. He is best known for inventing QUANTIFICATION in logic, for his arguments that mathematics should be understood as an extension of LOGIC, and for his investigations into the relation between SENSE AND REFERENCE in the philosophy of LANGUAGE.

function—Loosely speaking, a correspondence between one group of things and another. The notion is used in arithmetic, where for example, y is said to be a function of x in the formula $y=x^2$. In its applications in LOGIC, the input value (in place of x in this case) is called the 'argument' of the function, and the output (the corresponding value of y) is called the 'value' of the function for that argument. For instance, given the argument 3, the value is 9.

functionalism—In philosophy, this is an approach to the study of mind that views mental states as functional states. Functionalism in this sense is distinguished metaphysically from PHYSICALISM in that rather than arguing that two identical mental states are physically identical, it argues that they should (can) only be viewed as functionally equivalent. In psychology, this is a general and broadly presented point of view that stresses the analysis of mind and behaviour in terms of their functions or utilities rather than contents.

Galilei, Galileo (1564–1642). Italian astronomer and natural philosopher. Among his scientific discoveries are the isochronism of the pendulum, the hydrostatic balance, the principles of dynamics, the proportional compass and thermometer, and although he did not invent it, he is famous for radically improving the telescope. With the aid of this instrument, he described the mountains of the moon, the Milky Way as a vast constellation of stars, the satellites of Jupiter, the phases of Venus and the so-called solar spots. He is also well-known for his innovative work on gravity and the interdependence of motion and FORCE.

Garfmkel, Harold—American sociologist. He is the founder of ETHNOMETHODOLOGY.

Gassendi, Pierre—French philosopher, scientist and mathematician. He argued the impossibility of deriving scientific theory from sensory experience and held an atomistic theory of the universe; but he is principally known for his fifth set of objections to DESCARTES' *Meditations* (1642).

Gauss, Karl Friedrich—German mathematician and astronomer, considered one of the most original mathematicians who ever lived. He was famous for his contributions to number theory, geometry and astronomy. He was first to prove the fundamental theorem of ALGEBRA and was a pioneer in

non-Euclidean GEOMETRY, STATISTICS and PROBABILITY, the theory of FUNCTIONS and the geometry of curved spaces.

genus/species—For philosophers, not just biological hierarchical divisions, but divisions of group and sub-group anywhere. A genus is a general classification; a species subdivides the genus. This nomenclature is especially associated with ARISTOTLE, who thought that a species ought to be defined, by giving the essential characteristics of its genus, plus the *differentia* (Latin, 'difference') that distinguish that species from others in the genus.

geometry, Euclidean—The geometry based on the assumptions of EUCLID and dealing with the study of plane geometry (two-dimensional) and space or solid geometry (three-dimensional). His AXIOMS were developed in *Elements* which was the pre-eminent textbook on the subject for over 2,000 years; it was not until the nineteenth century that the possibility of a non-Euclidean geometry was seriously considered. See GEOMETRY, NON-EUCLIDEAN.

geometry, non-Euclidean—Any geometry not based upon EUCLID'S assumptions; in particular, the substitution of a postulate different from 'Euclid's parallel postulate' which said that one and only one line can be drawn through a point outside a line and parallel to the line. Until the nineteenth century, this was accepted as a self-evident truth. The replacement of the postulate (as in spherical and pseudo-spherical geometry) and the development of new geometries led to a new look at the basic assumptions on which mathematics is built. The founders of non-Euclidean geometry were GAUSS, Riemann, BOLYAI and LOBACHEVSKI.

Gödel, Kurt—Czech-born American mathematical logician who proved a number of fundamental mathematical results that bear his name; in the course of these proofs he showed the unattainability of the aims of HILBERT'S PROGRAMME and (on some interpretations) LOGICISM, and brought about a complete reassessment of the foundations of mathematics. Gödel's theorem is the proof of the existence of formally undecidable PROPOSITIONS in any FORMAL system of arithmetic. See MATHEMATICAL LOGIC.

Harré, Rom (Horace Romano)—New Zealand-born philosopher of SCIENCE and social and BEHAVIOURAL SCIENCES, who currently teaches at Oxford.

Hartley, David—British philosopher and physician. He developed an account of mind based on sound-like vibrations which is highly important in the history of psychology. He used this not only to explain transmission of messages in the nervous system, but also association of ideas by a kind of resonance, as when one vibrating string activates another by sympathy.

Heider, Fritz—Swiss-born social psychologist who also lived in Germany and the United States, where he emigrated in 1930. His main work, *The Psychology of Interpersonal Relations* (1958), was an influential and wide-ranging phenomenal enquiry which sought to explicate how we discern meaning in everyday events and contributed to the development of ATTRIBUTION THEORY.

Helmholtz, Herman Ludwig Ferdinand von (1821–94).—German scientist, one of the most versatile of the nineteenth century. He is celebrated for his contributions to physiology and theoretical physics.

Hempel, Carl Gustav (1905-). German-born and -educated philosopher who also studied mathematics and physics, and taught in the United States. He became a representative of logical POSITIVISM with its EMPIRICISM and scientific

framework and is known for his 'COVERING LAW' approach which allowed for statistical explanations. These use probabilistic laws to show that the event to be explained is made highly probable, rather than deductively necessitated, by the explanatory premisses. See DEDUCTION, PROBABILITY, STATISTICS.

Hempel's paradox—The PARADOX, developed by Hempel, which deals with the way in which an observation report confirms a generalization. Observing a black raven ought to confirm the HYPOTHESIS that all ravens are black; equally, observing a non-black raven ought to confirm the hypothesis that all non-black things are non-ravens; yet the second hypothesis is logically equivalent to the first, so observation of a white shoe ought to confirm that all ravens are black. But intuitively, it does not. This is one of the difficulties formal CONFIRMATION THEORY meets.

heuristic—From the Greek *heuriskein,* 'to discover'. Serving to find out, helping to show how the qualities and relations of objects are to be sought. In METHODOLOGY, aiding in the discovery of truth. The heuristic method is the analytic method.

hidden variable—An indeterminate factor of which we are currently ignorant, but which once discovered, would in theory allow for an accurate CAUSAL prediction of the phenomena in question. In QUANTUM MECHANICS, a hidden variable view of matter implies the fundamental CAUSALITY of invisible FORCES at the sub-atomic level.

Hilbert, David—German mathematician. A pioneer, along with PEANO, of the science of axiomatics (see AXIOM). This is the attempt to establish a minimum number of unidentified terms and basic definitions, and from these to deduce rigorously the entire structure of mathematics. Recognizing the assumptions at the basis of EUCLID'S geometry, he shifted its foundation from INTUITION to LOGIC.

Hilbert space—A multidimensional space in which the proper (eigen) FUNCTIONS of WAVE MECHANICS are represented by orthogonal unit vectors.

Hilbert's program—Proposed by Hilbert in 1920 in support of his FORMALISM in the foundations of mathematics, this became a motivating problem of metamathematics, showing by purely syntactic means that finitistic methods could never lead to contradiction. This is equivalent to finding a decision ALGORITHM for all of mathematics, and although it was shown unattainable by GÖDEL'S proof in 1931, the project nonetheless led to the development of proof theory and computability theory. See FINITISM, SYNTAX.

Homans, George C(aspar)—American sociologist and professor at Harvard, whose interests range from sociological theory and applications of anthropology to industrial relations.

homeostasis—A type of FEEDBACK by which deviation from stability is counteracted by adjustment internal to the system itself. It refers to an adaptive process which is evident among biological organisms in the mechanisms regulating body temperature and chemical composition of blood.

Hooke, Robert—English scientist. He is known as one of the most brilliant and versatile scientists of the seventeenth century, surpassed only by NEWTON. His contributions in optics and gravitation were dwarfed by the latter with

whom he engaged in many controversies. His reputation as an inventer of scientific instruments, however, remains unrivalled for that period.

Hume, David—British philosopher, born and educated in Edinburgh, one of the greatest philosophers of all time. A thoroughgoing empiricist, he believed that all our ideas were copies of sense impressions; he argued that many of our notions (such as the continuing 'self, and the necessary connection we suppose exists between CAUSE and effect), since unsupported by perception, are mistaken, and that A PRIORI knowledge must derive merely from logical relations between ideas. He is famous also for sceptical conclusions regarding moral 'knowledge': our ethical reactions, he argued, come merely from the psychological tendency to feel sympathy with others. His scepticism and empiricism were enormously influential in the tradition ANALYTIC PHILOSOPHY.

Huxley, Thomas Henry—British scientist, who was the main supporter of DARWIN, but also a distinguished scientist in his own right. A prolific writer, he produced research papers and books on wide-ranging subjects, mainly zoological and palaeontological, but also geological, anthropological and botanical.

hypothesis/null hypothesis—A tentative suggestion that may be merely a guess or a hunch, or may be based on some sort of reasoning; in any case it needs further evidence to be rationally acceptable as true. Some philosophers think that all scientific enquiry begins with hypotheses. A null hypothesis is one which has been shown to be invalid.

iatrochemistry/iatrophysics—The study of chemical/physical phenomena in order to obtain results of medical value. Iatrochemistry was practised in the sixteenth century, and finds modern equivalents in chemotherapy or pharmacology.

ideal/idealism—From the Greek *idea,* 'vision' or 'contemplation'. Broadly, any theoretical or practical view emphasizing mind (soul, spirit, life) or what is characteristically of pre-eminent value to it. It is the alternative to MATERIALISM, stressing the 'ideal'—supra-or non-spatial, incorporeal, NORMATIVE or valuational, and ideological—over the real—concrete, sensuous, factual and mechanistic. Metaphysical idealism is the view that only minds and their contents really or basically exist—a form of monism; and epistemological idealism is the view that the only things we know (or know directly) are our own ideas. 'Idealism' was first used philosophically by LEIBNIZ at the start of the eighteenth century.

idealism—See IDEAL.

incomplete symbol—RUSSELL'S designation for expressions that disappear upon analysis, giving rise to a logical fiction. For example, if a sentence such as 'There is a possibility it will rain' is represented by 'It is possible it will rain', the possibility is said to have been shown to be a logical fiction. His theory of definite DESCRIPTIONS, he believed, showed such descriptions to be incomplete symbols and enabled him to speak of the supposed reference of a non-referring description as a logical fiction. He also aimed to show that symbols for classes were incomplete and that classes were logical fictions.

individuation—Development or determination of a particular (individual) from its corresponding universal form or general type. The principle of

individuation refers to the CAUSE (such as matter, God or form) of individuation.

in situ—Latin, meaning in its (original) place.

induction—See DEDUCTION/INDUCTION.

inductive-statistical model—A form of explanation holding that we can explain some particular action or event by showing that a statement which predicts it is supported with a high degree of inductive PROBABILITY by some set of antecedent conditions.

inductivism—The view in philosophy of SCIENCE which privileges INDUCTION as a valid method of establishing scientific proof. With the growth of NATURAL SCIENCE philosophers became increasingly aware that a deductive argument can only bring out what is already implicit in the premisses, and hence, became inclined to insist that all new knowledge must come from some form of induction, i.e., an empirically based method of reasoning by which a general law or principle is inferred from observed particular instances. BACON, who believed that the method was infallible if the collection of experimental instances was exhaustive, was the prophet of inductivism. In the twentieth century, analyses of induction have proliferated, and largely due to the work of CARNAP with his concept of 'degree of CONFIRMATION', have coalesced with PROBABILITY theory. See DEDUCTION/INDUCTION, EMPIRICAL, INFERENCE.

inference—From the Latin *in* and *ferre,* 'to carry or bring'. A logical relation that holds between two statements when the second follows deductively from the first. This relation is sometimes called implication, but inference refers to the *act* of inferring, the mode of reasoning involved when moving from one statement to another, which the first statement implies. See DEDUCTION/INDUCTION.

infinite/finite—From the Latin *in,* 'not', and *finis* 'boundary', 'limit', 'end'. Thus, infinite means that without limit, boundary or end. Etymologically, the first term is gained by negation of the latter term, although there are those who would claim that the conception of the infinite is prior to the finite. The infinite has been associated from the start with series of NUMBERS, magnitudes, times and spaces, the endlessness of such series provides one, and the basic, conception of infinity. Yet if one applies the predicates 'finite' and 'infinite' to being, the conception changes; if finite being is limited in extent, properties, etc., infinite being would be unlimited, or perhaps ABSOLUTE, in all of these respects.

infinity, axiom of—An AXIOM of SET THEORY that asserts, in one form or another, that there exists a set with an INFINITE number of members, or that the number of objects in the world is a natural number. The reduction of mathematics to set theory requires the axiom of infinity, which RUSSELL originally and erroneously believed was provable from other accepted assumptions. The axiom is now known to be independent of the other axioms of set theory.

information theory (Also known as **communication theory**)—In CONTROL ENGINEERING, the study treating the problem of transmitting messages: that is, of reproducing at one point either exactly or approximately a message

selected at another point. The meaning of the message is irrelevant to the technical problem, and is to be distinguished from a semantical understanding of communication. It is concerned with the ability to encode, transmit, and decode an actual message selected from a set of possible messages with which the communication system claims to deal. Success in this depends on the quantity of information that has to be processed in a unit of time, measured against CHANNEL capacity. Mathematical tools are developed to enable such measurements to be made and compared. The simplest example would be the selection of one out of two equally likely possibilities (one bit, while one out of four requires two bits, etc.). In general, the selective information content measures the statistical unexpectedness of the event in question. The more improbable an event, the larger its selective information content. This way of measuring was developed by SHANNON who inaugurated the study in 1948.

This theory is strongly interdisciplinary and embraces communication processes of all kinds—in human societies, nervous systems and machines. Psychologists and physiologists now make extensive use of its general ideas and it has become commonplace to regard the impulses that flow along nerve fibres as 'conveying information' (although how these are represented in the brain remains unknown). Nonetheless, information theory provides a valuable conceptual bridge between physiology and psychology.

instantiation theory—In the philosophy of SCENCE, a sub-theory of INDUCTIVISM which holds that a scientific theory is confirmed by instances to it. In this sense, every example under consideration that does not contradict a theory or law is an instance of it. However, the reliability of this theory is problematic due to its reliance on INTUITION and the logical paradoxes it gives rise to. See 'HEMPEL'S PARADOX'.

instrumentalism—The view that one should understand scientific theory in terms of experimental procedures and predictions, stressing means over ends. It holds that theoretical entities do not really exist, and that statements about them do not have truth value; they are actually only instruments, tools or calculating devices to relate observations to predictions. Instrumentalism is also the name of the position associated with PRAGMATISM, especially with Dewey, that emphasizes the way our thinking arises through practical experience and represents a way of coping with our environment.

inter alia—Latin, 'amongst other things'.

introspection/introspectionism—From the Latin *intro,* 'within' and *spectare,* 'to look'. Observation directed on the self or its mental states and operations, either through the direct scrutiny of conscious states and processes as they take place, or the recovery of these upon a retrospective act. The term is the modern equivalent of 'reflection' and 'inner sense' as employed by LOCKE and KANT. In psychology, introspectionism is the standpoint which advocates the introspective method.

intuition—From the Latin *intueri,* 'to look at'. As in vision, intuition involves knowledge by which the object (the self, a conscious state, the external world, a universal, rational truth) is immediately apprehended. It can be apprehended directly and completely, in what it is, or it can be apprehended in its concreteness. In the former the intuitive knowledge is opposed to the discursive, in the latter it is opposed to the abstract.

intuitionism—Any theory that holds INTUITION as a valid source of knowledge, as in the philosophies of DESCARTES, SPINOZA and LOCKE. ETHICAL intuitionism is the position that ethical truths are intuited, while mathematical intuitionism holds that any sort of mathematical entity exists only if it is possible to give a constructive existence proof of it (by producing an example of it or providing a method for producing one). See CONSTRUCTIVISM.

invariance—Generally, characteristic of that which does not change. The term is most often used with the qualifier relative since few things are truly invariant. In the psychological study of perception and learning, those aspects of the stimulus world that display higher degrees of invariance, relative to other aspects, are learned most quickly and easily.

ipso facto—Latin, 'by the fact itself', by that very fact or act, thereby.

isomorphism—From the Greek *iso* 'equal' and *morphé* 'form'. The relevance of this term to philosophy derives from the discipline of mathematics, and is related to the close association between mathematics and LOGIC. Any two groups of entities can be said to be isomorphic when they have the same structure, that is, when by a one-to-one correspondence the elements of one group can be correlated with the elements of the other.

James, William—One of the most important and influential American philosophers whose main contribution came through his *Principles of Psychology* (1890). He espoused a doctrine of radical EMPIRICISM, maintaining that experience consists of a plurality, or multiplicity, of reality (real units). He not only doubted consciousness, like HUME, but denied it, holding that reality was nothing but the stream of OBJECTIVE experiences. See also, LANGE.

Kant, Immanuel—German philosopher, one of the most important figures in the history of philosophy. His epistemological concern was with the 'truths of reason' (for example that everything has a CAUSE). Kant thought that such knowledge was A PRIORI and SYNTHETIC, and that it could be accounted for by the way that any rational mind necessarily thinks. Similarly, he argued that the basis of ETHICS is not EMPIRICAL or psychological. Ethical knowledge can be derived merely from the a priori form any ethical assertion must have: it must be universalizable—that is, rationally applicable to everyone (the categorical imperative). Kant argued that this is equivalent to saying that the basic ethical truth was that everyone must be thought of as an end, never merely as a means. Kant's ethical theory has become a major consideration in contemporary ethics.

Kepler, Johannes—German mathematician and one of the founders of modern astronomy. His three laws of planetary motion state: (1) the orbit of each planet is an ellipse, with the centre of the sun at one focus; (2) the imaginary line joining the centre of each planet with the centre of the sun moves over equal areas of the ellipse in equal periods of time; (3) the time each planet takes to complete its journey around the sun is proportional to the cube of its mean distance from the sun.

Keynes, John Maynard—British economist; the most seminal economist of the twentieth century.

Koyré school—A school of thought in the philosophy of SCIENCE led by the Russian philosopher Alexandre Koyré. He held that the great discoveries of the scientific revolution (from COPERNICUS TO NEWTON) were the

achievements of truth-loving individuals working in isolation. This 'internalist' interpretation stressed theory over practice and developed in contrast to the Marxist interpretation of modern science as the response to the technological needs of an emerging capitalist economy.

Kronecker Leopold—German mathematician who developed algebraic number theory. He was often *in* debate with WEIERSTRASS and Cantor which gave rise to his system of AXIOMS to support a formalist viewpoint. See ALGEBRA.

Kuhn, Thomas—American philosopher and historian of science. He holds that scientific theories develop around basic PARADIGMS or models which are of central importance in interpreting scientific theories (i.e., the model of atomic theory in terms of a solar system). In his book *The Structure of Scientific Revolutions* (1962), he described how the scientific community determines the line between orthodoxy and heresy at any given time, such that change in the orientation of science depends upon convulsions in that community.

La Mettrie, Julian Offray de—French philosopher and physician, known for the MATERIALISM of his books, and mechanistic view of both animals and man.

Lange, Carl Georg—Danish psychologist and materialist philosopher. Working independently of William JAMES, he developed an almost identical theory of emotion, i.e., that emotion consists of the bodily changes evoked by the perception of external circumstances. It is known as the James-Lange theory.

Laplace, Pierre Simon—French mathematician, remembered for his contributions to mathematical physics and celestial mechanics.

language, philosophy, of—The branch of philosophy concerned with meaning, truth and with the force of utterances. To be distinguished from 'linguistic philosophy' which is wider in scope and entails the general belief that philosophical questions may be approached by asking questions about the use of words. In the first sense, the question as to the justifiability of this approach is central (as with AUSTIN and WITTGENSTEIN), as is the use of key terms as not only 'meaning' and 'truth', but 'reference' and 'use' as well. It may also be a study of the nature and workings of language as a subject in its own right, rather than as a means to the solution of further philosophical problems.

language game—WITTGENSTEIN used this concept, in a broad sense, to refer to language and its uses, including the way our language influences the way we think and act. The emphasis here is on the similarity of a language to a game: both are rule-governed systems of behaviour, and the rules vary over times and contexts. Language games include the 'picturing' of facts, the primary purpose of language, but extend beyond this to prayer and praise, cursing, requesting, and ceremonial greeting. There is no point in attempting to reduce the endless kinds of language game to a single pattern. Each must be understood in its own terms.

least action, law of—Principle stating that the actual motion of a conservative dynamical system between two points takes place in such a way that the action has a minimum value with reference to all other paths between the points which correspond to the same energy.

Leibniz, Gottfried Wilhelm von—German scientist, mathematician and philosopher. He was trained in law, diplomacy, history, mathematics, theology and philosophy, and became the most notable thinker of the

seventeenth century. Known for the view that all PROPOSITIONS are necessary in this 'best of all possible worlds', Leibniz's conception of the universe united beauty with mathematical order. He described the vital elements of this world as 'monads' (true atoms that exist metaphysically); their co-existence and relations are regulated by a pre-established harmony, which is the work of God. Leibniz devoted much of his work to the reform of science through the use of a universal scientific language and a CALCULUS of reasoning, a method which was a forerunner to modern symbolic LOGIC. He and NEWTON independently developed the calculus.

Leibniz's law—Also known as 'the indiscernibility of identicals' or its converse 'the identity of indiscernibles', this law states that if x and y are identical, then x has every property y has, and y has every property x has.

Lévi-Strauss, Claude—French structuralist philosopher; known for his application of STRUCTURALISM to anthropology. He investigated the relationship between culture (an exclusive attribute of humanity) and nature, based on the distinguishing characteristic of man: the ability to communicate in a language.

Lewes, George Henry—British psychologist and philosopher. He contributed to the development of EMPIRICAL METAPHYSICS, and stressed introspection in psychology, using both SUBJECTIVE and OBJECTIVE methods; he viewed mind as similar to body, with aspects that can be logically separated yet are not wholly distinct.

Liebig, Baron Justus von—German chemist. An outstanding figure in chemical education, and the greatest chemist of his time.

Lobachevski, Nikolai—Russian mathematician, contemporary of BOLYAI, who also challenged the parallel postulate of EUCLID. He assumed that through a point outside a given line there are at least two lines parallel to the given line. He then constructed a non-Euclidean GEOMETRY in which the sum of the angles of a triangle is not greater than 180°, and the smaller the triangle is in area, the closer to 180° is the sum of the angles.

Locke, John—English philosopher and political theorist. He argued that none of our ideas are innate and therefore all our knowledge must come from experience. This position makes him the first of the three great British EMPIRICISTS (the others are BERKELEY and HUME). Influential also in political theory, he is renowned for his advocacy of (traditional) liberalism and natural rights.

logarithm—The index (exponent) which changes a given number, called the base, into any required number. The solution of the equation $b^x=N$, where b and N are known, is a logarithm.

logic—From the Greek *logos* meaning 'knowledge' as well as 'reason, speech, discourse, definition, principle or ratio'. Generally speaking, something is logical when it makes sense, although more strictly, it refers to the theory of the conditions of valid INFERENCE. The term was first used by Alexander of Aphrodisius (2nd century AD), then developed in ARISTOTLE'S logical writings which were called the *Organon,* or instrument of science. Traditional logic included various sorts of categorization of some types of correct and incorrect reasoning, and included the study of the SYLLOGISM. Most logical theory today is done by exhibiting the types of sentences, and giving rules for what correctly may be reasoned on the basis of sentences of different types, in

symbolic form; that is, with SYMBOLS taking the place of logically relevant words or connections. This logic, which concentrates on reasoning that is correct because of SYNTAX, is deemed FORMAL, and is contrasted with informal logic which analyses arguments semantically, and relies less heavily on symbols and mathematical procedures.

logical atomism—The position, associated with RUSSELL and WITTGENSTEIN, that language might be analysed into 'atomic propositions', the smallest and simplest sentences, each of which corresponds to an 'atomic fact', one of the simplest bits of reality. See ELEMENTARY PROPOSITION.

logical empiricism—A doctrine of meaning holding that a word or sentence has meaning only if rules involving sense experience can be given for applying or verifying it. ANALYTIC sentences are excepted. Such rules may further constitute the meaning.

logical positivism—See POSITIVISM.

logical truth—A sentence is logically true when it is true merely because of its logical structure. It is distinguished from analytically true sentences which are true merely because of the meaning of the words. Logical truths are also called 'logically necessary' sentences, but these should be distinguished from (metaphysically) necessary truths, since some of these are neither analytically nor logically true (i.e. KANT'S belief that 'All events have a cause' is a necessarily true, but not logically nor analytically true). 'TAUTOLOGY' is often used as a synonym for 'logical truth' and sentences that are neither logically true nor logically false—that are merely true or false—are said to be logically contingent truths or falsehoods. See ANALYTIC/SYNTHETIC, NECESSARY/CONTINGENT TRUTH.

logically proper name—A proper name constituting a definite DESCRIPTION of the kind required by Russell's LOGICAL ATOMISM. Such names had meanings that were strictly identifiable with their bearers and were meaningless if their bearers did not exist. RUSSELL thought demonstratives (i.e., 'that' and 'this') were logically proper names. Ordinary names cannot have their meanings strictly identified with their bearers since we associate a variety of descriptions with the proper names we use. They depend upon such descriptions to ensure their meaningfulness.

logicism—The view pioneered by FREGE and RUSSELL, holding that received mathematics, in particular arithmetic, is part of LOGIC. Its aim was to provide a system of primitives and AXIOMS (which upon interpretation yielded logical truths) such that all arithmetical notions were definable in the system and all theorems of arithmetic were theorems of the system. If successful the programme would ensure that our knowledge of mathematical truths was of the same status as our knowledge of logical truths.

Lorentz transformation—This refers to a set of equations for transforming the position-motion parameter from an observer at one point, O (x,y,z), to an observer at O'(x',y',z'), moving relative to one another. The equations replace the Galilean transformation equations of NEWTONIAN MECHANICS in RELATIVITY problems.

Lotze, Rudolf Hermann—German philosopher and psychologist. A mechanist, he elaborated the philosophical system of teleological IDEALISM, and aided in founding the science of physiological psychology.

Lucretius (full name: Titus Lucretius Carus) (96?–55 BC).—Ancient Roman poet/philosopher. He popularized the scientific and ethical views of the atomists who believed that things are composed of elementary basic parts.

Mach, Ernst—Austrian theoretical physicist; the 'father of logical POSITIVISM'. He fundamentally reappraised the philosophy of SCIENCE with his belief that science, partly for historical reasons, contained abstract and untestable models and concepts, and that it should discard anything that is not observable.

Maimonides (or Moses ben Maimon) (1135–1204).—Spanish-born Jewish philosopher and theologian; codifier of the Talmud.

mass—The quantity of matter in a body. It varies with velocity in accordance with the principle of relativity and is controvertible with energy by EINSTEIN'S law.

materialism—Any set of doctrines stressing the material over spiritual factors in METAPHYSICS, value theory, physiology, EPISTEMOLOGY or historical explanation. In its extreme form, it is the philosophical position that all that exists is physical. LUCRETIUS and Hobbes are two of the many philosophers associated with this view. Materialists with respect to mind sometimes argue that apparently non-physical things like the soul, mind or thoughts are actually material things. Central-state materialists identify mental events with physical events central in the body (i.e. the nervous system). Some materialists, however, think that categorizing things as mental is altogether mistaken, that mental events do not exist, and that this mode of discourse should be eliminated as science progresses.

mathematical logic—The application of mathematical techniques to LOGIC, in an attempt both to deduce new PROPOSITIONS by formal manipulations, and to detect any underlying inconsistencies. Its study, by many eminent mathematicians and philosophers, as a means of clarifying the basic concepts of mathematics, has revealed a number of PARADOXES, several of which have yet to be resolved. It is also known as symbolic logic.

mathematics, philosophy of—The study of the concepts and justification for the principles used in mathematics. Two central problems concern what, if anything, mathematical statements such as '2+2=4' are about, and how it is that we come to have knowledge of such statements. Questions as to the origin and nature of our knowledge of them tend to distinguish various positions within the study: realists hold that it derives from the existence of abstract entities, the relations among which mathematical statements describe (also known as PLATONISM); conventionalists hold that such statements are true merely by convention or fiat; intuitionists restrict the scope of mathematical knowledge to that which can be proven by constructive processes alone (also known as CONSTRUCTIVISM); another form of intuitionism is that of KANT who held that this knowledge is self-evident and A PRIORI, logicists, such as FREGE and RUSSELL, who to some extent accept Kant's view, yet are unsatisfied with its SUBJECTIVE bent, hold that our knowledge of mathematical truth, is as certain as that of logical truth; and formalists, like GÖDEL, maintain that mathematical sentences are not about anything, but are rather to be regarded as meaningless marks.

matrix theory—A branch of mechanics that involves the idea that a measurement on a system disturbs, to some extent, the system itself. It originated simultaneously with, but independently of, wave mechanics. It is equivalent to wave mechanics but here the wave functions are replaced by vectors in a

suitable space (HILBERT SPACE) and the observable things of the physical world, e.g., energy, momenta, coordinates, etc., are represented by matrices. A matrix is a mathematical concept introduced originally to abbreviate the expression of simultaneous linear equations. It appears as an array of mn numbers set in m rows and n columns and is a matrix of order $m \times n$.

Maxwell, James Clerk—Scottish physicist, the pioneer of electromagnetism. Mathematically interpreting FARADAY'S concept of the electromagnetic FIELD, Maxwell successfully developed the revolutionary field equations bearing his name. This was an advance that may be ranked in pre-quantal theoretical physics among NEWTON'S dynamics and EINSTEIN'S RELATIVITY. He is also known for his early predictions of the existence of radio waves—the equations of which are fundamental throughout modern telecommunications—as well as, more importantly, his contributions to the kinetic theory of gases. He adopted CLAUSIUS'S concept of mean free path and greatly extended the latter's statistical approach to the subject by allowing for all possible speeds in the gas molecules. This resulted in the celebrated Maxwell distribution of molecular velocities, together with important applications of the theory to viscosity, conduction of heat, and diffusion in gases. He also drew upon the work of BOLTZMANN, who took over his approach.

mechanism—From the Greek *mēkhanē*, 'machine'. The theory that all phenomena are explicable by mechanical principles, with the view that all phenomena are the result of matter in motion and can be explained by its laws. Mechanistic doctrine holds that nature, like a machine, is a whole whose single function is served automatically by its parts. As a theory of explanation by efficient as opposed to final CAUSE, it was first put forth by Leucippus and Democritus (460–370 BC) as the view that nature is explicable on the basis of atoms in motion and the void. It was later developed in the seventeenth century as a mechanical philosophy by GALILEO as well as DESCARTES, for whom the ESSENCE of matter is EXTENSION, and all physical phenomena is explicable by mechanical laws.

Meinong, Alexius Meinong—Austrian philosopher who studied under Brentano and developed the latter's views on the different sorts of 'existence' of the objects of thought. He is known for the view that there are three distinct elements in thinking: the mental act, its content and its object. Object is defined as that towards which a mental act can be directed; it may or may not be an existing entity. Content is that attribute of the mental act that enables attention to be directed toward any part.

Mersenne, Marin—Friend and principal correspondent of DESCARTES. Friar Mersenne, a prolific writer himself, was responsible for collecting for publication the first six sets of objections to the *Meditations*.

metalanguage—A language used in talking about another language. In LOGIC, one distinguishes between the object language and the metalanguage. The first refers to the signs which refer to the world, the language in use, while the latter refers to that part of language which refers to the signs of the language itself. Thus, for example, particular INFERENCES are symbolized in the object language, but general forms of valid inference are symbolized in the metalanguage. See SYMBOLS.

metaphysics—From the Greek 'above' or 'beyond' physics. This term, which refers to one of the main branches of philosophy, is said to have been derived from one of ARISTOTLE'S books, which having followed his book on physics, was deemed The *Metaphysics* by a later editor. Metaphysics is thought of as a study of ultimates, of first and last things, its content going beyond physics, or any other discipline. It tends toward the building of systems of ideas; and these ideas either give us some judgement about the nature of reality, or a reason why we must be content with knowing something less than the nature of reality, along with a method for taking hold of whatever can be known.

methodology—The systematic analysis and organization of the rational and experimental principles and processes which must guide a scientific enquiry, or which constitute the structure of the special sciences more particularly. Also called scientific method, it is usually considered a branch of LOGIC; in fact, it is the application of the principles and processes of logic to the special objects of science; while science in general is accounted for by the combination of INDUCTION and DEDUCTION as such.

Mill, John Stuart (1806–173)—The most influential English philosopher of his time. He is known for his thoroughgoing EMPIRICISM, his development of utilitarianism, and liberal political views, as well as his work on the principles of scientific enquiry. He held that all INFERENCE is basically INDUCTION on the basis of the uniformity of nature from one particular event to another or a group of others. He holds that the conclusion of syllogistic reasoning always involves the inclusion of the premisses, with knowledge of those in turn resting on empirical inductions. He is known for his inductive 'methods of experimental inquiry' which define the CAUSE of an event as the sum total of its necessary conditions positive and negative.

mind/body problem—This involves the question as to the relation between the mental and the physical, i.e., whether they are distinct, or whether events in one can be reducible to those of the other. Until recently most philosophers have held a dualistic view of the relation between mind and body. (See DUALISM). This is in the tradition of DESCARTES who ascribed mental attributes to spiritual substances, logically independent of anything physical, but inhabiting particular bodies in a way not satisfactorily defined. Although attempts are being made to establish a causal affinity between the mental and physical, their theoretical relation remains a problem.

modal logic—The study of the features and relations of sentences which include the following words, and distinctions between types of modal logic: necessary and 'possible' (alethic), 'ought' and 'must' (deontic), 'knows' (epistemic) and 'before' (temporal). The study encompasses the methods of good reasoning involving these sentences in which a modal FALLACY arises when the premisses 'It's necessary that: if p then q' and 'p' are used mistakenly to derive 'It's necessary that q'.

modus ponens—Latin, 'method of putting'. A rule for correct DEDUCTION of the form: 'If p then q; p; therefore q'. It is also called 'affirming the antecedent'.

modus tollens—Latin, 'method of taking'. A rule for correct DEDUCTION of the form: 'If p then q; it's not the case that q; therefore it's not the case that p'. It is also called 'denying the consequent'.

Moleschott, Jacob—Dutch physiologist, a leading representative of scientific MATERIALISM.

Müller, Johannes Peter—German physiologist and anatomist, widely regarded as the founder of modern physiology.

momentum—The product of the mass and velocity of a particle.

monism—See DUALISM/MONISM, NEUTRAL MONISM.

Moore, G(eorge) E(dward) (1873–1958). English (Cambridge) philosopher; the father of ANALYTIC PHILOSOPHY, he also led the revolt against IDEALISM early this century. He was a frequent defender of common sense against abstruse philosophical theory and PARADOX, and for a philosophical method based on clarification and analysis of meanings.

moral statistics—The statistical presentation of regularity in free human acts which are posited under the influence of certain psychic, social, cosmic and other conditions (i.e. STATISTICS on marriage, suicide, crime, birth, automobile accidents). The philosophical meaning of such statistics lies in the fact that they impressively point up the intimate relationship between a person's motive for acting and the psychological/physiological conditions she finds herself in. They demonstrate the impossibility of unmotivated willing, but they do not prove whether or not, in a particular case, a person acted without freedom (a moderate DETERMINISM). The metaphysical question about the freedom of the will cannot be decided by the use of statistical methods.

morality—From the Latin *moralis,* which is equivalent to *éthikos,* meaning 'custom' or 'usage'. One's morality is one's tendency to do right or wrong, or one's beliefs about what is right and wrong, good or evil. In many usages, it is a synonym of 'ETHICS', although the latter term is generally used to designate the philosophical study of these matters. The term was introduced to philosophy by Cicero (106–43 BC), the Roman statesman, orator and political writer.

morphology—From the Greek *morphé,* 'form', and *logos,* 'knowledge'. In biology, this is the study of the form and structure of plants and animals considered apart from function; while in linguistics, it is the formal arrangement and interrelationship of morphemes or the branch of this discipline which studies these, the smallest meaningful units of language.

multiple regression—A technique which determines the optimum weighting of a number of independent variables in order to predict a single dependent variable.

mysticism—From the Greek *mystés* meaning 'one initiated into the mysteries'. A variety of religious practice that relies on direct experience, supposedly of God and of supernatural truths. Mystics often advocate exercises or rituals designed to induce the abnormal psychological states in which these experiences occur. They commonly hold that in these experiences we achieve union with God or with the divine ground of all being.

natural/artificial language—A natural language is one used by an actual group of people, that has developed on its own, culturally and historically. An artificial language, by contrast, is one developed for some purpose. Philosophers use the term to refer especially to ideal languages, the development of which is one of the aims of symbolic LOGIC. Computer languages are also examples of artificial language.

natural science—The collective sciences or any science that deals with the physical universe, such as biology, CHEMISTRY and physics.

necessary/contingent truth—According to conditions of modality (concerning the mode—actuality, possibility, or necessity—in which anything exists) a PROPOSITION is necessarily true if it is certifiable on A PRIORI grounds, or on purely logical grounds. It is a stronger kind of truth than a contingent truth of a proposition which could have been otherwise, but is not as a mere matter of fact. Many philosophers think that the necessity or contingency of some fact is a metaphysical matter—a matter of the way the way the external world is—while others think that this difference is merely a matter of the way we think and conceive of the world—that a truth taken to be necessary is merely a conceptual or logical or ANALYTIC truth. See LOGIC, METAPHYSICS, CONCEPT/CONCEPTUAL.

Neurath, Otto—Austrian philosopher; one of the original members of the VIENNA CIRCLE. With CARNAP, he invented the doctrine of PHYSICALISM, stressing the role of PROTOCOL STATEMENTS, i.e. statements based on observation and referring to SPACE-TIME states.

neuropsychology—A sub-discipline within physiological psychology that focuses on the interrelationships between neurological processes and behaviour.

neutral monism—A theory of mind-body relations, found in the philosophies of JAMES and RUSSELL, which is not dualistic, nor monistic in the conventional sense. According to this theory, minds and bodies do not differ in their intrinsic nature; the difference between them lies in the way that a common ('neutral') material is arranged. This material is not one entity (monism), but consists of many entities (i.e., experiences) of the same fundamental kind.

Newton, Sir Isaac (1642–1727)—Renowned English mathematician and scientist. In his *Mathematical Principles of Natural Philosophy* (1685–87), he not only announced his discovery of the Law of Gravity but also presented a new system of mechanics by which the structure of the universe was to be understood. He sought the true mechanical laws of nature not on the basis of A PRIORI principles but on the basis of the most precise observation of phenomena in nature. One of the important consequences of this work lay in his development of the proper methods of reasoning; he claimed that philosophy's error in seeking the nature of reality was in its insistence on making DEDUCTIONS from phenomena without knowing first the CAUSES of phenomena.

Newtonian mechanics—The basis of Newtonian mechanics consists of three fundamental laws of motion: Law I, every body perseveres in its state of rest or uniform motion in a straight line except in so far as it is compelled to change that state by forces impressed on it (the Principle of Inertia). Law II, the rate of change of linear MOMENTUM is proportional to the force applied, and takes place in the straight line in which that force acts. Law III, an action is always opposed by an equal reaction: the mutual actions of two bodies are always equal an act in opposite directions.

It was Newton's great achievement to have worked out the mechanics of celestial and terrestrial motion which gave modern science a solid basis for the continual development which has since occurred. A more general system

of mechanics has been given by Einstein in his theory of RELATIVITY. This reduces to Newtonian mechanics when all velocities relative to the observer are small compared with those of light.

nihilism—From the Latin *nihil,* 'nothing'. A doctrine denying VALIDITY to any positive alternative, the term has been applied to METAPHYSICS, EPISTEMOLOGY, ETHICS, politics and theology. It is the name of various sorts of negative belief: that nothing can be known, or that nothing generally accepted in science or religion is correct or that the current social order is worthless, or that nothing in our lives has any value.

nomological—From the Greek *nomos* 'law' and *logos,* knowledge'. It is synonymous with 'nomic', meaning having to with law. A nomological regularity is distinguished from a mere (accidental) regularity or coincidence, in that the first represents a law of nature.

normative—Tending to establish a standard of correctness by prescription of rules; evaluative rather than descriptive. Normative ETHICS—any system dictating morally correct conduct—is distinguished from meta-ethics—the discussion of the meanings of moral terms without issuing directives.

number—A concept of quantity. Natural numbers: {1, 2, 3, 4…}; whole numbers: {0, 1, 2, 3, 4…}; integers: {-3, -2, -1, 0, +1, +2, +3}. There is also the set of real numbers which is composed of both rational and irrational numbers: the former are expressed as fractions (i.e., 1/2), while the latter are non-rational, and not expressible as an integer (i.e., 2). A complex number is the sum of a real number and an imaginary one (i.e., 3+2i, where i is imaginary). A cardinal number describes how many members are in a set of things, which could be either INFINITE (i.e. {2, 4, 6,…}) with no last number in the sequence, or finite (i.e., {2, 4, 6, 8}).

null hypothesis—See HYPOTHESIS.

objective—(1) Possessing the character of a real object existing independently of the knowing mind, in contrast with SUBJECTIVE, as that within a subject. (2) In scholastic terminology, beginning with Duns Scotus (1266/74–1308) and continuing into the seventeenth and eighteenth centuries, objective designated anything existing as idea or representation in the mind, without independent existence. The change from sense (2) to (1) was made by KANT, who understood objective as in the first sense.

Occam's razor (or Ockham's)—A general principle of ontological economy that states that, everything else being equal, the correct or preferable explanation is the one that is simpler, i.e., that needs fewer basic principles or fewer explanatory entities. It was named after William of Occam (1285?–?1349), the English theologian whose work was largely in LOGIC and theory of meaning. See ONTOLOGY.

ontology/ontological—From the Greek *ontos,* 'of being' and *logos,* 'knowledge'. The term thus means 'knowledge of being' and refers to the philosophical study of being or existence. Although the relation between METAPHYSICS and ontology is unclear, typical questions which concern the latter are: What basic sorts of things exist? What are the basic things out of which others are composed? How are things related to each other? The ontology of a theory consists of the things which are presupposed by that theory. Simply put, 'ontological' means 'having to do with existence'.

opacity and transparency, referential—The distinction that expresses that Leibniz's law is not universally applicable. For example, 'Cicero' and 'Tully'

have the same reference in that they are two names for the same man. But suppose that someone, *X*, does not know this: then it might be true (a) that Cicero is believed by *X* to have denounced Catiline, and (b) that Tully is believed by *X* not to have denounced Catiline. In other words, although they are the same man, contrary to Leibniz's law, Cicero does not appear to have every property that Tully has. It is usual to call '…is believed by *X* to have denounced Cataline' the context of the use of the term 'Cicero'; in the case considered, the context is said to be 'referentially opaque'. In cases where Leibniz's law is satisfied, the context is said to be 'referentially transparent'. This distinction refers to terms, predicates or PROPOSITIONS and the wider distinction between intensional or extensional contexts which are created upon their removal from a sentence. See LEIBNIZ'S LAW, EXTENSION/INTENSION.

operationism—The view that scientific concepts are to be defined in terms of experimental operations, and that the meaning of these terms is given by these procedures. Operationists argue that any terms not definable in this way should be eliminated from science as meaningless. With respect to QUANTUM physics, this would mean referring to the existence of particles as visual effects which exist under certain conditions, when certain measurements are carried out. However, they are realists in that they hold that the objects science theorizes about are (sometimes) true. It is contrasted with the anti-REALISMM of INSTRUMENTALISM, although they share an emphasis on understanding science in terms of its experimental means.

operator/logical operator—That which effects an operation and in LOGIC is usually expressed as a SYMBOL. Corresponding to each FUNCTION on objects there is a symbolic operation effected by the symbol for that function. Thus, if *f(x)* is a function and *a* an object, *f(a)* is an object—the object generated from *a* by application of *f(x)*. But *'f(a)'* is a name formed by conjoining the symbol *'f'* for the function with the name *'a'*, *'f'* is then an operator on names of objects, and is a name-forming operator; that is, when applied to the name of an object, the result is another name. Logical operators are the truth-functional operators and quantifiers, (see QUANTIFICATION). The former are also called sentential operators because, when applied to sentences, they yield another sentence.

'order from disorder' principle—The idea that all events happen from definite causes, according to definite laws and a certain necessity, if only our knowledge could encompass the full scope of these seemingly random events throughout eternity. It entails reasoning from indeterminacy to determinacy and the methodological movement from CHANCE and PROBABILITY to CERTAINTY. See METHODOLOGY, RANDOMNESS.

ordinary language philosophy—A branch of twentieth-century philosophy (most closely associated with WITTGENSTEIN, AUSTIN and RYLE) that held that philosophical problems arise because of confusions about, or complexities in, ordinary language. These might be solved (or dissolved) by attention to the ways the language is used. Thus, for example, problems about free will might be solved (or shown to be empty) by close examination of the actual use in English of such words as 'free', 'will', 'responsible', and so on.

organizational theory—Generally, this is the sociological study dealing with the patterned behaviour of interacting individuals or groups. More specifically, it may refer to the interaction between people in a particular organization, e.g. in industry, the armed forces, etc. It is usually undertaken with a view to making the organization more efficient and concerns itself with issues like improving relations between management and workers, improving communication channels or improving decision-making procedures.

orientalism—A general designation used loosely to cover the philosophical tradition of the Orient, extending far into antiquity and to some extent characterizing early Greek thinking. Oriental philosophy, though by no means homogeneous, nevertheless shares one characteristic: the practical outlook on life (ETHICS linked with METAPHYSICS), involving an absence of clear-cut distinctions between pure speculation and religious motivation, often combining folklore, folk etymology, practical wisdom, pre-scientific speculation, even magic, with flashes of philosophical insight.

oscillator—A system which rhythmically stores and releases energy at a particular frequency (e.g., an electric circuit in which electrical oscillations occur freely and which is usually designed specifically for this purpose).

paradigm—From the Greek *paradeigma* 'a pattern, model or plan'. A completely clear, typical and indisputable example of a kind of thing.

paradox—A clearly false or self-contradictory conclusion deduced apparently correctly from apparently true assumptions. There are many kinds of paradoxes and philosophers often find principles of wide-ranging importance while trying to discover what has gone wrong in a paradox. There is a whole family of them known as the self-referential paradoxes which has been of particular concern to philosophers and logicians, and some of which have played a crucial role in the historical development of the foundations of mathematics. One example is the well-known statement of a Cretan that 'All Cretans are liars', the Liar paradox, while another is Russell's paradox which had serious repercussions in the theory of classes and thus also in the foundations of mathematics. See RUSSELL'S PARADOX, TYPES, THEORY OF.

parapsychology—The investigation of prescience, telepathy and other alleged psychical phenomena which seem to elude ordinary physical and physiological explanation.

pari passu—Latin, meaning 'with equal pace'; simultaneously and equally.

Pascal, Blaise—French philosopher, mathematician and physicist, who made great contributions to science through his studies in hydrodynamics and the mathematical theory of PROBABILITY. Dissatisfied with experimentation, he turned to the study of man and spiritual problems.

path analysis—The analysis of relationships among a series of variables which attempts to establish a CAUSAL chain between them, usually by the use of MULTIPLE-REGRESSION—a technique which determines the optimum weighting of a number of independent variables in order to predict a single dependent variable. The method is generally presented in path diagrams in which asymmetric (one-way) relations between variables are represented by arrows.

Pavlov, Ivan Petrovich—Russian physiologist and pioneer of the study of conditioning. In his study of digestion which won him a Nobel Prize, he observed that dogs salivated in anticipation of receiving food, a response

which by 1901, he had named a 'conditioned REFLEX'. This became a cornerstone of American BEHAVIOURISM before World War I and is now regarded as a fundamental aspect of learning.

Peano, Guiseppe (1858–1932).—Italian mathematician who made several contributions to MATHEMATICAL LOGIC. He developed a logical system which permits the writing of every PROPOSITION exclusively in SYMBOLS, in an attempt to emancipate the strict logical part of reasoning from verbal language and its vagueness. Among his contributions to the field of mathematics was a postulate system known as Peano's Postulates, from which the entire arithmetic of natural NUMBERS can be derived. See 'PEANO'S ARITHMETIC'.

Peano's arithmetic—This designates Peano's five postulates for the arithmetic of natural NUMBERS. In the first version, the first postulate referred to 1 as the first number, while in the later versions, as here, he began with 0 as the first number: (P1) 0 is a number (P2). The successor of any number is a number (P3). No two numbers have the same successor. (P4) 0 is not the successor of any number (P5). If P is a property such that: (a) 0 has the property *P;* (b) whenever a number *n* has the property *P,* then the successor of *n* also has the property *P,* then every number has the property *p*. The last AXIOM is the famous 'principle of mathematical induction'.

Pearson chi-square (x^2) tests—There are several statistical tests included here, all of the them variations of the basic chi-square statistic (the use of a theoretical model to determine expected results and to gauge the differences between expectation and observation). They are used as tests of the amount of data conformity between a large sample and a population and as tests of association between two samples.

Peirce, Charles Sanders (Santiago)—American philosopher and logician. Very little of his work was published during his life, and his views were, until recently, unknown except in the version popularized by JAMES. Today, however, he is recognized as a metaphysician of considerable power, the father of PRAGMATISM, and a significant contributor to philosophy of SCIENCE and LOGIC.

phenomenalism—Literally, a theory based on appearances. This is a doctrine which holds that the knowledge man can reach is never more than the knowledge of phenomena, because man's limited ability to know necessarily deforms objects according to one's own SUBJECTIVE nature.

phenomenology—A school of philosophy deriving from the thought of Husserl (1859–1938). Phenomenologists generally believe that INTUITIONS or direct awarenesses form the basis of truth, and the foundation on which philosophy should proceed: by introspection, bracketing, and exploration of the 'inner', SUBJECTIVE world of experiences. This takes the form of a phenomenological reduction in which normal assumptions and PRESUPPOSITIONS (particularly those of science and including belief in the external world) are suspended and we attempt to see things purely, as they fundamentally appear to consciousness.

phenomenon—From the Greek *phainomenon,* meaning 'that which appears'. Philosophers sometimes use this term in the ordinary sense, referring merely to something that happens, but often it is used in a more technical way, referring to the way a thing seems to us—to something as we perceive it. It is

contrasted with noumena which are insensible and perhaps rationally ascertainable things as they really are, i.e., things-in-themselves.

photon—The QUANTUM of electromagnetic radiation. For some purposes photons can be considered as elementary particles travelling at the velocity of light. See ELECTROMAGNETISM.

philosophy of mathematics—see MATHEMATICS, PHILOSOPHY OF.

physicalism—Although this term is usually taken to be synonymous with MATERIALISM—which refers to the philosophical position that all that exists is physical—it may also refer to the position that everything is explainable by physics. It constitutes a doctrine of the VIENNA CIRCLE of logical positivists requiring that PROTOCOL STATEMENTS of any HYPOTHESIS be expressed in a physicalistic language.

picture theory—WITTGENSTEIN'S theory of language which holds that the primary purpose of language is to state facts. When a fact is pictured there is a structural similarity between the language used and what is pictured. A secondary purpose of language is to state tautologies, which are true but empty. They tell us nothing but that their use is necessary. The operations of both LOGIC and mathematics are series of tautologies. Any statement which fails to picture a fact, or to express a tautology, is nonsense. Statements of both METAPHYSICS and ETHICS fall into this category. See TAUTOLOGY.

Planck, Max Carl Ernst Ludwig (1858–1947).—German physicist, famous for his enunciation of QUANTUM theory. He introduced the findings of his early work on THERMODYNAMICS into the problem of black-body radiation, in search for a theoretical explanation for the equilibrium reached within a heated cavity based on temperature only, independent of wall density. Drawing upon the relationship between ENTROPY and PROBABILITY put forth by BOLTZMANN, Planck introduced a quantum variable of action *(h)* with a discrete spectrum for radiation into his account. The result was his celebrated formula for radiation density as a function of frequency and temperature, from which he was able to calculate BOLTZMANN'S CONSTANT and his own quantum of action.

Plato (428?–348? BC) Ancient Greek philosopher, student of SOCRATES, possibly the greatest philosopher of all time. His writings, which often take the form of dialogues with Socrates, contain the first substantial statements of many of the questions and answers in philosophy. His best-known doctrine is the theory of the 'forms' or 'ideas': these are the innate, general or perfect versions of characteristics we ordinarily encounter. They are eternal and unchanging and exist independently of any earthly thing that participates in them.

Platonism—Various sorts of views growing from aspects of PLATO'S thought. Platonists tend to emphasize Plato's notion of a transcendent reality, believing that the visible world is not the real world, and Plato's rationalism—that the important truths about reality and about how we ought to live are truths of reason. In the philosophy of MATHEMATICS, Platonism designates the belief that mathematical objects exist independently of our thought; that mathematical statements are true (or false) independently of our ability to prove them; and often includes the view that the subjects of these statements

(NUMBERS) are abstract entities, the relations of which true mathematical statements describe.

pluralism—The view that the world contains many kinds of basic entities, which in their uniqueness cannot be reduced to just one (MONISM) or two (DUALISM). The doctrine of LOGICAL ATOMISM developed by RUSSELL is perhaps the most thoroughgoing pluralism in the history of philosophy.

Poincaré, (Jules) Henri (1854–1912).—French mathematician, engineer and philosopher of SCIENCE. He is often labelled a conventionalist because he argued that the fundamental AXIOMS of geometrical systems express neither A PRIORI necessities nor CONTINGENT TRUTHS, and because he detected important definitional elements in physics. In mathematical philosophy he was an intuitionist, attacking the LOGICISM of RUSSELL and PEANO. See CONVENTIONALISM, INTUITIONISM.

Popper, Karl Raimund—Austrian philosopher of SCIENCE, famous for his emphasis on falsifiability rather than on verifiability in science. This means that the most reliable criterion for truth lies in hypotheses which can be disproved by negative instances. He is also known for his defence of liberalism in social theory. See HYPOTHESIS.

positivism/logical positivism—The philosophy associated with Auguste COMTE, which holds that scientific knowledge is the only valid kind of knowledge, and that anything else is idle speculation. In its earlier versions, the methods of science were held to have the potential not only of reforming philosophy, but society as well. Sometimes this term is loosely used to refer to logical positivism which is a twentieth-century outgrowth of more general nineteenth-century positivism.

post hoc—Latin, 'after that'. A mistaken kind of reasoning, also known as false CAUSE, which states *'post hoc ergo propter hoc'* ('after that, therefore because of that'). It involves the misidentification of x as the cause of y because x happens before y (for example, if one supposed that a falling barometer caused it to rain).

pragmatism/neo-pragmatism—From the Greek *pragma,* 'thing, fact, matter, affair'. A philosophical movement in the nineteenth and twentieth centuries whose emphasis lay in interpreting ideas through their consequences. As a school of philosophy, it is associated mainly with American philosophers in the beginning of the twentieth-century, especially PEIRCE, JAMES and Dewey. Peirce, who adapted the term from KANT in 1878, later called his version 'pragmaticism' in order to distinguish the original philosophy from the neo-pragmatism which was less strictly defined. The early pragmatists emphasized the relevance of the practical application of things, their connections to our lives, our activities and values. They demanded instrumental definitions of philosophically relevant terms, deeming much of the language of METAPHYSICS meaningless, and urged that we judge beliefs on the basis of their benefit to the believer.

praxis—In general this term means 'accepted practice or custom' or 'practical human activity', but more particularly, as it was used by Marx, it refers to the union of theory and practice.

predicate calculus—See PROPOSITIONAL/PREDICATE CALCULUS.

presupposition—Something assumed beforehand, for example, as the basis of an

argument. The statement 'He has stopped drinking excessively' presupposes that at one time he was drinking excessively.

prima facie—Latin, 'at first appearance'. Based on the first impression: what would be true, or seem to be true, in general, or before additional information is added about the particular case. Thus, philosophers speak of *'prima facie* obligations', those things that by and large people ought to do, but that might not be real duties in particular cases, given additional considerations.

private language argument—WITTGENSTEIN'S argument which states that if there were private events we would be unable to categorize or talk about them. In order for it to be possible to name or categorize something, there must exist rules of correct naming and categorization. Without the possibility of public check, there would be no distinction between our feeling that we reported them accurately and our really doing so, such that nothing could count as our doing so correctly or incorrectly. Thus, there could be no such thing as a 'private language'—a language naming private events.

probability—From the Latin *probare,* 'to prove, to approve', which is related to the Greek *eulogon* meaning 'reasonable or sensible'. The term thus refers to the likelihood of the happening of an event, or of the truth of a PROPOSITION. Where conclusions follow by necessity in deductive INFERENCE they follow only by probability in INDUCTION. Probability theory has been developed into a very sophisticated theory in modern mathematics. When probability is represented by a given number, it is usually on a scale from 0 (impossible) to 1 (definite). To say that something is probable may be to say that it has a probability of more than 0.5. There has been philosophical controversy about what it really means to say that an event has a certain probability. Some philosophers argue that saying a die has a probability of $\frac{1}{6}$ of coming up six means that one is justified in expecting it to come up six only to the degree $\frac{1}{6}$, or that this number should measure the strength of this belief.

problem of 'other minds'—The problem which questions the ground (if any) there is for thinking that anyone else has a mind, and is not, for example, just a body with external appearance and behaviour like one's own. It hinges on the fact that a person's mind and its contents can only be 'perceived' by that person who is thus unable to perceive anyone else's. Some philosophers (RYLE, for example) think that the absurdity of this problem shows that there is something wrong with the view of the mental that leads to it.

procedural explanation—A type of explanation that uses simulation to arrive at solutions to problems. Central to this approach is the idea of representational knowledge about the world as procedures within a system. In behavioural science it provides an alternative to causal or quasi-causal modes of explanation. It may also refer to programs in a computer language in which the meanings of words and sentences are conveniently expressed, and the execution of these programs corresponds to reasoning from the meanings.

proposition—From the Latin *proponere,* 'to set forth or propose'. This term has been used in a variety of ways. Sometimes it means merely a sentence or a statement. Perhaps the most common modern use is the one in which a proposition is what is expressed by a (declarative) sentence: an English

sentence and its French translation express the same proposition, and so do 'Steven is Ed's father' and 'Ed's male parent is Steven'.

propositional function—A technical term due to RUSSELL, used to denote that for which a predicate of predicate LOGIC stands. An *n*-place predicate, when complemented by n singular terms, yields a sentence that expresses a PROPOSITION about the objects denoted by those terms. The *n*-place propositional function for which the predicate stands is such that when applied to *n* objects, the result is a proposition concerning those objects. Just as two different sentences may express the same proposition, two different predicates may stand for the same propositional function.

prepositional/predicate calculus—The two logical calculi most commonly encountered. Any FORMAL system of LOGIC can be called a propositional calculus if it consists of a specification of a formal language, the SYMBOLS of which are either propositional variables or connectives (where the latter represent such connectives as 'and', 'or', 'not', 'if…then'), and a set of AXIOMS and/or rules governing the connectives of the language. 'Propositional calculus' usually refers to any system in which the formally VALID arguments can be shown to be valid by application to the standard two-valued truthtable definitions of the logical connectives. It is also known as 'sentential' logic or calculus (see VALIDITY).

Used without qualification, predicate calculus usually means 'classical first-order predicate calculus'. This is the system obtained by extending the axioms and/or rules of propositional calculus by adding similar ones for the quantifiers which are designed to treat universally quantified sentences as INFINITE conjunctions and existentially quantified sentences as infinite disjunctions. It deals with sentences using logical terms such as 'all', 'some', 'no', or 'there exists at least one'. It is also known as 'quantifier' logic or calculus. See QUANTIFICATION, UNIVERSAL/EXISTENTIAL.

protocol statement—A statement consisting of an observation report describing directly given experience or sense data. Also called 'basic sentences', these were regarded by logical positivists of the VIENNA CIRCLE as the basis of all science, and of intelligibility in any field. CARNAP argued that protocol statements can be expressed in the language of physics.

Ptolemy, Claudius—(second century AD) Hellenic scientist and philosopher. His great work in astronomy dealing with all of the planets and 1,022 stars, published around AD 150, held the earth to be a globe in the centre of the world system, and the heavens to make a diurnal revolution around an axis passing through the centre of the earth. This system was accepted until COPERNICUS in the sixteenth century. His philosophy was influenced by Platonism, Stoicism and neo-Pythagoreanism, as well as by ARISTOTLE.

quantification, universal/existential—In traditional LOGIC, quantification is the consideration of the totality of objects under discussion in a statement, which necessarily precedes the assessment of its truth or falsity. Universal quantifier is the name given to the notation *(x)* prefixed to a logical formula *A* (containing the free variable *x)* to express that *A* holds for all values of *x*—usually, for all values of *x* within a certain range or domain of values, which either is implicit in the context or is indicated by the notation through some

convention. Similarly, existential quantifier is the name given to the notation *Ex* prefixed to a logical formula *E* (containing the free variable *x*) to express that *E* holds for some (i.e. at least one) value of *x*—usually, for some value of *x* within a certain range or domain. The *E* which forms part of the notation is often inverted, and various alternative notations also occur.

quantum field theory—A quantum mechanical theory in which particles are represented by FIELDS whose normal modes of oscillation are quantized. Elementary particle interactions are described by relativistically invariant theories of quantized fields. In QUANTUM ELECTRODYNAMICS, for example, charged particles can emit or absorb a PHOTON, the quantum of the electro-magnetic field. Quantum field theories naturally predict the existence of antiparticles and both particles and antiparticles can be created or destroyed; a photon can be converted into an electron plus its antiparticle, the positron. These theories provide a proof of the connection between spin and the STATISTICS underlying the Pauli exclusion principle.

quantum/quanta—From the Latin *quantum,* 'how much'. Used in philosophy to refer to a FINITE and determinate quantity, the term has passed into physics where its reference is to the packets of energy, or quanta, the basic indivisible units of QUANTUM MECHANICS.

quantum electrodynamics—A relativistic theory of QUANTUM MECHANICS concerned with the motions and interactions of electrons, muons and PHOTONS, i.e., with electromagnetic interactions. Its predictions have proven highly accurate.

quantum mechanics—A system of mechanics used to explain the behaviour of atoms, molecules, and elementary particles. In 1901 PLANCK suggested that energy must be radiated in discrete units or quanta. In 1913 BOHR applied this theory to the structure of the atom; later his 'solar system' model of the atom was superseded by the formal equations of Heisenberg and SCHRÖDINGER. These yield the required predictions of the frequency and amplitude of radiation emitted by the atom. But one consequence, the uncertainty principle, discovered by Heisenberg in 1927, is that the variables usually interpreted as specifying the position and the MOMENTUM of sub-atomic particles cannot both take definite values simultaneously. This places severe limits on the degree to which these particles or wave-packets can be interpreted as ordinary spatio-temporal objects. The problem thus becomes a locus of dispute between realist and formalist philosophies of science. In addition the conception of fundamental particles as more like disembodied waves than particles challenges a simple material view of the world.

Quetelet, Lambert Adolphe Jacques—Belgian statistician and astronomer. He was DURKHEIM'S predecessor and the founder of social physics. In his greatest book, *Sur L'Homme* (1835), he showed the use that may be made of the theory of probabilities, as applied to *'l'homme moyen'* or average person.

Quine, Willard Van Orman (1908–)—Contemporary American philosopher, professor at Harvard since 1946. Known primarily as a logician, his interests and important works extend over many of the basic problems in SEMANTICS, EPISTEMOLOGY and METAPHYSICS.

Ramsey, Frank Plumpton—English mathematical philosopher. Expanding upon the logical problems raised by RUSSELL and WITTGENSTEIN, he made a fundamental distinction between *human* LOGIC, which deals with useful

mental habits and is applicable to the realm of practical probability, and *formal* logic, which is concerned exclusively with the rules of consistent thought.

randomness—In common usage something happens randomly when it is not determined by previous events. In PROBABILITY theory, though, in order for an event to be random it must be equally as likely to occur as any other. It defines equiprobability just as it is defined by it. With respect to human action it must be distinguished from arbitrariness as this applies to the random behaviour of unpredictable particles in QUANTUM MECHANICS.

realism/anti-realism—From the Latin *res* meaning 'thing', from which *realitas* is also derived. Realism is, in general, the view that some sort of entity has external existence, independent of the mind. Anti-realists think that that sort of entity is only a product of our thought, perhaps only as a result of an artificial convention. Realists quarrel with anti-realists in many philosophical areas: in METAPHYSICS, about the reality of UNIVERSALS, and in ETHICS, about the reality of the moral categories. Scientific realists sometimes hold that theoretical entities are mind-independent, or that laws in science reflect external realities (i.e. are not merely humanly constructed), or that the universals discovered by science are real and mind independent.

reducibility, axiom of—Russell's axiom, necessary in connection with the ramified theory of types, if that theory is to be adequate for classical mathematics, but the admissibility of which has been much disputed. An exact statement of the axiom can only be made in the context of a detailed formulation of the ramified theory of types, although it might be said that it cancels a large part of the restrictive consequence of the prohibition against impredicative definition, and reduces that theory to the simple theory of types. See TYPES, THEORY OF.

reductionism—The attempt to reduce one science to another by demonstrating that the key terms of the one are definable in the language of the other, and that the conclusions of the one are derivable from the PROPOSITIONS of the other. Reductionism about some notion is the idea that that notion can be reduced—can be given a 'reductive analysis'—and perhaps that it thus can be eliminated. In the social sciences, it operates by holding that social phenomena can be defined in terms of the sum of individuals' behaviour, such that any statement about a social phenomena may be reduced to what individual people do, and social theory may be in principle be reduced to psychology.

reflex/reflex theory—A reflex is an immediate, unlearned response to a specific stimulus. The reflex theory of action was proposed by DESCARTES (1650); Marshall Hall (1833) and CABANIS (1802) were among the first to relate the concept to the nervous system. PAVLOV'S work on reflex-action, which has become a standard topic in psychology, is often associated with reflexology. This is a mechanistic, behaviouristic point of view that argues that all psychological processes may be represented as reflexes and combinations of reflexes. See MECHANISM.

refutation—The demonstration by means of argument that some position is mistaken. This is not merely an attempt at rebuttal, but properly speaking, a demonstration successfully showing that a claim is false or position untenable.

relative truth/relativism—Truth which may vary from individual to individual, group to group, time to time, having no OBJECTIVE standard and usually

implicated in a subjectivistic theory of knowledge. In EPISTEMOLOGY and ETHICS, relativism denotes the theoretical position which emphasizes this kind of truth. See ABSOLUTIST/RELATIVIST DEBATE.

relativity, special/general theories of—The former contains the famous $E=MC^2$ formula, while the latter deals with SPACE-TIME curvature. The special theory of 1905, entails EINSTEIN'S rejection of the notion of an ABSOLUTE SPACE AND TIME. The new view holds that SIMULTANEITY can be established only within a given inertial system, and will not be valid for observers in systems which are in motion relative to the given system. According to this demonstrable theory, mass increases and time slows down as velocity increases, and time is regarded as a fourth dimension. The consequences are such that the same event, viewed from inertial systems in motion with respect to each other will occur at different times, bodies will measure out at different lengths, and clocks will run at different speeds. The general theory of 1916 generalized the results of the special theory from inertial systems to non-linear transformations of co-ordinates. This was necessary in order to account for the proportionality between gravitational mass and inert mass. In the theory, gravitation is reduced to or is an effect of space-time curvature, and depends upon the masses distributed through the universe. Thus, the concept of action at a distance is discarded. Confirmation of the general theory is much weaker than that of the special theory, but the bending of light rays as they pass through a strong FIELD of gravitation has apparently been observed. One consequence of this theory is that the universe is FINITE but unbounded and it is thus consonant with the cosmological picture of an expanding universe.

Royce, Josiah—American philosopher, influenced by Hegel, who developed his own philosophy of absolute IDEALISM. He argued that to have a conception of an orderly continuous world it is necessary to assume that there is an 'absolute experience to which all facts are known and all facts are subject to universal law'.

Russell, Bertrand (Arthur William) (1872–1970). British philosopher. He is perhaps the best-known philosopher of the twentieth century, as well as the founder (with WHITEHEAD) of contemporary symbolic LOGIC. He was also the leader (with MOORE) of the twentieth century revolt against IDEALISM, though some of his views—for example, on our knowledge of externals—tended to be less in accord with common sense than Moore's. Owing to his pacifism, his criticism of Christianity and his advocacy of freer sexual morality, he was a controversial public figure; his views even led him to be fired from teaching positions and jailed.

Russell's paradox—The PARADOX concerned with the set of sets which are not members of themselves (i.e., is a set a member of itself? If it is, it isn't. If is isn't, it is). It has resulted in some complications in set theory. See SET THEORY, TYPES, THEORY OF.

Ryle, Gilbert—English (Oxford) philosopher and leading early figure in ANALYTIC PHILOSOPHY and ORDINARY LANGUAGE PHILOSOPHY. He did important work in philosophy of LOGIC and of mind; in *The Concept of Mind* (1949), his key work, he argued that cartesian DUALISM was based on a category mistake.

Saussure, Ferdinand De—Swiss linguist and philosopher, known for his work on structural linguistics and his influence on contemporary French STRUCTURALISM.

scepticism—From the Greek *skepsis,* 'consideration' or 'doubt'. The view that reason has no capacity to come to any conclusions at all, or else that reason is capable of nothing beyond very modest results. This position questions not so much the truth of a particular belief, but the VALIDITY of the justifications for it. In fact, consistent scepticism is close to agnosticism and NIHILISM. The more extreme sceptics are often called Pyrrhonists, after Pyrrho the founder of the sceptical tradition. HUME is known as a champion of modern scepticism.

Schlick, Moritz (1882–1936).—German founder of the VIENNA CIRCLE, leading figure in the development of logical POSITIVISM. His own view was called 'Consistent Empiricism'.

Schröder, Ernst—German logician and mathematician. He systematized and completed the work begun by BOOLE and DE MORGAN in the ALGEBRA of LOGIC. His contributions to the algebra of relations have particular importance.

Schrödinger, Erwin (1887–1961).—Austrian physicist, born and educated in Vienna. He was the founder of WAVE-MECHANICS and originator in 1926 of the Schrödinger equation describing the QUANTUM behaviour of electrons and other particles. This PRESUPPOSED EINSTEIN'S treatment of light as PHOTONS associated with electromagnetic waves, but taken one step further to the development of a fundamental differential equation which was seen to govern particle behaviour in a wave FIELD. He also proved that this theory was mathematically equivalent to matrix mechanics and along with Heisenberg, BOHR, Pauli and Dirac, played a vital role in the in the creation of modern quantum theory.

science, philosophy of—A discipline which attempts to relate philosophy to the fields of scientific enquiry. Depending upon the philosopher and the area of science, its goal is to discover the nature of science, or the nature of scientific method, or the LOGIC of science, or to explore the interfaces of the fields of science, or to axiomatize the sciences. It involves the question of what constitutes genuine science from pseudo-science, and considers the empirical collection of data and inductive extrapolations, as well as the role of valid explanations, models and theories, and to what extent these correspond to objective reality (realism vs. anti-realism and instrumentalism). Although the philosophy of science extends back to the origins of Western philosophy, when emphasis was on scientific knowledge, it is more appropriate to regard it as beginning with the remarkable development of the sciences in the modern period.

semantics—From the Greek *semantikos,* 'significant meaning', which is from *sema,* 'sign'. Semantics is that part of language which has to do with meaning and reference. The term was first used in a technical sense in philology, where it stands for the historical study, empirically oriented, of the changes of meanings in words. In philosophy, semantics is usually considered as the study and interpretation of formal SYMBOLS. It is concerned with the relations between signs and the objects which they designate, mostly in contrast with SYNTAX which designates the rules of FORMALISM in themselves.

sensationalism—From the Latin *sensatio,* which is from *sentire,* 'to feel or perceive'. Subvariety of EMPIRICISM which asserts that all knowledge is ultimately derived form sensations. Hobbes is considered the founder of modern sensationalism and Condillac is its most typical exponent.

sense and reference—These terms render a distinction drawn by FREGE. The 'sense' *(Sinn)* of an expression is its meaning, as opposed to that which the expression names, its 'reference' *(Bedeutung)*. Expressions can have different meanings, but the same reference: e.g. 'the Morning Star' does not mean the same as 'the Evening Star', but both have the same reference, the planet Venus. The terms are synonomous with connotation and DENOTATION.

sense modality—In BEHAVIOURAL SCIENCE, under the general heading of sense, there are its primary modalities. Five criteria distinguish these: they have (1) different receptive organs, that (2) respond to characteristic stimuli. Each set of receptive organs has (3) its own nerve that goes to (4) a different part of the brain, and (5) the resultant sensations are different on the basis of these criteria. Nine senses have been identified: vision, audition, kinesthesis, vestibular, tactile, temperature, pain, taste and smell.

set theory—Sets (or classes) occur naturally in mathematics, but their importance was only appreciated after G.Cantor (1845–1918) had developed the theory of INFINITE sets. His ideas formed the basis for the LOGIC of FREGE and RUSSELL. The discovery of various PARADOXES showed that the naive theory of classes is contradictory (i.e., sets which are, and at the same time, are not, members of themselves). Cantor himself made a distinction between collections (such as the totality of all abstract objects) which are too all-embracing to be treated as wholes and smaller totalities (such as the set of all real NUMBERS) which can be regarded as single objects; nowadays the former are called proper classes, the latter are called sets.

Shannon, C(laude) E(lwood)—American applied mathematician, engineer and pioneer of COMMUNICATION THEORY.

Sherrington, Sir Charles Scott—British physiologist and philosopher. He did his epoch-making work on the REFLEX response of the spinal cord, with a detailed anatomical study of the structure of the nervous system. It has been said that modern neurophysiology owes not only its basic theories but also its nomenclature to Sherrington. As a philosopher, he was concerned with the 'mind-brain' problem, taking a firmly dualistic line, but imposed on it his own concept of integrative function by which the action of the nervous system is coordinated.

simpliciter—Latin, meaning 'simply'. Without qualification, not just in certain respects.

simultaneity—To be truly simultaneous events must occur not only at the same time but also at the same place. For example, an event on Jupiter might be observed to occur simultaneously with an event on Earth. However, as the two events occur in different frames of reference, and as the information cannot travel from one frame to the other faster than the speed of light, the two events would not, in fact, have occurred simultaneously.

sine qua non—Latin, meaning 'without which not'; indispensable condition or qualification.

Sinn—See SENSE AND REFERENCE.

Skinner, B(urrhus) F(rederic)—American psychologist; the developer of operant-conditioning techniques. He showed that animal and human behaviour could be modified by reinforcement and that animals could in this way be trained to carry out particular tasks to obtain reward, or avoid punishment. These came to be widely used in the training and studying of animals, and in the modification of human behaviour in teaching and clinical situations. He promulgated a philosophy of BEHAVIOURISM.

social anthropology—Also known as cultural anthropology, the study of the culture and social structure of a community or society including its psychological factors. It emphasizes the understanding of the total configuration and interrelationships of cultural traits, complexes, and social relationships in a particular geographic environment and historical context. There has been a tendency in recent years to extend its range of study from non-Western societies to modern Western culture.

sociology—From the Greek *socio,* 'to associate', and *logos,* 'knowledge'. The term is taken to refer to a study of the forms, institutions, functions, and interrelations of human groups. The term was introduced by Auguste COMTE to designate a new science, the most comprehensive of all, dealing with social phenomena. The character he expected of the discipline is suggested by the term 'social physics', his original name for the subject.

Socrates (470?–399 BC).—Athenian philosopher whose debates were chronicled by PLATO. Extremely influential for his 'dialectical' method of debate in which he led his opponents to analyse their own assumptions and reveal their inadequacy. He rejected the sceptical and relativistic views of the professional rhetoricians of the day, urging a return to ABSOLUTE ideals. He was condemned to death for impiety and corrupting the youth.

solipsism—From the Latin *solus,* 'alone' and *ipse,* 'self'. The doctrine that the individual human mind has no grounds for believing in anything but itself. The consequence is sometimes drawn that the mind coming to that conclusion constitutes all there is of reality. The first claim may be termed 'epistemological solipsism', while the latter view, often drawn as a *reductio ad absurdum* of the first, may be called 'metaphysical solipsism'.

space-time—A four dimensional order with four coordinates, three of them spatial (length, width, height) and one temporal; the unity of space and time. Specification of the coordinates precisely locates any physical magnitude whatever. The concept was first suggested by Minkowski and soon after adopted by EINSTEIN. While in classical or Newtonian theory, space-time is separable in an ABSOLUTE way, in Einstein's RELATIVITY theory, this is impossible in an absolute sense but is relative to a choice of a coordinate system.

Spinoza, Benedict (or **Baruch)** (1632–77).—Dutch Jewish philosopher. He argued that nature is a unity, equivalent to a highly abstract and all-pervasive God, and that its facts are necessary and can be derived by a method of rigourous 'proof (as in geometry). Believing that humans were part of nature, Spinoza was a thoroughgoing determinist.

spiritualism—From the Latin *spiritus,* 'breath, life, soul, mind, spirit'. This term has both philosophical and religious meanings. In the first sense, spiritualism is the doctrine that the ultimate reality in the universe is Spirit (*Pneuma, Nous,*

Reason, *Logos*), akin to human spirit, but pervading the entire universe as its ground and rational explanation. It is sometimes used to denote the IDEALISTIC view that only an ABSOLUTE Spirit and FINITE spirits exist, and that the world of sense is a realm of ideas. Religious spiritualism emphasizes the direct influence of the Holy Spirit in the sphere of religion, indicating especially the teaching that God is spirit, and that worship is direct correspondence of Spirit with spirit.

'states of affairs'—See ELEMENTARY PROPOSITION.

statistics—Very generally, this is the branch of mathematics, pure and applied, which deals with collecting, classifying and analysing data. More specifically, in terms of its various breeds in psychology (i.e. descriptive, inferential), statistics refers to sets of procedures developed to describe and analyse particular types of data and enable a researcher to draw various kinds of conclusions on their basis. While in popular usage, it refers to numbers used to represent facts or data.

Stevenson, C(harles) L.—American philosopher, known for his work in ETHICS, and particularly for his views on ethical language. He held that ethical terms have emotive as well as cognitive meaning and have the power to produce affective responses in those who hear and use them. What is involved in ethical discourse, in his view, is the reinforcing or redirecting of attitudes through the affective power of emotive meaning.

stochastic—Meaning 'having to do with PROBABILITY'. A stochastic (as opposed to deterministic) law predicts outcomes as only probable.

structuralism—A method of approach with wide-ranging applications, rather than a distinct philosophy. Its focus is the irreducible structural units that constitute the MORPHOLOGY of a system (i.e., phonology of language, the formal structure of mathematics, the underlying organization of society). The central ideal of structuralism is that cultural phenomena should be understood as manifesting unchanging and universal abstract structures or forms, the meaning of which can be understood only when these forms are revealed.

sub specie aeternitatis—Latin, 'under the view or aspect of eternity'. The phrase used to signify the attempt to see things at once in one thought without any past or future, as a species of eternity—as God might grasp them. The term is commonly associated with SPINOZA.

subjective/subjectivism—Any variety of views that claim that something is subjective—that is, a feature of our minds only, not of the external 'OBJECTIVE' world. Ethical subjectivism, for example, holds that our ethical judgements reflect our own feelings only, not facts about externals.

substance—From the Latin *sub* 'under' and *stare* 'to stand'. Generally, the stuff out of which things are made. The term refers to both the underlying, supporting substratum of something, as well as the individual subject which remains the same through time despite changes in characteristics. It may also mean 'ESSENCE', as that which something really is, despite the way that it appears. In terms of LOGIC, substance is defined according to the notions of subject and predicate; regarded this way *S* is a substance if *S* is a subject of predicates, but cannot be predicated in turn of any other subject. This conception can be traced back to ARISTOTLE and plays an important part in the philosophy of LEIBNIZ.

sufficient reason, principle of—A principle of LEIBNIZ, stating that for every fact there is a reason why it is so and not otherwise. Thus, reason takes the form of an A PRIORI proof founded on the nature of the subject and predicate terms used in stating the fact. Leibniz used the principle freely; to prove, for example, that there could not be two identical atoms (for there would be no reason for one to be in one place and the other somewhere else, rather than vice versa) or that the world did not begin at a moment in time (for there would be no reason for it to have begun at one moment rather than another).

syllogism—A form of deductive argument, in which one PROPOSITION, the conclusion, is inferred from two other propositions, the premisses. For example, 'All Greeks are rational, all Athenians are Greek, therefore all Athenians are rational'. A syllogism has only three terms; the subject term and the predicate term, called 'minor' and 'major', respectively; the other term, which occurs only in the premisses, is called the 'middle' term. The forms of a valid syllogism were first studied systematically by ARISTOTLE, and the theory of the syllogism forms a large part of what is termed 'traditional LOGIC.'

symbols—Philosophers often use symbols to abbreviate logical connections, with letters standing for terms or sentences. For instance, suppose *B* stands for property of being bald. If *f* stands for Fred, *Bf* stands for the sentence 'Fred is bald'. With respect to quantifier LOGIC in which *A,* the universal quantifier, signifies 'all', the formula *(Ax)(Bx)* means 'Everything is bald'; or likewise, in the case of the existential quantifier *E, (Ex)(Bx)* means 'Something is bald'. The equals sign (=) means 'is identical with'.

In sentential logic, there are many symbols that refer to logical connections between sentences, the latter of which are usually abbreviated by capital letters. Here are some examples: the ampersand (&) and the dot (.) are commonly used to stand for 'and'; the horseshoe on its side and the arrow (→) are used for 'if…then'; the wedge or vee (V)stands for the inclusive 'or'; the tilde or curl (~) stands for 'not', where *~P* means 'it is not the case that *P*'; another negation symbol is '-'; the triple bar (≡) or the double arrow (↔) stands for 'if and only if'; etc.

synapse—From the Greek for 'juncture' or 'point of contact'. The functional junction between the axon and the dendrite of two neurons by which nerve impulses flow. The term was coined by SHERRINGTON in 1906.

syntax—The aspect of language which has to do with grammar or logical form. It can tell you whether a sentence is formed correctly but cannot tell you what a correctly formed sentence means, which is the realm of SEMANTICS. The study of syntax, which is part of the general theory of signs, is called syntactics.

synthetic—See ANALYTIC/SYNTHETIC.

systems analysis—Generally and collectively, the processes and operations involved in the designing, implementing and coordinating of the various components of any complex system. More specifically, it is characterized by the use of systematic analytical procedures derived from industrial/organization psychology and assisted by the techniques of computer science to understand the workings of complex organizations, to identify problems

and sources of error and to make recommendations for more efficient and effective structures.

Tarski, Alfred (1902–) Polish-American mathematician and logician. He is the founder of SEMANTICS.

tautology—In ordinary language a tautology says the same thing twice, but in LOGIC, it is used to describe a PROPOSITION which is true by virtue of its form alone. It is sometimes used as a synonym for logical truth, and for some, every definition is tautological. In terms of truth tables a tautology is a statement form, all of whose substitution instances are true. While one might say then that a tautology is necessarily true, some might hold that although this is true, the truth in question is vacuous. WITTGENSTEIN divided meaningful propositions into two classes: those which picture facts, and those which express tautologies.

taxonomy—From the Greek meaning 'laws of arrangement'. Any systematic set of principles for classification and arrangement.

teleology—From the Greek *telos*, 'end', and *logos*, 'discourse' or 'doctrine'. The study of aims, purposes or functions as well as the doctrine that ends, final CAUSES or purposes are to be invoked as principles of explanation. In general, much of traditional philosophy viewed nature and the universe in terms of teleology. The term itself was introduced in the eighteenth century by Christian Wolff.

Theaetetus (c. 414–369 BC)—Theaetetus was a Greek mathematician who joined PLATO in founding the Academy of Athens and whose work was later used by EUCLID. Plato's dialogue *Theaetetus* is devoted to the question of the definition of knowledge.

thermodynamics, first and second law of—The study of the interrelation between heat and other forms of energy. The first law of thermodynamics states simply that heat is a form of energy and that in a closed system the total amount of energy of all kinds remains constant through time. It is therefore the application of the principle of CONSERVATION of energy to include heat energy. The second law deals with the direction in which any chemical or physical process involving energy takes place: it is impossible to construct a continuously operating machine which does mechanical work and which cools a source of heat without producing any other effects. The energy in a closed system tends to decrease with time, while the ENTROPY tends to increase.

transcendental—The sort of thought that attempts to discover the (perhaps universal and necessary) laws of reason, and to deduce consequences from this about how reality must be understood by any mind. KANT used this kind of reasoning—the 'transcendental argument'—to argue in favour of A PRIORI metaphysical truths.

transparency, referential—See OPACITY AND TRANSPARENCY, REFERENTIAL.

truth function—A PROPOSITION is a truth function if, and only if, its truth or falsity is determined by the truth or falsity of its component propositions. For example, to say that 'p and q' is a truth function is to say that, once we can answer the questions (1) 'Is p true? (2) 'Is q true?' we are in a position to answer the question 'Is "p and q" true?'. See FUNCTION.

Turing, Alan Mathison—British mathematician, biologist and philosopher. He

was the key figure, along with VON NEUMANN, in the conception of electronic digital computers and ARTIFICIAL INTELLIGENCE, as well as the concepts of mind that arose alongside of these. He developed the Turing machine, a computer prototype, and queried whether the human mind functioned in an analogous manner or could be simulated by such a machine. He claimed that the success of such a simulation of mind could be gauged, and developed an intelligence test for this purpose. It is known as the 'Turing Test', in which a man's responses to a series of questions is measured against those of a computer (responding by teletype) in an attempt to distinguish which is which. Given that only mental attributes can be questioned in this behaviouristic model, the computer's superior mathematical skills may provide an objection to the test. Turing left the question of whether the machine was conscious open.

types, theory of—A theory devised by RUSSELL to avoid the logical PARADOXES and antinomies which arise from self-reference. Deciding that no class could be a member of itself, he concluded that the class is of a higher type than its members. In the assertion 'Socrates is human', the predicate is thus of a higher type than the subject. In the simple theory of types, the initial type level is that of individuals followed by properties of individuals, properties of properties, etc. While this solved the logical paradoxes, it did not touch certain semantical paradoxes (i.e. the Grelling paradox which distinguished between predicates which have the properties they DENOTE (autological) and those that do not (heterological). The paradoxical question is whether the predicate 'heterological' is autological or heterological). These led Russell, along with WHITEHEAD, to develop the ramified theory of types. Here attention is given not only to the elements of the simple theory but also to the hierarchy of orders—first/second/third…order FUNCTIONS, each function quantifying over a lower type. A 'type fallacy' occurs when this logical hierarchy is disregarded.

universals—These are 'abstract' things—beauty, courage, redness, etc. The problem of universals is, at core, the question of whether these exist in the external world—whether they are real things, or merely the result of our classification (non-existent if there were no minds). Thus, one may be a realist or anti-realist about universals. PLATO'S theory of forms is an early example of REALISM in this sense, while ARISTOTLE and the empiricists are associated with anti-realism. Nominalism is a variety of anti-realism that claims that such abstractions are merely the result of the way we use language.

validity—In common usage an argument is valid if it is permitted by the laws of LOGIC. In fact, the question of the validity of a conclusion is independent of the question of the truth of the premisses, which bears upon the 'soundness' of an argument. In deductive arguments, the conclusion is sound given the truth of the premisses, while in inductive arguments, the truth of the premisses only makes the conclusion more probable. Although in both cases, with the proper logical connections intact, the arguments may be valid. See DEDUCTION/INDUCTION.

verification principle/criterion of verifiability—Advocated by the logical positivists, this criterion states that any statement that is not verifiable is meaningless. For example, since it might be thought impossible to find evidence for or against the statement that 'God loves us', they would deem

this statement not false (or true), but meaningless. Empiricists in general tend to share this position. Some logical positivists used this criterion to argue that statements in METAPHYSICS and ETHICS were meaningless. Further, some of them, including A.J.SAYER, thought that the verification principle provided the definitive answer to questions about meaning. This holds that the meaning of a sentence can only be specified by giving its procedures of verification.

verificationism—In this position, it is argued that scientific work consists of the attempt to substantiate (verify) the correctness of a theory by logical and EMPIRICAL means. It is usually contrasted with falsification, a younger point of view associated with POPPER, that holds that scientific theories cannot be proven to be true but only subjected to attempts at REFUTATION. From this point of view, a scientific theory is accepted, not because it is demonstrably a correct codification of a class of phenomena, but because it has not yet been shown to be false.

Vienna Circle—A group of philosophers who met in Vienna and elsewhere during the 1920 and 1930s. It included SCHLICK, CARNAP, and GÖDEL, among others, and was deeply influenced by WITTGENSTEIN. Reacting against the continental ways of thought that surrounded them, these philosophers produced the groundwork of logical POSITIVISM and proved very influential on future ANALYTIC PHILOSOPHY, especially in Britain and the United States, where many members moved during the rise of Hitler.

virtual particle—A particle which is created for short periods of time where its creation would normally violate the CONSERVATION law of energy and mass. This is due to the uncertainty principle, the consequence of which states that any measurement of a subatomic system must disturb the system under investigation. There is a resulting lack of precision, particularly when the lifetime of a particle is short, and a high degree of uncertainty with respect to its energy.

vitalism—From the Latin *vita*, 'life'. The doctrine that phenomena of life possess a particular character by virtue of which they are distinct from the physico-chemical phenomena of the body and from the mind. Vitalists ascribe the activities of living organisms to the operation of a 'vital force' and are opposed to biological MECHANISTS who assert that living phenomena can be explained exclusively in physico-chemical terms.

volition—The exercise of the will—the power of deciding, desiring, or wanting.

von Neumann, John—Hungarian-born Princeton professor, one of the outstanding mathematicians of this century. He contributed to the development of atomic energy, built one of the first electronic computers, designed many nuclear devices and contributed to game theory—a branch of mathematics concerned with PROBABILITY in its approach to the problem of strategy.

Waisman, Friedrich (1896–1959).—Austrian-born philosopher. Assistant to SCHLICK in Vienna, he moved to Cambridge to study with WITTGENSTEIN where he later taught. Beginning as a logical POSITIVIST committed to mathematical rigour, he came to hold the position that linguistic methods held more promise in dealing with the problems of philosophy.

Watson, John Broadus (1878–1958).—American psychologist, the founder of BEHAVIOURISM. Influenced by SKINNER, and in response to the introspectionist psychology of his day, Watson held that psychology could

only become a productive science, like other NATURAL SCIENCES, if it was OBJECTIVE and dealt with the observable. He launched the movement with his 1913 paper 'Psychology as the Behaviourist Sees It', which was followed by numerous influential articles and books.

wave mechanics—One of the forms of QUANTUM MECHANICS that developed from the theory that a particle can also be regarded as a wave. Wave mechanics is based on the SCHRÖDINGER wave equation describing the wave properties of matter. It relates the energy of a system to a wave function, and in general it is found that a system (such as an atom or molecule) can only have certain allowed wave functions and certain allowed energies. In wave mechanics the QUANTUM conditions arise in a natural way from the basic postulates as solutions of the wave equation.

weak/strong interaction—The interactions between elementary particles at the subatomic level which are, along with gravity and ELECTROMAGNETISM, two of the fundamental FORCES of nature. The weak force produces radioactive decay and the strong force permanently binds quarks (the three known basic particles). Weak interaction, compared with strong, is a trillion times weaker, and when strong interactions take place the weak are unimportant.

Weierstrass, Karl—One of the greatest German mathematicians of the nineteenth century; a teacher of Cantor. He worked in mathematical analysis, in the theory of FUNCTIONS and on ideas that had troubled mathematicians since ancient times: INFINITY and irrational NUMBERS.

Weltanschauung—German, meaning 'world-view, perspective of life, conception of things'.

Weyl, Hermann—German-American scientist and philosopher. Making contributions to both geometry and RELATIVITY theory, his philosophical interest was in philosophy of MATHEMATICS and PHILOSOPHY of science.

Whewell, William (1794–1866). English philosopher. Interested in the methods of the INDUCTIVE sciences, he suggested the importance of 'colligation' in the ordering of scientific data—i.e., finding the conception which allows one to see the facts as connected—and thereby assimilating induction to the hypothetico-deductive method.

Whitehead, Alfred North (1861–1947).—English (Cambridge) philosopher and logician, who developed, with RUSSELL, the first modern systematic symbolic LOGIC. He is also known for his 'process' philosophy in which change, not SUBSTANCE, is fundamental, and in which purpose is a feature of the external world.

Wiener, Norbert (1894–1964).—American mathematician and founder of CYBERNETICS. He joined the faculty of MIT at twenty-five and later, with Arturo Rosenblueth formed an interdisciplinary group in the late 1930s, whose meetings were concerned with scientific method and the unification of science, and from which the concept of cybernetics emerged. The central core of his theories which were inspired by the development of the computer have been developed under the label 'ARTIFICIAL INTELLIGENCE'. This has taken over the concept of man as 'machine-like' and revolutionized the terms in which perception, learning, thinking and language have been conceived of since. He wrote a number of articles with Rosenblueth and Julian Bigelow on

the philosophical aspects of cybernetics, involving VITALISM and Bergsonian time and was concerned with the social dangers of this viewpoint in terms of the need for social evolution to accommodate the rapid technological advances.

Wittgenstein, Ludwig (Josef Johann) (1889–1951).—Austrian-born, he taught at Cambridge and did much of his work in England, where his thought was greatly influential on recent philosophical trends. This is especially true of logical POSITIVISM and ORDINARY LANGUAGE PHILOSOPHY the latter of which he may be seen as the father. His *Tractatus Logico-Philosophicus* (1922) became of immediate consequence to philosophy and drew him permanently into the discipline. He engaged many of the technical problems of contemporary philosophy but is best known for his view of philosophy as therapy, designed to cure puzzles and confusions resulting from misunderstandings of the function of parts of language. He set up a system of linguistic analysis by which any statement must satisfy certain logical conditions before being admitted as a proper philosophical statement. The tools of his system are symbols, which enable a thing to be *shown* in the event that it cannot, because of the limitations of language, be *said*.

Logic

algorithm—See DECISION PROCEDURE.

ampliative argument—An argument or inference whose conclusion goes beyond the information contained in its premisses; an argument in which the premisses fail to provide conclusive evidence for the conclusion. Ampliative arguments include inductive (or non-monotonic) inferences as well as inferences to the best explanation. They may be either acceptable or unacceptable depending upon their strength or weakness.

antinomy—Any paradoxical statement such that its truth leads to a contradiction and the truth of its denial leads to a contradiction; a paradox.

argument—The inference of a conclusion from premisses; a set of sentences (or propositions) supporting or purporting to justify such an inference.

axiomatic system—A logistic system or logical calculus which includes a set of axioms as part of its primitive basis; to be contrasted with a natural deduction system.

belief dynamics—The standard name for theories of belief revision, which are designed in such a way as to model changes in one's belief set which come about both as a result of the acceptance of new beliefs and the revision of old beliefs.

bivalence—The property of a logic in which each well-formed formula has one of exactly two possible truth values: truth and falsehood.

Boolean algebra—A formal system introduced by George Boole which models logical relations algebraically by defining the operations, $\cap$(or $\times$, representing intersection), $\cup$(or +, representing union) and (or -, representing complementation) over a set of elements representing propositions.

bound variable—A variable which falls within the scope of a quantifier; a variable, *x,* to which a quantifier, such as or $\exists$, $\forall$ applies.

calculus—Another name for a logistic system.

Cantor's theorem—The theorem, proved by Georg Cantor in 1891, that the cardinality of the set of all subsets of a given set (the power set of that set) is always greater than that of the set itself. Alternatively, the theorem that the set of real numbers is non-denumerable (or, equivalently, that the cardinality of the set of real numbers is greater than that of the set of natural numbers). Cantor proved both versions of the theorem by means of a diagonal argument.

cardinality—The property of a set associated with the cardinal (or counting) number that measures the number of its members.

category theory—The mathematical study of structures and structure-preserving mappings (or morphisms); the study of mathematical categories, which are defined as sets of objects together with associated sets of morphisms (or arrows) which satisfy certain conditions.

Church's theorem—The metatheorem, proved by Alonzo Church in 1936, that there is no effective decision procedure for determining whether an arbitrary well-formed formula of first-order logic is a theorem. Equivalently, the theorem that the valid formulas of the predicate calculus do not form a general recursive set. Also called the Church-Turing theorem.

Church's thesis—The thesis, suggested by Alonzo Church, that every effectively calculable function (or equivalently, every decidable predicate) is general recursive. Also called the Church-Turing thesis.

classical logic—Any logic for which bivalence holds; alternatively, the propositional and predicate logics originally developed by Gottlob Frege and modified over the years by his successors.

closed sentence—A well-formed formula or sentence in which all variables are bound; to be compared with an open sentence.

combinatory logic—A branch of formal logic which contains functions capable of playing the role of variables in ordinary logic; hence, a branch of logic in which variables are eliminated.

compactness theorem—The metatheorem, proved by Kurt Gödel in 1930, stating that in first-order logic any collection of well-formed formulas of a given language has a model if every finite subset of the collection has a model.

completeness—The property of a logistic system, introduced by E.L.Post, in which for any well-formed formula, either that formula is a theorem of the system or, if added to the system as an axiom, the resulting system would be inconsistent. Alternatively (but not equivalently), the property of a logistic system, introduced by Kurt Gödel, in which all valid well-formed formulas expressible in the system are theorems of the system. In the former sense, the classical propositional calculus but not the pure first-order predicate calculus is complete; in the latter sense, both are complete.

computability—Intuitively, the property of being able to compute a function. A computable function is thus any function for which there exists an effective, finite, mechanical procedure (or algorithm) for calculating a solution. One precise notion of effective computability is that given by the notion of a Turing machine; another is that of a general recursive function.

conclusion—That which is inferred from or purportedly justified by the premisses of an argument.

confirmation theory—The theory of the degree to which evidence supports (or

confirms) a given hypothesis; the theory of rational degrees of confidence that a cognitive agent should have in favour of a hypothesis, given some body of evidence.

connective—A symbol used to join one or more prepositional constants or forms. The result is a new constant or form. Standard connectives include symbols representing negation (~), conjunction (&), (inclusive) disjunction ($\vee$), material implication ($\rightarrow$), and material equivalence ($\leftrightarrow$).

consistency—The property of a set of statements or propositions or of a logistic system in which no contradiction (the joint assertion of a proposition and its denial) can be derived. Alternatively (but not equivalently), the property, introduced by Alfred Tarski, of a logistic system that not every well-formed formula is a theorem. Alternatively (but not equivalently), the property, introduced by E.L.Post, of a logistic system that no well-formed formula consisting of only a prepositional variable is a theorem. Alternatively (but not equivalently), the property of a logistic system of having a model. This last is called the semantic definition of consistency.

constructivism—The view that satisfactory proofs (and definitions) refer only to entities which can be successfully constructed or discovered. Thus, constructive proofs, unlike indirect proofs or proofs by *reductio ad absurdum,* are ones which allow us to find examples, or to find algorithms for finding examples, of each set of objects which purportedly have some given property, *P*.

continuum hypothesis—The hypothesis, suggested by Georg Cantor, that there is no set with cardinality greater than that of the natural numbers but less than that of the power set of the natural numbers. When generalized, the hypothesis states that there is no set with cardinality greater than a given infinite set but less than that of the power set of that set.

Cook's theorem—The theorem, proved by Stephen Cook in 1971, that the problem of satisfiability is at least as difficult to solve as is any NP-complete problem.

counterfactual—A conditional sentence in which the antecedent is false.

decision problem—The problem of finding an effective, finite, mechanical decision procedure (or algorithm) for arriving at an answer to a given question. Typically, the most common decision problem with regard to logistic systems is the problem of determining whether an arbitrary, well-formed formula of the system is a theorem of the system. A positive solution to a decision problem is a proof that an effective decision procedure exists. A negative solution to a decision problem is a proof that an effective decision procedure does not exist. An example of a positive solution is the proof that truth tables provide an effective decision procedure for the propositional calculus. An example of a negative solution is Church's theorem for the predicate calculus.

decision procedure—A procedure for coming to a decision with regard to a given question. The procedure is said to be effective, or to be an algorithm, provided that it results in the correct answer following a finite number of mechanical steps.

decision theory—The theory of selection under various conditions of risk and uncertainty; the theory of rational choice, given that each option has associated with it an expected probability distribution of outcomes, gains and

losses. Decision theory, together with game theory, is often called the theory of practical rationality.

deducibility—The relation, symbolized $\vdash$ and contrasted with entailment, that holds between a statement (or proposition), *C*, and a set of statements (or propositions), *P*, provided that *C* is provable from *P*.

deduction—An argument or inference in which the conclusion, *C*, is provable from the premisses, *P*. Alternatively, but less commonly, an argument or inference in which the premisses provide conclusive evidence for the conclusion; a valid argument or entailment.

deduction theorem—The metatheorem that states that, in a given logistic system, if $s_1, s_2, \ldots, s_n \vdash s_{n+1}$, then $s_1, s_2, \ldots, s_{n-1} \vdash s_n \rightarrow s_{n+1}$.

deductive logic—The formal study of deductions or of arguments or inferences in which the premisses provide conclusive evidence for the conclusion.

default logic—A form of nonmonotonic logic which permits the acceptance or rejection of certain types of default propositions simply in the absence of information to the contrary.

denumerable—A denumerable set is any set whose cardinality is equal to that of the natural numbers, the smallest of infinite sets. A non-denumerable set is one whose cardinality is greater than that of the natural numbers; to be contrasted with an enumerable set.

deontic logic—Any logic emphasizing inferential relations and entailments which result from deontic properties of sentences, such as obligation and permission, and obtained from a classical logic, such as the propositional calculus or the predicate calculus, by the addition of axioms and rules of inference governing operators such as *O* and *P* in '*Op*' ('it ought to be the case that *p*') and '*Pp*' ('it is permissible that *p*').

detachment—The rule of inference (also called *modus ponens*) that, given well-formed formulas of the form *p* and $p \rightarrow q$, one can infer a well-formed formula of the form *q*.

diagonal argument—An argument introduced by Georg Cantor to show that certain sets have distinct cardinalities; a method or procedure for constructing objects on the basis of other objects in such a way that the new objects are guaranteed to differ from the old. When generalized, this method becomes one of the most powerful tools in metamathematics.

entailment—The relation, symbolized $\models$ and contrasted with deducibility, that holds between a statement (or proposition), *C*, and a set of statements (or propositions), *P*, provided that *C* follows from *P*. Alternatively, an argument or inference in which the conclusion, *C*, follows from the premisses, *P*, or in which the premisses provide conclusive evidence for the conclusion. In this sense, entailment is often identified with validity, the property of being logically impossible that the premisses should be true while at the same time the conclusion be false. Others suggest it be identified with a stronger relation in order to avoid the paradoxes of strict implication.

enumerable—An enumerable set is any set whose cardinality is equal to that of some (finite) natural number or to the cardinality of the set of natural numbers as a whole. A synonym of 'countable'; to be contrasted with a denumerable set.

epistemic logic—Any logic emphasizing inferential relations and entailments which result from epistemic properties of sentences and obtained from a classical logic, such as the propositional calculus or the predicate calculus, by the addition of axioms and/or rules of inference governing operators such as *K* and *B* in *'Kp'* ('it is known that *p*') and *'Bp'* ('it is believed that *p*').

erotetic logic—Any logic emphasizing inferential relations and entailments pertaining to questions and answers.

existential quantifier—A symbol such as '∃'which is used in combination wit a variable to represent the notion 'there exists'. For example, under the appropriate interpretation *'(∃x=x)'* could be used to symbolize 'There exists an *x*, such that *x* is identical with itself' or, more informally, 'Something is identical with itself'.

fallacy—An argument which although neither valid nor inductively strong is nevertheless persuasive; any error in reasoning.

finitary method (finitism)—A method of metamathematical research adhered to by David Hilbert and his followers which emphasizes the use of only finite, well-defined and constructible objects. Like constructivism, finitism holds that we cannot assert the existence of a mathematical object unless we can also indicate how to go about constructing it. Unlike constructivism, it also requires that one should never refer to completed infinite totalities.

finitism—See FINITARY METHOD.

first-order language—A language whose quantifiers and functions are allowed to range over only individuals. In contrast, the quantifiers and functions of higher-order languages may range over properties and functions as well as individuals.

first-order logic—The logic of valid inferences carried out in first-order languages; also called first-order predicate (or functional) logic. See predicate logic.

formal language—A collection of well-formed formulas together with an interpretation.

formal logic—The study of arguments whose validity or inductive strength depends exclusively or primarily upon the form or structure, rather than the material content, of their component statements or propositions.

formal system—Another name for a logical calculus.

formalism—A programme of research into the foundations of mathematics initiated by David Hilbert and using the finitary method.

formation rule—Any rule of a logistic system governing which combinations of (primitive) symbols constitute well-formed formulas.

formula—Any sequence of primitive symbols; sometimes used as a synonym for well-formed formula.

free logic—Any logic in which it is not assumed that names successfully refer; a logic without existence assumptions.

free variable—A variable which is not bound by a quantifier.

function—A many-one correspondence. Also called a map or mapping, a function is a relation which associates members, *x*, of one set, *X*, with some unique member, *y*, of another set, *Y*. We write *f(x)=y*, or *f*: *X*→*Y*, and name *X* the domain and *Y* the range of the function *f*.

functional logic—Another name for predicate logic.

future contingents, problem of—The problem, first raised by Aristotle but popularized by Jan Łukasiewicz, of whether contingent statements

concerning the future have truth-values prior to the time to which they refer.

fuzzy logic—An extension of logic which attempts to deal with imprecise information such as information conveyed through vague predicates or information associated with so-called fuzzy sets, sets in which membership is a matter of degree.

game theory—The mathematical theory of selection by two or more agents (or players) when the outcome is a function, not just of one's own choice or strategy, but the choices or strategies of other agents as well. Game theory, together with decision theory, is often called the theory of practical rationality.

general recursive function—A type of recursive function definable in terms of primitive recursive functions together with minimization.

Gentzen's consistency proof—The 1936 proof by Gerhard Gentzen, using transfinite induction up to the ordinal ε_0, that classical pure number theory is consistent.

Gödel numbering—The systematic assignment of natural numbers to the components and formulas of a formal system in such a way that, by studying the properties and relations of the correlated numbers, one is able to infer information about the syntax of the underlying formal system.

Gödel's completeness theorem—The metatheorem, proved by Kurt Gödel in 1930, that every valid well-formed formula of (pure) first-order predicate logic is a theorem of that system.

Gödel's incompleteness theorems—The two 1931 theorems of Kurt Gödel relating to the incompleteness of systems of elementary number theory. The first theorem states that any ω-consistent system adequate to express elementary number theory is incomplete in the sense that there is a valid well-formed formula of the system that is not provable within the system. (In 1936 this theorem was extended by J.B.Rosser to apply to any consistent system.) The second theorem states that no consistent system adequate to express elementary number theory can contain a proof of a sentence which states the system's own consistency.

halting problem—The problem of discovering an effective procedure for determining whether a computational device (such as a Turing machine) will ever halt, given arbitrary input.

higher-order language—A language whose quantifiers and functions are allowed to range over properties and functions as well as individuals.

higher-order logic—The logic of valid inferences carried out in higher-order languages.

imperative logic—Any logic emphasizing inferential relations and entailments which result from imperatives.

induction—An ampliative argument from empirical premisses to an empirical conclusion. For example, in induction by simple enumeration, given observed objects *a*, *b* and *c* of some kind, *G*, if it turns out that *a*, *b*, and *c* also all have property *F*, then one might conclude that all future observed *G*s will be *F*, or perhaps that all *G*s are *F*. Inductions may be either acceptable or unacceptable depending upon their inductive strength or weakness.

inductive logic—The formal study of inductions, of ampliative arguments or inferences from empirical premisses to empirical conclusions, in which the premisses fail to provide conclusive evidence for the conclusion.

inductive strength—The degree of support a non-conclusive argument's premisses give to its conclusion. In cases where the conclusion is likely to be true given the premisses, the argument is said to be inductively strong. In cases where the conclusion is not likely to be true given the premisses, the argument is said to be inductively weak.

inference rule—Also known as a transformation rule, any justification of a well-formed formula within a logistic system of the form, 'Given well-formed formulas of the form $s_1,\ldots s_n$, infer a well-formed formula of the form s_m'.

informal logic—The study of arguments whose validity or inductive strength depends exclusively or primarily upon the material content, rather than the form or structure, of their component statements or propositions.

interpretation—The meanings of, or alternatively a method of assigning meanings to, a set of well-formed formulas or to a formal system. Thus, given a set, *S*, of well-formed formulas, an interpretation consists of a non-empty set (or domain), together with a function which (i) assigns to each individual constant found in members of *S* an element of the domain; (ii) assigns to each *n*-place predicate found in members of *S* an *n*-place relation of the domain; (iii) assigns to each *n*-place function-name found in members of *S* a function whose arguments are *n*-tuples of elements of the domain and whose values are also elements of the domain; and (iv) assigns to each sentence letter a truth value. Logical constants, such as those representing truth functions and quantifiers, are assigned standard meanings using rules (such as truth tables) which specify how well-formed formulas containing them are to be evaluated.

interrogative logic—Another name for erotetic logic.

intuitionism—A program of research into the foundations of mathematics initiated by L.E.J.Brouwer; a species of constructivism.

intuitionistic logic—A logic which formalizes the 'intuitionistic' view that the subject matter of mathematics consists of mental constructions made by mathematicians. Classical proofs (such as those which rely upon indirect proof or *reductio ad absurdum* arguments) are therefore not admissible since they do not contain the appropriate constructions. In intuitionistic logic, the sentence '$p\ \neg p$' is not a theorem and the inferences from $\neg\neg p$ to p and from$\neg\ (\forall x)Fx$ to $(\exists x)\ \neg Fx$ are not allowed.

lambda calculus A logic governing the manipulation of functions, which gains its name from the notation used to name functions. Terms such as '*f*(*x*)' or the 'successor of *y*' are used to refer to objects obtained from *x* or *y* by the appropriate functions. To refer to the functions themselves, Alonzo Church introduced the notation which yields, respectively, and '(λx) ($f(x)$)' and '(λx) (successor of y)'.

logic—The study of correct inference. Alternatively, the science of validity and of inductive strength, and of all formal structures and informal properties relating to correct inference. The term is also used as a synonym for 'logical calculus'.

logical calculus—Any systematic treatment of logical inference in which a primitive basis—consisting of a formal language, including a vocabulary of primitive elements and a set of formation rules (or grammar), and a logic, including a (possibly empty) set of axioms and a set of transformation rules—is explicitly stated in the system's metalanguage. Also called a formal system or a

logistic system. The two most important classical logical calculi are the prepositional (or sentential) calculus and the predicate (or functional) calculus.

logical constant—A symbol used to represent topic-neutral expressions which are relevant to a sentence's logical form. Standard logical constants include symbols used to represent truth-functions such as negation (~), conjunction (&), (inclusive) disjunction ($\vee$), material implication ($\rightarrow$), and material equivalence ($\leftrightarrow$), the universal and existential quantifiers ($\forall$ and $\exists$), the identity relation (=), and scope indicators (such as '(' and ')').

logical form—The structure of a sentence or argument relevant to that sentence or argument's logical relations. The logical form of an expression is typically obtained by making explicit the expression's logical constants and by substituting free variables for its non-logical constants. Logical form is contrasted with the material content (or subject matter) of the non-logical constants for which the free variables are substituted.

logical paradox—A paradox not involving semantic notions such as reference or truth; to be contrasted with a semantic paradox.

logicism—The doctrine, variously advanced by Gottlob Frege, Bertrand Russell, Alfred North Whitehead and others, that (some or all branches of) mathematics can reduced to logic. Specifically, it is the view that the concepts of (some or all branches of) mathematics can be defined in terms of purely logical concepts and that the theorems of (these same branches of) mathematics can in turn be deduced from purely logical axioms.

logistic system—Another name for a logical calculus.

Löwenheim-Skolem theorems—Any of a series of metatheorems relating to Leopold Löwenheim's 1915 theorem, that if there is an interpretation in which a well-formed formula is true, then there is an interpretation in which the formula is true and whose domain is enumerable, and to Thoralf Skolem's 1920 extension of this theorem.

many-valued logic—Any logic, such as that developed by Jan Łukasiewicz, which countenances more than the two possible classical truth values: truth and falsity.

material content—The subject matter of a sentence or argument, in contrast to the sentence or argument's logical form.

material implication—The truth function, normally written $p \rightarrow q$ or $p \supset q$, which is false if and only if p (its antecedent) is true but q (its consequent) is false.

material implication, paradoxes of—Any of a number of unintuitive (but, strictly speaking, non-contradictory) results to the effect that whenever the antecedent is false or the consequent is true in a material implication, the resulting implication will be true, regardless of its content; to be contrasted with the paradoxes of strict implication.

mathematical logic—Another name for formal logic, particularly for those branches of formal logic which rely upon mathematical tools and concepts, or which are suitable for expressing mathematical theories.

mereology—A logic emphasizing inferential relations and entailments which result from the relationship of whole and part.

metalanguage—A language used to talk about a (usually separate) language called an object language.

metalogic—A logical theory whose subject matter is a particular logical calculus or logistic system; the study of logical calculi from the point of view of a separate metalanguage.

metamathematics—The study of logistic systems used to model mathematical theories and in which formulas of the theory (such as axioms, theorems and proofs) are themselves assumed to be mathematical objects. Sometimes the term is restricted to proof theory, or to proof theory using only finitary methods.

metatheorem—A theorem proved in a metalanguage; a theorem of metalogic or metamathematics.

metatheory—A theory in a metalanguage concerning a separate theory or logistic system.

modal logic—Any logic emphasizing inferential relations and entailments which result from alethic modalities such as necessity, possibility and impossibility, and obtained from a classical logic, such as the prepositional calculus or the predicate calculus, by the addition of axioms and rules of inference governing operators such as $\Box$ and $\Diamond$ in '$\Box p$' ('it is necessary that p') and '$\Diamond p$' ('it is possible that p').

model—An interpretation of a set of sentences (or of a logistic system) under which all sentences (or theorems) turn out to be true.

model theory—The study of interpretations of formal systems; the study of relations of (semantic) consequence between sentences (and sets of sentences) within an interpreted logistic system.

modus ponens—Another name for the rule of detachment.

multi-valued logic—A synonym for many-valued logic.

natural deduction system—A logistic system or logical calculus which avoids the use of axioms, relying instead upon a sufficiently powerful set of rules of inference; to be contrasted with an axiomatic system.

non-monotonic logic—The formal study of ampliative reasoning; a type of logic which is sensitive to changing evidence and so allows for the revision or overturning of previously proved theorems.

NP-complete—An abbreviation for 'non-deterministic, polynomial-time-complete', the property of the most difficult class of problems for which there is no polynomial time solution but whose solutions, if they exist, are checkable within polynomial time.

object language—A language referred to by a metalanguage. Alternatively, a language used to talk about (usually non-linguistic) objects.

ω completeness—The property of a formal system in which, if it has as theorems that a given property, *P,* holds of all individual natural numbers, then it also has as a theorem that *P* holds of all numbers.

ω consistency—The property of a formal system in which, if it has as theorems that a given property, *P,* holds of all individual natural numbers, then it fails to have as a theorem that *P* fails to hold of all numbers.

open sentence—A formula or sentence in which not all variables are bound. Alternatively, a predicate; to be contrasted with a closed sentence.

paraconsistent logic—Any logical calculus which is inconsistent in the sense that a contradiction (the joint assertion of a proposition and its denial) can be derived; but consistent in the sense (introduced by Alfred Tarski) that not every well-formed formula is a theorem.

paradox—The existence of apparently conclusive arguments in favour of contradictory propositions. Equivalently, the existence of apparently conclusive arguments both in favour of accepting, and in favour of rejecting, the same proposition. The distinction between logical paradoxes (such as Russell's paradox) and semantic paradoxes (such as the liar paradox) is due to Guiseppe Peano and Frank Ramsey.

Peano's postulates—A set of postulates introduced by Richard Dedekind and popularized by Guiseppe Peano which defines the set of natural numbers as a series of successors to the number zero.

pleonotetic logic—A synonym for plurality logic.

plurality logic—Any logic emphasizing inferential relations and entailments pertaining to relations of quantity and using plurality quantifiers such as most and few.

plurative logic—A synonym for plurality logic.

Polish notation—A logical notation devised by Jan Łukasiewicz which avoids the need for scope indicators (such as parentheses) in formal languages by using an unambiguous system of ordering. Thus, letting N represent negation, K represent conjunction, A represent disjunction (or alternation), R represent exclusive disjunction, C represent material implication, E represent material equivalence, L represent necessity, and M represent possibility, sentences such as $\sim (p \rightarrow (p \ \& \ q))$ and $\Box(p \rightarrow p)$ can be represented as $NCpKpq$ and $LCpp$, respectively.

predicate—An expression representing a condition or relation and which, when connected with one or more referring terms, forms a sentence. The resulting sentence is taken to be true when the predicate expresses a condition or relation that is satisfied by the referred-to entities, and false otherwise.

predicate logic—A logical calculus which analyses the relations between individuals and predicates within propositions (or statements), in additional to the truth-functional relations between propositions (or statements) that are analyzed within propositional logic. Each such system is based upon a set of individual and predicate (or functional) constants, individual (and sometime predicate) variables, and quantifiers (such as $\exists$ and $\forall$) which range over (some of) these variables, as well as the standard constants and connectives of the propositional calculus.

preference logic—Any logic emphasizing inferential relations and entailments which result from preferences.

premiss—One of a set of sentences (or propositions) which support or purport to justify a conclusion.

primitive basis—A set of primitive symbols, formation rules, axioms and inference rules (transformation rules) used to characterize a logicist system.

primitive recursive function—A type of recursive function definable by recursion and substitution from a set of fundamental functions including the constant functions, the projection (or identity) functions, and the successor function.

primitive symbols—A set of undefined symbols, including constants, variables, connectives and operators, used as the basic vocabulary of a language.

probability—A measure of the acceptability of a statement or proposition; a measure of likelihood.

probability theory—A mathematical theory of the acceptability of a statement or proposition, or of likelihood, axiomatized by Andrej Kolmogorov in 1933 as a non-negative real-value additive set function with a maximum value of unity.

proof—Any finite list of well-formed formulas in a logistic system, each of which is either an axiom of the system or results from the previous members of the list together with the inference rules of the system. The final formula in the list is said to be a theorem of the system.

proof theory—The study of the syntax of formal systems; the study of relations of (syntactic) deducibility between formulas (and sets of formulas) within a logistic system. Sometimes the term is restricted to the study of formal systems using only the finitary methods suggested by David Hilbert.

propositional function—A notion introduced by Gottlob Frege as a formal equivalent to that of a property; a function having as its domain a set of referring terms (such as individual constants) and as its range a set of propositions or truth values.

propositional logic—A logical calculus which analyses the truth-functional relations between propositions (or statements). Each such system is based upon a set of propositional (or sentential) constants and connectives (or operators) which are combined in various ways to produce sentences of greater complexity. Standard connectives include those representing negation ($\sim$), conjunction (&), (inclusive) disjunction ($\vee$), material implication ($\rightarrow$), and material equivalence ($\leftrightarrow$).

quantification theory—Another name for predicate logic.

quantifier—An operator, such as the existential or universal quantifiers, $\exists$ and $\forall$, first introduced by Gottlob Frege to indicate what was traditionally called the quantity of a proposition, namely, whether it was universal or particular.

quantum logic—A logic in which the law of distributivity fails; any logic designed to take account of the unusual entailment relations between propositions in theories of contemporary quantum physics.

recursion theory—The theory of recursive functions.

recursive function—Any of a set of functions which are said to be either primitive recursive or general recursive, and which are constructed from a set of fundamental functions by a series of fixed procedures. Specifically, a function is primitive recursive if it is definable by recursion and substitution from a set of fundamental functions including the constant functions, the projection (or identity) functions, and the successor function. A function is general recursive (or simply recursive) if it is definable in terms of the primitive recursive functions together with minimization.

recursive procedure—A procedure which is applied iteratively in such a way that each non-initial application is applied to the result of the previous application.

recursive set—Any set such that both it and its complement can be enumerated by recursive functions.

relevance logic—Any logic emphasizing inferential relations and entailments which involve connections of relevance between premisses and conclusions, rather than simple classical derivability conditions; a type of paraconsistent

logic involving an implication relation stronger than strict implication and designed to avoid the paradoxes of implication and of strict implication.

Russell's paradox—The most famous of the logical or set-theoretical paradoxes. The paradox comes from considering the set of all sets which are not members of themselves, since this set appears to be a member of itself if and only if it is not a member of itself. Discovered by Russell in 1901, the paradox prompted much work in logic and set theory during the early part of this century.

satisfiability—The property of an open sentence such that, given some non-empty domain of individuals, there is a possible assignment of individuals to the formula's free variables such that the resulting formula is true. Alternatively, the property of any set of sentences which can be given an interpretation, relative to a domain, such that all of the sentences turn out to be true. Thus, the problem of satisfiability is the problem, given an arbitrary set of sentences, of determining whether the set is satisfiable.

scope (of a quantifier)—The part of an expression to which a quantifier, such as $\exists$ or $\forall$, applies. Thus, a variable, x, falls within the scope of a quantifier provided that the quantifier applies to it.

second-order language—The most elementary of higher-order languages, in which quantifiers and functions are allowed to range over properties and functions of individuals, as well as individuals.

second-order logic—The logic of valid inferences carried out in second-order languages; the most elementary of higher-order logics.

semantic paradox—A paradox involving semantic notions such as reference or truth; to be contrasted with a logical paradox.

semantics—The meanings of the symbols of a formal system and the study of their properties and relations, including the theory of reference (or denotation) and the theory of meaning (or connotation).

sentential logic—Another name for prepositional logic.

set—Intuitively, any collection of well-defined, distinct objects. The objects which determine a set are called the elements or members of the set. The symbol $\in$ is regularly used to denote the relation of membership or elementhood. Thus '$a \in A$' is read 'a is an element (or member) of A' or 'a belongs to A'. Two sets are identical if and only if they contain exactly the same elements.

set theory—The systematic study of sets, their properties and relations. Motivated both by Georg Cantor's discovery of the set-theoretic hierarchy and by the paradoxes of naive set theory which accompanied it, the first standard axiomatization, Z, of the theory was provided by Ernst Zermelo in 1908.

Skolem-Löwenheim theorems—Another name for the Löwenheim-Skolem theorems.

Skolem's paradox—The unintuitive (but ultimately non-contradictory) result that systems for which Cantor's theorem is provable, and hence which must contain non-denumerable sets, nevertheless must be satisfiable, because of the Löwenheim-Skolem theorems, in an enumerably infinite domain.

soundness—The property of a logistic system in which all theorems of the system are valid well-formed formulas.

strict implication—A relation between two formulas, p and q, such that it is not possible that both p and $\sim q$. In such cases p is said to strictly imply q.

strict implication, paradoxes of—The unintuitive (but, strictly speaking, non-contradictory) results that a necessary proposition is strictly implied by any proposition and that an impossible proposition strictly implies all propositions, regardless of their content; to be contrasted with the paradoxes of material implication.

substitution—The rule of inference that, given one well-formed formula, one can infer a second well-formed formula from the first by uniformly replacing every variable of a given kind by some distinct variable.

successor—For a given member of an ordering, the member of the ordering which next follows.

symbolic logic—Another name for formal logic.

syntax—The symbols of a formal system and the study of their properties and relations, including the distinction between well-formed and ill-formed formulas.

tautology—Any compound sentence or formula of the prepositional calculus which, because of its logical structure, is true regardless of the truth values of its constituent sentences.

temporal logic—Any logic which is sensitive to the tense of sentences and to the changing truth values of sentences over time; a logic emphasizing inferential relations and entailments which result from properties of tensed sentences.

tense logic—Another name for temporal logic.

theorem—Any well-formed formula of a logistic system which is provable within the system.

theory—Any set of well-formed formulas. Alternatively, a set of well-formed formulas closed under logical entailment.

transformation rule—Another name for an inference rule.

truth function—Any function whose arguments and values are truth values.

truth table—A matrix which lists the truth value of a compound proposition for all possible assignments of truth values to its constituent propositions.

truth value—In classical logic, the two abstract entities which serve as the reference of true and false sentences, respectively, truth and falsehood. In many-valued logics, any values which play similar roles.

Turing-computable—The property of any function capable of being computed by a Turing machine. The set of Turing-computable functions turns out to be identical to the set of general recursive functions. See Church's thesis.

Turing machine—A theoretical machine introduced by Alan Turing in order to make precise the idea of (effective) computability. Intuitively, the machine can be thought of as a computer which manipulates information contained on a linear tape (which is infinite in both directions) according to a series of instructions. More formally, the machine can be thought of as a set of ordered quintuples, q_i, s_i, s_j, I_i, q_j, where q_i is the current state of the machine, s_i is the symbol currently being read on the tape, s_j, is the symbol with which the machine replaces S_i, I_i is an instruction to move the tape one unit to the right, to the left, or to remain where it is, and q_j is the machine's next state.

types, theory of—A theory of the correct structure of an ideal language, and introduced by Bertrand Russell as a means of blocking paradoxes such as the paradox of the set of all sets which are not members of themselves (Russell's paradox). Russell's idea was that by ordering the objects (and eventually

predicates) of a language or theory into a hierarchy (beginning with individuals at the lowest level, sets of individuals at the next lowest level, etc.), one could avoid reference being made to sets such as the set of all sets, since there would be no level at which such a set appeared.

universal quantifier—A symbol such as ∀ which is used in combination with a variable to represent the notion 'for all'. For example, under the appropriate interpretation '(∀x) *(x=x)*' could be used to symbolize 'For all *x*, *x* is identical with itself or, more informally, 'Everything is identical with itself'.

validity—The property of any inference such that the joint assertion of its premisses and denial of its conclusion results in a contradiction. Alternatively, the property of any well-formed formula which is true under all interpretations; that is, given any non-empty domain, every possible assignment of values to its free variables results in a true sentence.

well-formed formula—Any formula of a logistic system which is grammatically correct; a sentence.

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John V.Canfield lives in Toronto. He has taught philosophy at Cornell University and the University of Toronto, and is the author of *Wittgenstein: Language and World* (1981) and *The Looking-Glass Self* (1990). He is currently working on a book of essays on Wittgenstein.

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General editors' preface

The history of philosophy, as its name implies, represents a union of two very different disciplines, each of which imposes severe constraints upon the other. As an exercise in the history of ideas, it demands that one acquire a 'period eye': a thorough understanding of how the thinkers whom it studies viewed the problems which they sought to resolve, the conceptual frameworks in which they addressed these issues, their assumptions and objectives, their blind spots and miscues. But as an exercise in philosophy, we are engaged in much more than simply a descriptive task. There is a crucial critical aspect to our efforts: we are looking for the cogency as much as the development of an argument, for its bearing on questions which continue to preoccupy us as much as the impact which it may have had on the evolution of philosophical thought.

The history of philosophy thus requires a delicate balancing act from its practitioners. We read these writings with the full benefit of historical hindsight. We can see why the minor contributions remained minor and where the grand systems broke down: sometimes as a result of internal pressures, sometimes because of a failure to overcome an insuperable obstacle, sometimes because of a dramatic technological or sociological change, and, quite often, because of nothing more than a shift in intellectual fashion or interests. Yet, because of our continuing philosophical concern with many of the same problems, we cannot afford to look dispassionately at these works. We want to know what lessons are to be learned from the inconsequential or the glorious failures; many times we want to plead for a contemporary relevance in the overlooked theory or to consider whether the 'glorious failure' was indeed such or simply ahead of its time: perhaps even ahead of its author.

We find ourselves, therefore, much like the mythical 'radical translator' who has so fascinated modern philosophers, trying to understand an author's ideas in their and their culture's eyes, and, at the same time, in our own. It can be a formidable task. Many times we fail in the historical undertaking because our philosophical interests are so strong, or lose sight of the latter because we are so enthralled by the former. But the nature of philosophy is such that we are compelled to master both techniques. For learning about the history of philosophy is not just a challenging and engaging pastime: it is an essential element in learning about the nature of philosophy—in grasping how philosophy is intimately connected with and yet distinct from both history and science.

The *Routledge History of Philosophy* provides a chronological survey of the history of western philosophy, from its beginnings up to the present time. Its aim is to discuss all major philosophical developments in depth, and, with this in mind, most space has been allocated to those individuals who, by common consent, are regarded as great philosophers. But lesser figures have not been neglected, and it is hoped that the reader will be able to find, in the ten volumes of the *History,* at least basic information about any significant philosopher of the past or present.

Philosophical thinking does not occur in isolation from other human activities, and this *History* tries to situate philosophers within the cultural, and in particular the scientific, context of their time. Some philosophers, indeed, would regard philosophy as merely ancillary to the natural sciences; but even if this view is rejected, it can hardly be denied that the sciences have had a great influence on what is now regarded as philosophy, and it is important that this influence should be set forth clearly. Not that these volumes are intended to provide a mere record of the factors that influenced philosophical thinking; philosophy is a discipline with its own standards of argument, and the presentation of the ways in which these arguments have developed is the main concern of this *History*.

In speaking of 'what is now regarded as philosophy', we may have given the impression that there now exists a single view of what philosophy is. This is certainly not the case; on the contrary, there exist serious differences of opinion, among those who call themselves philosophers, about the nature of their subject. These differences are reflected in the existence at the present time of two main schools of thought, usually described as 'analytic' and 'continental' philosophy. It is not our intention, as general editors of this *History,* to take sides in this dispute. Our attitude is one of tolerance, and our hope is that these volumes will contribute to an understanding of how philosophers have reached the positions which they now occupy.

One final comment. Philosophy has long been a highly technical subject, with its own specialized vocabulary. This *History* is intended not only for the specialist but also for the general reader. To this end, we have tried to ensure that each chapter is written in an accessible style; and since technicalities are unavoidable, a glossary of technical terms is provided in each volume. In this way these volumes will, we hope, contribute to a wider understanding of a subject which is of the highest importance to all thinking people.

G.H.R.Parkinson
S.G.Shanker

Notes on contributors

Robert L.Arrington is Professor of Philosophy at Georgia State University in Atlanta, Georgia. He is the author of *Rationalism, Realism, and Relativism* (1989) and the co-editor of *Wittgenstein's Philosophical Investigations* (1991) and the forthcoming *Wittgenstein and Quine*. Currently he is writing a history of ethics and editing *A Companion to the Philosophers*.

John V.Canfield is Professor Emeritus at the University of Toronto. He is the author of *Wittgenstein: Language and World* (1981), *The Looking-Glass Self* (1990), and papers on Wittgenstein and the philosophy of language. He is the editor (with Frank Donnell) of *The Theory of Knowledge* (1964), *Purpose in Nature* (1966), *The Philosophy of Wittgenstein* (in fifteen volumes, 1986) and (with Stuart Shanker) *Wittgenstein's Intentions* (1993).

Nino B.Cocchiarella is Professor of Philosophy at Indiana University. He is the author of *Logical Investigations of Predication Theory and the Problem of Universals* (1986), *Logical Studies in Early Analytic Philosophy* (1987), and numerous articles including 'Conceptualism, Realism, and Intensional Logic' and 'Conceptual Realism versus Quine on Classes and Higher-Order Logic'.

William James DeAngelis is Associate Professor of Philosophy at Northeastern University in Boston, Massachusetts, where he has been the recipient of a Presidential Excellence-in-Teaching Award. His publications have been in the area of metaphysics and Wittgenstein studies; currently he is preparing a book on the philosophy of religion.

George Dickie lives in Chicago; he is the author of *Art and the Aesthetic* (1974), *The Art Circle* (1984), *Evaluating Art* (1988) and *The Century of Taste* (1996).

Marilyn Frye teaches Philosophy and Women's Studies at Michigan State University. Her essays are collected in *The Politics of Reality* (1983) and *Willful Virgin* (1992).

Sarah Lucia Hoagland is Professor of Philosophy and Women's Studies at Northeastern Illinois University, in Chicago. She is author of *Lesbian Ethics* (1988), and co-editor of *For Lesbians Only: A Separatist Anthology* (1992).

Bernard Linsky is in the Department of Philosophy of the University of Alberta. He has written articles on philosophical logic, modal metaphysics and Bertrand Russell, interests similar to those of his father, Leonard Linsky.

A.P.Martinich teaches philosophy at the University of Texas at Austin; he is the editor of *The Philosophy of Language* (1985) and the author of papers in that field.

Paul K.Moser is Professor of Philosophy at Loyola University of Chicago. He is the author of *Empirical Justification* (1985), *Knowledge and Evidence* (1989) and *Philosophy after Objectivity* (1993), editor of *Empirical Knowledge* (1986), *A Priori Knowledge* (1987), *Rationality in Action* (1990) and *Human*

Knowledge (2nd edn, 1995), among other collections, and author of a number of articles on epistemology. He is the general editor of the new book series, *Routledge Contemporary Introductions to Philosophy*.

Calvin G.Normore is Professor of Philosophy at Erindale College, University of Toronto. He has published and lectured widely in a variety of areas including medieval philosophy, social and political philosophy, history of logic and decision theory.

Justin Oakley is Lecturer at the Centre for Human Bioethics, Monash University, Australia. He is the author of *Morality and the Emotions* (1992), and has published articles on ethical theory, medical ethics and bioethics. He is currently completing a manuscript with Dean Cocking on virtue ethics in medicine.

Arthur Ripstein teaches philosophy at Erindale College, University of Toronto. He has published widely in the fields of legal and political philosophy and is currently at work on a book on responsibility and luck.

Michael Stingl teaches philosophy at the University of Lethbridge. His research interests include ethical naturalism and various applied issues in biomedical ethics. He is currently editing a book on reforming the Canadian health system.

Edward Wierenga is Professor of Religion and chair of the Department of Religion and Classics at the University of Rochester (NY). He is the author of *The Nature of God* (1989) and numerous articles.

Chronology

The dates assigned to books or articles are the dates of publication. The titles of works not written in English have been translated, unless they are better known in their original form.

	Philosophy (general)	**Logic**
1873		
1877	Peirce, *The Fixation of Belief*	
1879		Frege, *Begriffschrift*
1881		
1883		Bradley, *Principles of Logic*
1884		Frege, *The Foundations of Arithmetic*
1891		Frege, 'Function and Concept'
1892	Frege, 'On Sense and Reference'	Frege, 'Concept and Object'
1893	Bradley, *Appearance and Reality*	Frege, *The Basic Laws of Arithmetic* (vol. 2:1903)
1895		
1897		
1898		
1899		Hilbert, *Foundations of Geometry*
1900	Husserl, *Logical Investigations*	Hilbert's address to the International Congress of Mathematicians: 'Mathematical Problems'
1901		
1902		Russell's paradox
1903	Moore, 'Refutation of Idealism' Moore, *Principia Ethica*	Russell, *The Principles of Mathematics* Frege, *Basic Laws of Arithmetic*
1904		
1905	Russell, 'On Denoting' Mach, *Knowledge and Error*	Meinong, 'Theory of Objects'

Philosophy of Science	**Science and technology**	
Jevons, *The Principles of Science*		1873
		1877
		1879

Philosophy of Science	Science and technology	
Helmholtz, *Popular Lectures*	Michelson—Morley experiment (speed of light found to be the same in perpendicular directions)	1881
Mach, *The Science of Mechanics*		1883
		1884
	Ehrlich's diptheria antitoxin establishes field of immunology	1891
Pearson, *The Grammar of Science*	Lorentz—Fitzgerald contraction (contraction of objects at high speeds)	1892
Mach, *Popular Scientific Lectures*		1893
Hertz, *The Principles of Mechanics*		
	Discovery of x-rays (Roentgen)	1895
	Cloud chamber developed (Thomson)	
	Discovery of electron (Thomson)	1897
	Charge of electron measured (Thomson)	
	Term 'radioactivity' coined (M.Curie)	1898
	Alpha and beta rays (radioactivity from uranium) discovered (Rutherford)	
		1899
	Quantum theory initiated: substances can emit light only at certain energies (Planck)	1900
	Rediscovery of Mendel's 1860s work on genetics	
	First trans-Atlantic telegraphic transmission (Marconi)	1901
Poincaré, *Science and Hypothesis*	Rutherford and Soddy: 'The Cause and Nature of Radioactivity'	1902
	First successful airplane flight (Wright brothers)	1903
Duhem, *The Aim and Structure of Physical Theory*	Thomson's model of the atom: electrons embedded in sphere of positive electricity	1904
Boltzmann, *Popular Writings*	Einstein explains Brownian motion (motion of small particles suspended in liquid); seen as first proof of existence of atoms	1905
	Einstein's papers on the special theory of relativity	
	Einstein postulates light quantum (term 'photon' coined 1926) for particle-like behaviour of light	

Philosophy (general)	Logic	
		1906

	Philosophy (general)	Logic
1907	James, *Pragmatism* Bergson, *Creative Evolution*	
1908		
1909		
1910		Russell and Whitehead, *Principia Mathematica* (1910–13)
1911		
1912		Brouwer, *Intuitionism and Formalism*
1913	Husserl, *Ideas*	
1914	Russell, *Our Knowledge of the External World* Bradley, *Essays on Truth and Reality*	
1915		
1917		
1918	Russell, *The Philosophy of Logical Atomism* Schlick, *General Theory of Knowledge*	Lewis, *Survey of Symbolic Logic*
1919		Russell, *Introduction to Mathematical Philosophy*
1920	Whitehead, *The Concept of Nature*	
1921	Wittgenstein, *Tractatus Logico-Philosophicus*	Keynes, *A Treatise on Probability*
1922	Moore, *Philosophical Papers*	
1923		Skolem, 'Some Remarks on Axiomatic Set Theory'

Philosophy of Science	Science and technology	
	Existence of 'vitamins' (term coined 1912) postulated (Hopkins); discovered 1928	1906
		1907
Driesch, *The Science and Philosophy of the Organism*	Minkowski, *Space and Time* (proposes 4-dimensional universe)	1908
	Term 'gene' coined (Johannsen)	1909
	M.Curie, *Treatise on Radioactivity*	1910
	Rutherford's atomic theory: positively charged nucleus surrounded by negative electrons	1911
C.L.Morgan, *Instinct and Experience*	Theory of continental drift proposed (Wegener)	1912
	Bohr's model of the atom: electrons revolve around nucleus in fixed orbits, give off fixed quanta of energy by jumping orbit Henry Ford's assembly line	1913
Broad, *Perception, Physics, and Reality* Driesch, *The History and Theory of Vitalism*	Discovery of proton (Rutherford)	1914
	Einstein's general theory of relativity	1915

Philosophy of Science	Science and technology	
Schlick, *Space and Time in Contemporary Physics*	Existence of black holes predicted (Schwarzschild)	1917
		1918
		1919
Campbell, *Physics: The Elements*	Existence of neutron (uncharged particle) proposed (Harkins); discovered 1932	1920
	Red shift in spectra of galaxies reported (Slipher)	
	Copenhagen Institute of Theoretical Physics founded (Bohr)	
	Insulin discovered (Banting, Best, McLeod, Collip)	1921
		1922
Broad, *Scientific Thought* C.L.Morgan, *Emergent Evolution*	Particle-wave duality of matter proposed (de Broglie); confirmed 1927 (Davisson)	1923

	Philosophy (general)	Logic
1924		
1925	Broad, *The Mind and Its Place in Nature*	
1926		
1927	Heidegger, *Being and Time* McTaggart, *The Nature of Existence*	
1928	Carnap, *The Logical Structure of the World*	Hilbert, *Principles of Mathematical Logic* von Mises, *Probability, Statistics and Truth*
1929	Carnap, Hahn and Neurath, *The Scientific World View: The Vienna Circle* Dewey, *Experience and Nature* Lewis, *Mind and the World Order*	
1930		Godel's proof of completeness of first-order redicate calculus

Philosophy of Science	Science and technology	
	Bose statistics for light quanta (Bose)	1924
	Galaxies shown to be independent systems (Hubble)	
	First use of insecticides	
Whitehead, *Science and the Modern World*	Electron spin hypothesized (Goudsmit, Uhlenbeck)	
	Pauli's exclusion principle (electrons of same quantum number cannot occupy same state)	
	Quantum mechanics given first comprehensive formulation (Born, Heisenberg, Jordan)	

Philosophy of Science	Science and technology	
	'Scopes Monkey Trial' (high-school teacher prosecuted for teaching evolution) First analog computer (Bush)	
C.L.Morgan, *Life, Mind, and Spirit*	Probability interpretation of quantum mechanics (Born) Fermi-Dirac statistics Planck's law derived from first principles (Dirac) First paper on wave mechanics (Schrödinger); Schrödinger's equation Morgan, *The Theory of the Gene*	1926
Russell, *The Analysis of Matter* Weyl, *Philosophy of Mathematics and Natural Science* Bridgman, *The Logic of Modern Physics*	Heisenberg's uncertainty principle (cannot determine simultaneously position and momentum of electron) First version of 'Big Bang' theory of origins of universe (Lemaitre)	1927
Eddington, *The Nature of the Physical World* Reichenbach, *The Philosophy of Time and Space* Campbell, *Measurement and Calculation*	Dirac's equation combines quantum mechanics with special relativity Discovery of penicillin (Fleming); production and clinical use not until 1940s	1928
Woodger, *Biological Principles*	Heisenberg and Pauli's quantum field theory Hubble's law (more distant a galaxy, faster it is receding from Earth) Discovery of deoxyribose nucleic acids (DNA)	1929
Heisenberg, *The Physical Principles of Quantum Theory*	Dirac, *Principles of Quantum Mechanics* 'Neutrino' postulated (Pauli); term coined 1932 (Fermi); discovered 1955 Discovery of planet Pluto (Tombaugh) Immunization against typhus developed (Zinsser)	1930

	Philosophy (general)	Logic
1931	Tarski, 'The Concept of Truth in Formalized Languages'	Godel's incompleteness theorem Ramsey, *The Foundations of Mathematics* Carnap, 'The Logicist Foundations of Mathematics' Heyting, 'The Intuitionist Foundations of Mathematics' von Neumann, 'The Formalist Foundations of Mathematics'
1932	Price, *Perception*	
1933		

	Philosophy (general)	Logic
1934	Carnap, *The Logical Syntax of Language*	Hilbert, *Foundations of Mathematics* (vol.2: 1939)
1935		Reichenbach, *The Theory of Probability*
1936	Husserl, *The Crisis of European Sciences and Transcendental Phenomenology* Ayer, *Language, Truth, and Logic* Schlick, 'Meaning and Verification'	
1937		Turing, 'On Computable Numbers' ('Turing machine')
1938		Godel's proof of consistency of continuum hypothesis with basic axioms of set theory Dewey, *Logic: The Theory of Inquiry*
1939	Blanshard, *The Nature of Thought*	Nagel, *Principles of the Theory of Probability* Carnap, *Foundations of Logic and Mathematics*

Philosophy of Science	Science and technology	
Haldane, *The Philosophical Basis of Biology* Neurath, 'Physicalism' Schlick, 'Causality in Contemporary Physics' Carnap, 'Die physikalische Sprache als Universalsprache der Wissenschaft' (*The Unity of Science,* 1934)	'Positron' (positively charged electron) postulated (Dirac); discovered 1932 (Andersen); first form of anti-matter discovered	1931
Joad, *Philosophical Aspects of Modern Science*	Particle accelerator first used to split lithium atom (Cockcroft, Walton) Heisenberg's model of atomic nucleus: neutrons and protons held together by exchanging electrons Discovery of neutron (Chadwick) Morgan, *The Scientific Basis of Evolution*	1932
	Fermi's theory of beta decay (first suggestion of weak interaction) Vitamin C synthesized)	1933
Bachelard, *The New Scientific Spirit*		1934
Popper, *The Logic of Discovery* Eddington, *New Pathways in Science*	'Exchange particle' causing attraction between particles in atomic nucleus (strong force) proposed (Yukawa); called 'meson' (1939), now 'pion' Richter scale developed (Richter) First radar developed (Watson, Watt)	1935
Bridgman, *The Nature of Physical Theory* Inauguration of *The International Encyclopedia of Unified Sciences* (Neurath, Carnap, Morris)	Isolation of DNA in pure state (Belozersky) Primitive digital computer (Zuse)	1936

Philosophy of Science	Science and technology	
	ABC (Atanasoff-Berry Computer), first electronic computer begun; completed 1939, operational version 1942.	
Stebbing, *Philosophy and the Physicists* Woodger, *The Axiomatic Method in Biology*	'Muon' discovered (Anderson); initial claim to be Yukawa meson shown false 1945 (Conversi, Puncini, Picconi) Concept of 'charge conjugation' introduced for particle interactions (Kramers); in 1958 is shown to be invalid for some interactions	1937
Oparin, *The Origin of Life* Reichenbach, *Experience and Prediction* Carnap, 'Logical Foundations of the Unity of Science'	Uranium atom first split (Hahn)	1938
Eddington, *The Philosophy of Physical Science*	Einstein's letter to Roosevelt: first step in US effort to build atomic bomb Method of calculating properties of material objects from quantum principles developed (Herring) DDT insecticide synthesized (Muller)	1939

	Philosophy (general)	Logic
1940	Russell, *An Inquiry into Meaning and Truth* Collingwood, *An Essay on Metaphysics*	
1941		Tarski, *Introduction to Logic and to the Methodology of the Deductive Sciences*
1942		
1943	Sartre, *Being and Nothingness*	Carnap, *Formalization of Logic*
1944	Stevenson, *Ethics and Language*	
1945		Waismann, 'Are There Alternative Logics?' Carnap, 'The Two Concepts of Probability'
1946		
1947	Carnap, *Meaning and Necessity*	
1948		
1949	Schlick, *Philosophy of Nature* Ryle, *The Concept of Mind*	Reichenbach, *The Theory of Probability* Kneale, *Probability and Induction*

Philosophy of Science	Science and technology	
	Penicillin developed as antibiotic (term 'antibiotic' coined 1941)	1940
	Zuse's Z2 computer: electromagmetic relays and punched tape for data entry	1941
	Two-meson theory (Sakata, Inoue) First controlled chain reaction (Fermi)	1942

Philosophy of Science	Science and technology	
	First radio map of universe	
	Quantum electrodynamics (QED) developed (Tomonaga)	1943
	First operational nuclear reactor (Oak Ridge, Term.)	
	First all-electronic computer, 'Colossus', developed to crack codes (Turing)	
Reichenbach, *Philosophical Foundations of Quantum Mechanics*	DNA determined as hereditary material for almost all living beings (Avery) Jet-engine (V-1) and rocket-propelled (V-2) bombs	1944
Lillie, *General Biology and Philosophy of Organism*	Atomic bombs dropped on Hiroshima and Nagasaki	1945
	ENIAC: first all-purpose, stored-program electronic computer	
Frank, *Foundations of Physics*	Term 'lepton' introduced for light particles not affected by strong force (Pais, Moller)	1946
	'V particle' discovered (Rochester and Butler)	
	Radioactive carbon-14 method developed for dating objects (Libby)	
	'Pion' (Yukawa meson) discovered (Powell and team)	1947
	Lamb Shift discovered; independent development of quantum electrodynamics (QED) 4 years after similar theory of Tomonaga	
	Two-meson theory developed independently 5 years after similar theory of Sakata and Inoue (Marshak, Bethe)	
Woodger, *Biological Principles*	Opposed theories of the universe formulated: steady-state theory (Bond, Gold, Hayle) and 'Big Bang' theory (Gamow, Alpher, Harmon)	1948
	Discovery of transistor (Shockley, Brattain, Bardeen); will replace vacuum tubes	
	Atomic nucleus not necessarily spherical (Rainwater)	1949

	Philosophy (general)	Logic
1950	Strawson, 'On Referring'	Quine, *Methods of Logic*
	Hempel, 'Problems and Changes in the Empiricist Criterion of Meaning'	Carnap, *The Logical Foundations of Probability*
1951	Quine, 'Two Dogmas of Empiricism'	von Wright, *An Essay in Modal Logic*
	Goodman: *The Structure of Appearance*	

	Philosophy (general)	Logic
1952	Hare, *The Language of Morals* Wisdom, *Other Minds*	Strawson, *Introduction to Logical Theory* Carnap, *The Continuum of Inductive Methods*
1953	Wittgenstein, *Philosophical Investigations* Quine, *From a Logical Point of View*	
1954	Ryle, *Dilemmas*	Goodman, *Fact, Fiction and Forecast* Savage, *The Foundations of Statistics*
1955		
1956	Reichenbach, *The Direction of Time* Wittgenstein, *Remarks on the Philosophy of Mathematics*	
1957	Chisholm, *Perceiving* Chomsky, *Syntactic Structures*	von Wright, *The Logical Problem of Induction*
1958	Polanyi, *Personal Knowledge* Baier, *The Moral Point of View* Geach, *Mental Acts*	
1959	Strawson, *Individuals* Hart and Honore, *Causation in the Law*	

Philosophy of Science	Science and technology	
Sommerhoff, *Analytical Biology*		1950
Bernal, *The Physical Basis of Life*	Heart-lung machine developed (Gibson)	1951
	UNIVAC I, first commercially available computer	
Wisdom: *Foundations of Inference in Natural Science*	Plasmid (structure containing genetic material exchanged by bacteria) discovered (Lederberg)	1952
Hempel, *Fundamentals of Concept Formation in Empirical Science*	Bubble chamber for study of subatomic particles developed (Glaser)	
Woodger, *Biology and Language*	Thermo-nuclear bomb ('H Bomb') developed (Teller)	
	First nuclear reactor accident (Chalk River, Canada)	
	Polio vaccine developed (Salk); mass inoculation in 1954; superseded by new vaccine in 1957 (Sabine)	
	'Piltdown Man' revealed as fake	
Toulmin, *The Philosophy of Science*	'Strangeness' quantum number introduced (Gell-Mann; Nakano, Nishijina)	1953
Braithwaite, *Scientific Explanation*	Double-helix structure of DNA determined (Crick, Watson)	
Reichenbach, *Nomological Statements and Admissible Operations*	European Centre for Nuclear Research (CERN) founded	1954
	Neutrinos observed (Cowen, Reines)	1955

	Philosophy of Science	Science and technology
		FORTRAN, first computer-programming language (Backus, IBM)
		LISP, computer language of artificial intelligence, developed (McCarthy)
		Anti-neutron discovered (Cook, Lambertson, Picconi, Wentzel) 1956
	Bohm, *Causality and Chance in Modern Physics*	Parity not conserved for weak interactions (Yang, Lee, Wu) 'Boson' (W particle) proposed as mediator of weak interactions (Schwinger) 1957
		Spuntnik I, first artificial satellite, launched by USSR
	Hanson, *Patterns of Discovery*	1958
	Bohr, *Atomic Physics and Human Knowledge*	
	Bunge, *Causality*	1959

	Philosophy (general)	Logic
1960	Quine, *Word and Object*	
	Malcolm, 'Anselm's Ontological Arguments'	
1961	Austin, *Philosophical Papers*	
	Grice, 'The Causal Theory of Perception'	
	Malcolm, *Dreaming*	
1962	Black, *Models and Metaphors*	
	Hart, *The Concept of Law*	
1963	Davidson, 'Actions, Reasons, and Causes'	Independence of Cantor's continuum hypothesis from axioms of set theory demonstrated (Cohen)
	Hart, *Law, Liberty and Morality*	
	Katz and Fodor, 'The Structure of a Semantic Theory'	von Wright, *The Logic of Preference*
	Popper, *Conjectures and Refutations*	Quine, *Set Theory and Its Logic*
	Shoemaker, *Self-knowledge and Self-identity*	
1964	Scheffler, *The Anatomy of Inquiry*	
1965	Chomsky, *Aspects of the Theory of Syntax*	Hacking, *Logic of Statistical Inference*
	Devlin, *The Enforcement of Morals*	
1966		
1967	Davidson, 'Truth and Meaning'	Putnam, 'Mathematics without Foundations'
	Frankena, *The Concept of Morality*	
	Plantinga, *God and Other Minds*	
1968	Armstrong, *A Materialist Theory of the Mind*	
	Fodor, *Psychological Explanation*	

Philosophy of Science	Science and technology	
	Mossbauer effect discovered (Mossbauer); used to confirm Einstein's general theory of relativity (Pound, Reblan) 'Resonances' (short-lived particles) discovered (Alvarez) First laser (Maiman); precursors are Townes' maser (1954), Kastler's 'optical pumping' (1950)	1960
Nagel, *The Structure of Science* Harre, *Theories and Things* Capek, *Philosophical Impact of Contemporary Physics*	First human being to orbit the Earth (Gagarin)	1961
Kuhn, *The Structure of Scientific Revolutions* Sellars, *Science, Perception and Reality* Maxwell, 'The Ontological Status of Theoretical Entities' Hesse, *Models and Analogies in Science*		1962
Smart, *Philosophy and Scientific Realism* Grunbaum, *Philosophical Problems of Space and Time*	First recognition of a quasar (Schmidt)	1963
	Concept of 'quark' introduced (GellMann) 'Green Revolution' inaugurated with strain of rice generating double yield given sufficient fertilizer	1964
Hempel, *Aspects of Scientific Explanation*	Confirmation of 'Big Bang' theory with accidental discovery of radio-wave remnants of 'Big Bang' (Penzias, Wilson)	1965
Hempel, *Philosophy of Natural Science*		1966
Scheffler, *Science and Subjectivity*	Strong nuclear force shown to violate parity conservation (Lobashov) 'Electroweak theory' unifies weak and electromagnetic forces (Weinberg, Salam, Glashow) First pulsar discovered Keyboards used for computer data entry	1967
Becker, *The Biological Way of Thought*	Discovery of restrictive enzymes (can cut DNA of virus at particular point); would become a basic tool of genetic engineering	1968

	Philosophy (general)	Logic
1969	Quine, *Ontological Relativity* Searle, *Speech Acts*	Lewis, *Convention*

	Philosophy (general)	Logic
1970	Davidson, 'Semantics for Natural Languages'	Quine, *Philosophy of Logic* Cohen, *The Implications of Induction*
1971	Rawls, *A Theory of Justice* Judith Jarvis Thompson, 'A Defense of Abortion'	Salman, *Statistical Explanation and Statistical Relevance*
1972	Popper, *Objective Knowledge*	Kripke, 'Naming and Necessity'
1973		Lewis, *Counterfactuals* Hintikka, *Logic, Language Games and Information*
1974	Nozick, *Anarchy, State and Utopia*	Hacking, *The Emergence of Probability* Haack, *Deviant Logic*
1975	Singer, *Animal Liberation*	
1976		
1977	Dworkin, *Taking Rights Seriously* Malcolm, *Memory and Mind*	
1978	Goodman, *Ways of Worldmaking* Dummett, *Truth and other Enigmas*	
1979		
1980	Kripke, *Naming and Necessity* Rorty, *Philosophy and the Mirror of Nature*	

Philosophy of Science	Science and technology	
	First human beings on the moon (Armstrong, Aldrin) First artificial heart used in a human being Single gene first isolated (Beckwith)	1969
Monod, *Chance and Necessity*		1970
	Microprocessor (chip) introduced	1971
	Quantum chromodynamics (QCD) initiated (Gell-Mann) Biblical accounts of creation should receive equal attention as evolutionary theory: California State Board of Education	1972
	Creation of the universe from absolutely nothing under probabilistic laws of quantum mechanics proposed (Tyron) First Skylab launched Beginning of genetic engineering (Cohen, Boyer)	1973
Sklar, *Space, Time and Spacetime* Barnes, *Scientific Knowledge and Sociological Theory*	First of GUTs (grand unified theories) unifies strong, weak and electromagnetic forces (Georgi, Glashow) J/psi particle discovered	1974

Philosophy of Science	Science and technology	
	(Richter, Trug); confirmation of charm theory of quarks	
Feyerabend, *Against Method*	Personal computers introduced (Altair 8800)	1975
Bloor, *Knowledge and Social Imagery*	Functional synthetic gene constructed (Khorana)	1976
Lauden, *Progress and its Problems*	Upsilon particle discovered (Lederman): confirms quark theory of baryons	1977
	Apple II personal computer introduced Earliest known cases of AIDS; disease not recognized until 1981	
Feyerabend, *Science in a Free Society*	First 'test-tube' baby	1978
Latour and Woolger, *Laboratory Life*	Partial meltdown of nuclear reactor at Three	1979
Lakatos, *The Methodology of Scientific Research Programs*	Mile Island	
van Fraassen, *The Scientific Image*	Neutrinos may have tiny mass, thus	1980
Bohm, *Wholeness and the Implicate Order*	representing 'missing mass' thought to hold galaxies together	
	'Inflationary universe' model: universe expands rapidly for short time before 'Big Bang' (Guth)	

	Philosophy (general)	Logic
1980		
1981	Putnam, *Reason, Truth and History*	
	MacIntyre, *After Virtue*	
1982		
1983		
1984	Feinberg, *The Moral Limits of the Criminal Law*	
	Armstrong and Macolm, *Consciousness and Causality*	
1985	Dworkin, *A Matter of Principle*	
1986	Malcolm, *Nothing is Hidden*	
1987	Feyerabend, *Farewell to Reason*	
	Lakoff, *Women, Fire and Dangerous Things*	
1988		
1989	Grice, *Studies in the Way of Words*	

Philosophy of Science	Science and technology	
	Revival of 'catastrophism': collision between Earth and large body results in mass extinctions, including extinction of dinosaurs (W. and L. Alvarez)	1980
	First transference of genes from one animal to another of a different species 'New inflationary	1981

Philosophy of Science	Science and technology	
	universe' theory of the origins of the universe (Linde, Albrecht, Steinhardt)	
	First flight of space shuttle *Columbia*	
	First commercial product of genetic engineering (human insulin)	1982
Cartwright, *How the Laws of Physics Lie*	Discovery of W and Z particles; further confirms	1983
Hacking, *Representing and Intervening*	electroweak theory (CERN)	
	Sheep successfully cloned (Wilkinson)	1984
Fox-Keller, *Reflections on Gender and Science*	Hole in ozone layer over Antarctica discovered	1985
Harding, *The Feminist Question in Science*	Individual quantum jumps in individual atoms observed	1986
	Fifth fundamental force, hypercharge, discovered (Fishbach); not universally accepted	
	Discovery of 'Great Attractor', a point towards which a number of galaxies (including ours) are moving	
	Explosion of space shuttle *Challenger*	
	First field trials of genetically engineered organisms (tobacco)	
	Chernobyl nuclear reactor explosion	
Latour, *Science in Action*	US Supreme Court rejection of equal-time	1987
Putnam, *The Many Faces of Realism*	concept of teaching for creationism	
Hawking, *A Brief History of Time*		1988
		1989

Introduction

John V.Canfield

This volume presents a chronological survey of some central topics in twentieth-century philosophy in the English-speaking world. A companion volume focuses on logic, the philosophy of science and related subjects, while another covers recent continental philosophy.[1] By way of a broad introduction to the essays printed here I shall discuss some characteristic features of modern Anglo-American philosophy.

Above all what distinguishes that way of thought is its passion for clarity. The attitude is reflected, for example, in Wittgenstein's remark that, 'People who have no need for transparency in their argumentation are lost to philosophy.'[2] The urge towards clarity is itself a concomitant of the so-called 'linguistic turn' that is the distinctive feature of twentieth-century Anglo-American philosophy. The phrase 'the linguistic turn' refers to a change from a relatively small concern with questions about language to a major one. It's not just that by and large, in this century, writers spend more time investigating the nature of language and allied problems, though that is true: compare, for example, the percentage of text devoted to such issues in Locke's *Essay* and Wittgenstein's *Philosophical Investigations*. It is rather that in various ways issues about language become the fundamental ones. This can be seen for instance in A.J.Ayer's famous book *Language, Truth, and Logic* where the first order of business is to establish the bounds of sensible language, and where pretty much everything else is said to follow from that alleged achievement.

The involvement with language that I am discussing has several distinct foci, and in what follows I shall consider three of them: *logical form, meaninglessness* and its opposite, *meaning*. A sentence as it appears in some natural language like English may not show forth its correct, underlying structure or form, which must rather be uncovered by the philosopher. Thus a statement's surface form—the form it appears to have—is contrasted with its real or *logical* form. The notion of logical form presupposes our having some way of characterizing those hidden or disguised structures. Historically, and as the term itself indicates, early characterizations of logical form employed the vocabulary of modern logic.

Modern logic was developed by Frege and Russell in the context of an attempt to prove the consistency of mathematics by deriving it from logic. To carry out that programme logic itself had first to be revamped. Here Frege made the essential contribution, by introducing the so called 'quantifiers'.[3] In a radical departure from classical or Aristotelian subject-predicate logic he originated the notion of the universal quantifier 'for all x' and the existential quantifier 'there exists an x'. Given those tools he was able to analyse sentences like 'All men are mortal' and 'Socrates is a man' in a more perspicuous way than the old logic could. It is the apparatus and vocabulary of the new logic that first inspired the search in recent philosophy for logical form.

Bertrand Russell's original and highly influential essay of 1905, 'On Denoting', applied ideas like those just mentioned from modern or mathematical logic to the discovery of logical form. Thus Russell's paper marks a key point in the development of Anglo-American philosophy. The particular issue he addresses has

a technical or arcane air, but understanding it is essential to grasping the use subsequent thinkers made of his ideas, and thus necessary for understanding one central aspect of the philosophy discussed in this volume. (For a fuller discussion, see Professor Martinich's essay in this volume, 'Philosophy of language'.)[4] In Russell's well-known example the sentence, 'The present King of France is bald' appears to be of subject-predicate form with 'The present King of France' filling the subject role. On this reading the sentence has the same form as 'Jones is bald'. It *seems* that in each case something picked out by a singular referring expression (one that, like a proper name, picks out one individual) is said to have a certain property. This reading of the sentence causes trouble. The present King of France, like the unicorn in my garden, does not exist, so there is nothing for Russell's sentence to be about. If it is about nothing it must, apparently, be senseless. Yet we understand it. In response to that puzzle, Russell argued that when we correctly analyse the statement, and thus get to the level of its true or logical form, the phrase 'the present King of France' disappears; the sentence's true form is quite different from its apparent one. In the analysis we find only variables such as *'x'* and *'y',* the logical functions 'for all *x*' and 'there exists an *x* such that', and the *predicates* 'is presently King of France' and 'is bald'. Rendered in English, the statement's logical form is: there is at least one thing that is presently King of France, and any thing that is presently King of France is identical to that one thing, and that thing is bald. Since in fact there is nothing that is presently King of France, the statement in question is merely false, not senseless.

The idea of a hidden logical form underlying the propositions of ordinary or natural language was taken by Wittgenstein as a basic presupposition of his enormously influential book the *Tractatus Logico-Philosophicus* (1921). Wittgenstein thought that it was not necessary for the logician to describe the exact logical form of propositions; it was enough if he could come to know in general terms what that form is. Every proposition, he believed, could be analysed into a collection of elementary propositions linked by the so-called truth-functions *and, not, or* and *if…then*. Elementary propositions are those that cannot be analysed further. In the *Tractatus,* they consist solely of names of simple objects. The 'molecular propositions' that express ordinary language statements are formed by joining elementary propositions by means of the truth-functions. All meaningful propositions have the logical form just described; all would-be propositions lacking it are meaningless. A sentence can be meaningless even though we think it has sense; it is a question of its logical form.

Wittgenstein's quest to uncover the true logical form of the sentences of our language was motivated by more than the wish to demarcate clearly the line between what could and could not be said. In addition, he believed that the structure of reality mirrors the structure of propositions, so that to discover the form of language is to establish *a priori* the form of the world. For example, to take one clearly momentous would-be result, Wittgenstein holds that first-person sentences like 'I believe that *P*' (where *P* is some proposition) have the form '*"P"* says that *P*'. The alleged subject—the believer *qua* Cartesian ego or mind—disappears in the analysis; reality thus contains no such entity as the self. By focusing on language the 'linguistic turn' in no way trivialized philosophy.

Many contemporary philosophers operate with some variant of the idea of logical form. Donald Davidson, for example, utilizes something like the classical Russellian idea of logical form. As Bernard Linsky points out in his essay on metaphysics in chapter 4, the aim of Davidson's work on the nature of events is to formulate ordinary event-statements in 'first-order logic'. As in the *Tractatus* the underlying motivation is to discover the true form of reality.

Other philosophers continue to seek a correct analysis, in the sense of finding the underlying form of philosophically significant propositions, but without assuming that this form is to be captured in the vocabulary of logic. *Such* concern with the hidden form of statements is found, for example, in Roderick Chisholm's treatment of the metaphysical question of the nature of appearances—those mysterious mental

objects postulated by Descartes and so many subsequent thinkers, and which give rise to numerous puzzling questions.[5] Chisholm claims that a correct understanding of sentences about how things appear shows them to have an adverbial rather than a substantive core. If something that may or may not actually be red looks red to Jones, we might say that Jones is aware of a red appearance. Instead of this latter way of speaking, Chisholm holds that in truth what we should say is 'Jones is appeared to redly.' A surface grammatical substantive is to be replaced by a depth grammatical adverb. So in contradistinction to the message of surface grammar, reality does not contain such things as *red appearances*. It contains only agents, like Jones, who perceive in a certain way, described by the use of adverbs. Thus the old question about the nature of appearances (aka 'sense data') is rejected; the question, rather, is said to arise from a faulty understanding of the form of appearance-statements. While the search for logical form is one of the family-resemblance elements distinctive of Anglo-American philosophy, that inquiry itself can take on various guises, as just illustrated.

Another of the points at issue in the 'linguistic turn' is that of *meaninglessness*. (The topic is discussed in several places in the following essays, including William James DeAngelis's chapter on metaphysics.) The notion that certain seemingly important philosophical claims may be in fact hidden nonsense is an old one. There are versions of it in Hume and Kant, for example. In our century the early Wittgenstein's ideas were especially influential in bringing the idea of meaninglessness to centre stage. Every meaningful proposition, he held, has the form 'This is how things are,' where the proposition makes some empirical claim about the world; if it makes no empirical claim it is meaningless. This conception was developed by the *logical positivists,* whose empiricist criterion of meaning attempted to give a precise formulation to Wittgenstein's idea. For the positivists a meaningful sentence must either make some in principle verifiable statement about the world or else be 'tautological' like the statements of mathematics and logic. All other statements, despite their appearance of making sense, are to be judged nonsense. The following statement, for example, would fail their test: 'All the measuring rods in the universe, and anything capable of serving as such, are shrinking by one-half every second.' Since no evidence could possibly either confirm or deny the claim, and since it is no empty tautology like 'Either it is raining or it is not raining' the statement is judged senseless. Similarly for Russell's example: 'The universe came into existence five minutes ago, complete with all our memories, the fossil record, all signs of aging and decay pointing to a distant past, and so on.' These are merely illustrative instances; the positivists' test of meaningfulness had a more significant target. It was meant to exclude from the realm of the sensible such would-be questions as 'Does God exist?'—along with most of the other questions of traditional metaphysics. As Carnap wrote in 1950: 'Influenced by ideas of Ludwig Wittgenstein, the [Vienna] Circle [where logical positivism originated] rejected both the thesis of the reality of the external world and the thesis of its irreality as pseudo-statements; the same was the case for both the thesis of the reality of universals…and the nominalistic thesis that they are not real.'[6]

While the verificationism associated with the positivists is not popular nowadays, and while therefore there is little corresponding talk of metaphysics as meaningless, nevertheless the influence of the positivist tradition lives on. For the positivists, when the hopelessly muddled questions or 'pseudo-statements' of traditional metaphysics are seen for what they are, the only job left philosophy is as an adjunct to science. Above all, then, the positivists were in the vanguard of the tradition some have called scientism, according to which philosophy becomes either subservient to or an ancillary of science, and in particular of the hard sciences, especially physics. A prediction made by Morton White at the midpoint of the century has certainly proven to hold, at least for a wide range of contemporary philosophers:

> Analytic philosophy will no longer be sharply separated from science, and an unbridgeable chasm will no longer divide those who see meanings or essences and those who collect facts.[7]

The idea of merging philosophy with science is certainly alive and well today, for instance in Carnap's pupil Quine. Again, writers like Jerry Fodor and Paul and Patricia Churchland, in such debates as that over so-called folk psychology, see themselves as doing science, though at a foundational or conceptually oriented level.[8] Correspondingly some social scientists employ ideas drawn from those philosophers in an attempt to establish hypotheses by observation—for instance they deploy field data in an attempt to say whether monkeys have a crude version of 'folk psychology' as Fodor and other philosophers understand that idea.

While concern with *meaninglessness* has certainly abated in our half of the century, concern with its opposite, *meaning,* still rides high. Concern with meaning has two facets: the theoretical problem of saying what meaningfulness or meaning consists in, and the applied problem of uncovering the meaning of particular philosophically important words or claims. Concerning the theoretical issue, perhaps the most; influential contribution to it was Frege's distinction between *sense* and *reference*. The theoretical aspect of the problem of meaning is discussed by Professor Martinich; here I turn instead briefly to what I called the applied problem—finding the meaning of individual words.

Russell in his introduction to the *Tractates* claimed that Wittgenstein was concerned with an ideal language rather than with language as it is. Frege, in his ground-breaking discussions, was explicitly concerned with developing a language that would serve the purposes of science, and thus was not concerned with language as it actually exists, in mufti. But that was not Wittgenstein's position. Wittgenstein thought that every ordinary-language statement was perfectly all right as it stands (*Tractatus,* 5.5563); it's just that we do not know its hidden form —something we can only come to through analysis, by finding the 'one and only complete analysis of the proposition' (*Tractatus,* 3.25).

Concern with an improved or ideal language and concern with the natural, unimproved language of ordinary life each take on various forms in the development of Anglo-American philosophy, and sometimes the one strain is dominant, sometimes the other. In the 1950s and 1960s 'ordinary-language philosophy' held a prominent place. Its paradigmatic practitioners were Gilbert Ryle and John Austin, though in fact the two are very different in their approaches. Wittgenstein's later philosophy is also, but I think wrongly, seen as belonging to the tradition of 'ordinary-language philosophy' associated with Austin and Ryle. Philosophers working roughly in that tradition sought to uncover the ordinary meaning of philosophically relevant words, for example the word 'ought' conspicuous in debates in ethics, or the word 'can' featured in discussions about freedom of the will. Would-be accounts of the meaning of such words—analyses of them —were tested against ordinary usage. In particular a would-be analysis could be refuted by 'counter-examples'—cases where 'what we would ordinarily say' is in conflict with a given account of what we would say. The guiding idea behind the enterprise of analysis was this: In talking about 'ought' (for instance) we use a word from our common vocabulary. Its meaning is already fixed by ordinary usage. To really know what we are saying when we use the word we must study it; we must analyse it. In attempting to provide such analyses philosophers would put forward alleged necessary and sufficient conditions for the application of a given word. Thus a much discussed analysis of 'knowledge' was as follows: Jones knows *p if and only if* (1) Jones believes *p,* (2) Jones has reliable evidence for *p,* and (3) *p* is true.

Alternative versions of analysis developed on the 'ideal-language' side. It was argued that one should not seek simply to uncover the ordinary meaning of philosophically significant words, for they might well be vague and perhaps even contradictory. Rather, as some held, one should seek 'rational reconstructions' of such terms, keeping their core meanings but sharpening up their boundaries and eliminating any inconsistencies. This move away from a standard form of 'ordinary-language philosophy' was to prove superior in survival value.

In subsequent decades 'analysis' took various forms. One was the search for so-called 'criteria'. For instance, the question 'What is the criterion that governs our ascriptions of personal identity?' was (and still is) widely discussed. Here the term 'criterion' was drawn from Wittgenstein's later philosophy, but the procedure actually employed in discovering 'criteria' seems markedly similar to the old (non-Wittgensteinian) one of searching for an analysis, in the sense of searching for necessary and sufficient meaning-conditions. One surface difference is that now instead of appealing to what we would say, an appeal is made to our intuitions concerning various puzzle cases. What does our intuition tell us, for example, about Lockean examples of alleged change of bodies? If someone wakes up not only in the cobbler's bed, but occupying the body of the cobbler while retaining all the Prince's memories, desires, expectations, and so on, is the creature in the lowly cot the Prince?

One's answer reflects one's 'intuition'. Such intuitions fill roughly the role of perceptions in grounding scientific theory. Correspondingly, in recent times the search for analyses has been largely replaced by attempts to provide *theories,* so called. For instance philosophers may seek a theory of personal identity, or of proper names. In the latter instance the theory is supposed to tell us what relationship holds between a given name and its bearer. One such theory—Russell's — associates a set of definite descriptions with a given name, and holds that the object that meets or satisfies the definite descriptions is the thing the name names. On another theory the relationship between name and bearer is *causal*. These theories resemble analyses of the rational reconstruction type, in that one is allowed more leeway with regard to possible 'counter-examples'. In this connection, the point is sometimes made that old-style ordinary-language philosophy is conservative; it requires that the concepts we use in philosophy be restricted to those that exist in natural language. And, it is said, where would science be if it were so restricted? Like scientists, philosophers should be allowed their technical terms and their corresponding theories. Here the philosopher seeks to ally him or herself with science, the most prestigious twentieth-century institution.

One form of 'theory' was influenced by Chomsky's work in linguistics. Starting in the 1960s Jerrold J.Katz and Jerry Fodor attempted to extend Chomsky's ideas by postulating an empirical study of meaning, or 'semantics'.[9] This was a supposed supplement to Chomsky's theory of syntax. Katz argued that one could apply the empirical results of such a study to the direct solution of philosophical problems, offering a kind of scientific ordinary-language philosophy. The solutions would come about when we learned, through empirical work, the full-blown meaning in natural language of the terms involved in a given philosophical debate. On the other hand, meta-theoretical terms like 'analytic' could be given rational reconstructions in terms of the postulated new science of meaning. Katz's methodological conjectures were one precursor of later undertakings by others to provide solutions to philosophical problems through scientific inquiry.

We have been examining some of the distinctive roots and paradigms of Anglo-American philosophy in this century. Modern logic first stimulated an interest in, and provided tools for, the study of language, but that study took on a life of its own, and an increased significance as the century progressed. The resulting Anglo-American tradition of inquiry was marked most significantly by the influence, in various ways, of Frege's account of propositions, Russell's paradigm of analysis, and Wittgenstein's *Tractates,* an influence which is still felt strongly even in a time when it is 'theories' of various sorts that preoccupy analytic philosophers. As indicated, I believe the most valuable legacy of that triumvirate is a hard-headed search for clarity with regard to the basic problems of philosophy.

In keeping with the obvious historic importance of the linguistic turn the present collection begins with two essays on language. Subsequent articles on metaphysics, ethics and epistemology—those traditionally central areas of philosophy—document the significance of deliberations about language for twentieth-century Anglo-American philosophy, as does the chapter on the later philosophy of Wittgenstein. The remaining six chapters, on various *philosophies of,* vary in the importance they attach to the linguistic turn.

Perhaps counter-intuitively, the essays on aesthetics and the philosophy of religion focus most on issues about language. At the other pole, philosophers' rejection of traditional analytic methodologies is evident in the essay on feminist philosophy and in the later sections of the chapter on political philosophy. The chapters on the philosophy of law and applied ethics fall between those two extremes.

As always, change is in the air. After a period of relative stability there are signs that major transformations are coming; the intellectual fashion seems due for a radical re-make. That outlying area the philosophy of education provides one indicator: it has almost wholly abandoned an until recently dominant analytic focus in favour of various post-modern and continental ideas. In mainstream philosophy the same sort of alteration is signalled by a relatively new concern on some people's part with the writings of Martin Heidegger—the same thinker that philosophers of my generation knew only as a target of Carnap's anti-metaphysical animus and consequently as the infamous author of the claim that 'The Nothing itself nothings.' On the other hand, there is certainly still a lot of vigorous life left in the son of Anglo-American philosophy reported upon in these pages, which explicitly or implicitly pursues conceptual clarification. Pessimistic readers, foreseeing the sorts of changes indicated just above, and unwilling to forsake the quest for clarity, may find comfort in the fact that mainland Europe seems to be moving in the opposite direction, back towards the concerns and methods of analytic philosophy, in a belated recognition of the significance of Frege, Russell, Wittgenstein, Schlick, Carnap and other ground-breaking figures.

One of the most difficult of intellectual tasks is to survey a large and complex body of thought and present it in a clear, well-organized way. Each of my co-authors faced such a task, and I thank them for what they have completed so successfully.[10]

A final note: in recent philosophy science has, by and large, taken over the role once played by religion. Science is widely considered the ultimate source of truth, and as something the philosopher had best emulate or join. Given the importance of science for philosophy, I have reproduced here, from Stuart Shanker's volume IX in this series, and with his permission, a chronological table listing the major events in our century's development of science and technology.

NOTES

1 The presupposed geographic and linguistic contrast between Anglo-American and continental philosophy is a bit misleading. Several of those who formed the Anglo-American viewpoint were German or Austrian nationals, including the godfather of analytic philosophy, Gottlob Frege, the immensely influential figures Schlick and Carnap, and the immortal Wittgenstein. Frege's influence worked in part through Bertrand Russell and other Anglo-American figures, Wittgenstein's intellectual life had Cambridge, England, as its centre, and migrations out of Nazi Germany resulted in the impact of the logical positivism associated with Schlick and Carnap being most felt in Britain and North America. Again, the French writer Pierre Duhem deeply influenced that key contemporary American metaphysician Willard van Orman Quine. More significantly, neither the English-speaking nor the continental side is homogeneous; many markedly different ways of philosophizing fall under the one label and many still different ones under the other. Nevertheless the schools do diverge significantly.

2 'Philosophy', ed. Heikki Nyman, trans. C.G.Luckhardt and M.A.E.Aue, in *Ludwig Wittgenstein, Philosophical Occasions 1912–1951,* eds James Klagge and Alfred Nordmann (Indianapolis: Hackett, 1993): 183.

3 It is less well known that the American philosopher Charles Sanders Peirce independently made the same invention.

4 In fact the following account does not square perfectly with the actual text of 'On Denoting'; I give rather what has come to be commonly accepted in philosophy as the main lesson of that essay.

5 *Perceiving* (Ithaca, New York: Cornell University Press, 1957).

6 'Empiricism, Semantics and Ontology', reprinted in *Semantics and the Philosophy of Language,* ed. Leonard Linsky (Urbana: University of Illinois Press, 1952):120, 121.
7 'The Analytic and the Synthetic: An Untenable Dualism', reprinted in *Semantics and the Philosophy of Language,* ed. Leonard Linsky (Urbana: University of Illinois Press, 1952): 286.
8 See for example essays in John D.Greenwood, ed., *The Future of Folk Psychology* (Cambridge: Cambridge University Press).
9 See for example Jerrold J.Katz and Jerry A.Fodor, 'The Structure of a Semantic Theory', *Language,* 39 (1963): 170–210.
10 In addition I want to thank Bernard Katz, Stewart Candlish, Robert Ennis, Hans Herzberger, John Hunter, Soruren Teghrarian, Lance Ashdown, York Gunther and Patrick Phillips for helpful suggestions.

CHAPTER 1
Philosophy of language

A.P.Martinich

LANGUAGE AND ITS USES

Most philosophers of language[1] in the twentieth century distinguish between three aspects of language or its use: syntax, semantics and pragmatics.[2]

Syntax is the study of the ways that words and other elements of language can be strung together to form grammatical units, without taking the meaning of the sentence into consideration at all. The sentences, 'Smith are happy' and 'Smith happy is', are both syntactically incorrect. The sentence 'Smith is happy' is syntactically correct as is the sentence 'Green ideas sleep furiously'. The latter sentence may appear to be defective. If it is, it is because a literal meaning cannot be assigned to it. But meaning is a concept that belongs not to syntax but to semantics, which will be discussed shortly.

Human languages consist of an infinite number of sentences. It is easy to see how a new sentence can be built out of a simpler sentence indefinitely:

This is the house that Jack built.
This is the malt that lay in the house that Jack built.
This is the mouse that ate the malt that lay in the house that Jack built.
This is the cat that chased….

Since human beings are limited in intelligence and they learn a language in a finite amount of time, its syntax must be finite. That is, a grammar for a human language must consist of a finite number of words and a finite number of rules from which the sentences are formed. Because most of the important work on syntax has been done by linguists and formal logicians, nothing further will be said here about this topic. (See chapter 2.)

Semantics is the study of the meaning of words and sentences. Meaning has generally been thought of as a relationship between words and the world. Reference and truth are the two principal concepts used in semantics. During the 1920s and 1930s, many philosophers thought that it was impossible to have a science of semantics, because semantics tries to use words to do something that words cannot do. Words can be used to talk only about things; but semantics is the attempt to talk about the relationship between words and things. That relationship cannot itself be a thing, because if it were, then one could ask what connects that relationship to those other things. If the answer is that there is some other relationship that connects them, then if that additional relationship itself is a thing, one can ask the very same question over again; and this would lead to an infinite regress. The problem that seems to undermine the possibility of semantics can be

put in global terms. Language represents the world, but semantics exceeds the representational ability of language by trying to represent the *relationship* between language and the world.

In the 1930s, Alfred Tarski showed philosophers a way that semantics could be done without violating the expressive limits of language. Semantics then dominated the philosophy of language until the end of the 1950s. (See pp. 12–18 and 18–21.)

The study of pragmatics began to acquire importance in the early 1950s and flourished until the early 1980s. (See pp. 21–6.) Pragmatics is the study of how language is used. Speakers can use language to make statements, promises and bets; to ask questions; to issue commands; to express condolences; and so on. Pragmatics focuses on the interaction between speakers and hearers. The major idea that guides research in this area is that speaking is intentional behaviour and governed by rules. (For an alternative understanding of pragmatics, see chapter 2.)

Semantical studies were reinvigorated in the early 1970s and continue today. (See pp. 26–31.) But at the same time, some of the assumptions that made possible the distinction among syntax, semantics and pragmatics were challenged by other philosophers, and a very different conception of language has begun to emerge. (See pp. 31–5.)

THE NAMING THEORY OF MEANING

What originally motivated philosophers in the twentieth century to study the nature of language as intensively as they have is their traditional concern with the nature of truth and reality. An ordinary sentence or statement is true, it seems, when it corresponds with the facts. Truth then would seem to reside in language, and the nature of truth can be fully understood only when the nature of language is. Concerning reality, many philosophers at the beginning of the century were frustrated by the apparent failure of metaphysicians to discover the nature of reality by studying it directly. Thus arose the idea that perhaps reality could be studied indirectly by studying language. Since language reflects reality, discovering the structure of language would reveal the structure of reality. Here then were two reasons for philosophers to study language: to understand the nature of truth and to understand the structure of reality.

One aspect of language, namely referring, received a disproportionate amount of attention, because of its connection with truth. If truth requires correspondence between elements of language and entities in the world, and if language reflects the world, then language must attach to the world at certain points. The way that language attaches to the world is *reference*. Reference is usually thought of as a feature of proper names or subject expressions that denote individual objects, because individual objects existing in space and time seem to be the basic constituents of the world. Such considerations inspired the simplest and perhaps the most resilient semantic theory, the naming theory of meaning.

According to this theory, the meaning of a word is the object it names or refers to. Ludwig Wittgenstein presented a stark version of the theory in *Tractatus Logico-Philosophicus* (first published in German in 1921 and in English translation in 1922). He wrote, ‘A name means *[bedeutet]* an object. The object is its meaning’ (Proposition 3.203). Although names are the basic building blocks of sentences, names alone do not express a thought. Names are concatenated or strung together to form prepositional signs (sentences). Since Wittgenstein defines a fact as an existing configuration of objects (2–2.011), prepositional signs are themselves facts. Imagine a very simple language that expresses thoughts by the arrangement of its names. Then, the sentence

Adam Beth Carol

means that Beth is between Adam and Carol.

European languages are one-dimensional in the sense that the only significant aspect of the arrangement of a word in a sentence is its linear order. But nothing prevents two- or three-dimensional languages, in which information would be conveyed by other geometrical relations among the words. Thus, a two-dimensional language might use

Adam
Beth Carol

to express that Adam is above Beth and Beth is next to Carol. A three-dimensional language could use blocks as words and count three-dimensional placement of the blocks as semantically significant. Such possibilities inspire Wittgenstein to say that a sentence is a picture or model of reality (Proposition 4.021) and that hieroglyphic script indicates the 'essential nature of a proposition' (4.016). Consequently, what makes a proposition true is analogous to what makes a picture accurate: the meaningful elements of the proposition, that is, the names, must correlate with the objects in the (non-linguistic) fact it purports to describe; and the configuration of the names must be the same as the configuration of the objects in the represented fact. One-dimensional languages, such as English, tend to hide their true form (4.0031). Presumably, most human languages are one-dimensional because as a practical matter such sentences are easier to produce.[3]

Bertrand Russell developed a variation on Wittgenstein's naming theory. According to Russell, there are two kinds of names: proper names and common names. Proper names directly denote individual objects. For him, these individual objects are virtually always sense data, that is, sensations, in contrast with independently existing concrete objects such as tables, chairs, cats and dogs. Common names directly denote what philosophers have variously referred to as concepts, properties and universals. The difference between individuals and concepts can be explained with examples. In looking at a chalk board, a person sees a particular patch of black. This sensation is an individual. But this particular sensation of black is only one of many that can be seen either by the same person at different times or by many people at different times. These particular sensations of black have something in common; they are all instances of a certain general thing. That general thing is the concept, property or universal.

The distinction between individuals and universals gets reflected in language as the distinction between subjects and predicates. All and only proper names are subjects; all and only common names are predicates.[4] (The term 'common name' may be misleading because for Russell, adjectives and verbs are the paradigmatic cases of common names.) A sentence such as 'Socrates sits' is usually understood as having the subject 'Socrates' directly denote Socrates and as having 'sits' express the concept of sitting. The sentence is true just in case Socrates belongs under the concept of sitting.

Russell drew a sharp distinction between proper names and definite descriptions. Russell defined a definite description as any phrase of the form 'The ' (where is any noun or noun phrase) such as 'The tallest person in China'. In doing so, he was directly opposing the great nineteenth-century logician Gottlob Frege, who had grouped proper names and definite descriptions together as 'singular terms'. Both kinds of expressions, it seemed to Frege, could occur as subject expressions of sentences and had the same function, namely, to refer to the object of which a property was to be predicated. Also, both denote objects through some sort of cognitive or conceptual element, which he called *'Sinn'* (sense or significance). For example, the phrases 'the third from the left' and 'the second from the right' have different senses, yet each refers to the same thing if four objects are placed in a row. In short, Frege had a two-tiered semantic system: a realm of senses *(Sinne)* and a realm of referents *(Bedeutungen)*.

Russell had a one-tiered system. Since the meaning of a word is the object it directly denotes, names do not have any descriptive content *(Sinn)*. The name 'Socrates' does not reveal anything about what Socrates is like. Even a seemingly descriptive name such as 'Sitting Bull' is not descriptive. Sitting Bull is not a bull and does not need ever to sit, so far as the naming function of 'Sitting Bull' is involved. In contrast, Russell thought that a description does not directly denote an object and hence has no meaning. It denotes its object, if at all, through the mediation of the concepts expressed by it. For example, 'the evening star' denotes Venus through the concept of being the first celestial body to appear in the evening sky. One consequence of the differences just mentioned is that proper names cannot fail to denote an object while descriptions can.

Another consequence is that descriptions are never subjects. This is initially implausible since 'the present king of France' appears to be the subject of the sentence 'The present king of France is wise.' On the other hand, there is a problem with holding that the description is the subject of the sentence: there is no king of France. How can the sentence be meaningful, as it is, and yet not be about anything?

There are three basic ways out of this problem. One is to designate an arbitrary object, say, the null set, to serve as the referent of any description that does not naturally denote an object. This was Frege's suggestion, and Russell rejected it as *ad hoc* and artificial. A second way is to maintain that there are non-existent beings that are actually denoted by such words and phrases as 'the present king of France', 'the golden mountain' and 'the largest natural number'. Russell himself had accepted something like this view in *Principles of Mathematics* (1903), but railed against anyone who should take such a position after he found a way around it. In *Introduction to Mathematical Philosophy* (1919), he writes: 'The sense of reality is vital in logic, and whoever juggles with it…is doing a disservice to thought. A robust sense of reality is very necessary in framing a correct analysis of propositions about unicorns, golden mountains, round squares, and other such pseudo-objects' ([1.28], 170).

The third way out of this problem is Russell's. He explains why 'the king of France' is not the subject of the sentence and further that, despite appearances, 'The present king of France is wise', is not a subject-predicate sentence. According to Russell, the sentence 'The present king of France is wise' is actually a complex existential sentence. That is, the sentence is correctly understood as saying something like the following: 'There exists an object x such that x is-male-and-monarchically-reigns-over-France;[5] nothing other than x is-male-and-monarchically-reigns-over-France; and x is wise.' Notice how the noun phrase 'king of France' has been eliminated altogether and its conceptual content has been transformed into a property, which is expressed by the principal verb phrase ('is-male-and-monarchically-…').

Russell presumably came up with this analysis of sentences in which definite descriptions occur by thinking about the conditions under which the sentence would be true. A sentence of the form 'The is ' is true (roughly) if exactly one object has the property expressed by and also the property expressed by . Another way of saying that exactly one thing has a property is to say that at least one thing has it and at most one thing has it. The first two clauses of the analysans are supposed to capture this idea of exactly one object having a property.

One of the reasons that philosophers found Russell's theory of descriptions attractive was that it could be extended to handle problems that involved what seemed to be proper names. Consider this paradox:

The paradox of reference and existence

(1) Everything referred to must exist.
(2) 'Pegasus' refers to Pegasus.
(3) Pegasus does not exist.

Propositions (1)–(3) are paradoxical because they are jointly inconsistent and yet each seems to be true. Propositions (1) and (2) entail

~ (3) Pegasus exists.

Proposition (1) has been called 'The axiom of existence' because its truth seems axiomatic. Concerning (2), what could 'Pegasus' refer to except Pegasus? Concerning (3), the sense of reality that Russell urged philosophers to maintain forces one to affirm that Pegasus does not exist.

Russell's solution to the paradox is in effect to deny (2). 'Pegasus' does not refer to Pegasus, because 'Pegasus' is not a genuine or logically proper name. Indeed, no ordinary proper name is a genuine proper name. Proper names do not directly denote, even when they do fit an object. Rather, they are disguised or abbreviated descriptions. 'Pegasus', for example, is a disguised description for 'the flying horse'. A sentence such as 'Pegasus was captured' should then be understood, according to Russell, as meaning 'There exists an object *x* such that *x* is equine and flies, whatever is equine and flies is identical with *x,* and *x* was captured.' Since nothing is equine and flies, this sentence is false. According to Russell all of the sentences of mythology and fiction are false.

If ordinary proper names are not genuine names, what are? For some years after the publication of 'On Denoting' in 1905 Russell thought that 'this', 'that' and 'I' were proper names, because they seemed to directly denote some object that was 'ostensively' defined (pointed to). But eventually he came to think that 'this' was a disguised description for 'the object that is close to the speaker and being pointed to'; 'that' was a disguised description for 'the object that is remote from the speaker and is being pointed to'; and 'I' a disguised description for 'the one speaking'. Ironically, the initial contrast between proper names and definite descriptions, which justified his elaborate theory, collapses; and Russell concludes that nothing is a proper name.

Russell's theory is intuitively implausible, and the editor of *Mind* was reluctant to publish it. Nonetheless, within a short time, it came to be regarded as a brilliant piece of philosophical thinking because it offered precise solutions to the problems it addressed.

It was not until 1950, when P.F.Strawson published 'On Referring,' that the cogency of Russell's theory was seriously challenged. Strawson maintained that the sentence 'The present king of France is wise' is not only grammatically, but is logically a subject-predicate sentence, and that the sources of Russell's mistakes were fundamental confusions about language.

Strawson denies the basic claim of the naming theory of meaning. He says that the meaning of a word is never the object it is used to refer to. Sometimes the word 'mean' means 'refer'; for example, in the sentence, 'Jones meant George Eliot when he said that the greatest English novelist was a woman.' But in these cases, what is at issue is what the speaker meant and not what a word meant. If the meaning of a word were the object it referred to, then to take a handkerchief out of one's pocket would be to take the meaning of 'handkerchief out of one's pocket. Also, to destroy a named object would be to destroy the meaning of a name. Each of these consequences is absurd.

As an alternative to the naming theory, Strawson adumbrates what is sometimes known as the use theory of meaning, which was extremely influential from the early 1950s until the early 1970s. He says, 'To give the meaning of an expression…is to give *general directions* for its use to refer to or mention particular objects; to give the meaning of a sentence is to give *general directions* for its use in making true or false assertions.'[6] (See chapter 8 in this volume for a further discussion of this idea.)

Strawson draws a sharp line between sentences and statements. Sentences can be grammatical or meaningful, but they are neither true nor false. It is not the sentence but the statement or assertion that is

made by using the sentence to represent the world that is true or false, according to Strawson. To think that the sentence 'The present king of France is wise' is either true or false simply because it is meaningful is absurd. Used in 1625, that sentence could have been used to make a statement about Louis XIII; used in 1650, it could have been used to make a statement about Louis XIV. But these are obviously two different statements, resulting from utterances of one and the same sentence. Used in the twentieth century, 'The present king of France is wise' cannot result in any statement at all even though it remains meaningful. Today a benighted speaker of the sentence could try to make a statement with that sentence but would fail. According to Strawson, it is not words that make statements or refer, but people. Consequently, the question, 'To what does the subject expression of the sentence "The present king of France is wise" refer?' should not arise.

Behind Strawson's objections is a view of language that is radically different from Russell's. For Russell, words and sentences are the fountains of meaning. For Strawson, people using words and sentences are. For Russell, semantics is the primary object of linguistic study. For Strawson, it is pragmatics, how people use words. Strawson's arguments in 'On Referring' were a harbinger of much work to be done between 1960 and 1980. Before discussing that work we need to look at further developments in semantics in the 1920s and 1930s.

THE VERIFICATION THEORY OF MEANING

The naming theory of meaning takes names as the primary locus of meaning. A different view is held by the logical positivists. For them, the primary locus of meaning is the sentence.

Logical positivism flourished first in central Europe during the 1920s and early 1930s and then in England, the United States and Scandinavia from 1930 until the early 1950s. The original logical positivists were the philosophically oriented scientists and mathematicians who formed the Vienna Circle under the leadership of Moritz Schlick. Soon, most logical positivists were neither scientists nor mathematicians but were *scientistic* in the sense that they believed that only science discovers the truth about reality. They thought that metaphysics in contrast with science had hindered intellectual progress, and one of their goals was to discredit that once venerable area of philosophy.

With regard to the philosophy of language, logical positivists thought that meaningful sentences could be divided into two groups: those that were cognitively meaningful and those that were emotively meaningful. Although the cognitively meaningful sentences held pride of place, let's first deal with the others. Sentences that belong to ethics, aesthetics, politics and religion—in short, value-laden sentences—were thought to have what was called 'emotive' meaning. According to the logical positivists, such sentences were not intended to describe how the world is but to express or to induce some attitude or emotion. Thus, to say, 'Honesty is the best policy', 'That picture is beautiful', 'Democracy is the best form of government', or 'God is the creator of the universe', either is to express some positive attitude or emotion that the speaker holds or is intended to induce such in the audience. Sentences such as 'Lying is wrong' either express or are intended by their speakers to induce some negative attitude or emotion. There is undoubtedly some truth to this sort of account of value-laden language; but the account did not seem to present an adequate theory of such talk in general. Other philosophers tried to round out the picture by arguing that to say that something was good was to recommend or to commend it.

Although some of them thought seriously about value-laden language, most logical positivists had a dismissive attitude towards it. For them to distinguish such language was important in order to ensure that it was not confused with the only kind of language that was cognitively meaningful, namely, the language of science and logic.

Cognitively meaningful language consisted of two types of sentences: sentences of logic and empirical sentences. The sentences of logic were themselves of two kinds: tautologies and contradictions. Tautologies (sometimes known as analytic sentences) were sentences that had to be true, e.g. 'Either it is raining or it is not raining.' Contradictions, e.g. 'It is raining and it is not raining', were sentences that had to be false. Tautologies and contradictions have the truth-values that they do in virtue of the meanings of the words that compose them and independently of how the world is. Empirical sentences, in contrast, are true or false depending upon how the world is. The meaning of an empirical sentence determines what fact about the world makes it true (if it is true) and what fact or possible state of affairs makes it false (if it is false). For example, the meaning of 'The cat is on the mat' determines that the sentence is true if and only if it is a fact that the cat is on the mat.

It is not difficult to judge that 'The cat is on the mat' is an empirical sentence, that is, a sentence that purports to describe the physical world. Further, it may seem that it should not be difficult to characterize what an empirical sentence is. Nonetheless, the effort to characterize what an empirical sentence is was a total failure and led to the downfall of logical positivism.

The original motivating idea was that a sentence is meaningful[7] precisely when it is verifiable; that is, precisely when there is a method for determining whether it is true. This criterion of meaning inspired the slogan that the meaning of a sentence is its method of verification. The criterion also seemed to have the desired effect of excluding sentences of metaphysics from the realm of the meaningful ones. There is no way to verify the sentences, 'The Transcendental Ego is absolute', or 'Nothing nothings.' They are therefore adjudged meaningless by the verifiability criterion of meaningfulness. This result pleased the logical positivists, who thought of metaphysics as the antithesis of science.

Unfortunately for the logical positivists, the verifiability criterion is too strong because it rules out many sentences that they considered meaningful. For example, sentences that are formulated as universal propositions are not conclusively verifiable. Consider a straightforward sentence like 'All humans are mortal.' It is surely meaningful and everyone considers it true. All the individual instances of human beings who have died are empirical evidence for its truth. Nonetheless, there is no empirical guarantee that everyone now alive will die. Thus, the evidence of previous deaths does not conclusively establish the truth of the universal sentence.

Logical positivists responded to this and other challenges in various ways. All agreed that the original verifiability criterion did not work. One alternative to it was a falsifiabilty criterion; that is, a sentence is meaningful precisely when there is a method of determining when it is false. Affirmative universal sentences are meaningful on this criterion. But another kind of sentence is not, namely, universal negative sentences such as 'There are no unicorns.' Although there is no positive evidence for the existence of unicorns (and no sensible person thinks that unicorns exist), there is no evidence that could conclusively falsify that sentence. Even though no unicorn has ever been observed, it is conceivable that this is due to the fact that one lives in a remote region and moves too quickly to be seen.

A more popular way to circumvent the problems with the verifiability criterion was to revise it in ways that would avoid the counter-examples. For example, full verification was replaced with the idea of partial verification. None of these revisions worked. Many of them allowed metaphysical sentences to count as meaningful, contrary to the intentions of their authors. Another problem with the verifiability criterion is that it is self-refuting. By its own criterion, no statement of verifiability is itself meaningful. Such a statement cannot be a proposition of logic since it is supposed to be a substantive truth; and it cannot be an empirical proposition since it does not describe the world. Indeed, the various statements of the verifiability criterion devised by logical positivists seemed to be metaphysical sentences. This realization led most

philosophers not only to abandon the search for an empirical criterion of meaningfulness, but to abandon logical positivism.

UTTERER'S MEANING

Until the late 1950s, virtually all work done in the philosophy of language assumed or presupposed that the primary locus of meaning was in words or sentences. Philosophy of language was almost synonymous with semantics. Any connection that people had to language was thought to be within the purview of psychology. Much of Strawson's criticisms of Russell's theory of descriptions was grounded in a diametrically opposed view of language. For Strawson, the focus of the philosophical study of language was on people and what people do with language. However, Strawson did not present a well-developed alternative to the prevailing theory of meaning. The alternative was publicly presented in 1957 by Paul Grice, who had been Strawson's teacher and later his colleague at Oxford.

In 'Meaning' [1.14], Grice aims to explain what meaning is when meaning concerns communication. For example, he is interested in meaning as the concept that is expressed in the following sentences:

> The ringing of the bell means that the bus is full.
> By raising her hand, Mary meant that she knew the answer.
> That remark, 'The coast is clear', means that the rebels have left.

Grice calls this 'nonnatural meaning.' This term is something of a misnomer since there is nothing unnatural about the kind of meaning he has in mind. It might better have been called 'communicative meaning', because Grice is interested in what is required for people to communicate with each other in a very broad sense. Linguistic meaning is a narrower concept that fits under the general category of non-natural or communicative meaning. Communicating through hand signals, flags and other non-linguistic gestures is obviously communication but not linguistic communication.

Grice's motivating insight is that for a person to mean_{NN} (non-naturally) something is for that person to engage in a complex kind of intentional behaviour that is directed towards another person. In short, he argues for the following analysis: a person means_{NN} something by some thing or action if and only if the person intends to produce some effects in an audience by getting the audience to recognize through that thing or action that he intends that effect. Grice thinks that there are basically two kinds of effect that a person can induce in an audience: a person can get an audience to believe something; and a person can get an audience to do something. In language, these two kinds of communication are reflected in the existence of the indicative mood ('Mary opens the door') and the imperative mood ('Mary, open the door'), respectively.

The crucial point in this analysis is the idea that the way in which the effect is achieved in the audience is by recognizing the intention of the speaker. An audience comes to the belief that the utterer is leaving simply by recognizing that the utterer, by waving his hand in the way that he does, intends him to believe this. In talking about intentions, Grice does not want to commit himself to a special kind of mysterious, unobservable entity. Intentional behaviour is a certain way of behaving; it is not behaviour plus some unseen mental object. Thus, he thinks that intentional behaviour is as open to empirical methods of investigation as any other.

SPEECH ACTS AND CONVERSATION: A THEORY OF PRAGMATICS

Grice's theory of meaning is general enough to apply to any kind of communication, not only linguistic communication. J.L.Austin, a colleague of Grice at Oxford, developed a theory that in effect complements that of Grice by dealing with specifically linguistic aspects of communication. Austin first formed his theory in 1939, but it was not until 1955, when he presented his views at Harvard in the William James Lectures, that it became widely known. The lectures were later published as *How to Do Things with Words* (1962).

Austin's views originated as an elaborate attack on two related philosophical positions: that there is a difference between talking and acting; and that all talk aims at describing the world. The second position is characteristic of logical positivism in so far as it holds that every cognitively meaningful sentence must be empirically verifiable. Austin refutes this latter position by giving several counter-examples, each of which is a sentence containing only garden-variety words— that is, no evaluative, emotive or metaphysical terms: 'I name this ship the *Queen Elizabeth*'; 'I bequeath my watch to my brother'; 'I bet you five dollars that it will rain tomorrow.' These counter-examples direct attention back to the first philosophical position. What is characteristic of the counter-examples is that expressing them is equally talking and acting, or, to vary the formula: a saying and a doing. To put the point another way, there are many actions that are typically achieved by performing a speech act.

It may appear that although some talking is also acting, there is nonetheless an important distinction to be drawn between two kinds of talk: descriptive talk and non-descriptive talk. Statements and assertions have as their goal the correct description of reality; those that succeed are true, and those that fail are false. Austin calls such utterances 'constative'. In contrast, christening, bequeathing, betting, and the like do not have the goal of describing anything. They are neither true nor false. They have as their goal the performance of some action. Austin calls such utterances 'performative'.

The constative/performative distinction, founded as it is on the descriptive/non-descriptive distinction, would seem to be unshakeable. One of the features of Austin's genius is his dialectical destruction of this seemingly unexceptionable distinction. Attacking the idea of a constative, he shows that making a statement requires that certain conditions be satisfied that are strictly analogous to conditions for performative utterances. In order to make a statement, a speaker must have evidence for it; it must be relevant to the context of its utterance; and for many purported statements there must be an object of reference. Thus, there are many ways in which an attempt to make a statement can fail; and when there is a failure, the (attempted) statement fails to describe anything and is neither true nor false.

Focusing next on the idea of a performative, Austin shows that many performative utterances have a descriptive aspect. Consider, 'I bet that Cleveland will win the pennant', or 'I promise that Mary will be at the meeting.' The clauses, 'Cleveland will win the pennant' and 'Mary will be at the meeting', are fully descriptive and can be assigned truth-values, but they are an essential part of the performative utterance. Thus, the distinction between performative and constative is again undermined.

The complete breakdown of the constative/performative distinction is evident if one tries to categorize the sentence, 'I state that the cat is on the mat.' On the one hand, this sentence appears to be a paradigm case of a constative; it seems to say of itself that it is a statement. On the other hand, it has the very same structural form as paradigmatic cases of performative utterances ('I bet that *p*' and 'I promise that *p*'). Further, it appears that what is true or false is not what is expressed by the sentence as a whole ('I state…') but only what is expressed by the dependent clause, namely, that the cat is on the mat.

The breakdown of the constative/performative distinction leads Austin to develop a new theory of discourse or speech acts. He distinguishes between three different levels or aspects of speaking: the locutionary, the illocutionary and the perlocutionary. The locutionary act itself contains three component parts: linguistic entities can be thought of (1) as sounds (or typographical marks), (2) as words belonging to

a language and (3) as having reference to things in the world and a meaning or significance. The illocutionary act consists of the *force* of the utterance, whether it be a bet, promise, statement, conjecture or something else. The perlocutionary act relates to the effect that is induced in the audience. Persuading, infuriating, calming or inspiring someone are perlocutionary acts. They can be intended or unintended, but what distinguishes perlocutionary from illocutionary acts, for Austin, is that while illocutionary acts always rely upon the existence of conventions, perlocutionary acts are natural or non-conventional.

Austin's work re-oriented the research of many philosophers and laid the groundwork for the standard theory of speech acts, which was developed by his student, John Searle. Searle first adumbrated his views in 'How to promise: a simple way' (1964) and then elaborated them in *Speech Acts* (1969).

Searle has shown that Austin's distinction between locutionary and illocutionary acts does not cut speech at a joint. He argues that paradigmatic cases of speech acts are illocutionary acts that express both a force and a content. Consider the sentences,

I state that Mary will be at the meeting.
I question whether Mary will be at the meeting.
I bet that Mary will be at the meeting.
I promise that Mary will be at the meeting.

Each of these sentences expresses the same content, namely, the proposition that Mary will be at the meeting. This proposition consists of a referent (Mary) and a predication (being at the future meeting). While Austin thought propositions, which he called 'the locutionary act', were complete entities, Searle shows that they are part of the illocutionary act. The other part of the illocutionary act is its force. The proposition (that Mary will be at the meeting) acquires a different force with the utterance of each sentence above. It is variously stated, questioned, bet or promised.

Searle noticed that there are different kinds of conditions that need to be fulfilled for different speech acts. For example, there are conditions on the kind of proposition that can be expressed in certain speech acts. Promises and commands require propositions about the future. Condolences presuppose a proposition about the past. Any condition that concerns the proposition or content of the speech act Searle calls 'a propositional content condition'. Virtually every speech act requires certain things to have preceded the speech act. For example, a promise requires that the speaker be able to do what he will promise to do; a request requires that the addressee be able to do the thing to be requested. Such conditions are called 'preparatory conditions'. Many speech acts require some kind of sincerity on the part of the speaker. Stating requires that the speaker believe what he is saying; promising requires that the speaker intend to do what he promises; requesting requires that the speaker want what he requests. Such conditions are called 'sincerity conditions'. Every speech act has an essential condition, which specifies what the point or purpose of the speech act is. The point of a statement is to describe the world; the point of a question is to get information; the point of a request and a command is to get the audience to do something.

The theory of speech acts tends to study the use of individual sentences. However, there are overarching principles that govern all conversation. The role that these principles play in conversation has been studied by H.P.Grice. Since communication is a co-operative enterprise in which the speaker tries to get the audience to understand what he or she has in mind and the audience does its part to understand the speaker, certain maxims standardly operate. Speakers are to say what they believe to be true and they should have evidence for what they say. They should say as much as is necessary and not more. What they say should be relevant to what has gone before. Finally, they should formulate what they have to say briefly, clearly, unambiguously and in an orderly way. Although these conversational maxims are the norm, they can go

unfulfilled in a variety of ways. Sometimes people *violate* maxims; that is, they quietly and unostentatiously fail to fulfil one, not only when they lie, but when they make an honest mistake or misconstrue the direction of the conversation or presuppose more than they should. Sometimes people *opt out of* fulfilling a maxim. This is often required when two maxims clash in a particular situation. Someone who is asked to give a brief and clear explanation of Immanuel Kant's transcendental deduction of the categories may say, 'I can't give a brief explanation of it.' Sometimes people *flout* a maxim; that is, they openly and ostentatiously do not fulfil one. Figures of speech employ flouting. Meiosis flouts the maxim to say as much as necessary, for example, saying, 'There's some clean up to be done here', after a devastating hurricane. Ironic utterances such as, 'You're a fine friend', said after being betrayed by a friend, flout the maxim to say what one believes. Metaphor involves flouting the same maxim. To say metaphorically, 'My love is a red rose', is not to assert that one's lover is a certain kind of flowering plant. Thus conversational maxims can go unfulfilled in at least three ways: by being violated, opted out of or flouted.

The most important aspect of Grice's theory of conversation is his explanation of how the interaction of what a speaker says (or pretends to say), the conversational maxims and the context gives rise to 'conversational implicatures'. That is, speakers communicate much more to their audiences than what they say or what is logically implied by what they say. If a speaker says, 'There's a gas station around the corner', to a person whose automobile has run out of gas, then the speaker has implied that the gas station is open and has gas available even though he has not said as much. If a speaker says, 'Well, Smith tries very hard', and nothing more to a person who has asked about whether Smith is a good candidate for a job, then he is suggesting that Smith is not a good candidate.

Grice and other philosophers have shown that his simple observations about how language functions can be helpful in solving many traditional philosophical problems in epistemology, semantics and even ethics. To take a simple example (although Grice himself did not agree with this particular application), consider Moore's paradox. There is something odd about the sentence, 'It is raining and I do not believe that it is raining.' The sentence is not contradictory, and yet it is difficult or impossible to think of circumstances in which someone could seriously utter such a sentence. To assert such a sentence would usually be absurd, and yet, if it were asserted, it might say something true. A solution that appeals to Grice's theory explains that the sentence is odd because the assertion of the first clause conversationally implies 'I believe that it is raining' and that contradicts the second clause 'I do not believe that it is raining.' Thus, although the semantic content of Moore's sentence is not contradictory, what would normally seem to be communicated by the sentence is contradictory, and people communicate contradictions only in very special circumstances.

THE CAUSAL THEORY OF NAMING

Although the 1960s and 1970s were the heyday of pragmatics, Russell's theory of descriptions and his view that the semantic connection between genuine proper names and what they denote is direct (unmediated) received renewed support. We have already mentioned that Russell's theory of descriptions was the favoured way of dealing with problematic referring expressions until 1950. From 1950 until the middle 1960s, Strawson's treatment of referring had the upper hand. The publication of Keith Donnellan's article, 'Reference and Definite Descriptions', in 1966 introduced a new element into the theory of reference [1.12].

Donnellan thought that among the various uses of definite descriptions, there were two that were relevant to the dispute between Russell and Strawson: the attributive use and the referential use. The function of the referential use, on which Strawson had focused, is to get the hearer to pick out an individual that the speaker

has in mind. If, intending to get the audience to think that Jones is insane, a speaker uses the sentence, 'Smith's murderer is insane',[8] then the definite description is being used referentially. The proposition expressed by the utterance can be represented as the ordered pair (Jones, being insane). This proposition would be true, according to Donnellan, just in case Jones is insane, whether or not Jones murdered Smith.

Donnellan's point can be illustrated by considering the following case. Suppose that Jones is on trial for the murder of Smith, a gentle and well-respected person, who was killed in a particularly brutal fashion. Further suppose that Jones in fact did not kill Smith but is insane. On the basis of Jones's bizarre behaviour in the courtroom, someone says, 'Smith's murderer is insane.' In such a situation, according to Donnellan, the speaker has successfully referred to Jones and has correctly said that he is insane even though the phrase used to refer to Jones does not fit him. The speaker successfully referred to Jones because of his intention to use the phrase to pick out Jones.

In contrast with the referential use, if a speaker uttered the very same sentence and did not intend the audience to pick out Jones or any other person that he has in mind but only intended to make a general comment about anyone who would murder as gentle a person as Smith, then the definite description would be used attributively. The proposition expressed by the utterance can be represented as the ordered pair (being the murderer of Smith, being insane). This proposition would be true just in case exactly one person murdered Smith and was insane. Obviously the truth-conditions are different. As the example about Smith and Jones illustrates, whether a description is being used attributively or referentially depends upon the speaker's intentions and context.

The upshot of Donnellan's distinction is that referring to an object does not require that the word or expression used has a descriptive content that fits the object referred to. Donnellan then applies this result to proper names. They do not have or in any way rely upon any descriptive content. In other words, ordinary proper names function the way that Russell claimed that logically proper names do. Thus, contrary to what Russell thought, ordinary proper names are logically proper names. Donnellan described his views as 'an historical account of referring'. He explained that a proper name refers to the object that it does because it is connected to that object through all the previous uses of that name to refer to that object. Since his explanation of referring uses the notion of referring, it should be clear that he did not intend to present a theory of what referring is, but an explanation of how a proper name refers to the object that it does, rather than to some other object.

Contemporaneously with Donnellan, Saul Kripke was developing a similar account of referring, which he called 'a causal account of referring' [1.17]. Like Donnellan, Kripke was interested in how the use of some name, such as 'Aristotle' picks out Aristotle rather than someone else. Much of Kripke's effort is devoted to attacking the description theory of proper names. According to that theory, proper names could not directly denote the object that they name, because there would be no way to connect a name to its object. Thus, according to this theory, each proper name must be associated with or connected to some more or less determinate cluster or disjunction of descriptions which is true of the named object and nothing else. Both the speaker and audience use the descriptive content of a name to pick out the object named. In short, to know the meaning of a proper name is to know what cluster of descriptions picks out a uniquely named object.

Kripke objects to the description theory on two main grounds. First, for very many names most people do not associate any uniquely identifying cluster of descriptions with the object named. For example, 'Cicero' for most people is *a* famous Roman orator, not *the* most famous Roman orator. Second, a person may know how to use a proper name even if the set of descriptions that he or she associates with the named object do not in fact correctly describe it. Suppose that the name 'Aristotle' is associated with this disjunctive cluster of descriptions: 'either the student of Plato, or the teacher of Alexander, or the author of *Metaphysics* and

De Anima'. But further suppose that Aristotle was a fraud; that he did none of the things attributed to him but invented them through an elaborate ruse, which has never been detected by historians. Nonetheless, 'Aristotle' is the name of Aristotle, even though the descriptions associated with him are wholly false.

According to Kripke, the reason why 'Aristotle' picks out Aristotle is that there is a causal connection between the speaker's use of 'Aristotle' and Aristotle. At some point in the use of the term 'Aristotle', some speaker succeeded in referring to Aristotle by that name— Kripke suggests that this occurs in baptismal or analogous ceremonies —and that success has been passed on from speaker to speaker down to this very day. Obviously, this account of referring does not explain what referring itself is. It presupposes that referring has occurred in past uses of the name. What it purports to give is an account of how *the reference is fixed* of a name currently in use.

Various philosophers have pointed out that Kripke's account is flawed. There are many cases in which the causal chain of a name's use has gone awry. 'Madagascar', to mention one instance, originally was the name of part of the African mainland. The island acquired that name because Marco Polo mistook the reference. Native Americans received the name 'Indians' because Columbus mistakenly thought he had reached India. In short, the causal chain connecting a current use with the original use of a name does not alway determine the correct reference.

Kripke extends his views about proper names to common nouns that denote natural kinds, that is, to words like 'gold', 'dog' and 'tree': natural-kind terms denote their objects because of a causal, communicative tie between the word and the objects and not because of any descriptive content that the speaker may associate with it. Hilary Putnam developed a very similar view. Putnam's colourful way of putting this was to say that '"meanings" just ain't in the head'.[9]

According to Putnam, common nouns have the reference or extension that they do because of a causal tie between the use of the word and the object referred to. 'Water' refers to water because in its paradigmatic uses people supposedly point to it and say, '*This* is water.' In other words, common nouns function in a way similar to proper names. Both are what Kripke calls 'rigid designators', that is, terms that pick out the same object in every possible world in which they exist.

Traditionally, common nouns were thought to denote or refer to objects indirectly, through a concept. Thus, a speaker who used the word 'gold' would expect his audience to know what object he was talking about because both the speaker and the hearer had a concept that was descriptive of gold and nothing else (for example, 'the yellowish, valuable metal, that dissolves in *aqua regia*') and by which a person is directed to gold. In Frege, this descriptive concept was called 'sense' *(Sinn);* in Locke, it was called 'an idea'. In scholastic terminology, the difference between the concept associated with a noun and its reference was the difference between intension and extension.

Putnam argues that there could be a planet (Twin Earth), which is just like Earth except that instead of water it contains a liquid that has the same gross properties of water—that is, the same taste, odour, smell, appearance and viscosity—but a completely different chemical composition. Because the gross properties of each liquid are the same, a person on Earth and a person on Twin Earth would seem to be in exactly the same mental state; yet they would be referring to different liquids. Consequently, a person's ideas or concepts of an object cannot determine what it is that he or she refers to.

One of the consequences that Putnam draws from his study of common nouns is that language use involves a division of labour. Water is all and only that which has the chemical composition of H_2O. Although virtually every speaker of English can use the word 'water' competently, some speakers of the language need to have the requisite technical knowledge to determine the genuine reference or extension of 'water'. Thus, a further consequence is that using a language is much more of a co-operative enterprise than is usually thought.

NAMES AND BELIEF

In 1979, Kripke argued that neither the description theory of names nor his own causal account of names can solve the following problem about Pierre. Pierre is born and raised in France and initially knows how to speak only French. On the basis of what he is told about London, he forms the belief that London is pretty. Since he speaks only French he says or would think to himself 'Londres est jolie.' Not knowing English, Pierre does not and could not express his belief using the sentence

(1) London is pretty.

Later, Pierre leaves France and takes up residence in a squalid part of a city in another country. It is London. There he learns English as a native would, that is, with direct interaction with his local environment and without directly learning how to translate back and forth between English and French. In particular, he never learns that 'London' and 'Londres' name the same city. On the basis of his experience in London, he forms the belief that is expressed by

(2) London is not pretty.

The question is whether Pierre has contradictory beliefs. It would seem that he does since he would sincerely assert 'Londres est jolie', which means the same as (1) and would sincerely assert (2). But Kripke thinks it is impossible that Pierre has contradictory beliefs; for Pierre is a distinguished logician who 'would *never* let contradictory beliefs pass'.[10]

Most proposed solutions to this puzzle try to explain how it is that Pierre has contradictory beliefs and is not aware of them. What lies behind Kripke's denial that Pierre has contradictory beliefs is something like the following principle.

> **Nominal Transparency:** If (1) the semantic connection between a term and the object it denotes is direct (unmediated), (2) terms *x* and *y* denote the same object o, and (3) a person *p* is competent to use both *x* and *y,* then *p* must be aware of any contradictory beliefs that *p* has when *o* is represented by *x* and *y*.

Kripke thinks that his arguments in *'Naming and Necessity'* [1.14] proved clause (1); and he thinks clauses (2) and (3) are as a matter of fact satisfied by Pierre and his linguistic knowledge.

We can agree that all three clauses are correct and still deny that the consequent of nominal transparency is true. Kripke's mistake in part is, I believe, to think that a semantic connection is the only connection that is relevant to the ability to use a name. As a matter of fact, in order to be able to use a name, a person also needs to have some mental representation that connects the name with the object, but this representation is not a part of the meaning of the name. It cannot be part of the meaning of the name, because how people represent an object to themselves is not uniform, and individuals can change how they represent objects without any loss in their ability to refer to those objects. It need not interfere with their ability to communicate if one interlocutor thinks of Aristotle as the student of Plato and the other thinks of Aristotle as the teacher of Alexander. Similarly, it need not interfere with communication if a person thinks of Aristotle at one time as the student of Plato and at another time as the teacher of Alexander.

If people were aware of all the logical relations that held between the various ways that they mentally represent objects, then if two names named the same object, they would be aware of it. But many of these relations are opaque to the person who has them. The contents of (at least very many) beliefs are not immediately accessible to people, but only through their mental states or representations, which present the object from a perspective and not *in toto*. These limited perspectives often prevent people from recognizing all the consequences of their beliefs. It is the mental analogue of a person who sees an elephant from the front and later from behind and infers that he or she has seen two kinds of animal.

Perhaps behind Kripke's puzzle is an even more general misconception about language: the belief that language is self-contained and that purely linguistic knowledge is sufficient for using language. Both of these assumptions are under attack by the philosophers who will be discussed in the next section.

INTERPRETATION AND TRANSLATION

Most philosophers who have thought about language have focused on the utterer's role in communication. One might expect that looking at communication from the audience's point of view should not present a very different perspective if discovering what the utterer is doing is exactly what the audience does. As a matter of fact, these are very different perspectives. W.V.Quine is perhaps the first and certainly the most important Anglo-American philosopher to look at language from the audience's perspective.

In *Word and Object,* published in 1960, Quine explores the consequences of an uncompromisingly naturalistic view of language [1.20]. Only physical facts are relevant to understanding linguistic behaviour, and all the evidence humans have for thinking of something as language and for attributing significance to those utterances is purely empirical. This does not mean that the judgements that people make about linguistic behaviour are exclusively empirical. Judgements about linguistic behaviour are a mixture of empirical evidence and explanatory hypotheses. This latter point was the principal lesson of his classic article, 'Two Dogmas of Empiricism' [1.23]. Rather than as a pure empiricist, Quine thought of himself at this time as a kind of pragmatist. Later, he would think of his philosophy as empiricist, pragmatic and naturalistic.

Quine asks how an audience can come to understand what a speaker of an utterly foreign language means. The problem is to figure out how a person would correlate sentences of his or her own language with sentences of the speaker's language. Quine develops his answer picturesquely by describing 'a field linguist' coming upon 'a native'. He supposes that the native utters, 'Gavagai', as a rabbit runs by. The issue is, how does the linguist (the audience) understand what the native has said? Quine thinks that the linguist must ask the native questions. This of course implies that the linguist has formulated some hypothesis about what kind of behaviour corresponds to saying 'yes' in English and what kind corresponds to 'no'. These hypotheses are part of a complicated web of hypotheses that are devised with the goal of arriving at the most plausible understanding of the behaviour of the natives. Even if the native used the vocables 'yes' and 'no', the linguist could not simply assume that the native's 'yes' means the same as his or her own 'yes'. The native may mean just the opposite by these vocables. Nor could the linguist simply assume that the nod of the native's head means 'yes', or that shaking it means 'no'. Again, the native could mean just the opposite or something else. The native could have some completely different convention, such as exposing the right index finger for 'yes' and the left index finger for 'no'. So the actual process of hypothesis formation is quite complex.

The linguist has other difficulties. Suppose that the native often utters 'Gavagai' when a rabbit is present. The linguist may hypothesize that the proper translation of 'Gavagai' is 'Rabbit' (or 'There's a rabbit'). But how can the linguist be sure? Even if the linguist has settled on a hypothesis about how the native indicates 'yes' and 'no' the native's answer does not favour the linguist's proffered translation any more than it favours the translation 'More rabbit'; or 'There's an undetached rabbit part', or 'There's a temporal slice of a rabbit.' One way to determine whether 'Gavagai' refers to rabbits or undetached rabbit parts would be to point successively to two parts of the rabbit and ask the native whether the one *gavagai* is the same as the other *gavagai*. Of course, the whole thing must be said in the native's language. Suppose the linguist uses 'Gavagai plink gavagai' to express this. How can the linguist know whether 'plink' means 'is the same as' or 'is an undetached part of the same rabbit'? The linguist will get an affirmative response if 'plink' has

either meaning. Quine claims that no matter how many checks the linguist may try to place on his or her translation by testing other sentences in other situations, there is no one correct translation of all the sentences. It is always possible that there are several incompatible ways of translating the sentences of the language, each translation of which fits the empirical data. In short, translation is indeterminate.

Whatever translation scheme is adopted, it will be the result of a system of hypotheses that takes into account not only what words and sentences of one language correlate with words and sentences of another, but under what conditions the observed sentences were uttered and what beliefs and intentions the speakers had at the time. That is, the translation scheme presupposes certain judgements about what the empirical evidence was, and the translation of any individual sentence will make sense only within the entire theory of translation and evidence. This view that linguistic meaning resides in the entire language and not in any sub-unit such as a word or sentence is known as linguistic holism.

Because Quine thinks of the audience's goal as the correlation of sentences of one language with sentences of another language that is completely unrelated in evolution to the first, he calls the linguist's project 'radical translation'. Although it may seem that Quine thinks of translation as a purely syntactic enterprise: utterances ('sequences') of one system are correlated with utterances of another system, that is not quite correct. The primary sentences of a language are those that are tied to observable things: 'Mama' uttered in the presence of a mother, 'Red' uttered in the presence of red or 'Rabbit' uttered in the presence of a rabbit. So some words and the rest of the world are related in this way. What Quine objects to is the notion that meanings are determinate, abstract entities, which attach individually to sentences.

Quine's insights about language have been revised and extended by his student, Donald Davidson. One of the important revisions is a tacit criticism. Davidson does not think that the search for a translation manual between languages is crucial. One might know that 'Es regnet' is the correct German translation for the Italian sentence 'Piove' without knowing what either sentence means. So merely knowing how to translate between sentences in this narrow sense does not constitute knowing a language. Knowing how to interpret a language does. Thus, Davidson explores the explicitly semantic idea of 'radical interpretation', which is the project of determining how a person figures out the conditions under which an utterance is true. In this regard, Davidson acknowledges his debt to Alfred Tarski, who made semantics philosophically respectable. Davidson claims that since to know the meaning of a sentence is to know its truth-conditions (the conditions under which it is true or false), to have a theory of truth is to have a theory of meaning. Davidson differs from Tarski in that Davidson takes truth as a basic notion that does not need to be defined and uses it to explain what an interpretation is, while Tarski assumed that there was no problem in coming up with translations of sentences and gave a definition of truth.[11]

In 'Belief and the Basis of Meaning', published in 1974, Davidson makes it clear that a basic difficulty in interpreting a speaker's words is that interpretation is not simply the task of assigning meanings to utterances [1.8]. Interpretation involves at least two interdependent activities. An audience must attribute both a certain belief to the speaker and a certain meaning to his utterance in order to come up with an interpretation. For example, suppose a speaker utters, 'The cat is on the mat', in the presence of a cat being on a mat. If the audience judges the speaker to *mean* that the cat is on the mat, the audience will also most likely judge the speaker to *believe* that the cat is on the mat. While this may appear trivial, the triviality disappears once we think about other cases. Suppose the speaker utters, 'The cat is on the mat', in the presence only of a dog on the mat. In such a situation, the audience has two likely—but in fact many more—options to choose between: (1) the speaker means that the cat is on the mat and has a false belief, or (2) the speaker means that the dog is on the mat and has a correct belief. Either interpretation is possible. Which interpretation makes the most sense depends upon various features of the context: for example, the age, intelligence, eyesight, integrity and native language of the speaker. Interpretation (1) may be more plausible

if the speaker is very stupid or has poor eyesight. Interpretation (2) may be more plausible if the speaker is only 4 years old or is 40 years old but in the process of learning English. In the latter case, the speaker may think that 'cat' means 'dog' and thus use 'The cat is on the mat' to mean that the dog is on the mat.

In fact, the task of interpretation is even more complicated than Davidson has indicated. In addition to attributing beliefs to the speaker and a meaning to his or her utterance, the interpreter also needs to attribute a motive to the speaker, to determine the phonetic character to the utterance, and to judge his or her own cognitive capacities. For example, is the speaker intending to tell the truth, be deceptive, ironic, or humorous (motive)? Did the speaker utter the sentence 'She peaked in Stockholm' or 'She spoke in Stockton'? Did the audience really see a dog or was it a cat?

One upshot of the work of Quine and Davidson, is that it is a mistake to think of language as a complete and self-contained unit. Not only does speaking require other abilities, but in addition language itself is continuous with other intelligent behaviour. Linguistic behaviour is not a discrete segment of human behaviour. As Davidson says, 'we should realize that we have abandoned not only the ordinary notion of a language, but we have erased the boundary between knowing a language and knowing our way around in the world generally'.[12] One might speculate about the reason that people think of language as a well-defined entity. One suggestion is that when people are engaged in understanding what a speaker means, they often focus on the utterance itself and often think of the other aspects of the situation, such as the utterer's beliefs and intentions and the contextual facts, as merely background or collateral conditions. This is to say that utterances are salient; they jump out at the audience; nonetheless, the utterance itself is ultimately no more important to the interpretation than the other features just mentioned.

CONCLUSION

To study the philosophy of language is to see that there is progress in philosophy. The idea that the basic meaningful unit of language is the word was superseded by the idea that the basic unit is the sentence, and that was superseded by the twin ideas that the meaning of a sentence makes sense only as it relates to the language as a whole and that linguistic meaning ultimately rests upon people meaning things by their utterances. The idea that language is a discrete entity that can be understood independently of the non-linguistic context was superseded by the idea that language can be understood only in its context, and that idea was superseded by the idea that there is no sharp line to be drawn between linguistic behaviour and non-linguistic behaviour or between linguistic behaviour and the environment in which it occurs. Although there are no final answers, much has been learned in this century about the nature and uses of language, the primary locus of meaning, the nature of interpretation, the relation between language and empirical evidence, and the interrelation between meaning and the cognitive states of speakers.

NOTES

1 Hereafter, 'philosophers of language' refers *to* philosophers in the dominant tradition of Anglo-American philosophy in the twentieth century, unless otherwise indicated. An analogous remark holds for the term 'philosophy of language'.

2 A clear distinction between these three aspects of linguistic study was made at least as early as 1939 by Charles Morris [1.21], but we shall not follow his definitions exactly.

3 For another interpretation of Wittgenstein's view of picturing, see Canfield [1.6] and Wedin [1.30].

4 'Subject' and 'predicate' have been used in various ways by philosophers. In this article, the terms always refer to certain kinds of words or phrases. 'Subject' was sometimes used to refer to the topic of a sentence; that is, the

thing referred to by the *subject* in my sense. 'Predicate' was sometimes used to refer to what a predicate in my sense expresses, that is, a property or concept. Bertrand Russell often used these terms in various senses.

5 The noun phrase, 'present king of France', needs to be replaced with a non-noun phrase, such as the complex verb phrase 'is-male-and-monarchically-reigns-over-France', in order to forestall the following line of argument: Since 'the present king of France' is a noun, it must name something. What does it name? If the noun phrase is replaced by a verb phrase 'is-male-and-monarchically-…', no question arises about any seeming king of France.

6 'On Referring', in Strawson [1.28], 9.

7 In the remainder of this section, 'meaningful' means 'cognitively meaningful', as understood by the logical positivists.

8 'Smith's murderer' needs to be understood as a variation on 'the murderer of Smith'.

9 'Meaning and Reference', in Martinich [1.17], 287.

10 'A Puzzle about Belief', in Salmon and Soames [1.24], 122.

11 'Radical Interpretation', in Davidson [1.7], 134.

12 'A Nice Derangement of Epitaphs', in Grandy and Warner [1.11], 173.

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CHAPTER 2
Formally oriented work in the philosophy of language

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One of the perennial issues in philosophy is the nature of the various relationships between language and reality, language and thought, and language and knowledge. Part of this issue is the question of the kind of methodology that is to be brought to bear on the study of these relationships. The methodology that we shall discuss here is based on a formally oriented approach to the philosophy of language, and specifically on the notion of a logically ideal language as the basis of a theory of meaning and a theory of knowledge.

THE NOTION OF A *CHARACTERISTICA UNIVERSALIS* AS A PHILOSOPHICAL LANGUAGE

The history of the formally oriented approach towards the philosophy of language goes back at least to René Descartes (1596–1650) and Gottfried Leibniz (1646–1716), and perhaps even further to the speculative grammarians of the twelfth century who believed that there was only one grammar underlying all of the natural languages of humanity (cp. Küng [2.28], 7). The speculative grammarians did not develop a formal methodology by which to study that grammar, however, because they believed that its structure was determined by the nature of things in the world and that the philosopher could discover that structure only by first considering the ontological nature of things. Descartes, the inventor/discoverer of analytic geometry and the idea of a *mathesis universalis,* also believed that underlying all speech there exists a *lingua universalis,* but what it represented was the form of human reason and not the nature of things in the world (cp. Cassirer [2.3], 1: 128). Descartes also did not attempt to construct or formalize such a language, beyond insisting that it must contain a *mathesis universalis,* because he thought that its construction must await the analysis of all the contents of consciousness into the simple ideas that were their ultimate constituents.

Leibniz agreed with Descartes that there exists a *lingua universalis* underlying all speech and that such a language represented the form of human reason. Leibniz was more programmatic in his approach, however. He called the general framework of such a philosophical language a *characteristica universalis,* and he attempted to formulate some fragments of the system. For Leibniz, a *characteristica universalis* was to serve three main purposes. The first was that of an international auxiliary language that would enable the people of different countries to speak and communicate with one another. Apparently, because Latin was no longer a 'living' language and new trade routes were opening up to lands with many different local languages, the possibility of such an international auxiliary language was widely considered and discussed in the seventeenth and eighteenth centuries (cf. Cohen [2.4] and Knowlson [2.27]). There were in fact a number of proposals and partial constructions of such a language during that period, but none of them succeeded in being used by more than a handful of people. It was only towards the end of the nineteenth century when Esperanto was constructed that such a language came to be used by as many as eight million

people. At present, however, the question of whether even Esperanto will succeed in fulfilling that purpose seems very much in doubt. Ido, another such language, which was constructed in 1907 by a committee of linguists, has not been used since about 1930 (cf. Van Themaat [2.46]).

The second and third purposes Leibniz set for his *characteristica universalis* are what distinguish it from its precursors and give his programme its formal or logistic methodology. The second purpose is that the universal character is to be based upon an *ars combinatoria,* i.e. an ideography or system of symbolization that would enable it to provide a logical analysis of all the actual and possible concepts that might arise in science. Such an *ars combinatoria* would contain both a theory of logical form, i.e. a theory of all the possible forms that a meaningful expression might have in such a language, and a theory of definitional forms, i.e. a theory of the operations whereby one could construct new concepts on the basis of already given concepts. The third purpose was that the universal character must contain a *calculus ratiocinator,* i.e. a complete system of deduction and valid argument forms, by which, through a study of the consequences, or implications, of what was already known, it could serve as an instrument of knowledge.

With a universal character that could serve these purposes, Leibniz thought that a unified encyclopedia of science could be developed throughout the world, and that, by its means, the universal character would then also amount to a *characteristica realis,* i.e. a representational system that would enable us to see into the inner nature of things and guide our reasoning about reality like an Ariadne's thread (cp. Cohen [2.4], 50). Thus, here in Leibniz's programme for a *characteristica universalis* we have an attempt to encompass the three relationships between language and reality, language and thought, and language and knowledge. In two fundamental parts of the programme, namely, the construction of an *ars combinatoria* and a *calculus ratiocinator,* we also have the critical components that are necessary for a formally oriented approach towards the philosophy of language.

THE NOTION OF A LOGICALLY PERFECT LANGUAGE AS A REGULATING IDEAL

The idea of a grammar underlying all natural languages is really not the same as the idea of an international auxiliary language, and both are different from the idea of a formal, artificial language containing an *ars combinatoria* and a *calculus ratiocinator* as a unified language of science. In the nineteenth century, with the rise of the new science and the development of a more abstract, algebraic notation in mathematics, interest became focused on the prospect of constructing a *calculus ratiocinator* as a formal system of logic that could be applied in different domains of discourse and independently of the vagaries of natural language. The mathematician George Boole (1815–64), for example, maintained that algebraic formulas could be used to express logical relations between propositions, or between concepts or classes, no less so than they can be used to express numerical relations between numbers. He showed in particular that there are structural analogies between the operations of multiplication and addition as applied to numbers and the operations of conjunction and disjunction as applied to propositions or concepts, as well as the operations of intersection and union as applied to classes. The result of developing such analogies as an abstract calculus is known today as Boolean algebra, a mathematical system that has provided a foundation for the development of computers as well as an algebraic basis for much of the formally oriented work in the philosophy of language.

Although the algebraic operations of Boolean logic are quite different from the grammatical rules of the categorical subject-predicate propositions of traditional syllogistic logic, it is significant that the latter can be explained in terms of the former. A traditional subject-predicate proposition of the form 'All *F* are *G*', for example, can be analysed in terms of the subordination of the concept *F* to the concept G, or the

inclusion of the class of things that are *F* in the class of things that are G (where inclusion is definable in terms of intersection as follows: . A subject-predicate proposition of the form 'Some *F* are *G*' can also be analysed in terms of the intersection of the class of things that are *F* with the class of things that are *G*, namely, as that intersection not being identical with the empty class (i.e. as , where 'o' represents the empty class). All categorical propositions and the entire system of traditional syllogistic logic can in this way be analysed and explained in terms of the algorithms of Boolean algebra. Boole himself believed that his calculus could be used 'to investigate the fundamental laws of those operations of the mind by which reasoning is performed' and that he could express those laws in the symbolic language of his calculus (Boole [2.2], chapter 1, section 1).

A different and more fundamental approach to the grammatical subject-predicate structure of natural language and to the idea of the laws of thought was taken by Gottlob Frege (1848–1925) in his book, *Concept-Script, A Formula Language for Pure Thought, Modeled upon that of Arithmetic*. What Frege did was utilize the newly developed function theory of arithmetic and mathematics to interpret a subject-predicate sentence of the form '*a* is *F*', where *'a'* stands for a singular term (e.g. a proper name or definite description), as the result of applying the concept *F,* now interpreted as a function (from objects to truth-values), to the argument *a,* i.e. as *F(a).* A subject-predicate-object sentence of the form *'a R b',* where *'a'* and *'b'* stand for singular terms and *'R'* for a transitive verb (such as, for example, the verb 'love' in *'a* loves *b'*) can then be interpreted as applying the relation *R,* now interpreted as a binary function (from objects to truth-values), to the arguments *a* and *b* (in that order), i.e. as *R(a,b).* In this way, Frege was able to formally represent and explain a more fundamental aspect of predication than is represented in Boolean algebra, namely, that in which we can express the relation between an object and a concept under which it falls, as well as provide a framework for the logic of relations in general.

Frege applied his function-argument analysis not only to these basic subject-predicate forms, moreover, but to those of the categorical propositions of traditional syllogistic logic as well. It was this analysis that introduced a new, and brilliant, insight into the structure of quantifier phrases of natural language, i.e. phrases beginning with such words as 'all', 'every', 'some', 'there is (are)'. Providing an adequate analysis of such phrases had been a major problem for medieval grammarians and logicians, and it was only with Frege's theory that the beginnings of a real solution were finally attained.

A quantifier phrase, according to Frege, stands for a (variable-indexed) second-level concept within which first-level concepts fall, which, in terms of his function-argument terminology, amounts to a function from first-level concepts (i.e. those that predicate phrases stand for) to truth-values. Thus, a sentence of the form 'Everything is *F* can be formally represented by , where stands for the secondlevel concept that 'everything' stands for (as indexed by the variable *'x*'). Similarly, 'Something is *F*' can be formally represented by , where stands for the second-level concept that 'something' stands for (as indexed by the variable *'x'*). A subject-predicate categorical proposition of the form 'All *F* are *G*' can then be equivalently interpreted as a sentence of the form 'Everything is such that if it is *F,* then it is *G*', which formally can be represented as , where ' ' is the symbolic counterpart of the (truth-functional) 'if-then' conditional phrase. Similarly, a categorical proposition of the form, 'Some *F* are *G*' can be equivalently interpreted as 'Something is both *F* and *G*', which formally can be represented as , where '&' is the symbolic counterpart of the 'both-and' conjunctive phrase; and a proposition of the form 'No *F* are *G*' can be symbolized either as or as , where '~' is the symbolic counterpart of the adverbial phrase 'it is not the case that'. Finally, and perhaps even more importantly, Frege's theory also accounts for quantifier phrases embedded within the scope of other quantifier phrases and explains the difference between, for example, 'Every man loves some woman', formally represented by ' *[F(x) [G(y) & R(x,y)]]',* and 'Some woman is loved by all men',

formally represented by , where *'F'* and *'G'* stand for the first-level concepts *being a man* and *being a woman,* respectively, and *'R'* stands for the first-level relation *loving*.

What is especially important about these kinds of formal analyses of the sentences of natural language is that they amount to a perspicuous logical representation of the truth-conditions determined by the content of those sentences, and, in that respect, they are readily amenable to the application of inference rules and allow for a rigorous analysis of the notions of logical deduction and formal validity. It was these features that led Frege to maintain that his concept-script was 'not a mere *calculus ratiocinator,* but a *lingua characteristics* in the Leibnizian sense' (Frege [2.20], 90). That is, Frege's goal was to construct 'a logically perfect language', and not just an abstract calculus, that could be used as the general framework for a language of mathematics and science. It was not designed to serve the purposes of ordinary or natural language, as an international auxiliary language might be, but rather was intended as a tool for the analysis of concepts and the formal development of mathematical and scientific theories. In this regard Frege maintained that the relation between his concept-script and ordinary or natural language was like that of the relation of the microscope to the eye. For even though the eye is superior to the microscope 'because of the range of its possible uses and the versatility with which it can adapt to the most diverse circumstances', nevertheless 'as soon as scientific goals demand great sharpness of resolution, the eye proves to be insufficient' (Frege [2.18], 6). That is, just as the microscope is a device 'perfectly suited' to the demand for great sharpness of visual resolution in science, so too Frege's concept-script is 'a device invented for certain scientific purposes, and one must not condemn it because it is not suited to others' (ibid.).

Another basic feature of Frege's function theory is the idea that the meaning of a complex expression is a function of the meanings of the component expressions that make it up, or what is generally called the compositionality law of meaning. Depending on what is meant by 'meaning', this law appears to be violated in natural language by contexts involving modal and intensional verbs, including in particular those used to ascribe knowledge, belief or desire (or what are generally called prepositional attitudes) to someone. This led Frege to distinguish between the sense *(Sinn)* and denotation *(Bedeutung)*—or what others call the intension and extension—of an expression, where by the sense of an expression he meant the mode by which it presents its denotation. The senses, or intensions, of 'the morning star' and 'the evening star', for example, are different even though their denotation, or extension, is the same (namely, the planet Venus). Frege called the sense of a sentence a thought *(Gedanke),* by which he meant a proposition (as an abstract object) and not a mental episode of thinking. The denotation, or extension, of a sentence he took to be a truth-value, i.e. either the true or the false. As applied to denotations (extensions), the compositionality law then stipulates that the denotation (extension) of a sentence (i.e. its truth-value) is a function of the denotations (extensions) of the expressions that make it up; and as applied to senses (intensions) the law stipulates that the sense (intension) of a sentence, i.e. the thought (proposition) it expresses, is a function of the senses of those same component expressions. Thus because 'the morning star' and 'the evening star' have the same denotation (namely, the planet Venus) but different senses, the sentences 'The morning star is not the evening star' and 'The morning star is not the morning star' have the same truth-value (namely, the false) as their denotations but express different thoughts as their senses.

In applying his doubly aspected notion of meaning to indirect discourse—i.e. to the kinds of linguistic contexts in which a sentential phrase occurs as the grammatical object of an intensional verb for a prepositional attitude—Frege maintained that the denotation of the embedded sentence is not the denotation it has in direct discourse but its sense instead. In this way we can consistently maintain the compositionality law for meaning, whether taken extensionally or intensionally, and also explain how we can ascribe to someone the (consistent) belief that the morning star is not the evening star without thereby also ascribing to that person the (inconsistent) belief that the morning star is not the morning star. For the truth-value

(denotation) of a sentence such as 'Ronald believes that the morning star is not the evening star' is then a function not of the denotation of 'The morning star is not the evening star'—which, as noted, is the same as the denotation of 'The morning star is not the morning star'—but of its sense instead, which is different from the sense of 'The morning star is not the morning star.'

THE THEORY OF LOGICAL TYPES

Although Frege laid the foundation for a theory of meaning with his distinction between the sense and denotation of expressions, he did not formally represent the distinction in his own concept-script or theory of logical form. His primary interest in developing his concept-script was to provide a logical foundation for arithmetic, and for that purpose he thought he needed only an extensional language, i.e. one for which the compositionality law could be restricted to extensions without any regard at all for senses or intensions (or those aspects of natural language, such as indirect discourse, that call for an intensional analysis).

Frege's insight about arithmetic was that the natural numbers are first and foremost the numbers we use in counting things. He was the first to see in this regard that the natural numbers are based ultimately on our use of numerical quantifier phrases to state that a certain number of objects fall under a given first-level concept. Thus, for example, in stating that there are 12 Apostles, or that there is i moon (of the earth), or that there are 9 planets (of the solar system), etc., we are in effect stating that the concepts *being an Apostle,* or *being a moon,* or *being a planet,* etc., have 12, or 1, or 9, etc., instances, respectively. Numerical concepts, in other words, are the second-level concepts corresponding to such quantifier phrases as 'There are *n* many objects *x* such that…*x*…', where '…*x*…' stands for a first-level concept.

The real philosophical problem about arithmetic, according to Frege, is to explain how conceptually we are able to move from numerical second-level concepts within which first-level concepts fall (i.e. from the concepts that numerical quantifier phrases stand for) to the natural numbers of arithmetic as denoted by numerals or other singular terms (i.e. to the natural numbers as objects that fall under first-level concepts), as represented in such statements as 'Two is a prime' and , as well as to such statements as 'The number of Apostles is 12', 'The number of moons is 1', and 'The number of planets is 9'.

It was for this purpose that Frege extended his concept-script to include a device for the representation of the extension of a concept (cf. Frege [2.19]). This device, which amounts to using the *spiritus lenis* (the comma sign over a letter) as a variable-binding abstraction operator, transforms an open sentential formula (i.e. a formula containing a free variable) into an abstract singular term that denotes the extension of the concept represented by that open formula. Thus, by applying the *spiritus lenis* to a symbolic formula *'F(x)',* we obtain the abstract singular term , which is taken to denote the extension of the concept *F,* i.e. the class of things that are *F*. (A comparable device in set theory is the use of braces and a colon to transform a formula *'F(x)'* into a singular term *'{x:F(x)}'*.)

It is noteworthy that the application of this device, according to Frege, amounts to a formal counterpart of the process of nominalization in natural language, i.e. the process whereby a (simple or complex) predicate expression could be transformed into an abstract singular term—but which, in ordinary language, is usually taken to denote the content (or intension) of the concept that the predicate expression stands for and not the extension of that concept. Thus, for instance, the simple predicate 'wise' (or the phrase 'is wise'), as used, for example, in 'Socrates is wise', can be nominalized and transformed into the abstract singular term 'wisdom' (or the gerund, 'being wise'), as used in 'Wisdom is a virtue' (or 'Being wise is a virtue'). Similarly, 'triangular' and 'equals' can be nominalized into 'triangularity' and 'equality' (or into 'being triangular' and 'being equal', as well as into a singular term beginning with an appositional phrase, such as 'the concept (of) being triangular' and 'the concept (of) being equal', etc.). In general, the process of

nominalization is effected in English through the use of gerunds and infinitive phrases, as well as the addition of such suffixes as '-ity' and '-ness'. This process, as we have said, transforms a predicate expression (which stands for a concept in the traditional sense of a universal as a predicable entity) into an abstract singular term, which in ordinary language is normally taken to denote the content (or intension) of the concept that the predicate otherwise stands for.

Frege's reason for interpreting a nominalized predicate as denoting the extension of the concept that the predicate otherwise stands for in its role as a predicate was primarily because he took his concept-script to be a strictly extensional language. Indeed, one of his basic laws of logic—namely (Vb), according to which the nominalizations of predicate expressions that stand for co-extensive concepts denote the same object—amounts to a principle of extensionality, which, formally, can be stated for monadic predicates as follows:

$$\forall x[F(x) \longleftrightarrow G(x)] \rightarrow \grave{x}\, F(x) = \grave{x}\, G(x).$$

Thus, because of his commitment to an extensional concept-script, there was no real point, according to Frege, to distinguish a predicate nominalization of the form 'the concept *F*' (i.e. as preceded by the appositional phrase 'the concept') from the somewhat longer abstract singular term of the form 'the extension of the concept *F*', the issue being one only of 'expediency' (cf. Frege [2.21], 106, and Cocchiarella [2.15], chapter 2).

It was by means of the nominalizing transformation of a predicate expression into an abstract singular term that Frege proposed to explain 'the miracle of number', i.e. the existence of numbers as objects, denoted by numerals and other singular terms, that are somehow derived from, or correlated with, the second-level concepts that numerical-quantifier phrases stand for. For in addition to correlating first-level concepts with their extensions as represented by such a transformation, Frege also correlated second-level concepts with first-level concepts, and, in effect, thereby correlated second-level concepts with the extensions of those first-level concepts—and it was these extensions as abstract objects that Frege took the natural numbers of arithmetic to be. In other words, by a double correlation of second-level concepts with first-level concepts and first-level concepts with their extensions, Frege showed how numbers as the second-level concepts that numerical-quantifier phrases stand for can be correlated with numbers as objects (cf. Cocchiarella [2.17], section 4).

Although we cannot go into the details of Frege's brilliant and insightful analysis of the natural numbers here, it is important to note how the notion of a hierarchy of concepts is implicit in that analysis— albeit a hierarchy that can be reflected downwards onto the level of objects through Frege's correlation of second-level concepts with first-level concepts and the latter with their extensions through a process corresponding to the nominalization of predicate phrases in natural language. It was this hierarchy, or reinterpretation of it, that became the basis of the theory of logical types that was developed later by Bertrand Russell (1872–1970) as a way to avoid Russell's famous paradox—a paradox that led to a contradiction in the extended version of Frege's concept-script.

Russell's paradox involves the very mechanism of nominalization that Frege represented in his concept-script by means of the smooth-breathing abstraction operator. For the paradox applies to an abstract singular term (such as 'the concept *F*') regardless whether that term is understood to denote the extension or the intension of a concept— where, by the intension of a concept, Russell (who took concepts to be intensional entities) understood just the concept itself. That is why Russell's paradox may be formulated either in terms of the class of those classes that are not members of themselves, or in terms of the concept of being a concept that does not fall under itself. Thus in regard to the concept of being a concept that does not fall under itself, Russell argued that either this concept falls under itself or it does not fall under itself; but if it falls under itself, then, by definition of that very concept itself, it does not fall under itself; and if it does not

fall under itself, then, again by definition, it does fall under itself, from which the contradiction that it both falls under itself and does not fall under itself follows.

Russell discovered his paradox some time around the turn of the century, and he then spent a number of years attempting a variety of solutions until he settled upon the doctrine of logical types. As described by Russell, this doctrine purports to set limits on what is meaningful or significant even in natural language, and for that reason, not without some justification, it has been strongly criticized. Nevertheless, in one form or another, the doctrine of logical types has been the mainstay of much of the formal work done in the philosophy of language—although today there are type-free alternatives, such as those developed by Cocchiarella (cf. Cocchiarella [2.15], chapter 2), that remain faithful to Frege's, and even Russell's, original insights.

As a source for insight into the logical structure of language, Russell's theory of logical types adds nothing new to what is already represented in Frege's concept-script. Both contain all the logical connectives for negation, conjunction, disjunction, etc., corresponding to the operations of Boolean algebra, and Russell adopted Frege's function theory for the elementary forms of predication—though, as noted, he did not interpret concepts extensionally as functions from objects to truth-values (the way Frege did) but rather intensionally as functions from objects to propositions, for which reason he also called concepts prepositional functions. Russell also recognized the importance of Frege's development of the logic of quantifiers, which, following Frege, he allowed to reach into the positions of predicate expressions as well as into the positions for singular terms—i.e. Russell followed Frege in allowing quantifiers to apply to expressions for functions as well as to expressions for arguments. Finally, Russell also followed Frege in allowing predicate expressions to be nominalized and occur as abstract singular terms—though instead of using Frege's smooth-breathing abstraction operator as a formal device for transforming a function-expression into an abstract singular term, Russell used his cap-notation, '^', as a variable-binding operator that transforms a function-expression (or open formula) *(x)* to an argument-expression, i.e. a singular term, . The main difference between them in this regard is that whereas for Frege such an abstract singular term denotes the extension of the concept represented by the open formula to which it is applied, Russell took it to denote the concept itself as a single entity. Accordingly, in respect to these factors—namely, (1) basic logical forms of predication (as represented by the function-argument notation), (2) prepositional connectives (corresponding to the operations of Boolean algebra), (3) quantifiers that reach into predicate as well as subject (or argument) positions and (4) a device for nominalizing (complex or simple) predicate expressions and transforming them into abstract singular terms— Russell really did not add any new insights to the essentials of what constitutes a theory of logical form according to Frege.

What Russell did do, as a way to avoid his paradox, was divide the predicate expressions (and their corresponding abstract singular terms) of Frege's second-order logic with nominalized predicates as abstract singular terms into a hierarchy of different types, and then he imposed the grammatical constraint that nominalized predicates can occur as argument- or subject-expressions only of predicates of higher types —thereby ruling out as grammatically meaningless an expression of the form , as well as its negation, , which purports to indicate that the concept denoted by does not fall under itself, which is just the kind of expression needed to generate Russell's paradox. (Note: Russell's division of predicates actually involves two hierarchies, one a 'vertical' hierarchy corresponding to Frege's levels of concepts, and the other a 'horizontal' hierarchy corresponding to a ramification of all the concepts on a given level. The *simple* theory of types, which is all that is needed to avoid Russell's paradox, represents only the first hierarchy, whereas the *ramified* theory of types represents both.)

These grammatical constraints are undesirable, it should be emphasized, because they exclude as meaningless many expressions that are not only grammatically correct in natural language but also

intuitively meaningful (and that sometimes even result in true sentences). Fortunately, it turns out, the logical insights behind these constraints can be retained without imposing the constraints as conditions of grammatical correctness. In fact, as shown by Cocchiarella, those logical insights can be retained—and Russell's paradox avoided—in a type-free second-order logic with nominalized predicates as abstract singular terms of essentially just the sort originally conceived by Frege (cp. Cocchiarella [2.15], chapter 2).

RADICAL EMPIRICISM AND THE LOGICAL CONSTRUCTION OF THE WORLD

Russell took his theory of types to be the framework of 'a logically perfect language', by which he meant a language that would show at a glance the logical structure of the facts that are described by its means (cp. Russell [2.35]). Such a language, according to Russell, 'would be one in which everything that we might wish to say in the way of propositions that are intelligible to us, could be said, and in which, further, structure would always be made explicit' (Russell [2.36], 165). All that needs to be added to the theory of logical types to be such a language, Russell maintained, is a vocabulary of (non-logical) descriptive constants that correspond to the meaningful words and phrases of natural science and ordinary language (Russell [2.35], 58ff.). The constants of pure mathematics, unlike those of the natural sciences, do not need to be added to the framework because they, according to Russell, are all definable in purely logical terms within the framework itself. Knowledge of pure mathematics is explainable, in other words, as logical knowledge—a view known as logicism—and, in particular, as knowledge of the propositions that are provable in the theory of logical types independently of any vocabulary of descriptive constants.

Despite his logicism regarding mathematics, Russell was a radical empiricist as far as our knowledge of physical or concrete existence was concerned. All our empirical knowledge of the world, he maintained, must be reducible to our knowledge of what is given in experience, by which he meant that it must be constructible within the framework of the theory of logical types from the lowest level of objects, which he assumed to be events corresponding to our sensory experience. It was by means of logical constructions within this framework that Russell proposed to bridge the gulf between the world of physical science and the world of sense, and he was guided in this regard by 'the maxim which inspires all scientific philosophizing, namely "Ockham's razor": *Entities are not to be multiplied without necessity*. In other words, in dealing with any subject-matter, find out what entities are undeniably involved, and state everything in terms of these entities' (Russell [2.34], 112). Thus, because sense data are the entities that are 'undeniably involved' in all of our empirical knowledge according to Russell, 'the only justification possible' for such knowledge 'must be one which exhibits matter as a logical construction from sense-data' (ibid., 106).

Though Russell gave a number of examples of how such a construction might be given, it was Rudolf Carnap (1891–1970) who, using nothing more than the framework of the simple theory of logical types (and a certain amount of empirical science, such as gestalt psychology, about the structure of experience), gave the most detailed analysis indicating how we might reconstruct all our knowledge of the world in terms of what is given in experience (cp. Carnap [2.5]). This meant in particular that all the concepts of science could be analysed and reduced to certain basic concepts that apply to the content of what is given in experience. One of the important patterns for such an analysis is known today as *definition by abstraction,* whereby, relative to a given equivalence relation (i.e. a relation that is reflexive, symmetric and transitive), certain concepts are identified with (or represented by) the equivalence classes that are generated by that equivalence relation. This pattern was used by Frege and Russell in the analysis of the natural numbers (as based on the equivalence relation of equinumerosity, or one-one correspondence), and was then used again in the analysis of the negative and positive integers, the rational numbers, the real numbers and even the imaginary numbers. Carnap, who took definition by abstraction as indicative of the 'proper analysis' of a concept,

generalized the pattern into a form that he called ‘quasi analysis’ (but which, he acknowledged, really amounted to a form of synthesis), which could be based on relations of partial similarity instead of full similarity, i.e. on relations that amount to something less than an equivalence relation. The concepts definable in terms of a quasi-analysis specify in what respect things (especially items of experience) that stand to one another in a relation of partial similarity agree, i.e. the respect in which they are in part, but not fully, similar (cp. Carnap [2.5], sections 71–4). In this way Carnap was able to define the various sense modalities (as classes of qualities that intuitively belong to the same sense modality, where concepts for sense qualities are definable in terms of a partial similarity between elementary experiences), including in particular the visual sense and colour concepts (as determined by the three-dimensional ordering relation of the colour solid).

Using the various sense modalities, Carnap went on to construct the four-dimensional space-time world of perceptual objects, which, with all its various sense qualities, ‘has only provisional validity’, and which, for that reason, ‘must give way to the strictly unambiguous but completely quality-free world of physics’ (Carnap [2.5], 207). We cannot go into the details of Carnap’s ‘constructional definitions’ here, but we should note that all that Carnap meant by a logical analysis by means of such definitions was translatability into his constructional language—i.e. into an applied form of the simple theory of logical types as based on a primitive descriptive constant for a certain relation of partial similarity between elementary experiences. Such a translation need not, and in general did not, preserve synonymy, nor did it in any sense amount to an ontological reduction of ordinary physical objects to the sensory objects of experience. What it did preserve, according to Carnap, was a material equivalence (i.e. an equivalence of truth-value) between the sentences of ordinary language, or of a scientific theory, and the sentences of the constructional language. (Note: the same claim is made in Goodman [2.22] for an alternative constructional language based on nominalist principles that are opposed to the predicate quantifiers of type theory.)

THE LOGICAL EMPIRICIST THEORY OF MEANING

Carnap was a founding member of the Vienna Circle, a group of philosophers and scientists who, following Leibniz, sought to unify all the different sciences within a common linguistic framework based on modern symbolic logic (which, for them, meant the theory of logical types). The primary method of the Circle was logical analysis, which they took to involve the task of specifying the meaning of all scientific statements and concepts in a precise way and of thereby excluding as meaningless all the statements of traditional metaphysics. Metaphysical theories, they claimed, were too narrowly tied to ordinary, natural language, which uses the substantive not only for things, but for qualities, relations, processes, etc., as well, and thereby ‘misleads one into a thing-like conception of functional concepts’ (Hahn, Neurath and Carnap [2.24], 9). Curiously, they did not seem to realize (at least initially) that the theory of logical types itself formally incorporates a ‘thing-like conception of functional concepts’ through its incorporation of a device for nominalization (such as Russell’s cap-operator), thereby allowing expressions for prepositional functions to be nominalized and occur as argument- or subject-expressions of expressions for yet higher-order types of prepositional functions. Indeed, the reduction of mathematics to logic, which was a central part of their view, is not possible without some such device corresponding to the process of nominalization of predicate expressions in natural language (cp. Cocchiarella [2.15], chapter 5).

Carnap and other members of the Vienna Circle adopted what is sometimes called *the linguistic doctrine of the a priori,* according to which a declarative sentence can be known to be true (or false) *a priori* if, and only if, the sentence is analytically true (or false, respectively). Here, by analytic truth (or falsehood) they meant truth (or falsehood) by linguistic convention, i.e. in virtue of the meanings of the words that make up

the sentence. This doctrine amounts to a linguistic theory of the *a priori* and is intended as logical empiricism's answer to the Kantian question of how there can be *a priori* knowledge. Logic and mathematics are knowable *a priori,* according to such logical empiricists, because all logical and mathematical truths are analytic truths.

A basic principle of empiricism is that what is true, but not analytically true, is knowable only on the basis of experience. This led to a logical empiricist theory of meaning, according to which a (declarative) sentence is cognitively meaningful (in the sense that it can be said to be true or false) if, and only if, either it is analytically true or false, or its truth or falsity is capable of being tested by experiential evidence (cp. Hempel [2.25], [2.26]). Initially, the idea of being capable of being tested by experiential evidence was explained by early logical empiricists in terms of the notion of complete verification in principle, and for that reason their theory came to be called *the verifiability theory of meaning*. On this account, a declarative sentence is said to be empirically meaningful if, and only if, it is not analytic and follows logically from some finite, logically consistent class of observation sentences—where by an observation sentence is meant a sentence that asserts or denies that an object (or group of objects) has some particular observable characteristic. (The finitude of the class means that complete verification is possible after a finite number of observations.) This explanation fails for sentences of the form 'All *F* are *G*', however, even where *'F'* and *'G'* stand for observable characteristics—unless it is already empirically knowable that the number of things that are *F*'s is finite. Such a sentence is completely falsifiable, however, by simply observing one thing that is *F* but not G, and, for that reason, one might consider redefining empirical meaning in terms of complete falsifiability in principle instead. But then, by the same argument, negations of sentences of the form 'All *F* are *G*' would not be empirically meaningful. Other attempts to explicate the idea of empirical meaning also failed for similar reasons. (Not everyone agrees that all these attempts have failed, however; for example, see Rynin [2.37].)

One of the more interesting proposals in this direction involves the notion of a logically correct empiricist language, by which, generally, was meant an applied form of the simple theory of types. The only (non-logical) descriptive constants of such a theory would be those that stand for observable characteristics of things, i.e. so-called observation predicates, where by an observable characteristic was meant an observable property of ordinary macro-physical objects and not the kind of characteristic that applies only to sense data. Such an empiricist language would involve only perspicuous logical forms by which the truth-conditions of any of its sentences could be determined in an exact way, and, in addition, it would embody the linguistic theory of the *a priori,* i.e. the doctrine that all and only analytically true (false) sentences can be known to be true (false) *a priori*. An additional constraint was that the language must be extensional (i.e. that Frege's compositionality principle must be valid when restricted to the extensions of expressions), which meant that the language could include no intensional operators (such as that for necessity) or counterparts of intensional verbs. A (declarative) sentence of natural language, or of a scientific theory, was then said to be cognitively meaningful if, and only if, it is translatable (preserving only material equivalence) into such a logically correct empiricist language.

The idea of such a proposal is that a logically correct empiricist language would give us control over vocabulary (by excluding nonsensical words) as well as over logical syntax, i.e. logical grammar and validity. In this regard the proposal is like Leibniz's programme for a *characteristica universalis,* except that Leibniz did not accept the empiricist principle that all concepts must be analysable in terms of the observable characteristics of things. Thus, on the proposal as initially formulated, a predicate expression of natural language will be empirically meaningful if, and only if, a formal, symbolic counterpart of it is definable in terms of the observation predicates of a logically correct empiricist language, and therefore, because both a sentence of the form 'All *F* are *G*' and its negation, where *'F'* and *'G'*, are definable in the

language in terms of observation predicates, are well formed in such a language, they will both be taken as empirically meaningful (thereby by-passing the problem of restricting ourselves to a finite number of observations).

The trouble with this proposal is that it is still too restrictive; for there are too many predicate expressions of both scientific and ordinary discourse that are clearly meaningful to us but that cannot be explicitly defined in terms of observation predicates. In particular, predicate expressions that stand for dispositions, or powers, or capacities, or tendencies, etc., cannot be defined in such a language unless we were to add to it, for instance, modal operators for causal necessity (or possibility) by which law-like counter-factual conditionals might be formulated. Such operators, however, generate non-extensional contexts and violate the restriction to an extensional language that logical empiricism demands. For this reason, Carnap suggested that the original proposal be modified so that dispositional predicates could be introduced into a logically correct empiricist language by a pattern of quasi-definitions (which he called *reduction sentences*) that get at some of the content of counter-factual conditionals but without requiring the introduction of intensional operators (cf. Carnap [2.7]). This way of extending a logically correct empiricist language vastly extends the range of significance it gives to the sentences of ordinary and scientific discourse, but, unfortunately, it still fails to account for most of the theoretical predicates of modern science that have to do with the micro-physical world—not to mention the intensional verbs of natural language that stand for the various prepositional attitudes that are studied in cognitive science. Some attempts were made to overcome these problems (see Carnap [2.11] and [2.12] for his later analyses of theoretical predicates), but, at least in the case of the intensional verbs of natural language, they have not in general succeeded.

SEMIOTIC AND THE TRINITY OF SYNTAX, SEMANTICS AND PRAGMATICS

In time Carnap did come to think that an explication of logical necessity could be given, but this involved a new kind of approach to language, namely, a semantical approach. Earlier, in Carnap [2.6], he had adapted certain metamathematical techniques and ideas of the mathematician David Hilbert (1862–1943) that he applied to the general analysis of the syntax of formal languages. In that work Carnap distinguished between the formal language whose logical syntax we want to study, which he called an *object-language,* and the language in which we carry out that study, which he called the *meta-language.* Originally, the latter was a *syntactical* metalanguage because it dealt only with the syntactical aspects of the object-language, such as its rules of formation (defining the well-formed expressions of the different logico-grammatical categories of the language) and its rules of transformation (defining the conditions under which sentences follow validly from other sentences of the language). On his later approach, however, Carnap extended the meta-language to include expressions that stand for semantical relations, such as the various *designation* relations that hold between the expressions of an object-language and the entities they stand for or designate. The primary goal of such a meta-language is to define the semantic notions of truth and falsehood—and the notions of logical truth and falsehood as well—as applied to the sentences of the object-language. The meaning of a sentence of such a language was then to be given in terms of its truth-conditions, i.e. the conditions under which the sentence can be said to be true or false, respectively (cp. Carnap [2.8], section 7).

The idea that the meaning of a sentence is its truth-conditions was emphasized earlier by Ludwig Wittgenstein (1889–1951) in his *Tractatus Logico-Philosophicus* ([2.47], 4.024, 4.46), which describes a metaphysical framework known as logical atomism. The elements of logical atomism are atomic states of affairs, each of which is logically independent of the rest, and the totality of which make up logical space. Different possible worlds, including the actual world, consist of all the atomic states of affairs that obtain in those worlds. It was essentially this framework that Carnap adopted in developing his semantics for logical

necessity. For by associating an atomic sentence with each atomic state of affairs, the different possible worlds could be described in terms of certain classes of atomic sentences, or their negations, that Carnap called *state descriptions*. That is, a state description for the formal object-language is a class of atomic sentences, or their negations, such that for every atomic sentence of the language either it or its negation, but not both, is in the class. Truth in a possible world is then definable for all the sentences of the language in terms of the atomic sentences, or their negations, that are in the state description corresponding to that possible world; and logical truth is definable as truth in every logically possible world.

With the notion of a logically possible world at hand, Carnap realized, we are able to define the truth-conditions for sentences of the form 'It is (logically) necessary that…' (where '…' stands for a sentential clause) in terms of a strictly extensional meta-language. In this way, Carnap maintained, we may give up the thesis of extensionality for the object-language while retaining it for the meta-language, which is now the language that is of primary importance for philosophy. Thus, where is a sentential operator corresponding to the phrase 'it is (logically) necessary that', Carnap's criterion for the truth-conditions (and thereby the meaning) of an object-language sentence of the form is that is to be true (in a possible world) if, and only if, is logically true (i.e. if, and only if, is true in all logically possible worlds) (cf. Carnap [2.9]). (For a fuller discussion of how logical atomism provides a paradigmatic semantics for logical necessity, see Cocchiarella [2.15], chapters 6 and 7.)

The idea of an extensional semantical meta-language in which the notion of semantic truth (and falsehood) can be defined for the sentences of a formal object-language was also the goal, in the early 1930s, of a number of Polish logicians, including especially Alfred Tarski (1902–83). Tarski succeeded in defining such a notion in terms of what today is called *model theory,* where by a model is meant a set-theoretic construction that amounts to a counterpart to the notion of a possible world (cp. Tarski [2.43] and [2.42]). The language of set theory (which is an extensional language *par excellence*) has today become the principal framework within which most of the work of model theory and formal semantics is carried out, and different kinds of model-theoretic constructions have been used to give the truth-conditions for a variety of modal operators in addition to that for logical necessity, and even for some operators that stand for prepositional attitudes as well. As a branch of set theory, in other words, model theory has been developed and applied not just to a number of extensional mathematical languages but to intensional fragments of natural language as well (cp. Addison, Henkin and Tarski [2.1]; Partee, ter Meulen and Wall [2.32]). It should be emphasized, however, that set theory, the general framework within which model theory has been developed, is primarily a mathematical framework, and in that regard the language of set theory is not a *lingua philosophica* in the sense originally intended by Leibniz, or as later developed by Frege, Russell, Carnap and others. (See Cocchiarella [2.16] for a more detailed discussion of this issue, and especially of the conceptual priority of a formal theory of predication over a formal theory of membership in a set or class.)

In addition to syntax (which studies the logico-grammatical rules of formation and transformation of an object-language) and semantics (which studies the different designation relations between the well-formed expressions of an object-language and the entities designated by those expressions, including especially the truth-conditions of the sentences of that object-language), there are also relations between the expressions of an object-language and the contexts in which those expressions are used, including especially the people who use the language in those contexts. The study of these kinds of relations is generally called *pragmatics,* and all three kinds of study together, i.e. syntax, semantics and pragmatics, is called *semiotic* (cp. Morris [2.30]). For Carnap, it should be noted, there can be only an empirical or descriptive pragmatics and not a pure (or analytic) pragmatics the way there can be a pure logical syntax and a pure logical semantics. This is because for Carnap the relation of designation in pragmatics is a psychological concept, and psychology is

an empirical, descriptive science and not an analytic science. Thus, because the task for philosophy now is semiotical analysis (and not just syntactical or semantical analysis), the proper framework for philosophy, according to Carnap, is no longer pure, logical syntax (as Carnap had assumed it to be in 1936)—i.e. it is no longer a pure syntactical meta-language in which our goal is to study the logical syntax of different object languages— nor is it a pure logical semantics—that is, a pure, semantical metalanguage by which we can study the notions of truth and logical truth and the relation of designation in general. Rather, the proper framework for philosophy now is one in which we can study 'the semiotical structure of the language of science, including the theoretical part of everyday language'. It is a framework in which we can engage not only in logical analysis (as part of pure semantics if meanings are involved, or as part of pure logical syntax if the analysis is purely formal) but also in the analysis of the problems of gaining and communicating knowledge, which, according to Carnap ([2.8], 250), properly belongs to pragmatics.

PRAGMATICS FROM A LOGICAL POINT OF VIEW

The shift to pragmatics, i.e. to a study of the contexts of use of ordinary, natural language, was already made by some logical empiricists. Otto Neurath (1882–1945), for example, maintained that although the unification of scientific language is one of the goals of the movement, nevertheless 'one must test all theories by means of the language of daily life', and that, in particular, one must systematically analyse the 'correlations between the calculus of theories and the language of daily life' (Neurath [2.31], 19). Neurath, however, did not himself make any investigations of how 'the language of daily life' could be systematically correlated with the formal, ideal language of logical empiricism that would serve as a unified language for science. Indeed, instead of studying those correlations, a new generation of philosophers of language rejected the formal language approach altogether and insisted on studying only the functioning of ordinary language in daily life as an alternative to the formally oriented approach (cf. Wittgenstein [2.48]). It was argued, for example, that 'the concepts used in non-scientific kinds of discourse could not literally be *replaced* by scientific concepts serving just the same purposes; that the language of science could not in this way *supplant* the language of the drawing-room, the kitchen, the law courts and the novel' (Strawson [2.40], 505).

It is noteworthy that the response of the formally oriented philosophers of language to this sort of criticism was not to ignore ordinary language but to turn to a formal analysis of its various context-dependent features. One feature in particular that was taken as an object of study was the use of tenses to distinguish our references to events in the past, the present and the future in any given context of use of language. Arthur Prior (1914–69) suggested that this contextual feature of our speech acts could be formally represented by tense operators, such as and , corresponding to the adverbial phrases 'it was the case that' and 'it will be the case that', respectively. (The simple present tense was assumed to be built into the form of an atomic formula, which could then be modified by the application of the past- and future-tense operators.) By means of these operators, formal counterparts for the adverbial phrases 'it always was the case that' and 'it always will be the case that' are definable as, and , respectively (where '~', as already noted, is the negation sign and represents the adverbial phrase 'it is not the case that'). As is indicated in Prior [2.33], different tense logics, corresponding to our different conceptions of the structure of time, can be formulated in terms of these tense operators.

Some examples of laws of tense logic are () and (), corresponding to the theses that if a sentence is (now) the case, then it always was the case that it was (then) going to be the case, and it always will be the case that it was the case (prior to then). Similarly, () and (), with iterated applications of the same tense operators, represent the theses that what had been the case (prior to some time in the past) simply was the

case, and what will be the case relative to some future time simply will be the case. (Note that represents the past-perfect tense of English and that represents the future-perfect tense.) The assumption that the structure of time in the past is dense (i.e. that between any two past moments there is another past moment) is represented by ( ); and that it is dense in the future as well is represented by (). The following two laws (where 'V' represents inclusive disjunction), defended by Cocchiarella in his tense logic but rejected by Prior (cf. Prior [2.33], chapter 3, section 6), assume that events in the past (or future, respectively) of the local time of any context are connected (i.e. that they either occurred at the same time or that one preceded the other):

$$\mathscr{P}\phi \,\&\, \mathscr{P}\psi \rightarrow \mathscr{P}(\phi \,\&\, \psi) \vee \mathscr{P}(\phi \,\&\, \mathscr{P}\psi) \vee \mathscr{P}(\psi \,\&\, \mathscr{P}\phi)$$
$$\mathscr{F}\phi \,\&\, \mathscr{F}\psi \rightarrow \mathscr{F}(\phi \,\&\, \psi) \vee \mathscr{F}(\phi \,\&\, \mathscr{F}\psi) \vee \mathscr{F}(\psi \,\&\, \mathscr{F}\phi).$$

Arthur Prior formulated a number of different tense logics, as we have said, corresponding to different conceptions of the structure of time. He applied those logics to different philosophical theses, including in particular J.M.E.McTaggart's argument against the reality of time (cf. Prior [2.33], chapter 1). Prior had no doubts about the reality of time in the present (with a past whose ontological status is now settled), but he did have his doubts about the reality of the future and the meaning of future contingent statements (as they occur, for instance, in Aristotle's famous sea-battle argument), and some of his logics make important formal contributions of different ways to represent the openness (or coming yet to be) of the future. Prior also showed how certain views of antiquity about the temporal nature of necessity—namely, Diodorus' view that what is possible is what is or will be the case, and Aristotle's view that what is necessary is what always has been, is and always will be the case—can be formally represented in tense logic.

In addition to doubts about the ontological status of the future, Prior also maintained that reference to past and future objects is meaningful only in so far as such reference (as it is represented by existential quantifier phrases, , , etc.) occurs within the context of the past and future tense operators. It should be emphasized that the issue here is not with the truth of statements about past or future objects but with the meaningfulness of those statements. The sentence 'There did exist someone before whom no one else existed', for example, is clearly meaningful and can be formally represented by ' ', where the reference to a past person (with the predicate *'H'* representing the verb phrase 'is a person') is within the scope of the past-tense operator. In this way an ontological commitment to a past person before whom no other person existed is said to be at best only indirect and weaker than a commitment in which an existential quantifier phrase applies to the time of the context of use and does not occur within the scope of a tense operator (where it would apply to a past or future time).

This solution does not work for sentences such as 'There did exist someone who is an ancestor of everyone now existing', however, which are also clearly meaningful (regardless whether or not they are also true). In this sentence the quantifier phrase 'everyone now existing', which refers only to people existing at the moment of speech, is within the scope of (or dominated by) the first quantifier phrase, 'there did exist someone', which refers to a past person who does not (or at least who may not) exist at the moment of speech. The formula' ', where *'R'* stands for the ancestor relation, will not do as an analysis because it represents the different English sentence, 'There did exist someone who was an ancestor of everyone *then* existing'; and the formula ' ' will not do because it represents the different English sentence, 'Everyone now existing had an ancestor', with the order of dominance between the two quantifier phrases reversed. What this shows is that direct quantification over past objects (and over future objects as well), which is something that we commonly do in natural language, cannot be accounted for by indirect forms of quantification, i.e. by quantifier phrases occurring only within the scope of the past (or future) tense operator. Some other sort of formal device is needed —e.g. primitive quantifiers that refer directly to past (or future) objects, or a *now*-operator that semantically relates formulas occurring within the scope of a

tense operator to the moment of speech (and perhaps a *then*-operator as well that relates embedded formulas to a past, or future, moment of reference)—in order to adequately represent these kinds of sentences of natural language (cp. Cocchiarella [2.14]). In that case, however, the nature of our ontological commitment to past (and future) objects cannot be as narrowly interpreted as Prior has maintained that it should be.

Tense logic was not the only subject in which pragmatics was formally studied. In the 1960s Richard M. Montague (1932–71) made important contributions and advances in this area. Montague showed, for example, how truth-conditions can be defined for pragmatic operators in general, including symbols for demonstrative and personal pronouns, once we replace the notion of a possible world (or model) by the notion of a context of use (or what Montague also called an *index* or *point of reference*). The set-theoretic representation of a context of use need not deal with all the complexities of a real context, but only with those aspects that are relevant to the linguistic expressions in question—such as, for example, the local time of the context (for the truth-conditions of the tense operators), who is speaking (as the referent the first-person pronouns), who is being spoken to (as the referent of the second-person personal pronouns), the objects that are indicated by the speaker (as the referents of demonstrative pronouns), etc.

Montague showed that even though the truth-value (or extension) of a sentence in a given context of use (or point of reference) is not in general a simple recursive function of the extensions of the component expressions of that sentence in that context (or at least not in the case of sentences containing pragmatic operators that shift the point of reference, as do the tense operators), nevertheless the intension of the sentence is a recursive function of the intensions of its parts. Thus, because the intension of an expression will determine its extension at a given point of reference, a recursive definition of truth for the formulas of a formal pragmatic language is available in terms of the intensions of those formulas and their parts. Following Carnap [2.10], Montague represented the intension of an expression of a given type as a function from the possible contexts of use (or indices, or points of reference) to the extensions that the expression has in those contexts (cp. Montague [2.29], chapters 3 and 4). Thus, for instance, the intension of an individual constant (as the formal counterpart of a proper name) is a function from the different possible contexts of use (i.e. the contexts in which that name might be used) to the objects (i.e. extensions, if any) denoted by that individual constant; and the intension of an n-place predicate constant is a function from the different possible contexts of use to the classes of n-tuples of objects that are the extensions of that predicate in those contexts. Montague called the first kind of intension an *individual concept* and the second an n-ary *relation-in-intension,* or, where n=1, a *property*. The intension of a declarative sentence, which Montague called a *proposition,* was then represented as a function from possible contexts of use to truth-values (the Fregean extensions of sentences).

By means of this way of representing intensions, Montague was able to give a formal, set-theoretic definition of the semantic notion of truth in a context of use (or at an index or point of reference) of the sentences of a formal pragmatic language, and in terms of that notion he was then able to define the related semantic notions of *logical truth* and *logical consequence* in the sense of general pragmatics. In this way, the logic of general pragmatics became a part of pure, logical semantics.

INTENSIONAL LOGIC

Pragmatic operators, on Montague's approach, amount to higher-order properties and relations (in intension) of propositions, which means that pragmatic operators can be represented by the higher-order predicates of an intensionalized type theory—e.g. a type theory in which a modal operator for necessity has been added. Such a higher-order logic is generally what is meant by intensional logic, and it gives further justification for the claim that pragmatics is part of semantics. Montague himself formulated two such

intensional logics, one corresponding to a Russellian perspective in which the intension-extension (or sense-denotation) distinction is not fundamental, and the other corresponding to a Fregean perspective in which it is. It is the latter that came to be of central importance in what is now called Montague grammar.

Montague applied his first intensional logic to a variety of philosophical puzzles, including in particular the analysis of such entities as pains, events, tasks and obligations (cf. Montague [2.29], chapter 5). Sentences in which we purport to speak of such entities 'play a conspicuous role in philosophy, perceptual psychology, and everyday discourse', Montague observed, and 'it therefore appears desirable to investigate the nature of the entities in question, construct an exact and convenient language in which to speak of them, and analyze the pertinent notion of logical consequence' (ibid., 148). Tasks, for example, are taken by Montague to be certain two-place relations-in-intension between persons and moments, so that by the performance of a task *R* by a person *x* at a moment *t* we are taken to mean that *x* stands in the relation *R* to *t*, i.e. *R(x,t)*. Pains, and experiences in general are then taken be of the same ontological sort as tasks. Thus, for instance, 'the experience of seeing a tree is the relation-in-intension born *by x to t* just in case *x* sees a tree at *t*' (ibid., 151), and therefore for *x* to have the experience *R* at *t* is for *x* to bear the relation-in-intension *R* to *t,* i.e. *R(x,t)*. Similarly, for a person *x* to discharge or fulfil an obligation *R* at a moment *t* is just for *x* to bear the relation-in-intension *R* to *t*.

The point of the reduction of such 'dubious ontological categories' as pains, tasks and obligations to relations-in-intension, according to Montague, is that it enables us to have 'an exact language capable of naturally accommodating discourse about the dubious entities'— namely, the language of intensional logic —and therefore a language for which we have 'an intuitively satisfactory notion of logical consequence' by which we can resolve a variety of philosophical puzzles or paradoxes purportedly regarding such entities (ibid., 154). One such puzzle, for example, concerns the analysis of a sentence such as 'Jones sees a unicorn having the same height as a table actually before him', which, because it involves a visual experience of a relation between something that does not exist and something that does, has been taken by some philosophers as implying the existence of sense data (some of which are indicative of an existent object and others of which are not). On Montague's analysis, the truth of the sentence does not imply either that a unicorn exists or that sense data purportedly indicative of a unicorn exist.

In his analysis of this sentence, Montague distinguished a veridical from a non-veridical sense of 'sees' and paraphrased the latter as 'seems to see', which he analysed in terms of a relation between a person and a property (such as the property of seeing a unicorn) that the person seems to (but might not really) have. Thus, for the non-veridical sense of 'sees', Montague paraphrased 'Jones sees a unicorn' as 'Jones seems to see a unicorn', which, in terms of the relation of seeming-to-have (a property), can be formally represented as 'Seems(Jones, to see a unicorn)'. Here, the property Jones seems to (but need not really) have is denoted by the infinitive phrase 'to see a unicorn', which is the result of nominalizing the complex predicate 'see(s) a unicorn'.

As nominalized predicates, infinitive phrases can be formally represented as abstract singular terms, which means that in the case of a complex predicate phrase (such as 'see(s) a unicorn') we need a formal, variable-binding device, such as Frege's or Russell's, whereby the predicate phrase can be nominalized and transformed into an abstract singular term. Montague did not use either Frege's or Russell's devices, however, but adopted instead (at least in his later work) Alonzo Church's -operator to represent complex predicates, which, by deleting the parentheses that are formally part of a predicate, he then also used to represent the abstract singular terms that result when those complex predicates are nominalized. Thus, whereas '[*y* (Unicorn*(z)* & Sees(y,z))]( )', with the accompanying pair of parentheses for argument-expressions, represents the complex predicate phrase 'is a *y* such that *y* sees a unicorn' (where 'sees' is used in its veridical sense), the related expression '[*y* (Unicorn*(z)* & Sees*(y,z)*)]', without the accompanying pair

of parentheses, is not a predicate but an abstract singular term that represents the infinitive phrase 'to be a *y* such that *y* sees a unicorn', or, more simply, the infinitive phrase 'to see a unicorn'.

The sentence 'Jones seems to see a unicorn' can now be formally represented as 'Seems(Jones, [*y* (Unicorn*(z)* & Sees*(y,z)*)])', which, as indicated above, implies the existence neither of a unicorn nor of sense data (veridical or otherwise) indicative of a unicorn. Similarly, the sentence 'Jones sees a unicorn having the same height as a table actually before him', with 'sees' taken in its non-veridical sense, can now be formally analysed as [Table*(x)* & Before(*x*,Jones) & Seems(Jones, [*y* (Unicorn(z) & Sees*(y,z)* & Has-the-same-Height-as*(z,x)*)])], which also implies neither the existence of a unicorn nor of sense data (veridical or otherwise) indicative of a unicorn.

This kind of analysis, it should be emphasized, depends essentially on the use of circumlocution and paraphrase, which in the end Montague found unsatisfactory. This is especially so in the case of intensional verbs where, unlike the situation with a perception verb such as 'see', no distinction can be made between a veridical and a non-veridical sense of the verb. The verb 'seek', for example, is an intensional verb in that, unlike an extensional verb such as 'find', it generates a referentially opaque context. That is why the argument,

Jones seeks a unicorn; therefore, there is a unicorn

is invalid, whereas the argument,

Jones finds a unicorn; therefore there is a unicorn

is valid, even though the two otherwise appear to have the same logical form.

The difference between these two arguments can be explained in terms of Montague's first intensional logic by paraphrasing 'seeks' as 'tries to find', so that 'Jones seeks a unicorn' is analysed as 'Jones tries to find a unicorn', which, because of the infinitive phrase 'to find a unicorn', has a different logical form from 'Jones finds a unicorn'. Thus, whereas 'Jones finds a unicorn' is analysed as ' [Unicorn(*x*) & Finds (Jones,*x*)]', which does imply the existence of a unicorn, 'Jones tries to find a unicorn' is analysed as 'Tries (Jones, [*y* (Unicorn*(x)* & Finds*(y,x)*)])', which does not imply the existence of a unicorn but rather only relates Jones to the property (intension) of *being a y such that y finds a unicorn* as a property that Jones tries to, but need not really, have. Even though the above two arguments (about Jones finding a unicorn and Jones seeking a unicorn) appear to have the same logical form (in which case they would both be valid or both invalid), they are viewed on this analysis, where 'seeks' is paraphrased as 'tries to find', as really having different logical forms. In particular, whereas the second argument has the valid form,

[Unicorn*(x)* & Finds(Jones, *x*)];
therefore, Unicorn*(x)*,

the first is assumed to have the different form,

Tries(Jones, [*y* (Unicorn*(x)* & Finds*(y, x)*)]);
therefore, Unicorn*(x)*,

which is easily seen to be invalid.

The difficulty here is that although the above logical analysis explains the difference between 'Jones finds a unicorn' and 'Jones tries to find a unicorn', it still leaves unexplained the use of paraphrase in the analysis of 'Jones seeks a unicorn'. In English this sentence clearly has the same grammatical form as 'Jones finds a unicorn', and it seems reasonable to maintain that they have the same logical form as well—which leaves us with the original problem of explaining why what then appears to be the same argument form is valid with 'finds' but invalid with 'seeks'.

It was for this reason that Montague came to replace his first intensional logic, which, as indicated, corresponds to a Russellian view of higher-order logic in which the sense-denotation, or intension-extension, distinction is not fundamental, by his second intensional logic, which corresponds to a Fregean perspective in which that distinction is fundamental. Indeed, what Montague did was add an intension-forming operator '^' and an extension-forming operator '' to (Alonzo Church's formulation of) the simple theory of types (using Church's -operator), so that if is a meaningful (well-formed) expression of the new intensional logic, then both '^ ' and ' ' are also meaningful and stand for the intension (or sense) of and the extension (or denotation) of , respectively. Relative to this framework, Montague proposed that the direct object-expression (such as the quantifier phrase 'a unicorn') of any transitive verb (such as 'find' and 'seek') should be interpreted as standing not for what that expression would otherwise stand for in its occurrence as the grammatical subject of a sentence, but for the intension (or sense) of that expression instead. In the case of a quantifier phrase such as 'a unicorn', such an intension was represented by '^[*F* (Unicorn*(x)* & *F(x)*)]', which stands for the sense of *being a property that a unicorn has,* so that both 'Jones finds a unicorn' and 'Jones seeks a unicorn' are similarly analysed (ultimately) as 'Find(Jones, ^[*F* (Unicorn*(x)* & *F(x)*)])' and 'Seek(Jones, ^[*F* (Unicorn*(x)* & *F(x)*])', which means that they have essentially the same logical form after all.

All transitive verbs, on this analysis, generate an intensional or referentially opaque context when they are applied to a direct-object expression, which means that 'find' is no different from 'seek' in this regard. Where they differ is not in their logical form, but in what additional conditions apply to those verbs as meaning postulates—such as, for example, a meaning postulate that allows the intensional context generated by 'find' to be transformed into an extensional context. (An intensional expression can be transformed into an extensional expression by applying the extension-operator; and, therefore, an intensional expression of the form ^ can be transformed into ^ , which reduces simply to .) Thus, the reason why the existence of a unicorn follows from the truth of the one sentence but not from the truth of the other does not depend upon a difference in their logical form, but rather because whereas the one verb, 'find', is subject to a meaning postulate that allows for this inference, the other verb, 'seek', does not also have such a meaning postulate associated with it. (A related but different analysis in terms of active and de-activated referential concepts — where all referential concepts, including those based upon proper as well as common names, are represented by quantifier phrases—is given in Cocchiarella [2.17]. On this analysis, a de-activated referential expression, such as 'a unicorn' in both 'Jones finds a unicorn' and 'Jones seeks a unicorn', is represented by a nominalized predicate expression of the form '[*F* (Unicorn*(x)* & *F(x)*]'. Unlike Montague's analysis, however, this analysis does not depend upon the intension- and extension-operators, but only on a conceptualist view of the difference in a type-free, second-order logic with nominalized predicates as abstract singular terms between the concepts that predicates stand for in their role as predicates and the intensional objects that their nominalizations denote as abstract singular terms.)

UNIVERSAL MONTAGUE GRAMMAR

In addition to the development of an intensional logic as a new theoretical framework for philosophy, Montague also constructed a framework within set theory that he called *universal grammar* (where 'universal' was taken only in the sense of utmost generality). Such a universal grammar was designed to contain a universal syntax and a universal semantics that could be applied to natural languages as well as to formal, artificial languages. The syntax and semantics of a natural language (or at least of a significant fragment thereof), according to Montague, could be given a description (within his universal grammar) that was no less mathematically precise than could be given for the artificial languages of mathematical logicians, so that (contrary to the claims of ordinary language philosophers) natural languages were no different in this regard from formal languages.

Montague's set-theoretic description of a language L(natural or otherwise) amounts to representing L by a system (L, R), where L is a syntactically disambiguated language (i.e. in effect, an artificial construct) and R is a two-place relation of syntactical analysis that relates expressions of L with expressions of L. (R will in general be a one-many relation because it will relate a syntactically ambiguous expression of L with several different disambiguated expressions of L as alternative analyses of that expression.) The disambiguated (artificial) language L consists in part of a free algebra (generated by a set of basic phrases), a set of structural operations on strings of expressions of L, a set of syntactical rules (specifying the type of expression that results when a structural operation is applied to a string of expressions of certain given types), and a specification of the syntactic categories of L, including in particular the category of the declarative sentences of L. The family of phrases of the different syntactic categories of L can then be defined inductively in terms of the basic phrases of L, and the closure conditions determined by the syntactical rules and structural operations of L (cf. Montague [2.29], chapter 7). By way of example, Montague specifies a set of syntactic categories, structural operations and syntactic rules for a fragment of English and shows how the various phrases of that fragment can be precisely characterized in terms of certain basic phrases of those categories. He also shows how his second intensional logic can be similarly specified in strictly formal terms.

Whereas the basic aim in syntax is to characterize the various syntactical categories of expressions of a language, including in particular the category of declarative sentences, the basic aim of semantics, according to Montague, is to characterize the notion of a true declarative sentence (under an interpretation) of that language and then, in terms of that notion, the relation of logical consequence between the declarative sentences of the language. By way of achieving this aim, Montague constructed a model theory based upon the theory of types of his second, Fregean intensional logic and showed how all the different types of intensions (or senses), as well as all the different types of extensions, can be given set-theoretic representations in his model theory. In this way, by correlating the different syntactic categories of a given language with the logical types of his intensional logic, Montague was able to characterize the semantic categories of a language (natural or otherwise), and he was then able to define the notions of truth and logical consequence between the declarative sentences of that language in terms of the model-theoretic structures (which he calls *Fregean interpretations*) associated with those semantic categories. (A Fregean interpretation includes not only a set of possible worlds, but also moments of time and contexts of use in those worlds.)

A third component of Montague's universal grammar, in addition to universal syntax and universal semantics, is a formally specified theory of translation. The theory involves correlating the syntactic categories of two languages L and L', where $L=(L, R)$ and $L'=(L', R')$, in such a way as to generate a homomorphism (a certain type of mathematical function) from the free algebra underlying L to the free algebra underlying L'. Besides translating well-formed expressions of L into well-formed expressions of L',

such a homomorphism also induces a Fregean interpretation (i.e. a certain model-theoretic structure) for *L* in terms of a Fregean interpretation for *L*. Thus, by constructing a translation function from a (fragment of a) natural language such as English into his Fregean intensional logic, Montague is able to correlate the model-theoretic structures (Fregean interpretations) defined for the latter with model-theoretic structures for the former.

'The principal use of translations', according to Montague, 'is the semantical one of inducing interpretations' ([2.29], 232). Such an interpretation is really just a set-theoretic structure and does not provide the kind of perspicuous interpretation (by means of logical forms) that a translation into Montague's Fregean intensional logic does. Indeed, even Montague, who had at one time maintained that all philosophical analyses were to be carried out as definitional extensions of set theory (cf. [2.29], 154), did not remain satisfied with the idea of set theory as a *lingua philosophica,* and it was for that reason that he went on to construct his different intensional logics. Thus, according to Montague, 'philosophy is always capable of enlarging itself; that is, by metamathematical or model-theoretic means—means available within set theory—one can "justify" a language or theory that transcends set theory, and then proceed to transact a new branch of philosophy within the new language. It is now time to take such a step and to lay the foundations of intensional languages' (ibid., 155). In constructing and applying his Fregean intensional logic, Montague showed how—through a translation (which really amounts to a precise logical analysis) of English into an applied form of that intensional logic—a variety of constructions in English, including especially quantifier phrases and intensional verbs, can be given an intuitively satisfying and natural representation/interpretation in terms of that intensional language.

SPEECH-ACT THEORY AND THE RETURN TO PRAGMATICS

The formal approach to the philosophy of language has been criticized, we have noted, by so-called ordinary-language philosophers. This criticism has been described in terms of a conflict between a speech-act (or communication-intention) theory of meaning and the formal truth-conditional theory of meaning, such as is given in Montague grammar (cf. Strawson [2.41], chapter 9). The meaning of a sentence is not in general the same as its truth-conditions, it is maintained, even when the latter is relativized to contexts of use; for, in addition to declarative sentences there are also imperatives, optatives, interrogatives, exclamatories, etc., which may have compliance- or fulfilment- conditions instead of, or in addition to, truth-conditions. The fundamental concept in the theory of meaning, on this view, is not the concept of truth but the concept of a speaker's meaning something by an audience-directed speech act (cp. Grice [2.23], chapter 5).

In performing a speech act (in a context of use), a speaker performs a number of distinguishable acts, including in particular what is called an illocutionary act, which in the simple case can be described as an act of the form *F(P)* consisting of an *illocutionary force F* and of a prepositional content *P*. The illocutionary force of a speech act determines how it is to be taken—e.g. as a statement, a question, a promise, an apology, an order, a declaration, an offer, a refusal, each of which is a different kind of illocutionary act (cp. Searle [2.38], chapter 1). Which illocutionary act is being performed in a context of use depends upon such illocutionary force-markers as verb mood, word order, punctuation signs and intonation. English and most other natural languages also have *performative verbs,* such as 'state', 'promise' 'ask', 'order', 'apologize', 'vow', that stand for different illocutionary forces. A performative sentence is a declarative sentence in which a performative verb occurs in such a way that a literal utterance of that sentence constitutes the performance by the speaker of the illocutionary act that the performative verb stands for.

Because performative sentences are in the indicative mood, some philosophers of language have thought that a semantic analysis of illocutionary acts could be given in terms of the truth-conditional semantics (relativized to contexts of use) of the performative sentences that could be correlated with those acts, and that, therefore, the logical forms of a Fregean intensional logic such as Montague's might suffice for the representation of such acts after all. Such an approach, however, gives no account of how non-declarative sentences are used to perform illocutionary acts, and in that regard it would fail to explain the relation of illocutionary entailment between performative and non-declarative sentences (such as between 'I ask if it is raining' and 'Is it raining?'). Indeed, in general, the attempt to reduce the meaning of all the different kinds of sentences that can be used in speech acts to an analysis based upon a logic only of sense and denotation (or intension and extension), or even just to a logic of extensions (as some philosophers of language insist), has failed to explain a variety of cases of truth-conditional and illocutionary entailments between sentences, and in that regard it has also failed to provide adequate identity criteria for the different kinds of speech acts that could be performed in a given context of use.

This does not mean that we must give up the project of an ideal language by which to perspicuously represent the logical forms of the different sentences that we can utter in a context of use, i.e. an ideal language by which we can represent and explain our linguistic competence in the use and understanding of language. Rather, what needs to be done is to develop intensional logic into a framework that contains an illocutionary logic as well, such as can be obtained by extending Montague's Fregean logic of sense and denotation by adding to it both new syncategorematic expressions to represent illocutionary forces and certain new values (e.g. a value of success and its failure, which can be called 'insuccess') to represent the successful performance or non-performance of speech acts in different possible contexts of use (cp. Vanderveken [2.44] and [2.45]). On this view, instead of identifying linguistic competence with the speaker's ability to understand the truth conditions of sentences, we should identify it with the speaker's ability to understand the illocutionary acts that can be performed by sentences taken literally in different contexts of use. That is, instead of representing the meaning of a sentence by a function from possible contexts of use to truth-values, the meaning is to be represented by a function from possible contexts of use to the illocutionary acts that can be performed by a literal utterance of that sentence in those contexts. Also, in addition to the syncategorematic signs for the logical constants (by which the truth-conditions of complex sentences are determined), the logical forms of the sentences in such an enlarged ideal language will now contain syncategorematic counterparts to those syntactic features of the sentences of natural language that determine which types of illocutionary acts can be performed by literal utterances of those sentences in different contexts of use.

One of the principles of such an enlarged framework is that an illocutionary act of the form *F(P),* where *F* is an illocutionary act and *P* is a prepositional content, has conditions of success as well as conditions of satisfaction. By the conditions of success of such an act is meant the conditions that must obtain in a context of use in order for the speaker to succeed in performing that act in that context, and by the conditions of satisfaction is meant the conditions that must obtain in the world of a context of use in order for that act to be satisfied in that context. This notion of satisfaction is broader than the notion of a truth condition. Thus, for example, although an assertion is satisfied if, and only if, it is *true,* an order is satisfied if, and only if, it is *obeyed;* and, similarly, a promise is satisfied if, and only if, it is *kept,* and a request is satisfied if, and only if, it is *granted*—and so on for each of the other illocutionary forces.

The conditions of success and satisfaction of an illocutionary act are determined, on this analysis, by certain components of the illocutionary force of that act—such as the *illocutionary point* of the force (which is the assertive point, the commissive point, the directive point, the declarative point or the expressive point), the *mode of achievement* (which determines how the point must be achieved), the *propositional*

content (which determines the states of affairs that must obtain or come about for an act with that force to be successful), the *preparatory and sincerity conditions* (which determine the propositions presupposed by a speaker performing an act with that force, or which express the psychological states or modes of prepositional attitudes of the speaker), and the degree of strength of the psychological states that enter into the sincerity conditions. These components of an illocutionary force are represented as parts of the logical form of that force, and the set of all possible illocutionary forces is recursively definable in terms of these components and five of the simplest types of illocutionary force that are taken as primitives of the framework (cp. Searle and Vanderveken [2.39]).

In addition to a recursive characterization of the class of illocutionary forces, the new expanded framework, which some call *general semantics,* allows for a variety of new semantic notions not realizable in intensional logic alone. In addition to *truth-conditional consistency,* for example, there is also the notion of a sentence being *illocutionarily consistent,* and, in addition to a sentence being *analytically satisfied* or *analytically unsatisfied* (such as 'I exist' and 'I do not exist', respectively), there is the notion of a sentence being *analytically successful* or *analytically unsuccessful* (such as 'I am speaking now' and 'I am not speaking now'). Also, at least eight different logical types of entailment between sentences can be characterized in the enlarged framework, such as truth-conditional and illocutionary entailments, truth-conditional entailments of success and satisfaction (cp. Vanderveken [2.45]). This enlarged framework is not at odds with Montague's intensional logic, it should be emphasized, but is really a conservative extension of the latter that simply adds a recursive theory of success and satisfaction to Montague's theory of truth. Of course, one important consequence of such an addition is that the primary units of meaning and communication are not isolated propositions but illocutionary acts of the form *F(P),* which means that many illocutionary acts with strictly equivalent prepositional contents have different conditions of success and therefore are not identical.

General semantics, on this interpretation, deals with the logical structure of all possible sentence and utterance meanings of all possible natural and scientific languages. The ideal language constructed in such a framework is intended to represent the *universals of language use,* i.e. both the formal and material universal features of both natural and scientific language. As governing the success conditions for the performance of illocutionary acts, the universal laws of this ideal language are viewed as reflecting *a priori* laws of thought, and as governing the satisfaction conditions of those acts, these same laws are viewed as reflecting *a priori* laws regarding the logical structure of the world (Vanderveken [2.44], 58ff.). Clearly, such a view brings us back to something like the *characteristica universalis* originally envisaged by Leibniz.

General semantics includes pragmatics in that it contains the notion of a possible context of use of language as an essential part. But general semantics deals with speech acts taken only literally. That is, general semantics reduces speaker meaning to sentence meaning by assuming that a speaker who utters a sentence in a context of use means to perform the illocutionary act literally expressed by that sentence in that context—when that illocutionary act, taken literally, can be performed. A speaker may intend his speech act not to be taken literally, however, as in the case of metaphor, irony and certain indirect speech acts. Also, given a conversational background, a speaker may mean to perform a secondary non-literal illocutionary act in addition to his primary illocutionary act taken literally, but one that is not in fact entailed by the primary illocutionary act in any of the senses of entailment of general semantics. These kinds of secondary illocutionary acts are called *conversational implicatures* (cp. Grice [2.23], Part I). A professor, for example, in a context in which he is asked by a student what he thinks of the latter's outline for a proposed research project, does not literally imply his disapproval when he answers 'It is typed very nicely'—but such disapproval may be conversationally implied in the context in question. The analysis and interpretation of these kinds of 'implicatures', and the development of a general theory of speaker meaning capable of

interpreting non-literal utterances, remains today a proper part of the task of pragmatics (cp. Vanderveken [2.44], 71).

Pragmatics, as the study of non-literal speaker meaning, remains then an essential part of semiotics, because 'the competence speakers have to perform and to understand non-literal illocutionary acts and conversational implicatures is part of their competence to use language and communicate' (ibid.). In this regard, pragmatics imposes an additional condition on the adequacy of a framework such as general semantics and requires a development of its own in terms, for example, of the notions of what Grice calls *conversational maxims* (or directives) and *conversational background*. Whether—and, if so, to what extent — pragmatics in the sense of the rules of conversation can be given a formal analysis and incorporated into an ideal language remains yet to be determined. In any case, the notion of a *lingua philosophica* as an ideal language containing both an intensional and illocutionary logic is no longer merely a programme but has already in many respects been realized.

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CHAPTER 3
Metaphysics I (1900–45)

William James DeAngelis

INTRODUCTORY REMARKS

The first half of the twentieth century marks a change in philosophical attitudes towards metaphysics which is as sharp and dramatic as any in the history of philosophy in the English-speaking world. For the preceding three centuries, metaphysics had been a central concern of European philosophers. The central assumption of these metaphysical philosophers—that the human intellect is capable of uncovering important aspects of the nature of reality which the sciences and common sense cannot—was widespread from the time of Descartes until the present century. The bolder metaphysical systems associated with continental rationalism held that many of the most important truths about reality are of this type. Further, it cannot be denied that the work of their leading British counterparts—even those associated with the more cautious empiricist tradition—included striking metaphysical claims and rested upon deep metaphysical assumptions.

To be sure, Hume and Kant, the acknowledged philosophical giants of the late eighteenth century, offered explicit warnings about the central assumptions and the doctrines of these metaphysical philosophers. These, however, were neither heeded nor, it seems, well understood by philosophers of their own or closely subsequent generations. Later, in the nineteenth century, currents of principled anti-metaphysical thought became more common and influential in Europe and the United States. Even so, metaphysical philosophy continued to flourish on the European continent, and, in Britain and the United States, it is fair to say that it flourished as never before. As the twentieth century neared, traditional metaphysics, in its most ambitious and systematic form, was alive and well in the English-speaking world.

All this was about to change dramatically and, it would certainly now appear, irrevocably. To be sure, many prominent English-speaking philosophers of the early twentieth century and even beyond continued to engage in philosophical activities that were more or less continuous with traditional metaphysics. Nonetheless, far more powerful philosophical movements developed during this period which were destined both to threaten the very existence of metaphysics and to change its nature profoundly. These dominant tendencies of thought, when not avowedly anti-metaphysical, sought—at the very least—to place strict limitations upon both the methods and the domain of metaphysics. This essay concerns itself with these philosophical movements, their principled opposition to traditional metaphysics, and their dramatic effects on the conception, the scope, and the practice of metaphysics in Britain and the United States during this century. As such, it reflects its author's conviction that these movements are of such surpassing importance, that they alone constitute the proper focus of this effort.

ABSOLUTE IDEALISM: NEO-HEGELIANISM IN BRITAIN AND THE UNITED STATES

At the beginning of the twentieth century, neo-Hegelian philosophy was well represented by important philosophical figures in England and the United States. Doctrines inspired by Hegel were a major, if not *the* major, focus of philosophical interest and discussion. This was especially true in metaphysics. In the late nineteenth century and in the early years of the twentieth, F.H.Bradley (1846–1924) and Bernard Bosanquet (1848–1923) of Oxford, J.E.McTaggart (1866–1925) of Cambridge, and Josiah Royce (1855–1916) at Harvard were among the most prominent English-speaking philosophers. All of them held Hegelian metaphysical views. While their philosophical motives and styles varied, and they certainly differed on matters of substance, their most basic metaphysical beliefs were remarkably similar. Speaking generally it can be said that each represented, in his own way, a school of thought which was still in its ascendancy at this time and shortly thereafter. This ambitiously metaphysical school of thought came to be known as absolute idealism.

The views of this school were remarkable in many respects. For one thing they included metaphysical doctrines that were strikingly at odds with fundamental beliefs of common sense and—perhaps historically and culturally even more significant—with those of modern science. Its methods and conclusions were dramatically contrary to the traditional—and more cautious—empiricist tradition in British philosophy. This latter feature was one which its British advocates saw in a most positive light as a long overdue development. It was felt that Bradley, who was regarded as the leading figure of this movement, had brought British philosophy at last into the mainstream of European thought. For a decade or two, it even seemed that this development would prove to be permanent.

It was true enough that absolute idealism had almost nothing in common with the empirical doctrines and methods of Locke, Berkeley, Hume and Mill—arguably the most influential British philosophers of the preceding centuries. Its influence, however, was not to prove permanent in the English-speaking world. As we shall see, its prominence constituted only a brief break with long-standing traditions in British philosophy. Indeed, the most noteworthy early twentieth-century metaphysical thought in Britain can be seen to have been, in both its motives and content, a self-conscious and energetic reaction against absolute idealism, its doctrines, methods and spirit. This is most notably true of the early work of G.E.Moore and Bertrand Russell, who would prove to play a major role in discrediting the movement. Once they had rejected neo-Hegelian metaphysics, neither of the two ever wavered in his fierce opposition to it. Indeed each spent a good part of his philosophical career, in effect, constructing what he hoped would be a successful alternative. Significantly, these alternatives fell very clearly within the longer-standing traditions of British philosophy with which Bradley and the others had broken. It has been observed that Hume and Berkeley would have been sadly puzzled by the pages of Bradley or Hegel, but that either might have conversed quite naturally with Moore, and even with Russell in his less technical moments.

The work of Ludwig Wittgenstein, who, as a young philosopher, was himself influenced by Russell and, to a lesser degree, by Moore, deserves mention in this context too. While Wittgenstein never concerned himself specifically with Hegel, Bradley or their followers, his philosophical work consistently emphasized that writings like theirs amounted quite literally to *nonsense*. His remarkable statement of this view in *Tractatus Logico-Philosophicus* indeed helped inspire a prominent school of philosophy, logical positivism, which sought, as we shall see, to undermine *all* metaphysics.

The influence of Moore, Russell, Wittgenstein and the logical positivists was scarcely less dramatic in the United States than in Britain. In addition, the powerfully influential American pragmatists, notably C.S.Peirce, William James and John Dewey, were also dissatisfied with neo-Hegelian thought and sought to construct a philosophy which went right where they believed it had gone wrong. More generally, the

philosophical perspective of these influential pragmatists was openly hostile to metaphysics in its traditional forms. While Peirce and James, like Russell, held some hope that metaphysics, through great effort and radical change, could be reformed, the notion that metaphysics was a species of nonsense came to have as much currency in the United States as it did in Britain, with similar long-term results.

Certainly, absolute idealism has ceased to be taken seriously in Britain and the United States. The school, so influential at the turn of the century, when it was defended by philosophers who were highly regarded and —in some cases—very much in their prime, is barely mentioned less than one century later. Still, it is important to get some sense of what Bradley and the others believed in order to understand the vehement reaction against it which galvanized much early twentieth-century thought in England and America.

For one thing, absolute idealism was an ambitiously metaphysical school of thought. It sought to establish unassailable truths about the universe taken as a whole. This metaphysical concern with the *whole* of reality was especially insisted upon. It was contrasted with the approaches of non-philosophical disciplines which, it was believed, were necessarily partial and fragmentary. The absolute idealists insisted too, that the truths that they had uncovered were of a different sort from those established in other disciplines: they were presumed to be absolutely necessary, ultimate and essential to the very nature of reality.

Perhaps most important, Bradley insisted that reality constituted an *indissoluble unity*. To explain this, consider that we all believe as a natural matter of course that the universe contains a very large number and variety of objects that are often independent of one another, having various different properties and interrelations. Galaxies, stars, planets, people, rocking chairs, pumpkins and earthworms exist, have very different properties and can arrange themselves in different ways with respect to one another. Seemingly nothing could be more commonplace. Yet this is exactly what absolute idealism denied. Against this common mode of thought, it was urged that the universe was intrinsically an unsegmented and undifferentiable whole. The sciences and common sense, which deal with this or that *object,* with this or that *portion* of reality, were thought to involve a necessary element of distortion or falsification. Reality was essentially one—any intimation that it consisted of independent parts was condemned as necessarily false.

Hegel's British disciples never merely assumed this. Bradley set the philosophical tone by arguing for this view in a remarkable book, published in 1893, called *Appearance and Reality* [3.6]. He believed that the universe, reality or, to use his own term, 'the Absolute', did not consist of parts and that any notion that it did was, in the final analysis, incoherent. His arguments for this perhaps owed more to Zeno than to Hegel. One of his most basic premises became a subject of controversy and a special target for criticism. The view, which he regarded as a necessary truth, is known as the doctrine of internal relations.

According to it, any relational fact about an object—for example, that it is below another object—is really a fact about the intrinsic nature of the object in question. In effect, Bradley refused to take relations as ultimate and unreducible: they are not real and are better thought of as intrinsic properties of objects. The unreality of relations —itself a striking view—had, for Bradley, even more remarkable consequences. He thought it follows from this principle that whenever two things are related, each can be said to 'enter into the nature of the other'. When x is below y, then being below y is part of the nature of x and being above x is part of the nature of y, so that y is part of the nature of x and x is part of the nature of y. Now since everything presumably bears some relation to everything else, it follows that everything else enters into the nature of any given thing. Using some auxiliary principles, Bradley arrived at the remarkable conclusion that there is no 'other thing' relative to any given thing—and this, in turn, meant that the only thing that exists is one all-consuming entity. This line of thought was characteristic of Bradley who often directed *reductio ad absurdum* arguments against common modes of thought that divide reality into independent objects with relations. His intent was to show that this mode collapses, and leaves his own metaphysical view of reality as the only viable alternative. The doctrine of internal relations, which holds that relations

between presumably different objects are unreal and reduced to intrinsic properties, is a crucial step in his central argument.

It is helpful to draw some of the further consequences of this striking metaphysical claim. Since Bradley believed that reality does not consist of parts and is not (to use his own phrase of contempt) 'a bare conjunction' of objects, he boldly drew the conclusion that it was not physical. If reality were physical, then it would be segmentable and this is just what he insisted was not the case. So reality was claimed to be spiritual. Bradley was an idealist and, so, a monist too. Unlike Berkeley—British philosophy's other great idealist—who embraced idealism in part because he believed it was the only metaphysical view compatible with common sense, Bradley endorsed it for very different reasons. He saw in it the *benefit* of being antithetical to common sense, which he completely rejected.

Bradley's rejection of any segmentation in reality is connected to his remarkable conclusion that space and time—conceptually segmentable themselves—are also unreal. McTaggart attempted to supplement Bradley's case with ingenious *reductio ad absurdum* arguments designed to show that the concepts of space and time are incoherent. Far from soft-pedalling these nearly incredible claims, Bradley and McTaggart insisted on them explicitly. Far from being vexed by *any* of his surprising conclusions, Bradley and virtually all his followers were very much *attracted* to them. Their striking rejection of common sense and their recognition of only a unitary spiritual reality, jibed well with their shared sense—one that could fairly be characterized as religious or mystical—that the apparent defects of the world are somehow unreal and that, in some ultimate sense, everything is all right.

All this invites a number of very basic questions. How could the beliefs of science and common life which are so basic and which, after all, seem to serve us all pretty well, be false? Bradley acknowledged this question and insisted that such beliefs concern only *appearances,* whereas his metaphysical concept of the absolute was the only correct accounting of the reality which contrasts with those appearances. Bradley's metaphysics of the absolute was, he believed, the real truth about reality—a truth the magnitude of which only philosophy could establish.

C.S.PEIRCE: EARLY ANTI-METAPHYSICAL STIRRINGS

Charles Sanders Peirce (1839–1914) is now acknowledged as the originator of the pragmatic school of philosophy in the United States and often as its most profound practitioner. His work and thought—some of which was published as early as the 1870s—was largely unnoticed during his lifetime. While he inspired and greatly influenced the early leaders of the pragmatist school in personal discussions, his own writings remained almost entirely unpublished and did not themselves have much influence until they were compiled and published posthumously, beginning in 1931, as *The Collected Writings of Charles Sanders Peirce* [3.18]. The son of a Harvard University mathematician, he was given a rigorous home education. He had a great talent for logic, mathematics and the sciences, and he took an undergraduate degree in chemistry. Eventually he turned to philosophy. He lectured on philosophy briefly at Harvard, and then again at Johns Hopkins; he was not, however, well suited to the life of a university professor. He was a frighteningly perceptive intellectual critic who did not spare his own thoughts. He was rarely, if ever, satisfied with his own written work. His only long-term professional position was as a surveyor for the US Coast and Geodetic Service.

Peirce, like many other twentieth-century philosophers with mathematical and scientific training, was convinced that the state of philosophy could only be improved by instilling in philosophers the discipline and rigour characteristic of those enterprises. He believed that much of philosophy-as-practised failed to meet such standards. Quite early in his intellectual development, he came to the conclusion that

metaphysical thought was especially lacking in this respect; so much so, he characterized the arguments of metaphysicians as 'moon-shine'—American slang for illegally home-distilled whisky. Less colourfully, he used the term 'nonsense' to characterize metaphysical doctrines. While he did not use the latter term in nearly so technical a manner as Wittgenstein and the logical positivists would decades later, there is no doubt that there are important connections between Peirce's early view of metaphysics and their far more formally developed views. In addition, it should be noted that Peirce explicitly credited his reading of Kant's *Critique of Pure Reason* not only as an early source of his dissatisfaction with traditional metaphysics, but as an inspiration for some of his own thoughts on the subject. It is to these ideas that we now turn.

Two of Peirce's earliest writings are, 'The Fixation of Belief' and 'How to Make Our Ideas Clear', which appeared in *Popular Science Monthly* in 1877 and 1878 respectively. Although he continued for decades to develop the ideas expressed in them, they have come to stand as classic statements of his views. In them, he spelled out, albeit informally, ideas which anticipated some of the important pragmatic and positivist criticisms of metaphysical thought. His main concern was to offer a full-blown theory of inquiry. While he took an anthropological interest in actual modes of human inquiry, he was far more concerned to develop *normative* or *prescriptive* canons of inquiry. Towards this end, one of his chief concerns was the 'clarification' of theoretical terms. His main contention on this subject was elegant in its simplicity: we cannot be clear about the meaning of a theoretical term unless we are clear in advance on the practical *consequences* that are to be encountered under specifiable circumstances in virtue of which the term can be said to apply. In effect, Peirce was insisting on *practical criteria* for the application of a theoretical term. To take his own example; for the term 'hard' to have a clear meaning, we should be able to say with clarity just what we should expect—in practical terms —under specifiable conditions from an object to which the term applies. His actual suggestion, in this case, is that a hard object should scratch most other objects and should not be scratched by many other objects. His implicit claim is that a term for which there are no such practical, condition-related consequences connected to its proper application, would be a term with no meaning at all.

By extension, Peirce came to similar conclusions about propositions. He insisted that we cannot be clear about the meaning of a proposition unless we can be clear in advance about what practical consequences are, in given situations, to count in favour of its truth; if there is no clear accounting of such consequences, the proposition in question is so unclear as to have no meaning at all. It is extremely important to notice that Peirce's insistence on *practical* consequences in these contexts virtually rules out the sorts of claims made by traditional metaphysicians. Indeed, from the point of view of a metaphysician like Bradley, Peirce's practicality requirement might seem question-begging, since it insists that the meaning of every metaphysical term be linked to what Bradley believed to be mere appearances. Peirce's rejoinder, in effect, was that what Bradley called 'appearances' are better thought of as 'reality'; that if there are to be *any* criteria for the use of theoretical terms, or the truth of theoretical propositions, they can only reside within the realm of the practical. Pure metaphysics is so far removed from practical human life as to be meaningless. He stated explicitly that the propositions of ontological metaphysics, reaching no practical terminus, were 'theoretically meaningless'—amounting to nothing more than 'gibberish' (which is presumably no better than 'moonshine').

Interestingly, Peirce did believe that something deserving the name 'metaphysics' might be fruitfully pursued. Indeed, Peirce thought that some form of metaphysics might be practically testable and, at least to that extent, continuous with the sciences. It was never exactly clear what he had in mind. Although he made some modest attempts at proper metaphysical research, none of these have received much attention and they appear to be tangents to his major line of philosophical inquiry. While it is clear that he thought that

metaphysics must be testable and confirmable, he noted too that its confirming experiences would involve the most common, pervasive facts of experience rather than the specialized sorts of observations that are characteristic of the exact sciences. It is also significant that Peirce insisted that legitimate metaphysics must, by its nature, be a co-operative or social inquiry made by many investigators.

What is most important here, however, is what Peirce *rejects* and why. There are powerful principles at work: science is the paradigm for intellectual inquiry; theoretical concepts have meaning only when there are practical tests for their proper application; theoretical propositions have meaning only when there are practical tests for their truth or falsity; purported concepts and propositions for which no such practical tests exist are meaningless; finally, philosophical researches must somehow meet standards of practical testability to be legitimate. These are ideas which the American pragmatic philosophers took seriously and developed in characteristic ways throughout the twentieth century. There is much in Peirce, as we shall see, that anticipates the doctrines of the logical positivists as well. Finally, his sense that traditional metaphysics had gone wrong by completely isolating itself from practical life, while deriving from elements in Kant's thought, resonates interestingly with the philosophical perspective of G.E. Moore—to whom we now turn.

G.E.MOORE: AN APOSTLE OF COMMON SENSE

Against the philosophical background of absolute idealism, G.E.Moore (1873–1958) came to Cambridge University to study classics. As a matter of course he read philosophy and, after very briefly acquiescing to the doctrines of absolute idealism (to some degree, as expounded in his discussions with McTaggart), he rebelled against them. In so doing, he became increasingly absorbed in philosophy. He excelled in philosophical discussion and made a great impression at Cambridge. Gradually his initial intention to become a classicist weakened. By degrees, and somewhat to his surprise, he became a philosopher. It was not long before he dedicated himself almost completely to combating the influence of absolute idealism. Years later he doubted whether the world or the sciences would ever have suggested to him any philosophical problems. Rather, he believed, philosophical problems had engaged him only as a result of his hearing and reading the strange things that other philosophers espoused. Moore's early philosophical motives were so tied up with undermining the strange metaphysical claims of absolute idealism, he would probably never have become a philosopher had he not encountered them.

Moore was a unique thinker. He had a vivid and forceful personality which his philosophical peers could not help but take seriously. There was nothing flamboyant about Moore. To the contrary, his strength lay in his directness, his uncompromising honesty, and his firm independence of mind. Moore was neither quick-witted, nor particularly imaginative, but his clarity of thought and relentless commitment to truth were truly remarkable. He was never a systematic philosopher, but his approach to philosophy was fresh and original. He displayed both a strong determination and a rare ability to achieve *clarity* on philosophical problems. For him, this meant posing them, as well as expressing his views on them, with exact precision, making all necessary distinctions, leaving nothing out and leaving nothing obscure or vague. In this, he succeeded, perhaps better than anyone of his time.

Moore's most influential work pertaining to metaphysics can be divided into two categories. First, he wrote some early essays critical of the claims of, and arguments for, idealism. This work was influential and demonstrates both Moore's characteristic insistence upon clarity and his talent for making fine distinctions. Moore's early essay, 'The Refutation of Idealism' (1903), is concerned chiefly to undermine the arguments that idealist philosophers have offered in support of their position [in 3.14]. Moore tried to show that idealist thought is a web of confusions, incomplete thoughts and unjustified claims. Acknowledging that idealism (which he first, quite characteristically, took great pains to clarify with sufficient precision) might

be true, he concludes that there is no good reason to believe that it is. He takes special pains to refute Berkeley's *esse es percipi* principle. In 'External and Internal Relations', an earlier, less influential piece, he criticizes Bradley's principle of internal relations, attempting to show that the doctrine involves a major confusion [in 3.14]. These essays are essentially critical.

It was, however, much later work of Moore in which he boldly defended what he called 'the Common Sense View of the World' and rejected any metaphysical view incompatible with it, for which he is justifiably best known. That work represents thoughts that are dramatically characteristic of its author. The 'Defence of Common Sense' (1925), perhaps Moore's best-known essay, is a remarkable work which employs a strategy that is both elegant and deceptively simple [3.16]. He begins by offering a list of propositions which he calls 'truisms'. He divides these into three categories. First he asserts some commonplace propositions such as that he has a body, that he was born a number of years ago, that he has lived his whole life on or near the surface of the earth, which itself has existed for many years prior to his birth, and upon which many other human beings have lived and do live. A second category of propositions concerns experiences. Moore states that he has often perceived his own body and other things in its environment including other human bodies, and that he has often observed facts about these things. He gives some examples of these facts. They include quite particular and familiar observations about his immediate environment, recollections about the past, and facts about his own present and past beliefs, feelings and expectations. The third and final category consists of a single proposition which states that with regard to many other human beings who resemble Moore, that each of them frequently knows propositions which correspond to those Moore listed for himself in the first two categories. He insists that all of these propositions are wholly true and that he knows with certainty that each is true. He goes on to say that the meaning of each proposition is clear. Moore refers to the propositions he enumerates collectively as 'the Common Sense View of the World'.

One might wonder why Moore bothered to state all this—much less strive to state it with his characteristic clarity, completeness and care. The answer, as he insists in the article, is that many philosophers have asserted things that conflict with these very basic truths of common sense. He thought it immensely important to point out this idiosyncratic feature of such assertions. Bradley and McTaggart, for example, actually held that material objects are unreal, and that space and time are unreal. But, of course, if they really knew that they had bodies, that their bodies were near the Earth, and that their bodies had existed for many years, then that would mean that they knew things incompatible with their philosophical pronouncements. In effect, Moore was responding to such philosophers in this work as he had so many times in discussion. To the claim that time is unreal, Moore might say, 'You mean I ought not believe that I had my breakfast today *before* I had my lunch? But I know with certainty that I did!' The power of Moore's article (and of such a direct argumentative ploy) is that it places extremely plausible constraints upon metaphysical claims. It urges that everyone, including philosophers, forbear from saying things that are clearly in conflict with what he or she knows with certainty to be true. Moore thought it important to note just how far afield many metaphysical philosophers had strayed.

This strategy was bold in its conception. Whereas Moore's earlier work sought to show mistakes in the reasonings of idealist metaphysicians, the 'Defence of Common Sense' by-passed such efforts. His stance had changed dramatically, implying, as it did, that no satisfactory argument could possibly establish conclusions contrary to what each of us knows with certainty to be true. In effect, Moore was saying, 'I don't care what your argument is, if your conclusion is inconsistent with common sense, then your argument is certainly faulty because its conclusion is certainly false!'

Moore's 'Proof of an External World' is similarly bold. First given as a lecture to the British Academy in 1939 and later published posthumously in his *Philosophical Papers* [3.16], it begins with a detailing of

some of Kant's thoughts about scepticism with respect to 'things outside us'. There is a characteristically detailed discussion of the latter expression, and a detailing of what sorts of things it might refer to. He suggests dogs, planets, stars, shadows and hands as clear exemplars. The climax of Moore's presentation came when he, gesturing appropriately with his right hand, said, 'Here is one hand', and then, gesturing with his left, 'Here is another.' Thus, he concluded that there certainly *are* things outside us, adding that his premises are certainly true and that his conclusion certainly follows from those premises. So, once again, Moore rejected any notion which runs counter to what is straightforwardly and non-problematically known to all of us.

It is worth noting here that Moore never used a derisive or disrespectful tone in any of these works. He never suggested that any of the philosophers he criticized for holding views incompatible with common sense were stupid or ridiculous for doing so, although he certainly thought they were wrong. His feeling, rather, was that they had lost their way—that they had somehow lost sight of the simple but elusive fact that philosophical work has *a standing in real life* and that when its content conflicts with the most evident features of real life, then it has gone wrong.

This leaves open an important question. If Moore is correct that the beliefs of common sense are unassailable and that no philosophical views that conflict with them are acceptable, what, if anything, is left for metaphysical philosophers to do? Moore's absolute refusal to contradict the common sense view of the world, or to accept the views of other philosophers which do, might seem like a final resting place. Remembering especially that Moore's initial motive for philosophizing was to combat the strange metaphysical views of the absolute idealists, it might seem as if he had at last found a response to such views that he could accept as definitive, enduring and final. In fact, he pretty much had. Nonetheless, he did not think that his defence of common sense was the end of all such matters.

Drawing the interesting and proper distinction between understanding the meaning of a proposition and explicating or analysing that meaning, Moore insisted that it is a legitimate, even necessary, philosophical function to analyse some of his common sense propositions. As this programme developed, Moore became convinced that there was much philosophical work still to do in this area. All this work, he thought, fell under the category of analysing propositions which are known with certainty to be wholly true. Thus philosophical analysis, so conceived, would offer no major surprises and could only elaborate upon—never undermine—common sense.

What exactly did Moore mean by 'analysis'? For one thing, he recognized that it was perfectly possible to understand the meaning of a proposition without being able to state or explain its meaning. This latter endeavour required analysis. Beyond this, it is fair to say that he never developed a satisfactory general account of what an analysis of a proposition is. He admitted as much, and this may well have been his greatest philosophical frustration. One may gain some understanding of what he intended by taking a concrete example. As mentioned, Moore argued for the existence of things outside us in part by holding up a hand and saying, 'This is a hand'—a proposition he considered to be wholly true, in no way doubtful, and perfectly clear. He believed however that the proposition could be analysed, and he undertook to do so. In 'A Defence of Common Sense', he stated that such a proposition, upon analysis, is ultimately about some *sense datum*—some object of immediate awareness which is the subject of the fully analysed proposition or judgement. Beyond this, he was not clear. For one thing, he did not think that the proposition, 'This is a hand', ultimately attributed to a sense datum the property of being a hand. This leaves open the question of just what else the relationship between the sense datum and the hand in question might be. While Moore thought that the proper analysis of the proposition in question would illuminate that relationship, he never felt that he had succeeded in arriving at the proper analysis. One of the most creative approaches to this problem was formulated by Bertrand Russell.

BERTRAND RUSSELL

Old metaphysics and the new logic

Russell was a very different intellectual type from Moore. He was an accomplished mathematician who, as is well known, did much work of historical importance in logic and in the foundations of mathematics. The publication, between 1910 and 1913, of the three volumes that comprised *Principia, Mathematica*—which Russell co-authored with A.N.Whitehead—was an important event in the history of ideas. As we shall see, that work influenced his metaphysical views. Russell was an astonishingly clever man, imaginative, quick-witted and articulate. He was also a man of wide-ranging interests who was intellectually ambitious. No doubt greatly emboldened by his successes in logic, he was, for quite some time, optimistic about the prospects for employing some of the strategies which served him so well there with similar success in other areas of philosophy.

Russell always had a philosophical temperament. A contemporary of Moore at Cambridge, he too was first intrigued with, and later rebelled against, the neo-Hegelian metaphysics of the absolute idealists. His assessment of, and opposition to, absolute idealism was dispositionally different from Moore's. For one thing, Russell thought in more sweeping and systematic terms than Moore; for another, he was far less shy about impugning what he took to be the motives of the neo-Hegelians.

Some of Russell's initial opposition to absolute idealism stemmed from the suspicions he held regarding the philosophical motives of its proponents. At times he felt that their motives were not entirely rational, and, perhaps, even dishonest. This should not be under-estimated. The proponents of absolute idealism were the objects of some of his most scornful criticism. He came to regard Hegel, Bradley and many of their followers as 'paradox peddlers' who, he believed, were less motivated to understand the world than they were to convict it of unreality in the interests of a supra-sensible absolute.

Russell made his objections of substance clear as well. Significantly, they were quite different in focus from Moore's. Whereas Moore's criticisms were quite specifically aimed at this or that proposition or argument, Russell's focus was far more systematic. More or less independently of his dislike of the metaphysical conclusions of Hegel and Bradley, he came to think (in fairness, with justification) that their thoughts about logic, which played an important role in their metaphysics, were unsophisticated and antiquated.

This came out in a number of ways. Russell, in his work in logic and the foundations of mathematics, was determined—though this was by no means his only concern—to revolutionize and systematize the discipline of logic. If his ambitions were high, so were the standards of rigour he employed. Not only did his work bring together many dramatic innovations—both his own and those of other important thinkers—into the discipline, but it also helped direct public attention to these improvements. In the end, his work played a major role in building a new consensus among philosophers and mathematicians of the twentieth century concerning logic. Needless to say, philosophers rarely achieve such successes.

When Russell first read Hegel and Bradley, his work in logic was only beginning. Yet, he detected, even then, elements in their thought which, he felt, were utterly at odds with a correct sense of what logic should be. He wrote of these misgivings, expressing in a tone of undisguised scorn, his assessment of Hegel's *Greater Logic,* as 'muddle-headed nonsense'. Later on, he gained greater clarity about these matters. In the preface to *Principia Mathematica,* written quite a few years after Russell's dramatic break with monistic, idealist metaphysics, he explains

> The logic, which I shall advocate is atomistic, as opposed to the monistic logic of the people who more or less follow Hegel. When I say that my logic is atomistic, I mean that I share the commonsense belief that there are many separate things; I do not regard the apparent multiplicity of the world as consisting merely in phases and unreal division of a single indivisible reality.
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> [3.22, I:vii]

This almost makes it look as if Russell built his metaphysical presumptions into his logic, but the impression is misleading. As it turned out, Russell's reasons for advocating an 'atomistic' logic were, to a great extent, unrelated to his metaphysical predispositions. He, and other logicians on the cutting edge—many of whom were not at all interested in metaphysics—were mostly concerned with the development of a logic with strong deductive and expressive power. Those were the main criteria for judging success. It was by such standards, and not quirks of metaphysical temperament, that an atomistic logic developed.

How did absolute idealism conflict with what have come to be accepted as correct logical procedures in the twentieth century? It is possible to give a synoptic view of some of the connections. For one thing, Bradley's doctrine of internal relations conflicted with a very basic feature of modern logic as developed in *Principia Mathematica*. That doctrine, as we have seen, held that what we think of as relations between supposedly separate objects are actually illusory. Connected with this, it held that relational terms can be dispensed with and replaced by terms designating properties of individuals. This not only conflicted with Russell's intuitions, but he soon was able to show on logical grounds that some relational terms—most notably those associated with asymmetric properties such as 'north of', 'older than', 'higher than', and 'below'—cannot plausibly be reduced to individual predicates in this way. For these and other technical considerations, modern logic allows relational statements as basic and irreducible, and presumes that they are capable of being true. To this extent, it can be said that twentieth-century logic has repudiated, if it has not refuted, late nineteenth-century neo-Hegelian metaphysics.

Logical constructionism

Russell's own metaphysical views changed considerably during his life. After rejecting idealism, he embraced an extreme form of realism which he was soon to abandon as hopelessly confused. In *The Problems of Philosophy,* published in 1912, he embraced a version of the causal-representative theory of perception of Locke and Descartes. Shortly thereafter, Russell's metaphysical thinking changed dramatically. He conceived, employed and, for quite some time, remained committed to a genuinely innovative approach to metaphysical problems. It was connected to a strategy which he had used successfully in his work on the logical foundations of mathematics. He called it 'logical constructionism'. When employing it in the context of metaphysics he stated it in this way: 'Wherever possible, logical constructions are to be substituted for inferred entities' [3.24, 155].

What did this mean and how did this apply to metaphysics? For centuries after the time of Descartes, modern philosophers have tended to believe that physical objects are not directly perceived. The view, while no longer pervasive, persists to this day. To this is added the conviction that what we are directly aware of in perception is something accessible only to the individual perceiver which is caused by, but not identical to the object of perception. This element of direct awareness can be thought of as an inner experience which is an end point in the process of sensation and which represents the physical object being perceived. The experience of an object represents and is caused by the object; they are not the same. So, on this view it is theoretically possible to have qualitatively exactly the experiences that would normally result from perceiving, say, a pumpkin without their being caused by a pumpkin—and such things do seem to

occur in dreams and hallucinations. Even worse, if all one ever experiences directly are inner experiences or immediate sense data, then how could one ever know that these represent independent physical objects? On the view in question, there could, in principle, be no direct check of this: since experiences are all one can ultimately examine, one could never confirm whether they are caused by extra-experiential objects. In short, if such a view of perception were true, then one could not know it. The problem here is, in large measure epistemological: How could one know on the basis of inner sense data that there are physical objects? Russell took this problem seriously. His response to it was to employ logical constructionism. Its ramifications were significant for metaphysics as well as epistemology.

His strategy was to analyse troublesome entities in terms of more familiar or less troublesome ones. For example, the problem at hand is how to justify a belief in physical objects given that we are directly aware only of sense data. There seems, in the final analysis, to be no way of *inferring* the objects from the immediate sense data. Russell's innovative alternative was this: treat the physical object not as a distinct entity to be inferred from sense data, but as what he would call *a logical construction out of sense data*. What does this mean? Russell's suggestion was, in effect, to treat physical objects not as *independent of* sense data but rather as *analysable in terms of* sense data. This meant, in effect, treating physical objects as metaphysically non-basic and sense data as the more fundamental category of being.

This suggestion was to be carried out by showing that all propositions about physical objects can be, in principle, analysed in terms of propositions about sense data. If successful, this procedure would, Russell thought, solve the philosophical problem about physical objects which proceeds on the assumption that propositions about sense data and propositions about physical objects are logically independent. He explored this possibility in *Our Knowledge of the External World* which was published in 1914 [3.19]. Two papers, 'The Relations of Sense-Data to Physics' and 'The Ultimate Constituents of Matter', which were published in 1914 and 1915 respectively (and reprinted in his *Mysticism and Logic and other Essays* in 1917 [3.20]), employed the same strategy. Russell adapted the technique of logical constructionism to mental phenomena in *The Analysis of Mind,* published in 1921 [3.21]. Only in *The Analysis of Matter,* published in 1927 [3.23], did Russell begin to abandon this strategy, but, by then, it had already exerted a powerful influence upon a generation of philosophers.

Logical atomism

It is important to recognize that this creative metaphysical strategy was ultimately viewed by Russell as one feature of a larger, more ambitious and systematic philosophical programme. This was explained in 'The Philosophy of Logical Atomism', a remarkable work published in two instalments in 1918 and 1919, which established—in overall terms, if not in final detail—what was to be Russell's more global approach to metaphysics for much of the period during which he did his most respected work in the area [3.25]. His implementation of the programme led to different results at different times. He never was able to satisfy himself that he had employed it so as to achieve a final or definitive result. It seems clear, however, that during his most productive years, he did not seriously doubt the underlying assumptions of the programme itself.

Russell wanted to use the new logic to establish something enduring in philosophy. The philosophical system he envisaged was certainly metaphysical in nature. His idea proceeded from his assumption, often stated in many of his writings, that the new logic of *Principia Mathematica* represented the formal structure or syntax of a 'logically perfect language'. What it lacked, of course, was a vocabulary. Russell's metaphysical programme was, in effect, to decide upon that vocabulary which, when added to the syntax provided by the new logic, would complete the search for a logically perfect language.

Russell felt that common language tended often to confound the search for truth. For one thing, as he showed wonderfully well in his work on logic (especially in his landmark essay, 'On Denoting', 1905), the surface forms of a natural language like English often obscure the logical form of a proposition or of an argument [3.25]. One of the most striking successes of modern logic is that it provides a language carefully constructed to lay bare the logical structure of propositions and arguments. In a similar way, Russell thought, the logically perfect language he sought would not only lay bare the logical structure of its propositions, but would—when the details of its application to the world were clarified—also lay bare the logical structure of reality. Satisfied that he had gone a long way towards laying bare the *syntactics* of a logically perfect language, he proceeded to set his sights on *semantics*.

How did Russell think he could arrive at a vocabulary for such a language? Here, he made a number of assumptions he regarded as unassailable. First, he held that all the propositions in such a language would either be basic—'atomic' propositions he called them—or else analysable into basic propositions. He held that the non-basic or 'molecular' propositions would be truth-functions of the atomic propositions—that is, the truth or falsity of any molecular proposition would be a function of the truth or falsity of the atomic propositions out of which it is constructed. Second, he believed that atomic propositions served to state facts—the basic or atomic *facts* in the world. The atomic propositions of a logically perfect language were said to be *logical* atoms and the facts which they corresponded to were taken to be *metaphysical* atoms. His programme, then, amounted in large measure to arriving at a satisfactory account of what an atomic fact is and what its constituent elements are.

This issue fascinated and vexed Russell, but he was never able to resolve it. He had two powerful philosophical intuitions regarding the matter. First, he was strongly inclined to believe that atomic propositions were about *particulars* to which they referred. Atomic facts, he thought, should have particular constituents. Second, he was greatly attracted to the view that these particulars are *objects of immediate awareness*. For some time he wanted to identify the constituents of atomic facts with sense data—an assumption which perfectly jibed with his logical constructionist programme. Indeed, it constituted his purest empiricist intuition—amounting, as it did, to the opinion that all meaningful propositions ultimately refer to immediate experiences. Though he struggled to do so, Russell could never fully accommodate a fully articulated account of atomic facts with either of these two assumptions, and he found difficulties, too, with reconciling the assumptions with one another.

These difficulties notwithstanding, Russell never completely abandoned the hope that metaphysical clarity might be achieved. Ironically the metaphysical thoughts of his logical constructionist/logical atomist period were to stimulate his friend and collaborator Ludwig Wittgenstein to thoughts of his own, which would soon inspire him to write one of the most influential, vivid, and radically *anti-metaphysical* philosophical works of the twentieth century.

WILLIAM JAMES: PRAGMATISM, METAPHYSICS AND NEUTRAL MONISM

William James was the first great public exponent of pragmatism. Like so many of the figures discussed here, he was trained in science and approached philosophy with the attitude of a reformer. Specializing in medicine and psychology, he taught at the Harvard Medical School for some years before he joined its philosophy faculty. Inspired by Peirce, James sought to expand pragmatic principles and apply them to the major problems of philosophy. He was confident that pragmatism was essentially correct and destined to have a revolutionary effect upon philosophical thought. Of the philosophers treated here he was certainly the least careful about details. While his ideas were novel and sweeping in their consequences and his written expressions of them were remarkably vivid and engaging, his most powerful thoughts were

frequently not completed. Nonetheless his writings had a great influence in both the United States and Britain. There was, in James, a strongly empiricistic element of thought. Indeed, he described himself as a 'radical empiricist'. To that extent, he was a principled opponent of traditional metaphysics in general, and absolute idealism in particular. There was also, in James, a great respect for religion. He strove, in much of his work, to justify religion on pragmatic grounds, without compromising the empiricistic, pro-science, underpinnings of his thought. Whether he ultimately succeeded in this is an interesting, and very much open, question. It is, however, beyond the scope of this essay which will not address James's views on religion, but, rather, concentrate on the underpinnings of his thought.

James explicitly acknowledged a great philosophical indebtedness to Peirce. He was greatly impressed with Peirce's insistence that theoretical propositions should directly connect with practical consequences and shared Peirce's conviction that the propositions of traditional metaphysics characteristically failed to so connect. As such, James expressed a similar hostility to most metaphysics. His development of Peirce's main contentions placed special importance on the failure of metaphysical propositions to have *experiential* consequences. In his last work, the posthumously published *Some Problems of Philosophy,* he wrote:

> The pragmatic rule is that the meaning of a concept may always be found, if not in some particular which it directly designates, then in some particular difference in the course of human experience which its being true will make.
>
> ([3.9], 60)

James believed that many familiar metaphysical doctrines were not meaningful, precisely because they imply nothing relating to the course of human experience; more specifically, such views are consistent with *any experiences whatsoever*. James regarded this as a fatal defect in any purported view. A colourful writer, James often expressed the point metaphorically by writing that such metaphysical views have no 'cash value'.

Nonetheless, James, like Peirce and Russell, did not want to end metaphysics altogether; rather, he wished to make it intellectually respectable. He believed that meaningful metaphysical discourse is possible, going so far as to suggest that metaphysical philosophers occasionally make valuable suggestions —legitimate observations with genuine 'cash value'. For example, in *Pragmatism,* published in 1907, James distinguished between two forms of materialism [3.10]. The first is the traditional doctrine of material substrate which postulates unperceivable entities in which the perceivable qualities of objects inhere. This view, of course, he regarded as empty or meaningless, since it had no 'cash-value' link to any experiential consequences. Significantly, he commends Berkeley, at least, for pointing out this defect in the view, describing Berkeley's objections as 'absolutely pragmatistic'.

Against this empty version of materialism, James urged what he thought was a legitimate form. He suggested that one might deny material substrate as vehemently as Berkeley did and still be a materialist 'in the wider sense, of explaining higher phenomena by…laws of physical nature' ([3.10], 93). This meaningful version of materialism holds that the various phenomena in the world that we naturally judge to involve intelligence, purpose, consciousness or intent can all, in principle, be accounted for in terms of the laws of physical science. While not specifically advocating this view, he took it to be, at least, meaningful. His thought would seem to have been that the view does have links to possible, observable consequences: roughly, it will stand or fall according to whether or not certain kinds of explanations for certain kinds of phenomena are discovered. This is no matter of *simple* observations, but it would appear at least to meet James's rough pragmatic requirement that a conception have some implications that make a difference

relative to the course of human experience. Here, then, is meaningful metaphysics. It is testable and continuous with science.

James made a similar distinction with respect to the notion of personal identity. He regarded Descartes's analysis of the notion as pragmatically meaningless. Locke's account, on the other hand, he took seriously as a worthy contribution to philosophy. Briefly, Descartes believed that the sensations, thoughts, affections, memories, dreams and fantasies of a given individual belong to that individual in virtue of being contents or modes of the same underlying spiritual substance or soul. Descartes explicitly distinguished this spiritual substance itself from its contents, and acknowledged that it is never itself experienced; still, he urged that the unity of a person consists in the unity of this underlying mental substance. James offered a spirited pragmatic criticism of this view. This conception of mental substance, he argued, is entirely empty, since its purported existence cannot in any way register in real experience. There would be no way, in experience, to distinguish its presumed presence from its absence—and no way to detect a situation where one enduring unchanging mental substance is suddenly replaced by another. These would be, in James's parlance, 'distinctions without a difference'.

Against this, he commended Locke's quite similar criticism of spiritual substance as well as Locke's alternative analysis of personal identity which he praised for reducing this notion to its pragmatic value in terms of experience—namely, the fact that at one moment in life we remember other moments, and feel them all as parts of one and the same personal history. James never explicated Locke's view with care nor did he explain exactly why he so approved of it. He evidently thought that by citing consciousness as the locus of a person, and memory as (in some way) its principle of unity or identity, Locke had succeeded at least in reducing personal identity to the right sorts of terms—namely features of experience. A continuing person is a continuing stream of consciousness; and what unifies individual experiences into a continuing stream has to do with the possibility of certain kinds of memory interrelations among these experiences.

These remarks anticipated and, in part, influenced some of Russell's metaphysics. There is a deep suspicion of most old-style metaphysics, a hopeful sense that metaphysics can be reformed, and a strong conviction that a correct metaphysics would have to use terms and propositions whose ultimate content is experiential. Like Russell, James was an empiricist-minded metaphysical reformer. It is worth noting that his overall view of metaphysics inspired one of Russell's most radical strategies—a subject to which we now turn.

James was drawn to phenomenalism, the view—of which Russell's logical constructionism was an instance—that physical objects can somehow be identified or reduced to experiences. There was nothing terribly radical in phenomenalism *per se,* and James, characteristically, did not try to work out the details of such a view with nearly the same care as did Russell. He did conceive however, of a quite innovative extension of this view from physical objects to minds or consciousness. James first explained this conception in an essay published in 1903, 'Does Consciousness Exist?' [3.12]. Believing that physical objects can be identified as suitably interrelated sets of experiences, he further suggested—perhaps following Locke's hint—that minds or streams of consciousness could be analysed using the same general strategy. Such a view, he reasoned, was not only plausible, but involved a wonderful sort of conceptual economy: specifically, only one ultimate category of existence—namely experience—needed to be postulated. In effect, he was suggesting a new form of monism in which the ultimate 'stuff' of the universe was neither mind nor matter, but pure experience.

James very much liked an interesting consequence of this view: namely, that one and the same experience can be part of a set of experiences that constitutes a physical object *and also* part of a set of experiences that constitutes a stream of consciousness or a conscious mind. This observation was, he thought, liberating in that it undermined deep Cartesian assumptions about the radical separateness of mind and body from which

flowed seemingly endless metaphysical puzzles. This non-idealist, non-materialist form of monism became known as neutral monism.

Russell, influenced by James, embraced neutral monism for some time. His book, *The Analysis of Mind,* published in 1921, constitutes a remarkable attempt to develop a metaphysics along neutral monist lines [3.21]. As it turned out, the view was not to prove influential. In the long term, subsequent generations of philosophers were to uncover deep problems with phenomenalism, an essential component of the view. More immediately, the viability of metaphysics of any sort was about to come under the severest scrutiny.

LUDWIG WITTGENSTEIN: METAPHYSICS OVERTHROWN

It is not entirely clear whether or not Ludwig Wittgenstein (1889–1951) should be included in an essay restricted to English and American philosophers. He was born and raised in Vienna. He wrote philosophy in German, his first language. Dispositionally, he was, in many ways, Viennese. Yet, his professional career in philosophy was pursued entirely at Cambridge and he eventually became a citizen of the United Kingdom. Many of his closest friends and most of the relatively few individuals with whom he had serious philosophical discussions were British. His influence in the English-speaking world is extensive. Finally, there is a great deal of precedent for treating Wittgenstein's views in works on British philosophy.

Wittgenstein was a difficult, enigmatic individual and his writings are extremely daunting. Regarding their ultimate value, it is significant that many contemporary philosophers—including quite a few who do not share his conclusions—regard him as a philosopher of the highest historical importance. He wrote only two books for publication. One, *Tractatus Logico-Philosophicus* (1921), is said to represent 'the early Wittgenstein'; the other, *Philosophical Investigations* (1953), 'the late Wittgenstein'. It is the early work and thought of Wittgenstein and its influence that was to impact upon the first half of this century.

Wittgenstein was trained as an engineer, became interested in problems in the foundations of mathematics and went to Cambridge to study with Russell, who quickly came to regard him as a philosophical equal. Wittgenstein took a keen interest in Russell's philosophical work and, although the two never co-authored a work in philosophy, it is proper to say that they were collaborators for an extended period of time before World War I. In 'The Philosophy of Logical Atomism' Russell explicitly cites Wittgenstein's major role in shaping his ideas. Wittgenstein, in the *Tractatus,* cites Russell's ideas as an important stimulus. The two works share many central themes—but their differences are significant too.

Perhaps the most striking feature of the *Tractatus* is its explicit rejection of metaphysical philosophy. This rejection was of the most radical sort. Wittgenstein did not claim, as Moore did, that metaphysical propositions are often *false*. He did not hold, with Russell or Peirce, that metaphysical philosophy as traditionally practised was logically sloppy and needed to employ rigorous new techniques in order to become a worthy subject of study. Instead, he stressed that metaphysical philosophy by its very nature was *meaningless*. The writings of traditional metaphysicians, he insisted, fail even to present propositions that are capable of being either true or false. They quite simply fail to make sense at all.

The *Tractatus* is a difficult book. It is a very short, but extremely concentrated work. Its style is oracular. It consists of short entries that are systematically numbered. Most are terse or aphoristic. They concern language, logic, thought, the world and, most important, the interrelations among them. Its views about these subjects are strikingly original, but certainly not commonsensical. The reader is offered almost nothing in the way of guidance. Many difficult points are never clarified. Central contentions are barely supported. The author says nothing in the main text about the development and evolution of his philosophical conclusions. For decades the book was not well understood— and there is still much disagreement about many points of its interpretation.

Wittgenstein explains in a short preface that the *Tractatus* seeks to show that there is a limit upon 'what can be said'—by which he means, of course, on what can be said *meaningfully*. Employing the metaphor of a limit, he writes, 'on the other side of the limit will be simply nonsense'. In outline, at least, his overall strategy emerges fairly clearly: in showing the limits upon what can be meaningfully expressed in language, it will become clear that metaphysics (as well as ethics, aesthetics and religion) lies on 'the other side'—in the realm of 'simply nonsense'. Wittgenstein intended nothing less than to show that philosophers who tried to write metaphysical, ethical, aesthetic or religious works necessarily succeeded in producing only nonsense. In Wittgenstein's view, they quite straightforwardly had nothing to say because *there was* nothing to say. Unsurprisingly, this idea proved to be provocative in the extreme. While it inspired a prominent and vigorous school of philosophy—the logical positivism advocated by members of the Vienna Circle and their followers—it also elicited passionate criticism. Wittgenstein characteristically wanted almost nothing to do with either his self-professed followers or his critics. Believing he had definitively answered the most important questions of philosophy, he behaved with admirable consistency and gave the subject up entirely. He trained as a schoolteacher, taught in rural Austrian elementary schools, worked as a gardener, designed and built a house for his sister —but for about a decade after completing the *Tractatus,* Wittgenstein did no work in philosophy. Only when he began to doubt his Tractarian views did he return.

Wittgenstein's rejection of metaphysics in the *Tractatus* was a consequence of that work's novel view of language. Unlike Russell, who thought of a logically perfect language as an ideal alternative to ordinary language, the early Wittgenstein believed that such an ideal lay hidden beneath the surface forms of ordinary language. Indeed, he appears to have thought that something like Russell's ideal had to underlie common language in order for it to work at all. He believed that ordinary language required, and possessed, an elaborate logical understructure. That difference aside, borrowing from Russell, he believed that all meaningful propositions are truth-functions of atomic propositions. To this, he added a strikingly new idea: atomic propositions were *pictures* of atomic facts. The details of this claim are intricate and difficult, but he was explicitly clear on one consequence of it: the truth or falsity of an atomic proposition can never be established *a priori*. Each is a picture, and so, its truth or falsity is a matter of whether it correctly or incorrectly pictures the world. Ascertaining the truth or falsity of an atomic proposition requires comparing the proposition with the world. Its truth or falsity, then, is evidently an empirical matter. An atomic proposition is true if and only if the world contains the fact pictured in the proposition.

Wittgenstein believed that all propositions are either atomic or else truth-functions of atomic propositions, which he, following Russell, called 'molecular'. He took great care to explicate the notion of a *tautology*—that is, a molecular proposition which is true no matter what the truth or falsity of its components. For example, suppose *P* is an atomic proposition and consider the proposition 'Either *P* or not-*P*'. This very simple molecular proposition will be true whether its single atomic component, *P,* is true or false. It is a *logical* truth. Its truth is a matter of its logical structure and is compatible with any factual situation in the world. It is certainly true, but it is an empty or trivial truth which really gives us no direct factual information about the world. He recognized, of course, that there are logical falsehoods ('Both *P* and not-*P*' might serve as an example) which are false in virtue of their logical form alone, which—like tautologies—convey no factual content.

Wittgenstein made the powerful claim that tautologies constitute the only species of *necessary,* or *a priori* truth. All other truths depend upon the factual nature of the world. First, atomic propositions either correctly picture the world or they don't. Their truth depends upon nothing more than what the world is like. Those molecular propositions which are not tautologies (and not logical falsehoods) will turn out to be true only on *some* patterns of truth or falsity among their atomic components. So their truth or falsity will

always depend on which of their atomic components are true and which false, which, in turn, is inevitably a mere matter of fact.

In overview, Wittgenstein held that there are just two sorts of truths. Tautologies are *a priori,* necessary truths—but they are devoid of factual content. All other truths require, in effect, that the world be a certain way—which is a contingent and *a posteriori* matter. He was clear and explicit that this left no room for metaphysical truths, which purport to be both necessary and also to transcend mere facts in their significance. For him all necessary truths are empty and all truths of substance are merely factual. There can be no significant truths which go beyond empirical facts, while traditional metaphysics claimed to establish such trans-empirical truths. Wittgenstein's scheme, then, leaves no room for traditional metaphysics. It was these details of Wittgenstein's rejection of metaphysics that so appealed to the logical positivists and shaped their opposition to metaphysics.

WITTGENSTEIN AND THE LOGICAL POSITIVISTS

Shared beliefs

During the 1920s, a remarkable group of like-minded philosophers formed in the city of Vienna. The group, known as the Vienna Circle, came together under the leadership of Moritz Schlick (1882–1936). They were philosophers who were, as a group, remarkably well schooled in mathematics and the sciences as well as in philosophy. Its leading members included Otto Neurath, Freidrich Waismann, Hans Hahn, Rudolf Carnap, Gustav Bergmann, Herbert Feigl and Olga Hahn-Neurath. Karl Popper was more loosely associated with the Circle. They were to exert a profound impact on philosophical thought in this century.

As with Wittgenstein, it is not easy to decide whether to include these thinkers in an account of philosophy in Britain and America. None of them was born in either country. None was a native speaker of English. However, some of them would emigrate to English-speaking countries in the 1930s or 1940s. Carnap and Feigl were to establish themselves in the community of philosophers in the United States during their later years. Their views were as influential in the English-speaking world as anywhere. They were themselves influenced by the early work of Russell and Wittgenstein—indeed, Schlick explicitly stated that the *Tractatus* had brought modern philosophy to a 'decisive turning point'. At his urging, a number of the Circle's members engaged in a collective, systematic reading of the *Tractatus*. They admired the work, found much in it to agree with and were inspired by it. Schlick prevailed upon Wittgenstein to hold discussions with some members of the Circle when the latter returned to Vienna during the late 1920s. Later, two younger philosophers—W.V.Quine, an American, and A.J.Ayer, an Engishman—were to establish contacts with the Circle. The former became one of the most brilliant and important American philosophers of this century; the latter, the leading exponent of the Circle's views in the English-speaking world and a master of clear, lively philosophical prose. While it is not credible to think of the original formation of the Circle as an event in the history of British or American philosophy, the group as a whole certainly exerted an influence in those histories—nowhere more than with respect to metaphysics. A brief account of their overall view of the subject— especially as it relates to that of Wittgenstein—is certainly appropriate.

The members of the Vienna Circle self-consciously thought of themselves as exponents of a philosophical movement. In many respects they behaved like members of a political movement. They held congresses, published philosophical journals for the dissemination of their views and even issued a joint manifesto, 'The Scientific World-View: The Vienna Circle' (1929). For more than a decade they were a major force in European philosophy and, as mentioned, their ideas had a dramatic impact in the English-speaking world.

While they disagreed on some important points of philosophical substance, they were in remarkable agreement in their overall view of many philosophical matters. Their shared view was called 'logical positivism' or 'logical empiricism'. While their interests included the philosophy of science, the foundations of mathematics, epistemology, the philosophy of language and ethics—it was, perhaps, their view of metaphysics that inspired the most interest and controversy.

In this respect, at least, the views of the positivists were virtually identical to those expressed by Wittgenstein in the *Tractatus*. They accepted the view of Wittgenstein (indeed, Schlick appears to have arrived at much the same view independently) that all meaningful propositions are either tautologies or else factual and *a posteriori* in nature. They sympathized with Russell and Wittgenstein's notion that every meaningful factual proposition is a truth-function of basic propositions. As such, they agreed that each such factual proposition has a specific set of truth-conditions, and that the question of whether or not those conditions obtain is empirical. Although they did not accept Wittgenstein's picture theory of meaning, they took his insistence that the basic propositions of language must be compared with the world to establish their truth or falsity to be a clear signal that he had *verification by observation* in mind. Attributing even greater importance to the notion of verification by observation than Wittgenstein had, they linked it to a shared principle around which they rallied. This they called the verification principle.

The rough idea behind this principle (the members of the Circle never settled upon a *precise* definition) was this: it is a mark of a meaningful non-tautological proposition that there be, in principle, a method of verifying it empirically. Conversely, if there is, in principle, no way to verify a purported non-logical proposition, then it is not a meaningful proposition—it is what the positivists called a 'pseudo-proposition'. They believed all the supposed 'propositions' of traditional metaphysicians to be pseudo-propositions which wrongly presumed to describe a transcendent reality necessarily outside the realm of any possible observational verification. Thus, while its underpinnings were slightly different for the positivists, they shared with Wittgenstein the view that the writings of traditional metaphysicians are factually and theoretically meaningless.

Shared problems

If Wittgenstein and the positivists shared basic beliefs about language and the impossibility of metaphysics, they also came to see a number of difficulties with their view of these matters. First, there was a problem with their overall views on language and metaphysics which was both fundamental and almost embarrassingly ironic. Upon examination, it appeared that their shared view of language—which ruled out metaphysics as meaningless—had exactly the same effect when applied to itself; that is, by the tenets of their position, the position was itself meaningless! This, of course, suggested that there was something fundamentally wrong with their shared position.

The problem is perhaps easiest to explain with respect to the verification principle of the positivists. That principle, in effect, allows that, tautologies aside, only verifiable, empirical propositions can count as meaningful truths. But what of the principle itself? It certainly did not appear to be an empty tautology—indeed, the positivists trumpeted it as if it had the same sort of significance as did the law of gravity. They certainly were disinclined to view it as empty. However, the principle itself did not appear to be empirically verifiable either—after all, the positivists' acceptance of it was not the result of any scientific observations or experiments, nor did it seem that any such observations could serve to confirm it. This problem vexed some members of the Vienna Circle for some time and they were never to agree upon a resolution. Thus, the Circle—which endorsed the verification principle by consensus—not only could not agree upon a proper formulation of it, they were also at pains to show how it could be rescued from itself.

This problem was no isolated paradox. The positivists, by restricting meaningful truths to tautologies and empirical propositions, were similarly at pains to show how any of their philosophical pronouncements could count as meaningful. After all, the members of the Circle wrote books on philosophy which were certainly works neither in science nor in logic, however much they admired those disciplines. How, then, could their own words count as meaningful? Further, this seemed to lead to a dilemma: with this problem still unresolved, the positivists could not condemn metaphysics without condemning their own condemnation of it; and, if they opted to ignore this and continue writing their books, it was hard to see how they could, with consistency, condemn metaphysicians who did the same.

Similar difficulties were even more dramatically interwoven into the fabric of Wittgenstein's *Tractatus*. Its author, ever reflective, was explicitly well aware of them. Specifically, he recognized that the sentences of that book were neither tautologies nor empirical propositions and so, on Tractarian grounds, must be counted as nonsense. Far from trying to avoid this conclusion, Wittgenstein embraced it—and did so in a spirit that approached triumph. Towards the end of the *Tractatus,* Wittgenstein wrote the following:

> 6.54 My propositions serve as elucidations in the following way: anyone who understands me eventually recognizes them as nonsensical, when he has used them—as steps—to climb up beyond them. (He must, so to speak, throw away the ladder after he has climbed up it.)
>
> He must transcend these propositions, and then he will see the world aright.

Wittgenstein, then, flatly admitted that the sentences of the *Tractatus* amounted to nonsense—but, he urged, it was helpful nonsense that showed or pointed to or elucidated something important that cannot, strictly, be said. Granting this, however, it might be asked whether a metaphysician might make the same, or similar, plea on behalf of his or her own 'transcendent' views. Presumably, Wittgenstein would have resisted such a plea on behalf of metaphysics, somehow insisting on a difference between the 'elucidary' nonsense of the *Tractatus* and the misleading nonsense of metaphysics.

For Wittgenstein, there was another parodoxical aspect to his rejection of metaphysics. The *Tractatus,* for all its anti-metaphysical conviction, itself contains sentences that look for all the world to be as traditionally metaphysical as any pronouncement of, say, Plato, Leibniz or Bradley. Readers of the *Tractatus*—including most members of the Vienna Circle—did not pay much attention to the very earliest or the very latest passages of that book. This is hardly surprising. Those passages contain extremely difficult paragraphs that seem jarringly discontinuous with the rest of the book which, relatively speaking, and, at least in outline, is easier to understand. In the opening passages, for example, Wittgenstein engages the same subject that had so troubled Russell—namely the nature of atomic propositions, atomic facts, and their constituents. While Wittgenstein never gives an example of an atomic proposition and appears to have thought that they lay deeply obscured beneath the surface phenomena of language, he does offer a number of remarks on the subject. He holds that atomic propositions are concatenations of elemental names; that the propositions picture atomic facts; and that the names refer to the basic constituents of those facts which he calls 'simple objects'. These simple objects are, in the Tractarian scheme of things, nothing less than the ultimate referents of language, and so the ultimate furniture, so to speak, of the world.

His characterizations of these simples are most remarkable. He insists upon their absolute simplicity, indivisibility, indestructibility and timelessness; indeed, his words suggest entities no less remarkable and extraordinary than Platonic forms, Leibnizian monads or perhaps even Bradley's absolute. Further, while allowing that these simples are capable of relating to one another in various ways, he states that the set of possible variations—of possible facts—is fixed as a matter of *necessity,* that it is timeless and unchangeable, established, as it were, once and for all. Taking him at his word, it would appear that this

necessity is nothing less than a *metaphysical* necessity, which determines the possibilities for the world independent of language or thought. He uses the expression 'the form of the world' to elucidate this set of possible arrangements of the simples into facts—a set which, he adds, determines and fixes the set of possible propositions about the world. This would appear to be traditional metaphysics with a vengeance. And it points to another paradox in the *Tractatus*. Not only do its sentences condemn themselves to meaninglessness; its radically anti-metaphysical doctrines rest on a view of language which evidently has deeply metaphysical underpinnings.

While none of this concerned Wittgenstein much when he wrote the *Tractatus,* his later thoughts—largely products of work done in the 1930s and 1940s after his return to philosophy—explicitly reject these features of his early work. Specifically, his definitive later work, the *Philosophical Investigations,* takes care to show that its remarks on language, far from undermining themselves, apply straightforwardly to its own sentences. It exposes the metaphysical underpinnings of the *Tractatus* and rejects them as pathology of thought. While still insisting that metaphysics is senseless, the *Investigations* takes a somewhat more sympathetic view. It denies that metaphysical pronouncements, which seem to capture deep features of reality itself, actually succeed in doing so; but it allows that such statements, stripped of such pretensions, and seen in the right light, can succeed in calling attention to important features *of language*. Wittgenstein believed that the metaphysician was deceived by language itself and confused truths about words —'grammatical truths' in his terminology—with truths about the world. Wittgenstein devotes a great deal of effort to making these claims.

It is interesting that Carnap, perhaps the Vienna Circle's most enduring figure, working independently of Wittgenstein, developed a similar view of metaphysics in his more mature work. He argues, in *Logical Syntax of Language* published in 1937, that a major source of metaphysical pseudo-statements concerns a tendency to express syntactical distinctions in what he called 'the material mode of speech' rather than the more appropriate 'formal mode' [3.7]. Where for Wittgenstein, metaphysics was misconstrued 'grammar'; for Carnap, it was misconstrued syntax. The two views are closely aligned. Both philosophers emphasized that truths about words were confused with truths about the world and both tried to identify the source of such confusion in language. Their views, while sharing continuities with those of the *Tractatus* and the early positivist tracts, show greater sophistication. They are expressed in works that are more attentive to the origins of metaphysics in details of linguistic confusion, more willing to grant to metaphysicians a measure of insight, albeit confused, more self-reflectively constrained and more attuned to connections among logic, meaning and context. It might be said that the work of some leading philosophers of the second half of the century who have allowed themselves to discuss issues relating to ontology, modality, realism and essentialism—Quine, Ayer, Goodman, Strawson, Kripke, Dummett, Putnam and others—is carried out in a recognizably similar spirit.

As such, metaphysics has re-emerged in some measure, but in a form that recognizes, as a matter of course, constraints that would have been anathema to Hegel, Bradley or McTaggart. These constraints can be viewed as the legacy of the great philosophical figures discussed in this essay. The most notable of these connects with a new philosophical consensus concerning the relationship between philosophy and science. The absolute idealists, less than one hundred years ago, were willing to express metaphysical views clearly incompatible with the most basic views of modern science. Those philosophers of today still willing to engage in metaphysics, do so, almost unanimously, while rejecting any notion that it can produce substantive results that can add to—much less supersede—those of the sciences. This attitude, perhaps, reflects a more global cultural shift: one in which the approved methods for finding substantive truths about the world, its structure and its components simply are those of the sciences. Metaphysics, on such an assumption, can add

nothing to this; it must be satisfied with a meaningful but secondary role of interpretation, clarification or proper conceptualization.

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CHAPTER 4
Metaphysics II (1945 to the present)

Bernard Linsky

THE REDISCOVERY OF METAPHYSICS

Metaphysics in the analytic tradition since 1945 has been a sustained reaction to the anti-metaphysical position of logical positivism. In his *Logical Syntax of Language* (1937), Rudolf Carnap lists a number of philosophical problems and notions that arise from mistaking puzzling features of language for substantive questions about reality. The traditional theories of truth, realism, universals, essential properties, time, causation, and so on, the subject matter of metaphysics since Aristotle, are, he charges, all due to confusion of language in its ordinary use, in the 'material mode' and language that really is about language, the 'formal mode' of speech. They confuse trivial, or meaningless assertions about language with substantive claims about the world. Though positivism denied the meaningfulness of most traditional issues, in the very linguistic approach of that denial one can see a somewhat traditional nominalist position emerging. What followed in the 1930s and 1940s were developments in logic and the philosophy of science that vindicated some aspects of the traditional problems of truth and the nature of necessity, causality, space and time. Since 1945 there has been a steady process by which problems have come to be seen as meaningful (although perhaps primarily logical or empirical in nature) and then become subject to many of the sorts of theories that had been presented at various other times in the history of metaphysics. The story, then, is of the re-emergence of metaphysics, primarily a certain Aristotelian tradition in metaphysics. The role of modal notions of necessity and essence clearly indicate that origin. For the most part there has also been a relative lack of interest in the metaphysical questions of the Kantian tradition. Discussions of free will versus determinism, the nature and place of the self and of God in the natural world, have not been central. Rather, the emphasis has been on questions of ontology and the most general features of the natural world, time, space and matter. One Kantian issue that has come to the centre of discussion again is the problem of realism versus idealism, now formulated as realism versus 'anti-realism'.

This survey traces what seems to have been the main line of development of metaphysics in the English-speaking world, namely the mainstream of the analytic tradition. Metaphysics, more so than other fields of philosophy in this century, has been a field in which schools of thought have clearly distinguished themselves from that main stream. Pursuing metaphysics as an independent subject has been a rallying point for those opposed to analytic philosophy, seeing it as the heir to the anti-metaphysical stance of logical positivism. Inevitably, then, this survey will miss what many may well see as the centre of the real metaphysics done in this period. Peripheral or not, all these groups maintained their version of the classical issues in metaphysics and, during this period since 1945, have, to varying extents, contributed to the rediscovery of metaphysics.

Thomism, the philosophy of Saint Thomas Aquinas, has been a persisting and central part of philosophy as taught in Catholic institutions of higher education throughout the English-speaking world. The *Review of Metaphysics,* edited at the Catholic University of America (founded in 1947), has served to maintain what might be seen as the broader tradition in metaphysics, publishing essays in the Thomistic tradition, as well as papers on topics from the whole history of metaphysics, discussions of metaphysics in the continental tradition, as well as several classics of analytic metaphysics. The position of maintaining a minority tradition in metaphysics is also that of the students of 'process philosophy' following Charles Hartshorne and Paul Weiss in his inspiration by the later work of Alfred North Whitehead. Closer to the mainstream, but still a self-identified minority position has been that of Gustav Bergmann's students, who have maintained discussions of metaphysics in the realist tradition of Bertrand Russell's logical atomism from before World War I. They maintained an interest in classical issues of realism about universals and the nature of particulars which re-entered the centre of discussion with the revival of interest in universals in the late 1970s. Bergmann insisted that logical positivism had not destroyed metaphysics as a subject, but had rather contributed a method for the study of traditional issues. And, he claimed, it had come to traditional positions, nominalism, materialism or phenomenalism in different hands. These views are becoming the accepted view. Accompanying the re-emergence of metaphysics has been a growing self-conciousness, an awareness that many apparently 'semantic' issues in logic and philosophy of language had import for metaphysics and embodied traditional metaphysical positions.

NOMINALISM

Nelson Goodman's *The Structure of Appearance* appeared in 1951 although the Harvard doctoral thesis on which it is based was completed in 1940. It was essentially an analysis of and improvement on Carnap's *The Logical Structure of the World*. The project was to 'construct' the world of space, time and material objects from the basic experiences or *qualia* presented in sense. The underlying ontology is that of phenomenalism. Material objects are just collections of appearances. The subject matter of the theory is experience, conceived as composed of individual items with sensory qualities, units of perception of colour and sound, etc. For Goodman the goal of a constructionist project is only to produce a reconstruction of a notion which is *extensionally isomorphic* to the pre-theoretic original. Isomorphism requires only the sameness of structure as represented in extensional logic, objects and relations which mimic the original. These constructions were to be effected with only the apparatus of *mereology* the 'calculus of individuals' originally developed by the Polish logician Lesniewski in the 1920s. That calculus is axiomatized by Goodman using only the one primitive first-order relation of 'overlap'. The *mereological sum* of individuals is another individual, importantly of the same logical type as its parts. For Goodman the characterizing feature of nominalism is that it does not involve commitment to any abstract objects such as sets or intensional entities, just objects and their sums. Logical type is the test of ontological category for Goodman.

While metaphysicians in this period have been reluctant to accept other categories of objects, in particular resisting any abstract entities other than sets, a generous ontology of particulars (assumed to be material, or at least physical) has been a general starting point. Every collection of objects and parts of objects forms a sum which has as its parts precisely those objects. Thus there is an object consisting of my hand, that book and the city of London. It has been seen as a problem to be solved, just what it is that distinguishes what we think of ordinarily as objects. Are they just those mereological sums that are of importance or interest to us? The problem of how and why we 'individuate' objects as we do, immediately comes to the fore, not as in earlier times as an epistemological question of our identifying and perhaps synthesizing objects from a stream of experience, but rather a question of explaining which of the many

existing mereological sums are in fact those that are important to us. The 'construction' of the Carnap-Goodman project does not create objects, rather it reconstructs our conceptual scheme and those objects that are important to us from a few primitive psychological notions, such as perceived similarity, thus explaining what it is that we select for our interests from the huge pre-existing ontology of the 'external' world of phenomena. The division of the world into objects and those in turn into kinds based on shared properties is all seen as in some way arbitrary, not 'real'. This form of nominalism, is, then, allied to anti-realism.

Goodman's account of qualities, or universals, illustrates the central role which mereology plays in his constructive project. Carnap had followed the nominalist strategy of constructing qualities as classes of individuals similar in the right way to each other. Roughly, a quality like blue is just a class of things similar to each other, the class of all blue things. Membership is determined not by possession of the same universal colour, but rather by greater similarity with other members of the class than with things outside the class. The class is the only general object, the one having many members as its 'instances'. This led, however, to the problem of 'imperfect community'. It is not possible to define a property as a class of objects more similar to each other than to anything outside the class as, for example, a red rubber ball, a blue wooden ball and a red wooden cube might resemble each other more closely than other objects such as some other red or wooden things, or balls, without sharing any real property in common. Goodman's solution is this: by treating mereological sums as individuals, they become possible candidates for the similarity relation. It is the mereological sum of individuals, not the individuals separately, which another must resemble to have the quality they share. Thus while taken pairwise the objects in the group may resemble each other strongly, the mereological sum of the group does not have the uniformity necessary to be similar to other objects whether red, wooden or balls.

Another feature of Goodman's nominalism which became more important in his later thought is the emphasis on predicates as the only general or universal entities. Thus 'green' is as good a predicate, and hence as good a property as his famous invented predicate, 'grue' (being observed before 2000 AD and green, otherwise blue). This leads to problems in epistemology when it is asked why inductions on actual emeralds, all of which are both green and grue, can lead to opposite predictions about emeralds inspected after the year 2000? Still later this nominalism leads to Goodman's version of anti-realism. To use his example, if predicates such as 'stereo system' are human contrivances, carving up the world according to our human interests and so mind-dependent, then so is 'star', and hence stars are every bit as much mind-dependent.

Goodman's nominalism influenced both his senior colleague Quine and the whole generation of metaphysicians trained at Harvard University, even if it was principally by contrast with the austere ontology of their teacher that positions were defined.

IDENTITY AND INDIVIDUATION

The 'ordinary-language philosophy' centred at Oxford and flourishing after 1945 and through the 1950s, tried to find in the study of ordinary language the resolution of traditional philosophical problems by diagnosing and eliminating some confusion underlying them. In practice it continued the hostility of logical positivism towards metaphysics. Thus David Pears' article, 'Universals' (1951), proposed an almost psychoanalytic account of the search for universals to underpin or explain the use of predicates [4.16]. Universals are shadows of predicates and the search is for an explanation where none is to be found. What do all red things have in common? Well, they are red. What more could be needed or provided as an explanation? We can explain what particular things have in common in different ways, but not what is common to all cases of similar objects. The problem of universals is not to give an account of some sort of

entity which performs a certain theoretical function, but rather to provide a cure for the desire to find such entities. While Renford Bambrough's 'Universals and Family Resemblances' (1960) ostensibly grants that there is a problem of universals, it finds the solution to the problem in Wittgenstein's notion of family resemblance, a solution that in effect denies the assumption of the problem that there is some one thing in common to the instances of a general term for which we need an account.

Not all discussions of metaphysical topics were so dismissive of the purported problems. Max Black's article 'The Identity of Indiscernibles' (1952) presented the thesis that no two objects could have all the same properties as quite clearly meaningful, but just as clearly false [4.5]. He suggested that one could easily imagine a universe consisting of two metal indiscernible metal spheres, and nothing else. Black introduced the approach of the ordinary-language school in analysing attempts to argue against his counter-example. Repeatedly it appears that we cannot insist that certain words have meaning, that we can, for example, succeed in referring to one sphere rather than another, just by having certain thoughts. We must show that such thoughts are not just pictures that lead us astray. We must remember the public and objective nature of the referring process in language by which things get their names. For example, we cannot name the spheres in the story, since, by hypothesis, no one exists in the universe to give them names. Black's article raised issues of the connection between the particularity of objects and of the preconditions for identifying and naming objects that was central to the metaphysical discussions of the next years, including in the work of Strawson.

Peter F.Strawson, with *Individuals; An Essay in Descriptive Metaphysics* (1959), moved away from the the anti-metaphysical tradition of the logical positivists as it had been continued by the ordinary-language movement [4.23]. Strawson called his project 'descriptive metaphysics'. His goal was to unearth the metaphysical scheme of our ordinary, non-scientific view of the world, to be found embedded in our ordinary language. Thus moving from the basic speech acts of referring and describing which correspond with the subject-predicate structure of our language, Strawson attributed a basic conceptual scheme composed of objects located in space and time with their qualities. The ability to use names requires 'identifying' and then 're-identifying' their referents at another time and thus the presupposition of a framework of enduring spatial objects within which such identification could proceed. Questions of ontological dependence are replaced by issues of conceptual priority. We do not ask whether space is absolute, or whether spatial relations depend on objects. Rather the question becomes whether a spatial framework is necessary for re-identifying objects. That may be so, if indeed we can only re-identify objects by tracing them through space from one time to another. Strawson devotes a chapter to investigating the intelligibility of a 'sound world' in which we only perceive sounds of different pitches in a temporal sequence.

Strawson's view of universals is a combination of conceptualist and nominalist elements. The concept of universal or property results from considering predication to 'introduce' an entity much as reference does. The entity is identified by the concept which we associate with the predicate. Strawson's interest was not with the ontological status of what is introduced by predicates as much as in the asymmetry between referring and predicating. He was concerned with the difference in category between objects and predicates. Objects can only be introduced by referring expressions, whereas predicated entities can also be referred to. Strawson argued that the asymmetry of logical role is not due to a difference in kinds of entities involved, but rather our talk of kinds of entities is a reflection of the prior differences in logical role. The difference between particulars and universals reflects the difference between referring and predicating. Strawson was also concerned with the conceptual relations between general qualities and particulars. What is the process of 'individuation' by which talk of a property being instantiated is replaced by talk of individuals? Here Strawson disagreed with Quine who considers the very same problem. Strawson argued that a language that

merely 'places' features at various locations, saying that there is snow or water in such and such a place, can only be an artificial one, and must depend on a prior conceptual scheme in which places are identified by objects that occupy them and features are the properties of those objects. Our ordinary scheme of objects with their properties located in space and time is conceptually prior to others that might be proposed as scientific or less ontologically laden.

In addition to material particulars, Strawson presented persons as an equally fundamental ontological category. The traditional problem of relating the mind to the body is resolved by seeing persons as a fundamental conceptual and hence ontological category, to which we attribute both mental and physical predicates. It is the person which both thinks and has material properties. This view has come to be known as 'property' dualism, as it avoids the familiar dualism of substance and is a forerunner of contemporary functionalism in the philosophy of mind.

Strawson's influence continued with David Wiggins who introduced versions of Aristotelian notions of natural kind and essential property using the Strawsonian framework of notions of identification and conceptual dependence. Those properties that we rely on to make sense of claims of identity through time, to 're-identify' the same object later, are candidates for essential properties, those properties an object could not but have had. This leads to a conceptualist account of modal notions. Properties are essential to objects because they underlie our conceptual framework. We could not have useful concepts for certain objects unless we attribute to them, that is, see them as having, certain essential properties. This move to attributing ontological significance to the preconditions of reference or use of language had led to a dispute over the notion of 'relative identity'. It has been argued that we only make sense of claims that one thing is the same as another relative to a category; something is the same statue or the same lump of bronze, not merely the same 'thing'. The view that we can always supply a 'sortal' term to supplement identity claims and that they seem incomplete otherwise has led some to the thesis that the relation of identity itself is relativized to such sortals. This in turn has led to an investigation of the nature of personal identity, those conditions under which we would say that one is the same person as someone before.

Contemporary treatment of the problem of identity started with examples from Locke of the same soul animating different bodies over time and went on to discuss science fiction scenarios involving such things as brain duplication and matter transfer. Work on these puzzles led to a widespread interest in the self and an awakening to the importance of the concept of personal identity. If one argues that the present self is not strictly identical with the later one, what is the rationality of self-interested actions now when the later person will benefit? What happens to the notion of moral responsibility as well? The topic of 'personal identity' has also led to discussion of the seemingly perspectival nature of certain concepts. The very notions of self-interest, or self-knowledge, require that there is a difference between objects that from a third person, or detached point of view are the same. Aside from the fact that so-and-so has certain properties, what more is added to the belief or knowledge that *I* am so-and-so? It is by this route that metaphysical problems of the self and our place in the world have emerged out of the original interest in the simple relation of identity.

Willard van Orman Quine has developed a metaphysical theory as a part of his coherent philosophy of language and science, replacing Strawson's 'ordinary' conceptual scheme with the metaphysics of science. Like Strawson, his approach to metaphysics is to investigate the metaphysical view imputed by a certain conceptual or linguistic scheme, only in this case the scheme is that of science broadly construed, rather than that of ordinary language. At the beginning of his *Word and Object* we find: 'Entification begins at arm's length; the points of condensation in the primordial conceptual scheme are things glimpsed, not glimpses' ([4.20], 1). Objects are the result of 'entification', as much our doing as really there. Quine openly sees ontology as something that is imputed by a theory which can at the same time be seen as chosen for various

seemingly subjective reasons. We select the simplest theory, the one which requires minimum revision to our previous theory, and so on, fully realizing that this may not be leading us to how things 'really are'. That he sees as a remnant of the 'transcendental' metaphysics that logical positivism overthrew.

Quine assumes the ontology of science, which he sees as that of a single, four-dimensional distribution of matter across points of space-time, and the language of science, the language of first-order logic enriched with predicates for both theoretical and observational terms. Quine's commitment to the language of first-order logic as a starting point in metaphysics has various consequences. One is Quine's test for the ontological commitment of a theory. A theory is committed to those objects that are quantified over in its statements. In his influential article 'On What There Is' [4.19], Quine criticizes Meinong's theory of objects which holds that even Pegasus must have some sort of being in order to be an object of thought. Quine responds that this is a mistake, based on that fallacious assumption that names must refer to something in order to be meaningful. The meaning of names, like that of definite descriptions, such as 'the tallest mountain', are given by expressions of logic that do not depend for their meaning on having a referent. One can meaningfully deny 'The winged horse exists' without there having to be a winged horse. That is because the sentence only involves predicates and quantifiers. It says, roughly, that there is some winged horse (and at most one winged horse). That sentence is simply false. True sentences with names or descriptions in them only commit one to the objects that the resulting quantifiers and their variables range over. Statements such as 'Some quarks have up spin', when regimented as 'There exists an x such that x is a quark and x has up spin', is seen clearly to commit us to quarks. This results from the view that variables are the genuinely referring devices in a language, names being eliminable in terms of definite descriptions and those in turn eliminable via Russell's theory of descriptions. Bound variables, such as the x above are said to 'range over' certain objects, and the commitment of the theory to them is determined by that quantification alone. Quine's slogan is: 'To be is to be the value of a bound variable'.

There are several immediate consequences of this simple doctrine. Any such notion as Meinong's distinction between entities with being as objects of thought, and those that exist, is ruled out. 'Everything exists' is a simple theorem of logic when read as 'Everything is identical with something', yet it has ontological consequences. There is no realm of non-existent or merely possible beings. Second, no other part of language besides bound variables will produce any ontological commitment. Quantification is the only way a theory commits one to objects. The use of predicates does not commit one to the existence of universals. Quine is quite openly nominalistic about predication. A predicate is simply 'true of' its many instances. They do not have to have any *thing* in common, any universal. To be a man, Quine says, is just to be such that one's name with the predicate 'is a man' produces a true sentence. It is that which all men have in common. As the thesis that what is general is only a general term, this is a classic statement of nominalism. Quine himself followed Goodman's slightly different definition by which any acceptance of abstract entities, even particulars such as sets, is a move away from nominalism and towards Platonism. The seemingly unavoidable use of mathematics, and thus of the set theory to which it is reduced, within science led Quine to take the variables of set theory at face value as ranging over sets, objects differing from the individuals of Goodman's mereology.

Quine's criterion for deciding to make an ontological commitment is the pragmatic test of the needs of 'science' for the proposed entities. Does the simplest, most comprehensive theory of the phenomena quantify over entities? If so, then adopt the theory and accept the accompanying ontological commitment. Simplicity and fruitfulness are pragmatic criteria. It is easy to see why one might make use of such theories, but it is not obvious, to a realist, why they make a theory more likely to be true. Quine's philosophy is thus following in the Harvard pragmatist tradition of James and Peirce. Truth is to be explained, or at least judged on pragmatic grounds. For making an ontological commitment Quine defers to science, but in

practice he argued against certain entities on more *a priori* grounds. Science, and common sense, require that theoretical entities be well defined. Quine's primary test for recognizing entities, came to be the easy statement of 'identity conditions'. The model answers are provided for material objects, which are the same if they occupy the same spatio-temporal locations, and sets; sets x and y are the same if and only if the members of x are exactly the members of y. This condition does not define identity for the objects in question, since it takes the notion of identity as primitive, nor does it describe how to 'identify' entities, as in Strawson's notion. It is simply a thesis of the theory of sets, one which gives necessary and sufficient conditions for the identity of sets. The lack of such identity conditions was used by Quine as a complaint about universals and other 'intensional' entities such as propositions and possible objects. 'No entity without identity' is the slogan for this aspect of Quine's metaphysics. Between the quantifiers and identity we have all of the conceptual apparatus that Quine needs. Where Strawson was concerned about the dependency of our notion of object on a framework of space and time, Quine speculates about the emergence of the notion of individual when mass terms such as 'water' get supplemented with the use of identity to produce individuals. Thus at some point a child's notion of 'mama around' is replaced by the notion of a persisting object, her mother, that is distinct from others. Time is not a framework in which objects are identified and re-identified, but rather a dimension along which the temporal parts of objects can be located. For an object to be red at one time and green (thus not red) at another, requires that the object have distinct parts, one of which is located 'at' the first time and is red, and the other of which is 'at' the second and which is green. The relation between the two is not identity, rather they are parts of a particular mereological sum which is identified as an object.

That the language of science is the guide to ontology has consequences when Quine considers that the truth-conditions for sentences and the range of quantifiers are only stated in a background metalanguage. This leads to the doctrine of ontological relativity: the thesis that one can only specify the ontological commitment of a theory in the terminology of another theory and that different such accounts can be equally justified. Indeed very distinct background theories and assignments can agree on the truth of all sentences in the object theory. Quine gives this example: an account of a language which interprets the term *gavagai* as true of rabbits which is as empirically adequate as one that interprets the term as true of undetached rabbit parts. There is thus a slack that can be taken up in different ways, producing incompatible accounts of ontological commitment, and giving an ineliminable relativity to claims about ontology. There is not a fact of the matter about our ontological commitment, except as it is revealed by a particular choice of meta-language and theory. When we are studying our own ontology this meta-language is an extension of our own object language. While 'There are quarks with up spin' commits us to quarks, there is no theory-neutral way to explain what that commitment amounts to. Quine presents this as an aspect of the pragmatist element in his thinking. We work inside a conceptual scheme, or theory, trying to improve it as we go, but, in the image he takes from Otto Neurath, like sailors in a ship who must rebuild at sea. We make the best of the theory we have and do not strive for some external, God's-eye view from which to assess our knowledge. This doctrine of ontological relativity and the accompanying view of our attitude towards our own ontology was later taken up by anti-realists.

Donald Davidson proposed the study of the ontological commitments of a meta-language as a method for metaphysics. Davidson argued that a theory of truth, in the form proposed by Tarski, is not only an approach to an account of meaning for a language, but also a guide to its ontology. Following Quine, he agreed that the ontological commitment of a theory is determined by the range of its quantifiers, but then went on to suggest that quantification could be found in contexts where it is not on the surface. Thus Davidson argued for the recognition of *events* in our ontology on the grounds that a proper account of inferences of certain sentences about actions requires them to be treated as quantifying over events. A

theory of truth must account for logical inferences in a language and so one may go from knowledge of inferences to a theory of truth that would justify them and that may reveal hidden ontological commitments. Thus, one may infer from 'Jones buttered the toast in the bathroom with a knife at midnight' that 'Jones buttered the toast in the bathroom with a knife', 'Jones buttered the toast in the bathroom', 'Jones buttered the toast', and more. The ordinary formulation of such sentences in first-order logic, using a relational expression '*x* buttered *y* in *z* with *w* at *t*', will not permit such inferences. Only a formulation with explicit quantification over events will capture those inferences, he argued. One must treat the original as of the form 'There is an event *e* and *e* is a buttering and *e* is of the toast and *e* is by Jones and *e* is in the bathroom and *e* is at midnight' which permits the inference to the other sentences, easily, once they are seen to be of the forms 'there is an event *e* and is a buttering and *e* is of the toast' for example. Putting sentences into a logical form in first-order logic, because it is necessary for giving a theory of truth for a language, becomes in turn a method in metaphysics, the 'method of truth in metaphysics'.

Quine had identified events simply as classes of points in space-time, thus seeing ordinary objects as simply enduring events (those oriented along the time axis in space-time). Davidson felt required to postulate them as *sui generis* entities, since it appears that two distinct events can occupy the same space at the same time. He suggested the example of a sphere slowly rotating and growing warm at the same time. It seems that there are two events occurring together, the rotating of the sphere and its warming. If not spatio-temporal location, then what are the identity conditions for events? Several rival accounts have been proposed, usually involving reducing events further to some other category, usually to combinations of objects and properties. Perhaps the two events are distinguished by the different properties they involve, growing warm and moving around an axis. Davidson, with the same nominalist inclinations as Quine, would have none of that. Rather, he suggested, events are to be identified by their causes and effects, same causes and effects, same event, to mimic Quine's criterion for sets, same members same set. The criterion has struck most as quite different from Quine's and not as successful. The ensuing discussion of events was most fruitful for the theory of action, as well as reviving interest in events and related notions such as that of facts which had been absent from metaphysical discussions since the time of logical atomism.

Davidson's discussion of events was driven by the need to formulate event sentences in first-order logic. His and Quine's philosophy is deeply committed to the validity of first-order logic and its extensional nature as the proper language of science. Quine's purely technical objections to the logic of necessity (quantified modal logic) were accompanied, however, by the conviction that making sense of that logic would lead to unsavoury metaphysical involvements, the 'jungle of Aristotelian essentialism'. His opposition to modal logic was met as a challenge, by some of his own students, and so was perhaps the leading cause of a revival of the very Aristotelian metaphysics that he dreaded.

MODAL METAPHYSICS

Saul Kripke introduced a new era of metaphysical theorizing with his possible-world semantics in the early 1960s and particularly his lectures 'Naming and Necessity' given in 1970 at Princeton University. As part of his qualms about intensional notions, Quine had charged that quantifiers could not always be intelligibly combined with sentence operators such as 'It is necessary that'. Quine held that one might try to make sense of 'It is necessary that there exists some *x* such that *x* is *F*', what is called *de dicto* necessity, as some disguised claim about the sentence 'There exists an *x* such that *x* is *F*', perhaps one which claims it is an analytic truth or an axiom. This account is true to the etymology of 'dictum' as 'what is said'. The other combination, or relative scope for the quantifier and operator, as in 'There is an *x* such that it is necessary that *x* is *F*', leads to an assertion of *de re* necessity (necessity in the thing, *res*). Here it is at least one thing *x*

which is claimed to have a necessary property. This cannot be easily interpreted as an attribution of necessity to something that is said. Quine thought that interpreting such sentences would require a forced and arbitrary distinction between the properties of an object, those it has merely in virtue of how it is described and those it has of necessity, or essentially. To use the example which Quine favoured, a bicycling mathematician seems to be essentially two-legged when described as bicycling, and rational when described as a mathematician, but does not have one property more essentially than the other. Discriminating properties on such a subjective basis leads, Quine feared, to the hopeless confusions, or 'jungle' of Aristotelian essentialism, the logical positivist's equivalent of the early modern philosopher's horror of scholasticism.

Kripke's possible-world semantics provided a way of modelling such distinctions. A sentence is to be interpreted in terms of a class of possible worlds in addition to a distinguished *actual* world. For a sentence asserting necessarily p to be (simply) true (that is, true at the actual world), p must be true at all possible worlds. *De re* necessity is represented by seeing the worlds as each having a domains consisting of the objects existing at that world, domains which can overlap in membership. An object x is essentially F if it is F at every world in which it exists. The *de dicto* assertion above is taken as true if there is some object or other in each world which is F. For example (to modify one of Quine's famous examples) the *de dicto* claim 'Necessarily there is a shortest spy' is true because in each world some spy is shorter than all others. For the *de re* assertion to be true there must be one object that is F at all worlds in which it exists. Thus the clearly false *de re* claim 'Some spy is necessarily the shortest spy' requires that there be some one individual spy who is shorter than all other spies in all the worlds in which that spy exists. Much of recent modal metaphysics can be seen as an attempt to explore the metaphysical commitments and assumptions of this possible-world semantics.

With a way of making sense of *de re* necessity in hand, Kripke went on to make several claims about particular examples of *de re* necessary truths. One which has had a great impact in the philosophy of language has been the claim of the necessity of identity. One consequence of Kripke semantics is that for any x and y, if $x=y$ then necessarily $x=y$. This is compatible with the failure of substitutivity in modal contexts, the intensionality which is a defining characteristic of this logic. It may be that both a *de dicto* truth that:

It is not necessary that nine=the number of the planets

and a *de re* truth that:

Of the number of the planets (i.e. nine) and nine, it is necessarily the case that the former=the latter.

While definite descriptions do not pick out the same object in each world, and hence lead to apparently contingent identity claims, 'rigid designators' which do pick out the same object across worlds will appear in necessary identity statements. Thus, claimed Kripke, if 'Hesperus' and 'Phosphorus' are both names (for Venus) and hence rigid designators, then 'Hesperus=Phosphorus' is a necessary truth. Kripke presented this as an example of a necessary truth which is knowable only *a posteriori,* which runs against the traditional identification of the necessary with the *a priori*. While this abandonment of the traditional epistemology of necessity had a liberating effect on metaphysical speculation it has not been replaced by an agreed-upon alternative epistemological account.

Kripke's extension of his notion of rigid designator to natural-kind terms produced another class of candidate *de re* necessary truths. If general terms such as 'water', 'tiger' and 'H_2O' pick out natural kinds

rigidly, i.e. across possible worlds, then such claims as 'Water= H_2O' and 'Tigers are animals' may express necessary truths of the new class, *a posteriori, de re* necessities. A large debate has developed surrounding the essential properties of natural kinds and whether, in fact, such considerations from the philosophy of language about designation can have such substantive metaphysical consequences.

A second kind of *de re* necessity which Kripke explored was the essentiality of origin. He asserted that it is essential to an object to have the particular origin that it does. Origin is essential for artifacts as well as natural objects, thus a particular wooden lectern was necessarily originally composed of the particular wood from which it was in fact made, although it might later come to be made of different wood over time. (A modal version of the ship of Theseus was soon presented as a challenge to this. Suppose a material object could have been made of slightly different material from that which actually makes it up, say that a wooden ship could have had three or four planks different from those in actuality. But if that differently composed ship would still be the same ship then that different collection of planks could have varied even more, and so on, until, it seems, the ship could have been made of any collection of planks. As with identity through time, identifying objects 'across' worlds seems to be subject to puzzles.) Kripke's thesis also holds for natural objects, in particular people. If so, then a human being, such as Queen Elizabeth, essentially came from the particular egg and sperm from which she did arise. Other offspring of the same person would not have been Elizabeth, and a person even atom for atom like Elizabeth now, but having arisen from a different origin, would not have been the same person.

These theses about the essential properties of individuals and natural kinds have produced much contemporary debate as well as inspiring investigation of those figures in the history of philosophy who investigated modal notions, in particular the Aristotelian tradition. An immediate consequence was various attempts to apply Kripke's notion of natural kinds and essential properties to one prominent example of natural kinds, biological species. The 'species problem' in the philosophy of biology entered the mainstream of metaphysics and soon led to the rival thesis more in keeping with current evolutionary thinking that species are just classes of objects related to each by ancestry, or even best seen as single individuals, mereological sums of the ordinary organisms that belong to them.

Another consequence of Kripke's semantics has been a resurgence of interest in the ontological argument, and other theological issues such as the problem of divine foreknowledge. Alvin Plantinga has defended a modal version of the ontological argument. It is a simple axiom or theorem of modal logic that what is possibly necessary is in fact true. If it is part of God's nature to exist necessarily, from the mere possibility of God's existence we can infer His actual existence. This in turn has led him and many others to look at the epistemological status of modal claims of necessity and possibility, as they do appear as premises of many traditional arguments. Plantinga is one of a number of prominent modal metaphysicians who are also believers. Long thought by its religious detractors to be a part of the atheistic world-view of twentieth-century science, analytic metaphysics has now emerged as a tool for traditional theological speculation and philosophers have moved from the main technical questions of metaphysics to investigations of their own faith with relative ease. Traditional theological notions such as omnipotence, omniscience, atemporal existence, and predestination are all readily explained in modal terms with possible world semantics.

The interpretation of possibility and necessity using possible worlds has also led to a revival of interest in the notions of freedom and determinism. The model of the world as having a fixed, single past, but a branching structure of possible futures has liberated many from the seemingly deterministic metaphysics of natural science with its single space-time extending from past to future. This natural model of an indeterministic world has revived interest in the problem of free will, trying to reconcile the assumption of our freedom to act with the deeply entrenched belief that the world is governed by natural laws that have some sort of modal force. While the Quinean scientific world-view that dominated post-1945 analytic metaphysics gave

no special ontological status to natural laws, laws just being universal generalizations arrived at in the right way and with the appropriate epistemological status, it was still felt that being subject to laws was an appropriate analysis of the notion of determinism. To the extent that determinism had content, it was felt to be true. The introduction of possible-world semantics for talk of necessity changed that attitude. The problem of free will has re-emerged in full force.

Developing out of his alternative to Kripke's version of possible-world semantics, David Lewis has developed a complete metaphysical scheme culminating in his *On the Plurality of Worlds* [4.14]. Kripke's semantics makes sense of *de re* necessity by saying that an object *x* has a property *F* necessarily, just in case *x* has *F* at every possible world *w* at which *x* exists. Lewis's alternative counterpart theory holds that each object exists in only one world. When we say that *x* has *F* necessarily we mean that in each world *w,* the *counterpart* of *x* at *w* has the property *F*. Lewis has a surprisingly Quinean view about the reality of counterparts and the possible worlds that contain them. For Lewis possible worlds are spatio-temporally extended objects containing their members as mereological parts. The actual world is just 'me and my surroundings', the universe. Other possible worlds are just like this world, composed of material objects that exist every bit as much as the objects in the actual world. They are separated from this world only by lacking any spatial or temporal relations to objects in this world. Lewis's possible worlds look very much like the world on Quine's view, except there are many of them. Thus it is possible for him to identify properties with sets of objects, although objects drawn from many possible worlds. The property of redness, then, is the set of all red objects, including both the actual and all possible red objects. Using only Quine's physical objects and sets, Lewis is able to distinguish entities that Quine must identify. Lewis also shares Quine's view of the world as composed of objects extended in four dimensions, thus as with Quine, change is explained by different temporal parts of objects having different properties.

The seemingly small addition of what look like many additional versions of Quine's universe of course has far-ranging consequences. Many of the modal notions banned from Quine's ontology are re-introduced by this simple expedient. In addition to the background notion of metaphysical necessity explained as truth at all possible worlds, Lewis is also able to account for more relative or restricted notions of necessity as in causal laws and counter-factual claims about what would have happened under certain circumstances. The basic notion underlying these analyses is Lewis's account of counter-factual conditionals. To say that 'if the match had been struck, it would have lighted' is to say that while the match may not have been struck in the actual world, in those worlds sufficiently similar to this world, but differing by having the match struck, the match also lights. The notion of similarity of possible worlds is taken by Lewis as a primitive for the analysis of a range of other notions. With an account of counter-factual conditionals in hand Lewis then analyses particular causal statements, as in 'the striking of the match caused it to light' in counter-factual terms. The match was struck and lighted, and if it had not been struck, it would not have lighted. Causal laws are then generalizations over actual and possible causal connections. With these analyses in hand, Lewis has ventured into some of the topics not common to recent metaphysics. Thus he can give an account of the traditional 'compatibilist' account of freedom of the will. It is possible for Lewis to give some detail to the account by which actions can be simultaneously caused and subject to natural law, and free in so far as they are caused by our desires and will. An action, however law-governed, is free in so far as had we chosen otherwise, we would have done otherwise. These analyses have also allowed Lewis to speculate more meaningfully about the notion of time-travel with its accompanying puzzles about causation and determination.

What of Quine's criterion of ontological commitment and his rejection of the Meinongian notion of objects that do not exist, but merely have being? Lewis fully accepts Quine's criterion of ontological commitment; all objects one quantifies over in a theory are commitments of the theory. Thus Lewis allows that talk of 'all

donkeys' ranges over not only the actual donkeys, but also the possible talking donkeys we are committed to by saying that possibly (i.e. in some possible world) there are talking donkeys. Unlike a Meinongian object, possible entities *(possibilia)* do not have a special status such as being which is distinct from, and somehow inferior to, existence. They exist every bit as much as real entities. But surely, it will be said, then Lewis believes that talking donkeys exist, but donkeys don't talk! Here Lewis replies that there are indeed talking donkeys, but no *actual* talking donkeys. That, however, does not mark a distinction of ontological category, for, according to Lewis, the term 'actual' is an indexical term like 'I' or 'here', meaning something like 'in the same world as the speaker' and so does not mark out a special category of thing any more than other indexicals do.

Lewis's counterpart theory, in particular the view that every object exists in only one world, is essential for this 'indexical' theory of actuality, and to his view that every world is just as real as the actual world: what has been dubbed his (extreme) modal realism. Worlds could not be Quinean universes if they contained ordinary objects having properties they do not actually have. Lewis argues for his counterpart theory, indeed, by finding it incoherent for an object to have different properties at different worlds. He formulates this as the 'problem of accidental intrinsics'. Consider, he says, some internal or non-relational property of an object which is not essential to it. It is hence accidental and intrinsic. Thus a person Hubert, who actually has five fingers on his hand, might have had six. Suppose we analyse this by saying that while Hubert has five fingers at the actual world *w** he, Hubert, has six fingers at some other world *w'*. But having a certain number of fingers is intrinsic to Hubert. What object has six fingers at *w'*? Hubert, who has five fingers. How can something which has five fingers have six? The reply that the notion of having a property at one world and not at another is primitive to modal metaphysics does not move Lewis. He finds that primitive notion incoherent. Lewis's view is in the minority. The more common view is that objects can exist in different possible worlds. One version of this is sometimes called *haecceitism* (echoing medieval discussions) to indicate that objects have a haecceity or 'thisness' which is independent of any properties they may have, and thus makes sense of existing in a world independent of the properties that are had at the world. Haecceitism is not the only view that supports cross-world entities. An alternative view is that objects can only exist across worlds in virtue of an 'individual essence' (echoing the older 'quiddity' or 'suchness') which provides their identity despite differing (perhaps intrinsic) properties in different worlds.

Both Lewis's notion of actuality and the debate over counterpart theory have led to a growing interest in medieval views of notions of existence, identity and individual essences among modal metaphysicians.

MEINONGIANISM

Consideration of the notions of actuality and of the status of *possibilia* has led to new interest in the object theory of Alexius Meinong and his students which was so intertwined with Russell's theory of descriptions and the rise of analytic philosophy. Although developed originally as a logical theory making sense of non-referring names like 'Pegasus' and the contradictions surrounding postulating 'round squares', some developments of Meinongianism are more explicitly metaphysical. All accept the distinction between being and existence. There is a wide domain of entities with being, such as round squares and golden mountains, only some of which have the property of existence. Terence Parsons in *Nonexistent Objects* [4.15] distinguishes ordinary nuclear properties such as colour and physical properties from special extra-nuclear properties such as existence and other categorical properties such as being an object, and so on. This distinction allows him to reconcile the Meinongian drive to postulate as many entities with being as possible, without engendering contradiction. We cannot define into existence the 'existent golden mountain' because existence is extra-nuclear. Still, 'the golden mountain' will have being. Parsons'

Meinongian metaphysics is directed primarily at providing an ontology for the semantics of natural languages, where reference to the non-existent is ubiquitous. Parsons counts fictional objects, characters in fiction such as Sherlock Holmes and Hamlet among his non-existent entities. They are typical incomplete Meinongian objects; while Sherlock Holmes had an address and a famous costume, he neither had nor lacked a mole on the heel of his left foot. Fictional characters only have the properties attributed to them in the story, or which follow closely from those attributed. Parsons' work, and related work on what is known as the 'logic of fiction' has drawn considerable interest within literary theory, and is a point at which the disciplinary isolation of much of recent analytic philosophy is breaking down.

Edward Zalta's *Abstract Objects* [4.26] is more explicitly metaphysical, developing a theory of objects in which other metaphysical notions of possible world, monad, universal and more can be modelled. His basic notion, derived from Ernst Mally, a student of Meinong, is to distinguish two modes of predications, inherence and encoding. While ordinary properties inhere in concrete objects, abstract objects, both more traditional ones such as sets and universals, and the new Meinongian round squares, rather encode those properties. While explicitly metaphysical in nature, Zalta's system lends itself to formalization and promises what he terms 'axiomatic metaphysics', allowing the derivations of theories of objects such as possible worlds and intentional objects from a small list of basic axioms. As with the modal metaphysics of Kripke and Lewis, Meinongianism began as a theory of interest to logic and formal semantics, but is taking on a life of its own as a metaphysical programme.

NATURALISM

The orientation of logical positivism towards natural science, and in particular physics as the model of a science, combined with the positivist doctrine of the 'unity of the sciences', has led to a strong tradition of naturalism in recent metaphysics. In the work of Quine, for example, it is clear that the methods and theories of science are continuous with respect to those of common sense, but refined and self-conscious, and therefore to be given a privileged status. The doctrine of the unity of the sciences and the principle of the reducibility of all sciences ultimately to physics give the ontology of physics a privileged position for Quine. That ontology is composed of points of space-time bearing familiar physical, material, properties of mass and energy states, and so on. For Quine, the needs and current theories of physics are the arbiters of ontological commitment. Hartry Field and others have found Quine's commitment to sets as out of keeping with the physicalism of the ontology of science and thus see as a fundamental project that of clearing science of any apparent commitment to such abstract objects.

David M.Armstrong, and a school of Australian philosophers influenced by him, have found that a commitment to universals is compatible with that overriding physicalism. Armstrong's *Universals and Scientific Realism* (1978) has led to a wide-ranging discussion of realism about universals in connection with natural laws, induction and causation within the philosophy of science, as well as in metaphysics. He characterizes his own 'world-hypothesis' with the following three theses '(1) The world contains nothing but particulars having properties and related to one another (2) The world is nothing but a single spatio-temporal system and (3) The world is completely described in terms of (completed) physics' ([4.1], 126) He argues that universals are not to be postulated to explain the appearances of language, in particular the nature of predication, but rather to be introduced on the purely scientific basis of being theoretical entities required to explain the observed phenomena. In the case of universals the phenomenon is exact similarity. This is best explained as the result of an identity. The very same universal is present in the various exactly similar instances. Armstrong's realism avoids what he sees as the major non-physicalist feature of Platonic realism by arguing that universals are spatio-temporally located in their instances and not in some Platonic

realm. This 'immanent' realism which Armstrong cites as Aristotelian in tradition rather than Platonic, has the result that universals can exist only when instantiated. By individuating universals via their connection with causal powers, Armstrong also has reason to question the existence of higher-order universals, properties of properties. Only objects subject to causal influences can possess the properties that explain that causation.

Universals are central to Armstrong's account of natural laws. Breaking with the long-standing empiricist tradition of holding a regularity theory of laws, Armstrong holds that laws are due to relations between universals. While there may be all sorts of constant regularities in the world, what makes most 'accidental' is that they are not due to a relation between the universals involved, rather just their co-extensiveness. It is this primitive relation of necessitating that is what is added to that mere coincidence when one really has a law. This marks a quite dramatic change from all the metaphysicians of this period. Quine certainly subscribes to a regularity theory of law, finding what distinguishes laws from mere accidental regularities in the special role of statements of law in our theories. Even Lewis reduces necessity, causal or otherwise, to a regularity over all possible, or all physically possible worlds.

Causal relations play a central role in other parts of Armstrong's systematic philosophy, including his accounts of epistemological notions such as perception and knowledge. Armstrong defends an 'externalist' account of epistemic justification by which the evidential properties of sensory experience, for example, derive from their being reliably related to certain external evidence via systematic causal relations. Armstrong's physicalism has also been influential in the philosophy of mind via his *A Materialist Theory of Mind* (1968) which advocated what has come to be known as 'reductive materialism' [4.2]. That position holds that mental states such as pain, belief, self-consciousness are all identical with certain states of the brain or central nervous system. Just as science has identified lightning with the discharge of electricity, or water with H_2O, it is the chore of science to find the right physical states with which to identify mental states. The model of ontological commitment for Armstrong, as for all physicalists, has been the reductions and identifications provided by the natural sciences.

Wilfred Sellars' distinction between the *manifest* and *scientific images,* the world of macroscopic, continuous, coloured, etc., objects, and the world of sub-atomic particles and no secondary qualities, has inspired a range of attitudes towards naturalism in response. The eliminative materialism of the philosophy of mind, which dismisses the manifest image as 'folk psychology' on a par with talk of phlogiston and witches, advocates revising our ordinary notions and adopting the scientific image of the world as our ordinary conception. Those notions that do not fit in well with naturalism, then, those that resist reduction, are simply to be abandoned. This extreme naturalism is charged with being an overvaluing of science, a scientism. It also leads to certain forms of anti-realism.

ANTI-REALISM

The various forms of naturalism and physicalism discussed above all shared in reaction to classical logical positivism a realism about the theoretical objects of science. That realism was extended to a general realism by Hilary Putnam in conjunction with the theory of natural-kind terms developing with the causal theory of reference. The idea was that all terms, including theoretical terms that were once to be given operationalist or empirical meanings, in fact get their reference by causal connection with an object or kind or property in the world.

In two addresses in 1976 and 1977, Putnam quite dramatically announced his abandonment of realism, soon to be followed by a number of other prominent philosophers. The 'anti-realism' that is to replace realism takes different forms, but uniting them all is an abandonment of the simple picture of reference and

of realism about theoretical terms that went with it. Putnam relied originally on semantic arguments, familiar facts from logic about the possibility of many alternative models or interpretations of a given theory. Realism, Putnam charged, relies on there being one distinguished interpretation which stands out from the others. But any theory of what that relationship is is just that, 'more theory' itself subject to radically different interpretations. That one may well have a notion of reference 'within' a theory, as a causal, or other ordinary relation between words and things in the world, Putnam allows, as long as this is an 'internal' realism. Thus, for example, the realism of science towards its own entities may be seen as a legitimate scientific hypothesis and understandable as an internal, or theory-dependent sort of realism. But if one tries to assert that science as a whole, or our language as a whole, is true because of correspondence with an independent reality, then one has entered into the incoherent 'metaphysical' realism that his arguments attack. This realism is thus not a view about the existence of particular entities, but rather a global view about the nature of truth. Putnam characterizes metaphysical realism by the view that truth is radically non-epistemic, that all our justified beliefs could turn out to be false. He has introduced the vivid 'brain in a vat' hypothesis (to echo Descartes's 'evil genius') to make this position clear. Might we just be brains kept alive in a vat of nutrient solution by a mad scientist? Thus all our ordinary beliefs about ourselves and our bodies would be false, however well justified by the carefully designed sensory input we are given. No, Putnam says, the very notions of belief and reference do not allow for such a possibility. We cannot so separate out the content of our beliefs and their objects. Nor can we make sense of a notion of truth so divorced from our beliefs. Instead, Putnam has advocated a more pragmatic notion of truth, one tied more to our epistemological practices and standards. He has argued that abandoning the realist picture allows a reconciliation of the dichotomies of fact and value, natural and interpretive social science, that have plagued western culture.

Michael Dummett had argued since the 1950s for the application of notions from intuitionistic mathematics more generally in philosophy, in particular the intuitionist notion of truth as similar to the notion of proof or of what has been verified. That attitude, which makes it possible for statements to be neither true (verified) nor false (shown false), and the consequent truth-value gaps, he termed 'anti-realism'. This version of anti-realism can be seen as coming close to a return to the sort of verificationism with which positivism began. As with Putnam, Dummett's anti-realism centres on the notion of truth. Dummett's emphasis, however, is on the theory of meaning that might allow for a realist theory of truth. Basing his arguments on the views of Wittgenstein about the public nature of meaning, Dummett has argued that meaning must be such that grasping of meaning can be publicly demonstrated and verified. But how, he asks, could anyone demonstrate a grasp of truth-conditions if these are independent of verification? We can either grasp the meanings of terms directly in terms of the conditions for verifying sentences in which they occur, or indirectly via their connections with terms that can be so understood. There is no way to give meaning to terms that run beyond possible verification. As a result, claims about domains which are 'verification-transcendent' are neither true nor false. Intuitionists argue that while many elementary claims about numbers can be verified, others, including many that involve quantification over all numbers, are not verifiable. The famous intuitionist example is the claim that there is a series of seven consecutive sevens in the decimal expansion of . The assertion that such a statement nevertheless has a definite truth-value presupposes a 'God's-eye view' of the infinite series of digits in the expansion, something that runs beyond any human capacity and hence is not true or false. Dummett extends these notions throughout our language by comparing the class of decidable sentences about numbers with those verifiable claims about objects about which we are 'realists' in contrast with those realms where verification is impossible and about which we must be 'anti-realist'. The telltale logical distinction is that we accept the law of the excluded middle for statements about ordinary physical objects and others about which we are realists, but are not entitled to that

when we go outside that realm, talking of the past which is no longer accessible to verification, or to use another example, when we speak of dispositional character traits, such as bravery, of those who are gone, and no longer able to manifest such traits. This anti-realism could be limited to certain realms and aspects of our discourse or of the world it is taken to describe, although recently followers of Dummett have argued for a more global anti-realism, arguing that no class of statements is conclusively decidable. Dummett's emphasis on the theory of meaning and his reliance on Wittgensteinian arguments to ground his anti-realism has meant that fewer connections have been drawn between it and traditional issues in metaphysics, in particular the traditions of German idealism and American pragmatism.

Other sorts of anti-realism are less verificationist. Bas van Fraassen in his *The Scientific Image* (1980) advocates an anti-realist view in science that allows full meaningfulness to statements about theoretical entities that range beyond what is established by the empirical evidence [4.24]. While fully meaningful, van Fraassen claims, the truth of such statements is simply not a concern of science. Science aims at empirical adequacy, theories aim only at being able to predict observations correctly, and that they can do even if it is only as if they were true. (Van Fraassen consciously echoes Vaihinger's 'philosophy of as if', in contrast with the positivism of the late nineteenth century when presenting his views.) Science can be agnostic about the truth of sentences about theoretical entities while granting that those assertions do have a truth-value. This is a much less global anti-realism than those of Putnam and Dummett. In fact, some identify it as a 'scientific' anti-realism, or identify it by van Fraassen's term 'constructive empiricism' and see it as independent of the issue of 'metaphysical' realism. It does, for example, contrast the status of theoretical entities such as electrons with that of the instruments and apparatus with which they are studied. In addition, the classical correspondence notion of truth (explained in terms of logicians' 'models') is held to make sense, but just not to be the object or goal of science. While van Fraassen is primarily considered a philosopher of science, it is unclear, however, why his view should not be taken as a stand on the nature of 'metaphysical' realism, much as Vaihinger's philosophy was. It is in the nineteenth-century positivist tradition that verifiable human knowledge (in science, but what other sort is there for heirs of logical positivism?) must be limited to the phenomena. Like Vaihinger, van Fraassen holds that statements of 'metaphysics', which go beyond the phenomena are meaningful, and can be accepted on other grounds, such as revelation or faith. The echoes here are of the Kantian distinction between the phenomenal and noumenal realms and it certainly seems to be an approach to the 'metaphysical' problem of realism.

Richard Rorty [4.22] challenges the metaphor of the mind as a mirror of nature which underlies these concerns about the truth of theoretical statements in contrast to the evidence that we have for them. This characterization of realism identifies it closely with the correspondence theory of truth, as earlier idealist critics of realism had also done. The 'problem of truth' has returned from the field of semantics to metaphysics where it was discussed in the nineteenth century. Rorty claims that the problem of realism will dissolve when we see that it is based on a faulty metaphor of the mind as a medium which reflects a world to which it does not belong. Only with this image in place are we able to ask questions about what represents the world and what is represented and whether there is a 'real' world 'behind' those representations. While rejecting the very notion of a world going beyond the evidence which is adopted by other anti-realists, he still finds his position to be more akin to the anti-realists than the realists. As with Putnam he argues that practices of justification are all that can be studied and that the further question of whether they lead to truth, must be abandoned. This, therefore, undermines the attempt to ground epistemological practices or to place philosophy in the role of an adjudicator of genuine knowledge. Instead of placing itself beyond other epistemological traditions philosophy is to mediate instead in a 'conversation' between distinct traditions. Unlike Putnam, who sees his antirealism as a step forward, at least for the analytic philosophers who had abandoned the continental tradition in metaphysics, Rorty sees his anti-

realism as part of an 'end' of philosophy. The metaphysical picture of realism, and with it the epistemological project that accompanies it, and which has defined modern philosophy, must give way to a post-modern abandonment of that traditional project.

Anti-realism thus takes various forms, though generally adopting a semantic thesis concerning the meaning of terms that go beyond experience. There is also an epistemological aspect to anti-realism in the common denial of a great gap between justified belief and truth, of the world as 'found' and as somehow 'constructed' by humans. Many anti-realists, as well, are finding a renewed interest in post-Kantian German philosophy as a way of articulating their views. Anti-realism as a philosophical phenomenon invites speculation about the course of analytic philosophy as beginning with the rejection of idealism by Moore and Russell, and ending with a return to it. Anti-realism is also often associated with the more general cultural phenomenon of 'post-modernism' and is seen not as a return to an earlier idealism but rather as marking the 'end of philosophy'.

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CHAPTER 5
Ethics I (1900–45)

Michael Stingl

Early twentieth-century philosophy was largely, in Ian Hacking's neat phrase, the heyday of meanings. This is not to say, as Hacking stresses in his book *Why does Language matter to Philosophy*? [5.22], that the point of the philosophy of this period was to study meaning: the point of studying meaning was to do better philosophy. The general focus of the period was on the words or phrases used in asking or attempting to answer the questions of traditional concern to philosophy, and in particular, how, or even if, these terms were meaningful. Its philosophical conceit was that once meaning was clarified, philosophical truths could easily be distinguished from philosophical confusions. But by the end of the period even this had become unclear; by then, the central question of philosophy was whether there were, in fact, any truths of the kind that philosophers had traditionally supposed themselves to be after. The worry was that once their meaning was clarified, traditional philosophical questions would show themselves to be literally meaningless.

The focus of the moral philosophy of the period was on meta-ethics, and more specifically, the question of whether, once the meaning of terms like 'good' and 'right' had been clarified, a science of ethics might be possible. For while science, and in particular physics, seemed to be logging in one stunning success after another, ethics seemed no closer at the beginning of the twentieth century to anything that might count as moral knowledge than it had been at the time of the early Greeks. Or so things seemed to G.E.Moore, who set out in 1903 to clarify once and for all the meaning of 'good', and in so doing clear the way for a genuine science of ethics, one which might justifiably pretend to give us definitive knowledge of right and wrong.

MOORE'S *PRINCIPIA ETHICA*

My 1971 paperback copy of *Principia Ethica* bears this advertisement:

> What is GOOD?
>
> To answer this question, G.E.Moore wrote one of the most influential books of this century—*Principia Ethica*
>
> [5.44]

Cover advertisements being what they are, it is not surprising to find this one standing distinctly at odds with what might be called the received view of Moore's book among philosophers more contemporary with the particular edition it adorns. A representative example of this view is furnished by Alasdair MacIntyre's *A Short History of Ethics:*

> [Moore] says that if we consider *good* and, let us say, *pleasant,* or any other notion with which we might be tempted to confuse *good,* we can see that we 'have two different notions before our minds'. This technique of holding one's concepts up to the light, as it were, is reinforced by Moore's method of calm assertion. More unwarranted and unwarrantable assertions are perhaps made in *Principia Ethica* than in any other single book of moral philosophy, but they are made with such well-mannered, although slightly browbeating certitude, that it seems almost gross to disagree. But what, then, *is* Moore's case?
>
> ([5.35], 250)

Not much, MacIntyre goes on to suggest. And generally speaking, this is the received view of Moore's book among philosophers in the second half of the century: a Pandora's box filled to overflowing with singularly unpersuasive arguments, many of them directed at wildly mistaken readings of the earlier moral philosophers against whom Moore took himself to be providing definitive criticism.

One of Moore's main targets was John Stuart Mill. Like Moore, Mill was a utilitarian. And like all utilitarians, Mill advanced two linked moral theories, a theory of the good and a theory of the right. The general idea behind the utilitarian combination of these two sorts of theories is that one can't really say what kinds of actions are right until one is able to say what sorts of outcomes are good. Simply put, right actions are those which produce good consequences. What one needs, then, at the very foundation of any moral theory is an account of what kinds of things are intrinsically valuable: things worth pursuing not merely as means to some other thing, but in and of themselves. Some utilitarians, Mill arguably among them, offer a purely subjective theory of the good, one that takes particular states of consciousness, such as pleasure or happiness, as being the only things that are intrinsically valuable, good in and of themselves. Other utilitarians, like Moore, offer a more objective theory of the good: some things are intrinsically valuable, such as knowledge or friendship, whether they happen to make human beings happy or not.

Moore's chief criticism of Mill was not so much that he had proposed a mistaken theory of the good, but that he had made a deeper, meta-ethical mistake, one which had then led him to misidentify the sorts of things that might properly be said to be good.

To understand the point of this criticism, we need to start with the passages in Mill's *Utilitarianism* against which it is targeted. In his first chapter, Mill claims that

> [q]uestions of ultimate ends are not amenable to direct proof. Whatever can be proved to be good must be so by being shown to be a means to something admitted to be good without proof.
>
> ([5.37], 4)

Later, in chapter IV, entitled 'Of What Son of Proof the Principle of Utility is Susceptible', Mill repeats his assertion that questions of ultimate ends, questions, that is, about what things are good in and of themselves, do not admit of strict proof. He goes on to say the following:

> Questions about ends are, in other words, questions [about] what things are desirable. The utilitarian doctrine is that happiness is desirable, as an end; all other things being only desirable as means to that end.
>
> The only proof capable of being given that an object is seen is that people actually see it. The only proof that a sound is audible is that people hear it; and so of the other sources of our experience. In like manner, I apprehend, the sole evidence it is possible to produce that anything is desirable is that people do actually desire it.

([5.37], 34)

That these last two 'passages have become as well known as they have is due, in no small part, to their almost equally well-known rejoinder in *Principia Ethica:*

> There, that is enough. That is my first point. Mill has made as naive and artless a use of the naturalistic fallacy as anybody could desire. 'Good', he tells us, means 'desirable', and you can only find out what is desirable by seeking to find out what actually is desired.
>
> The important step for ethics is…the step which pretends to prove that 'good' means 'desired'…. Well, the fallacy in this step is so obvious, it is quite wonderful how Mill failed to see it.
>
> ([5.44], 66–7)

His discovery of the 'naturalistic fallacy' was for Moore the centrepiece of *Principia Ethica*. On the one hand, it turned out to be ubiquitous, 'to be met with in almost every book on Ethics'. On the other hand, the failure to understand it for what it was blocked all progress in ethics, for to commit the fallacy was to misunderstand the very nature of goodness. If we don't understand what goodness is, we are hardly in any position to say what sorts of things are good, much less what kinds of actions are right. So what then was this alleged fallacy, the discovery of which was so propitious? According to Moore, it was simply the most prevalent form of what we might call, following the subsequent discussion of William Frankena's 'The Naturalistic Fallacy' [5.20], the definist fallacy: the fallacy of supposing that the property of goodness can be defined in terms of some other property or set of properties.

In the naturalistic version of the fallacy, the other property in terms of which goodness is defined is a natural one. In Mill's case, for example, 'good' is said to be defined as 'desired'. Now whether or not a desire exists is a question of human, or perhaps animal, psychology; in any case, it is a question that can be answered by empirical investigation. It is a question, that is, about some state of the natural world, in this case the actual psychological state of some creature or another. On this view, then, to see what's good in and of itself, we simply check to see what, in point of actual fact, people desire in and of itself. And here Mill's answer would seem to be short and to the point: happiness.

Against Mill, Moore thought that any move to define goodness in terms of some other property, natural or not, could be conclusively shown to be fallacious by an appeal to what has come to be called the open question argument. An open question is one whose answer is not immediately obvious, but instead requires further thought or investigation. Moore's point is that for any proposed definition of goodness, we can raise an open question of the form 'but is this good?' Regarding Mill's view, for example, we can raise the question, 'but is happiness good?' That this question is an open one proves that goodness can't be defined as happiness, for then we should only be asking 'but is happiness happiness', a question which certainly isn't open. Because it can be applied to any proposed definition of goodness, the open question argument appears to be a powerful one: if it works, it shows that goodness is undefinable.

This, in fact, was Moore's conclusion: the property of goodness is a simple, undefinable, non-natural object of thought. Like *'yellow',* there may be some other property that all good things possess; but 'good', like *'yellow',* denotes something else, a property that we know by direct acquaintance. With regard to yellow, we know it when we see it. Now it may of course be that all things that are yellow turn out to reflect light in a particular sort of way, but to be able to meaningfully claim that this is so, we cannot mean the same thing by 'yellow' and 'reflects light in such and such a way'. Rather, we know what yellow is by direct perceptual acquaintance with yellow things, and we go on to find out what physical property all yellow things possess by studying the reflective properties of light. Similarly, we know what goodness is by some

sort of direct cognitive acquaintance with it when we contemplate good things, and it is then up to the science of ethics to tell us whether there is some other property, or set of properties, that can be linked to goodness.

It is in this sense that Moore can be called an intuitionist, although he himself rejected the label. There is a property of goodness of which we can be directly cognitively aware, but since this awareness is obviously not perceptual, it must be of some other, purely intellectual kind, perhaps something like our awareness of mathematical objects. In any event, since we are not aware of goodness perceptually, and it is not definable in terms of other perceptual properties, it follows that it must be a non-natural property.

This raises three important philosophical problems. First, there is the metaphysical question of just what sort of property this 'nonnatural' property might be. Second, there is the related epistemological question of how knowledge of it would actually be possible. Lastly and perhaps most importantly for ethics, there is the question of how goodness so understood might be connected to the human motivational system. How could knowledge of a non-natural property of the world be motivationally effective? How could it, that is, give us a reason, much less an obligation, to act?

These were not problems that Moore concerned himself with in *Principia Ethica;* the point of the book was simply to clarify the meaning of 'good', and then to begin pursuing what Moore took to be the chief task of the science of ethics, attempting to identify the class of things that actually did possess the simple, non-natural property of goodness. The good, as something distinct from goodness, was thus something that Moore thought it might be possible to define, and indeed, this is precisely what he thought ethics should try to do: define precisely that class of things that were, in fact, good. His fundamental point was that the question about the good was parasitic on the logically prior question about the definition of goodness; ethics couldn't begin to address the former without an answer to the latter. This, in short, was Mill's mistake. Having confused the two questions, he had turned a plausible but incorrect answer to the question of what sorts of things might be good into an utterly fallacious answer to the question of what goodness itself might be.

As indicated earlier, history has not been kind to Moore. Ironically, later philosophers have been as abrupt with him as he was with Mill. In 'The "Proof" of Utility in Bentham and Mill', Even Hall argues that Mill is guilty of no fallacy. He begins his vindication of Mill with this critical barb:

> I can only account for this flagrant reading into Mill of the definist fallacy by supposing that Moore could not grasp any other sense to Mill's argument and so thought that Mill *must* have committed this fallacy. But *there is* another and obvious sense to any interpreter not debauched with verbal casuistry.
>
> ([5.23], 150)

This other, obvious interpretation calls attention to the fact that Mill begins the passage that is the focus of Moore's attack with the caveat that no proof of his theory of the good is possible. His point is that even if strict proof is impossible, there may still be other, less rigorous tests to which proposed theories of the good might be held accountable. According to Hall, then, what Mill is doing in the passage in question is suggesting just such a test: whatever a theory says is good had better be the sort of thing that actually motivates people to act. So in arguing that people actually desire happiness, Mill is not offering a definition of goodness, but attempting to show that his proposed theory of the good passes an important empirical test, a test of motivational efficacy. According to the doctrine of psychological hedonism, people are ultimately motivated, in fact, by what they think will make them happy. Hall's point is that, although this psychological doctrine is deeply problematic, Mill's appeal to it in the context of trying to justify his theory of the good commits no logical mistake.

Moore undoubtedly got Mill wrong. Yet *Principia Ethica* was influential, and its influence was not inconsiderable. To see why, we must place the book and its arguments in their original context. We must ask why Moore would have been so absolutely convinced that whatever Mill himself might have thought that he was doing, part of what he was doing, if he was doing anything at all, was offering a definition of goodness. In particular, we must ask why Moore would have found the open-question argument such a thoroughly damning criticism against any attempt to define goodness.

Moore's is a case where language very clearly mattered to philosophy. Unless his concern with ethics as a science is placed in the context of the referential theory of meaning which he and Bertrand Russell were beginning to develop in the early decades of the century, the main moral arguments of *Principia Ethica* can only appear as they have to many of Moore's critics: as pompous as they are misguided.

On the referential theory of meaning, powerfully developed by Russell in 'On Denoting', *The Principles of Mathematics, Principia Mathematica* and *The Problems of Philosophy,* and less powerfully developed by Moore himself in the opening pages of *Principia Ethica,* the meaning of a term was just what it referred to. According to the earliest versions of this theory, some terms, like 'Socrates', referred to particular individuals; others, like 'yellow', to universals, in this case the property universally shared by all yellow things. To know what a sentence meant, one needed to know the meanings, or referents, of its terms. So to say what sorts of things were good, at least in a philosophically informative sort of way, Mill would have had to have been clear about what it was that 'good' referred to. And on this point, it would seem, Mill does not disappoint: he seems to say quite clearly that 'good' is what people desire, and what people desire is happiness. But in the context of Moore's referential theory of meaning, this is just as clearly absurd; as the open question argument conclusively shows, whatever 'good' refers to, it cannot refer to happiness. Thus the point of the Bishop Butler quote which prefaces *Principia Ethica:* everything is what it is, and not another thing. Whatever goodness is, it is not happiness.

Now someone who held the referential theory of meaning to be true might try to defend Mill by saying that what he was trying to do in the contested passage was to argue, in an admittedly misguided way, that 'good' and 'desired', like 'yellow' and 'reflects light in such-and-such a way', are extensionally equivalent: all and only all those objects are good which are also desired. Mill didn't, then, suppose that 'good' referred to what people desire, happiness, but he did think that the properties of intrinsic goodness and happiness were shared by exactly the same class of objects. Moore's second line of defence, however, would once again be tied to his own understanding of the referential theory of meaning: if Mill had had any understanding at all that 'good' referred to goodness itself and nothing else, he would not have gone on to propose the obviously mistaken doctrine that happiness was the sole good. Moore thought it obvious, that is, that once anyone grasped the idea of goodness as an independent object of thought, he or she would see that goodness attached itself to things like friendship and knowledge, as well as happiness. To reach the conclusion that he did, Mill must have been, to some significant degree, confusing goodness with happiness.

But if locating *Principia Ethica* within the context of a particular theory of language and meaning displays the true mettle of its arguments, it also makes clear their ultimate infirmity: they are only as good as the theory of meaning they presuppose. And while the referential theory of meaning was only to reach its final flourish in the 1921 publication of Ludwig Wittgenstein's *Tractatus,* the quickness of its subsequent demise was surpassed only by the finality of its eventual rejection. Still, not unlike certain of the doctrines of the *Tractatus* which continue to fascinate the philosophical mind long after it has categorically rejected them, the arguments of *Principia Ethica* have continued to haunt philosophical thinking about ethics. Moore showed that language could not be ignored when doing ethics, and that unless moral philosophers could give some indication of what words like 'right' and 'good' meant, no progress in the purely philosophical

pursuit of ethics was possible. Moreover, the philosophical problems posed by Moore's objective theory of the good have become important puzzles to be solved by any successful approach to ethics: whatever moral value turns out to be, how is knowledge of it possible, and how does it function to motivate human beings to act? Attempts to answer these questions are at the heart of the naturalism of Perry and Dewey, the emotivism of Ayer and Stevenson, and the contractarian moral and political philosophy of the current day.

INTUITIONISM

They are also at the heart of intuitionism, although its answer to them is ultimately no more cogent than Moore's.

The impetus for intuitionism was H.A.Pritchard's 1912 *Mind* article, 'Does Moral Philosophy Rest on a Mistake?' [5.49]. The question, as one might suppose, was rhetorical. According to Pritchard, the problem with all earlier moral philosophy was that it failed to give a convincing account of moral obligation: it failed to give a satisfying answer to the question of why one *ought* to do the right thing. The mistake behind all such failures was to suppose that this question could be answered by some sort of proof. Once one saw that it could not, one was free to see that no proof is in fact necessary: that one ought to do the right thing is part of one's direct apprehension of the act in question as being right.

One might, like Moore, attempt to ground the obligatoriness of right acts in the fact that they lead to good outcomes. But this, as Pritchard says, 'presuppose[s]…that what is good ought to be', which is false. Certain states of the world, such as an end to human suffering, may indeed be very good things; but the fact that an end to human suffering is good does not entail, by itself, that I or anyone else possesses an obligation to bring it about. Nor does the alternative of supposing that right acts are themselves good fare any better, for good acts, according to Pritchard, are simply right acts done for the right reasons. That an act is a good one, that is, has completely to do with its motive, which for Pritchard has nothing to do with its rightness; doing *what* we ought to do, says Pritchard, is completely divorced from doing it *as* we ought. The underlying idea here is that if rightness cannot be derived from goodness, then neither can moral obligation.

Towards the end of his paper Pritchard briefly develops a more general argument that our obligation to do the right thing admits of no philosophical proof. To prove that we know anything, Descartes thought that we had to prove that we know that we know it. But this, says Pritchard, is impossible: it leads epistemology into an infinite regress. The parallel with ethics is this. Just as in the face of past mistaken beliefs we are led to wonder how we know what we think we know, in the face of conflicting inclinations we are led to wonder why we ought to do what we think is right. But if we suppose that to answer the question of why we ought to do what we think is right we must find some sort of proof that we are so obliged, we make the task of ethics impossible. In looking for such a proof, we would be looking for something that would oblige us to be obliged to act in a certain way; something, in other words, which would threaten the same sort of regress that makes the Cartesian epistemological project an impossible one. If I can only be obliged to do the right thing by being obliged to be so obliged, it is not clear why this same problem about obligation doesn't simply reassert itself one level down.

Pritchard's rejection of the task of traditional epistemology is an interesting precursor to the current rejection of the philosophical search for necessary and sufficient conditions for '*s* knows that *p*' in favour of the empirical study of the cognitive processes that actually produce what we would otherwise be willing to think of as knowledge. But strangely enough, despite his insight that the question of why we ought to do what we ought expresses a similarly misconceived demand for absolute certainty, Pritchard's own account of moral obligation is quixotically Cartesian: we know it when we see it. If someone doesn't feel obliged to

perform a right act, he or she has merely failed to concentrate fully enough on what it is that makes the act right. To apprehend the act as right is to apprehend it as obligatory.

This, then, is the leading idea of intuitionism: the question of what it is right to do is wholly independent of any arguments regarding what is good, and indeed, what it is right to do is not something for which *any* argument can be given, whether it appeals to the good or not. That an act is right is something that must be directly apprehended.

This idea of direct apprehension is to some extent further developed by W.D.Ross in *The Right and The Good* [5.52] and *Foundations of Ethics* [5.53], and by E.F.Carritt in *The Theory of Morals* [5.7]. According to Ross, what we apprehend in apprehending rightness is something about *types* of acts. It is because we see, for example, that an act is the keeping of a promise, that we are able to intuit that it is right. The recognition that certain types of acts, such as keeping promises, telling the truth, and repaying one's benefactors, are right is for Ross the basis of his theory of *prima facie* duties: types of acts that are *prima facie* right. Duties so understood are *prima facie* right rather than actually right, since in certain situations they may come into conflict with one another; in such situations, only one *prima facie* duty can be one's actual duty. As we shall see below when we examine this theory in more detail under the heading of 'Substantive Ethics', what our actual duty is is not something that we can directly intuit.

This point is explicitly denied by Carritt, who is in many ways a precursor of what is today called situational ethics. On Carritt's view moral intuition applies itself directly to particular situations, in their full particularity. What we intuit is that *this* act, in *this* situation, is right. We may later realize that our intuitions fall into certain general types, perhaps according to Ross's list of *prima facie* duties; but these types are not a part of what we directly intuit. In a deep sense, no theory of ethics is possible. Thus Carritt:

> You cannot prove to a man that he has duties, or should do his duty, or that justice is a duty, or that this act is just. All you can do is give him fuller information of the consequences and antecedents of what he is doing and then ask him to agree with you that it is right or wrong. If he knows the situation and consequences as well as you do and still differs, one of you must be wrong. All you can do is get him to imagine the situation again and repeat the act of moral thinking with greater attention.
>
> ([5.7], 72)

A modest view of ethics, perhaps, but in the end one which is no less extravagant than Moore's account of goodness. To say that we know 'by intuition' what things are right does nothing to tell us how we are epistemologically connected to the moral value at issue, much less what that connection might have to do with the actual structure of the human motivational system. It is a curious feature of the human intellect that explaining something mysterious by appealing to something even more mysterious has the attraction that it does. Still, the deeper mystery can remain intellectually satisfying only as long as there are no other explanations on the field which possess what it does not, some real explanatory power. This is why it has proved historically necessary, where the deeper mystery has been emotionally and politically satisfying, to have at one's disposal the stake, along with the various other unpleasant instruments of non-rational persuasion: instruments unavailable to the intuitionists, as the despairing quote from Carritt makes only too clear. If some poor soul cannot see that what is plainly right is plainly right, we must attempt to open his or her eyes, over and over again, until one of us tires and gives in or up.

NATURALISM

By defining moral values primarily in terms of human interests, the naturalists were able to offer what the intuitionists were not: a straightforward answer to the question of how moral knowledge was possible, as well as to the deeper question of how such knowledge could be motivationally effective.

For both Moore and the other British intuitionists, morality was objective in the sense that moral values, like goodness, were to be found among the qualities of objects as these existed independently of any and all subjective experience. For the naturalists, this idea of moral objectivity was absurd. In *The Winds of Doctrine,* the American philosopher George Santayana offered the following argument:

> For the human system whisky is truly more intoxicating than coffee, and the contrary opinion would be an error; but what a strange way of vindicating this real, though relative, distinction, to insist that whisky is more intoxicating in itself, without reference to any animal; that it is pervaded, as it were, by an inherent intoxication, and stands dead drunk in its bottle!
>
> ([5.60], 267)

According to Santayana, that whisky is intoxicating is a relational fact about the world, a fact, that is, which involves not only the chemical properties of alcohol, but the physiological properties of the human constitution. So too for moral facts: that something is morally good is a relational fact involving creatures with certain interests and capacities for purposeful action, and an environment in which it is possible for them to act so that more rather than fewer of their interests are satisfied.

The idea of an ethics thus naturalized was further developed by two other American philosophers, Ralph Barton Perry and John Dewey, both of whom tried to give more exact definitions of what moral goodness might amount to on such an approach.

In his *General Theory of Value* [5.47] and its sequel, *Realms of Value* [5.48], Perry suggested that we should say that something possessed value if and only if it was the object of an interest, and that it was morally good if and only if it was the object of an interest which was itself a member of a set of interests harmoniously arranged. By the term ‘interest’ Perry meant to include any attitude of a subject towards an object which was favourable or disfavourable; his examples of such attitudes are liking and disliking, hoping and fearing, and desiring and avoiding. In so far as animals could feel dislike or aversion, they too had interests, and although they themselves could not be active participants in the harmonious arranging of interests, their negative interests, at least, had to be taken into account under any such arrangement. On the naturalistic view developed by Perry, this was because unsatisfied interests were, objectively speaking, bad.

By ‘interests harmoniously arranged’, Perry seemed to have in mind something similar to an idea developed more recently by John Rawls in his *A Theory of Justice* [5.50], the ideal of a well-ordered society. And while this idea is also to be found in John Dewey’s *Theory of the Moral Life* [5.15], neither he nor Perry ever developed it fully. At its most general, the idea is this: interests cruelly conflict; some interests are more significant than others; human beings flourish only in social environments; the best set of interests, both within and across lives, is therefore a set of interests which are mutually reinforcing. Our lives are best structured, then, when the satisfaction of my interests is part of the satisfaction of yours, and vice versa. It is in this sense, in a well-ordered society, that the interests of each become the interests of all.

All this, of course, claims to be doing exactly what Moore said could not be done: providing a definition of moral goodness. In partial agreement with Moore, Perry did think it impossible to replace the concept of goodness, or more generally, value, with some alternative set of concepts which would mean the same thing, but express that meaning in a more readily comprehensible fashion. Perry did, however, think it entirely po sible to replace our actual concept of value, the contours of which were at best vague and at worst

ambiguous and confusing, with a more precise alternative, the merit of which was to be assessed in terms of how well it enabled us to carry out our reflections about value, moral or otherwise. Given the nature of this sort of reforming definition, the significance of the open question argument for Perry was simply to voice the demand that for any reform proposed, acceptance should be conditional on its proving to be more interesting and fruitful than its rivals; then and only then could that sort of thing, whatever it turned out to be, be said to be good by 'definition'.

Like Santayana, Perry was not a moral objectivist in the sense intended by Moore. He was greatly concerned, however, to establish a distinction between having an interest in something and making a judgement about that interest, so that a thing's value would not, in the end, consist in the mere fact that it was judged to possess value. That things are valuable only because they are judged to be so is the characteristic mark of moral subjectivism, a view vigorously disavowed by the naturalists.

Dewey's effort to avoid subjectivism was in some respects more subtle than Perry's, in others less. Instead of trying to finesse his way around the great metaphysical divide of subject and object assumed by Moore's notion of moral objectivity by arguing for some sort of secondary epistemological divide, such as that between interest and judgement, Dewey argued that the widely shared metaphysical assumption was itself a mistake. The upshot of his argument is compactly stated in chapter VIII of *The Quest for Certainty:*

> If we see that knowing is not the act of an outside spectator but of a participator inside the natural and social scene, then the true object of knowledge resides in the consequences of directed action.
>
> ([5.14], 196)

If an experimental interaction between us and the world yields the result we expected, to that extent we have gained objective knowledge of the world. The experiment may be one of physics or it may be one of morality: in either case the general method is the same, and what it tells or fails to tell us is no more objective in the one instance than the other.

In short, moral knowledge is generated, according to Dewey, through the general scientific method of hypothesis and experiment. In contrast to Moore's idea of what a science of ethics might look like, this sharing of a single methodology was, for Dewey, the only way in which ethics might be genuinely scientific. To take an example from the first edition of Dewey's and James Tuft's *Ethics* (1908), the moral ideal of individualism that served to legitimate the excesses of the robber-barons of early twentieth-century North America was a hypothesis that was in the process of being shown to be dramatically mistaken. The moral expectation in which the hypothesis was grounded was that a social order so inspired and arranged would be more stable and productive than one based, say, on principles of a more socialist bent. The social upheaval of the times made it clear, according to Dewey and Tufts, that this was not so. The failed experiment of unrestrained capitalism showed that a purely individualistic moral ideal was incapable of producing a set of social interests harmoniously arranged.

In addition to offering a coherent account of moral knowledge, Dewey's naturalism offered a coherent account of moral motivation. If the experimental method promised to show us how our interests might be best arranged into complex social wholes, education promised to produce individuals with the right sorts of interests. That we should restructure the basic institutions of our society to produce such individuals was first to be grasped by intelligence, and second, to be pursued out of self-interest and sympathy. Once our intelligence showed us that our own particular good was essentially tied to the good of those around us, self-interest and sympathy would push us to pursue the greater good of interests harmoniously arranged. The most direct way of doing this, of course, was to start with individuals whose interests were not yet formed, and educate them in such a way that the interests they did form were of the appropriate sort.

Whatever other worries it might raise, this quick sketch of Dewey's account of the human motivational system leads us to the deepest meta-ethical objection that later philosophers have had to ethical naturalism, the objection that while human motivation is one thing, moral obligation would seem to be quite another. Put another way, how does what naturally *is* get us to conclusions about what morally *ought to be*? This worry, sometimes called the is/ought dilemma, has been taken by at least some later philosophers to be the real point of the open question argument, whether Moore realized it or not. On this view, the naturalistic fallacy is the unadorned move from the claim that something is naturally good for us, perhaps because of the kind of creatures we are, to the further claim that this natural fact gives us an obligation to pursue that thing. Interests harmoniously arranged might, as a point of natural fact, be good for us; but how does this create an obligation, on anyone's part, to pursue such an arrangement?

In his *Theory of the Moral Life* [5.15] and *Human Nature and Conduct* [5.13], Dewey offers a response to such worries. At its briefest, his argument is that the moral obligation to arrange our interests harmoniously is derived from the human necessity of a social existence:

> social pressure is involved in our…lives, as much so as the air we breathe and the ground we walk on. If we had desires, judgements, plans, in short a mind, apart from social connections, then the latter would be external and their action might be regarded as a nonmoral force. But we live mentally and physically only *in* and *because* of our environment. Social pressure is but a name for the interactions that are always going on and in which we participate, living so far as we partake and dying so far as we do not.
>
> ([5.13], 327)

Beyond the bare desire to lead a human life, there is for Dewey no deeper answer possible to the question of why we ought to do what it is good for us to do.

LOGICAL POSITIVISM

Whatever their philosophical merits or shortcomings might have been, ethical naturalism and moral intuitionism were both swept away by the rising tide of logical positivism.

Logical positivism was a general approach to problems of language and meaning. As a movement, its genesis and early growth was within the Vienna Circle, a group of scientists and philosophers who met, in Vienna, from the early 1920s to the mid-1930s. Two of the more important figures in the Circle were Moritz Schlick and Rudolf Carnap, and although Ludwig Wittgenstein was never actually part of it, his *Tractatus Logico-Philosophicus* and some of his subsequent ideas greatly influenced the Circle's discussions and views. Among English-speaking philosophers, A.J.Ayer was briefly associated with the Circle; in 1936, he published its chief polemical text, *Language, Truth, and Logic*. At the centre of this book was the principle of verification:

> We say that a sentence is factually significant to any given person, if, and only if, he knows how to verify the proposition it purports to express—that is, if he knows what observations would lead him, under certain conditions, to accept the proposition as being true, or reject it as being false.
>
> ([5.2], 35)

According to the positivists, sentences expressing scientific propositions obeyed this principle. Because they could be observationally tested, they were meaningful. According to all the positivists except Schlick, the

sentences of ethics did not; because moral claims could not be observationally tested, they were literally meaningless. On this view of science and ethics, then, no science of ethics was possible.

Three qualifications are important here. First, there is the problem of naturalism; if Dewey, for example, was right in his claim that moral judgements were best understood as hypotheses about how interests might be best arranged, then it would seem that moral claims could be tested by observation. Against this, Ayer sided with Pritchard's point that claims about the good could not tell us anything about moral obligation. This point has been echoed by a number of philosophers in the positivist tradition, starting with Wittgenstein's remark (6.41) in the *Tractatus* that if values were part of the world, they would be in an important sense 'accidental'. The general idea was that although goodness naturally defined might tell us important psychological or social truths about human beings, truths that were contingent on the way the world turned out to be structured, it could not tell us any truths about what ought to be. In Ayer's terminology, naturalistic accounts of moral language missed the point of the normative use of terms like 'good' and 'right', which was to goad us into action.

This point leads us to a second qualification: to say that moral claims were literally meaningless was not to say that they had no meaning at all. Some claims, like those of science, were only meaningful in so far as they described, truly or falsely, the world disclosed to us by observation. Other claims, however, might be meaningful because of the ways in which they allowed us to express our feelings. Such a view of moral claims, embraced by all the positivists except Schlick, who was an ethical naturalist, came to be known as emotivism. In the English-speaking world, an emotivist account of the meaning of moral terms was first articulated in 1923 by C.K.Ogden and I.A.Richards in *The Meaning of Meaning:*

> 'good' is alleged to stand for a unique, unanalysable concept. This concept, it is said, is the subject-matter of Ethics. This peculiar ethical use of 'good' is, we suggest, a purely emotive use. When so used, the word stands for nothing whatever…it serves only as an emotive sign expressing our attitude… and perhaps evoking similar attitudes in other persons, or inciting them to actions of one kind or another.
>
> ([5.46], 125)

In discussing this view in 'Is "Goodness" the Name of a Simple, Non-natural Quality?' [5.5], C.D.Broad aptly characterized it as the 'Hurrah-Boo' theory of moral language. For according to emotivism, when I say, for example, that stealing is wrong, all that I really mean is, 'Boo on stealing!' This makes it hard, of course, to see how such a theory might ever begin to make sense of moral argumentation, a worry raised by G.E.Moore in 'The Nature of Moral Philosophy'. If I say 'Boo' to something to which you say 'Hurrah', there is no claim to the truth of which we disagree about; I merely express my feelings about the thing, and you yours.

Ayer's response to this worry was to meet it head on, and to deny that moral disputes were, in fact, possible. Ayer claimed that in a 'moral' disagreement with someone we might argue over facts relevant to the case, or even over questions of whether those facts fell within the purview of this moral principle or that; what we could not argue over was why someone should accept one moral principle as opposed to another. That we are able to get along as well as we are, as often as we are, was for Ayer a simple artifact of our having been brought up within particular societies, defined by certain shared values.

But this view of moral disputes hardly begins to do justice to the ways in which we actually argue about ethical issues. In a series of important articles, culminating in 1944 with his *Ethics and Language,* Charles Stevenson tried to extend the emotivist account of moral argumentation. He agreed with Ayer that at least

some putatively moral disputes were really nothing more than disputes regarding the facts of the matter at issue. For Stevenson, however, there could be genuine moral disagreements:

> We must distinguish between 'disagreement in belief (typical of the sciences) and 'disagreement in interest.' … Disagreement in interest occurs when A has a favourable interest in X, when B has an unfavourable one in it, and when neither is content to let the other's interest remain unchanged.
>
> ([5.66], 426)

In the course of such disagreements, each of A and B will attempt to influence the other to drop or otherwise modify his or her original interest in X. The most important way of doing this is to use what Stevenson calls the persuasive method, which

> depends on the sheer, direct emotional impact of words—on emotive meaning, cadence, apt metaphor, stentorian, stimulating, or pleading tones of voice, dramatic gestures, care in establishing *rapport* with the hearer or audience, and so on.
>
> ([5.69], 139)

Something of an advance, to be sure, over the method of moral persuasion advocated by Carritt.

Yet whatever its inadequacies as a descriptive theory of moral argumentation, emotivism does offer a coherent story about moral motivation. Unlike naturalism, however, emotivism regards the problem of moral knowledge as moot, a point which leads us to the third important qualification of its claim that moral judgements are literally meaningless.

Emotive meaning is not descriptive meaning. Moral judgements, that is, are in the end no more about the subjective realm of human feelings and interests than they are about the objective realm of natural or non-natural goodness. While moral judgements express feelings, they do not, except perhaps incidentally, serve to describe those feelings. Emotivists, like the naturalists, emphatically disavowed subjectivism, but only because they believed that moral judgements, in their purely normative use, had no prepositional content. Another way of putting this point is to say that moral claims do not express cognitive judgements about the way the world is, subjectively, objectively or even relationally. For this reason, emotivism and its descendants are often referred to as non-cognitivist theories of ethics.

Narrowly construed, logical positivism gradually sank under the weight of its own assumptions. As might be remarked from Ayer's preface to the second edition of *Language, Truth, and Logic,* it turned out to be extremely difficult to state the verification principle in a coherent fashion. As a distinct school of thought, logical positivism has since given way to more generally empiricist approaches to language, meaning and knowledge. Regarding ethics, however, the situation is more confused; by 1945, emotivism had swamped its chief rivals, intuitionism and naturalism. But since then emotivism has itself been swamped by a widely disparate variety of alternatives, some of them non-cognitive, some of them not, each about as plausible as the next. Still, as the twentieth century draws to a close, it would not be unfair to say that the influence of positivism in general, and emotivism in particular, has been much more pervasive than that of either intuitionism or naturalism.

More lasting as enigma than influence has been the ethical doctrine of Wittgenstein's *Tractatus*. The central logical claim of the book, that the limits of what can be meaningfully said extend no further than empirical propositions about the world of the natural sciences, was eagerly embraced by the early positivists. For Wittgenstein, however, this logical point was itself of the utmost moral importance. In showing the limits of what could be said, Wittgenstein took himself to be showing the limits of the world, in

its entirety. What he took to be of deep moral importance was that in showing the limits of the world, he showed that he himself could not be part of it. As a psychologically or physically describable subject of desires, experiences or actions he certainly was a part of the empirical world; but as the metaphysical subject who saw what logic showed about its limits he certainly was not.

Since the metaphysical subject was not part of the world, nothing that happened in the world could affect it for good or ill; goodness or badness must lie wholly within the metaphysical subject itself, quite apart from the actual events of the empirical world. What this meant for Wittgenstein was that the good person, the happy self, was the self who completely identified with the world as a whole: the self who accepted whatever happened without trying to alter the course of events to satisfy the desires of the particular empirical subject with whom it might otherwise and unhappily be tempted to identify itself. Wittgenstein's own ethics, with its roots in the decidedly un-English intellectual tradition of Vienna and the late Habsburg empire, was thus entirely out of step with the approaches to moral philosophy being developed in either England or the United States in the first half of the twentieth century. It is unlikely that either Russell or Moore, for example, Wittgenstein's examiners when he submitted the *Tractatus* for a degree at Cambridge and two of the English philosophers who knew him best, ever really understood the main unstated claim of the book which according to Wittgenstein was more important for what it didn't say than what it did: the stark moral command found in his *Notebooks 1914–1916* to 'Live happily!'

SUBSTANTIVE ETHICS

As remarked at the outset, the main focus of the moral philosophy of the first half of the century was on meta-ethical questions pertaining to the meaning of moral terms. Questions of substantive ethics—questions, that is, about what sorts of things might actually be good or bad, right or wrong—took what seemed to be a legitimate second place to questions about what one might mean in applying these terms to one thing or another. Nevertheless, in so far as at least several of its participants thought themselves to have successfully settled such questions of meaning, the period also included two significant developments with respect to questions of ethics proper.

The first development, already mentioned, was Ross's theory of *prima facie* duties. This theory is deontological, since it takes questions of rightness, or duty, as the basic questions of ethics, rather than questions about goodness. For Ross, the foundations of morality were to be found in our intuitions about right and wrong, intuitions which disclosed to us moral truths about certain types of actions: telling the truth, lying, keeping or violating promises, respecting or failing to respect human life or property. While our intuitions told us that keeping promises, for example, was *prima facie* right, they also told us that violating promises was *prima facie* wrong. But what of rightness and wrongness themselves? To take first the simple case, actions which instantiated but one of these types were, in fact, right or wrong, depending on the type of action of which they were an instance. For actions which were instances of more than one type, however, the possibility existed that while on the one hand they might be *prima facie* right, on the other they might be *prima facie* wrong; how were we to know, in such cases, whether the action was right or wrong? According to Ross, this was not something that could be determined by intuition. If, for example, we were confronted with an action that was at once both the keeping of a promise and a lie, the best we could do would be to try and assess the relative weight of the two conflicting *prima facie* considerations in this particular situation, and then choose accordingly.

This has generally been held to be the chief failure of the theory of *prima facie* duties: it is simply not a theory of right and wrong. The point of this criticism is that we typically look to moral theory because we are baffled by the question of what it would be right to do in a particular case. We suppose that if we were

able to determine, in general, what it is that makes right acts right, then we would also be able to see what we ought to do in the particular case at hand. In failing to tell us what rightness might amount to in cases that are morally puzzling, Ross's theory fails to deliver what a moral theory must, if it is to be interesting or useful.

Two other problems with this theory are well put by Dewey in his *Theory of the Moral Life*. His first point is that our moral intuitions are only as good as their source in the actual process of our moral education:

> If the conditions of their origin were intelligent, that is, if parents and friends who took part in their creation, were morally wise, they are likely to be intelligent. But arbitrary and irrelevant circumstances often enter in, and leave their impress…
>
> ([5.15], 125–6)

A second, deeper problem has to do with moral change. To base one's moral theory on intuitions is to make it inherently conservative:

> Men become attached to their judgements as they cling to other possessions which familiarity has made dear. Especially in times like the present, when industrial, political, and scientific transformations are rapidly in process, a revision of old appraisals is especially needed.
>
> ([5.15], 127)

Dewey's 'present' is, of course, in certain respects no longer ours; but his point is not without its current relevance. In our own time of rapid change, John Rawls, for example, bases his theory of justice on what he calls our considered moral judgements in reflective equilibrium. But as feminists and others have pointed out, our considered moral judgements, even in reflective equilibrium, may be deeply divided by differences of race, gender and class. One way of understanding this fairly widespread complaint against *A Theory of Justice* is to see it as a direct response to the conservativism inherent in Rawls' method of reflective equilibrium.

This raises a significant question for the period under study. Where, for example, are the women? They are not, by and large, at the universities, professionally developing theories of ethics. But they are at the centre of a number of important early twentieth-century social movements, directed towards such things as temperance, suffrage, birth control, pacifism and general social reform. In their participation in these various movements, prominent women thinkers wrote books, articles, speeches and letters, all of which must stand as a rich, untapped resource of ideas about right and wrong, good and bad. To reconstruct ethical theories out of these ideas would be a large and challenging task; we can only begin to wonder about its ramifications for a more thorough understanding of early twentieth-century ethics. Would an extra section or two need to be added to a history of the period such as this, to take into account the moral thinking of women and other marginalized groups, or would the whole thing need to be recast? If recent work in feminist ethics provides any measure of the depth of such omissions in the moral philosophy of the latter half of the century, the second, more radical alternative is not at all implausible (Kittay and Meyers [5.34]; Hanen and Nielsen [5.24]).

Given the current unsettled state of philosophical thinking regarding such issues, these questions must remain speculative. This is not to say that they can be fruitfully ignored. For a reliable line on substantive ethics, the considered moral judgements of those in the margins of society are, *prima facie,* a much more important starting point for theory than the considered judgements of those who represent, by and large, the interests of those who wield social power. This is not to say that those in the margins are entirely innocent

of prejudice, but only that social evils are more readily apparent to those suffering them than those profiting from them.

With this thought in mind, let us turn to the second significant theoretical development of the period as it is currently understood, Moore's ideal utilitarianism. Moore believed that once we knew what goodness was —a simple and unanalysable non-natural property—we could then go on to address the question of what sorts of things actually possessed this property. In addition to pleasure, Moore thought it immediately apparent that personal affection and the contemplation of beauty were in and of themselves, quite apart from any pleasure that might be connected to them, good. A little more thought, Moore thought, would suffice to show that knowledge, too, was objectively good. Against Mill's hedonistic utilitarianism, which declared there to be only one intrinsic good, that of pleasure, Moore's ideal utilitarianism thus seemed to provide a broader, pluralistic alternative. The assumption here is that Mill really did believe that pleasure was the sole intrinsic good, a point over which there is currently some debate (Anderson [5.1]); however this debate resolves itself, it is clear that Mill's theory of the good was much more subtle than Moore supposed it to be.

Theories of the good to one side, the basic utilitarian theory of the right is straightforward. If something is good, more of it must be better. Right actions, then, are actions which maximize the good. Depending on the comparative goodness or badness of their consequences, some actions are right, others are wrong, and still others are morally indifferent. Because on such views the rightness of actions depends on the goodness of their consequences, this class of moral theories is often referred to as consequentialist.

Now one might suppose that a consequentialist theory, as opposed to a deontological one, would be a more likely tool of social reform than conservativism. Not so for Moore. Because of the great difficulty attendant upon assessing the overall goodness of any proposal for social change, Moore thought it unlikely that any such change could be shown to be a good thing. His advice, then, was simply to follow certain of what he referred to as the rules of common sense: respect human life and property, keep your promises, and be industrious and temperate. This does not mean, as is often supposed, that in Moore's view we are simply to give ourselves over to all of the many demands of conventional morality; as Tom Regan makes persistently clear in *Bloomsbury's Prophet* [5.51], Moore's point is exactly the opposite. The *only* rules of common sense to which we ought to be obedient are those which have shown themselves beyond all reasonable doubt to provide the social and personal stability required for the free, individual pursuit of good things. This pursuit, rather than the dictates of conventional morality, ought to define our personal lives.

But whatever relevance Moore's views on this point might have had to the liberal principles of tolerance and individual freedom, and however liberating they might have seemed to the upper-class membership of the Bloomsbury Group, the fact remains that he was simply not the sort of social reformer that Mill was. The author of *Principia Ethica* may have been able to endorse the general principles of *On Liberty,* but he would certainly not have been able to endorse the sweeping calls for social change contained in *The Subjection of Women*. Regarding Moore's appeal to common sense, then, the most apposite response from a contemporary moral philosopher is once again Dewey's, from *The Quest for Certainty:*

> It is not for a moment suggested that we can get away from customs and established institutions. A mere break would doubtless result simply in chaos. But there is no danger of such a break. Mankind is too inertly conservative both by constitution and by education to give the idea of this danger actuality. What there is genuine danger of is that the force of new conditions will produce disruption externally and mechanically: this is an ever present danger. The prospect is increased, not mitigated, by that conservativism that insists upon the adequacy of old standards to meet new conditions.
>
> ([5.14], 272–3)

For Dewey, the search for moral knowledge is not something we can so easily choose to abandon. Moreover, the pursuit of such knowledge requires, *contra* Moore, our active moral participation in the world of social and technological change. Because of their probable consequences, participation is morally better than passivity.

Writing in 1929, Dewey could not have foreseen the shattering and abrupt technological disruption of human moral thinking that was to take place in the New Mexican desert on 16 July 1945, at 5:30 in the morning. Among those most directly responsible for the nearly instantaneous release of nuclear energy that took place that day, some physicists, like Niels Bohr and Leo Szilard, vainly attempted to influence the government of the United States not to put this terrible new weapon of indiscriminate mass destruction to actual military use. Others, like J.Robert Oppenheimer, took an active hand in planning on which cities to drop the first bomb. But after a brief flurry of organized, political effort following the war's end, most physicists had, by 1947, turned from politics back to science. Albert Einstein located the cause of his own discouragement in the apathetic response of the American people: 'The public, having been warned of the horrible nature of atomic warfare, has done nothing about it and to a large extent has dismissed the warning from its consciousness' (Jungk [5.33], 249).

Having mentioned Einstein, it is appropriate here to return to another important intellectual figure of the period, one who has until now been mentioned only in passing. However great his contributions to the development of analytic philosophy in the twentieth century, or to its intellectual life in general, Bertrand Russell's place within the history of early twentieth-century ethics remains problematic. As Bart Schultz notes in 'Bertrand Russell in Ethics and Politics' [5.64], Russell's writings on ethics, in particular, are no less remarkable than they are elliptical. Moreover, as intertwined as his views are with the main threads of the period's history, to that same extent is it difficult to weave them into any reasonably straightforward delineation of anything that might count as its warp or woof. Beginning as a Moorean objectivist in the early decades of the century, Russell soon sets off on his own emotivist tack, anticipating in a number of significant respects the later and more fully articulated views of not only Ayer, but Stevenson as well (Schultz [5.64], 597–9). But by at least 1952, Russell has already developed views that go off in another new direction, one which combines elements of emotivism and naturalism on the one hand, and utilitarianism and a social ideal of interests harmoniously arranged on the other (Russell [5.57]; Schultz [5.64], 603–4 and 613–14).

What is more interesting in the present context, however, is the breadth of Russell's own politically engaged life. In his voluminous writings addressed to a popular audience rather than to other professional philosophers, he wrestles with the dangers a well-developed set of sciences poses for society, and in particular, the ways in which technology may be effectively used to prevent people from thinking for themselves. Refusing himself to follow public opinion, which according to Russell could all too easily be manufactured to conform to the interests of those with social power, Russell was twice imprisoned: first for protesting Britain's involvement in World War I, and then again in 1961 for protesting British involvement in the nuclear arms race.

For those engaged in moral reflection at the close of the twentieth century, Russell's example is important in more ways than one. Technology and mass communication have, if anything, tightened their grip on free, democratic thought. And while the Cold War has at least temporarily abated, the threat of nuclear holocaust has hardly vanished: while the number of countries with nuclear capability continues to grow, the world itself continues to become increasingly more politically unstable. Third, and perhaps most important, we are now at a scientific and technological brink of our own. Just as few moral philosophers before 1945 could really have contemplated the possible annihilation of life as we know it, few

contemporary moral philosophers are really able to contemplate the enormity of the potential for changing the basic structures of life raised by the possibility of genetic engineering.

At mid-century, the basic structure of the atom was suddenly laid bare to science and technology. At the century's end, the basic structure of DNA promises to be similarly disclosed to human understanding and manipulation. As we prepare to enter the twenty-first century, it is hard to tell which of these events will have deeper and more far-reaching ramifications for moral thought and action.

LOOKING BACK

If early twentieth-century moral philosophy began with Moore's confident assertion that the good was a simple, non-natural quality of certain intellectually evident objects of moral knowledge, it most certainly ended with the emotivist claim that moral judgements did nothing more than express subjective feelings about right and wrong. In between, the world was witness to two major wars, the Nazi holocaust, and the United States' atomic annihilation of the Japanese cities of Nagasaki and Hiroshima. Yet it would be too simple to say that by 1945 science and ethics had finally and unequivocally parted ways. As one of the patients in the insane asylum of Friedrich Dürrenmatt's play *The Physicists* [5.17] points out, any one of us who passively flicks on an electric light without knowing the physics of what he or she is doing is guilty of abusing not only science, but humanity. As long as such passivity is our social norm, none of us is safe, not even, it turns out, a physicist who believes himself to have escaped from the insanity of a world in which atomic bombs are dropped on cities to the relative calm of a madhouse.

More poignant is Bertolt Brecht's *Galileo* [5.4]. This play's central moment of dramatic tension occurs when Galileo, under threat of torture, recants his rationally founded belief in the Copernican theory. According to his followers, Galileo has, as the great physicist of his day, failed both science and humanity. In publicly abandoning the scientific method, he has violated the onerous responsibility that attaches itself to the social role he finds himself, like it or not, thrust into; in publicly recanting, he has plunged humanity back into the darkness of ideology and the unbalanced social order which it enshrouds. As his main disciple shouts after him, 'Unhappy is the land that breeds no hero'. So too have many accused the physicists who produced the bomb of moral cowardice. To them we might recommend Galileo's own response, which is underscored by the counterpoint of the play's final scene: 'Unhappy is the land that needs a hero' (115). In its stubborn refusal to think for itself, it is humanity itself which has failed.

In this same connection, and in direct response to the is/ought dilemma, it is worth considering a point to which Dewey often returned: when ethics is banished to a separate, ethereal realm above and beyond science, hypothesis and action, the real world in which we must actually conduct our lives is left to the mercy of uncontrolled commercial and military interests. As he puts the point in *The Quest for Certainty,*

> [t]he narrow scope which moralists often give to morals, their isolation of some conduct as virtuous and vicious from other large ranges of conduct…is perpetuated by this habit of exclusion of the subject-matter of natural science from a role in the formation of moral standards and ideals. The same attitude operates in the other direction to keep natural science a technical specialty, and works unconsciously to encourage its use exclusively in regions where it can be turned to personal and class advantage, as in war and trade. ([5.14], 274)

In contrast, Dewey's naturalistic moral philosophy was closely connected to his concern over the social conditions produced by the capitalism of early twentieth-century North America. These included the exploitation of child labour, the creation and maintenance of utterly inhumane living and working standards

in cities and factories, and the coercive threat of unemployment that made such conditions inevitable and inescapable for large numbers of people.

Social unrest, socialist ferment, the progressive movement of which Dewey and other intellectuals were a part, trade unionism and subsequent government regulation all played a role in ameliorating such conditions, at least enough so that the growing threat of national chaos and social revolution could be nipped in the bud. But while nationally bounded capitalist concerns may thus have proved themselves to be controllable, it has become increasingly clear as the century has wound down that there is no controlling capitalism's Promethean capacity for escaping such bounds. In the face of national regulation of its concerns, capitalism has simply gone transnational with its conditions, relocating its child labour, starvation wages, unsafe working standards and shows of military force to the Third World. Moreover, as the standard of living consequently continues to fall in Canada, the United States and the United Kingdom, it is also becoming clear that if capitalism is indeed a great leveller of social differences, its natural grade favours Third World conditions over First.

In terms of ultimate influence, then, the work of Dewey and the other naturalists may turn out to be of the most lasting importance. In any social network where the many starve so that the few may overconsume, we may suppose, that is, that interests will not have been harmoniously arranged. As the early twenty-first century shapes up to be a transnational replay of the early twentieth-century conditions of Dewey's United States, we might thus allow ourselves the hope that a concern for ethics, rather than meta-ethics, will mark the dawn of the new century. Dewey's question, of course, would be what we, now, might do in pursuit of that hope.

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CHAPTER 6
Ethics II (1945 to the present)

Robert L.Arrington

In the years immediately following World War II, the field of ethics was dominated by discussion of the meta-ethical theory known as emotivism. This theory maintained that moral judgements are expressions of emotions and attitudes and not statements of fact about objective reality. As a set of claims about the meaning and the epistemological status of moral judgements, emotivism represented a new, metaethical conception of ethics. Earlier in the century G.E.Moore had inquired about the meaning of the word 'good', and hence he and his fellow British intuitionists might be said to have initiated the metaethical approach. But it was the emotivists who first restricted ethical inquiry to meta-ethical investigations. Rather than making normative judgements about what is right and wrong or good and evil, they saw the role of philosophy as one of elucidating the linguistic character of normative judgements. Questions of meaning and justification were central to the emotivists' conception of meta-ethics as a second-order enterprise of linguistic analysis. According to this conception, no first-order, normative conclusions follow from meta-ethical analyses. Understood in this sense, meta-ethics became the preferred way of doing ethics for the following two decades.

The theory of emotivism was first proposed by several philosophers identified with logical positivism, the influential philosophy of the 1920s and 1930s whose main thrust was to articulate a criterion of meaningful speech and, in accordance with this criterion, to limit meaningful discourse to statements that are empirically verifiable. The positivists' verifiability criterion of meaningfulness in effect restricted meaningful discourse to scientific statements, from which domain the class of moral and ethical statements (as well as aesthetic and religious ones) was excluded. But if moral utterances are not meaningful statements about the world, about human beings and their actions, what are they? Rudolf Carnap suggested that they are not statements at all but rather commands: to say, for example, that stealing is wrong is just a way of ordering someone not to steal. In a similar vein, A.J.Ayer maintained that the real function of moral and ethical remarks is to give vent to the feelings and emotions of the person making the remarks —hence 'stealing is wrong' is another way of saying 'Stealing, ugh!' Clearly, commands and exclamations are not factual statements at all, and they cannot be thought of as true or false (although an expression of emotion can be insincere). Hence they do not convey any form of knowledge. Moral judgements, according to this way of thinking, are non-cognitive. Instead of imparting information and knowledge about human nature and human action, moral utterances are emotive in function, aimed at expressing affective states or influencing attitudes and actions. Hence the appropriateness of referring to this view as the emotive theory of ethics.

Charles L.Stevenson's *Ethics and Language,* published in 1944, is undoubtedly the most sophisticated and elaborate development of emotivism. Stevenson was interested in explaining why there is so much moral disagreement and why this disagreement is often so difficult to overcome. If, as naturalistic moral philosophers maintained, moral terms refer to natural properties detectable by the use of scientific method,

the moral judgements containing them should be subject to empirical verification or falsification. If naturalism were true, the processes of scientific inquiry should be adequate to establish the truth of moral propositions to the satisfaction of all rational minds. Likewise, if moral judgements make reference to non-natural qualities detectable by a special sense of moral intuition (as the intuitionists had claimed earlier), the exercise of this allegedly cognitive capacity should lead to the resolution of moral disagreements. Or, finally, if philosophers like Kant were correct and there is some rational, quasi-logical decision procedure that is to be applied to moral decision-making, then rational human beings should be able to come to agreement over moral truth. But disagreement is rampant and unceasing. Why is this so? Have our scientific, intuitive or rational decision procedures not been properly applied? Or is moral disagreement perhaps not something that is always amenable to cognitive resolution?

Stevenson was impressed by the fact that moral disagreements and arguments are highly dynamic affairs —the parties to the disputes are trying, it appears, not just to get their opponents to believe something different, but to *feel* and *act* differently. The language used in the debates is emotively charged: the words 'good' and 'bad', 'right' and 'wrong' appear to express positive and negative feelings and attitudes on the part of the speakers, and these and other emotionally potent words also seem to serve as instruments which the disputants use to influence one another and to goad one another into action.

Stevenson shows how, to his mind, these attitudes and activities are built into the very meanings of moral terms and judgements. The latter, he maintains, have both emotive and descriptive meaning—they serve to express and evince or evoke attitudes as well as to make descriptive claims. The word 'good', for instance, is often used by a person to describe herself as approving of some object or action, but at the same time it is used dynamically to *express* the speaker's pro-attitude to the object. Finally, it is also used to call on the person spoken to to approve of the object or action as well. Hence, according to Stevenson, '*x* is good' often means something like 'I approve of *x,* do so as well.' 'Good' at one and the same time describes the speaker as approving of the object (just as she might describe herself as five feet tall), expresses the speaker's approval (much in the way in which 'Ouch!' expresses pain and 'Ugh!' expresses disgust) and urges others to approve of it (just as she might command someone to close a door).

Stevenson provides us with a sophisticated causal and dispositional analysis of the notion of meaning. In the first place, meaning is to be understood in terms of the conditions that give rise to an utterance, and also in terms of the conditions that are brought about as a result of this utterance. Frequently certain beliefs and attitudes will causally lead a person to use certain words, and the use of these words in turn often causes other people who hear or read them to come to have the same beliefs and attitudes. If I believe it is about to rain, this may cause me to say that it is about to rain, and my doing so in turn may lead others to believe this. If I disapprove of something my daughter has done, I may be led to say that what she did was wrong, and as a result of my saying so others (including, I hope, my daughter) will also come to disapprove of it. The meaning of what I say relates to the beliefs and attitudes that give rise to my utterances and are in turn caused by them.

The meaning of a word, however, is not just the set of ideas or attitudes that causes a person on a particular occasion to utter the word (or that on a particular occasion is produced in others by the utterance of the word). Such causes and effects are too variable to constitute meaning. But over an extended period of time, words, as a result of their use, develop a tendency to cause specific beliefs and attitudes in those who hear them, just as they develop a tendency to cause a person to say certain things. These tendencies may be referred to as dispositions, and these dispositions have a constancy which allows them to figure into an account of meaning. Thus Stevenson is led to think of the meaning of a word as its disposition to evoke a specific set of ideas and attitudes and its disposition to be used by a person who has these beliefs and attitudes.

Consequently, the meaning of a word like 'good' can be defined in terms of its dispositions vis-à-vis a specific set of attitudes and beliefs. One meaning it may have is its disposition to cause others to approve of an object and to believe that the speaker approves of it, together with its disposition to be used by a speaker when that speaker approves of the object. We may say that in such cases its *descriptive meaning* is its disposition to cause others to believe that the speaker approves of the object, while its *emotive meaning* is its disposition to express and evoke approval of the object. (Stevenson allows for a richer descriptive meaning as well, but the analysis just given captures the essential thrust of his theory.)

Given that moral judgements (and value judgements more generally) are functions of both beliefs and attitudes, understanding disagreements in the moral sphere requires grasping how these two components can come into conflict and how they can interact with one another. Two or more individuals may have a straightforward disagreement in belief: one believes that Clinton will win the 1996 presidential election and the other believes that Dole will do so. Or they may have a disagreement in attitude: one approves of Dole and the other heartily disapproves of him. More often than not, the disagreement in belief can be conclusively resolved: either Clinton or Dole will win the election and one party to the dispute will be correct and the other wrong. It is slightly more complicated in the case of disagreement in attitude. Many, perhaps most, disagreements in attitude are the result of disagreements in belief. Two potential voters may have different attitudes about Clinton because they have different opinions about what his policies would be if he were elected president. They may debate the issue of what his policies would be, and one of them may succeed in changing the other's mind. And this may lead the other person to develop a new attitude towards Clinton: agreement in belief would lead to agreement in attitude. But such a functional relationship need not always hold. Two individuals may agree in belief to the effect that Dole favours a widespread cut in the capital gains tax and Clinton does not. One of the individuals, however, approves of Clinton because of his position on this issue; the other disapproves of him for the very same reason. Here we would have a disagreement in attitude that, at least on the surface, is not based on a disagreement in belief and cannot be resolved by bringing about agreement in belief (it is possible, of course, that the two parties to the dispute have *other* disagreements in belief—perhaps about the general nature of society and the economy —which are ultimately responsible for their conflicting attitudes towards the capital gains tax). Hence it is conceivable that there may be disagreements in attitude which are independent of disagreements in belief. If so, they would not be resolvable by attaining agreement in belief.

The dual—emotive and descriptive—meaning of value judgements together with the different possibilities for agreement and disagreement in attitude and belief lead Stevenson to conclude that there is a limit to the effectiveness of rational debate in the moral sphere. To the extent that moral disagreements reflect disagreements in attitude that are based on disagreements in belief, these moral disagreements are potentially resolvable by rational means, namely those empirical and logical techniques used to bring about agreement in belief. But to the extent that moral disagreements reflect attitudinal differences not based on differences of belief, rational means alone cannot guarantee agreement. In such cases, the use of reason, scientific method, and the like may bring all parties to agreement on the facts, but their differing, belief-independent attitudes would remain in spite of this. Theoretically, then, there is a limit to what we can expect from the use of reason in the moral sphere.

Another important implication follows from Stevenson's emotive analysis of moral judgements. This analysis implies that the notion of validity does not apply in the case of many moral arguments. If the judgement 'Tom is a good person' means, as Stevenson suggests, 'I approve of Tom, do so as well', someone disagreeing with this judgement may be taken to say 'I disapprove of Tom, do so as well.' Finding themselves in disagreement, the two individuals, *A* and *B,* may proceed to argue with one another, and this argument would involve an attempt on the part of each person to bring forth information about Tom which

would hopefully change the other's beliefs and hence her attitudes towards Tom. Let us assume that one of the parties to the dispute, *A,* is successful in this way in winning over the other person, *B,* to the view that Tom is a good person. What would be the relationship between all the reasons *A* gives in favour of 'Tom is a good person' and this normative conclusion itself? Is it possible that *A*'s reasons have proved that Tom is a good person? Do we have here an argument in which the reasons constitute premises from which one might validly derive the conclusion that Tom is a good person?

Stevenson's answer is negative. The reasons given by *A* should not be seen as evidence in favour of *A*'s assertion that Tom is a good person. After all, this assertion amounts simply to *A*'s saying that she, *A,* approves of Tom together with her admonition that *B* do so as well. We may reasonably expect *B* to agree with the statement that *A* approves of Tom—that is not what is at issue, and hence not what *A* is trying to convince *B* of when she argues with her. The reasons provided by *A* are not, then, intended to prove *A*'s statement that Tom is a good person; rather, they are intended to change *B*'s beliefs about Tom and hence her attitudes towards him. They are either effective in doing so or not, and hence the only question that can be raised about these 'reasons' is whether they are causally effective in changing someone else's moral judgement, not whether they are rationally effective in proving the speaker's moral judgement. The notion of validity has no central place in moral debate (although, of course, it has a subsidiary role in determining whether the beliefs involved in the debate have been rationally defended).

The consequences of Stevenson's emotivism are shocking, at least to those who believe that reason has a central role to play in moral debate and that if it were used by all parties, rational agreement would in the end occur. Validity, the central component of the concept of rationality, turns out to have only a limited role to play in moral argumentation, and the threat of disagreements in attitude that are not rooted in disagreements in beliefs calls into question any general faith in the rational resolution of moral disagreements. Moreover, emotivism gives us a picture of moral discourse quite different from what we are commonsensically accustomed to. It pictures this discourse as a set of strategies for influencing, persuading, and on occasion goading people to develop desired sets of attitudes, not as a dispassionate search for truth. In this context, truth and validity count for little: agreement in attitude, by whatever means, seems the ultimate goal. When the guns of World War II grew silent, philosophical debate over the nature of morality began with a bang!

Although emotivism has a deep and wide sceptical appeal, many philosophers soon began to view this scepticism as based, as scepticism so often is, on a misunderstanding of the actual shape or form of our language, in this instance moral language. Some critics argued that the emotivists failed to make a necessary distinction between guiding a person's attitudes and actions and goading a person into feeling and acting in certain ways. Others expressed doubt over Stevenson's causal theory of meaning and insisted that we define the meanings of moral terms by reference to the linguistic rules governing ordinary discourse. Perhaps the greatest concern with emotivism was its derogation of reason in the moral sphere, its claim that the concept of validity has no central application in moral argumentation. This claim seems to fly in the face of our frequent criticisms of the moral arguments of others and our own efforts to make our moral convictions as well grounded as possible. Thus began a revolt against emotivism, the first major critics being advocates of the meta-ethical theory of prescriptivism.

The philosopher primarily associated with prescriptivism is R.M. Hare. His book *The Language of Morals,* published in 1952, is a landmark in twentieth-century moral theory. It puts forth a position that continues to be held today by many philosophers. Although critical of emotivism, Hare's prescriptivism remains a non-cognitivist theory. It shows, however, a greater sensitivity to the actual use of moral language.

Hare was one of those thinkers concerned that emotivism gave too little acknowledgement to the role of reason and logic in moral argumentation. Once we grasp the structure of such an argument, he thinks, we will see that it often has the form of a syllogism. Consequently the rules of valid reasoning can be strictly applied to it. Consider this example of a moral argument:

A: It was wrong of Mary to have an abortion.
B: Why?
A: Because it involved the taking of a human life.
B: Why does that make it wrong?
A: Because it is always wrong to take a human life.

This argument can be turned around to reveal the following syllogism:

1 It is always wrong to take a human life.
2 In having an abortion, Mary was taking a human life.
3 It was wrong of Mary to have an abortion.

This is a perfectly valid argument and hence proves its point as forcefully as possible. But, as with all valid arguments, one is required logically to accept the conclusion only if one accepts the premises. Hence a debate may break out over whether it *is* always wrong to take a human life. In this debate, a defender of premise (1) may construct another syllogistic argument which looks like this:

4 It is always wrong to disobey the commandments of God (which include the commandment not to kill).
5 Taking a human life is disobeying one of the commandments of God.
6 It is always wrong to take a human life.

Whatever else one may say about it, this extended argument has logically impeccable credentials. If there are reasons to be sceptical about moral argumentation, *reason itself* cannot be faulted. The concept of validity, according to Hare, applies in morality as much as in other spheres.

The examples just considered suggest that moral justification ultimately leads to basic or fundamental moral principles which are not themselves susceptible of the type of proof they help generate for less basic principles and particular moral judgements. Consider premise (4): it is always wrong to disobey the commandments of God. In the minds of many believers, this principle is ultimate—there are no other principles from which it itself is deductively derived. What if another person does not accept this principle? Perhaps that person does not even believe in the existence of God, in which case she surely will not agree that one ought to obey God's commandments. If moral arguments have the deductive structure that Hare describes, and if in the course of an argument we arrive at an ultimate principle, in the nature of the case no further deductive justification can be given for the ultimate principle. Thus there is no way to prove this principle to someone who does not accept it.

Hence we must say that while Hare shows us that reason has an important and central role to play in moral disputation, his analysis suggests that there is a limit to the ability of reason to bring about rational moral agreement. In defending our particular moral judgements and most of our principles, we must abide by the canons of logic. But reason and logic will bring about agreement on moral matters among people only if they accept the same ultimate principles. It may not always be clear whether or not people do accept the same ones, but the possibility of irreconcilable disagreement over such principles seems an inescapable sceptical implication of Hare's analysis. It leads us to question whether reason can be said to prove any of

our moral judgements (if all of them finally rest on unproved ultimate premises), and thus it leads us to doubt whether we can really claim knowledge of our moral convictions.

The non-cognitivism inherent in Hare's meta-ethics becomes even more apparent as we attend to his analysis of the role or function of moral judgements. Moral judgements, according to Hare, are prescriptive, quasi-imperative in nature. Prescriptions cannot be true or false, and it makes little sense to talk of knowing them. Although I may know that someone commanded me to close the door, it is senseless to say I know the truth of the command 'Close the door'. The prescriptive status of moral judgements precludes the possibility of moral knowledge, in spite of the fact that, according to Hare, reason requires that we be consistent in our use of moral prescriptions.

Taking the word 'good' as the focus of his prescriptive analysis of moral language, Hare reminds us that it is a word of commendation. As such, it is used to commend things in situations of choice. If I say that the new Honda is a good car, I am recommending that someone, perhaps I myself, buy one. I am guiding someone's choice of a car. If I say that Gandhi was a good person, I am commending the kind of life he led and recommending that others emulate this life. The function of commendation in these examples can be characterized in prescriptive terms—I am prescribing the choice of the new Honda, or the way of life exemplified by Gandhi. I am answering the questions: What shall I choose? What shall I do? Contrary to emotivism, Hare claims, the function of a value judgement is not to get someone (causally) to do something or have a certain attitude but rather to tell her to do it. In telling someone this, I use prescriptive language.

I am not, however, just arbitrarily prescribing choices. In saying that something is a good car or life, etc., I imply, according to Hare, that there are good reasons for choosing this kind of car or life. I imply that the objects commended have certain properties that make them good and in virtue of which I commend them. These properties Hare calls the good-making properties of the class of objects into which the one I am commending falls, e.g. the good-making properties of cars, or of human lives. It is always appropriate, Hare insists, to demand of someone commending a certain object, person or action that she provide reasons for this commendation, and these reasons should refer to the good-making properties of the object.

In articulating the good-making properties of a class of objects into which the commended entity falls, I am in effect appealing to a universal standard or principle, e.g. 'Good cars have properties *a, b* and *c*' or 'Good lives have properties *f* and *g*.' My particular value judgement always implies a universal value judgement. This universal standard or principle, together with a statement to the effect that the entity I am commending in fact *has* the appropriate good-making characteristics, yields the value judgement that I initially made. Hence:

7 Good cars have properties *a, b* and *c*.
8 This new Honda has *a, b* and *c*.
9 This new Honda is a good car.

How are we to characterize the universal standard or principle that serves as the major premise in arguments of this sort? It too, Hare thinks, must be seen as prescriptive. Just as in saying the new Honda is a good car I was prescribing its choice, so in saying that cars with properties *a, b* and *c* are good cars I am commending, and prescribing for choice, cars having these properties. General principles are no less prescriptive than the particular moral judgements falling under them.

Hare's thesis concerning the commendatory, prescriptive nature of value terms and judgements and his claim about good-making properties allow him to maintain that moral terms and judgements have both evaluative and descriptive meaning. The commendatory function or prescriptive role can be called the evaluative meaning of a moral term or judgement; the implied statement about the good-making properties

of the object commended can be referred to as its descriptive meaning. Normally, moral terms and judgements have both evaluative and descriptive meaning. The evaluative meaning, however, is primary. It remains constant regardless of the class of object commended, while the descriptive meaning varies with this class. The primacy of the evaluative over the descriptive meaning also comes out in this way: unless I am willing to commend a certain set of properties for choice, I will not take them to be the good-making characteristics of the class of object in question.

Hare's claim that value judgements are prescriptive allows him to demonstrate the close connection between evaluation and action, a task which, he maintains, cannot be accomplished by those who interpret value judgements simply as descriptions. In accepting a value judgement, I am in fact assenting to the prescription to choose the object or perform the action in question. The criterion of assent to a prescription is that, other things being equal, I in fact do what the prescription tells me to do (in other words, I have not assented to the prescription unless, other things being equal, I perform the prescribed action). Of course, other things may not be equal: I may change my mind about assenting to the prescription, or find I cannot do what I am told to do, or forget what I was to do, etc. But if one or another of these conditions does not exist, assent to a prescription entails that I obey the prescription. Contrariwise, assent to a *description* never entails that I will perform a certain action; indeed, it never entails that I will do anything whatsoever. Hence Hare's analysis of practical discourse indicates why it is *practical,* why it issues in action. (One should note that the intimate relationship between prescriptions and actions also poses a major problem for Hare, the problem of weakness of the will. It certainly appears that I may assent to a prescription without any of the *ceteris paribus* conditions mentioned above holding and still fail to act—my will may be weak. Explaining this weakness of the will is a major problem for a prescriptivist.)

The commendatory function of 'good' and other value terms has an important logical consequence. Commending, we have seen, involves the prescription of choices. Prescriptions are logically distinct from descriptions and incapable of being logically derived from them alone. No matter what properties I describe a car as having, in describing it I have not taken the step of recommending that it be chosen: I have not said 'Choose this one.' Hence no prescriptive value judgement follows from premises that contain only true/false descriptions. We have seen that evaluative arguments contain not only a descriptive minor premise but also a prescriptive universal standard or principle as the major premise. We now can observe that this is the structure that a valid evaluative argument *must* have. A prescriptive conclusion follows from an appropriate prescriptive major premise and an appropriate descriptive minor premise, but not from the latter alone. And no matter how many factual, descriptive statements are added to the argument, the evaluative conclusion will not follow from them until such time as an appropriate prescriptive judgement is entered as a premise as well.

Important consequences for the issue of moral agreement follow from these logical observations. Agreement on facts will not by itself ensure agreement on a disputed moral judgement. Two or more people may operate with different moral standards or principles, in which case they may agree on all the properties of the object, person or action they are evaluating and still disagree on its moral or evaluative character. If they bring the same standards or principles to the discussion, agreement on the facts is to lead to agreement regarding the evaluative conclusion, but if they do not do so, they may find themselves in irresolvable disagreement. Of course, as noted above, they may attempt to obtain agreement on the standards or principles by arguing for them. But this argument must have, as we have seen, another standard or principle of greater generality as its major premise, and unless two or more people can agree on such a major premise of higher generality, they will not obtain agreement on standards or principles of lesser generality. In so far as no evaluative judgement can be deduced from factual statements alone, ultimate principles must be seen as based on fundamental commitments or decisions of those who hold them. If people

have made commitments to different standards or principles of highest generality, there will be no way in which one of them can be compelled logically or rationally to adopt a different basic principle.

Hare seems willing to accept these consequences, but he thinks they imply no basic arbitrariness in the area of moral discourse. Moral discourse is such that moral judgements conceptually require that reasons be given to support them. In tracing out the series of factual claims and standards or principles supporting a moral judgement, in pointing to the consequences of following these standards or principles and showing how doing so satisfies even higher, more ultimate principles, one is in effect revealing a way of life. To be able to articulate this way of life in defending a moral claim is to be a fully rational creature. To ask for more, to demand that we be able to justify the way of life by deducing it from some set of factual propositions, is to ignore the fact that morality is a matter, not ultimately of the world being a certain way, but of our choosing to live a certain kind of life.

Hare's prescriptivism dominated discussion in moral philosophy during the 1950s and 1960s, and it quickly became the paradigm of non-cognitivist approaches to moral discourse. But reaction against prescriptivism began in the late 1950s and picked up steam in the 1960s. Although no competing theory gained the position of dominance attained by Hare's prescriptivism, a number of powerful technical arguments were directed against it. Slowly, as a result of this attack, the pendulum began to swing back in the direction of cognitivism. To this day, however, no cognitivist position has attained the level of consensus that Hare's views previously attained.

A leader in the attack on prescriptivism was the Oxford philosopher Philippa Foot. In two pioneering articles, 'Moral Arguments' [6.8] and 'Moral Beliefs' [6.9], published in 1958 and 1959, she set out a form of moral philosophy that has been called neonaturalism, the central idea of which is that moral claims relate intrinsically or conceptually to the notion of human well-being. Consequently, these claims can be evaluated for their truth or falsity, and we can achieve an understanding of what really is right and wrong by understanding how our actions impact on human well-being. Our attention here will be directed primarily at Foot's reasons for opposing prescriptivism, for these reasons in the end have been more influential than her own constructive theory.

Foot objects to the idea that we can create criteria for the goodness of objects or the rightness of actions simply by approving of or deciding to commend a set of properties possessed by these things. Hare's view, she claims, would allow us to identify the class of good men as those with red hair, simply by virtue of our approving of and commending red hair. We could think it right to be cruel, just by deciding to prescribe the choice of cruel actions. To claim that good men are those with red hair, and right actions those that are cruel, is not, however, merely to make false claims. Such statements are absurd; they are conceptual nonsense. The proper use of words is defined by the rules of language, and the rules governing 'good' and 'right' do not allow us to apply them, respectively, to red-headed persons exclusively and to cruel actions. These rules prohibit us from using moral terms as we please. Hare made the descriptive meaning of moral terms dependent on their evaluative meaning: the good-making properties of a certain class of objects are the set of properties we decide to commend for choice. Such a view would allow the descriptive meaning to vary widely from one person to another. Foot thinks such a view implies conceptual anarchy, and she rejects this anarchy as inconsistent with the rule-guided nature of moral terminology. When we look to see what these rules are, we will find, she thinks, that moral terms are conceptually linked to certain sets of properties related to well-being. We cannot, without talking nonsense, use these terms in ways that do not acknowledge these conceptual links.

Another leader in the assault on non-cognitivism was Peter Geach. In 'Good and Evil', Geach argues that in phrases such as 'good person' or 'good auto' the term 'good' is being used attributively, not predicatively [6.12]. If its use were predicative, it would have a sense that could be understood independently of the

senses of the terms with which it is combined in these phrases, just as 'red' can be understood independently of 'cat' when it occurs in the phrase 'red cat'. A red cat is something that is red and that is also a cat. Hare's claim that the evaluative meaning of 'good' is independent of its criteria of application or descriptive meaning, and his assertion that the evaluative meaning is primary because it is constant across classes of objects having different criteria, requires that 'good' in 'good person' or 'good car' be taken as predicative. Geach argues that, on the contrary, its use in phrases of this sort is attributive. Take the case, he urges, of 'a good burglar'—this is not a person who is good and who is also a burglar. Understanding 'good burglar' requires understanding the meaning of the phrase as a whole—we do not know what 'good' means in this context unless we know what a burglar is. Hence we cannot postulate in this and similar cases an evaluative meaning of 'good' that is independent of the descriptive meaning of the term to which the normative term is attached.

In another influential essay, 'Assertion', Geach tries to show that the meaning of 'good' cannot be understood in terms of its commendatory use [6.11]. He points to numerous sentential contexts in which the use of this word cannot be taken to commend anything, e.g. 'If the child is good, she should be allowed to go out to play.' In saying, 'If the child is good…' one is certainly not commending the child. The meaning of 'good' in this context cannot, then, be explained in terms of its commendatory function or force. But, Geach goes on to argue, the term must have the same meaning in this context as it does in others if we are to preserve the validity of arguments in which it occurs. Take, for instance, the following argument:

If the child is good, she may go out to play.
The child is good.
Therefore the child may go out to play.

If the meaning of 'good' in the first premise were different from its meaning in the second premise, this argument would be invalid; it would commit the fallacy of equivocation. The argument, however, is valid. It follows that, in so far as 'good' in the first premise does not have a meaning connected to the role of commendation, neither does it have this kind of meaning in the second premise. Geach grants that terms like 'good' may on occasion be used to commend—this fact, however, does not preclude it from having a primary descriptive meaning which it contributes to the propositions in which it occurs, in *whatever* context these propositions occur.

Another influential attack on meta-ethical views similar to Hare's came from John Searle in his article 'How to derive "Ought" from "Is"' [6.16]. Searle argues that, contrary to a long tradition of thinking descending from Hume and captured in Hare's prescriptivism, it *is* possible to derive an evaluative judgement (about what one *ought* to do) from a purely descriptive one (about what *is* the case). Take the following descriptive remark: 'John uttered the words "I hereby promise to pay you, Smith, five dollars."' From this, Searle claims, we can derive the evaluative conclusion 'John ought to pay Smith five dollars.' Admittedly there are some intermediary steps that have to be filled in between the premise and the conclusion, but Searle maintains that none of them contains any evaluative statements or principles. The ought-statement, therefore, follows from the is-statements or descriptive premises alone. Searle's argument is controversial, but it has an initial plausibility that forced many philosophers to rethink the 'is/ ought' controversy. It led them to reconsider whether, as Hare alleged, prescriptions cannot be derived solely from descriptive premises, or even more fundamentally, whether ought-judgements and other evaluative claims really are non-descriptive (at least in any important sense).

Still other criticisms can be levelled at Hare and the non-cognitivist approach that his views exemplified. An important part of Hare's metaethical theory is the assumption that moral justification proceeds by

deducing particular moral judgements from universal standards or principles together with statements of fact that serve to subsume the particular judgements under the universal principles. We are not justified in accepting a particular judgement unless it is capable of being subsumed in this measure under one of our universal moral commitments. But why, some philosophers such as Renford Bambrough [6.7] and Jerome Schneewind [6.15] ask, do general principles have this justificatory priority? In fact, do they always have it in our everyday moral practices? It can be argued that we often feel far more certain that a particular act is wrong than we do about the general principle it instantiates. For example, it would certainly be wrong of me to break my promise to repay Jones five dollars in most ordinary circumstances, but would it always be wrong to break such a promise? We can think of many instances in which it might not be. Surely I should break a promise in order to save a life, and sometimes breaking a promise to promote a higher good seems perfectly permissible. Promise-keeping in some individual cases may have overriding weight, but in others it may not. Epistemically, we are far more certain of the duty to break a particular promise in special circumstances than we are of the principle that universally prescribes promise-keeping.

In fact, it could be argued that we actually arrive at many of our general moral principles by something like induction—because doing *x* was the right thing to do in so many particular circumstances, we generalize to the effect that doing *x* is always right. Such a generalization should be seen more as a guideline than as an absolute principle and should be held with considerable caution. As an absolute principle, it would be subject to refutation in a particular instance if we had a confident sense (some might say intuition) that it was wrong to do *x* on this occasion.

A sophisticated development of this latter mode of thinking has been developed by John Rawls. In fact, Rawls's proposed method of *reflective equilibrium* has become an attractive approach to the issue of moral reasoning for many philosophers today. Any attempt to arrive at a set of general principles (Rawls's own search is for principles of justice) must initially be tested by comparing, on the one hand, what a set of proposed general principles suggests we do, with, on the other, our own particular judgements or intuitions about what to do in specific circumstances, especially those judgements in which we have a high degree of confidence. The applications of the principles need to match up with these intuitions. Of course, we are not always so confident about what, in particular circumstances, we ought to do—and we can continue to put the proposed principles to the test by seeing if they can give us guidelines that we find we can accept in these problematic circumstances. Indeed, once we come to have considered confidence in our proposed principles—because of the way they match the deliverances of intuition and the way they provide acceptable guidelines in problematic situations—we may extend their use and actually use them to *correct* the deliverances of intuition. That is to say, after considerable testing, general principles may be used to overturn particular judgements we are inclined to mate when these judgements are unguided by general principles. In this way, our principles can come to correct our particular beliefs just as our particular beliefs can function to correct our principles. The end result of this process of mutual adjustment is that we bring our principles and particular judgements into a state of reflective equilibrium. Such a state bestows on both the considered principles and the considered judgements a level of epistemic warrant that is superior to the warrant either of these possessed at earlier stages in the process.

The method of reflective equilibrium appears to resemble in some important ways the method used in science to arrive at warranted beliefs. The development of general scientific theory is driven in part by particular observations, and concurrence with these observations is the test that general theoretical statements or statements of laws must pass. But once we have in hand a theory with some warrant, we can begin to use it to predict new observations, and we can even use it to reject observations that appear aberrant in light of the theory. In science, then, we seek reflective equilibrium between particular observations and general theory. If Rawls is correct, this is what we do in moral inquiry as well. Hence it is not difficult to

think of moral inquiry as much closer in nature to scientific thought than the emotivists or prescriptivists believed. The parallels we have noted appear to bestow on moral thought a degree of cognitivity and credibility that was denied it by the non-cognitivists. Rather than constituting a distinct mode of discourse that fundamentally expresses non-cognitive states of mind, moral judgements may reflect something like scientific method applied to a distinctive area of human experience. Again, the pendulum begins to swing from non-cognitivism to cognitivism.

Questions about the conceptual constraints on moral judgements and arguments about the nature of moral inquiry and methodology were part of a more general interest in the notion of morality itself. What is this area of experience and discourse we call morality? If we obtain a clear picture of it, we may see that morality deals with very distinctive concerns and questions which limit the kinds of considerations and reasons that can properly occur in a moral argument. Further, the very concept of morality may set limits on what kinds of actions can be judged right and what kind of people good. Rather than being matters of individual choice or attitude, as the non-cognitivists maintained, they may be identified fairly precisely by the requirements imposed by the concept of morality.

But what is built into the concept of morality? What distinctive concerns are moral ones? What dimensions of action and the world are morally relevant? A lengthy debate ensued over these issues, one party claiming that the concept of morality makes certain kinds of factual issues relevant and decisive for moral debate, the other party denying that the concept of morality imposes any material conditions of this type. The latter group of thinkers granted that the term ‘morality’ has a distinctive meaning, but for them this meaning reflects the distinctive *form* of moral judgements, e.g. their prescriptive nature and their universal or universalizable character. While the first group proposed *material* conceptions of morality which identify a distinctive moral subject matter, the second group argued that the concept of morality imposes only *formal* conditions on what can be a moral judgement.

One of the most influential advocates of a material definition of ‘morality’ was William K.Frankena. In ‘The Concept of Morality,’ Frankena first puts forward for purposes of argument a formal definition of the term which he thinks captures the conceptions of his philosophical opponents [6.17]. This definition tells us that a person has a morality if and only if she accepts certain judgements and principles (a) that are prescriptive, (b) that she universalizes as being binding on all persons and (c) that she regards as definitive, overriding or supremely important. Frankena then offers as an alternative a material definition which states that a person has a morality only if she accepts judgements and principles that take into account the effects of her actions on others from the point of view of the other people themselves rather than from the point of view of her own self-interest.

The formalist definition would allow there to be conflicting moral principles, one of which supports a purely egoistic way of life while the other recommends actions that take the interests of others into account. The material definition would restrict moral principles to those that take the interests of others into account. If one accepts the material definition, then considerations about how an action affects the lives of others are *necessarily* relevant to deciding what one morally ought to do. But if one accepts the formal definition, one cannot determine from the meaning of ‘morality’ alone whether these considerations are relevant.

Frankena argues for the material conception of morality by (1) suggesting that it accords best with the way we actually use the term ‘morality’ and (2) rebutting the arguments of those who prefer the formalist definition. He is particularly concerned with R.M.Hare’s claim that if we build social constraints into the meaning of ‘morality’, we win the argument against the egoist by linguistic fiat. Any judgement about what ‘morality’ means, according to Hare, must leave open the substantive issues that separate the egoist from someone who promotes the interests of others. Frankena agrees that the substantive issues remain even if we adopt the material conception. We do not dispose of the egoist’s claim that we should always pursue self-

interest simply by pointing out that this position is not a moral one; in arguing with the egoist we confront the issue of why we should prefer the moral perspective to the non-moral one. Thus one can grant that a disagreement remains, without giving up one's idea that the notion of morality itself requires consideration of the interests of others. If the egoist insists that his position *is* a moral one, then the only appropriate response is to see if his arguments in favour of this claim are acceptable. The egoist may suggest that it is not contradictory to say that an action involving an utter disregard for other people is not wrong on moral grounds. Is this correct? Frankena thinks not.

Many philosophers have been concerned that a material definition might serve to make something like utilitarianism true by definition— a consequence perhaps acceptable to utilitarianism but not to the many thinkers who reject it and still consider themselves to be moralists. Frankena's material conception of morality, however, is sufficiently broad to include deontological theories that emphasize duties to others as well as those theories committed to a policy of maximizing the pleasure or happiness of the greatest number. It excludes from morality only such principles as those of pure egoism.

The debate over the proper conception of morality came to no definitive conclusion. Some agreed in principle with the formalist conception but rejected the requirement expressed in the third component of Frankena's rendition of it—the requirement that moral considerations be considered supremely authoritative. They claimed that religious, even personal, considerations may take priority over moral ones in the minds of some people without these people having made any conceptual errors. Other attempts were undertaken to shore up both the material and the formal conceptions so as to provide necessary and sufficient conditions for the proper use of the term 'morality'. But necessary and sufficient conditions for the use of almost any term are hard to come by, as the case in point amply demonstrates.

A development in moral philosophy parallel and related to the search for a definition of morality was the good-reasons approach to moral discourse. This approach was initially articulated by S.Toulmin in his *The Place of Reason in Ethics* [6.21] and by Kurt Baier in his *The Moral Point of View* [6.20]. Toulmin and Baier urge us to attend more to the kinds of reasons that are submitted in defence of a moral position or judgement than to the logical character or content of moral judgements themselves. If we do so, they assure us, we will note that some considerations are particularly relevant to moral discourse and debate. Reasons appealing to accepted rules that define duties are perfectly appropriate considerations in most instances. But these rules may conflict with one another, in which case we may need to appeal to the very function of morality, which is to co-ordinate our attitudes and actions in ways that maximize the possibilities for everyone's aims and desires being fulfilled. Good reasons, therefore, ultimately are those that speak to the manner in which an action promotes the goal of fulfilling everyone's desires and aims. (It is not difficult to see how a philosopher like Hare might detect here an attempt to introduce utilitarianism into morality by linguistic fiat.) Clearly there is a fact of the matter about the impact of actions on this end state, and hence appeal to good reasons may allow us to achieve moral truth and knowledge.

Kurt Baier attempted to strengthen the notion of good reasons by showing that certain considerations or reasons are such that it would be irrational not to take them into account. In an early essay, he argued that the fact that an action will bring pain to oneself is a relevant consideration and one that normally counts against engaging in the action. Of course, there may be other reasons favouring an action that brings pain to oneself, e.g. the action may be in the best interests of one's family, and these reasons may show that an action is right even though it brings pain to the agent. But if there are no such overriding reasons, the fact that an action brings pain to oneself is a conclusive reason not to do it. If a person engages in an action only on the grounds that it would bring pain to him, we would consider this person irrational. Hence, everything else being equal, the production of pain is an objectively good reason *not* to perform the action in question.

Having established to his satisfaction that there are such things as objectively good reasons for or against an action, Baier turns his attention to moral reasoning. His argument here involves showing that there is a distinctive moral point of view such that assuming this point of view amounts to seeing certain kinds of reasons as relevant to the determination of what is morally right or wrong. A person acts from the moral point of view when he acts on general principles and does not make exceptions for himself even when following these principles frustrates his own interests. Hence moral rules or principles are universal—binding on everyone, including the speaker. Furthermore, moral principles or rules must be meant to promote the good of everyone alike, i.e. to take into account and further the interests of all.

Baier goes on to argue that it is more rational to promote moral aims than to pursue aims that conflict with morality, e.g. selfish aims. Our very purpose in reasoning, he tells us, is to increase our satisfactions and decrease our frustrations as much as possible. From this it follows that if I enjoy doing something, and my doing so does not hurt anyone else, then I have a good reason to do it. My enjoying doing *x* is objectively a good reason for doing *x* in these cases because not to think of it as being a good reason would be perverse or mad. But if my doing *x* would harm someone else, the situation changes. Our moral rules forbid us to harm others, even if doing so is enjoyable to us. Moral rules override those of self-interest. But the fact that moral rules have priority over rules of self-interest is also rational. As Thomas Hobbes observed, if everyone followed the rules of self-interest, this would lead to a state of nature in which life for everyone is nasty, brutish and short. Such a situation is contrary to self-interest, and promoting it is contrary to reason. We are more rational to accept rules which override self-interest in those instances in which pursuing this self-interest would be harmful to others. Those moral rules which are for the good of all are therefore in the interest of everyone alike. It follows that, within a society in which we can expect others for the most part to follow the moral rules, the moral rules are recommended by reason. The moral point of view is thus the rational point of view.

This argument can certainly be criticized. For one thing, it is possible to develop sophisticated forms of egoism which appear to be as rational as morality, perhaps even more so. We will not, however, pursue the argument at this point, although some theories we consider later will take up the case in favour of morality. Suffice it to say that the good-reasons approach to ethics made the notion of rational action (and the very concept of rationality) a central one in much of the moral philosophy that followed. Many philosophers approach the subject matter of ethics by inquiring whether our notion of rationality will allow us to construct an objective defence of morality.

Before discussing some of these 'rationality' approaches to moral objectivity, let us consider another question that arises out of the attempts to define morality and the moral point of view. Assume that we have done so adequately—the question then presents itself: why should I be moral? Baier, as we have seen, thinks the answer is: because being moral is in accord with reason—because it is in everyone's interest to do so. Other philosophers disagree with this type of answer —not because they are egoists, but because they think it is the wrong *kind* of answer to the question. Whether morality is in anyone's interest or not, they would say, is irrelevant. One ought to be moral simply because it is the right thing to do. The alternative—acting in preference for one's own interest when doing so brings harm to others—is simply wrong and vicious. Once we know what we ought to do morally, doing anything that conflicts with this is forbidden by morality.

But, another philosopher might observe, to answer the question 'Why be moral?' in this way begs the question; it adduces moral reasons in favour of being moral. The question posed is not whether there are moral reasons for acting in a certain way, but whether there are reasons to choose the moral point of view over other points of view, particularly the self-interested point of view.

A defender of morality might reply: what you are asking is whether there is an egoistic reason for preferring morality to egoism. And given that morality, with its emphasis on the good for all, often requires sacrifices of us, the answer will probably be negative. But what does this show other than that morality and self-interest are often opposed, as we knew before the argument began. If by chance we ascertained that it *would* be in our self-interest to be moral, this is not a justification of morality that a moral person is likely to accept. A person should be moral because she recognizes the superiority of moral reasons over self-interested, egoistic ones. One isn't really acting morally if one does so for selfish reasons.

We have here what appears to be a standoff. We cannot justify being moral by appeal to moral reasons or by appeal to egoistic ones. Perhaps we cannot justify being moral at all. Perhaps our decision to throw in our lot with the moral way of life is arbitrary. Baier himself does not think so. He thinks that moral reasons are superior to selfish ones because they are more rational. Others have argued that morality is at least not unreasonable. It is time to examine some of the recent theories that focus on morality from the standpoint of rational choice.

The first such theory to be considered is that of John Rawls. And it must be said at the outset that the brief description offered of this theory can in no way convey the enormous impact it has had in contemporary ethics. Rawls is one of the major figures in post-World-War-II ethics, and his normative system has had considerable influence outside ethics: in social and political philosophy and indeed in the political sphere itself. We will view Rawls's attempt to define and defend a set of principles of justice simply as one attempt to show how the notion of rational choice can generate an ethical position.

Rawls's position first came to the attention of a large philosophical audience through his early essay, 'Justice as Fairness' [6.29]. Other articles followed, and then in 1971 there appeared the monumental *A Theory of Justice* [6.28]. In 'Justice as Fairness', Rawls suggested that we begin our inquiry into the principles of justice by asking ourselves what principles a group of people (ourselves) would accept if they were in a position of having to identify the ways in which their future lives together would be organized and regulated. What principles would they agree on? Each person might initially prefer principles that would benefit him or herself, even at the expense of others, but would on reflection recognize that such principles would not be accepted by others. What is needed is a technique for determining what principles would be accepted by all. This technique would have to ensure that the principles for organizing society would be viewed by each person as being to his or her advantage, for only then would each person agree to them. The technique offered by Rawls involves identifying an 'original position of equality' which we might take up, a position in which we are all equal with respect to selecting principles that would be to our advantage, and hence a position in which we can have some assurance that everyone would agree to the principles proposed.

Getting into this original position, for Rawls, requires placing ourselves behind a 'veil of ignorance' from which vantage point we do not know what our individual interests or talents are or what our position in society is or would be. Not knowing such details about ourselves, we would be unable to propose principles that are uniquely designed to benefit us, to serve our interests and position and to capitalize on our talents. If we assume only general knowledge about the basic goods for human beings and basic facts about human nature and society, the principles we select could only further our common interests, those resulting from our general nature and condition. Not knowing who we are or would be in the future, and hence how certain policies might uniquely benefit us as distinctive individuals, we would select principles that would benefit us regardless of who we turn out to be. We would not, for instance, select principles authorizing slavery, since we might turn out to be slaves; we would not select principles that benefit the wealthy, since we might turn out to be poor. We would, on the contrary, select principles that would benefit everyone, and certainly would benefit the worst off among us, for we might very well fall into that group. The principles selected in

this way behind a veil of ignorance are principles that could be accepted by all parties to the deliberations. It would be reasonable for everyone to agree to the principles that suggest themselves to those in the original position.

In defining the principles of justice—the principles for organizing and governing our lives—as those that people would agree to accept behind the veil of ignorance, Rawls is not saying that this type of pact was ever in fact entered into. The agreement he is talking about is a hypothetical one: what we *would* accept were we to put ourselves behind a veil of ignorance. We are not, therefore, committed to the implementation of some social contract into which we have entered earlier. But in so far as the hypothetical agreement is one we can envisage in thought, and in so far as the conditions imposed on the thought experiment guarantee that the results would benefit us regardless of who we are, then it would be reasonable for us to accept the principles identified and to implement them in our actual lives.

What principles would we accept behind the veil of ignorance? Rawls identifies two principles. The first requires that each person have the maximum liberty compatible with equal liberty for others. The liberties Rawls has in mind are political liberty, freedom of speech and assembly, liberty of conscience and freedom of thought, freedom of the person, and freedom from arbitrary arrest and seizure. The second principle deals with the distribution of the goods of nature and society and requires that these goods be equally distributed among all people, except in those circumstances in which an unequal distribution would be in the interest of everyone, including those who are the worst off with respect to material resources and powers. The second principle also requires equal opportunity or access with respect to positions of authority in society. If the two principles conflict with one another, the first is to have priority over the second. In arguing for these two principles, Rawls uses the method we have identified earlier as the strategy of seeking reflective equilibrium among our intuitions about what would be right and fair in particular instances and the general principles we propose. In defending two normative principles, Rawls also began the process of turning ethics away from its concentration on meta-ethical issues of meaning and justification and pointing it in the direction of its more traditional task of seeking the principles that define for us what really is right and good. His theory of justice is not just a major contribution to normative ethics; it is also responsible for making the project of normative ethics a legitimate and respectable one once again. In this latter role it promoted the development of numerous other normative theories and also supported the developing interest in practical or applied ethics, which began to seek normative answers to specific ethical problems that we face in society today.

Many philosophers have followed the lead of Rawls in defining the basic issues of ethics in terms of the question of what reason would say regarding the best way to satisfy our preferences and maximize our chances for well-being. Some have made even stronger claims about the verdict of reason. David Gauthier [6.26], for instance, has argued that opting for unfettered self-interest as opposed to a set of rules impartially acknowledging the interests of others would be irrational. Gauthier sees morality as a part of the theory of rational choice. Using the techniques of decision theory (which defines principles of rational choice under conditions of risk or uncertainty) and game theory (which considers choices made on the basis of expectations about how other agents will choose), he believes it can be demonstrated that one rationally ought to agree to those moral rules of impartiality which would require an occasional sacrifice of our own interests in order to promote impartially the interests of all concerned. Application of the theory of rational choice would show that constraining the pursuit of our own interests by the principles of impartiality is actually in our own interest, and, indeed, that we would be irrational not to agree to constrain our actions in such a way. Gauthier's work is clearly an extension of the perspective of Kurt Baier, which we discussed earlier.

Perhaps the most ambitious use of reason in recent ethics is found in the rationalist ethics of Alan Gewirth. Gewirth [6.27] believes that it is possible to prove a fundamental moral principle in the optimally strong sense of showing that anyone attempting to deny the principle would contradict herself. This fundamental principle, called by Gewirth the principle of generic consistency, requires that one act in accord with the generic rights of others as well as oneself, these generic rights being those to freedom and well-being. Gewirth gives a highly complex (and controversial) proof of the principle of generic consistency. The proof begins by showing that each of us, as an agent who acts with purposes and goals, must favour our own freedom and well-being, these being the conditions required for us to attain any of our particular goals or realize any of our purposes. Consequently, our freedom and well-being are *necessary goods* for each of us. Having established that we must acknowledge that our freedom and well-being are required in all of our actions, Gewirth further argues that we must assert our *rights* to freedom and well-being—otherwise, they would not be goods we *must* have. But if each of us is committed to our own rights to freedom and well-being, based on the fact that they are necessary conditions for the realization of the specific purposes and goals to which we are committed, we must grant that others, for whom freedom and well-being are also necessary goods, must also demand their freedom and well-being. If each of us demand our rights on such grounds, each of us must admit that all other persons are equally justified in demanding their rights on the same grounds. To deny that everyone has the rights to the generic goods would put us in the irrational position of allowing that we have these rights on these grounds but that others do not. This denial would amount, Gewirth argues, to an inescapable inconsistency. Thus we cannot, without contradicting ourselves, deny the truth of the principle of generic consistency. Here we have one of the strongest advocacies in the history of philosophy of the power of reason to prove the truth of a moral principle.

The good-reasons approach to ethics established early on by Toulmin and Baier leads, then, to contemporary views of the role of reason in ethics that attributes to reason the ability to offer objective proofs of moral truths. As we have seen, there are a variety of such views (and we have examined only a small representative sample), but all of them put the notion of rationality at the heart of ethical thinking. Such views, although immensely popular today, by no means exhaust contemporary approaches to ethics. We will now turn our attention to some contemporary perspectives that see 'rationalism' as a misguided form of moral philosophy.

An increasingly influential movement in contemporary ethics is that of moral realism. There are two different forms of this theory, one that is basically intuitionistic (and British) in nature, and one that emerges from the scientific realism that is very popular these days, especially in America. The two strands have in common the fact that their advocates believe in the reality of objective moral properties—properties of obligation, goodness, and so on—which attach to actions, people, and circumstances independently of human belief or desire. They also believe in our ability to grasp these properties and thereby attain objective moral knowledge. Their primary difference relates to their understanding of the cognitive ability yielding this knowledge. The intuitionists stress our perception-like ability to directly confront the fact that actions and agents have certain moral properties. The scientific realists maintain that a form of inquiry similar to scientific theorizing often results in knowledge of the moral character of actions and agents.

The intuitionistic realists suggest that we are not well served by pursuing ethical inquiry primarily with respect to such abstract notions as the right and the good. Rather, they think, we should look at very specific moral notions such as kindness and courage. We have no difficulty in ascertaining that a person is kind or courageous, and in so doing we are detecting moral characteristics. It makes perfect sense to say that we *see* that a person is kind or courageous. To be sure, our 'perception' of these qualities is always based on a perception of other qualities of the person or her actions: we see that a person is kind because she did *x* or *y,*

or courageous because she reacted to situation *s* in manner *r*. But the moral characteristic cannot be *reduced* to these other characteristics. Nevertheless, the latter constitute the ground or basis for the moral property. We directly confront the fact that a person is kind, although we may refer to her other characteristics (which may be non-moral) in giving our reasons for the moral claim. The moral property is said by the realists to supervene on the base property or properties. This relation of supervenience captures the notion that moral properties are not inferred from non-moral characteristics and must be directly confronted in moral awareness; it also stresses, however, the fact that moral characteristics are not independent of the specific detail of character and circumstance in which they are embedded. The intuitionistic realists emphasize the need to pay close attention to the specific detail and circumstances of each action, so that we may detect the moral character directly and also the base properties which give rise to it and afford us reasons for asserting its existence.

Many of the intuitionistic realists approach the issue of moral reality from a perspective they think reflects the philosophy of the later Wittgenstein. Rejecting any form of scientism that would attempt to reduce all discourse to scientific propositions, they claim that our ordinary language incorporates concepts of moral properties and moral knowledge. In coming to master this language (play the 'language-game' of morality), we develop an ability to apply moral terms on the basis of perceptual criteria. If we do so correctly on a particular occasion, we can be said to state a moral truth and to achieve moral knowledge. No mystery attaches to the perception of moral reality— the appearance of oddness disappears once we realize that moral concepts shape and inform perception no less than do scientific concepts. We learn to apply scientific concepts, and when we do so correctly we have scientific knowledge; we learn to apply moral concepts, and when we do so correctly we have moral knowledge. Our moral language-game contains conceptual articulations and rules which we appeal to in actually playing the game. Theories that deny us moral knowledge, or that equate it with naturalistic, scientific knowledge, have failed to grasp the true nature of moral language. And the rationalists and others who put rules at the centre of morality have likewise failed to see that the moral language-game is one of directly seeing, confronting or detecting the moral character of particular actions and individuals, not one of deducing moral truths from general rules.

Scientific moral realism is in many ways a thousand philosophical miles away from the intuitionistic version. Its advocates do stress, along with the intuitionists, that in ordinary language we often speak of the moral properties of actions and agents as real and objective. They also note that in this ordinary discourse we have no hesitation in claiming that these moral properties are causally responsible for what happens in the world: we say, for example, that an army's defeat was caused by the general's cowardice, or that a dictator's cruelty led to his downfall. Taking their license for talking this way from ordinary discourse, the scientific realists propose that we attempt to construct theories of individual behaviour and societal change that take into account the causal efficacy of moral properties. Such theories will posit moral properties as part of their explanatory apparatus. These theories can be tested in terms of their ability to explain the course of human behaviour and societal change. The reality of the moral properties posited in these theories is no more suspect than the reality of sub-atomic particles. We accept both because of the ability of the resultant theories to explain what would otherwise be puzzling aspects of the world. We are justified in affirming the reality of an objective moral domain because of the explanatory utility of moral concepts.

The appeal to reason or rational choice, to intuition, or to scientific theorizing are three contemporary ways in which philosophers attempt to demonstrate the nature and reality of objective moral knowledge. The prevalence of such theories shows how far ethics has come from the scepticism inherent in emotivism and prescriptivism. But not all philosophers have accepted the claim to objective moral knowledge. To be sure, most ethical thinkers today have given up non-cognitivism for some form of cognitivism—the view that we do have moral knowledge. But being a cognitivist does not require that one think moral truth is

objective, something independent of human attitudes and customs and available for inspection or demonstration by any normal human being. An option that remains, and that offers an attractive face to those who still feel the pull of moral scepticism, is relativism. Relativism has been with us since the earliest days of western philosophy, and it is still a viable option today. Relativism of some form or another seemed to be implied by the non-cognitivist positions of emotivism and prescriptivism. Even if these positions are rejected, as by and large they are today, there is still room for relativism in the current cognitivist environment. The theory has recently been given outstanding articulation and defence by two American philosophers, Gilbert Harman and David Wong.

In approaching any discussion of relativism, a basic distinction needs to be made between cultural and ethical relativism. Cultural relativism is the thesis that different cultures or societies have different moral codes; it is the denial that there are any moral values universally accepted by all people. As such, it is an empirical, scientific thesis (one often asserted by anthropologists) and not a philosophical one. Ethical relativism is a philosophical thesis: it claims that none of the numerous moral codes found in history can be validated as the true or correct code. This form of relativism is a repudiation of ethical absolutism, the claim that there are actions that are right or wrong for everyone, regardless of what beliefs they hold. Hence, according to the ethical relativist, what is right is only what is right *for you* in your society. Your moral code is valid for you, just as the moral codes of others are valid for them. None of them is valid or true for everyone.

Ethical relativists are often criticized for basing their philosophical, epistemological claim on the empirical thesis of cultural relativism. It does not, of course, follow from the fact that people have different moral beliefs that no one of these beliefs is superior to the others or that there are no universally valid, absolute moral principles. So, the critic argues, ethical relativism is based on a logical fallacy.

But it is not necessary to assert one's ethical relativism on the grounds that moral codes vary from society to society. The denial that there are moral codes valid for everyone can be asserted on different grounds, and an excellent example of such a theory is found in the work of Gilbert Harman. Harman [6.40] denies that it makes sense for us to affirm general principles identifying what it is morally right for all people to do. To tell someone that she morally ought to engage in some action is to presuppose that she accepts a principle enjoining this kind of action. If she does not accept such a principle, she has no reason to engage in the action, and if she has no reason to engage in it, then it is inappropriate for us to suggest that she ought to do so. It makes no sense, Harman tells us, for us to say that cannibals morally ought not to eat their victims, because, having no moral principle prohibiting this, they have no reason to abstain from the practice. Likewise, it is logically absurd for us to say that Hitler was morally wrong to attempt the extermination of the Jewish people. Not subscribing to a principle that proscribed genocide—being as he was beyond the moral pale—Hitler had no reason not to do so, and it is therefore empty for us to say that he morally ought not to have done so.

In general, when one makes an 'inner judgement' about what a person morally ought to do, one is making a judgement about the relationship between that person's principles and her actions. If these principles vary from person to person, as Harman thinks they obviously do, it follows that inner judgements are inappropriate when the person addressed does not subscribe to the principle justifying the judgement. Hence the nature of these inner judgements about what one morally ought to do prevents us from making the absolutist claim that all human beings morally ought to behave in certain ways.

David Wong's brand of relativism is of a more traditional nature [6.43]. He grants that there are true and false moral judgements but denies that any of them are true for all persons. To claim that a particular moral judgement is true, he maintains, is to say that the act it enjoins accords with the ideal standards or principles of one's group. If these standards vary from one group to another, then what moral judgements are true for

one group may not be true for another—the actions judged to be in accord with the standards of one society may not accord with the standards of another.

Wong is sensitive to the charge that relativism would allow any action whatsoever to be judged right or wrong, a charge often levelled by absolutists. But, as we have seen, for an action to be right, in Wong's relativism, it must accord with the *ideal* standards or principles of a group. These ideal standards are those that are held in light of relevant factual information and that cohere with the other standards of the group. Hence constraints are placed on what accepted standards can generate true moral judgements. A sensitivity to relevant factual information and to logical considerations would rule out some standards. Finally, acceptable standards must perform the job that moral standards in all societies are designed to accomplish: they must help to resolve personal and interpersonal conflicts. Not all standards will succeed in this task, and those that fail are excluded from the set of ideal standards. So, Wong argues, not just anything goes. Moral truth requires an acceptable set of moral standards or an acceptable moral system.

Still in all, Wong claims, there are multiple moral codes that equally meet the criteria of acceptability set out above. He gives us as examples the virtue-oriented morality of eastern cultures and the rights-oriented morality of western Europe. The moral codes of these two moral systems will generate conflicting true moral judgements, so that for an easterner it is right to do *x* and for a westerner it is wrong to do *x*. For example, given the virtue-oriented morality's emphasis on the common good and the rights-centred morality's emphasis on individual liberties, the two moralities might conflict with regard to whether a person should contribute to the common good or pursue her own interests. Given the equal acceptability of the two moral codes, we are left with an ineradicable relativity of moral truth.

No account of the field of ethics since 1945 would be complete without an acknowledgement of the re-emergence of interest in two traditional ethical theories: utilitarianism and virtue ethics. Contemporary utilitarianism is an attempt to expand upon, refine and, according to some, radically alter the utilitarian views that were prevalent in the eighteenth, nineteenth and early twentieth centuries, particularly those of Jeremy Bentham and John Stuart Mill. Virtue ethics has a more ancient heritage: the philosophy of Aristotle. We shall conclude this chapter with a brief discussion of these two resurrected theories.

Utilitarianism, as articulated in the classical accounts of Bentham and Mill, is a theory which defines right actions as those that are productive of the overall greatest good. Such a theory is often characterized as ideological in nature: it defines right action in terms of the consequences of the action. Theorists may differ as to what constitutes good consequences—some say pleasure, others the avoidance of pain, still others happiness, and some few identify a plurality of ideals which right actions may produce. But all agree that what we ought to do is to engage in the action that produces more good than any other alternative action would produce. To produce the greater good is to have what is called utility. Right actions are those possessing utility.

Contemporary interest in utilitarianism has largely focused on the question whether the rightness of actions is a function of the consequences of the individual action itself or of the class of actions—the general kind of action—to which the individual instance belongs. Those who opt for the first form of the theory adopt what is called act utilitarianism, while those opting for the second form accept what is referred to as rule utilitarianism. To illustrate the difference in terms of an example, take the case of keeping a promise. For an act utilitarian, I should keep a promise I have made on a particular occasion only if in doing so I would thereby bring about better consequences—more happiness, say—than I would if I failed to keep the promise. It is perfectly conceivable that keeping the promise might *not* bring about more good than failing to keep it, in which case the act utilitarian would say that in those circumstances I should not keep it. This possibility disturbs some utilitarians and has led them to opt for rule utilitarianism. The rule utilitarian will say that I should keep the particular promise I made because it is enjoined by a general rule of promise keeping

('one should always keep one's promises'), and adherence to this rule brings about better consequences than making exceptions to it or abandoning it altogether. The rule utilitarian might agree that on a particular occasion my breaking my promise might produce better consequences than keeping it, but she will still insist on the rule's being followed because it is more desirable to have and follow the rule than not to do so. The act utilitarian thinks that such allegiance to rules, even those that have proved in general to be productive of good consequences, is irrational. If, on a particular occasion, I know that breaking my promise will bring about more happiness than keeping it, reason demands that I break it.

The debate that we see beginning to emerge between rule and act utilitarians has been one of the central features of contemporary discussions of utilitarianism. Another central feature relates to the conception of rules themselves. As a result of John Rawls's classic essay 'Two Concepts of Rules' [6.45], philosophers today distinguish between a summary and a practice or constitutive conception of rules. The summary conception is a statistical one: to say that promise-keeping as a rule has utility (produces better consequences than the alternatives) is to say that more often than not keeping promises turns out to be beneficial. The possibility of an exception is built into the summary conception, according to which a rule or principle should be put forward only as a guideline, to be followed more often than not. The practice conception pictures a rule, not as a statistical frequency but as a way of defining a certain kind of activity or organization. Chess rules afford us an example here. To say that the king cannot be captured is not to say that the king has not, as a matter of fact, ever been captured or that the king almost always escapes capture. The king, by definition, cannot be captured—such status is in part what makes the piece a king. The rule of chess that disallows capture of the king is a constitutive rule, not just a summary one. Likewise, in our society we find many rules that define certain forms of activity—what we might call practices. The practice of punishment is an example. The rules of punishment, for instance the rule that we are not to punish the innocent, are not summary rules but constitutive ones. They define for us what a practice like punishment is. Within a society that has a constitutive rule prohibiting punishment of the innocent, we do not examine individual instances of actions that would violate this rule to see if they might possibly have utility. To be engaged in punishment at all requires following this rule—otherwise what we are engaged in is simply not punishment. But the practice of punishment, with its constitutive rules prohibiting the punishment of the innocent and so on, might itself be examined to see if it has utility. If it does, it can be pronounced justified. The actions falling under the constitutive rules then are justified not because they themselves have utility but because the practice containing the constitutive rules does. Hence by construing rules as constitutive, many rule utilitarians are able to give additional substance to their form of utilitarianism. And they are able to save utilitarianism from the frequent charge that it would permit such morally heinous acts as punishing an innocent person on a particular occasion because doing so has utility.

As we noted, the current interest in virtue ethics amounts to a revival of something like Aristotle's conception of ethics. Instead of concentrating on general rules of duty, obligation and right action, Aristotle thought of ethics as an attempt to identify the features of character that are essential for achieving the good life for humankind. These excellencies of character he called virtues, and he set out to define them and show the manner in which they produce the good life. Of particular importance to Aristotle were those virtues that relate to our activities as citizens. The good life can be found only within society, and developing the civic virtues is essential for full and rewarding participation in the social sphere. Aristotle was suspicious of absolute, hard-bound rules. Frequently they require actions that are inconsistent with a proper, virtuous response to our loved ones and fellow citizens. In implementing the life of the virtues we are not so much to follow rules as pay close attention to specific cases. Frequently, becoming a good person is best achieved by emulating the example of a good person.

All these themes have found favour with some contemporary philosophers who are frustrated by the unresolved debates in meta-ethics and, more recently, dissatisfied with the current attention so often given to rules and their justification. The leader in the renewal of virtue ethics is Alasdair MacIntyre, whose book *After Virtue* [6.4] is one of the most discussed works in ethics in recent times. MacIntyre believes that contemporary moral philosophy has not overcome the nihilism and scepticism of Nietzsche, which he sees embodied in such contemporary views as emotivism. Unfortunately, however, those who eschew emotivism and talk about human rights and duties and obligations have no clear conceptual understanding of these notions—they lack the theological background needed to give significance to talk about rights and other moral characteristics. And in fact rights-talk often degenerates into the rhetoric of rampant individualism, attempts on the part of an individual to get her way in the midst of conflicting egos (much as the emotivists construed moral talk). For MacIntyre, our only hope is to rethink ethics and reinstate the Aristotelian conception of virtue. He recognizes that to do this we cannot appeal to the form of teleological biology that Aristotle used to ground his theory—such a metaphysical view is simply unacceptable to the contemporary mind. But if we recognize the role of practices in our lives, we will find the logical space to reintroduce talk of virtues. Our practices are co-operative forms of human activity aimed at realizing goods that can only be achieved by participating in these activities. There are family practices, political practices, economic practices, religious practices, and many others. Within such practices, the participants have roles—as husbands or wives, children or parents, citizens or politicians, workers or businessmen, church-goers or civic leaders— and these roles require certain modes of behaviour, and hence excellencies of character, in order to contribute to the attainment of the goods inherent in the practices. Without our distinctive roles, and the practices incorporating them, we would not be who we are. So in developing the virtues inherent in the roles we play in these practices, we are realizing ourselves—and helping to achieve the common good. Practices also must be understood in terms of their traditions, which link human beings with their forbears and their contemporaries, and hence with a human community within which the individual must realize herself. MacIntyre admits that all this may sound strange to contemporary readers accustomed to a different way of thinking about morality, but, as so many philosophers have done before, he suggests that we must reject the prevailing views of the day if we are at last to see the truth, in this case the truth about ethics.

This brings us to the end of a tumultuous half-century of ethical theory. The beginning of this period witnessed a radical departure from the traditional forms of ethical thought, but before the period ends we find a return to some of these very traditions. Between the beginning and end points a plethora of theories and issues have emerged. Although perhaps confusing to the novice because of the variety of positions and the shifts of focus contained in it, this period in the history of ethics is, perhaps for the very same reasons, notable for its vigour and the intellectual excitement it generates. As the end of the century approaches, ethics is alive and well, waiting for its next major controversy and its next major theory.

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CHAPTER 7
Epistemology

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Epistemology is the theory of knowledge, the philosophical study of the nature, origin and scope of knowledge. During the twentieth century, accordingly, epistemologists have debated (1) what knowledge consists in (e.g. justified true belief), (2) what knowledge is based on (e.g. sensory experience) and (3) what the extent of our knowledge is (e.g. objective, conceiver-independent facts as well as subjective, conceiver-dependent facts). Debates over (1)–(3) have occupied epistemologists since the time of Plato. Twentieth-century epistemologists have not put an end to such debates, but they have made some distinctive contributions. This chapter will identify some of these contributions, giving special attention to the fundamental issue whether we have genuinely objective knowledge: knowledge of conceiver-independent facts.

EMPIRICISM REVIVED

Common sense empiricists: Moore and Russell

Twentieth-century Anglo-American epistemology begins with the rebellion of Bertrand Russell (1872–1970) and G.E.Moore (1873–1958) against Kantian and Hegelian idealism at Oxford and Cambridge. F.H. Bradley (1846–1924) and John McTaggart (1866–1925) were two leading proponents of the British idealism challenged by Russell and Moore. Russell reports:

> It was towards the end of 1898 that Moore and I rebelled against both Kant and Hegel. Moore led the way, but I followed closely in his footsteps. I think that the first published account of the new philosophy was Moore's article in *Mind* [1899] on 'The Nature of Judgement'. Although neither he nor I would now adhere to all the doctrines in this article, I, and I think he, would still agree with its negative part—i.e., with the doctrine that fact is in general independent of experience.
>
> ([7.92], 42)

Russell, following Moore, opposed any kind of idealism entailing that 'there can be nothing which is not experienced or experience' (ibid., 107). The view of Russell and Moore that 'fact is in general independent of experience [and other mental activity]' entails *realism* about facts. Realism about a fact, *F,* is just the view that *F* exists but does not depend for its existence on a conceiver's experiencing or conceiving of *F*.

Moore contrasted his realism with Kantian and Hegelian idealism as follows:

> [My] theory…differs ['from Kant's theory of perception'] chiefly in substituting for sensations, as the data of knowledge, concepts; and in refusing to regard the relations in which they stand as, in some obscure sense, the work of the mind. It rejects the attempt to explain 'the possibility of knowledge,' accepting the cognitive relation as an ultimate *datum*.… It thus renounces the supposed unity of conception guaranteed by Idealism even in the Kantian form, and still more the boasted reduction of all differences to the harmony of 'Absolute Spirit,' which marks the Hegelian development.
>
> ([7.53], 183)

Moore claimed that a 'concept is not a mental fact, nor any part of a mental fact' (ibid., 179). Concepts, he held, are the only objects of knowledge, and existing things are simply concepts or complexes thereof. Russell's talk above of facts 'independent of experience' evidently refers to Moore's non-mental concepts. (The following discussion of realism about external objects does not depend, however, on the view that objects are concepts.)

Ontological claims concern what exists. *Epistemological* claims concern what is, or can be, known—or at least justifiably believed. Russell and Moore opposed idealism not only with the ontological claim that there are mind-independent facts, but also with the epistemological claim that they *know* that there are such facts. What was the ground for the latter epistemological claim? Russell explains:

> Bradley argued that everything common sense believes in is mere appearance; we [Moore and Russell] reverted to the opposite extreme, and thought that *everything* is real that common sense, uninfluenced by philosophy or theology, supposes real. With a sense of escaping from prison, we allowed ourselves to think that grass is green, that the sun and stars would exist if no one was aware of them, and also that there is a pluralistic timeless world of Platonic ideas.
>
> ([7–89], 12)

The ground, according to Russell, is 'common sense, uninfluenced by philosophy or theology'. What exactly is common sense? Surprisingly, Russell and Moore do not say in any detail. A plausible, if rough, interpretation is that common sense for a group of people consists of beliefs common to a wide range of people within that group. Neither Russell nor Moore, however, appeals just to common sense of that sort. Neither argues, for instance, that since most people believe that God exists, we know that God exists.

Russell speaks of common sense *uninfluenced by philosophy or theology*. Why should we regard such common sense as a philosophically adequate ground for challenging idealism and supporting realism? In particular, why should we regard such common sense as a reliable source of *correct* belief regarding idealism and realism? Russell does exclude common sense influenced by philosophy or theology. This raises two issues.

First, are common sense beliefs ever altogether uninfluenced by philosophy, given a familiar broad sense of 'philosophy'? Don't common sense beliefs, in other words, typically involve broadly theoretical assumptions that are 'philosophical'? Common sense empirical beliefs about household physical objects, for example, typically rest on subjunctive conditionals: if I were to drop this mirror, it would shatter. Such conditionals are theoretical in that they go beyond simple description of what is currently present in one's perceptual experience. Russell does not say whether theoretical beliefs of that sort are 'philosophical'. It is difficult, however, to assess Russell's view without a clear statement of what he means by 'philosophy'.

Second, why should we think that common-sense beliefs uninfluenced by philosophy or theology are reliable, or are any more reliable than other common-sense beliefs? Common-sense beliefs influenced by certain kinds of sociology, psychology, politics or astronomy, for example, can be just as unreliable as

common-sense beliefs influenced by certain kinds of philosophy or theology. A widely held belief uninfluenced by philosophy or theology could still be highly unreliable owing to influence from other sources: for example, prejudicial political tactics. Perhaps, then, Russell would appeal to common-sense beliefs uninfluenced by *any* other beliefs. This would avoid the problem at hand, but only by making it questionable whether there are any common-sense beliefs of the relevant sort. It is unclear that any common-sense beliefs are influenced by *no* other beliefs. If there are such common-sense beliefs, they are very rare indeed.

In 'A Defence of Common Sense' (1925), Moore contends that 'the "Common Sense view of the world" is, in certain fundamental features, *wholly* true' ([7.54], 44). He claims, too, that he knows the relevant common sense propositions 'with certainty'. These propositions include the following:

> (a) There now exists a living human that is my body.
> (b) Before now many human bodies other than mine have lived on earth.
> (c) The earth had existed for many years before my body was born.
> (d) I have often perceived my own body and other things that form part of its environment, including other bodies.
>
> ([7.54], 33)

Moore also holds that each of us has frequently known, with respect to oneself, the propositions in question. Moore does not specify what feature common to such propositions makes them 'common-sense' propositions. He does hold, however, that we know such propositions *with certainty*.

Moore claims that the common-sense propositions in question find support from a simple consideration. If, according to certain philosophers, no such common-sense proposition is true, then 'no philosopher has ever existed, and therefore none can ever have held with regard to any such class [of common-sense propositions], that no proposition belonging to it is true' (ibid., 40). One's denial of the truth of every such common-sense proposition, according to Moore, entails that one must be wrong in denying this. In short, such a denial lands one in self-refutation.

In reply, one might make two points. First, Moore assumes that if one denies that the common-sense propositions in question are true, then one exists as a living human body. Such denial, according to Moore, requires one's actually being a living human body. What, however, supports this assumption? Conceivably, we are really disembodied thinking things who do not depend on physical substances for our intellectual lives. Descartes, in the seventeenth century, suggested this possibility in questioning presumed certainty regarding common-sense beliefs. Moore owes us evidence for his key assumption that only living human bodies could deny his common sense propositions.

Second, Moore assumes that we know his common-sense propositions *with certainty*. One can contest this assumption without denying that Moore's common-sense propositions are true. One can deny simply that we know those propositions with certainty, regardless of whether those propositions are true. Whether a proposition is true or false is one issue; whether we know that proposition with certainty, another. I can deny, for example, that I know with certainty that pandas eat peas in China. This denial does not require that I deny that it is true that pandas eat peas in China. My denial might be only a disclaimer of supporting evidence for the proposition in question. Moore owes us evidence in support of his assumption that we know his common sense propositions with certainty.

Moore did hold that he could give a proof of various commonsense propositions in question. In 1939 Moore published his 'Proof of an External World', relying on the following claims:

> I can now give a large number of different proofs [‘of the existence of things outside of us’], each of which is a perfectly rigorous proof…. I can prove now, for instance, that two human hands exist. How? By holding up my two hands, and saying, as I make a certain gesture with the right hand, ‘Here is one hand’, and adding, as I make a certain gesture with the left, ‘and here is another’.
>
> ([7.55], 145–6)

Moore claims that his ‘proof’ is ‘perfectly rigorous‘, and that it would be ‘absurd’ to suggest that he did not actually know—but merely believed—that there were two hands in the places indicated by his gestures. Such, then, is Moore’s ‘proof of the existence of external physical objects.

Moore claimed to prove, in addition, that there have been external objects in the past. Thus: ‘I held up two hands above this desk not very long ago; therefore two hands existed not very long ago; therefore at least two external objects have existed at some time in the past’ (ibid., 148). Moore insists that he does know that he held up two hands in the past, and thus that he has given a ‘perfectly conclusive proof that external objects have existed in the past’.

Moore must face an objection. His ‘proofs’ do not give us dis-proofs of either the claim that he is simply *dreaming* that he is holding up two hands or the claim that he is simply *misremembering* that he held up two hands. Moore’s reply is that he cannot prove his claim that here is one hand and there another, but that this is no real problem (ibid., 149). He finds it adequate that he has ‘conclusive evidence’ for the previous claim, and for the claim that he is not now dreaming or misremembering. We can have, on Moore’s view, conclusive evidence for, and certain knowledge of, claims we cannot prove. Moore thus claims to have conclusive evidence that he is not dreaming, even though he cannot tell us what all that evidence is.

In his 1941 paper, ‘Certainty’, Moore considers objections to his claim to certainty that he is not now dreaming. He proposes that ‘the conjunction of my memories of the immediate past with [present] sensory experiences *may* be sufficient to enable me to know that I am not dreaming’ ([7.56], 250). The objector’s reply will, of course, be that it *is* logically possible that Moore has all his present sensory experiences and memories—qualitatively characterized—but still is dreaming. Moore counters that ‘the conjunction of the proposition that I have these sense experiences and memories with the proposition that I am dreaming does seem to me to be very likely self-contradictory’ (ibid., 251). This reply, however, fails to convince. Moore gives no reason whatever to suppose it contradictory or inconceivable that he is dreaming while having his present experiences and memories. We have no reason to think that Moore cannot be dreaming while having his present experiences and memories. On the contrary, Moore’s dreaming seems perfectly compatible with those experiences and memories. Moore’s case for certainty about his common sense propositions is thus unconvincing.

One might reply that Moore’s standards for certainty and conclusiveness fit with our ordinary, non-philosophical talk of certainty and conclusiveness. Even if there is a merely logical possibility that our bodies do not exist, we typically regard ourselves as knowing with certainty—with conclusive evidence—that our bodies exist. The only *relevant* standards, on this view, are those we typically employ in ordinary, common sense talk. Since we ordinarily regard our sensory experiences of our bodies as providing conclusive evidence that we have bodies, we may claim certainty that we have bodies. Two troublesome questions arise now: How can such an appeal to ordinary standards even begin to engage familiar philosophical questions about the reliability of sensory experience? Can we plausibly ignore those philosophical questions on the ground that they are simply ‘irrelevant’? We shall return to questions about reliability in the section below on scepticism (pp. 232–41).

A key component of the common sense theories of Moore and Russell is *empiricism:* the view that the empirical evidence of the senses —e.g. visual, auditory, tactile or gustatory experiences—is a sort of

evidence appropriate to genuine knowledge. Russell's empiricism is more explicit, and perhaps more extreme, than Moore's. Russell claims:

> Nothing can be known to *exist* except by the help of experience. That is to say, if we wish to prove that something of which we have no direct experience exists, we must have among our premises the existence of one or more things of which we have direct experience. Our belief that the Emperor of China exists, for example, rests upon testimony, and testimony consists, in the last analysis of sense-data seen or heard in reading or being spoken to.
>
> ([7.84], 74–5; cf. [7.92], 97–8)

Russell here sides with such empiricists as Locke, Berkeley and Hume, against the rationalist view that *a, priori* knowledge—knowledge independent of specific experience—can provide knowledge of what actually exists. Russell sides with such rationalists as Descartes and Leibniz, however, on the point that logical principles—whether deductive or inductive—are not known on the basis of support from experience. All support from experience, Russell claims, *pre*supposes logical principles. Russell does allow, though, that our knowledge of logical principles is elicited or caused by experience. He thus permits a distinction between the *warrant* and the *cause* of a belief. In sum, Russell holds that 'all knowledge which asserts existence is empirical, and the only *a priori* knowledge concerning existence is hypothetical, giving connexions among things that exist or may exist, but not giving actual existence' ([7.84], 75). Russell's empiricism is thus moderate, allowing for some *a priori* knowledge.

Russell's talk of 'sense-data' signifies whatever in sense experience 'might be singled out by attention: particular patches of colour, particular noises, and so on' ([7.85], 142). Prior to 1918, Russell's empiricism regarded sense data as 'the epistemological basis of all our knowledge of external particulars', and as something known by 'acquaintance'. Russell ([7.83]; [7.84], chapter 5) distinguished between knowledge *by acquaintance* and knowledge *by description,* and between knowledge of things and knowledge of true propositions. Knowledge of things can be either knowledge of things by acquaintance or knowledge of things by description. Knowledge by description requires knowledge of a true proposition: knowledge *that* something is the case. Knowledge by acquaintance, in contrast, consists of direct non-propositional awareness of something, not of knowledge of truths. Russell holds that 'to say that *S* has acquaintance with *O* is essentially the same thing as to say that *O* is presented to *S*' ([7.83], 202–3). Russell would say that you are acquainted with the colour of these printed words as you read them.

After 1918 Russell abandoned sense data as the objects of cognition, and sensations as a special kind of cognition.[1] He came to reject the view that in visual colour experience, for example, there is a *subject* related via awareness to a patch of colour. Russell claimed that the subject is a 'logical fiction', much like mathematical points and instants. Having rejected the subject as an actually existing thing, Russell also rejected a distinction between sensations and sense data. The sensation of a patch of colour is, on this view, no different from the patch of colour. Such sensation thus does not qualify as a kind of knowledge. Much of Russell's epistemological work after 1918 seeks an explanation of awareness, acquaintance and empirical evidence without appeal to sense data—and often with help from John Watson's behaviourism about psychological phenomena.

Russell's epistemology, unlike Moore's, attributes definite epistemological significance to the natural sciences—a significance that gives the sciences an epistemological priority over common sense. (This is especially true of Russell's epistemological views after 1918.) Russell acknowledges that the sciences begin with common sense notions and judgements: e.g. notions of causation, space, time and things. The sciences, however, often need to revise or to eliminate such common notions to achieve their explanatory purposes.

Russell observes that we typically start our theorizing from 'naive realism', the view that things are as they seem. We initially think that the objects we perceive really are as they appear: that snow is white, that fire is hot, that feathers are soft. The natural sciences, however, provide a strikingly different view of the objects we perceive—a view entailing that the features ascribed to external objects by naive realism do not really inhere in the external objects themselves. Russell thus remarks that 'naive realism leads to physics, and physics, if true, shows that naive realism is false' ([7.88], 15).

Philosophy, according to Russell, serves an important purpose here: it identifies how fundamental common sense notions might be reconstructed to benefit the explanatory aims of the sciences. Russell denies, however, that philosophy offers a kind of knowledge ultimately different from scientific knowledge. He holds that 'philosophy involves a criticism of scientific knowledge, not from a point of view ultimately different from that of science, but from a point of view less concerned with details and more concerned with the harmony of the whole body of special sciences' ([7.87], 2).

Why, however, should we take science as our ultimate epistemological authority? This question will be especially pressing for those inclined towards scepticism about the reliability of science. Russell offers little by way of reply:

> For my part, I assume that science is broadly speaking true…. But against the thoroughgoing sceptic I can advance no argument except that I do not believe him to be sincere.
>
> ([7–91], 382)

This reply will probably convince nobody. Russell understands the *truth* of statements as their describing *facts* that may be objective in that they transcend experience ([7.90], 149, 151; [7.88], chapters 16–17). He gives no reason, however, for thinking that everyone doubtful of science's providing such truth is insincere. Epistemologists have long debated whether perception, memory, and the procedures of the natural sciences deliver objective truths. We cannot cogently settle this debate by assuming that beliefs based on perception, memory or the sciences are broadly true, and that people doubting this assumption are insincere. The use of the latter assumption aims to secure by theft what will be secured, if at all, only by extensive philosophical toil.

Let us turn now to some leading logical positivists, to see if they avoid the epistemological problems facing Moore and Russell.

Logical positivism

The science-oriented empiricism of Russell was taken to an extreme by various logical positivists, originally represented in the early 1920s by the group of philosophers, logicians, mathematicians and scientists who called themselves the Vienna Circle. Moritz Schlick (1882–1935) started the Circle at the University of Vienna, and attracted such participants as Rudolf Carnap (1891–1970), Otto Neurath (1882–1945), Herbert Feigl (1902–88), Friedrich Waismann (1896–1959), Kurt Gödel (1906–78) and Hans Hahn (1879–1934). While disagreeing on a number of substantive epistemological issues, the members of the Circle shared an interest in certain philosophical and scientific problems, and favoured an approach to these problems that was analytical, scientific and anti-metaphysical.

In 1929, Neurath, Carnap and Hahn published a manifesto for the Circle, entitled 'The Scientific Conception of the World: The Vienna Circle'.[2] They identified David Hume, the leading eighteenth-century empiricist, as one of their main philosophical forerunners. In his *Inquiry concerning Human Understanding* (1748), Hume had reached the following positivist, anti-metaphysical conclusion:

> If we take in our hand any volume, of divinity or school metaphysics, for instance, let us ask, *Does it contain any abstract reasoning concerning quantity or number*? No. *Does it contain any experimental reasoning concerning matter of fact and existence*? No. Commit it then to the flames: for it can contain nothing but sophistry and illusion.
>
> (section VII, part III).

The Vienna Circle (with the possible exception of Gödel) shared Hume's antipathy to metaphysics. They aimed to use modern logic (deriving from Frege and Russell) and various analytical techniques to restrict philosophical pursuits to the advancement of 'scientific' knowledge, thereby banishing metaphysical concerns from philosophy. Hume's extreme empiricism had questioned the meaningfulness of concepts lacking a basis in experience. The Vienna Circle, too, doubted the cognitive meaningfulness of experience-transcendent, metaphysical notions and theses.

Ludwig Wittgenstein (1889–1951) had a decisive influence on the philosophical views of the Vienna Circle. In his *Tractatus Logico-Philosophicus* (1921), Wittgenstein enunciated the following doctrines attractive to the anti-metaphysical members of the Circle:

> 4.11 The totality of true propositions is the whole of natural sciences (or the whole corpus of the natural sciences).
>
> 4.112 Philosophy aims at the logical clarification of thoughts. Philosophy is not a body of doctrine but an activity…. Philosophy does not result in 'philosophical propositions', but rather in the clarification of propositions.
>
> 6.53 The correct method in philosophy would really be the following: to say nothing except what can be said, i.e., propositions of natural science—i.e., something that has nothing to do with philosophy—and then, whenever someone else wanted to say something metaphysical, to demonstrate to him that he had failed to give a meaning to certain signs in his propositions.
>
> ([7.108])

The members of the Circle focused—typically with favour—on such anti-metaphysical theses of the *Tractatus,* rather than on its avowed mysticism: '6.522 There are, indeed, things that cannot be put into words. They *make themselves manifest.* They are what is mystical.' The Circle also welcomed Wittgenstein's view that knowledge of logical propositions is not a special kind of metaphysical knowledge about the world. Wittgenstein proposed the following: 'The propositions of logic are tautologies…. Therefore the propositions of logic say nothing. (They are the analytic propositions.)' (6.1–6.11).

The hallmark of logical positivism is a principle of verification regarding meaning and understanding—a principle not found in the *Tractatus* itself. The *Tractatus* had enunciated the following view of understanding: '4.024 To understand a proposition means to know what is the case if it is true. (One can understand it, therefore, without knowing whether it is true.)' By the late 1920s, however, Wittgenstein was endorsing a verification principle regarding meaning and understanding. In late 1929, Wittgenstein claimed:

> if I can never verify the sense of a proposition completely, then I cannot have meant anything by the proposition either. Then the proposition signifies nothing whatever. In order to determine the sense of a proposition, I should have to know a very specific procedure for when to count the proposition as verified.
>
> ([7.112], 47)

A characterization of meaning and understanding in terms of verification and justification surfaces in some of Wittgenstein's works in the late 1920s and early 1930s. In his *Philosophical Remarks* (c. 1930), Wittgenstein states that 'to understand the sense of a proposition means to know how the issue of its truth or falsity is to be decided' ([7.110], 77).[3] In his *Philosophical Grammar* (c. 1933), Wittgenstein remarks that 'it is what is regarded as the justification of an assertion that constitutes the sense of the assertion' ([7.111], I §40). In the early 1930s a number of logical positivists endorsed a principle of verification regarding meaning. Noting Wittgenstein's influence, Waismann published one of the first endorsements: 'If there is no way of telling when a proposition is true, then the proposition has no sense whatever; for the sense of a proposition is its method of verification' ([7.107], 5). We can thus put *the verification principle* succinctly: the meaning of a proposition is its method of verification.

If metaphysical claims about gods, souls, essences, values and the like lack a method of verification, we can use the verification principle to dispense with them as meaningless. The Vienna Circle did indeed dispense with them as meaningless, not just as unknowable. They construed the needed method of verification as a method of justification, or confirmation, in terms of *observable* events or situations. They thus held that every meaningful claim could be expressed in terms of observational claims: i.e. claims susceptible to confirmation or disconfirmation on the basis of observation. Schlick [7.94] specified that the meaning of a claim depends not on its actual verification, but only on the *possibility* of its verification on the basis of experience.

The members of the Circle divided over the nature of the fundamental observational claims—so-called 'protocol statements'—that set the standard for confirmation and meaningfulness.[4] One key issue was whether these observational claims are solely about what is given in subjective, private experience or can include intersubjectively testable claims about physical states of affairs. In his *The Logical Structure of the World* (1928), Carnap aimed to show in detail how all meaningful concepts could be reduced to 'the "given", i.e.,…experiences themselves in their totality and undivided unity' ([7.14], 108). In particular, Carnap sought to define a range of observationally relevant concepts (e.g. colour concepts, visual-spatial concepts) on the basis of the single fundamental concept of 'recollection of similarity' between elementary experiences. By the early 1930s, however, Carnap had moved to Neurath's view that protocol statements can be formulated in intersubjectively shared language about physical situations.

The main problems facing logical positivism concern not the conditions for protocol statements, but rather the status of the verification principle itself. One problem is that some meaningful claims seem not to admit of a 'method of verification'. Consider, for example, the claim that an omnipotent being exists: a being sufficiently powerful to accomplish anything that can be coherently described. Presumably, I understand this claim, but I have no method of confirmation or disconfirmation for it. I seemingly understand what, in general, it would be for that claim to be true or false; at least our ordinary notions of meaning and understanding allow for this. I lack, however, any means —including any observational means—of confirming or disconfirming that claim. Indeed, there seems not to be even a possible means available to me for confirming or disconfirming that claim. I lack a *method* of verification, but the claim in question still seems meaningful—at least by ordinary standards. If we weaken conditions for verification, to allow for the desired method, we shall disable the principle of verification from excluding metaphysical claims as meaningless.

What about the principle of verification itself? Does it itself admit of a method of verification resting on observational evidence? This seems doubtful. Our observational evidence, deriving from sensory and perceptual experience, fails to provide a straightforward method of verification for the verification principle itself. Perhaps, then, the verification principle is meaningless by its own standard for meaningfulness.

A.J.Ayer (1910–89), who attended meetings of the Vienna Circle by 1933, treats this self-referential difficulty as follows:

> The Vienna Circle tended to ignore this difficulty: but it seems to me fairly clear that what they were in fact doing was to adopt the verification principle as a convention. They were propounding a definition of meaning which accorded with common usage in the sense that it set out the conditions that are in fact satisfied by statements which are regarded as empirically informative. Their treatment of *a priori* statements was also intended to provide an account of the way in which statements actually function. To this extent their work was descriptive; it became prescriptive with the suggestion that only statements of these two kinds should be regarded as either true or false, and that only statements which were capable of being either true or false should be regarded as literally meaningful.
>
> ([7.9], 15)

Carnap [7.15] had also suggested that the verification principle was a 'convention' resting on a choice about how to use certain language.

The claim that an omnipotent being exists raises problems for the descriptive and the prescriptive use of the verification principle. We seemingly have no method for the possible verification of that claim; nonetheless, common usage of 'meaningful' allows us to regard that claim as meaningful. The descriptive use of the verification principle thus runs afoul of common usage of 'meaningful'. As for the prescriptive use of that principle, we need a good reason for regarding as meaningless such a claim as that an omnipotent being exists. Even if we can clearly distinguish what is empirically verifiable from what is empirically unverifiable, we need a specific reason to regard the unverifiable as the meaningless. Given our ordinary understanding of meaningfulness, the claim that an omnipotent being exists is not gibberish. That claim makes sense even if it is unverifiable. It is doubtful that we have a compelling reason to give up this ordinary approach to meaningfulness.

The role of convention in the epistemology of the Vienna Circle led to a kind of pragmatism—an emphasis on purpose-relative, practical considerations in epistemology. This is understandable because questions about which linguistic conventions to adopt are naturally understood as questions about which conventions best serve one's linguistic and theoretical purposes. Carnap identified one practical consideration as follows:

> Suppose a sentence *S* is given, some test-observations for it have been made, and *S* is confirmed by them in a certain degree. Then it is a matter of practical decision whether we will consider that degree as high enough for our acceptance of *S*.… Although our decision is based upon the observations made so far, nevertheless it is not uniquely determined by them. There is no general rule to determine our decision. Thus the acceptance and the rejection of a (synthetic) sentence always contains a *conventional component*.
>
> ([7–16], 49)

This view entails only that our decisions about rational acceptance have an ineliminable conventional component, not that they are wholly conventional.

By 1950 Carnap's pragmatism was explicit. Realists about the external world typically affirm that there really are observable spatiotemporal things and events. Subjective idealists question the reality of the thing world itself. The controversy between realists and idealists has persisted since the beginning of philosophy. Carnap gives the controversy a pragmatic spin:

> Those who raise the question of the reality of the thing world itself have perhaps in mind not a theoretical question…, but rather a practical question, a matter of practical decision concerning the structure of our language. We have to make the choice whether or not to accept and use the forms of expression in the [linguistic] framework in question.
>
> ([7.17], 207)

Carnap acknowledges that 'the thing language' efficiently serves many purposes of everyday life, and that it is advisable to accept the thing language on this pragmatic basis. He rejects, however, any suggestion that such a pragmatic basis can provide confirming evidence for 'the reality' of the thing world. A statement of the reality of the total system of certain entities (e.g. spatio-temporal things), according to Carnap (ibid., 214), is a 'pseudo-statement without cognitive content'. Questions about the total system of certain entities —what Carnap called 'external questions'—make sense, on this view, only as *practical* questions about whether to adopt certain ways of using language.

Agreeing with Carnap, Herbert Feigl emphasized the role of pragmatic considerations in epistemology. He noted that if we try to justify the rules of deductive logic in terms of *what follows from* what we mean by certain terms—e.g. 'correct reasoning', we then rely on the very rules we seek to justify. Such circularity, according to Feigl [7.31], indicates that we have reached the limits of justification. Feigl notes, however, that we can still pursue *pragmatic vindication* in such a case; for we can recommend adoption of the rules relative to achieving certain ends: e.g. avoidance of the perplexities of ambiguity and inconsistency. Regarding our familiar talk of mind-independent things, Feigl takes a similarly pragmatic approach: 'The only sort of justification we can give…consists in showing the indispensability and the adequacy of the language required for the purpose of such sciences as physics, psychology, or history' (ibid., 132–3). Such pragmatic justification involves something's serving as a means to an end, or a purpose, we have. Barring circularity, ultimate justification, on Feigl's account, is instrumental and pragmatic: relative to certain purposes an inquirer has.

By the 1950s the logical positivists of the 1920s had moved towards pragmatism in epistemology. In doing so, they were reviving themes from an American movement that antedated the Vienna Circle. We turn now to some themes from classical American pragmatism.

Classical American pragmatism

C.S.Peirce (1839–1914), the founder of American pragmatism, offered his pragmatism originally as a view about meaning: 'there is no distinction of meaning so fine as to consist in anything but a possible difference of practice' ([7.71], 30). The general idea is that for any conception we have, we can understand the meaning of that conception solely in terms of the experiential and practical effects of its object. Peirce thus suggests that if Protestants and Catholics agree about all the possible experiential effects of the object of the notion of Communion (involving wafer and diluted wine), they actually agree on the meaning of 'Communion'. This view may surprise Protestant and Catholic theologians (who take themselves to disagree), but Peirce offers it as a way to avoid both 'deception' and empty controversy from metaphysics.

We saw in the previous section that the verification principle of logical positivism conflicts with what many of us understand as meaningfulness. That principle rigidly ties meaningfulness to a method of empirical verification. Peirce's principle ties meaning instead to the possible experiential effects of the object of a notion. One problem is that some notions—e.g. mathematical, logical and certain fictional notions—lack objects with possible experiential effects, but nonetheless seem meaningful. Another problem is that the meaningfulness of some notions seems to derive simply from *what we imagine would be the case*

if that notion were realized (or, had an instance). What we imagine would then be the case, however, is not necessarily the same as *what we would (possibly) experience* as being the case. The Catholic notion of transubstantiation and the Protestant notion of Communion require (for their satisfaction) different things to *be* the case—regardless of whether we (possibly) *experience* different things as being the case. (The Catholic notion requires for its satisfaction a transformation of the bread and wine; the Protestant notion does not.) In so far as the Catholic and Protestant notions require different things for their satisfaction, we can plausibly regard those notions as meaning different things. This may leave us with some difficult, perhaps even undecidable questions about what actually exists or occurs. It seems implausible, however, to try to avoid such questions by stipulating a notion of meaning that entails their meaninglessness.

William James (1842–1910) expounded pragmatism in considerable detail, for non-philosophers as well as philosophers. He offered his pragmatic account of truth as capturing 'the meaning' of 'truth'. In a chapter of *Pragmatism* entitled 'Pragmatism's Conception of Truth', James writes:

> True ideas are those that we can assimilate, validate, corroborate, and verify…. That is the practical difference it makes to us to have true ideas; that, therefore, is the meaning of truth, for it is all that truth is known as.
>
> ([7.44], 97; cf. [7.45], 3–4)

Some philosophers have objected that James simply confuses what it is for a claim to be *true* and what it is for a claim to be *verified*.[5] These philosophers typically cite cases where a claim is true but not verifiable. Consider, for example, the status of the claim that the Earth is round before this could be verified.

James is unmoved. In disputes with critics—including those offering the view that truth does not depend on anything like verification—James invokes his 'pragmatic method':

> When a dispute arises, that [pragmatic] method consists in auguring what practical consequences would be different if one side rather than the other were true. If no difference can be thought of, the dispute is a quarrel over words. What then would the self-transcendency [of true ideas] affirmed to exist in advance of all experiential mediation or termination, be *known as*? What would it practically result in for *us,* were it true?
>
> ([7.43], 39–40)

Given this pragmatic method, James infers that a dispute over the nature of truth (e.g. whether truth is independent of verification) is an empty verbal matter if unaccompanied by a difference in practical consequences.

James ([7.45], 61–9) holds that his pragmatic method enables a non-mysterious account of what it is for a knower to have a perceptual object 'in mind'. James characterizes one's having an object in mind as one's having a certain sequence of experiences. He understands something's being a perceptual *representation* of a sensory object as that thing's being a *substitute* for that sensory object. James uses his pragmatic method to clarify what it is to be such a substitute: an idea is a substitute if it has certain 'practical consequences' relative to a knower's purposes, viz. the same practical consequences as the object for which it is a substitute. Representation, on James's account, is thus a matter of two things fulfilling the same function: sameness of practical consequences of what represents and what is represented.

It is difficult to assess James's view in the absence of a straightforward account of what count as 'practical consequences'. It helps only a little to say that a practical consequence is whatever 'makes a difference to experience'. This just shifts the task to giving a straightforward account of 'making a

difference to experience'. We saw above, in connection with Peirce's approach to meaning, that meaningfulness is not obviously fully determined by consequences for experience. James's pragmatism, like Peirce's, rests on a questionably restrictive approach to meaning.

John Dewey (1859–1952) and C.I.Lewis (1883–1965) shared the view of James that knowledge has an ineliminable pragmatic component. This pragmatic component is an element of 'active interpretation' that supposedly resides in all knowledge. In sensory, empirical knowledge, we use interpretation via concepts to organize and characterize input from sensation. The American pragmatists offered a distinctive account of when an interpretation of sensory input is 'correct.' The key idea is that an interpretation is correct to the extent that it 'usefully leads' from one experience to another, where useful leading depends on practical results relative to one's purposes in explaining and ordering one's experiences. The pragmatists' emphasis on practical results and useful leading aims to provide an alternative to an older empiricist view that the correctness of an interpretation depends on 'correspondence' to the facts of experience. James and other pragmatists faulted that older approach for failing to provide an intelligible or verifiable account of when an interpretation actually corresponds to the facts of experience.

In *The Quest for Certainty* (1929), Dewey offered an 'experimental theory of knowing' that aimed to improve on empiricism, rationalism and the influential hybrid epistemology of Immanuel Kant (1724–1804). According to Dewey, 'the method of physical inquiry is to introduce some change [in experience] in order to see what other change ensues; the correlation between these changes, when measured by a series of operations, constitutes the definite and desired object of knowledge' ([7.29], 84). Dewey 's experimental theory implies that an object of knowledge arises from controlled experimental operations, and does not exist in advance of an act of knowing. Dewey's stress on the role of control in knowledge emerges from his following remarks:

> [I]f we frame our conception of knowledge on the experimental model, we find that it is a way of operating upon and with the things of ordinary experience so that we can frame our ideas of them in terms of their interactions with one another, instead of in terms of the qualities they directly present, and that thereby our control of them, our ability to change them and direct their changes as we desire, is indefinitely increased. Knowing is itself a mode of practical action and is *the* way of interaction by which other natural interactions become subject to direction.
>
> ([7.29],106–7)

Dewey thus puts *doing* at the heart of knowing, stressing that a knower is an *active* participant in a knowing situation, and not a mere spectator. Dewey finds active participation even in connection with the so-called 'data' of sensation. He characterizes knowers as *selecting,* and not merely being *given,* such data. Dewey countenances, nonetheless, the importance of both sensation and reason in knowledge. Ideas of reason, in his view, are important for relating experiences and making predictions, and experience is important as a basis for the testing of ideas, including predictions.

Lewis concurs with Dewey's stress on the active role of knowers. Indeed, Lewis regards the distinguishing feature of pragmatism as its emphasis on a knower's act of interpretation relative to the data of sensation. Truths about experience, on Lewis's pragmatism, are always expressed by, and thus depend on, a conceptual system chosen on pragmatic grounds. Lewis explains:

> [T]he point of the pragmatic theory is…the responsiveness of truth to human bent or need, and the fact that in some sense it is made by mind…. [T]he interpretation of experience must always be in terms of categories and concepts which the mind itself determines. There may be alternative conceptual

> systems, giving rise to alternative descriptions of experience, which are equally objective and equally valid, if there be not some purely logical defect in these categorial conceptions. When this is so, choice will be determined, consciously or unconsciously, on pragmatic grounds…. [T]he pragmatic element in knowledge concerns the choice in application of conceptual modes of interpretation.
>
> ([7.49], 271–2; cf. p. 257)

Lewis holds that all interpretation includes an experience-independent, *a priori* element, and that this interpretive element receives support not from experience, but from pragmatic factors: e.g. 'some demand or purpose of the mind itself (ibid., 267).

Lewis argues that empirical knowledge consists of three elements: the immediate data of sensation, the concept or category under which those data are subsumed, and the mental act that interprets the data by means of the concept. Both Lewis and James hold that apart from an act of interpretation, one's experience would be the 'buzzing, blooming confusion of the infant'. An act of interpretation, in their view, enables such confusion to become an ordered world of experience. Lewis takes pains to defend the independence of a purely sensory, 'given' element in experience; but as a pragmatist, he stresses the pragmatic basis for the application of concepts to the data given in experience.[6] Concepts, on his view, are 'instruments of interpretation'. Lewis sums up his view thus: 'wherever such criteria as comprehensiveness and simplicity, or serviceability for the control of nature, or conformity to human bent and human ways of acting play their part in the determination of such conceptual instruments, there is a pragmatic element in knowledge' ([7.48], 211).

James, Dewey and Lewis agree, then, that knowledge requires active interpretation, and that the rationale for a particular mode of interpretation is pragmatic, deriving from one's interpretive purposes. Often we do seek a pragmatic rationale for a manner of interpretation. We then wonder about the practical consequences of wielding certain concepts (or, ways of classifying), relative to our explanatory purposes. Such a pragmatic rationale concerns the instrumental effectiveness of certain concepts in achieving our theoretical purposes, whatever those purposes happen to be.

Can there be a rationale for concepts that is not pragmatic? Has Lewis, for example, overlooked a cognitive basis for choosing concepts that is not merely pragmatic? *Perhaps* we can assess concepts relative to something more objective and less variable, viz. relative to the reliability of their portrayal of the objective, conceiver-independent world. Some philosophers hold that the latter kind of assessment, in terms of objective reliability, is distinctively 'epistemological', and that a merely pragmatic rationale can be (and often is) irrelevant to such epistemological assessment. The underlying assumption is that epistemological assessment is centrally concerned with objective, purpose-independent truth and reliable indications of such truth. Pragmatic success can sometimes get by with beliefs that are unreliable and even false—such as when it is convenient for our purposes to maintain an unreliable, false view on something.

If we can make sense of talk of objective, purpose-independent correctness, we can distinguish epistemological from pragmatic assessment. A notion of purpose-independent correctness can allow that what set of concepts we wield in theorizing often depends on our purposes in theorizing. The key issue now is, however, whether it makes sense to talk of the purpose-independent correctness of concepts. The rough idea from the critic of pragmatism is this: the external world is featured in certain mind-independent ways (e.g. many of its objects have 'natural' boundaries), and our classificatory concepts can be more or less accurate, or reliable, in how they 'fit' the mind-independent features of the external world. If we can make sense of such talk of accurate fitting, we can acknowledge a distinctively epistemological concern: do our concepts accurately fit the external world? Here we have an issue of crucial importance in epistemology.

We shall return to questions about reliability in the section below on scepticism (pp. 232–41), after considering some further developments in epistemology.

PROBLEMS FOR EMPIRICISM

Prominent twentieth-century empiricists before 1950 typically accepted an analytic-synthetic distinction: roughly, a distinction between propositions true just in virtue of meaning (or, definition) and propositions true in virtue of considerations other than meaning. Corresponding to this distinction, empiricists typically drew a distinction between empirical *(a posteriori)* knowledge and non-empirical *(a priori)* knowledge. A common view among empiricists was that all *a, priori* knowledge is knowledge of analytic truths, that there can be no *a, priori* knowledge of synthetic truths. Ayer, for example, had argued for a linguistic conception of the *a, priori* implying that the truths of logic and mathematic are *a priori* in that we cannot deny them without violating the rules governing our use of language ([7.7], chapter 4). Ayer argued that the analyticity of the truths of logic and mathematics is the only good explanation of their being knowable *a, priori,* and that we can have no *a priori* knowledge of empirical reality or of synthetic truths.

Quine on analyticity

In 1951, W.V.Quine published 'Two Dogmas of Empiricism' [7.74], challenging the following so-called dogmas of modern empiricism: belief in a dichotomy between analytic and synthetic truths, and belief in reductionism according to which every meaningful sentence is equivalent to some sentence whose terms refer to immediate sensory experience. In the aftermath of Quine's essay, philosophers have generally regarded talk of analyticity as suspect at best, and mythical at worst. A common view among epistemologists is that talk of analyticity has no genuine explanatory value in epistemology.

Quine [7.74] argues that any suitable appeal to analyticity in epistemology presupposes a notion of *cognitive synonymy* that is no more intelligible than talk of analyticity itself. One class of analytic statements —so-called *logically true* statements—does not attract this objection from Quine. Such statements, represented by 'No unmarried man is married', remain true under all reinterpretations of their non-logical components. A second class of statements, represented by 'No bachelor is married', does invite Quine's objection. Some philosophers hold that the members of the latter class reduce to logical truths by substituting synonyms for synonyms: e.g. 'unmarried man' for 'bachelor'. Other philosophers have talked instead of reducing the second class of analytic statements to the first *by definition.* They rely on the proposal that we *define* 'bachelor' as 'unmarried man'. Quine objects to such talk of definition, claiming that it typically rests on an inadequately explained notion of synonymy concerning what is defined and certain antecedent linguistic usage. The presumed notion of *synonymy,* according to Quine, needs clarification no less than does the notion of analyticity.

Quine has related objections to the view that synonymy consists in interchangeability of linguistic forms *salva veritate*—without change of truth-value. In a language free of such modal adverbs as 'necessarily', interchangeability *salva veritate* will not guarantee synonymy. It will provide only such statements as: 'All and only bachelors are unmarried men.' Proponents of synonymy hold that truths of that sort depend only on considerations of *meaning,* not on coincidental factual matters. We might, accordingly, introduce the adverb 'necessarily' to preserve a contrast between considerations of meaning and considerations of contingent matters. Quine objects, however, that such use of 'necessarily' is intelligible only if the notion of analyticity is already understandable—and it is not. We still need, then, an account of analyticity.

Quine anticipates an effort to explain analyticity via a verification theory of meaning. An analytic truth, in this view, is a statement confirmed 'no matter what', i.e. 'come what may'. Quine endorses *epistemic holism* instead: the view that statements are confirmed or disconfirmed not individually on the basis of experience, but only as a 'field'. Given Quine's holism, any statement can be accepted come what may, so long as we revise—perhaps drastically—other parts of our field of accepted statements. Holism entails also that no statement is in principle beyond revisability. Quine thus concludes that the verification approach to analyticity relies on an implausibly atomistic approach to confirmation and disconfirmation. In 'Two Dogmas,' Quine allows only for analyticity by conventional abbreviation:

> There does…remain still an extreme sort of definition which does not hark back to prior synonymies at all: namely, the explicitly conventional introduction of novel notations for purposes of sheer abbreviation…. Here we have a really transparent case of synonymy created by definition; would that all species of synonymy were as intelligible. For the rest, definition rests on synonymy rather than explaining it.
>
> ([7.74], 26)

Quine says no more about such conventional definition as a basis for analyticity. He does not consider the possibility that a philosophically important notion of analyticity emerges from such definition. Quine now contends that holism removes any epistemological need for analyticity:

> I now perceive that the philosophically important question about analyticity and the linguistic doctrine of logical truth is *not* how to explicate them; it is the question rather of their relevance to epistemology. The second dogma of empiricism, to the effect that each empirically meaningful sentence has an empirical content of its own, was cited in 'Two Dogmas' merely as encouraging false confidence in the notion of analyticity; but now I would say further that the second dogma creates a need for analyticity as a key notion of epistemology, and that the need lapses when we heed Duhem and set the second dogma aside.
>
> ([7.76], 207)

Quine's (qualified) holism about meaning implies that we do not need analyticity to account for the meaningfulness of logical and mathematical truths. Their meaningfulness can be regarded as deriving from their figuring in the natural sciences for the implication of various observationally testable statements. Logical and mathematical truths, on this view, are not divorced from empirical content; they rather participate, if indirectly, in the empirical content of various observational statements. Similarly, we do not need analyticity to explain the *necessity* of logical and mathematical truths. According to Quine: 'Holism accounts for it by freedom of selection and the maxim of minimum mutilation' ([7.78], 56). Necessity, on this view, is just a matter of our current unwillingness to dispense with certain statements at the centre of our web of belief.

In sum, Quine's objection to analyticity is twofold: first, 'for all its *a priori* reasonableness, a boundary between analytic and synthetic statements simply has not been drawn' ([7.74], 37); and second, the epistemological need for analyticity lapses once we accept holism of a certain sort. Some philosophers oppose Quine's objection on the ground that the viability of a notion of analyticity does not really depend on an account of analyticity of the sort demanded: namely, an account independent of the aforementioned notions deemed insufficiently clear by Quine. The issue here is whether Quine's standards for adequate clarity in an account of analyticity are simply too rigid. (On this matter, see Grice and Strawson [7.49].)

Carnap on analyticity

In reply to Quine, Carnap proposes that a statement is analytic if and only if it is a logical consequence of 'meaning postulates' that specify meaning relations holding among certain terms ([7.18]; [7.19], 918). (We can use stipulative definitions as a familiar kind of meaning postulates.) Quine objects that we do not gain real understanding by talking of 'meaning postulates', since we lack clear understanding of talk of 'meaning'. Quine's objection seems plausible on this point: we do need a standard of some sort to clarify talk of meaning and analyticity. Quine himself demands an empirical behavioural criterion, for this reason: 'There is nothing in linguistic meaning beyond what is to be gleaned from overt behavior in observable circumstances' ([7.78], 38).

Quine's reason will be uncompelling from the perspective of various *now*-behaviourist conceptions of meaning: conceptions allowing that meaning can arise from psychological processes or events that need not be identifiable in overt behaviour. These conceptions allow that psychological behaviour can be covert yet constitutive of meaning. Since Quine does not undercut such conceptions, he must restrict the kind of meaning he anchors in overt behaviour. His requirement that meaning be 'gleaned from overt behavior in observable circumstances' must be restricted to *socially learned,* public linguistic meaning—the kind of meaning in shared natural languages. Given that restriction, we can allow for Quine's behavioural criterion; for social linguistic meaning does depend on public behavioural evidence.

Carnap has tried to meet Quine's demand for a public behavioural criterion for analyticity. Consider a case of two linguists disagreeing over whether the following sentence is analytically true for you in your language: 'All ravens are black.' These linguists test their competing hypotheses by asking you whether you would withdraw your assertion of 'All ravens are black' if someone showed you a white raven. You could reply in either of two ways: (1) I would withdraw my assertion if presented with adequate evidence for the existence of a white raven; (2) I would not withdraw my assertion, since I do not call white birds 'ravens'; there cannot be white ravens, given my use of the term 'raven'. Carnap holds that response (2) supports the hypothesis that 'All ravens are black' is analytic for you, whereas response (1) supports the hypothesis that it is not. He concludes that ascriptions of analyticity can be tested by observation of public linguistic behaviour ([7.19], 920).

We can put Carnap's point as follows: whenever you reject all falsifiers of an assertion, by invoking only considerations about your usage of that assertion's constituent terms, we may regard that assertion as analytically true for you. This provides a behavioural criterion for analyticity, but not an infallible criterion. You might reject all falsifiers, when asked, simply because of an aim to deceive us about what is analytic for you, or simply because of confusion over what your usage of the relevant terms actually is. A rejection of all falsifiers thus does not guarantee analyticity in any familiar sense.

An improved criterion for analyticity is: a sentence, *S,* is analytically true for you if and only if you would reject all falsifiers of *S* owing just to your actual usage of S's constituents. This criterion restricts the basis of one's rejection of all falsifiers to one's actual usage of *S*'s constituent terms; it disallows rejection due to linguistic confusion or an aim to deceive. Carnap would have us understand actual usage in terms of one's 'intentions' regarding ways of using terms. He claims that theorists are 'free to choose their [meaning] postulates, guided not by their beliefs concerning facts of the world but by their intentions with respect to the meanings, i.e., the ways of use of the descriptive constants' ([7.18], 225). The analytic truths of one's linguistic system, on Carnap's view, result from intentions, or 'postulates', concerning 'the ways of use' of terms.

Carnap denies that his approach identifies analytic truths with truths that 'hold come what may' ([7.19], 921). He distinguishes two kinds of change in accepted statements: a change in the language one uses, and a change in a truth-value ascribed to a statement whose truthvalue is not fixed just by the rules of one's

language. Analytic statements, by definition, do not undergo changes of the second sort. One can change one's language, however, by adopting different meaning postulates. Some truth-values, on Carnap's view, are fixed just by the rules of language; others are not. This is a key assumption of Carnap's approach to analyticity. We must recognize the person-relativity of analyticity on Carnap's view. What is analytic, on this view, can vary from person to person, owing to variability of intentions regarding use of terms. Quine does not give adequate attention to such personrelativity of analyticity.

Let us turn now to the question whether Quine's epistemology can really make do without any notion of analyticity.

Analyticity in epistemology

An adequate epistemology relies on *epistemic principles* that specify what conditions epistemic warrant (or, justification) consists in. These principles yield an intelligible notion of warrant. Even Quine's epistemology relies on epistemic principles. One of Quine's main epistemic principles is his 'maxim of minimum mutilation': a principle of conservatism implying that it is good not to alter our antecedent theory more than necessary ([7.78], 15, 56). Quine does hold that another epistemic principle—concerning the maximization of the 'simplicity' of theory—can prevail over his principle of conservatism; but this will not affect the point to be made. We shall consider only cases where the two principles do not conflict.

The key question now is: in virtue of what is Quine's epistemic principle of conservatism true, or correct? In virtue of what is it true —or actually the case—that warranted theory revision conforms to the maxim of minimum mutilation? What, in other words, makes Quine's epistemic principle true rather than false? These questions will highlight the importance of analyticity for epistemology. They are not questions seeking a causal explanation of why certain people use Quine's epistemic principles. They rather seek an explanation why Quine's principles are true rather than false. What answer might Quine give?

One cannot answer by simply saying that the principle of conservatism requires that warranted theory revision be constrained by the principle of conservatism. It is not informative now to say that given the principle of conservatism, the principle of conservatism is true. The question above asks what *makes it the case* that *warranted* theory revision is constrained by the principle of conservatism. It is highly plausible to assume that it is just part of Quine's usage of the term 'epistemic warrant' that the principle of conservatism constrains epistemic warrant. Given this assumption, we may say that it is analytically true for Quine that the principle of conservatism constrains epistemic warrant.

Quine suggests that his epistemic principles of conservatism and simplicity find support in actual scientific practice. He claims that these principles 'are maxims by which science strives for vindication in future predictions' ([7.78], 15). This suggests the view that Quine's epistemic principles are *justified* by their role in actual scientific practice. One might propose further that Quine's principle of conservatism is *true* in virtue of its role in actual scientific practice. We can grant this proposal now, if only for the sake of argument, and then ask: In virtue of what is it true—or the case—that actual scientific practice constrains epistemically warranted theory revision? The most plausible answer is that it is just part of Quine's usage of 'epistemic warrant' that actual scientific practice constrains epistemic warrant. It is analytically true for Quine that scientific practice constrains epistemic warrant. Appeal to scientific practice thus does not free one from the importance of analyticity. Barring analyticity, we would have difficulty answering questions of the sort just raised. This may explain why Quine remains silent on such questions.

Appeals to holism take nothing away from the importance of analyticity. The epistemic holist uses the term 'epistemic warrant' in such a way that considerations of coherence determine warrant. A question of the sort just raised can thus reveal the importance of analyticity even for the epistemic holist, Quine

included. Since Carnap's aforementioned characterization of analyticity is not a characterization of justification or evidence, it is not an alternative to epistemic holism —the sort of holism Quine uses to criticize analyticity ([7.74], 41). As for *semantic* holism—holism about meaning rather than evidence, Quine's commitment is explicitly qualified, given his view that some observation statements do have their empirical content individually ([7.77], 426). Holism about warrant, in any case, does not require holism about meaning. Considerations about holism thus do not threaten the foregoing remarks about analyticity.

Quine might seek refuge in the view that we can simply forego talk of epistemic warrant and all such normative talk. This, however, would be an implausibly extreme move, a move inconsistent with Quine's own linguistic practices. Such a move would remove all evaluative talk from epistemology and philosophy in general. Instead of evaluating statements relative to epistemic standards, we could, on this view, only describe statements relative to how entrenched, or firmly held, they are. Quine himself does not settle for mere descriptions of how entrenched statements are. He is, in fact, well known for his view that 'the lack of a standard of identity for attributes and propositions can be viewed…as a case of defectiveness on the part of "attribute" and "proposition"' ([7.75], 244). Such talk of *defectiveness* is not the language of someone shunning normative, or evaluative, talk. In Two Dogmas' and elsewhere, Quine uses his views of actual scientific theory revision to set *evaluative* epistemic standards—standards involving holistic coherence, simplicity and minimum mutilation. Since Quine does have evaluative epistemic standards, he must face the questions about correctness raised above. Those questions reveal the philosophical importance of analyticity.

We should observe a distinction neglected by Quine, especially in 'Two Dogmas': the distinction between *what is true* in virtue of a certain policy of linguistic usage and *what justifies* such a policy. This is the distinction between what a policy of usage involves or entails and what supports such a policy. Confusion over this distinction apparently underlies Quine's opposition to analyticity. A statement can be analytically *true* just in virtue of a usage policy, even if that usage policy is supported, or *justified,* only by certain alterable explanatory purposes a language-user has. The alterability of the supporting purposes does not discredit the analyticity arising from a policy of usage. The category of the analytic is not the epistemic category of the *a priori;* nor does it entail unrevisability. Usage policies can and do change—often as a result of changing explanatory purposes. Change in a usage policy is a change in language. The category of the analytic characterizes a kind of *truth* resulting just from a policy of usage. It is not an epistemic category that connotes a special kind of warrant or evidence. Still, the category of analyticity can contribute to epistemology: it enables answers to the questions above about correctness of epistemic principles.

EPISTEMIC JUSTIFICATION

We noted above (p. 217) that Quine endorses epistemic holism: roughly, the view that the epistemic warrant, or justification, of a statement depends on the warrant of other statements. According to the so-called 'traditional analysis' of knowledge, suggested in Plato's *Theaetetus,* you know that *P* if and only if you have a *justified* true belief that *P*. You might believe a true groundless conjecture, but would not thereby *know* that this conjecture is true. Standardly construed, knowledge requires not only that a belief-condition and a truth-condition be satisfied, but also that the satisfaction of the belief-condition be *appropriately related* to the satisfaction of the truth-condition. The latter requirement leads to a justification-condition for knowledge, a condition that excludes such coincidental phenomena as lucky guesses.

Twentieth-century epistemologists have given special attention to the conditions for epistemic justification, the kind of justification appropriate to knowledge. They typically have allowed for justified false beliefs, and this allowance is called *fallihilism* about justification. Fallibilism allows, for example, that the Ptolemaic astronomers before Copernicus were justified in holding their geocentric model of the universe—even though it was a false model. Justification for a proposition, according to most twentieth-century epistemologists, need not logically entail the proposition justified: it need not be such that necessarily if the justifying proposition is true, then the justified proposition is true too. When justification does logically entail what it justifies, we have *deductive* justification. *Inductive* justification, in contrast, does not logically entail what it justifies; it rather is such that if the justifying proposition is true, then the justified proposition is, to some extent, *probably* true. Twentieth-century epistemologists do not share a single account of the sort of probability appropriate to inductive justification. Most recent epistemologists do agree, however, that epistemic justification is *defeasible,* that a justifying proposition can cease to be justifying for a person when that person acquires additional justification. For instance, your justification for thinking that there is a pool of water on the road ahead can be overridden by new evidence acquired upon approaching the relevant spot on the road.

A major topic of controversy in twentieth-century epistemology concerns the kind of justification we have for our beliefs about the external world, including the belief that conceiver-independent physical objects exist. Most twentieth-century epistemologists agree that such beliefs are justified only inductively, in terms of justification that does not logically entail the beliefs justified. Some sceptics, doubting that we have epistemic justification for the belief that external objects exist, have required deductive support for that belief; others have questioned whether we can even have inductive, probabilistic justification here (see below, pp. 232–41).

Some sceptics have used a *regress argument* to contend that we are not justified in believing anything about the external, conceiver-independent world (cf. Oakley [7.69]). This argument stems from the question whether, and if so how, we are justified in holding any belief about the external world on the basis of other beliefs, i.e. on the basis of so-called *inferential* justification. A sceptic's use of the regress argument aims to show that each of the available accounts of inferential justification fails, and thus that such justification is not to be had. The initial sceptical worry is: if one's belief that external objects exist is supposedly justified on the basis of another belief, how is the latter, allegedly justifying belief itself justified? Is it supposedly justified by a further belief? If so, how is the latter belief itself justified? We seem to be threatened by an endless regress of required justifying beliefs—a regress that seems too complex to employ in our actual everyday reasoning. Our options, according to many epistemologists, are straightforward: (1) explain how an endless regress of required justifying beliefs is not actually troublesome, or (2) show how we can terminate the threatening regress or (3) accept the sceptical conclusion that inferential justification is impossible.

A concrete example illustrates the problem of inferential justification. While walking along Lake Michigan, we decide that a swim today would be pleasant, but that the current dangers of swimming outdoors are too great. Our belief that swimming outdoors is dangerous today is supported by other beliefs we have. We believe, for example, that (1) local meteorologists have predicted lightning storms today in our area, (2) there are foreboding cumulonimbus clouds overhead and (3) the meteorologists' reports and the presence of the cumulonimbus clouds are reliable indicators of impending lightning. Our belief that swimming outdoors is dangerous today receives support from our belief that (1), (2) and (3) are true. What, however, supports (1), (2) and (3) for us? Other beliefs we have will naturally contribute support here, and thus the chain of inferential justification will continue. Part of our support for (1) might be our belief that (4) we heard radio reports today from some local meteorologists; and part of our support for (2) might be

our belief that (5) we see dark thunderclouds overhead. Our support for (4) and (5) might be similarly inferential, thus extending the chain of inferential justification even further.

Non-sceptical epistemologists have offered four noteworthy replies to the regress problem concerning inferential justification. The first reply, which we may call *epistemic infinitism,* proposes that regresses of inferential justification are indeed infinite, but that this consideration does not preclude genuine justification. Our belief that swimming outdoors is dangerous today, on this reply, would be justified by belief (1) above, belief (1) would be justified by belief (4) above, belief (4) would be justified by a further belief, and so on endlessly. Such infinitism, while attracting very few proponents, was supported by Charles Peirce ([7.70], 36–8), the founder of American pragmatism. Infinitism evidently requires that one must have an infinity of justifying beliefs to have an inferentially justified belief.

Sceptics will argue that infinite chains of supposedly inferential justification cannot provide genuine justification. They will note that no matter how far back we go in an infinite regress of inferential justification, we find only beliefs that are *conditionally* justified: justified *if,* and *only if,* their supporting beliefs are justified. The problem is that the supporting beliefs themselves are at most conditionally justified too: justified if, and only if, *their* supporting beliefs are justified. At every point in the never-ending chain we find a belief that is merely conditionally justified, and not actually justified. Another problem is that one's having an infinity of supporting beliefs seemingly requires an infinite amount of time, on the assumption that belief-formation for each of the supporting beliefs takes a certain amount of time. We humans, of course, do not have an infinite amount of time, and thus it is doubtful that our actual justification includes infinite regresses of justifying beliefs. Even if these considerations are not decisive, they indicate that the proponent of infinitism has some important explaining to do.

A second non-sceptical reply to the regress problem is *epistemic coherentism:* the view that all justification is inferential and systematic in virtue of 'coherence relations' among beliefs. Justification for any belief, according to epistemic coherentism, terminates in a system or network of beliefs with which the justified belief coheres. This view denies that justification is linear in the manner suggested by infinitism. We should not confuse a coherence theory of *justification*—epistemic coherentism—with a coherence theory of *truth.* A coherence theory of truth, of the sort endorsed by Brand Blanshard ([7.11], 268; [7.12], 590), aims to specify the meaning of 'truth', or the essential nature of truth; a coherence theory of justification aims to explain the nature not of truth, but of the kind of justification appropriate to knowledge. Recent proponents of epistemic coherentism, of one version or another, include: Wilfrid Sellars ([7.95]; [7.96]; [7.97]), Nicholas Rescher ([7.79]; [7.80]), Gilbert Harman ([7.40]; [7.41]), Keith Lehrer ([7.46]; [7.47]) and Laurence BonJour ([7.13]).

Proponents of epistemic coherentism have tried to answer two pressing questions: first, what kind of coherence relation is crucial to justified belief? Second, what kind of belief-system must a justified belief cohere with? Regarding the first question, many proponents of epistemic coherentism acknowledge logical entailment and explanation as coherence relations among beliefs. Explanatory coherence relations obtain when some of one's beliefs effectively explain why some other of one's beliefs are true. For example, my belief that it is raining outside might effectively explain the truth of my belief that my office windows are wet. Regarding the second question, not just any belief-system will serve the purpose of epistemic coherentism. Some belief-systems, such as those consisting of science-fiction propositions, seem obviously erroneous, and thus seem unable to provide a basis for epistemically justified belief. However one answers the previous two questions, epistemic coherentism implies that the justification of any belief depends on that belief's coherence relations to other beliefs. Such coherentism is thus systematic, stressing the role of interconnectedness of beliefs in epistemic justification.

Sceptics will ask why we should regard coherence among one's beliefs as a reliable indication of empirical truth, of how things actually are in the empirical world. (See the section below on scepticism, pp. 232–41, for more on this matter.) Consider, in addition, the following so-called *isolation objection* to epistemic coherentism: epistemic coherentism entails that one can be epistemically justified in accepting a contingent empirical proposition that is incompatible with, or at least improbable given, one's total empirical evidence (Moser [7.59], 84–103; [7.61]; [7.62], 176–82). A proponent of this objection does not restrict empirical evidence to empirical propositions believed or accepted by a person.

The isolation objection becomes universally applicable to coherence theories of justification once we expand the scope of empirical evidence beyond the propositions (or, judgements) believed or accepted by a person. Suppose, for example, that one's empirical evidence includes the subjective non-propositional contents (e.g. visual images) of one's non-belief perceptual and sensory awareness states, such as one's seeming to perceive something or one's feeling a pain. If there are such contents, then they, being non-propositional, are not among what one believes or accepts. One might, of course, accept that one is having a particular visual image, but this does not mean that the image itself is a proposition one accepts. If we include the non-propositional contents of non-belief perceptual and sensory states in one's empirical evidence, the isolation objection will bear directly on coherence theories of justification. Coherence theories, by definition, make epistemic justification depend just on coherence relations among propositions one believes or accepts. They thus neglect, as a matter of principle, the evidential significance of the non-propositional contents of non-belief perceptual and sensory states. Proponents of epistemic coherentism have not yet achieved a uniform resolution of the problem raised by the isolation objection.

A third non-sceptical reply to the regress problem is *epistemic foundationalism.* Put generally, foundationalism about epistemic justification states that such justification has a two-tier structure: some instances of justification are non-inferential, or foundational; and all other instances of justification are inferential, or non-foundational, in that they derive ultimately from foundational justification. This structural view was proposed in Aristotle's *Posterior Analytics* (as a view about knowledge), received an extreme formulation in Descartes's *Meditations* and is represented, in one form or another, in the twentieth-century epistemological works of Bertrand Russell [7.88], C.I.Lewis [7.49]; [7.50], and Roderick Chisholm [7.22]; [7.23]; [7.25], among many others.[7]

Versions of foundationalism about justification differ on two matters: the explanation of non-inferential, foundational justification, and the explanation of how justification can be transmitted from foundational beliefs to non-foundational beliefs. Some philosophers, following Descartes, have assumed that foundational beliefs must be *certain* (e.g. indubitable or infallible). Such an assumption underlies *radical* foundationalism, a view requiring not only that foundational beliefs be certain, but also that such beliefs guarantee the certainty of the non-foundational beliefs they support. Two considerations explain why radical foundationalism attracts very few epistemologists. First, very few, if any, of our perceptual beliefs are certain;[8] and, second, the beliefs that might be candidates for certainty (e.g. the belief that I am thinking) are insufficiently informative to guarantee the certainty of our highly specific inferential beliefs concerning the external world (e.g. beliefs about physics, chemistry and biology).

Most contemporary foundationalists accept *modest* foundationalism, the view that foundational beliefs need not possess or provide certainty, and need not deductively support justified non-foundational beliefs. Foundationalists typically characterize a *non-inferentially justified, foundational* belief as a belief whose epistemic *justification* does not derive from other beliefs; but they leave open whether the *causal* basis of foundational beliefs includes other beliefs. Further, they typically hold that foundationalism is an account of a belief's (or a proposition's) *having* justification for a person, not of one's *showing* that a belief has justification or is true.

Modest foundationalists can choose from three influential approaches to non-inferential, foundational justification: (1) self-justification, (2) justification by non-belief, non-propositional experiences and (3) justification by a reliable non-belief origin of a belief. Recent proponents of self-justification have included Roderick Chisholm [7.22] and C.J.Ducasse [7.30]. They contend that a foundational belief can justify itself, apart from any evidential support from something else. In contrast, proponents of foundational justification by non-belief experiences shun literal self-justification. They hold, following C.I.Lewis ([7.49]; [7.50]), that foundational perceptual beliefs can be justified by non-belief sensory or perceptual experiences (e.g. my non-belief experience involving seeming to see a keyboard) that either make true, are best explained by or otherwise support those foundational beliefs (e.g. the belief that there is, or at least appears to be, a keyboard here). Proponents of foundational justification by reliable origins hold that non-inferential justification depends on non-belief belief-forming processes (e.g. perception, memory, introspection) that are truth-conducive to some extent, in virtue of tending to produce true rather than false beliefs. The latter view invokes the reliability of a belief's non-belief origin,[9] whereas the previous view invokes the particular sensory or perceptual experiences that underlie a foundational belief. Despite the disagreement here, proponents of modest foundationalism typically agree that non-inferential justification, at least in most cases, can be defeated upon expansion of one's justified beliefs. The justification for your belief that there is a red flower in the vase, for example, might be overridden by the introduction of new evidence that there is a red light shining on the flower.

Wilfrid Sellars [7.96] and Laurence BonJour [7.13] have offered an influential argument against claims to non-inferential justification. They contend that one cannot be non-inferentially epistemically justified in holding any beliefs, since one is epistemically justified in holding a belief only if one has good reason to think that the belief is true. This, they claim, entails that the justification of an alleged foundational belief will actually depend on an argument of the following form:

(1) My foundational belief that *P* has feature *F*.
(2) Beliefs having feature *F* are likely to be true.
(3) Hence, my foundational belief that *P* is likely to be true.

If the justification of one's foundational beliefs depends on such an argument, those beliefs will not be foundational after all; for their justification will then depend on the justification of further beliefs: the beliefs represented by the premises of the argument (1)–(3).

It seems too demanding to hold that the justification of one's belief that *P* requires one's being *justified in believing* premises (1) and (2). Given that requirement, you will be justified in believing that *P* only if you are justified in believing that your belief that *P* has feature *F*. Further, given those requirements, you will be justified in believing that (1) your belief that *P* has *F* only if you are justified in believing an additional proposition: that (2) your belief that (1) has *F*. Given the requirements in question, we have no non-arbitrary way to avoid the troublesome implication that similar requirements apply not only to this latter proposition —viz. (2)—but also to each of the ensuing infinity of required justified beliefs. The problem is that we seem not to have the required infinity of increasingly complex justified beliefs.

An apparent lesson here is that if justificational support for a belief must be accessible to the believer, that accessibility should not itself be regarded as requiring further justified belief. Current debates over *internalism* and *externalism* regarding epistemic justification concern what sort of access, if any, one must have to the support for one's justified beliefs. Internalism incorporates an accessibility requirement, of some sort, on what provides justification, whereas externalism does not. Debates over internalism and externalism are currently unresolved in contemporary epistemology.[10]

Foundationalists must explain not only the conditions for non-inferential justification, but also how justification transmits from foundational beliefs to inferentially justified, non-foundational beliefs. Modest foundationalists, unlike radical foundationalists, allow for non-deductive, merely probabilistic connections that transfer justification. They have not, however, reached agreement on the exact nature of such connections. Some modest foundationalists hold that some kind of 'inference to a best explanation' can account for transmission of justification in many cases. For example, the belief that there is a computer before me can, in certain circumstances, provide a best explanation of various foundational beliefs about my perceptual inputs. This, however, is a controversial matter among epistemologists.

A special problem troubles versions of foundationalism that restrict non-inferential justification to subjective beliefs about what one *seems* to see, hear, feel, smell and taste. Those versions must explain how such subjective beliefs can provide justification for beliefs about conceiver-independent physical objects. Clearly, such subjective beliefs do not logically entail beliefs about physical objects. Since extensive hallucination is always possible, it is always possible that one's subjective beliefs are true while the relevant beliefs about physical objects are false. This consideration challenges foundationalists endorsing *linguistic phenomenalism,* the view that statements about physical objects can be translated without loss of meaning into logically equivalent statements solely about subjective states characterized by subjective beliefs.[11] Perhaps a foundationalist, following Chisholm [7.23] and Cornman [7.27], can invoke a set of non-deductive relations to explain how subjective beliefs can justify beliefs about physical objects. This remains, however, as a challenge, since no set of such relations has attracted widespread acceptance from foundationalists. We should note, though, that some versions of foundationalism allow for the non-inferential justification of beliefs about physical objects, and thus avoid the problem at hand.

A fourth non-sceptical reply to the regress problem is *epistemic contextualism,* a view suggested by Wittgenstein [7.109] and formulated explicitly by Annis [7.3]. Wittgenstein set forth a central tenet of contextualism with his claim that 'at the foundation of well-founded belief lies belief that is not founded' [7.109], §253). If we construe Wittgenstein's claim as stating that at the foundation of justified beliefs lie beliefs that are unjustified, we have an alternative to infinitism, coherentism and foundationalism.[12] In any context of inquiry, according to contextualism, people simply assume (the acceptability of) some propositions as starting points for inquiry; and these 'contextually basic' propositions, while themselves lacking evidential support, can support other propositions. Contextualists emphasize that contextually basic propositions can vary from social group to social group, and from context to context—e.g. from theological inquiry to physical inquiry. Thus, what functions as an unjustified justifier in one context need not in another.

The main problem for contextualism comes from the view that unjustified beliefs can provide epistemic justification for other beliefs. If we grant that view, we need to avoid the implausible view that *any* unjustified belief, however obviously false or contradictory, can provide justification in certain contexts. If any unjustified proposition can serve as a justifier, we shall, it seems, be able to justify anything we want. Even if we do typically take certain things for granted in certain contexts of discussion, this does not support the view that there are unjustified justifiers. Perhaps the things typically taken for granted are actually supportable by good reasons; and if they are not, we need some way to distinguish them from unjustified beliefs that cannot transmit justification to other beliefs. The contextualist must explain, then, how an unjustified belief—but not just any unjustified belief — can provide inferential justification for other beliefs. Contextualists have not reached agreement on the needed explanation.

In sum, then, the regress problem for inferential justification has a troublesome resilience about it. Infinitism, coherentism, foundationalism or contextualism may provide a viable solution to the problem, but only after a resolution of the problems noted above. Let us turn briefly now to some complications facing the analysis of knowledge.

CONDITIONS FOR KNOWLEDGE

Some recent epistemologists have proposed that we give up the traditional justification-condition for knowledge. They recommend, following Alvin Goldman [7.37], that we construe the justificationcondition as a *causal* condition. Roughly, the idea is that you know that *P* if (1) you believe that *P,* (2) *P* is true and (3) your believing that *P* is causally produced and sustained by the fact that makes *P* true. This is the basis of a *causal theory of knowing,* a theory that admits of various manifestations.

A causal theory of knowing faces apparently serious problems from knowledge of universal propositions. Perhaps we know, for instance, that all computers are produced by humans; but our believing that this is so seems not to be causally supported by the fact that all computers are humanly produced. It is not clear that the latter fact causally produces *any* beliefs. At a minimum, we need an explanation of how a causal theory can account for knowledge of such universal propositions.

The analysis of knowledge as justified true belief, however elaborated, faces a challenge that initially gave rise to causal theories of knowledge: *the Gettier problem.* In 1963 Edmund Gettier published an influential challenge to the view that if you have a justified true belief that *P,* then you know that *P.* Here is one of Gettier's [7.35] counterexamples to this view: Smith is justified in believing the false proposition that (i) Jones owns a Ford. On the basis of (i), Smith infers, and thus is justified in believing, that (ii) either Jones owns a Ford or Brown is in Barcelona. As it happens, Brown is in Barcelona, and so (ii) is true. Thus, although Smith is justified in believing the true proposition (ii), Smith does not know (ii).

Gettier-style counter-examples are cases where a person has justified true belief that *P* but lacks knowledge that *P.* The Gettier problem is the problem of finding a modification of, or an alternative to, the standard, justified-true-belief analysis that avoids difficulties from Gettier-style counter-examples. The controversy over the Gettier problem is highly complex and still unsettled. Many epistemologists take the lesson of Gettier-style counter-examples to be that prepositional knowledge requires a *fourth* condition, beyond the justification-, truth- and belief-conditions. No specific fourth condition has received overwhelming acceptance by epistemologists, but some proposals have become prominent. The so-called 'defeasibility condition', for example, requires that the justification appropriate to knowledge be 'undefeated' in the general sense that some appropriate subjunctive conditional concerning defeaters of justification be true of that justification. For instance, one simple defeasibility fourth condition requires of Smith's knowing that *P* that there be no true proposition, *Q,* such that if *Q* became justified for Smith, *P* would no longer be justified for Smith. So if Smith knows, on the basis of his visual perception, that Bubba removed books from the library, then Smith's coming to believe the true proposition that Bubba's identical twin removed books from the library would not undermine the justification for Smith's belief concerning Bubba himself. A different approach shuns subjunctive conditionals of that sort, and claims that propositional knowledge requires justified true belief that is sustained by the collective totality of actual truths. This approach requires a detailed account of when justification is undermined and restored.[13]

The Gettier problem, according to many epistemologists, is epistemologically important. One branch of epistemology seeks a precise understanding of the nature—i.e. the essential components—of propositional knowledge. Our having a precise understanding of propositional knowledge requires our having a Gettier-proof analysis of such knowledge. Epistemologists thus need a defensible solution to the Gettier problem, however complex that solution is. This conclusion is compatible with the view that various epistemologists employ different notions of knowledge at any level of specificity.

SCEPTICISM

Epistemologists have long debated the limits, or scope, of knowledge. The more restricted we take the scope of knowledge to be, the more sceptical we are. Two influential types of scepticism are *knowledge-scepticism* and *justification-scepticism.* Unrestricted knowledge-scepticism implies that no one knows anything. Unrestricted justificationscepticism implies the more extreme view that no one is even justified in believing anything. Some forms of scepticism are stronger than others. Knowledge-scepticism in its strongest form implies that it is *impossible* for anyone to know anything. A weaker form would deny the *actuality* of our having knowledge, but leave open its possibility. Many sceptics have restricted their scepticism to a particular domain of supposed knowledge: e.g. knowledge of the external world, knowledge of other minds, knowledge of the past or the future or knowledge of unperceived items. Limited scepticism is more common than unrestricted scepticism in the history of epistemology.

Arguments supporting scepticism come in many forms. One of the most difficult is *the problem of the criterion,* a version of which comes from the sixteenth-century sceptic Michel de Montaigne:

> To adjudicate [between the true and the false] among the appearances of things, we need to have a distinguishing method; to validate this method, we need to have a justifying argument; but to validate this justifying argument, we need the very method at issue. And there we are, going round on the wheel.[14]

This line of sceptical argument originated in ancient Greece, with epistemology itself. (See Sextus Empiricus, *Outlines of Pyrrhonism,* Book II.)[15] It forces us to face this question: how can we specify *what* we know without having specified *how* we know, and how can we specify *how* we know without having specified *what* we know? Is there any reasonable way out of this threatening circle? This is one of the most difficult epistemological problems, and a cogent epistemology must provide a defensible solution to it. Contemporary epistemology still lacks a widely accepted reply to this urgent problem. One influential reply from Roderick Chisholm [7.24] rules out scepticism from the start, with the assumption that we do know some specific propositions about the external world. Chisholm endorses a *particularist re*ply that begins with an answer to the question of what we know. Such a reply seems, however, to beg a key question against the sceptic. A *methodist* reply to the problem of the criterion begins with an answer to the question of how we know. Such a reply risks divorcing knowledge from our considered judgements about particular cases of knowledge. It also must avoid begging key questions raised by sceptics.

Let us consider another sceptical argument (developed in detail in Moser ([7.63] and [7.64]). Suppose that you are a realist claiming knowledge that external, mind-independent objects exist, and that you take such knowledge to entail that it is objectively the case that external objects exist. Suppose also that you regard yourself as having a cogently sound argument for your claim to knowledge that external objects exist.

> Your argument, let us suppose, takes the following general form:
>
> 1 If one's belief that *P* has feature *F,* then one knows that *P.*
> 2 My belief that external objects exist has *F.*
> 3 Hence, I know that external objects exist.

Even critics of realism may grant premise (1)—if only for the sake of argument. That premise may be just a straightforward implication of what a realist *means* by 'knows that *P*'.

Feature *F* can incorporate any of a number of familiar well-foundedness properties: (a) suitable doxastic coherence (cf. Lehrer [7.47], chapter 7), (b) maximal explanatory efficacy (cf. Lycan [7.51], chapter 7), (c) undefeated self-evidentness (cf. Foley [7.33], chapter 2), (d) consistent predictive success (cf. Almeder [7.1], chapter 4), (e) uncontested communal acceptance (cf. Annis [7.3]), (f) causal sustenance by such a belief-forming process as perception, memory, introspection, or testimony (cf. Goldman [7.38], chapter 5), (g) adequate theoretical elegance in terms of such virtuous characteristics as simplicity and comprehensiveness (cf. Thagard [7.105], chapter 5), (h) survival value in the evolutionary scheme of things (cf. Carruthers [7.20], chapter 12), or (i) some combination of (a)–(h) (cf. Cornman [7.27]). Such well-foundedness properties cannot conceptually exhaust *F;* for by hypothesis one's knowing that *P* (unlike those well-foundedness properties) *entails* its objectively being the case that *P*.

If knowledge involves more than objectively true belief, as it does on standard conceptions since the time of Plato's *Theaetetus* (cf. 202b), then *F* will be a complex property—involving the property of being objectively true plus some additional property. The additional property, on standard conceptions of knowledge, incorporates a well-foundedness feature of some sort (and sometimes a no-defeaters restriction on that feature to handle the aforementioned Gettier problem). Let us call this *the well-foundedness component of F.* A well-foundedness feature serves typically to distinguish knowledge from true belief due simply to such coincidental phenomena as lucky guesses. In this respect, such a feature may be regarded as making a belief 'likely to be true' to some extent. As suggested in the section above on epistemic justification (pp. 228– 9), an *internalist* well-foundedness feature is accessible—directly or indirectly—to the knower for whom it yields likelihood of truth; an *externalist* well-foundedness feature is not. (Cf. Alston [7.2], chapters 8, 9.)

If, as standardly assumed, knowledge that *P* entails that it is objectively the case—or objectively true—that P, the relevant kind of likelihood of *truth* must entail likelihood of what is objectively true, or objectively the case. So, whether internalist or externalist, a well-foundedness feature must yield likelihood of what is objectively the case. It must, in other words, indicate with some degree of likelihood what is the case conceiver-independently. A well-foundedness component of *F* violating this requirement will fail to distinguish knowledge from true belief due simply to such coincidental phenomena as lucky guesses.

Premise (2) generates a problem motivating scepticism about realism concerning external objects. It affirms (a) that your belief that external objects exist is objectively true, and (if you hold that knowledge has a well-foundedness component) (b) that a well-foundedness feature indicates with some degree of likelihood that external objects exist. A sceptic can plausibly raise this question:

> *Q1.* What non-question-begging reason, if any, have we to affirm that your belief that external objects exist is objectively true?

If you are a typical realist, committed to a well-foundedness component of knowledge, you will appeal to your preferred well-foundedness component of *F* to try to answer *Q1*. In particular, you will answer that the satisfaction of the conditions for that well-foundedness component provides the needed reason to affirm that your belief is true. This answer to *Q1* is not surprising, given the aforementioned assumption that a well-foundedness component yields likelihood of truth.

For any well-foundedness component a realist offers, a sceptic can raise the following challenge:

> *Q2.* What non-question-begging reason, if any, have we to affirm that the satisfaction of the conditions for *that* well-foundedness component of *F* is actually indicative, to any extent, of what is objectively the case?

Realists might reply that it is true in virtue of what they *mean* by 'indicative of what is objectively the case' that their preferred well-foundedness component is indicative of what is objectively the case. (Cf. Pollock [7.73], chapter 5.) This move uses definitional (or, conceptual) fiat to try to disarm sceptics, but actually fails to answer their main concern.

We can put the main concern more exactly:

> *Q3*. What non-question-begging reason, if any, have we to affirm that the satisfaction of the conditions for a preferred well-foundedness component of *F*—including the satisfaction of conditions definitive of what a realist means by 'indicative of what is objectively the case'—is ever a genuinely reliable means of representational access to what is objectively the case?

Equivalently, what non-question-begging reason, if any, have we to affirm that some claim satisfying the conditions for a preferred well-foundedness component (e.g. the claim that external objects exist) is actually objectively true? We can grant realists their preferred definition of 'indicative of what is the case', but then follow up with *Q3*. A sceptic may begin with *Q1,* but will move to *Q3* once a realist appeals to a well-foundedness component of *F*. It would be a shallow sceptic indeed who failed to regard *Q3* as just as troublesome for realism as *Q1* is.

Clearly, your invoking your preferred well-foundedness component to defend realism against *Q3* would be question-begging. The reliability of your preferred well-foundedness component is precisely what is under question now; and begging this question offers no cogent support for realism. If, for instance, you hold that coherent belief is indicative of objective truth, you cannot now simply presume that coherent belief is indicative of objective truth; the issue now is whether coherent belief (or any similar well-foundedness component) is actually indicative of objective truth. Perhaps *given* your preferred well-foundedness component, that well-foundedness component is itself well-founded. This consideration, however, does nothing to answer *Q3*. *Q3* asks what *non-question-begging r*eason, if any, we have to regard your preferred well-foundedness component as ever being a reliable means to objective truth. In effect: *apart from* appeal to (the reliability of) your preferred well-foundedness component, what reason have we to regard that component as ever being a reliable means to objective truth—e.g. objective truth regarding your belief that external objects exist?

A sceptic's use of *Q3* allows for fallibilism about well-foundedness: the view that a well-founded belief can be false. In addition, a sceptic's use of *Q3* need not assume that evidence on which a claim is well-founded must logically entail (or, deductively support) that claim; nor does it require that we take a controversial stand on purely conceptual disputes over the exact conditions for epistemic justification. These are some virtues of a sceptic's use of *Q3* to challenge realism.

Suppose then that you are a realist wielding argument (1)–(3), along with the standard view that *F* has a well-foundedness component (say, coherent belief). You will then hold that your belief that external objects exist illustrates a case where a belief's meeting the conditions for your preferred well-foundedness component (such as coherent belief) is an objectively true belief. You will then hold, given premise (2), that your belief that external objects exist is objectively true, and that your preferred well-foundedness component of *F* (namely, coherent belief) is satisfied by an objectively true belief in this case. You will, however, still owe the sceptic a non-question-begging reason for thinking that your preferred well-foundedness component of *F* (namely, coherent belief) is, in this case, a genuinely reliable means to objectively true belief.

Realists might aim to silence the sceptic by claiming, following Pollock [7.73], that our concept of an external object is actually constituted, or wholly determined, by certain well-foundedness conditions

involving one or more of the well-foundedness properties noted above. The claim here is that certain conditions for well-founded ascription of our concept of an external object *fully* determine that concept. This claim entails a kind of verificationism about our notion of an external object, and is not equivalent to the previous view that appealed to considerations of meaning regarding 'indication of what is objectively true'.

It seems, in reply, that our notion of an external object logically outstrips various standard well-foundedness conditions for that notion. Our concept of an external object seemingly involves, for instance, the condition that any object falling under it does not perish whenever one looks away from it, but would exist even when unperceived. The condition that an external object would exist even when unperceived seems not to be logically entailed by various standard well-foundedness conditions for our notion of an external object. For example, maximally effective explanation of (the origin of) our common perceptual experiences does not *logically* require that there be objects that exist when unperceived. Further, even if well-foundedness conditions fully determined our notion of an external object, it would still be an open question whether one's having our notion of an external object involves one's *actually satisfying* those well-foundedness conditions with one's belief that external objects exist. If those conditions entail the subjunctive condition just noted, a sceptic will demand a non-question-begging reason to think it is ever actually satisfied; and then the now familiar worries motivating scepticism will resurface. Realists, in any case, are not typically verificationists about our notion of an external object.

We may return, then, to the sceptic's main challenge, in *Q3,* for the realist to deliver a non-question-begging reason. Such a reason will not simply *presume* a realism-favouring answer to a sceptic's familiar questions about reliability. Some of these familiar questions concern the reliability, in any actual case, of our belief-forming processes (e.g. perception, introspection, judgement, memory, testimony) that sometimes produce belief in the existence of external objects. Some other familiar questions concern the reliability, in any actual case, of suitably coherent, explanatorily efficacious, or predictively successful belief regarding the existence of external objects. Each of the well-foundedness properties noted above will attract such a question about reliability from a sceptic. A sceptic will thus be unmoved by observations concerning the simplicity and comprehensiveness provided by realism about external objects. The application of *Q3* will ask for a nonquestion-begging reason to affirm that the simplicity and comprehensiveness provided by such realism is ever a reliable means to objectively true belief. Any higher-order use of a well-foundedness component — to support a well-foundedness component—meets the same fate as first-order use; for *Q3* applies equally to any higher-order use. Lacking answers to the sceptic's questions, we cannot cogently infer that realism about external objects has been substantiated.

A sceptic is not guilty of this empty challenge: give me a cogent argument, but do not use any premises. The challenge is rather: give me a cogent, non-question-begging reason to hold that your belief that external objects exist is a case where a belief satisfying your preferred well-foundedness component is an objectively true belief. The demand is not that realists forego the use of premises; it rather is just that the realist forego the use of *question-begging* premises—premises that beg relevant questions about reliability motivating scepticism. *Q1–Q3* illustrate some standard sceptical questions. A question-begging argument from a realist will not even begin to approach cogency for a sceptic. Mere soundness of argument, then, is not at issue; *cogent* nonquestion-begging soundness is.

One familiar consideration—perhaps employed only for the sake of argument by a sceptic—indicates that a sceptic wielding Q3 will *not* be successfully answered by a realist. Cognitively relevant access to *anything* by us humans depends on such belief-forming processes as perception, introspection, judgement, memory, testimony, intuition and common sense. Such processes are subject to question via Q3, and cannot themselves deliver non-question-begging support for their own reliability. Put bluntly, we cannot assume a

position independent of our own cognitively relevant processes to deliver a non-question-begging indication of the reliability of those processes. This, for better or worse, seems to be the human cognitive predicament; and no realist has yet shown how we can escape it. This, too, is a straightforward consideration favouring the conclusion that we must take scepticism quite seriously. Until we have the needed non-question-begging reason, scepticism seems more defensible, epistemically, than realism. Our inability to provide the needed non-question-begging reason does nothing to undercut the sceptic's challenge; it rather undercuts claims to cogent support for realism.

A non-question-begging reason favouring realism would be a reason that provides *effective* discernment of conceiver-independent truth. We cannot, it seems, effectively rely on *our* eyesight, for example, to test the objective reliability of our own eyesight. The familiar Snellen test for vision thus cannot effectively measure objectively reliable vision. I shall briefly develop this point to illustrate, by way of a concrete example, how effective discernment of conceiver-independent truth is typically unavailable.

The familiar Snellen chart tests the function of the fovea, the most sensitive part of the retina. Clinical use of this chart assumes that the component letters, 'E', 'F', 'P', 'T', etc.—which subtend an angle of 5 minutes of arc at the eye's nodal point—can be identified 'appropriately' by the 'normal eye'. (Incidentally, many people can resolve letters subtending a smaller visual angle; accordingly, the letters on some Snellen charts are designed to subtend an angle of only 4 minutes.) Tests are typically given at a distance of 6 metres, or 20 feet. At this distance, the light rays from the chart's letters are roughly parallel, and the perceiver does not—or at least should not—have to strive to focus. If a perceiver seated 6 metres from the chart reads the line of letters subtending a visual angle of 5 minutes at 6 metres, we say that her vision is 6/6, or (in the foot-oriented United States 20/20). The numerator of the fraction indicates the distance at which the test is given. The denominator denotes the distance at which the smallest letters read subtend a visual angle of 5 minutes.

We cannot plausibly hold that 6/6 vision, by the standard of the Snellen test, qualifies as objectively reliable vision—vision conducive to objectively true visual beliefs. Testing for visual acuity relies on a standard of 'normal vision' determined by reference to how the 'typical human eye' actually operates in resolving the Snellen letters. The standard set by the subtending of a visual angle of 5 minutes arises from what is, liberally speaking, visually typical among the community of human visual perceivers. The 'typical' human perceiver, loosely speaking, clearly sees—without blurring, fuzziness or duplication— three bars of an inverted 'E' when she is standing 6 metres from the Snellen chart. Such visual experience, according to the Snellen test, is the standard for 'normal vision'.

Vision that is normal by the Snellen standard does not obviously qualify as objectively reliable or truth-conducive in a way pertinent to scepticism about realism. Normal vision by the Snellen standard is based loosely on an assumed statistical average concerning human visual perceivers, not on considerations purporting to indicate objective reliability of vision. A sceptic, in accord with Q3, will naturally question whether that statistical average is ever a reliable means to conceiver-independent reality. It is doubtful that we have any non-question-begging reason to hold that it is thus reliable. We cannot presume the reliability of our vision to provide non-question-begging reasons in favour of the reliability of our vision.

More generally, we cannot effectively rely on the deliverances of our belief-forming processes (e.g. perception, introspection, judgement, memory, testimony, intuition and common sense) to test the reliability of those processes regarding their accessing conceiver-independent facts. Appeal to the deliverances of those processes would beg the key question against an inquirer doubtful of the reliability of those deliverances and processes. The belief-forming processes in question need testing, with respect to their reliability, in order to provide non-question-begging support for the realist's claim to objective truth. The realist claims to know conceiver-independent facts about external objects. A doubtful inquirer will naturally

demand an effective, non-question-begging reason for the realist's claim. A question-begging reason will settle nothing in this philosophical dispute.

A sceptic's use of *Q1–Q3* bears on a wide range of positions commonly called 'realism'. This range includes each of the following species of realism: *weak* realism (i.e. something objectively exists independently of conceivers); *common sense* realism (i.e. tokens of most current observable common sense, and scientific, physical types objectively exist independently of conceivers); and *scientific* realism (i.e. tokens of most current unobservable scientific physical types objectively exist independently of conceivers). Michael Devitt has claimed that weak realism is 'so weak as to be uninteresting' ([7.28], p. 22). Even if it is, this is just so much coincidental biography. It does not excuse the realist from providing non-question-begging reasons in support of weak realism. The realist cannot plausibly follow Devitt in appealing just to our current science to settle epistemological debates about realism. The realist must, to defend against the sceptic, explain how our current science gives us the needed effective reason in favour of realism. It settles no philosophical questions simply to say, with Devitt, that 'scepticism [regarding knowledge of conceiver-independent facts] is simply uninteresting: it throws the baby out with the bath water' ([7.28], 63). One pressing question is whether the realist actually has a real baby—i.e. effectively supportable knowledge—to throw out. We cannot simply beg this question, if we wish to make genuine philosophical progress.

Questions under dispute in a philosophical context cannot attract non-question-begging answers from mere *presumption* of the correctness of a disputed answer. If we allow such question-begging in general, we can support *any* disputed position we prefer: simply beg the key question in any dispute regarding the preferred position. Given that strategy, argument becomes superfluous in the way circular argument is typically pointless. Question-begging strategies promote an undesirable arbitrariness in philosophical debate. They are thus rationally inconclusive relative to the questions under dispute. What is question-begging is always relative to a context of disputed issues, a context that is not necessarily universally shared. (For doubts about any purely formal criterion of vicious circularity in argument, see Sorensen [7.100].)

A pragmatic defence of realism, in terms of a belief's overall utility, fares no better than the well-foundedness properties noted above. A variation on Q3 applies straightforwardly: what non-question-begging reason, if any, have we to affirm that a belief's overall pragmatic utility is ever a genuinely reliable means of access to what is objectively the case? Clearly, it does no good here to note that it is pragmatically useful to regard pragmatic utility as a reliable means to objective truth. A sceptic, once again, seeks non-question-begging reasons. Given the aforementioned human cognitive predicament, we can offer little hope for the needed non-question-begging support on pragmatic grounds. Pragmatic support for realism is one thing; non-question-begging support, another. A sceptic demands, but despairs of achieving, the latter.

Even if realism has certain theoretical advantages over various species of idealism, it still must face a sceptic's worries about the absence of non-question-begging supporting reasons. Sceptics doubtful of the correctness of realism need not be idealists holding that an individual's mental activity creates all objects. They rather can plausibly hold that we lack non-question-begging reasons to endorse—to any degree—idealism as well as realism. Scepticism shuns *any* position that does not enjoy non-question-begging reasons; for question-begging support is really no support at all. The burden of cogent argument is now squarely on the realist's shoulders. The future of epistemology will reveal whether that burden is ultimately discharged.[16]

NOTES

1 The first published statement of Russell's abandonment of sense data is [7.86], 305–6. Cf. Russell ([7.92], 100).

2 See Neurath [7.68], 299–318. For a more detailed statement of some of the antimetaphysical views of the Vienna Circle, see Ayer [7.7].
3 Cf. [7.110], 200: 'The verification is not *one* token of the truth, it is *the* sense of the proposition.'
4 For some of the controversy, see Neurath [7.67], Schlick [7.93] and Ayer [7.5].
5 See, for example, Russell [7.82]. For James's reply see his paper 'Two English Critics' ([7.45], 146–53). For discussion of whether James's approach to truth includes a correspondence condition, see Moser [7.58].
6 For an exposition of Lewis's views on the given element in experience, see Firth [7.32] and Moser [7.60].
7 For a bibliography of works on foundationalism, see Moser ([7.65], 273–6) and Triplett ([7.106], 112–16). For some recent attempts to defend epistemic foundationalism of one sort or another, see Pollock [7.72], [7.73]; Cornman [7.27]; Swain [7.104]; Moser [7.59], [7.62]; Foley [7.33]; Audi [7.4]; Alan Goldman [7.36]; and Alston [7.2].
8 For a survey and assessment of some prominent views about the certainty of subjective beliefs about sensations, see Meyers ([7.52], chapter 3) and Alan Goldman ([7.36], chapter 7). Cf. Alston ([7.2], chapters 10, 11).
9 The view that reliable belief-forming processes confer epistemic justification has come to be known is *reliabilism.* Reliabilism of one son or another has been defended by Swain [7.104], Alvin Goldman [7.37], Alston [7.2] and Sosa [7.101].
10 For some indication of these debates, see BonJour ([7.13], chapter 3); Alston ([7.2], chapters 8, 9); and Moser ([7.59], chapter 4; [7.62], chapter 2).
11 For discussion of this and other versions of phenomenalism, see Ayer [7.6], [7.8]; Chisholm ([7.21], 189–97); Cornman [7.26]; and Fumerton [7.34].
12 It is noteworthy that the interpretation of Wittgenstein's *On Certainty* is a matter of controversy among philosophers. For efforts at interpretation, see Shiner [7.98] and Morawetz [7.57]. Another influential proponent of contextualism is Rorty [7.81]. For discussion of Rorty's version of contextualism, see Moser ([7.62], chapter 4) and Sosa ([7.101], chapter 6).
13 For some details on this general approach, see Pollock ([7.73], 180–93) and Moser ([7.62], chapter 6). On the history of the Gettier problem, prior to 1982, see Shope [7.99].
14 Michel Montaigne, 'An Apologie of Raymond Sebond', in *The Essays of Montaigne* (New York, Modern Library, 1933), p. 544.
15 For relevant historical discussion, see Striker [7.102] and [7.103] and Barnes [7.10].
16 A chapter of this size cannot deal with all the movements and issues characterizing twentieth-century epistemology. For some other surveys, touching on some different movements and issues, see Chisholm [7.22] and Hill [7.42]. I thank John Canfield for his comments on a draft of this chapter.

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CHAPTER 8
Wittgenstein's later philosophy

John V.Canfield

In thinking he simple. (Tao te Ching)

The early philosophy of Ludwig Wittgenstein (1889–1951) was inspired by the writings of Gottlob Frege and Bertrand Russell. The work of this trio of thinkers forms the stem from which twentieth-century analytic philosophy derives. Wittgenstein's particular influence first showed itself in Russell's 1918 lectures 'The Philosophy of Logical Atomism,' which were, Russell said, 'very largely concerned with explaining certain ideas which I learnt from my friend and former pupil Ludwig Wittgenstein'. Those ideas received their mature form in Wittgenstein's *Tractatus Logico-Philosophicus* (1921). The Vienna Circle philosophers studied this work closely and adopted some of its leading motifs. Rudolf Carnap has been perhaps the most influential of those who initially came under the book's spell. His writings in turn helped shape the position of W.V.Quine, the pivotal American philosopher of the second half of the century.

While elements of the *Tractatus* survive in Wittgenstein's later thought, the two systems differ fundamentally. The later philosophy had its beginnings in Vienna. Wittgenstein, after ventures as a primary-school teacher and monk-gardener, was engaged as an architect when his return to intellectual work was prompted by the Austrian philosopher Moritz Schlick. Starting in 1927, Wittgenstein met occasionally to discuss philosophy with Schlick and others. In 1929 Wittgenstein returned to Cambridge and took up full-time work in philosophy. It was there that his later views grew to completion. Although Wittgenstein never published material from his later thought during his lifetime, his ideas gained currency through his classes, dictated and privately circulated notes (now published as the *Blue and Brown Books*), rumour and various printed reports by others. Those who, through talking or studying with him, were marked by his vision of philosophy, include: Frederick Waismann, Alice Ambrose, Norman Malcolm, G.E.M.Anscombe, Rush Rhees and G.H.von Wright.

The *Philosophical Investigations,* the definitive expression of Wittgenstein's later thought, was published posthumously in 1953. Given Wittgenstein's reputation this book was bound to make an impact on the philosophical community. It was studied closely and mined for insight. It became a major focus of philosophical discussion, and some of its ideas and terms—the terms more than the ideas—became common coin in philosophical discussion. Nonetheless, in the following decades critical response to the book's ideas within the Anglo-American community tended to the negative. Evidently a philosophical world so strongly influenced by the early Wittgenstein left little room for the acceptance of the later philosophy's diametrically opposed position. Thus in the 1950s and 1960s a good deal of Wittgenstein's substantive impact was to provide an adversary view. Throughout this period critics often preferred to deal with the Wittgenstein they found in the secondary literature, thus letting themselves off the difficult job of engaging

the primary text itself. An essay by Kripke on rule-following, which appeared in 1981, inaugurated a more recent period of involvement with Wittgenstein's thought. Again the impact on contemporary discussion came largely through the secondary literature.

I believe the cycle has come round: we are entering a period of sustained concern with Wittgenstein's actual words. This return to the texts is long overdue; they contain riches as yet barely touched. For instance Wittgenstein's insightful *Remarks on Philosophical Psychology* is little studied by philosophers working in that area.

On the other hand, that for several decades now Anglo-American philosophers have tended to ignore Wittgenstein's *Nachlass* as a source of substantive insight is not surprising. Above all there is the difficulty of comprehending him. The challenge will be evident to anyone who looks through the *Remarks* just referred to, for example. It is hard, very hard, to see what Wittgenstein is about. The major obstacle is that he writes always from deep within his unique system of thought. Unless we have some sense of the main contours of that system we will find his prose strangely unintelligible. Each sentence taken by itself may be clear; what is hard to grasp is what the sentences are in aid of. What is Wittgenstein up to?

This essay is an attempt to make clear some of the fundamental ideas and assumptions of the *Philosophical Investigations.* I focus on the 'anthropological' element I find in the *Investigations* and on the book's appeal to the simple.

THE MOVE TO THE LATER PHILOSOPHY

Overall aim

In his early thought Wittgenstein took the goal of philosophy to be 'the logical clarification of thoughts' (*Tractatus,* 4.112). Consequently, 'The result of philosophy is not a number of "philosophical propositions", but to make propositions clear' (ibid.). And again:

> The right method of philosophy would be this. To say nothing except what can be said, *i.e.* the propositions of natural science, *i.e.* something that has nothing to do with philosophy: and then always, when someone else wished to say something metaphysical, to demonstrate to him that he had given no meaning to certain signs in his propositions.
>
> (*Tractatus,* 6.53)

The *Tractatus,* then, is anti-philosophical in intent; metaphysics is hidden nonsense. The *Investigations* also sees metaphysics as resulting from a misreading of language. The philosopher has been fooled by certain surface features of language. Wittgenstein's position is an extremely radical one. He saw himself as the last philosopher, remarking that in philosophy the one who comes in last wins the race ([8.12], 34). Last, because he viewed his work as destroying philosophy, at least in its classical metaphysical form. The cure for philosophical delusion remains the same as in the *Tractatus:* a direct confrontation with the actual facts of language. 'What we do', he says in the *Philosophical Investigations,* 'is to bring words back from their metaphysical to their everyday use' ([8.9], §116). The difference is in the nature of such confrontation. I shall begin by looking briefly at both sides of this contrast, illness and cure.

Grammatical fictions; metaphysical pictures

In the *Tractatus* all sensible propositions are pictures; they portray the way things are. In the later philosophy, in contrast, 'pictures' are the bad guys. They are what lead the philosopher into error: 'A picture held us captive. And we could not get outside it, for it lay in our language and language seemed to repeat it to us inexorably' ([8.9], §115). In the later philosophy, the analogue to the metaphysician is not the truthseeking scientist or austere logician, but rather that hopelessly muddled person, the King in *Through the Looking Glass,* who thinks the Messenger's report that he passed nobody on the road is about a person named 'Nobody'. The King is in the grip of a 'metaphysical picture', his Nobody an example of a 'grammatical fiction'. Because 'Nobody' in the Messenger's report has the look and surface-grammatical position of a name, the King misreads its depth grammar, taking it to be a singular referring expression; that is to say, he thinks 'nobody' refers to some particular person. His resultant, innocently insulting remark to the Messenger, 'So of course Nobody walks slower than you', is in reality not false but senseless. He speaks a word we understand, but uses it in a manner contrary to its nature, and thereby talks nonsense.

Actual metaphysical pictures are of the same type: a mistaken projection of the surface grammar of an expression. Our understanding is befuddled by a false analogy. For instance, one takes talk about one's intention to be talk about a certain mental something or other. The mistake is virtually forced on us by our language. We say things like: 'I intend to go to the store', or 'My intention is to go to the store', or even, 'I have the intention of going to the store.' When, as philosophers, we wonder about the nature of intention, we recall such examples. In reflecting upon them we already unthinkingly assume that if one has an intention, then surely one has *something.* What could that something be? It isn't anything physical, obviously. I couldn't put my intention in a box, or show it to someone. So it must be something mental. Perhaps a thought of my goal, or perhaps a decision—a mental act— to seek that goal. In 'I have lost my watch, but I have the intention of getting a new one', both 'intention' and 'watch' appear to refer to something. That simple false analogy provides the root strength behind the philosopher's subsequent discussions of intention—discussions that get very sophisticated and convoluted, while never transcending their origin in the absurd.

Again, the word 'I' in 'I think…', 'I intend…', and so on, has every appearance of being a referring expression. It is a basic question for metaphysics to settle the nature of that referred-to entity. For reasons I shall touch on below, Wittgenstein denies that those uses of 'I' refer. If he is right, the self of philosophy, the alleged or assumed referent in 'I think…' is a grammatical fiction; the 'I' of the metaphysician is pictured, not conceived.

There are two plausible objections to the points just made. The first is that in the last two examples the alleged nonsense-producing philosophical pictures are in fact correct. Intentions *qua* mental entities and Cartesian selves are real, not grammatical fictions. The second objection is that since no one will willingly give up philosophy, Wittgenstein's contrary attitude is preposterous.

With regard to the first objection, the strength of one's conviction that intentions are inner and that the I is real are acknowledged and indeed insisted upon by Wittgenstein. There would be no point in combating those views if they did not have such a powerful appeal. The theses that Wittgenstein fights against are ones that have a strong hold on anyone who begins to think about such matters. More than that, Wittgenstein's real target is not the elaborations of such ideas that one finds in the history of philosophy or in contemporary writings, but rather the root sources of those ideas: the compelling, deeply held intuitions that, for example, intentions must be inner, and that the I— this thing I talk about when I speak in the first person—is real. Such intuitions or strongly held, basic philosophical or proto-philosophical beliefs are the targets of Wittgenstein's critical examinations.

The general methodological objection, that Wittgenstein must be wrong in attacking philosophy *per se,* is initially persuasive. In one form the objection holds that since Wittgenstein grants the existence of various 'language-games' (see below) he must grant philosophy a role, since it too can be considered a language-game. But before making up one's mind on this point it would be well to comprehend fully the position one is rejecting. An essential part of doing that in the present case is to understand what philosophical 'pictures' are being contrasted with. Perhaps the greatest impediment to understanding Wittgenstein is the difficulty of grasping his positive account of the nature of language— his view of meaning as use.

Use

The major change marking Wittgenstein's later philosophy is a movement from his earlier mentalistic to a social view of meaning. The change becomes apparent if we look at a term central to both the *Tractatus* and the *Investigations*—the word 'use' *('Gehrauch').* If we took the following proposition from the *Tractatus* out of context it would fit right into the *Investigations:*

> §6.211. In philosophy the question, 'What do we actually use this word or this proposition for?' repeatedly leads to valuable insights.

This thesis, for example, seems congruent with the famous claim of the *Investigations* that, 'For a *large* class of cases…the meaning of a word is its use in the language' ([8.9], 43).

But 'use' has undergone a sea change in the transition from the one book to the other, and the agreement here is only on the surface. It is true that in both books *use* is the magical point at which mere signs—mundane things in the world—take on significance, become truly part of language. In the *Tractatus, use* is the mental projection of a propositional sign onto its sense by means of a thought. The view is broadly Fregean, and one finds something similar in such contemporary mentalists as Jerry Fodor [8.62]. In the *Investigations, use* has nothing to do with the mental; rather, it refers to something social. Wittgenstein takes his cue from the obvious fact that language is something exchanged between people. Words pass back and forth, and change the way we interact. For example, a request is made and complied with. Wittgenstein gives this notion of use *qua,* exchange a special interpretation. He holds that the symbol-token is used when it is put in play, when it is uttered in the *language-game*.

The notion of a language-game is perhaps the central term of art of the later philosophy. To understand Wittgenstein one must be able to see language as he did, namely as a collection of language-games. Thus one must understand what a language-game is. But one must also understand how to understand what a language-game is.

A language-game is a custom, a socially constrained pattern of interaction. The word 'game' here emphasizes the fact that word usage is inextricably meshed with human interactions. A word is analogous to a game marker of some son, a chess knight or an ace of hearts. These objects, themselves inert, take on their usual significance when they are in play. Particular patterns of interaction provide an atmosphere within which the objects live and function. Similarly the child's 'Juice!' functions as a demand only within a certain human context, a custom-regulated pattern of interaction where requests are acknowledged and sometimes complied with. But an explanation of 'language-game' in terms like 'pattern of interaction' doesn't take us very far; and the more general issue arises, of how to explicate any of the concepts we come upon in doing philosophy. We are led to questions of method.

But first let me tie together the ideas of 'picture' and 'use' discussed above, in order to state more clearly Wittgenstein's goal in his later philosophy. Higher-level concepts like intention are essentially linked to lower-

level practices; for example, one states what one is up to without using the corresponding high-level word 'intention'. We can approach the understanding of a given such concept either from the top or from the bottom. Here are two series of related utterances ordered from top to bottom. (1) 'I have the intention of going upstairs.' 'I intend to go upstairs.' 'I am going upstairs.' 'Upstairs!' (A child's one-word intention-utterance.) (2) 'I have the belief that the book is heavy.' 'I believe the book is heavy.' 'The book is heavy.' 'Heavy!' (A child's one-word belief-utterance.) Top-down elucidations try to explain or define one high-level concept in terms of others. For instance, 'intention' might be explained by means of 'prepositional attitude', or 'language' in terms, in part, of 'mental representations'. We end up giving elucidations in terms of concepts that themselves need elucidation. But as the child's holophrastic utterances exemplify, we learn to use words to state intentions or beliefs, and so on, before we learn meta-level concepts like that of intention and belief. Fruitful efforts at elucidation, the later Wittgenstein believes, follow that bottom-up order of learning.

We all display a perfect mastery of the ground-level linguistic practices. But we have no reflective knowledge of such usages. We haven't stood back and observed them. Instead, we turn our attention to a word like 'intend' or 'language' and try to think what such a thing could be. In this, Wittgenstein said in the *Philosophical Investigations,* we are like primitive men who form the strangest ideas of their own practices ([8.9], §194). The way out is to turn ourselves into own-culture anthropologists, and actually examine our practices. Examining the basic, lower-level word-uses is the proper way to a reflective understanding of the corresponding higher-level logical words. The result of that examination is to dispel the false picture we form by wrongly projecting words like 'intention', 'belief' or 'I' onto their supposed referent. In general then, confronting the pictures that lie at the roots of metaphysics with a survey of how the related pieces of language actually function is supposed to reveal the fact that our philosophical positions are at their base nonsensical. Thus Wittgenstein [8.9] writes:

> §464. My aim is: to teach you to pass from a piece of disguised nonsense to something that is patent nonsense.

The main exegetical strategy of the present essay is to show that nonsense-revealing method at work, primarily in the example of 'intention' and 'I'.

The reversal

The *Tractatus* was top-down in that it deduced its findings from the most general features of language, as in its famous proof of 'simple objects' (2.0211, 2.0212). It was top-down also in that it stated its results in abstract terms. The *Tractatus's* concern with the simple was thus rather misleading. The simplest proposition, the elementary one, is not known directly, in terms of examples; the latter do not interest the pure logician the author of the *Tractatus* conceived himself to be. One knows only that there are elementary propositions, and that they are made up of a concatenation of simple names that name simple, unanalysable objects. The core of this description is an assumed distinction between naming and saying. But the concepts both of naming and saying, in this special sense, are not given through instances; rather, one presupposes an abstract grasp of the concepts. The later Wittgenstein would say that we have only a misleading picture of such saying and naming, and no real understanding of them.

The reversal of that top-down approach is an essential feature of his later thought. The inversion is announced in this passage from the *Philosophical Investigations:*

> §108…. The [Tractarian logician's] *preconceived idea of* crystalline purity can only be removed by turning our whole examination round. (One might say: the axis of reference of our examination must be rotated, but about the fixed point of our real need.)

The real need is to understand the nature of language—where this is now seen as something that lacks an essence—and to understand those concepts that are central to philosophy. The reversal, I suggest, is the 180-degree turn from top-down to bottom-up. Instead of looking at the concrete and simple from the vantage-point of the abstract, examine and come to understand the abstract in terms of the simple and concrete. And specifically, in terms of *examples* of simple language-use.

The centrality of examples was announced in the *Blue Book:*

> The idea that in order to get clear about the meaning of a general term one had to find the common element in all its applications, has shackled philosophical investigation; for it has not only led to no result, but also made the philosopher dismiss as irrelevant the concrete cases, which alone could have helped him to understand the usage of the general term.
>
> ([8.6], 19)

Wittgenstein claims here that the only thing that will enable us to understand the concepts we are interested in are relevant 'concrete cases'. His emphasis on *simple* examples is evident at many places; it is seen in his practice of philosophy when he turns again and again to simple imagined examples, and when he urges us, at numerous points, to consider how a child might learn a given concept. For example his discussion of *belief* in the *Investigations* ([8.9], 190) opens with the question, 'How did we ever come to use such an expression as "I believe?"' What the child first learns will presumably be simple.

To make Wittgenstein's 180-degree reversal is to adopt a genealogical framework, where sophisticated uses of language are to be understood by comparing them to developmentally related simple ones. The reversal also involves focusing one's concern with language at the level of actual use. This is the basic level where one human engages with another in face-to-face interactions in the flow of daily life.

'Logic' in the Philosophical Investigations

In a way reminiscent of the *Tractatus,* the logician's goal is insight into the nature of language in general, and individual, philosophically important concepts in specific. One major difference is the surrender of the idea of the homogeneity of language, and the allied assumption that language has an essence. We can already see Wittgenstein approaching this result in his transitional 'Some Remarks on Logical Form'. There he abandoned the stance that the logician need not sully himself with actual examples, and tried to look in detail at possible analyses of colour propositions. As a result he had to abandon the idea that the logical rules governing language hold universally, across the board. The rule that if a point in visual space is one colour it cannot be another is now conceived, not as a hidden, truth-functional tautology (not, that is, as an instance of a general logical truth) but as a special rule holding of colour words. But such 'special' rules are still thought of as 'logical'.

The idea of Wittgenstein's transitional writing, as given in the manuscripts published in *Philosophical Remarks,* that words belonged to families, and that language is thus analysable into distinct calculi, with their own rules, developed in his later thought into the idea of embodied calculi, as it were, where words are employed in languagegames. Language thus comes to be conceived of as a collection of language-games. There is nothing in common among these 'games'; nothing that makes them part of language. They have no

shared essence. Rather essence becomes scattered. Each language-game has its own logic, its own unique rules and offices.

Logic remains, as in the *Tractatus,* the deepest part of philosophy. But the business of the logician has changed. It is no longer to investigate the universal presuppositions of propositions—general features of 'logical space'—but to investigate one by one the distinctive properties of the multifarious language-games. There is no longer *a* logical space; each language-game has its own unique logical space. The idea of coming in contact with the simplest case—the atomic proposition— only through abstract and very general characterizations is replaced by the idea of looking at, in the sense of actually observing, various simple examples of words in use. Wittgenstein's changed conception of logic is a natural consequence of his changed views on language. It should perhaps be emphasized that that view of logic is radically opposed to the standard one found in elementary logic courses.

For Wittgenstein the subject matter of logic is broadened enormously. Traditionally logic deals, for the most part, with propositions or truth-claims. From the point of view of someone impressed by the power of mathematics and science such a study would cover what matters in language. In contrast Wittgenstein points to a multiplicity of word uses beyond the scope of traditional logic. The list he gives in the *Investigations* provides only a limited idea of that diversity, but it is a starting point:

> Giving orders and obeying them…. Describing the appearance of an object, or giving its measurements…. Constructing an object from a description (a drawing)…. Reporting an event…. Speculating about an event…. Forming and testing a hypothesis…. Making up a story; and reading it…. Play-acting…. Singing catches…. Guessing riddles…. Making a joke; telling it…. Asking, thanking, cursing, greeting, praying.
>
> ([8.9], §23)

A Wittgensteinian logic takes language in all its variety, and with its full involvement with human life, as its subject. 'Logic' no longer deals with presuppositions common to all our contentful utterances, but with assumptions common to a type of utterance—where the types are counted in terms of language-games. To state the 'logical' presumptions of a given utterance is to describe the 'logic' or 'depth grammar' of the language-game it is uttered in. In one such language-game, for example, we make first-person intention-utterances, and one 'logical feature' of such utterances is that they are governed by a criterion of truthfulness, a point I shall discuss below.

What is the simple, that we might examine it?

The new 'logician,' unlike the old, scorns analysis of the son that tries to explicate a given concept in terms of its supposed meaning-elements. What then corresponds to the simple in the later philosophy, since Wittgenstein no longer believes in that product of analysis, the atomic proposition? What corresponds to elementary propositions, I believe, are what he sometimes calls 'signals'. These are utterances, often of one word, that play a role in a simple language-game, as in the example of the child's request 'Juice!' Instead of atomic propositions, words uttered in simple language-games.

There are two sources for such simple language-games. One is to make them up. The well-known example of the builders ([8.9], §2) supposes that in the only piece of language a tribe has, a builder cries out the names of various materials, such as 'Slab!' or 'Beam!' whereupon helpers respond by bringing the objects named. Such language-games allow Wittgenstein to discuss difficult problems in a sharply focused

way. But his imaginary examples may strike the reader as too schematic; it is hard to connect those simple games with our actual language.

I believe the examples work effectively only when considered along with another type of simple example. Wittgenstein alludes to such examples in his frequent admonitions to examine how a child might learn a given piece of language. (In addition to the example cited earlier, see: [8.9], 200; [8.11], I: §§163, 309, 346, 375.) If we carry out those suggested examinations in detail we can come to see his own made-up examples in the right light and we can gain an understanding of his many 'logical' remarks.

I suggest we drop the 'might' from the question about the child, and replace it with a 'does'—how in fact do children master speech? Observing them doing so can lead to a clear view of the simple language-games that form what is perhaps Wittgenstein's primary paradigm. There the conceptual link between learning and thing learned that Wittgenstein stressed (for example in *Remarks on the Philosophy of Psychology* [8.11], II: 337) becomes plain: observing children coming to a mastery of speech allows us to perceive the details of the language-games they master. Such examples are to be our tutors. They will lead us to an understanding of two things: the puzzling terms of art Wittgenstein employs, including 'language-game' and 'use,' and second, the concepts of central interest to philosophy, such as *intention, reference* or *self.* That appeal to the simple is a Wittgensteinian, bottom-up approach to understanding Wittgenstein. This line of interpretation develops suggestions by Norman Malcolm ([8.34], 133–53) concerning Wittgenstein's claim that language is an extension of action.

It might be argued, however, that there is an element in Wittgenstein's thought inconsistent with a genetic approach. He sometimes makes the point that our present way of speaking and acting could conceivably be what it is independently of what we were taught as children ([8.6], 12). If so, then the connection between the child's early language and the language of the adult would be broken; learning about the former would not teach us about the latter. But here and in similar passages Wittgenstein is talking about a causal connection; he is making the point that one can conceive, for instance, of someone just inheriting a capacity to speak without his having been educated or trained in language. The focus of my concern with tracing paths from the child's language-games to the adult's is not causal; the causes of the adult's speech behaviour are not in question. What is in question is the nature or character—the shape and function—of that behaviour. The hypothesis I attribute to Wittgenstein is that getting clear about the character of the child's language-games tells us something about the adult's. The patterns may be similar, whether or not there is a causal connection between the two. Finding the simple pattern in the more complex, or seeing the more complex as a variation of the simple, provides insight of a sort into the complex. Analogously, examining a primitive internal-combustion machine may help us understand the workings of a later, more complex version even if the later one sprang independently of any prototypes from the mind of its inventor, so that there exists no causal connection between the two variants.

THE ROOTS OF LANGUAGE

Action

I have been underscoring Wittgenstein's primitivism. The present section enlarges upon his appeal to the primitive, in part by introducing a threefold typology of 'proto-type,' 'gestural stage' and 'primitive language-game'. This categorization is implicit in Wittgenstein, and stating it helps us understand him. Some readers may object that the subsequent discussions of language-learning and primate behaviour have no place in an introductory presentation of Wittgenstein, and certainly the discussions will sound strange in comparison to standard accounts. My justification is that the following remarks emphasize two crucial,

interconnected elements of Wittgenstein's later thought that are often overlooked or underplayed. One is his bottom-up approach, the other is his assumption that language is an extension of action.

'Instinctive' behaviour

I have already introduced the first point, and shall start here with the second, in particular with some quotations establishing the interpretive thesis that for Wittgenstein language is an extension of action patterns underlying early speech. The following passage from *On Certainty* [8.13] shows the 'logician' explicitly concerned with the primitive:

> §475. I want to regard man here as an animal; as a primitive being to which one grants instinct but not ratiocination. As a creature in a primitive state. Any logic good enough for a primitive means of communication needs no apology from us. Language did not emerge from some kind of ratiocination.

The essay 'Cause and Effect: Intuitive Awareness' is central for understanding Wittgenstein on the primitive. He writes there, for instance:

> The origin and the primitive form of the language-game is a reaction: only from this can more complicated forms develop. Language—I want to say—is a refinement, 'im Anfang war die Tat' [In the beginning was the deed.]
>
> ([8.8], 420)

Instead of 'primitive form' he later speaks of the 'proto-type' of the language-game (ibid., 421). He speaks of 'instinctive' behaviour, as when a person 'instinctively' (or perhaps better, *naturally*) looks from the effect to the cause, for example looking to see what has just stung him (ibid., 410). He also refers to the 'biological function' of these 'primitive forms' of behaviour:

> The [language-]game doesn't begin with doubting whether someone has a toothache, because that doesn't…fit the game's biological function in our life. In its most primitive form it is a reaction to somebody's cries and gestures, a reaction of sympathy or something of the sort.
>
> (ibid., 414)

Wittgenstein believes we can gain insights into our concepts by examining their roots in primitive or natural forms of interactive behaviour:

> Believing that someone else is in pain, doubting whether he is, are so many natural kinds of behaviour towards other human beings; and our language is but an auxiliary to and extension of this behaviour. I mean: our language is an extension of the more primitive behaviour. (For our *language-game* is a piece of behaviour).
>
> ([8.11], I: §151)

The child naturally comes to participate in the primitive behaviour patterns basic to language. Thus consider the acts and responses connected with request words. At the earliest stage the child simply cries when hungry, or cold, or wet, and so on. Then the mother responds, say by bringing it to her breast, whereupon

the child does its part by suckling. Similarly, there is the interaction pattern of the child's reaching towards something, and the mother's response of handing it to the child.

Such interactions arise naturally, without any drill or explicit instruction, between child and caretaker. They support the development of language, which could not arise without them. I shall call the basic stage of interaction just discussed the language-game's proto-type. The proto-typical behaviour occurs at a stage preceding even the simplest symbol use, as it precedes the simplest use of what I shall call natural gestures.

Intention

In the interaction underlying the child's mastery of intention-language the mother responds to what she sees the child is up to. She might react by calling out a warning, and the child in turn might respond to her fear-laden voice by stopping in its tracks. We might speak here of the child's *projects*—its being engaged in doing something, for example, feeding itself with a spoon, putting small stones one by one into a can or buttoning its shirt. Such actions are paradigmatically voluntary ones ([8.11], II: §270). In the language-game proto-type in question, then, the child is engaged upon some project; the mother observes or anticipates the child's project and reacts appropriately, and the child in turn may respond to that response. This action pattern is rooted in our animal nature, in particular in our ability to anticipate one another's actions and our propensity to respond appropriately. The same anticipation and similar responses are found among apes.

The gestural stage

Natural gestures arise in the context of, and are inseparable from, such proto-type behaviours. An underlying action pattern is modified, emphasized or added to, in a way that brings it to the other's attention, and thus it becomes a natural gesture. For example one might turn an action into a gesture by performing it in the absence of the interactive behaviours normally preceding it.

The biologically based nature of such primitive gestures can be seen in examples from primate studies:

> In order to groom [the chimpanzee infant's] side and armpits, [the mother] takes his arm and pulls it upwards. [Later] the infant…adopt[s] this posture unaided while his mother grooms him…. At the age of 11 months an infant…came up to his mother, sat down in front of her and adopted this posture…. Almost predictably, his mother groomed him.
>
> (Plooij [8.75], 117)

Similarly Plooij speaks of, 'The development by human infants of an arm-raising gesture which at first appears in the infant's repertoire as a passive response to being picked up and later becomes an active request to be picked up' (ibid.).

Here is an example of a natural gesture of intention. A pre-verbal child, moving towards the steps and obviously aiming to climb them, stops, turns its head and makes eye contact with its mother. In doing so the child calls attention to its crawling towards the stairs, using a natural gesture indicative of what it is up to; its look, in that context, signals its intention to climb the stairs. The mother may respond by walking up the stairs behind the child, allowing it to hone its developmental skills while ensuring its safety. The gesture cannot live outside the context distinctive of the

corresponding proto-behaviour. That is, it cannot be *that* gesture outside that particular context. For two reasons. One is that context disambiguates a gesture; the same motion can be a request- or an intention-

gesture, depending upon the context. A second, more radical reason, is that a social group cannot employ, say, a gesture to initiate grooming if they are not creatures that groom one another. Nor give an intention-gesture if they are not creatures who do anticipate and respond to one another's projects.

The simple language-game

The natural gesture seems to say this: take up the usual interaction pattern at this point. There is the interaction pattern of the infant chimp climbing onto the mother to be transported. The gesturing mother is saying in effect, take up the climbing-aboard routine now. Or, in the instance of the baby's stopping to make eye contact: take up the routine of your responding to my crawling to the stairs and climbing them. The gestures are a stylized overlay upon the prior naturally existing interaction pattern.

A further and crucial stylization is made within the same protoforms: one-word language-games develop from within the proto-type or its gestural embellishment. The word is no mere simple embellishment or stylization of the foundational, proto-behaviour. The word *qua* symbol-token is so stylized that its connection with the job it performs is purely conventional, and in that sense arbitrary. Any other short and readily pronounceable or readily perceived token-type would have served the same purpose equally well. This arbitrary thing, the word, or other symbol, replaces the gesture and takes over its function. In moving spontaneously to a use of one of its culture's words the child steps into language.

In the simple language-game the symbol *qua* signal takes over the role of the gesture, which in turn took over the role played by the mother's observation of the child within the proto-typical behaviour pattern. The word stands in for the gesture and does the same job. For instance, the child might say 'up' instead of gesturing with a look; the word, like the gesture, tells the mother what the child is about. Language is thus an extension of an underlying action pattern; and we see the point of Wittgenstein's quoting Goethe's 'In the beginning was the deed.' The symbol is the symbol-token employed in the corresponding language-game. To have a concept—to know the symbol—is to be able to use the symbol-token in the language-game. Grasping a concept is a matter of having a certain skill, not a matter of connecting some idea, 'sense' or referent to a symbol-token.

In being able to speak its intention the child manifests two linked abilities. The first is one shared with any number of animals—it is to evince the behaviour we call acting with an aim. It is to pursue a project. The second ability is, it seems, unique to humans, at least if we confine the contrast to animals in the wild. It is to speak a word or otherwise provide a symbol-token that indicates the end point of the project the person is in fact engaged upon.

While this later ability is (with the earlier qualification) unique, it is but a small embellishment of a capability which is not unique—the talent of indicating one's project by a natural gesture. The passage to speech does not cross some great ontological divide; there is no fundamental difference between us and other animals. In fact, captive chimpanzees can learn to 'express their intentions' in symbols. Here Wittgenstein, as opposed say to Chomsky, is a Darwinian [8.57].

From the primitive to the sophisticated

The child's one-word uses look back to more primitive stages, and forward to sophisticated adult uses. Developments that lead towards our complex everyday talk of intentions include the use of intention-utterances of two or more words such as 'Climbing chair'. The end point of a project is now indicated by several words, one betokening an action and the other the object to be acted on. The function of the intention-utterance—to betoken the project's end point—remains unchanged.

Ordered intention-utterances, such as 'Jump first, then shirt', are another development from the holophrastic phase, as are a child's later conditional intention-utterances, such as: 'When I get to Daniel's I'll have a drink of juice.' Eventually, with the learning of clock and calendar time, the child will come to amalgamate temporal references and intention-utterances to produce statements like 'I'm going upstairs at seven o'clock.'

Simple intention-utterances stand at the base of one of the major branches of our language. Promising, making assignations, exhorting someone, deliberating all presuppose or in some way incorporate the early simple language-game of intention-utterance. In general simple language-customs grow out of proto-typical interaction patterns; in turn the simple customs change, grow and combine into the multitude of complex ones we participate in daily. At the far end of that evolution are language-games of extreme complexity such as theoretical physics, but even these retain their roots in the primitive.

For Wittgenstein a perspicuous way of viewing adult intentionutterances is to compare them with the core interaction pattern present in the language-game proto-type. A statement like 'I'm going out to get a paper' has a clear similarity to the child's 'I'm going upstairs' gesture. Both reflect that earlier pattern of anticipation and response.

The child learns its language by mastering an increasingly complex set of interaction patterns—customs—in which words, like tools, serve various ends, have various functions. This transition to increased complexity and variety nowhere requires a passage from word use to mentally resident concept. The players learn more language-games and more complicated ones; but that never requires any inward, mental playing.

Third-person intention-statements; syntax

The one-word intention-utterances I have described are first-person uses. The child also masters third-person uses attributing intentions to others. The distinction between the two types of use is critical and I shall discuss it later in the section on *Äusserungen* (pp. 269–71). Here I shall confine myself to a few observations about 'I'.

To master the third-person uses the child must learn to deploy two distinct criteria. One governs whether or not the person referred to has the intention in question. Here the child will rely upon what it observes, including what the described person may say. The second criterion concerns the identity of the described person. The child must be able to pick out the person named 'Daddy' or referred to as 'you', and so on. Neither of these criteria operate in the first-person case. The child does not base its intention-utterance on self-observation, or, of course, upon hearing its own utterance. Nor does it deploy some criterion to establish that it is the person whose intention is being stated. As Wittgenstein put it, the speaker here does not choose the mouth through which it speaks ([8.6], 68). Similarly, when the child indicates what it wants by a gesture, it does not choose the arm with which it points. It simply points, and in the other case, it simply says 'Upstairs'.

Consider the syntax of first- and third-person intention-statements. The regimentation of syntax operates upon symbol-token uses. In the simplest third-person intention case two functional elements are regimented, one betokening the end point of the person's project, the other indicating whose project it is. In 'Daddy upstairs', both functional places are filled. 'Daddy is going to go upstairs' is a correctly regimented, or grammatical, version.

In the first-person case the regimentation of grammar requires that a word occur where there is no corresponding function. Here the child initially does not betoken itself; and as far as function goes there is not and need never be a need for such a betokening. The child employs no criterion of identity to pick itself out; and the hearer, being in the presence of the child, and observing that it is the child who speaks, needs

no word to tell it who is speaking. The child's 'Upstairs' matches functionally the role the utterance plays. But grammar requires regimentation into subject and predicate, and so the child learns to embellish its 'Upstairs' and to say instead something along the lines of 'I am going upstairs.' These reflections lay the ground work for understanding Wittgenstein's rejection of the idea that 'I' is a referring expression.

TERMS OF ART

I shall now show how the examples discussed above shed light on some of the later Wittgenstein's ideas.

Use; language-game

To use a word is to utter it in a language-game. But what is a language-game? A folk-philosophical criticism of Wittgenstein is that he fails to answer that question, in that he supplies no 'criterion of identity' for 'language-game'. What he fails to supply, presumably, is some topdown account of when something counts as a given language-game. By his own lights, however, Wittgenstein does not owe us a top-down elucidation of 'language-game'. Defining his technical terms by means of one another is bootless; defining them in a non-circular way in ordinary speech or in someone else's system is impossible. What one really needs to learn is how to use the term; and one can. The proper answer to 'What is a language-game?' is: this is one, and this, and this, and so on. Presented thus the answer may seem lame, but it is another matter if the this's refer to detailed and closely examined examples, for instance of the sort indicated in the previous section. The answer to the objection then is to reject the possibility of a useful top-down definition or analysis of 'language-game'. The concept is to be communicated rather by means of examples and remarks about them.

In introducing the term 'language-game' in the *Investigations,* Wittgenstein appeals to examples from a child's mastery of language. He writes:

> §7. We can also think of the whole process of using words in (2) [the slab-beam language] as one of those games by means of which children learn their native language. I will call these games 'language-games' and will sometimes speak of a primitive language as a language-game.

When Wittgenstein says, 'I call these games "language-games"', the reference class is 'games by means of which children learn their native language'. But the latter phrase is misleading. Wittgenstein does not mean merely that the 'games' in question have the heuristic function of getting the child to learn some further piece of language. Rather, what the child learns in those cases *is* language—primitive, simple, but *bona fide* language.

In the *Blue Book* Wittgenstein introduces 'language-game' as follows:

> Language-games are the forms of language with which a child begins to make use of words. The study of language-games is the study of primitive forms of language or primitive languages.
>
> ([8.6], 17)

Here it is less obvious, but nonetheless true, that the explanation is in terms of examples; on the other hand the passage says more clearly than does the *Investigations* §7 that the paradigmatic instances are children's simple language-games. His reason for introducing the idea of a language-game, and thus turning our attention to the phenomena in question, is also made clear in the *Blue Book:*

> When we look at such simple forms of language the mental mist which seems to enshroud our ordinary use of language disappears. We see activities, reactions, which are clear-cut and transparent. On the other hand we recognize in these simple processes forms of language not separated by a break from our more complicated ones.
>
> ([8.6], 17).

I have mentioned only a few such 'simple forms of language'. A more complete answer to the question 'What is a language-game?' would consider numerous others. A fundamental tenet of Wittgenstein's is that language-games are widely diverse.

Wittgenstein's use of 'use' is also to be learned through examples, and indeed the same ones as before, 'use' and 'language-game' being linked terms. Certain words *qua* sounds take on 'meaning' by being used, that is by being proffered within a language-game. Wittgenstein's use of 'use' is peculiar to him, being parasitical on his unique conception of a language-game.

Function

This word is used originally with regard to artifacts and machines. Biologists apply it, by analogical extension, to animals and plants. Wittgenstein further extends its use to the case of words that play a role in language-games (see, for example, [8.9], §555).

In its original use 'function' is applied at three different locations. Parts of an artifact have functions in so far as they contribute to the functioning of the whole. The artifact itself has a function. We also speak of the function of a function: of the role an artifact with a particular job plays in the life of the people who employ it. This stoneage tool drills holes in rock, but what did the people who made it want such holes for?

Different words, like the various parts of an artifact, function differently in a given utterance. One word in a sentence may indicate when something will be done, and another what that something is. Or compare the various jobs of the words in Wittgenstein's example of the request 'Five red apples' ([8.9], §1). The various language-games themselves have functions—for instance to state intentions, or requests. And that a language-game has such a function may be useful for a people in various ways.

Some characterizations of Wittgenstein on 'usefulness' collapse that threefold distinction of function of part, function of whole and function of function (for example Kripke [8.68], 294).

Family resemblance

As noted, the later Wittgenstein rejects his earlier search for the essence of language, in the sense of some feature or group of features necessary and sufficient for something to count as speech. He compares the concept of language to that of a game. What do all and only games have in common? One will be unable to give a non-circular answer. Examining various games will reveal the same sort of thing one might find in examining a family portrait. Granddad and Junior may have the same-shaped nose, Junior and Sally may have quite different noses but closely similar eyes, and so on. In the case of games this means that something is admitted to the family not because it has the common and defining features of a game; there are none. It is admitted rather because it has some of the properties of standard examples of games. Wittgenstein is not saying we cannot distinguish games from other things. Warfare is no game, nor is ordering pizza, and so on. We distinguish games from non-games but not on the basis of necessary and sufficient properties. When all the features of some newly invented activity are plainly visible and noticed, to call the thing a game is not to make a hypothesis, but rather to make an implicit decision to count this in

the class of games. Wittgenstein thinks that in addition to 'language' and 'game' many ordinary concepts are of the family-resemblance type. 'Rule' and 'expectation', for example.

Criteria

As ordinarily used a 'criterion' may be evidence or it may be something stronger. In the *Blue Book* Wittgenstein says he shall use 'criterion' in that second way. Thus he distinguishes symptoms of angina from phenomena that establish the presence of angina in virtue of rule of language. Suppose that angina is defined by medical science as 'an inflammation caused by a particular bacillus' ([8.6], 25). Then:

> I call 'symptom' a phenomenon of which experience has taught us that it coincided…with the phenomenon which is our defining criterion. Then to say 'A man has angina if this bacillus is found in him' is a tautology or it is a loose way of stating the definition of 'angina'. But to say, 'A man has angina whenever he has an inflamed throat' is to make a hypothesis.
>
> (ibid).

The many discussions of criteria in the secondary literature sought to establish more clearly what Wittgenstein's conception is. In doing so they concentrated on the example of pain, which does not fit too well with the symptom-definition distinction just presented. Wittgenstein was widely believed to have accepted two claims: (1) the criteria for a person's being in pain are behavioural, but (2) the behaviour in question may be present even though the person is not in pain (it might be a case of pretence, for instance). How, in the face of the phenomenon of pretence, could it be a 'tautology' that someone's behaving in the way normally indicative of pain really is in pain? To surmount the difficulty it became common to say that Wittgenstein accepted behavioural criteria for psychological predicates, but held some fancy view about the nature of the connection between criterion and inner state. He was said by some, for example Gordon Baker [8.53], to have discovered a new logical relationship, halfway, as it were, between empirical support and entailment. Some called the relationship that of 'necessary evidence': that such and such behaviour is *evidence* for saying a person is in pain is itself a necessary or conceptual truth (Hacker [8.25]). Again, the alleged virtue of the 'necessary-evidence' interpretation of criteria is that it saves us from a wrong commitment to definitional criteria in cases like pain-allegation.

Wittgenstein, however, gives a different account of the phenomenon of pain-attribution, one that reflects the developmental or genealogical aspect of his thought. He writes, for example:

> If pretending were not a complicated pattern, it would be imaginable that a newborn child pretends.
>
> Therefore I want to say that there is an original genuine expression of pain; that the expression of pain therefore is not equally connected to the pain and to the pretence.
>
> ([8.15], 56)

The language-game allowing judgements of pain comes before—is logically prior to—one allowing judgements of pretence. When Wittgenstein says that the behavioural expression is not equally connected to the pain and to the pretence, he means that the fundamental connection is to pain; the behaviour can only be counted as pretence against a further complicated background of conditions that block the normal move to an ascription of pain.

The person who applies a criterion does so while situated in certain life circumstances, as a fly-fisher casts a line while standing in a stream. The person need not be able to describe the circumstances; need not

even be aware of them as such. They are the place he operates from. For a criterion to be met those circumstances—of everyday normal life—may be required. The mother who judges her child to be in pain does so against a background of such normal circumstances. She makes the judgement without first establishing that those circumstances obtain. It is a rule of language—a truth of implicit definition—that in those circumstances that behaviour establishes that the child is in pain. There is no need here to appeal to a special relationship of 'necessary evidence'. This is so even though we can imagine a case where what appears to be identical behaviour is present and the pain absent (Martians secretly substitute an android for the baby, and so on). In other, more complex cases, indecisiveness is built into the rule governing the application of psychological predicates. In some such cases the rule dictates there is no telling—say about whether a person is sincere or pretending ([8.15], 59).

Questions of circumstance enter into philosophical discussions of criteria in another way. Philosophers' debates over 'personal identity' often deal with questions like this: if Jones enters a matter-transportation booth, disappears, and an identical person appears in the receiving station, is it Jones? If two identical people appear in two receiving stations, is either Jones? Are both Jones? Here the philosopher appeals to our intuition to make judgements about such cases; the philosopher then tries to discover criteria of personal identity that capture those intuitions. If as Wittgenstein believes ([8.9], §80) criterial rules govern judgements only within normal circumstances of application, such appeals to intuition are bogus; in making judgements about those outré cases one is, by implicit stipulation, extending the rule to cover those cases. Before such extension the questions have no right or wrong answer, because our concepts are geared to work in the world as it is and do not come complete with a decision procedure for every possible case. So the interesting question is not what our intuitions are, in such cases, but rather what stipulative extensions of the normal concept those intuitions presuppose.

Äusserungen

This is one of the later philosophy's most significant technical terms; it is used in contrast with certain closely related *descriptions.* Writers have discussed *Äusserungen* under the rubric 'avowals'. I find that term misleading and since I can discover no suitable single English rendition, I shall use the German. As an approximation (but see the caveat below) *Äusserungen* may be defined as first-person present-tense psychological assertions. 'I am in pain' and 'I intend to go' are *Äusserungen;* 'I was in pain', 'He is in pain', 'I intended to go,' and 'She intends to go' are descriptions. The distinction between *Äusserungen* and descriptions is at the core of Wittgenstein's philosophy of psychology.

Whether something is an *Äusserung* is not solely a function of syntax. A sentence such as 'I am afraid' may sometimes express an *Äusserung* and sometimes not. If my words are as it were a groan of fear, they are an *Äusserung;* if, in contrast, they report the results of my reflecting on how I have been behaving during the day, they constitute a description ([8.11], I: §832; II: §156). In the latter case my words are a description since they are based on my observations or remembrances of how I have been acting.

In its primitive, one-word form an *Äusserung* replaces a gesture inside some language-game proto-type. An exaggerated or deliberately prolonged groan of fear might be replaced, in a later case, by a word like 'Afraid!' Or the looking gesture I have discussed by the word 'Upstairs!' The word in each case is no more a description than is the gesture it replaces. The first gesture says in effect, 'Take up the responding-to-my-expression-of-fear behaviour', and that is no description of an inner state. Similarly for the other case. If 'I am afraid' serves the same function as 'Afraid!' in the above example, then it too is an *Äusserung.* Assertions of third-person psychological predicates function differently; for one thing, they are subject to distinctive truth-criteria. Thus my judgement that *she* intends to go upstairs will normally be made on the

basis of observation of her behaviour. Perhaps she told me where she is going, or I saw her get up and move towards the stairs, obviously intending to climb them. My first-person intentionutterance—at least in the standard case reminiscent of the child's one-word intention-utterances—is not based on observation. 'I intend to go upstairs' is not said on the basis of my seeing how I behave, nor on the basis of looking within and becoming aware of some inner intention-state.

One reason for thinking that utterances like 'I intend to go!' do nevertheless describe the inner is that the one who makes them is certain they are true; whereas with regard to third-person remarks like 'She intends to go' there is uncertainty: perhaps for all I know she does not really intend that. The alleged explanation for this asymmetry is that the speaker is directly aware of his inner state of intention, while he cannot be aware of the inner states of another person. Wittgenstein's concept of an *Äusserung* yields an alternative account of the asymmetry. The idea is that the certainty in the first-person case is a feature of the language-game in which the utterance is made. In particular, *Äusserungen* are governed by what he calls a criterion of truthfulness: unless the speaker is lying or otherwise fooling around, what he says is true ([8.9], 222). The language-game itself allows no room for an honest mistake. This feature carries over from a stage in the unfolding of language that precedes doubt and uncertainty. This is an early phase, encountered in simple language-games of children where questions of uncertainty or doubt simply have no place. The question 'Does it really want that?' makes no sense in reference to the child from an earlier example who is making a grasping gesture directed at a toy. When the child has learned to ask by name for things, doubt and uncertainty are still precluded. In context the child's request 'Ball!' allows no uncertainty about what it seeks. That early pattern of request and response can be altered later into one where doubt is in order. A psychoanalyst may doubt the truth of a patient's desire-report, while granting its sincerity. But now a new twist has been added to the language-game; new criteria introduced. The primitive stage—the original languagegame—is not outgrown. The earlier use of request words survives and is honoured throughout the speaker's life; it is the main branch from which the psychoanalytic pattern is an offshoot. Similarly, at any stage we may revert to a language of gestures in order to communicate, as we might have done as children, what we want from another. The language-game of a bygone time may once more be in play, just as the simple language-game, with its criterion of sincerity, is often in play between adult speakers. When the child has mastered the relevant piece of language there is no room for doubting whether it really is afraid when it sincerely says it is—on the assumption that its 'I am afraid' can be seen as a replacement for the earlier, primitive, *Äusserung* 'Afraid!' Whereas in the *description* 'I am afraid', based on self-observation and memory, a sincere mistake is possible.

Äusserungen do not describe the inner. That feature was noted in my previous discussion of intention-utterances. That intention-*Äusserungen* do not function to point to something internal to the speaker is shown by the fact that the hearer has no interest whatever, here, in the inner life of the speaker. Be that as it may, the important point for the hearer is what the speaker is up to. *That* is what the speaker wishes to communicate, and what the hearer responds to by some appropriate act. We can observe the feature in question quite clearly when we consider simple language-games of the kind discussed earlier. Wittgenstein puts the point graphically:

> Does something happen when I…intend this or that?—Does nothing happen?—That is not the point; but rather: why should what happens within you interest me? (His soul may boil or freeze, turn red or blue: what do I care?)
>
> ([8.11], I: §215)

The distinctiveness of first-person psychological utterances is important for Wittgenstein because the mistaken idea that *Äusserungen* are descriptions leads to philosophical confusion. If for example 'I am in pain' describes something, it must obviously be something inner; and thus is born the idea of pain as an inner object. And so too for the range of psychological terms of interest to philosophy, including intention and belief. In short the 'logical' observation that intention-utterances and the like are not descriptions helps destroy the false picture of those utterances that underlies the metaphysical hypostatization of mind.

The bedrock of language

Section 201 of the *Philosophical Investigations* reads in part:

> There is a way of grasping a rule which is *not* an *interpretation,* but which is exhibited in what we call 'obeying the rule' and 'going against it' in actual cases.
>
> Hence there is an inclination to say: every action according to the rule is an interpretation. But we ought to restrict the term 'interpretation' to the substitution of one expression of the rule for another.

Wittgenstein's point is that the instances in which we interpret something—whether a rule, or a remark—are underwritten by cases in which we simply act according to a rule, or simply respond to a remark.

In a normal case the mother does not interpret her child's reaching and pointing gesture; she simply responds, perhaps by giving the child the object it wants. She reacts similarly to the child's one-word request-utterance. The language-game is one of verbal act and response: complying, refusing, pointedly ignoring, suggesting an alternative, and so on. One pitches, the other catches. It is like a baboon troop-leader's gestural offering to carry one of its females past a dangerous point; a matter of gesture and, immediately, response.

A rule of the simple language-game is that the mother's response centres on the object the child has named; *that* is what she gives the child, or what she refuses it, and so on. Once the language-game has been established, the mother's behaviour constitutes a 'way of grasping a rule which is not an interpretation but which is exhibited in what we call "obeying the rule"'.

The bedrock of language is such patterns of action and response comprising the simple language-games and their more elaborate forms. Questions of whether a word should be interpreted this way or that, or of whether a certain action is in accordance with a given rule, presuppose those earlier forms, where questions of interpretation have no place.

Those basic interaction forms count as customs:

> To obey a rule, to make a report, to give an order, to play a game of chess, are *customs* (uses, institutions).
>
> ([8.9], §199)

If we add 'to make a request', and 'to state an intention' we can see more clearly the truth of that remark. Simple language-games are customs, in that they are elaborations of naturally existing interaction patterns. In these elaborations certain arbitrary elements—words—play a role. That these words function as they do is not solely a matter of some natural or instinctive bit of behaviour being implemented. Rather it is in part a question of what the customary usage is; a matter determined by the culture. Another tribe will employ another word. But the language-game proto-type in which the various alternative words function is common to the different tribes:

> The common behaviour of mankind is the system of reference by means of which we interpret an unknown language.
>
> ([8.9], §205)

To interpolate some inner activity of meaning assessment that supposedly mediates between, say, the hearing of a request and the response to it is to add a head to the head we already have (to borrow an expression). This sort of interpolative fallacy is plain in the following example. To explain a baby's smiling at the appearance of its mother one might suppose—some social scientists have indeed hypothesized— that the baby inwardly consults a series of stored images of those it favours, compares the images to its present visual perceptions and smiles when it gets a match (Sroufe and Waters [8.80]). But then how does it recognize a match between perception and image? Does it do so by interpolating a series of images of matches between face-images and face-perceptions? That way lies an infinite regress. But if one supposes the baby just does recognize the match between image and perception, why not suppose that it just does recognize its mother? That the baby responds in that way to its mother, to the one who has fed and protected it since its birth, appears a basic feature of human biology. The inner machinery alleged to explain that response does no real work. The natural, just plain recognition of its mother, its just plain smiling in that situation, *sans* benefit of any supposed inner intermediaries, is a model for language response, in Wittgenstein's view. For example our ability, when raised in some normal social context, to signal where we are going by uttering a certain sound is one of our natural talents; we do it, just as we, or for that matter any number of other animals, just often do anticipate, in the basis of what we see, where another is headed. And here don't think of anticipation as something mental, something inner.

Private language

The most famous sequence of passages in the *Investigations*—roughly sections 243 to 315—opposes the possibility of a private language. The topic has raised a huge exegetical literature. In considering the subject the first question to be asked is: what does the private-language argument repudiate? Intuitively the idea is this. We naturally suppose that pains, thoughts, emotions, and the like, are inner things of some sort. As such they are private in a special way. Someone might have a pain exactly like this one of mine, but cannot possibly have *it.* I might let some made-up word or mark stand for that private object. The word says in effect 'There is *this!'* Now while the *this* lies forever beyond anyone else's grasp it is certainly within mine. My word for it would belong to a private language of the sort Wittgenstein sets himself against. The topic is important because the possibility of such a private language is a natural consequence of an assumption that Wittgenstein again and again rejects—the postulation of the existence of a realm of special, mental entities.

Where I spoke above of an intuition Wittgenstein would speak of a 'picture'. Our ordinary day-to-day speech, where we issue both ground- and meta-level statements, stands in contrast to metaphysical parlance where we employ everyday words but understand them in terms of some misleading picture and thus in a manner contrary to their actual depth grammar. A 'private language' is above all something we picture.

In the following well-known passage in the *Investigations* the distinction between ordinary speech and metaphysical picture is crucial:

> §256…. What about the language which describes my inner experiences and which only I myself can understand? *How* do I use words to stand for my sensations?—As we ordinarily do? Then are my words for sensations tied up with my natural expressions of sensation? In that case my language is not a 'private' one. Someone else might understand it as well as I.—But suppose I didn't have any natural

> expression for the sensation, but only had the sensation? And now I simply *associate* names with sensations and use these names in descriptions.

If we use 'pain' or 'fear' as we ordinarily do, then the manner of its use can be studied in simple language-games. Natural expressions of pain are responded to, as are such natural gestures as a deliberately emphasized grimace. The child learns to replace natural expressions or gestures with words from the common vocabulary. The private-language argument does not deny such pain-claims. Indeed, how could it? Everyone will understand the child's 'It hurts' just 'as well as' the child does, and all will grant its truth: a move made in one of our common and important language-games occasions one of the usual responses. This is not to say that Wittgenstein offers or requires a behaviouristic account of pain-utterances. If the latter were used to express some behavioural facts, then the person's 'It hurts!' would mean something like: 'I am behaving in the is-in-pain way.' But the speaker is talking about his pain, not his behaviour: '§244…. The verbal expression of pain replaces crying and does not describe it'.

What about the meta-level case? Hearing Joe say 'I have a pain in my finger', I remark that he referred to something inner and private. If that gloss has its ordinary use, then, naturally, Wittgenstein would not deny it. For example, my remark might be addressed to someone who is learning our language; it tells him Joe's words were categorically different from a statement like 'I have a splinter in my finger': they were not about anything discernible in space and time. To call pain an inner private state will be to say in effect 'Don't ask anyone to show you their pain or make it available for observation.' Here the objection comes immediately: 'You have it backwards! One cannot make one's pain available for observation because it is inner!' That at least is one's intuition, one's strong conviction. But convictions can be wrong. Perhaps the matter is as Wittgenstein says:

> §248. The proposition 'Sensations are private' is comparable to: 'One plays patience by oneself.'

That one plays patience (or solitaire) by oneself is true in virtue of the rules of that game. Analogously, 'Sensations are private' only describes a feature of our language-game with sensation words; it does not express a deep metaphysical truth, despite our strong temptation to think it does. It is a meta-linguistic or grammatical remark, not a philosophical one.

In §256 the possibility is posed of a piece of language that refers to pain while yet being independent of the natural expression of pain. It is precisely when we grant that possible independence that we enter the realm of metaphysics. That we must grant the possibility seems obvious. Given the metaphysical picture of the private object, it should be possible to introduce words that refer to such objects, regardless of whether I give natural expression to them. Here the metaphysical picture understands 'pain' on the analogy of 'splinter'; it takes it to refer, but of course not to anything public.

The aim of the private-language argument, then, is not to deny that people have pains and the like, nor to insist on a behaviouristic rendition of such mundane facts. Nor does Wittgenstein reject the claim, in natural speech, that sensations like pain are inner or private. Wittgenstein's job rather is to make hidden nonsense plain.

The difficulty of the task is directly proportional to the strength of one's conviction that, for example, *this* —the headache I now contemplate—is something I directly experience, something directly before the mind's eye, as it were. What could be more plausible than that assumption of direct acquaintance? The 'private-language argument' has its work cut out for it.

Section 258 gives what has been taken to be the central formulation of the private-language argument. There Wittgenstein considers the assumption that the ordinary use of mental words is abrogated while yet

one succeeds in referring to the mental, by means of privately set-up ostensive definitions. He says, in the voice of his alter ego:

> —But still I can give myself a kind of ostensive definition….

Granted one cannot point to the sensation in the ordinary way, but rather, alter-ego goes on:

> I speak, or write the sign down, and at the same time I concentrate my attention on the sensation—and so as it were point to it inwardly.

In his own voice Wittgenstein now observes that the foregoing process seems merely an empty ceremony. What is it supposed to accomplish? Alter-ego's reply is that the inner pointing 'serves to establish the meaning of the sign' (that is, in Wittgenstein's example, the sign or mark 'S' which allegedly demarcates the inner sensation in question). The inner pointing achieves that because by its means 'I impress on myself the connection between the sign and the sensation.' And now comes the famous *reductio* that has been taken as expressing the core of the 'private-language argument' and that has been the subject of so much exegetical controversy:

> §258…. —But 'I impress it on myself can only mean: this process brings it about that I remember the connection *right* in the future. But in the present case I have no criterion of correctness. One would like to say: whatever is going to seem right to me is right. And that only means that here we can't talk about 'right'.

On one way of reading these remarks they express a verificationist argument. I can't verify that I am correct in calling this present sensation 'S' since the sensation used to define 'S' is *ex hypothesi* no longer present. What I can't verify is meaningless; therefore the idea of a private language is meaningless. Judith Jarvis Thompson [8.81] attributed such a verificationist reading of Wittgenstein to Malcolm, and repudiated it on the grounds that the presupposed verificationist test of meaningfulness is unacceptable.

In a famous paper Saul Kripke offered an alternative, non-epistemic account of the inner workings of the private-language argument. Kripke tried to displace the exegetical focus of the private-language discussions by holding that the real argument gets expressed already in §202:

> What is really denied [by Wittgenstein in §202] is what might be called the 'private model' of rule following, that the notion of a person following a given rule is to be analyzed simply in terms of facts about the rule follower and the rule follower alone, without reference to his membership in a wider community.
>
> (Kripke [8.68], 206)

Thus Kripke reads the private-language argument as a straightforward inference from the idea of rule-following: the concept of a private language is inconsistent, because using language entails following rules, and following rules entails being a member of a community. This line of interpretation has prompted a discussion in the secondary literature over the so-called 'community view'. The issue under debate is, roughly, 'Did Wittgenstein believe that the idea of a forever solitary rule follower is a conceptual impossibility?' The issue, like the broader one of the exact nature of the private-language argument, remains unresolved.

Both the verificationist and the no-solitary-rule-follower interpretations present arguments of a kind I think are antithetical to Wittgenstein's general approach to philosophy, which seeks not quick knock-down refutations but slow cures of philosophical perplexity. On a more promising interpretation offered by Anthony Kenny [8.67] Wittgenstein is said to deny that the would-be private diarist has succeeded in attaching meaning to his sign 'S'. The problem is not the verificationist one, that the original sensation used to define 'S' is irretrievably lost in the past. Put it this way: even if God could look inside the diarist's mind, and even if God, unlike the diarist could directly access the now past sensation used in the alleged ostensive definition of 'S', still God would not know whether to call the present sensation 'S', for the term has not been properly defined—has not been given a meaning.

But what would be Wittgenstein's reasons for denying the success of the alleged private ostensive definition? One has to do with the *Investigations'* discussion of ostensive definition, as Kenny points out. Wittgenstein's idea is that for an ostensive definition to succeed there must already be in place some language-game within which the defined term plays a role. As Wittgenstein once put it: 'Ostensive definition explains the use of a word only when it makes one last determination, removes one last indeterminacy' ([8.7], 447, 448). One last indeterminacy, that is, within some presupposed language-game where the term being defined will have a use. For example one might know everything about playing chess up to this last point: what shape piece is called the 'king'? The next step then would be to justify Wittgenstein's rejection of the idea of a 'private' language-game. The nub of this suggestive approach is to get clearer on Wittgenstein's view of the nature of *public* language. The denial of private language would then entail pointing out differences between the public and private cases that justify withholding the application of the term 'language' to the latter.

METHOD AND SCOPE

'The right method of philosophy'

I shall rehearse the general methodological points made at the beginning of this essay; after the previous discussions they may appear more credible. A metaphysical problem arises as the result of our viewing some part of our language in the light of a false analogy. The result of that misreading is a metaphysical picture; the entity called into being through that picture is a grammatical fiction. If the picture is seen for what it is, the metaphysical problem will vanish. That one is in the grip of a metaphysical picture, or that correspondingly one is engrossed by a grammatical fiction, will become apparent upon a close look at the language that has misled one. So the right method in philosophy is to confront those 'pictures' with an examination—along Wittgenstein's lines—of the use of the underlying, puzzle-generating words ([8.9], §116). In this therapeutic enterprise the logician who examines language and the metaphysician who is confused by it are one and the same. The *Philosophical Investigations* is a 'dialogue' between the author and his alter ego. 'Nearly all my writings', Wittgenstein said, 'are private conversations with myself. Things that I say to myself *tête-à-tête*' ([8.12], 77). The metaphysical temptations Wittgenstein deals with are ones he has succumbed to or has felt the strong pull of. The 'therapy' he advocates is to be applied by the reader to himself or herself, on the assumption that the same linguistic pitfalls lie in wait for everyone. The first step is to feel the full force of the metaphysical picture. The strength or psychological force of the picture gives the therapy its significance.

Wittgenstein and academic philosophy

Wittgenstein seldom speaks directly to the problems and issues that occupy academic philosophers. Those have been raised to levels of sophistication that would not immediately concern him. He thinks there is more to be learned in the valley of stupidity than on 'the barren heights of cleverness' ([8.12], 80). His work is nevertheless relevant to professional philosophers, if their sophisticated issues have their roots in naive misreadings of language.

In one present-day controversy it is alleged that the ordinary person, in speaking of his beliefs, desires, intentions, reasons, and so on, is deploying a rudimentary psychological theory, so called *folk psychology* (Fodor [8.63]). Another way of putting this is that the folk psychologist—Everyman—deploys a naive 'theory of mind'. That is, in saying what someone believes, and so on, people utilize a theory that attributes to the speaker or to others certain mental states, where these are taken as *causes.* Thus if I say I'm going to be at the airport at 3.00 p.m. you take me to be describing an inner state of affairs, an intention *qua* mental state that will cause me to show up at the airport at 3. One controversy in the literature is over whether folk psychology, so understood, is substantially true or not.

Wittgenstein's work undercuts the discussion pro and con folk psychology, by showing that everyday claims about intentions, and so on, are not claims about the causal connections holding between mental entities. They cannot be, for they are not claims about mental entities. The philosopher, in the grip of a metaphysical picture, is wildly mistaken in his reading of the ordinary person's claims. And it doesn't help that the ordinary person, if the question were posed to him, would say, like the philosopher, that in speaking out his intention he is describing an inner cause. That he would is taken by the philosopher as one of those 'intuitions' that support his interpretation. It would be taken by Wittgenstein not as data but as the expression of a picture; it would show only that the picture has deep roots in our language, and a strong appeal for anyone who begins to reflect philosophically upon such things as intentions and beliefs.

Science-minded philosophers who speak of the mind and its objects—thereby employing the vocabulary of seventeenth-century metaphysics in the alleged context of philosophy-*qua*-science—avoid being thought unscientific by holding out the possibility that someday talk about minds may be replaced by talk about brains. But if Wittgenstein is right the route they take to the brain goes by way of a grammatical fiction. Intentions, for example, are misread as mental entities, and those mental things are projected, in turn, onto the brain. The brain-equivalent of an intention *qua* mental state is a grammatical fiction once removed.

The scope of Wittgenstein's critique

Not only philosophers philosophize. Science and especially social science contains conceptual claims and presuppositions that are philosophical at heart. For example neurobiologists explicitly address 'the mind-body problem,' and attempt to find explanations for 'consciousness' (Horgan [8.66]). Again, scientists attempt to discover if vervet monkeys have a 'theory of mind'—a notion derived directly from that of a 'folk psychology' (Cheney and Seyfarth [8.60], 205).

One might speculate that a full generalization of the intention case I have discussed at length will stand up: beliefs, desires and reasons, understood as mental something or others, will turn out to be, on examination, grammatical fictions. Then a well-known remark of Wittgenstein's would be borne out:

> In psychology there are experimental methods and *conceptual* confusion.
>
> ([8.9], 232)

And the same sort of radical conclusion would hold for examples from neurobiology and animal studies. Experiments or empirical observation on the one hand, hidden nonsense on the other. But speculation here is of little value. What is needed, rather, is to test our deeply felt metaphysical 'intuitions' about such things as reasons, wants, intentions, consciousness and mind against a sustained examination of the use of the relevant words. This is not to champion a mere dealing in words. For, as I have been at pains to illustrate, our uses of language are grounded in action. 'The essence of the language-game is a practical method (a way of acting)—not speculation, not chatter' ([8.8], 421). To examine use is not to do 1950s-style ordinary-language philosophy but something better described as philosophical anthropology. Out of that study there might arise in turn a new branch of inquiry, an empirical but purely descriptive cultural anthropology of language-customs, one developmental or genealogical in approach but purged of mentalistic assumptions. Wittgenstein seems to grant the possibility of such a study when he writes: 'What we are supplying are really remarks on the natural history of human beings; we are not contributing curiosities however, but observations which no one has doubted, but which have escaped remark only because they are always before our eyes' ([8.9], §415).

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CHAPTER 9
Political philosophy

Arthur Ripstein

For the first half of the twentieth century, political philosophy was shaped by trends in other areas of philosophy. Conceptual analysis and clarification were central, and the philosopher's task was to clarify substantive political argument rather than participate in it. Several other features are worth mentioning: the widespread acceptance of utilitarianism as an adequate account of political morality; the interpretation of and reaction to its rivals, and the rise of pragmatism as an alternative view of philosophy in general and politics in particular. The second half of the century was marked by the rebirth of political philosophy. Justice emerged as the central issue, and debates continue about both its nature and its centrality to political life.

META-ETHICS AND CONCEPTUAL ANALYSIS

The rise of philosophy of language and conceptual analysis set the tone for philosophical inquiry more generally. One consequence of this was that moral and political philosophy focused on meta-ethical issues, such as the nature of moral truth, rather than on substantive questions of political morality. The two dominant positions in meta-ethics made substantive inquiry seem even less promising. Intuitonists insisted that moral truths are as evident as those of mathematics or the deliverances of the senses, and evident to any right-thinking person. Those with persistent perceptual deficits (Prichard used the analogy of colourblindness) were beyond the reach of rational argumentation. Thus there was little for political philosophy to discuss. At the other extreme, emotivists suggested that moral and political discourse was non-cognitive—the expression of feelings and preferences, and the attempt to get others to share them—and thus incapable of rational adjudication (Ayer [9.3]). On either view, such topics as justice or equality were not the sort of things about which respectable philosophers were expected to have theories.

UTILITARIANISM

Despite official philosophical distance from political issues, the dominant outlook in political culture more generally was tied to various versions of utilitarianism, the view that social institutions are to be assessed on the basis of their consequences for promoting human happiness. Utilitarianism was developed in the nineteenth century by Jeremy Bentham (1821 [9.6]) and John Stuart Mill (1864 [9.35]). Its appeal stems from the combination of three ideas: first, that in the end, the only thing that could really matter to political questions was how well or badly people's lives went; second, that in political morality, each person's interests should be counted equally; and third, that difficult moral and political questions admit of rational resolution provided that sufficient information is available. Utilitarianism combines these ideas to evaluate

social institutions on the basis of their consequences for human happiness. Everything from the judiciary and penal institutions, through representative democracy, to trade and tax policy can and should be arranged to provide a framework within which individuals, looking largely to their own advantage, could bring about the best results overall. At least as important as its emphasis on consequences is utilitarianism's unwillingness to allow the appeal to such notions as natural rights.

L.T.Hobhouse's *Liberalism* (1911 [9.24]) exemplified this pattern of political argument. Reforms advocated by Hobhouse that at the time seemed radical have since been adopted in the industrialized world: an active role for the state in education and health, welfare provisions, and redistribution of wealth through progressive income taxes and taxes on inheritance and speculation. Hobhouse's tone is at once confident and tentative. All his policy proposals are offered as experiments about how best to achieve the common good. Although he acknowledges the difficulties of weighing goods against each other (for example, the conscience of a few as opposed to the convenience of the many) Hobhouse sees the only burden of argument to be to establish the empirical claim that the policies he advocates do promote the overall social good. Any other appeal—to abstract rights, especially property rights—he sees as unhelpful obscurantism, unworthy of serious response.

In the 1920s debates about the feasibility of planned economies as opposed to markets also took a utilitarian form. Even Friedrich Hayek (1941 [9.21]), perhaps the most vocal and influential critic of economic and social planning of the time, appealed primarily to the consequences of planning. Hayek argued that large-scale social planning was doomed to failure. Any increase in social planning was sure to hinder individuals carrying out their own plans. Thus he doubted that the state could have any role other than setting up the broad legal framework within which individuals could go about their business. Despite its apparent anti-utilitarian orientation, Hayek's argument actually appealed to the idea that each individual is better situated both to know and to achieve his own welfare than any other agency. Thus, he suggested, the overall consequences of social planning are counter-productive.

MARXISM

The economic downturn and resulting political turmoil of the 1930s created widespread popular interest in Marxism. Like utilitarianism, Marxism developed in the nineteenth century. From the 1840s until his death in 1883, Marx both advocated and predicted worldwide socialist revolution. He saw it as the only solution to the recurrent economic crises that plagued capitalist economies, and as the end to the domination of man by man that he saw throughout human history. Like ancient slavery and feudalism before it, capitalism must give way to a more advanced mode of production. Marx held his socialism to be 'scientific', because it accounted for the development of forms of ownership on the basis of the independent development of human abilities to appropriate nature. Socialism was seen as the inevitable outcome of the tremendous development of productive forces that capitalism had unleashed; an end to material scarcity would bring about collective control of human affairs.

As Marxism gained in popular interest, it drew philosophical attention as well. Many philosophers were sympathetic to Marxism's broad political goals. But the overall thrust of philosophical reflection on Marxism in the 1930s remained deeply critical. Most treatments focused on epistemological issues, particularly the idea of the historical inevitability of socialism. That idea was attacked for being unscientific, for denying the role of human choice in history, and for conceptual confusions about the relation between individual and society. For example, Karl Popper argued that there can be no historical laws, on the grounds that individuals can choose to act contrary to them (Popper [9.43]; Acton [9.1]). Others argued that Marxism's idea of equality was indefensible; still others that Marxism was self-refuting,

because it sought to explain ideas in terms of material conditions of production, thus undermining its own claim to truth.

PRAGMATISM

At the same time, across the Atlantic in the United States, pragmatism was gaining popularity as an account of both philosophy and politics. Pragmatism was part of a broader movement against formalism in American thought. In such diverse areas as law (Llewellyn [9.30]; Cardozo [9.8]) and architecture, themes of experimentation and practice were dominant; ideas of method were down-played. As part of this movement, pragmatist philosophy was deeply suspicious of the sort of conceptual puzzles with which British philosophy was largely occupied.

John Dewey [9.13] was the leader of the pragmatic movement in social and political philosophy. Rather than investigating general relationships among such concepts as the individual, state, property and family, Dewey thought the role of social philosophy must be to 'help men solve concrete problems by supplying them hypotheses to be used and tested in projects of reform' [9.14]. To fix on abstract conceptions, as traditional political philosophy had done, is to help 'clever politicians' to 'cover their designs and make the worse seem the better cause'. Instead, institutions should be 'viewed in their educative effect: —with reference to the type of individuals they foster'.

Dewey also called for the increased democratization of American life. The equalization of wealth and elimination of privilege were offered as goals all Americans could embrace, and the task of philosophy was seen as clearing away inherited philosophical obstacles to the sharing of those goals. What Dewey characterized as 'dualisms' between mind and body, fact and value, and subject and object were to be removed in the hope of making room for a social experiment in which all could flourish. In place of both tradition and any attempt at developing a scientific method, Dewey advocated 'the application of intelligence to solving problems', by which he meant free and open discussion involving as many participants as possible. For Dewey, the only justification democracy needed was showing that it was the most effective way of broadening the pool of intelligence to apply to social problems. Anything less deprives society of the full contribution of all its members. It is central to Dewey's view that there is no general answer to the problems of social life, only particular solutions that are appropriate in response to particular problems as they arise. No general theory about happiness, freedom or justice will help—only democratic discussion of particulars is possible.

Perhaps the most striking feature of political philosophy through the first half of the century was the extent to which it supposed that political argument is not itself a philosophical task. Whether philosophy was seen as confined to conceptual questions, or charged with clearing away obstacles to democratic discussion, few supposed that it had anything to contribute directly to politics. Deep divisions ran through political life, but these were seen as either the results of conceptual confusion or simply false belief. One result was that philosophy was all but silent on what now seem the fundamental questions of politics.

By the 1950s political philosophy looked as though it had lost its subject matter. In the social sciences, the 'end of ideology' was proclaimed (Waxman [9.54]). Piecemeal social engineering in the service of goals that were supposed to be widely shared was to replace impassioned debate over the fundamental terms of social life.

THE SIXTIES

All that changed in the 1960s. The mood of philosophy began to shift, and scruples about addressing large normative topics began to wane. Conceptual analysis lost much of its grip on philosophy, and interest in meta-ethics began to waver. Equally important, were a variety of social changes. The intended audience for academic philosophy grew enormously with the growth of state universities in the United States and 'red-brick' universities in Britain. At the same time, that audience's diversity increased. In 1954, the US Supreme Court ruled that segregation was unconstitutional. In the years that followed, the civil-rights movement demanded that abstract constitutional provision be put into practice. In so doing, it put an end to the idea that only the details of social life needed to be worked out. At the same time, the threat of nuclear war led to increased distrust of governments around the world. The Vietnam War brought both of these issues to a head. Disproportionately many blacks were drafted, and many viewed the war as an imperialist exercise.

One response was another wave of interest in Marxism. Marx's early writings were translated into English in 1960. Rather than historical necessity and economic crises, their central theme was the profound alienation endemic to capitalist society. In addition, Marxist thought had continued to develop in Europe throughout the twentieth century, and came to have an increasing influence. The 'critical theory of society', developed in Germany in the 1920s (Adorno [9.2]; Jay [9.26]) provided much of the vocabulary of student radicals in the 1960s (Marcuse [9.33]). Still, these remained very much marginal positions in the academy.

Many of the dissatisfactions of the period took the form of attacks on liberalism. The criticisms varied, but two were prominent. One charge was that liberalism emphasized individual liberty at an unacceptable cost in equality. The other was that it lacked a coherent political morality, and was little more than the result of a series of shifting political coalitions and compromises. The liberal commitment to the welfare state was seen as nothing more than a reaction to changing political demands.

Utilitarianism was subject to parallel attacks. It was suggested, for example, that the wanton destruction of the Vietnam War had its theoretical basis in the idea that all values are commensurable. If all values can be reduced to a single common scale, then policy-planners could rationally decide to commit atrocities for the sake of their supposed long-term benefits. This argument, popular among both peace activists and scholars, cut deeply against utilitarianism's claim to be a viable philosophy for public justification (Griffin [9.19]; Williams [9.56]; Berlin [9.7]).

RAWLS

It was in this setting that John Rawls's *A Theory of Justice* [9.44] brought new vigour to liberalism, and with it, political philosophy. Rawls seeks to provide an alternative to utilitarianism that will reconcile freedom and equality. The book begins with a bold claim: 'Justice is the first virtue of social institutions', and spells out a conception of justice as fairness. Rawls draws on the social-contract tradition of Locke, Rousseau and Kant to describe a powerful thought experiment. The intuitive idea is simple: suppose you had to choose the basic structure governing your society. To choose, it would help to have information about a variety of things—economics, and human psychology, for example. Now suppose that choice were to be made from behind what Rawls calls 'a veil of ignorance'—you had all the general factual information you could want, but you didn't know who you were, nor what mattered most to you in life. In such circumstances, it would be rational to choose cautiously, so that no matter how badly things went, you would do at least passably well. So, for example, you would never agree to a system that allowed some people to own slaves, for fear that when the veil was lifted, you would turn out to be one of the slaves. Nor would you agree to a state religion, for fear that you turned out to be a member of a persecuted minority.

Nor, for that matter, would you ever adopt utilitarian principles of social organization, for fear that your own most important interests might be sacrificed for the sake of less significant, but more numerous interests of others. Even if some practice, such as slavery, were to have the best consequences overall, no rational person would agree to it if it carried with it the risk of being a slave.

Rawls argues that this sort of reasoning leads to two highly specific principles of justice. The first generalizes freedom of religion, and demands the maximum liberty compatible with the same liberty for others. The second, which Rawls dubs 'the difference principle', calls for the equal distribution of material resources and powers, except when an unequal distribution will benefit those who receive less than an equal share. The first principle is supposed to take priority over the second: liberty can never be sacrificed for material gain.

Rawls deploys the two principles of justice to address a number of further issues including justice between generations, civil disobedience, conscientious objection and moral education. In each case the general thrust is the same: society is to be viewed as what Rawls calls 'a co-operative venture for mutual advantage', in which all share a common fate which is articulated and adjudicated in terms of publicly accepted principles of justice.

In order to get such a determinate result out of such a simple thought experiment, Rawls assumes that the parties in the original position desire certain 'primary goods'—goods that are likely to be useful in pursuit of whatever conception of the good they might have. These include liberty, material resources and what Rawls calls 'the social bases of self respect'. These are the sorts of goods that it is the business of the liberal state to oversee the distribution of. Rawls's point is not that everybody necessarily wants these things, but that by thinking of them as the goods to be distributed, we are able to embrace the idea that individuals are responsible for their ends (hence the importance of liberty) without supposing them to be responsible for their material circumstances (hence the importance of material wealth).

Critics of liberalism had long supposed freedom and equality to sit in an uneasy balance, with no principled relation between them. Rawlsian liberalism offers the two principles of justice in order to interpret the importance of each in terms of the other. Equality gives each an equal claim on primary goods; freedom is important so that each person can use his or her fair share of resources to carry out his or her own life plan. Without equality, though, individual freedom loses its claim. Legitimate shares of material resources set the limits of freedom, because they ensure that one's pursuit of some conception of the good is not imposing unreasonable costs on others.

If Rawls reinvigorates liberalism, it is a liberalism with a difference. Individual political and personal liberties are still central to it. But the emphasis on property and market freedoms characteristic of the traditional liberalism of Locke (or the US Constitution) is gone. For Rawls, property rights are no longer central to the liberal political vision. At best, forms of ownership are to be understood as subservient to equality and personal liberty.

Of course, Rawlsian liberalism leaves many important questions unanswered. How much material inequality is to the advantage of the worst off? How are liberties to be balanced against one another? But if Rawls does not answer these questions, he at least provides a vocabulary in which liberals could address them systematically. The power of that vocabulary is revealed by the extent to which divisive issues have been fruitfully debated in its terms. By making equality central to justice, Rawls provides a way of avoiding fruitless disputes about the relation between freedom and equality, or between fairness and desirable consequences. On Rawls's view, each can only be understood in relation to the others. For example, debates about the legitimacy of affirmative-action programmes (reserving employment or educational opportunities for members of groups that have historically been discriminated against) typically played themselves out as

battles between fairness and desirable consequences. Drawing on Rawls's work, Ronald Dworkin showed how ideas of fairness and merit are always tied up with ideas of social purposes (Dworkin [9.15]).

RAWLS'S CRITICS

Rawls's arguments drew criticism from a wide variety of perspectives. In so doing, they provided the background against which political philosophers could raise their disagreements. Four directions of criticism are particularly noteworthy. One took Rawls to task for failing to consider seriously the distinctness of persons and the importance of property. Another criticized Rawls for not going far enough in the service of equality. A third held that Rawlsian liberalism, with its emphasis on justice, left no room for the moral community that is fundamental to political life. The fourth may well turn out to be most significant in the long run. Drawing on developing feminist scholarship, it points to the way that liberalism fails to take seriously the politics of private life.

Libertarianism

Where Rawls had drawn on the tradition of Rousseau and Kant, Robert Nozick's *Anarchy, State and Utopia* [9.38] sought to reinvigorate the ideas of ownership and individual liberty that were prominent in Locke's political thought. Deeply suspicious of ideas of distributive justice, Nozick argued that 'income tax is on a par with forced labor'. He suggested that the idea of equality is simply a reflection of the envy of those who have less, whether through laziness, stupidity or simple bad luck. In place of concerns about how to create and distribute resources as fairly and effectively as possible, Nozick insists that the important questions about the distribution of goods must all be looked at as questions of entitlement. Entitlements can arise through the acquisition of something initially unowned, through voluntary exchange or gift or as compensation for wrongs suffered. They cannot be acquired in any other way—particularly not on the basis of need or one's comparative share in relation to others.

The root idea of Nozick's view is that liberty must be given priority over any distributive goal. He offers little by way of argument for this claim, apart from some general musings about how each person's life is his or her own to develop or waste, and the suggestion that any alternative to libertarianism would violate the Kantian prohibition on treating others as mere means to ends they do not share. Nozick's development of his position depends much more on the intuitive force of a series of examples.

For example, Nozick invites us to suppose that income was distributed on the basis of whatever distributive principle we think is best. Each person must be entitled to spend their legitimate share however they see fit. Now suppose that one million of these people are each willing to pay a premium of 25 cents to watch their favourite basketball player, Wilt Chamberlain, play. By refusing to play without this premium, Chamberlain thus puts himself in a position to gain an additional quarter-million dollars. This would upset the original distributive pattern. Yet surely each person can dispose of his or her holdings as he or she sees fit. Nozick insists that the example generalizes: liberty would always disrupt any distributive pattern.

Again, in response to the claim that property rights must give way to each person's claim to have a say over those things that effect him or her, Nozick suggests we consider whether the same principles would apply to a woman's choice of suitor—should a rejected suitor get a say in this matter, which plainly affects him deeply? Again, if I am nice enough to lend you something, do you thereby acquire a say over the uses to which I will put it in the future? Nozick suggests not.

Nozick's dependence on intuitive examples lead many to doubt whether much depth lay beneath the book's witty veneer. Thomas Nagel [9.36] describes it as 'libertarianism without foundations'. The

difficulty is that the book's theoretical apparatus is so thin that it is very difficult to know what to make of the examples. For example, it is hard to think of a distributive scheme that is 'patterned' in Nozick's sense. Rawls's difference principle, for example (presumably Nozick's target), specifies the structure within which people can acquire and dispose of goods, rather than a pattern that would require constant interference every time a transfer took place. Thus the example doesn't seem to cut any ice against any position anyone ever actually held. Nozick's other arguments about interference are comparably ambiguous: we might think that a woman's sovereignty over which suitor she accepts is tied to the importance of controlling one's own emotional life, rather than any more general principle that excludes workers from exercising any sort of control over their working conditions.

Nozick's project gains much of its impetus from the idea that people should be able to decide what to do with their lives and with whatever abilities and assets they find themselves with. On the face of it, this is an attractive, even inspiring idea. Yet Nozick is surely confused here. For we cannot take seriously the idea that politics could be a matter of letting people do what they want, *simpliciter*. Indeed, the political philosopher's activity of trying to formulate principled grounds for competing social arrangements gets its point from the need for an articulate account of why some wants count and others do not. In this respect, prohibitions of violence are on a par with limits on election-campaign contributions—all stop people from doing what they might otherwise do. No appeal to freedom, understood as letting people do what they want, can settle these questions. Nor can Nozick claim that people should be left to do as they please so long as they don't harm anyone else. To give content to that claim, he would need some ways of identifying which harms count—something like Rawls's catalogue of primary goods. Otherwise he cannot rule out any state functions, for those seeking state action would be able to argue that they are harmed by not getting their way (Leiberman [9.29]). At bottom, though, Nozick has little to offer to resolve these issues.

Other libertarian projects also sought to pose a challenge to Rawls. Most prominent among these are more radical interpretations of his contractarian apparatus. By modifying the conditions under which the contract might be reached, some sought to derive principles of justice that put more emphasis on property and less on equality. Where Rawls looks to Kant and Nozick to Locke for historical antecedents, Hobbes provides the inspiration for radical contractarianism. In *Morals by Agreement* [9.17], David Gauthier provides the most sophisticated version of this position. Gauthier begins by pointing to the difficulties in appealing to intuitive plausibility in political argument. Intuitions too often reflect past socialization, and they are too easily shifted to do duty in place of arguments. Concerned in part about the problems that plagued Nozick's view, Gauthier seeks instead to ground libertarianism in the theory of rational choice as developed in economics and game theory. The emphasis on rational choice is rooted in the view, widely accepted in both academic and popular culture, that values and standards of evaluation are at bottom rooted in individual preferences. Thus no utilitarian theory of the good, or Rawlsian index of primary goods, can provide a firm basis for justification. Instead, we must look to a well-defined problem of choice: what principles would fully informed rational agents, concerned only to advance their own ends, agree to, *regardless of what those ends turned out to be?* The broad outlines of the story are clear enough. Each would agree to such limits as would protect his or her own choices, and leave him or her free of any obligations to aid others. Various bundles of specific property rights, and methods of dividing the benefits of co-operation have also been suggested (Gauthier [9.17]; Narveson [9.37]).

Radical contractarians have doubtless produced some of the most elegant contributions to political philosophy. Yet their mathematical accounts tend to be so idealized that it is very difficult to see how they are supposed to make contact with actual people pursuing their own diverse ends. Worse, many of the simplifying assumptions required to make their formal apparatus yield determinate conclusions seem to beg important political questions. If the model of rational choice is supposed to describe actual human

behaviour, then it seems to be compatible with the wide variety of different institutional arrangements that have resulted from human interaction. For they too are the product of individuals pursuing their diverse ends. To get the highly specific results of Gauthier's contract, and a unique solution to the problem of rational agreement, the agents making the agreement must be idealized. But if they are, it becomes difficult to see how the radical contractarian project is any less dependent upon intuitive plausibility than are competing views. (Ripstein [9.45])

Analytical Marxism

Perhaps the most interesting criticisms of libertarianism come from a group that describes itself as 'analytical Marxists'. Where libertarians argue that liberalism sacrifices liberty for the sake of equality, analytical Marxists suggest that liberalism pays insufficient heed to equality. As a group, they are highly selective of what they take from Marx's thought (Elster [9.16]; Roemer [9.47]). Their work is of interest here because of its use of the same conceptual tools and vocabulary as liberal and even libertarian thought. Where an earlier generation of Marxists was suspicious of such tools as 'bourgeois', today they are embraced as neutral and effective. This has helped to make it clear that technical tools cannot decide between political ideals; at best they can make the presuppositions and commitments of competing views more nearly explicit (Roemer [9.46]; Cohen [9.10], [9.9]).

Communitarianism

A third line of criticism of Rawlsian liberalism also takes aim at libertarianism. Both are charged with a destructive obsession with individual rights, and an indifference to the importance of community both to making political life fulfilling, and to providing the context within which normative claims could be made and discussed.

The communitarian argument has taken a variety of forms. In *Liberalism and the Limits of Justice* [9.49], Michael Sandel focused on Rawls's view, and argued that both Rawls's argument and the politics of liberalism more generally reflect a number of indefensible metaphysical assumptions. Each of the parties behind Rawls's veil of ignorance chooses without knowing his or her own conception of the good. Sandel suggests that this hardly qualifies as a choice at all. First of all, the parties are given a sharply defined problem of choice and an algorithm for its rational solution; their agreement is more like the agreement of a number of students on the solution to a mathematical problem than an agreement between a number of people about how to regulate their affairs. But for Sandel, there is a deeper problem lurking here as well. By choosing in the absence of any shared conception of the good, Rawls's contractors are making shallow choices, devoid of moral significance. Only choices made in light of one's view about what is most important in life will fully engage one's moral capacities. Yet Sandel maintains that a liberal society cannot allow such choices to inform political life. Because of its official neutrality on questions of the good life, a liberal society can at best appeal to neutral procedures all can accept, rather than speak with a common voice that all can recognize as their own. As a result, it has trouble asking for the sort of sacrifices that political life requires. Instead, any sacrifice it demands will be seen as made for someone else's good. For example, Rawls's second principle of justice requires those with marketable abilities to accept less than they might for the sake of those with less. They may make the requisite sacrifices, but they do so out of compromise rather than principle. Sandel insists that this is the fate of contemporary liberal democracies: interest groups compete to control the apparatus of government with no common vision of the good life to limit their pursuit of their interests.

In *After Virtue: A Study in Moral Theory* [9.31], Alasdair MacIntyre sets his sights wider, arguing that the liberalisms of both Rawls and Nozick are nothing more than the dying gasps of a moral culture in decline. MacIntyre suggests that the vocabulary of rights on which both rely lacks the only sort of background against which it could have a coherent use. Nozick's difficulties in explaining the rights he focuses on is merely a special case of a more general cultural trend, in which talk about rights becomes nothing more than an emphatic way of insisting on some claim. MacIntyre fears that, however inadequate as an account of the meaning of moral language the emotivist metaethics of the first part of the century might have been, it is very close to the truth about the use of moral language in the latter part. Without strong ties of community and tradition, moral language becomes just another species of rhetoric, influencing behaviour rather than providing reasons.

MacIntyre sees the failure of liberalism as a special case of a more general failure of the enlightenment project of providing a universalistic grounding for morality and politics. The theme is not a new one. In the 1940s, Michael Oakeshott had attacked what he characterized as 'rationalism in politics', the view that human reason has the power to solve all social problems (Oakshott [9.39]). MacIntyre focuses on the related, though distinct idea of universality. He argues that the idea of universality misses the significance of particular commitments in making us the people we are. The enlightenment project of providing a universal standpoint, able to evaluate particular cultures and practices from outside, was a failure. It missed the way in which an on-going way of life provides the cultural space within which people can regard their particular social roles as appropriate. So long as we demand a justification from outside our practices, we are bound to end in disappointment.

For MacIntyre, tradition is important to giving sense to moral discussion because it gives concrete content to the idea of sharing a common fate. Moral thinking and discussion is essentially interpretive. Traditions provide the raw material for interpretation, without which political argument deteriorates into nothing more than veiled bargaining.

While Sandel is silent about what specific conception of the good would be appropriate to any contemporary society, MacIntyre is more specific on this score. He suggests that the appropriate ethical outlook is to be found in the traditions of Christianity, especially Roman Catholicism. The final chapter of *After Virtue* suggests that the only two moral options left open to us are the piety of St Benedict and the nihilism of Nietzsche.

Other communitarians have made parallel points. In *Habits of the Heart* a group of social scientists sought to document the debasement of the moral vocabulary that MacIntyre pointed to; they found that the subjects they interviewed often felt alienated from society and their moral relationships (Bellah *et al.* [9.5]). They also found that they had difficulty in articulating the moral standpoint that they spoke from.

The communitarian criticisms of liberalism are difficult to assess, in part because the criticisms are posed at so many different levels. For example, Sandel argues that Rawls ends up with a shallow view of politics because he begins with bad metaphysics. And so he misses 'The good we can know in common that we cannot know alone'. But Sandel doesn't tell us what that good is. And it is difficult to see how he could: because he focuses on metaphysical issues, it is not clear whether or how his arguments are supposed to issue in any particular politics. At another level, he is clear about the need for community, rather than a mere association of isolated individuals. But, as Will Kymlicka has pointed out, he never explains why the state should be the proper place in which that sense of community is to be fostered. Why not in secondary associations, like churches, unions, clubs and neighbourhoods? if these are the *loci* of community, the state may need to change in ways that nurture those communities. But that is very different from acting as a primary community itself (Kymlicka [9.27]; Guttman [9.20]).

Still, communitarians are sensitive to something important that is missing from liberalism. Liberalism sees no need for the state to be a community, except in the thinnest sense of something to identify with, and a common forum of justification. But there is a lingering question of whether a liberal state can provide even this much. For the emphasis on private pursuit of the good life (even where this includes secondary associations) may not foster the commitment to the state required in order to make the sacrifices it demands. Often those sacrifices benefit those to whom one is related only as a fellow citizen. Charles Taylor argues that the liberal state cannot make any plausible claims about mutual advantage, because each individual's contribution makes little difference to the long-term survival of the state. So it seems to rely instead on moral high-mindedness, and the claims of justice. It is not clear that this is enough to call forth sacrifices from citizens (Taylor [9.52]). Still, if Taylor is right in his diagnosis of the problem, it is difficult to see how a communitarian state that emphasizes its common traditions and way of life can do any better at sustaining itself in a world in which individuals have lives of their own. All the communitarians' favoured examples of successful communities—democratic Athens, eighteenth-century Geneva—excluded large portions of their populaces from political participation, and identified political participation with the good life (Herzog [9.23]). MacIntyre gives slightly different examples, but they involve groups that share a conception of the good for religious reasons. Yet their treatment of dissenters was unacceptable, and it is hard to imagine how such a model could be generalized to a society that is religiously divided. Unless some way is found to include everyone in political life, so that it is the most central of each person's identity-conferring life project, the same problem will just recur. Most people will be unwilling to make sacrifices, unless they take them to be demanded by justice.

FEMINISM

Liberalism, libertarianism, Marxism and communitarianism have all been questioned in recent feminist criticism. Liberalism and libertarianism have been attacked because of the way they have focused on voluntary relations between adults of roughly equal power without antecedent ties, at the expense of the more pervasive relations of dependence and domination that characterize relations between parents and children, or women and men. While communitarians have focused more on relationships involving antecedent ties, they have attached too much weight to the founding of communities and their traditions. As a result, they have failed to acknowledge the ways in which virtually all communities have oppressed women and excluded them from public life. Marxists, in turn, have been criticized for focusing on production and ignoring reproduction (Pateman and Shanley [9.42]; Sunstein [9.51]; Jaggar [9.25]).

At one level, feminists can be thought of as occupying various positions along the previous political spectrum. There are conservative feminists, liberal feminists and socialist feminists. Which has the legitimate claim to the name 'feminist' is itself a contested question within feminism. But to focus on those differences is to miss the originality and intellectual power of feminism as a philosophical position.

Feminism is a comparatively new social movement. Where Rawls and Nozick can carry on a debate by developing positions already articulated by Kant or Locke, many feminists are uneasy about helping themselves too readily to the arguments and outlooks of philosophers who, whatever other disagreements they may have had, verged on unanimity in their relegation of women to second-class status. From Plato through the middle ages, women were thought of as imperfect realizations of the ideal male form; from the seventeenth through the nineteenth centuries, they were seen as a different kind of thing, subject to feeling rather than reason, and incapable of participating in public life. One strategy for working within the traditional mould is to simply ignore its overt sexism, and look instead to the universal roles that particular

thinkers have described, and try to find a way to enable women to participate more fully in those social roles. Susan Moller Okin has dubbed this strategy 'add women and stir' and many feminists join her in rejecting it, on the grounds that it takes for granted that the position of men within sexist societies is the appropriate goal for women to aspire to (Okin [9.40]; [9.41]).

Feminist research has drawn attention to a variety of ways in which traditional debates about politics have overlooked important power relations and injustices. Of particular significance are the division between public and private life and the assumption that the family is a realm beyond justice. Feminists have also been critical of the assumption that male experience provides the appropriate lens though which social relations in general, and the status of women in particular, ought to be viewed.

Public and private

Modern political thinkers have drawn a division between a public sphere in which decisions are made and carried out, and the private sphere within which individuals pursue their own private ends. For Nozick (to use an extreme example) the public is exhausted by its role of mutual protection and enforcement of property rights; everything else is private, the domain of individual contract and consent, in which the public has no say or legitimate interest. In Rawls, the public enjoys a more expansive role, ensuring fair shares of resources and guaranteeing equality of opportunity. Communitarians draw the line between public and private differently, supposing that its contours depend on the shared practices of an on-going way of life. They also tend to attach more significance to the public; where liberals and libertarians see the private as the realm of freedom, communitarians suppose freedom has its proper place in participation in collective control over public life. But they share the emphasis on that division.

Feminists have recently challenged these divisions. The reasons for the challenge become clear if we focus on the place of family in relation to the distinction. Is the family private or public? Traditionally, both in political philosophy and in legal decisions, the answer has seemed obvious: it is private. Important constitutional decisions in the United States have been made on the basis of the family's right to privacy. Rawls seeks to determine the appropriate rate of savings in a just society by asking us to suppose that the contractors in the original position are 'heads of households'. None of the prominent political philosophers we've looked at even considers questions of social responsibility for the rearing of children. And despite the obvious inequalities of status and power that are to be found within the traditional family, these too seem to fall outside the scope of justice, and to be viewed instead as private arrangements between individuals.

Feminists note two striking features of these omissions. One is that political philosophy, which aspires to study 'the first virtue of social institutions', is silent on so many aspects of social life. The other is that the very features about which it is silent are those traditionally involving women.

One response has been to suppose that the distinction between public and private must simply be eliminated, since it has plainly been both unreflectively drawn and harmful. Another approach has sought to keep the distinction while re-drawing its boundaries. Preserving a private sphere, free from state interference is important, especially for those who find themselves outside the mainstream of public culture, such as lesbians and gay men. Feminist arguments in favour of reproductive rights also draw on the legitimacy of a private sphere. But if a private sphere remains, it cannot be organized around the prior boundaries of the domestic sphere. Inequalities within the family, whether in household tasks, access to resources or the threat of physical violence, all admit of assessment in terms of justice. Pornography, long considered a private matter by liberals, can be viewed instead as a matter of creating and reinforcing the conditions of the oppression of women.

Feminist critiques of pornography provide a clear example of questioning the division between public and private. The argument has two components; the first is the claim that pornography is harmful to women, and so ought not to be thought of as protected expression. The second, deeper strand, questions the traditional liberal understanding of the role and nature of political expression. In *On Liberty,* John Stuart Mill [9.34] defended free expression on the grounds that it is necessary to encourage the search for truth and to make room for a responsible, because informed, citizenry. Recent feminist scholarship has suggested that this view misunderstands the nature of expression in general, and pornography in particular. Pornography does not make claims to truth that might be examined on the basis of their merits; instead, it constructs social roles in which individuals have no choice but to live. Catherine MacKinnon [9.32] points out that nobody would take pornography's implicit claims about the role and availability of women seriously if they were made explicit. But that is not how pornography works.

The critique of traditional divisions between public and private enters again here: where liberal thought views pornography as something that is enjoyed in private, feminists look at it as an essentially public activity, because of its role in shaping social roles. The suggestion is that one does not view pornography (or live in a society in which pornography is widely consumed) without coming to think of women in a very specific way.

This emphasis on the political nature of the split between the public and the private also explains feminism's characteristic attitude towards traditional philosophy's claim to universality. By identifying what it is to be truly human with participation in the public life of markets and politics, and interaction with equals, traditional philosophy relegated many of the activities women have been involved into a secondary status. The past several decades have seen increasing numbers of women entering the workforce. Yet incomes and opportunities for advancement have been structured in ways that disadvantage women. They have typically been tied to the model of a breadwinner who has a wife at home capable of taking care of his needs, and of preparing him to work another day, both through feeding him and by providing an emotional respite from the pressures of the working world. These practical issues have a philosophical dimension, because such concepts as procedural fairness, merit, freedom and equality of opportunity have been understood in terms of unexamined assumptions about private life.

Other strands in feminism pose different challenges to traditional political philosophy. The primacy of justice has been challenged, on the grounds that relationships involving dependence, such as the care of children or the elderly, cannot be assimilated to questions of justice. But rather than supposing that these fall outside the scope of political philosophy, or can be treated as simply different, some feminists have argued that relations of care and nurture should be thought of as primary, and relations of justice derivative. This emphasis on non-contractual relationships has led to proposals for a radical re-thinking of such concepts as autonomy (Baier [9.4]; Gilligan [9.18]; Held [9.22]; Ruddick [9.48]). Still other feminist scholarship has urged the rethinking of the political implications of such concepts as embodiment and power, in directions very different from those pursued by the mainstream of English-speaking political philosophy (Scott [9.50]).

One other recent development in political philosophy deserves mention: the renewed interest in radical democracy. Dewey's influence dwindled for decades, but many of the themes he emphasized are again the focus of debate. Part of the reason is continuous with feminist concerns about illusory models of universality and the need to hear voices that had been excluded. Representative democracy made many of the same promises of universality as did classical liberal theory; both arguably failed to take seriously the claims of those who did not readily fit into their models of normal life. The institutions of representative democracies have been organized around assumptions about typical needs and demands. As the electoral franchise has been extended this century, increasing numbers of people have acquired the legal right to

vote, yet many have no further concern with politics than voting in periodic elections. Ordinary citizens—especially, but by no means exclusively, women and members of minorities—have been excluded from having an effective political voice in the democracies. The project of radical democracy is to re-think democratic institutions in a way that makes room for full participation by all. Like Dewey, radical democrats emphasize participation both for its benefits to those involved and for its promise of solving problems.

Much of the impetus for democratic theory has come from outside the English-speaking world, but its influence continues to grow. One major force has been the Brazilian social theorist Roberto Unger. Unger first came to prominence as a communitarian critic of liberalism; his *Knowledge and Politics* [9.53] argued that liberalism rested on an indefensible metaphysics and psychology, and on moral scepticism. His more recent work has abandoned communitarianism in favour of what he calls 'superliberalism', the idea that 'the basic terms of social life' should be permanently up for grabs, all institutions subject to subversion from below.

The politics of radical democracy are represented by the 'Rainbow coalition' in American politics. Made up of women's groups, members of more traditional leftist movements, people of colour, environmentalists and parts of the peace movement, it has been defined (so far) more by a sense of making common cause in the face of perceived exclusion than by concrete political proposals. Philosophically, it shares with the Deweyan pragmatism of the 1930s a commitment to eliminating privilege and an insistence that making institutions more open and participatory will thereby also make them more effective (Laclau and Mouffe [9.28]; Cohen and Rogers [9.11]; Cunningham [9.12]; Young [9.57]). Radical democracy also shares Dewey's suspicions of such philosophical buttresses of traditional politics as the dualisms of reason and imagination, or reason and passion. The vocabulary in which the rejections are phrased has changed, but their upshot has not. Abandoning such dualisms carries with it some risks. Allowing every social context to be overturned may strike many liberals as a recipe for disaster. Pragmatist or radical democrat, the response to this worry is the same: no amount of philosophy will keep the barbarians from the gate—only an involved and reflective public can. In the end, their deepest commitment is to replacing philosophy with politics.

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CHAPTER 10
Feminist philosophy[1]

Sarah Lucia Hoagland and Marilyn Frye

Feminism re-emerged in the turmoil of the 1960s in anger and resistance, committed to revolution, to change. Heralding this wave and following nineteenth-century themes, Simone de Beauvoir wrote in 1947: 'One is not born, but rather becomes, a woman.' There is a difference between being anatomically female and becoming what society recognizes as a woman: while there are facts, they take on meanings only within a social context. What we are as women we become, formed by oppression, being defined in relation to men as Other, different.

The women's liberation movement went on to name western society, whether in Europe, Scandinavia, Australia/New Zealand, Great Britain or America—South, Central and North, as male-dominated: men define and legislate women's place in society. The stereotypical concept of women as helpmates or temptresses (of man) and as feminine (passive, emotional, dependent, not-masculine) defines woman only in relation to man. This man-made concept of woman, falsely presented as women's nature by theories of biological or psychological difference, both legitimizes and conceals individual and institutional violence of men against women, and locks out any positive conception of female power, collective or individual female resistance, or female bonding. Feminists protest the violence, the erasure and the imposition of definition.

Unlike most other systems of oppression and exploitation, the oppression of women is hard to perceive because its mechanisms include extensive mind-binding discourse—a multi-layered and inconsistent mythology which women internalize in the process of learning their native language, being schooled, being inducted into religious practice and community, and being on the receiving end of marketing, advertising, commerce and entertainment. Much about the circumstances of women in male-dominated societies promotes confusion, befuddlement and false consciousness: for example, the mythology of love, the sexual double standard, the division of life into public and private (Firestone; Atkinson; in R.Morgan; in Gornick and Moran; in Koedt; Daly). Consigning women to realms of privacy, intimacy and mundane processes of maintenance, and to mind-numbing personal service, as well as clerical and factory work, encourages a microscopic apolitical mode of experience—close-up, fragmented, non-systematic perceptions and interpretations of our worlds.

Feminists began promoting consciousness-raising groups in which women talked with each other about their personal lives. Discussing subjects such as sex, work, marriage, motherhood, childhood experiences, sex roles and health led to recognizing how women's lives are laced with sexism. (In R.Morgan; in Gornick and Moran; in Koedt.) Consciousness-raising (CR) is a means of appropriating our experience, previously suffered as apolitical dailiness, and reading off it and through it the patterns of social power. CR is a strategy for people whose first critical task of liberation is to clearly perceive the problem. (Hartsock.)

Patterns of social power are made difficult to perceive in a variety of ways. Global patterns are played out differently in different women's lives. For example, the masculine myth of women as dangerous may be

etched in different ethnic and racial communities on one woman's life as 'temptress', on another's as 'castrator'. And the pattern of male access to women's bodies is played out on some women through required exposure of their bodies, on others through required concealment, veiling. The practical contradictions of double binds make it difficult to perceive the political meanings of our actions. For example, a woman may brilliantly defend women's rights, but her engagement in the debate aligns her with the *status quo* sexist value that makes women's but not men's rights debatable. Patterns of power are also obscured by semantic voids and historical erasure, and by our being censored or manipulated into silence. Middle-class white women, finding their seamless lives intolerable, faced a 'problem with no name' and began defining it (Friedan). Black women, addressing their erasure as women and as blacks, recovered their herstory of agency and resis-tance (Shange; Parker; Wallace; in Hull; Lorde). Lesbians, realizing the censoring of our lives, proclaimed our love for women (Wittig; in Birkby; Johnston; in Myron and Bunch; in Penelope and Wolfe; in Beck; in Ramos). And progressive white men, finding their place at centre stage threatened, guilt-tripped white women by claiming that addressing women's issues was racist because it diverted attention from the struggle against racism…a claim often welcomed by black men who had been challenged by black women for making them 'the slave of a slave' (in Cade).

As feminists overcome these barriers to perception, we find connections between apparently disparate and contradictory phenomena. For example some US politicians attacking abortion favour forced sterilization of poor women and women of colour; and while professing concern with the fetus in the womb they do not support the child outside. Feminists began realizing that the consistent pattern suffusing these contrary manifestations was one of institutional control of women's bodies and control of women's biologically and socially reproductive (socializing, care-taking) labour. Patterns of systematically related barriers functioning in the dominant group's interest serve to maintain male domination, police class divisions and ensure white supremacy (Frye).

Feminist theory is a collective process that appeals to, is based in and is mediated by experiences which variously situated women name and appropriate in CR as authoritative grounds for action and thought. All this work involves a fascinating and intricate dance between experience and theory: while experience remains the checkpoint, analyses affect the meanings of our experiences and enlarge their scope. The process engages us in struggles both among feminists and with others which, though sometimes painful, fan the flames of our imaginations.

Feminists expanded the concept of politics to include sexual politics—power relations between men and women as individuals but especially as classes (Millett). Following themes of suffrage, some feminists took up the call for equal rights in order to bring the republic into conformity with its ideology as a democratic society. They argue that sex differences do not justify civil discrimination and insist on women getting equal opportunity, benefits and protection under the law. This liberal-feminist demand has exposed the subordination of women as necessary to the social contract among privileged men. While the patriarchal state may have ended in Europe for men with the overthrow of the monarchies, it did not end for women: the social contract between men includes the division of society into public and private spheres, establishing men's political right over women and their access to and use of women's bodies and labour in the private sphere. (Pateman.)

Other feminists point out that demanding equality with men paradoxically endorses men's status as the norm or paradigm of humanity and citizenship. Furthermore it actually cedes this status not just to any men or all men, but to privileged men (middle to or upper-class, able-bodied, heterosexual, Christian, white), and thus validates the structures and stratifications of western liberal industrial capitalism. This system grew on colonialism, genocide and slavery; it works by extraction of 'surplus value' from the labour of workers. Worker exploitation is facilitated by assigning women to lower status and pay and maintaining an

unacknowledged substratum of women's unpaid labour in the 'private' sphere of home, subsistence production and child-care. This requires the subordination in various ways of women of all races and places; even women of aristocratic and owning classes often play a role in domestic and social management of acknowledged economic value to privileged men. The system also requires that privileged males control the reproduction of a population of suitable workers and consumers, which they do in part by regulating women's sexuality, fertility and child-rearing. (Eisenstein; Hartsock; Ferguson.) Capitalism is a system of stratification, inequality, exploitation, oppression. It is neither structurally possible, nor morally defensible, for all women to have the rights and privileges such a system gives those at the top. For the oppression of women to end, there must be entirely different structures.

Many feminists have noted that male violence against women transcends the material or economic requirements of capitalism; it appears to maintain male dominance as an end in itself. They argue that there is a declared war on women manifest in assault and murder, rape, child sexual abuse, sexual harassment, medical abuse, etc. Some feminists argue that rape is a terrorist institution (Card), benefiting all men because it keeps women believing they need men for protection (Griffin; Brownmiller). Others focus on the misogyny that suffuses men's entertainment, and argue that pornography eroticizes rape and abuse, solidifying the connection between sex and violence characteristic of masculinist life (MacKinnon). Others note that pornographic sons hold the same contempt for the body as church fathers against whom they rebelled (Griffin). Expressing this contempt, pornography is necrophilic and emphasizes sensations without feelings, promotes the mind/body split, and robs women of erotic desire as a source of knowledge and a kind of power (Lorde). Resisting woman-hating agendas that divide women against ourselves, some feminists reach for the dis-covery/creation of woman's Self capable of sisterhood and integrity (Daly; Dworkin; R.Morgan).

Many feminists see female heterosexuality not as a biological given but as a social construct made to seem natural. Central to the systematic oppression of women, the institution of heterosexuality supports dualistic, hierarchical conceptions of difference which underlie other structures such as racism (Daly; Frye; Wittig). Feminists have argued that the institution of female heterosexuality is necessary to the traffic in women which constitutes patriarchal kinship and mediates men's personal and economic relations (Rubin in Reiter; Sedgwick). Some argue that it secures individual women's unpaid services to individual men essential to the structures of domination (capitalism, colonialism, etc.). Some say the institution is grounded in men's very definition of 'woman': 'woman' is defined as what turns men on, as (hetero)sexual availability on men's terms (MacKinnon), as 'appropriated by man'. By these definitions lesbians are not women: not 'women' to men sexually, but also economically, politically and socially (Wittig). Others note that female heterosexuality works politically to separate women from each other, inhibiting our solidarity and our bonding in resistance. Instituted female heterosexuality, presented as natural, renders lesbian experience invisible, or if visible, aberrant and abhorrent. Some note the erasure of lesbian existence even in the women's movement and academic feminist scholarship (Rich). Suggesting a lesbian continuum (Rich; in B.Smith; Card), some have emphasized the wide range of woman-bonding (in marriage-resistance, nunneries, lesbian connection, etc.) and look to female friendship as a model both of ethics and resistance (Raymond). Some argue that it is only friendship, intimate connection, and not mere commitment to political principles, that adequately supports women's solidarity across barriers of race and class (Lugones and Spelman in Pearsall; Anzaldúa; Hoagland).

Focusing on still another material reality of women's situation, racism, women of colour have continuously challenged white feminists. Arguing that black feminism has distinct origins, theorists articulate the interrelatedness and simultaneity of oppressions (in B.Smith; Moraga). Naming a different history of economic participation, domination by white women, and 'freedom' from the dubious privileges of

femininity, feminists argue that black women face distinct problems in resisting capitalist male domination, and have distinct cultural sources of resistance (in B.Smith; A.Davis; Lorde; Kingston). Feminists decry finding themselves in someone else's discourse or story, trapped either in a picture that distorts their lives because of hidden cultural assumptions, or in silence because they have ceased to try to fit into the dominant context (Lugones and Spelman in Pearsall). Noting the relation of ignorance to acts of ignoring (Frye), feminists began articulating privileges that some women enjoy in patriarchy which permit them to distort, co-opt and exclude the concerns of other, less privileged women. Arguing that race and class differences must not be simply tolerated, feminists show they provide the 'fund of necessary polarities between which our creativity can spark like a dialectic' (Lorde). Thus feminists analyse the importance of theories of women of colour moving from margin to centre (hooks).

Some feminists focus on separating from men and from masculine discourse as a way of undermining heterosexual patterns and male parasitism, of becoming woman-identified (Radicalesbians in R. Morgan). Total power is unconditional access, and the first act of shifting power involves taking control of male access to women (Frye). Further, some say that when white feminists argue that women must work with men, they in effect align themselves with white men, their connections with women of colour being at best distant and lacking the revolutionary intimacy of friendship. Thus their analyses are too simple, failing to acknowledge both the differences in the situations of women of colour and the possible fruits of alliance (Lee in Hoagland and Penelope). In not reaching towards women of colour, they acquiesce for example in black men's assuming the right to define black culture. Others argue that separatism is a lens through which we perceive the world and is the prism for many of our ethical choices, focusing our attention on matters central to lesbians and other women (Anderson in *Signs,* 19.2). As such, separatism is a form of engagement. Actually most feminists engage in separating in one way or another from patriarchal values—humanism, masculine notions of rationality, gender roles, individualism, for example—in the effort to free up feminist imagination from defensive focus on men's agendas and to construct new values in new frameworks.

As feminist philosophy moves on, each achievement of clarity reveals more complexity. One early problem and all its variations has yielded a central contribution of feminist philosophy: explorations of how women are agents while neither fully in control of our situation nor total victims—how we are both subjects (agents) and subjected (de Lauretis). Actually the related questions of agency and subjectivity inform, explicitly or implicitly, most feminist philosophy.

A good portion of feminist theory starts from understanding ourselves as victims and therefore as unlike the free-willed, self-defined Man of dominant western philosophy. Prior to feminist activism, rape, wife-beating, incest and sexual harassment were all regarded as private and personal matters, a woman's fault and, contradictorily, a matter of boys being boys. Much feminist work involves articulating ways men victimize and then blame women. However, by the mid 1970s, feminists noted that we must avoid both blaming the victim *and* victimism—the perception of a woman as only a victim and not also a resister. (Barry.) In fact, perceiving women only as victims fails to acknowledge that women *act* in patriarchy. There are many ways both of resisting male domination and of collaborating, and this must be acknowledged to fully understand women's situations and agency. Even direct coercion standardly involves arranging circumstances and options and then depending upon the victim to choose the least bad option available. We are agents, but not free agents, when we choose intercourse over lifethreatening bodily harm. (Frye.) We collaborate when we hold men to lower standards as colleagues, friends and lovers than we hold women to. On the other hand, many feminine stereotypes, as is true of slave stereotypes, obscure resistance to domination, for example acts of sabotage are interpreted as incompetence or insanity (Hoagland).

Perceiving women only as victims also keeps us from realizing how women participate in other oppressive structures, for example ways white women in feminist organizations ignore African-American or Latina women, ways middle-class women use middle-class standards against working-class women, ways heterosexual women silence lesbians, ways able-bodied lesbians ignore disabled women's needs, ways Christian-cultured women (white, black or Latina) foster Christian values uncongenial to Jewish and Native American women, ways middle-aged women champion ageist values when perceiving old women and discount the young. (In Moraga and Anzaldúa; in Anzaldúa; in B.Smith; Macdonald in Macdonald and Rich; in Bunch and Myron.)

An historic example shows how tricky this gets. In one of the early US works dealing cross-culturally with disciplinary inscriptions of power on the body, Mary Daly investigated forms of men's torture of women: European witch-burning, Chinese foot-binding, Indian suttee, African genital mutilation and American gynaecology. By researching men's agendas she shows, for example, that the history of gynaecology is a continuation of the history of the contest over women's bodies. Audre Lorde, however, points out that Daly explored all these atrocities but provided only European images of resistance, and thus does disservice to women of other cultures by erasure of the fact that they have constructed means of resistance within their own traditions. How would Chinese women, for example, be recognized beyond the victim status (Chow in Mohanty)? Even active engagement in resistance does not ensure that we are not also participating in oppression.

Women's agency, ability to act, is compromised overtly by men's violence and imposed barriers to movement, and covertly by masculinist conceptions of female virtue and the self. Early feminist work on morality involves naming the immorality of masculine political agendas and demanding rights, such as the right to control our bodies. Other work challenges socially prescribed feminine virtues such as nurturance and volunteerism, and argues that the standards of womanhood involve self-sacrifice to a degree that is immoral. (In R.Morgan; in Gornick and Moran.)

Some have noted that in masculine discourse the traits defining women's goodness mark them as morally deficient, and have undertaken to revalue stereotypical feminine traits. For example women's 'weak ego boundaries' actually indicate the capacity of empathy, women's 'deference' is actually sensitivity to the needs of others. (Gilligan.) Others question the revaluing of feminine 'virtues'. Nurturing has not cured the violence in women's lives; a woman's misplaced gratitude towards men for taking less than full advantage may be mistaken for care, and misplaced gratitude is a form of moral damage. Women have developed these skills and capacities to survive under patriarchal domination; it does not mean they are timeless virtues. (Card.)

Nevertheless, responding to the fractured view of ethical relations produced by a focus on rights and justice and duty, many feminists reach for an ethics of care (Held; Noddings; Manning; Tronto). Such an ethics more accurately addresses relationships among people than does the fiction of the masculine ethical agent, one who is autonomous, aggressive and competitive (i.e. socially inept), for example the contractual man of liberal utilitarian theory. This model is inadequate to the majority of social arrangements. For example the mother/child relationship is neither voluntary nor contractual. An ethics that uses the model of a mother acknowledges dependency and sharing in relationships. (Held.) Further an ethics that involves not a stance of impartiality (ignoring institutionalized social oppressions) but a stance of partiality (within which one can empathize with the individuals involved) reveals a ground from which different sorts of solutions to moral problems become apparent (Friedman).

All thought arises out of social practice, and maternal practice is governed by concern for the preservation, growth and acceptability of children. It arises out of practices oppressive to women and children and can involve inauthenticity, so it needs a feminist analysis. Nevertheless, maternal practices can

give rise to distinctive ways of conceptualizing, ordering and valuing which can found a feminist peace politics capable of exposing flaws in masculinist militaristic thinking and masculine conceptions of peace (Ruddick). Other feminists question the ideology of heterosexual virtue by which women are held to be better than men because allegedly nurturant and non-violent. Noting this ideology ignores the material history of nurturance (women give freely, expect nothing in return, and are responsible for righting the destruction of men's actions without appropriate power and resources), they argue this framework obliterates women who reject these values and women who actively resist men's appropriation of women's labour (Allen).

Other feminists note that dominant western conceptions of womanhood have excluded black women from the definition of woman and femininity (A.Davis; Cannon; Carby). Some argue that many women do not have the relationship to motherhood that is romanticized in patriarchal images. The cult of womanhood as applied to the southern plantation mistress glorified a wifehood and motherhood and was denied to black women slaves: white men's control over white women yielded heirs and citizens, their control over black women yielded property and capital. (Carby) Consequently some concepts that apply to white women don't apply to black women. For example, self-sacrifice is not a *moral* imperative for those consigned to sacrifice in a state of slavery (Cannon). Others argue distinctive values emerge from women of colour's motherwork, namely survival, identity and empowerment. Simply contrasting an ethics of care with an ethics of justice may bypass survival values as in effect pre-moral. Questions of survival are central and cannot be taken for granted; black mothers resist oppressive ideology both in terms of their own capacity to mother and their children's ability to develop a meaningful racial identity. (Collins.)

Some question the rejection of a justice ethic. An ethics that leaves starving strangers outside the realm of moral consideration, as a care ethic seems to do, is inadequate, especially when we have had a hand in creating those conditions and/or benefit from them (Card). Others note the care ethic's inadequacy in addressing those outside the caregiver's circle, and they question the opposition between justice and care (Friedman; Okin; Young). In developing a feminist concept of justice, they continue challenging the impartial masculine moralist, arguing for a body politic that articulates rather than homogenizes difference (Young).

Significantly, resistance often emerges from neither the care nor the justice frameworks (in Anzaldúa). On the one hand, if we were to focus on women's choices in resisting rape, we might find values emerging that are different than those associated with the care ethic (Moody-Adams in Card). On the other hand, some address questions of survival and resistance, arguing that the moral sphere of black women is survival against tyrannical systems of oppression. Moral agency, thus, involves developing virtues under these circumstances. The virtue of feistiness allows black people to resist white agendas. Unctuousness, acting sincere with the insincere, can help women create possibilities where none existed before. While drawing on notions of care, theorists nevertheless contextualize it with an ethics of survival and resistance that derives from the lives of black women during 250 years of slavery and 100 years of segregation. The emerging moral wisdom involves not only how to survive but how to prevail with integrity. (Cannon)

Central to moral agency under oppression is realizing one is neither in total control nor a total victim: it is not because we are free and moral agents that we are able to make moral choices; rather, by making choices, acting within limits, we declare ourselves to be moral beings. Some suggest the function of lesbian ethics is the development of lesbian integrity, agency and community, and that rather than value autonomy and regard ourselves as related to others antagonistically as occurs under patriarchal ethics whose function is social control, we value autokoenony—self in community. Thus we regard ourselves as one among many, realizing our possibilities emerge only in community and across communities. (Hoagland.)

Revolutionary interacting across communities involves playful world-travel. This is not men's idea of play: to conquer and kill, to colonize and demoralize; one must not play with conquerors. Worldtravel instead involves flexibility, playfulness and epistemic uncertainty. (Lugones) Here we encounter the trickster who unsettles our solidity, seriousness, our ignorance, our arrogance (Cameron). The trickster and play (which can be life-threatening, but then ignorance is life-threatening) become ethical options to disciplinarian notions of duty and justice, dismantling the dismissing power of privilege and erasing the dominant power of ignorance. Here also we become each others' resources, learning about ourselves and each other by travelling to each others' worlds. World-travel offers passage from the constraints of any one culture's ethical construction and is essential to realizing the liberatory potential of feminist thought. (Lugones.)

The theme of women-as-agents transposes, in the realm of epistemology and philosophy of science, to the theme of women-as-knowers. Feminists have consistently attended to the matter of who the scientist or knower is; they have not accepted the abstraction of knowledge from the knowers. They indict the 'impartial' knower much as they do the 'impartial' moralist.

Current feminist challenges to science, following nineteenth-century feminist criticisms, began by exposing the sexist bias of (male) scientists. For example, at a time when scientists thought the frontal lobe was the centre of thought, men did studies 'proving' women's frontal lobes were slightly smaller than men's. When upper- and middle-class women were wearing torturous corsets, their tendencies to fainting were cited by men as 'proof' of their frailty. Some feminists argue that the construction of the masculine *rational* and *orderly* stands on the grave of the feminine *passionate* and *unruly,* and they challenge the whole endeavour for its fractured construction (Griffin). Related feminist queries challenge the laboratory construction of knowledge which extracts pieces from nature, and wonder at the knowledge thereby lost (Merchant; Keller). Still others question the research methods meant to obtain objectivity, questioning the sort of knowledge that is thereby constructed (in Tuana).

Contrasting the earlier nature-as-organism metaphor with the nature-as-mechanism metaphor underlying modern science, feminists argue that the rise of science as an ideology of (male) control over (female) nature results in wilful disregard for and exploitation of the planet and thereby in ecological disasters. Exposing sexual and sexist metaphors scientists use, they argue that sexual politics structures the nature of the scientific empirical method which pretends to be free of cultural and political assumptions. Scientists also inject values into their descriptions of the facts to be investigated. Sexism is intrinsic to scientific discourse. (Merchant; Keller; Irigaray in Tuana) Many feminists explore the use of scientific authority and ideology to keep women 'in their place'—economically dependent and intellectually deprived.

Others focus on the elitism and classism of the professional endeavour—the gate-keeping that ensures that science is a preserve of privileged men. They trace the theft of knowledge/practice from women and the suppression of knowledgeable women, for example the outlawing of midwives during the rise of gynaecology. They demand the reclamation of science, both of empirical, common-sense knowledge (knowledge, for example possessed by European witches about herbs) and of sophisticated technologies, for the service and benefit of the people who are not to be the passive consumers of the mysteries of the elite. And they argue that the professionalization of science, together with the ideology of progress, develops knowledge which primarily benefits only certain classes. (Ehrenreich and English.)

Feminists have exposed some spectacularly bad science which promotes sexism and sexist agendas (Bleier). Arguing about whether the practice of science is intrinsically sexist and racist or whether sexism and racism distort a science which is intrinsically a sound practice, they agree nonetheless that science is not value-neutral (Harding). Some think feminism can bring science more in line with its own goals, exposing the wilful ignorances of a self-selected group of male thinkers. Others argue that the goals

themselves are hopelessly mired in the depths of masculine imagination. A collage of contributions to the understanding of science emerge out of these critical discussions. Many feminists set about recovering women's contributions to science, women whose work has been used by men who receive awards. Others continue to expose the sexist and racist underpinnings of scientific work. Others develop feminist methodology and epistemology or theory of knowledge.

The science upheld as paradigm and most prestigious and, not accidentally, the science most male-identified and 'hardest', is physics. Feminists challenge the assumption that physics is paradigm on the grounds that (1) the subject matter of physics is not complex; (2) physics provides descriptive formulas which are not explanations, and explanations which are vague metaphors, e.g. 'Big Bang' and 'Black hole'; (3) it excludes intentional, learned and 'irrational' behaviour. Reality is complex; science should explain; and the phenomena of intelligent animals have as much right to a high place on the agenda as sub-atomic particles. (Harding.) Standard conceptions of science take the visual knowing of an inanimate object as the paradigm of knowing. Developing a theme of interdependency, some feminists suggest, instead, knowing a person as the paradigm (Code). The latter involves knowing something massively complex; in knowing persons we constantly provide ourselves with explanations; and such knowledge is interactive. Conceiving the knower or researcher as non-interactive enables 'him' to remain transparent. The ideal of scientist as a neutral, objective, irrelative observer allows particular political agendas *(status quo)* to go unquestioned (as is the case with the impartial moralist), promotes knowledge as an instrument of domination and silences his objects of study, his subjects. Acknowledging and inviting interaction between knower and known casts the knower as an interactive agent in the world.

Pursuing the question of bias in science and knowledge, some feminists have articulated various versions of a 'standpoint' theory (Hartsock; Frye; Gilligan; Collins; Harding). The core theme of 'standpoint theories' is that knowers differently located in history and social structures have access to different knowledge of both the social and non-social worlds. For example, men's studies of lions, invoking king-of the-jungle mythology, portray males as dominant. Actually, however, lions are socially expendable, unable to join together in mutual co-operation and protection; 'lion' prides centre on the activities of adult lionesses (Reed). In this and other studies of animal behaviour women observers have discovered very different things than are recorded by men observers (Haraway). In situations where immediate observations are unlikely to differ so dramatically, research agendas and design are affected by the locations and interests of the inquirers. At the very least this means a complete science would require contributions from many locations. Furthermore different lives may also generate quite different, even non-communicating, conceptual frames, values and meanings, so the different knowledges may not be readily assimilable into a collective unified knowledge of a unitary world.

Many feminists also suggest there are different concepts of rationality. Masculine rationality is constructed by excluding attributes and experiences of women and the underclasses. Some pursue the observation that a rational (coercive) unity that appeals to 'truth' doesn't necessarily move people to action; there is no evidence that appeals to reason, knowledge or truth are uniquely effective. Political action and change involve many capacities besides reason including capacities for empathy, anger and disgust. (Flax.)

Feminist rethinking of the knower has also led to the suggestion that individuals' knowing is derivative of community knowing. In a sense the primary knower is a community: what counts as evidence is communal, and construction and acquisition of knowledge are communal processes (Nelson).

Some feminists have questioned the feminist preoccupation with epistemology understood as matters of relations among knowledge, knowers and truth. The interesting relations include those among knowledge, desire, fantasy, passion and various kinds of power (Daly; Flax; Jaggar). The claim that feminist revisions will increase the objectivity and truth of science may be an attempt to make feminism innocent when what we

want is power. When we don't pay attention to desire and fantasy and power, we more easily make epistemology a site of retreat from the conflicts and complexities of interpersonal and political issues (Flax). For example, when privileged white feminists' own projects of knowledge are criticized by other women, women of colour and/or less privileged, as harmful to them, the response often has been not to attend to the women who are being harmed but to attend to theoretical questions about knowledge and theory (Lugones).

Partly as a result of these sorts of considerations, feminists began to realize that the concept of standpoint is not sufficiently complex. It tends to be about fixed locations in a reified 'world'; in the background is an image of two people standing on opposite sides of a statue seeing different things, where one observer is the Husband and the other is the Wife. A much more complex concept was developed, 'situated knowledges' (Haraway). It adds to that background picture, acknowledging differences in allegiances among observers (for example, they may be members of cultures which are in conflict), and places the observers in three-way conversations with the statue which is now animate and talks back. Some ecofeminists have perhaps been most insistent on some version of the world as an active subject (Griffin; Adams; in Gaard; in *Hypatia,* 6.1; in Warren) and on making room for the world's independent sense of humour (Bigwood). We can acknowledge the trickster, 'give up mastery but search for fidelity, knowing all the while we will be hoodwinked' (Haraway).

One reason for a feminist emphasis on epistemology in relation to the project of exploring women's agency has been to rescue women from men's 'knowledge'/construction of women. Feminists focusing on psychology note how it constructs the female (Weisstein in R.Morgan). For example, mental health for a woman is defined by psychiatrists as her being feminine, heterosexual and sexually accessible to therapists (Chesler), and the adult standard replicates the male standard while the female standard is quite different. Early challenges to psychology note the circularity of psychoanalysis: women who deny being phallically oriented in fantasy or reality merely 'prove' that orientation by their denials, women who report incest merely 'affirm' theories of rape fantasy, etc. Feminists expose the theory that women fantasize rape as a male professional cover-up for the sins of the fathers (Rush).

Others challenge concepts such as hysteria and frigidity, while also suggesting one investigate instances of testeria (the ability to calmly, efficiently and maturely carry out assaults, torture and genocide, and planetary disaster such as war, capitalism, totalitarianism) (in R. Morgan; in Gornick and Moran; Loesch in Kramarae and Treichler). Feminists note the types of behaviour for which one is most often hospitalized are disturbingly correlated with race, caste and sex (in Gornick and Moran; in R.Morgan). Others note that psychology, including some feminist psychology, interprets political phenomena as personal problems and pathologies, reversing the feminist-activist discovery that the personal is political (Kitzinger and Perkins). One feminist 'take' on psychoanalysis interprets it as an unwittingly revealing description of patriarchal society and the damage done to individuals as they are inducted into it (Mitchell; Rubin in Reiter).

Focusing on men's relationship to power and the effect material life has on consciousness, some argue that because of the way women are responsible for rearing children in nuclear families in western industrial societies, the infant's first intimacy is solely with a person who is female and socially subordinate. The process of identity formation, thus, is different for boys and girls. This suggests that in such societies men's propensity towards separation and aggression and women's propensity for connection and community result from the sexual division of labour in child-rearing. The social organizing of parenting produces women more capable of non-hostile relations but it also perpetuates patriarchy through the reproduction of mothers. (Chodorow; Hartsock)

In the western patriarchal tradition 'the knower' is unitary, that is, all knowers are in principle the same—the rational man. Feminists introduced plurality and complexity, recognizing many knowers with different knowledges, first with the revolutionary addition of women as knowers and the exploration of differences between women and men as knowers and agents. But the concept of the self, male or female, as having unity and stability is also challenged. A feminist picture emerges of the partial autonomy of a world of desire and fantasy, suggesting that the subject is a shifting and always changing intersection of complex, contradictory and unfinished processes (Flax). The unitary self exists only through the practice of domination, and can sustain its unity only by repressing other parts of its own and others' subjectivity (Flax; Lugones). Particularly in the work of women of colour, we find that plural subjectivities are fluid rather than solid, and contextual rather than universal (Lugones; Anzaldúa).

Challenging the phallic appropriation of meaning and knowledge, refusing to enter the male symbolic by leaving females' sex as negative or unnamed, some feminists undertake to construct a positive female difference that is elusive, fluid and ambiguous (Irigaray), wild, chaotic and disorderly (Daly). By giving voice to that which has been repressed in the canon of philosophy, feminists force canon-mongers to abandon their pretence of neutrality and reveal themselves as gendered, indeed sexed.

Far from being neutral, the ideally rational moralist, scientist and citizen of the liberal state constructs and unifies himself by splitting off aspects of the self he associates with the lives of the disenfranchised, and he thereby commits himself to the logic of paranoia (Scheman). He is threatened by the always already impending accusations from abused women (Nye). The resulting problems of modern philosophy (mind/body, reference and truth, other minds, scepticism) are the neuroses of privilege and are unsolvable so long as the subject's identity is constituted by those estrangements (Scheman; Bordo). Post-modern masculine renditions of the mind/body split are no less abstract, metaphysical, psychotic, misogynistic (Brodribb).

White identity is similarly dependent on marginalization of difference (Spellman): only by defining women and the East as peripheral can western man/humanism present itself as central (Spivak). Much of the theory of oppression in the earlier phases of feminist philosophy concerned oppression by the most privileged people, whose locations of oppression were the most simple (namely privileged white males). Feminist theories of the nature and mechanism of oppression have been made more complex and nuanced since attention has shifted to the ways oppression is enacted by people in mixed positions, like for instance that of white women in western societies or class-privileged women in other societies, and how oppression is experienced by other women who might desire sisterhood and alliance with them.

When western feminists write about Third World women, making assumptions about women's oppression which are rooted in western experience, western feminists become the only true subjects of the counter-history. This contributes to the colonization or erasure of Third World women, robbing them of their history and political agency. (Mohanty; Chow in Mohanty.) When white feminists construct the category of woman as unitary and universal, they replicate patriarchal pseudo-neutrality—this time a cultural or racial neutrality. They achieve the unity by infusing the notion of woman with their own cultural experience and meanings, splitting off and marginalizing women of other cultures. This ethno-centring enables white western women to write about Third World women in ways that impose white western women's meanings and agendas and which erase Third World women's history, agency *and* perceptions of white western women. Western feminists can learn from Third World women they study that the latters' access to the political and sexual scene is autonomous and authoritative. There must be simultaneous questions: 'Who is the other woman? How am I naming her? How does she name me?' (Spivak.) Who am I to her?

Feminist projects involve progressive revisions of our understanding of ourselves as we dialogue with each other, discover problems in earlier theory, and explore new ways of appropriating our experiences and enlarging their scopes through consciousness-raising, playful world-travelling and theory-making. We focus

on divergent aspects of our subjectivity emerging from our experiences as variously situated selves, and in the process offer and find varied contributions to creating/ dis-covering feminist resistance and revolutionary constructions of female agency.

Simone de Beauvoir argued that women must come to full consciousness by antagonistically opposing men as men have opposed women and each other, making Others of men. Many feminists have rejected both de Beauvoir's individualism and this vision of liberation, but it does provide a picture of the fate that befalls you if you decide resistance is enough: you end up in the masculine world of selves busily trying to annihilate each other. Feminists have emphasized the urgency of creating for women (and other oppressed folk) alternatives to a life or self defined only by resistance to and assimilation to male orders of law and language. More significantly, many argue that enduring alternatives cannot be created, like camp-sites for campers, by some women for all women. They have to be continuously created through the creation of selves in community—identities independent of the oppressors and their agendas that do not await validation or legitimation by dominating individuals or institutions (Daly; hooks).

Though much of de Beauvoir has been rejected, many of her themes endure: the theme that selves are continuously created; the idea that making of selves is mortally risky and requires existential courage; the recognition that if you fail to create yourself you will collapse into someone else's creation; the idea that in creating one's self (selves) one is creating value. Feminists variously characterize such selves as wild, radical, creative, feisty, plural, lesbian, self-critical, fiery. The continuous creation and instability of the female selves is also emphasized by many theorists (Daly; Anzaldúa; Lugones). Consciousness is never fixed because discourses change, because historical and material conditions change, because the relationships with others through which identity which is negotiated change; because we are alive. Subjectivity, thus, is not a fixed point of departure or arrival but an on-going construction, (de Lauretis.) The difficulty of women's self-construction leads some feminists to focus on rehabilitating genuine passions such as anger and lust (Daly; Lorde; Parker), some to focus on respect (Addelson; Card), and some to focus on the prerequisites of the integrity necessary to resist coercion, manipulation and de-moralization (Cannon; Hoagland).

The idea that making female selves is mortally risky and requires great courage is perhaps most vividly expressed in the work of some mestiza women (women who cross borders, women of mixed race) (Anzaldúa; Lugones). Leaving behind the familiar, predictable, boundaries and frames within which female and racialized selves have been constructed, giving up the hope of integrity in a prefabricated identity, there is the possibility of being nothing—going someplace unimaginable and not finding yourself upon arrival. Removing masks: the possibility that there is no one at the core (in Anzaldúa). It is a creative project of freedom to recognize one's varied selves in different contexts, to recognize one's self deprived of agency but retaining imagination, to recognize the self oppressed as another face of the self resisting, to grasp that an intention formed by the self you are in one place cannot be carried out by the self in another, and still recognize yourself (Lugones; Anzaldúa).

Mestiza plurality/multiplicity is distinct from the multiplicity of those who develop multiple personalities as a creative survival technique in the face of severe childhood trauma and/or abuse. Mestiza plurality is often characterized as plural modes of being which are available and evolving in plural or ambiguous external situations. While there is no uniform experience of multiple personality, its multiple modes flow in relation to present external situations, as well as according to logics of past situations no longer externally real, and logics internal to the structure of multiple selves. These experiences wreak havoc with the whole constellation of concepts related to *self:* unified self, core personality, choice, authenticity/inauthenticity, conscious/unconscious, memory, epistemic community, co-operation, consensus, difference, community, 'I'. (Leighton.)

The human possibility of multiple personality, as distinct from the plurality of a sort exemplified by the mestiza, reveals that there is more to self and subjectivity and their formation by violence and domination than feminists have yet understood. What can become a problem for people with multiple personalities is not multiplicity but amnesia and sabotage and what is required is not sterile singularity but memory, hobnobbing and solidarity—which suggests that multiple personality may be the useful analogue of communities created under oppression. (Card; Cuomo in Card; Leighton.) Having unavoidable and intimate acquaintance with simultaneous multiple perspectives, some multiples can verify most decisively that there are different ways of simultaneously thinking and feeling with integrity about one and the same thing—something feminists resisting patriarchal science, ethics and politics may need verified repeatedly (Leighton).

Mestiza consciousness also provides for new understanding. It models a tolerance for ambiguity, a transgression of rigid boundaries, of borders set up by dominant groups to distinguish 'us' from 'them'. (Anzaldúa.) It is a consciousness that lives on the borders—lives in neither place and both. Mestiza consciousness raises questions and suggests new thinking about locatedness and its relation to identity.

Mestiza consciousness, unlike a unitary patriarchal consciousness that preserves itself by insisting on seriousness and a unitary world, can show to all feminists the possibility of playful world-travelling which undermines the seriousness fertilizing tyranny and indicates how liberatory possibilities only emerge in community with others. When we travel to another's world, we see what it is to be them in their world. And we see ourselves as we are constructed in their world. (Lugones.) By travelling to each other's worlds, we gain knowledge we need to change, we begin to unravel some of the mind-binding of professional masculine authority, and we thereby begin to dismantle dominant ideology. We are each other's sources of knowledge.

World-travellers engage in conversations, moving the centre around. If they never did before, they begin to speak for themselves, they recognize in others what was hidden in themselves, they speak to their sisters, resisting the gaze of conquerors. If they ever did before, they cease trying to speak for the other, cease trying to exercise an imperialist moral gaze, cease trying to be in charge; instead they listen in a way that finds the other speaking back to challenge not only their understanding of her but their understanding of themselves. They see and are seen in her life. And they locate themselves in the histories of women.

Feminist philosophers generally reject any biological determinism according to which the oppression of women might be explained or justified as a natural consequence of anatomical configurations and functions of male and female human bodies (de Beauvoir; Daly; Wittig; Butler). Perhaps as a result of the desire to avoid any hint of such biological determinism, a good deal of feminist philosophy neglects the female 'sexedness' of our bodies, leaving it unremarked and not integrated in the theories, except in connection with critiquing or revaluing motherhood. But some feminists are very concerned with female bodies, sensual pleasures, physical eroticism and sexuality, independently of their connection with reproduction (Irigaray; Frye; Wittig; J.Allen; Spivak; Zita; Bartky). It is suggested that a fundamental process of the oppression of women is the suppression, indeed annihilation of autonomous female sexuality—eroticism intrinsically related neither to male/men/masculinity, nor to reproduction, and this is connected by many feminists with the erasure of autonomous female selves or subjectivities and with the enormity and riskiness of the projects of selfconstruction (Irigaray; Cixous; Daly; J.Allen; Spivak).

The suppression of autonomous female eroticism is vividly enacted in the erasure of the lesbian alternative, or its co-optation in pornography, and many feminists have argued that making lesbian eroticism a real and practical option for all women is an essential part of liberation strategy (Hoagland; Frye; Card; J.Allen; Trebilcott; Wittig; Wittig and Zeig).

Some claim that the feminist focus on reproductive freedom or the patriarchal appropriation of the womb—especially the tendency to make this the defining issue of feminism—is a mistake and mistakenly buys

into the image of woman as mother. Prior to coupling and maternity, cross-culturally and transhistorically, is physical, symbolic and/or psychological clitoridectomy. The suppression of the clitoris is presupposed by patriarchy and family. It may well be that the patriarchal suppression and feminist reinstatement of clitoral (independent of men and non-reproductive) sexuality constitutes an intersection of cultures and simultaneously an intersection of body and identity at which the immense variety of women and our needs, perceptions, creations and theories can communicate and be articulated. (Spivak.)

Each feminist effort gives us yet another aspect of our possibilities. There is truth in all of them. The political discussion and the process of constructing female selves and agency is multivocal (Lugones). Many feminists argue that only plural subjects can invent ways to struggle against domination that will not merely recreate it, and that subjectivities can be imagined whose desires for plurality impel them towards liberatory action (Lugones; Flax).

Wild Women (Daly). Willful Virgins (Frye). Womanists (A. Walker). Lesbians. Amazons. Home girls (in B.Smith). Witches. Spinsters. Las Mestizas (Anzaldúa). Crones (Macdonald in Macdonald and Rich; B.Walker). Lovhers (Brossard). Sorceresses. Woman warriors (Kingston). *Les guérillères:*

> There was a time when you were not a slave, remember that. You walked alone, full of laughter, you bathed bare-bellied. You say you have lost all recollection of it, remember…. You say there are not words to describe this time, you say it does not exist. But remember. Make an effort to remember. Or, failing that, invent.
>
> (Monique Wittig)

NOTE

1 In feminist philosophy there is such a rich ferment of ideas and so many women tumbling over each other in discussing them, that it is formidable, if not impossible, to attribute origination of these ideas to any individual. Key ideas have often emerged nearly simultaneously in several authors' work, and ideas expressed most influentially in a particular text may have originated elsewhere, in particular, among feminist activists and artists engaged in political activity and struggle. Further, it is misleading to attribute a view to a person which she held five years ago, but not now, thereby encapsulating her thought and denying the incredible vitality of the field. The movement of these ideas is not a history of individuals. Thus we avoid forms which attribute ideas to one person while nevertheless naming some who were there and in whose work you can find this material. Further, we are not trying to be textually faithful to particular writings in characterizing positions; we are blending the accounts of several feminists in the ideas we explore. Our work exhibits a North American slant, particularly in the forms disputes over difference have taken, because that is our location of feminist activism and philosophizing. Finally, virtually no claim here ascribed to 'feminists' or 'some feminists' should be assumed to be shared by all feminists; none should be taken to serve as the criterial test of who or what counts as 'feminist'.

A note on reference style: authors referred to are named in the Bibliography and cited in parentheses in the text (inside the sentence punctuation when the scope of the reference is just one sentence, and outside the sentence punctuation when the scope is more than one sentence). If just a name is given, the reference is to that author's book(s). If a name is preceeded by 'in', the reference is to an anthology edited by that woman. If a reference has the form 'Smith in Jones', the reference is to one or more articles by Smith in an anthology edited by Jones.

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CHAPTER 11
Philosophy of law

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The past forty years have seen a remarkable interpenetration of law and philosophy. Philosophical treatises like J.Rawls's *A Theory of Justice* (1971) have been studied with as much care by lawyers as philosophers while philosophically sophisticated works of legal theory like H.L.A.Hart and Tony Honoré's *Causation in the Law* (1959) have had an influence in areas of philosophy with no obvious connection to law. So deeply connected have the two subjects become that it is probably not possible any longer to say where the philosophy of law leaves off and the rest of philosophy or the rest of law begins. This essay discusses recent work in the areas usually treated as central in books and courses in the philosophy of law—fundamental jurisprudence, the theory of crime and punishment, and issues in responsibility and tort.

FUNDAMENTAL JURISPRUDENCE

Contemporary work in Anglo-American jurisprudence starts from H.L.A.Hart's *The Concept of Law* (1961). In that book Hart argues for a sophisticated legal positivism which finds the source of legal authority in the acceptance by a community of a system of rules. That system is grounded in a fundamental rule of recognition which determines what is to be included among the rules which are the ordinary laws ([11.9], 97 ff.) This picture has two essential aspects. First there is the role of acceptance. Unlike natural-law theories Hart's finds a crucial aspect of the binding force of law in its acceptance by a community as binding. Second there is the notion of a rule. Unlike earlier positivist theories, notably that of John Austin which focused on the idea that a law was a command (typically a threat) issued by a sovereign and backed by force, Hart's theory claims that laws are rules which serve as standards for guiding conduct. Deviations from these standards may well be punished and many people may be motivated to conform merely by the fear of such punishment but theirs is not the point of view from which these are standards and give rise to obligations. That point of view, rather, takes the law as a guide for behaviour and holds the fact that something is a law to be a reason for following it. Those who find or make themselves outsiders to the law may nonetheless act in accord with the law (out of fear of sanction or a desire not to stand out for example) but they do not follow it. Hart illustrates the difference between the two points of view by reflection on the difference between a typical attitude to the law— which is taken to obligate and is used as a guide to action —and to the threats of a gunman—which may oblige us but do not obligate us and with which we would not comply if we did not fear the consequences of non-compliance ([11.9], 80 ff.) Hart recognizes that a system of rules for guiding conduct could exist without officials of any kind but thinks that such a system will have obvious defects which can be overcome by supplementing the primary conduct-guiding rules with secondary rules governing the recognition, change and enforcement of the primary rules. A fully developed legal system will consist of rules of both kinds.

I began by describing Hart's position as sophisticated legal positivism and it is certainly the case that he distinguishes sharply between moral and legal obligation and refuses to ground either in the other. Nonetheless he recognizes an intimate connection between them which is itself grounded in what he takes to be the fact that both are systems of rules closely connected with human survival. For him this fact ensures that there will be a minimal content 'naturally' present in any plausible legal or moral system. Thus while he denies that the immorality of a rule automatically excludes it from the law he recognizes that some features of law are natural in the sense of being a part of any well-established legal system governing the behaviour of human beings in a world like our own. Prohibitions like 'Thou shall not kill' and structural features like the attachment of sanctions to prohibitions are examples to which he points.

Hart's picture of the law opened new and wide avenues of communication between legal theory and philosophy. His conception of rules, of rule-following and of the relations among systems of rules was closely connected with ideas worked out by Wittgenstein and J.L. Austin and forcefully advocated by writers like P.Winch. His insistence on the need for thought about how the law could be normative connected him both with those writers and with others who were concerned with how norms could be part of a philosophy which took modern science seriously.

What distinguishes Hart most sharply from traditional positivist theories of law is his recognition that law has a normative aspect which cannot be reduced to anything like predictions or threats. The law 'claims' that we ought to obey it. What distinguishes him most sharply from traditional natural-law theorists is his insistence that the norms involved in the law are specifically legal norms which arise in the acceptance of a legal system by a community.

How norms could emerge from the combination of the existence of a practice and its acceptance has come to be seen as one of the deepest problems of contemporary philosophy. The problem's significance for legal theory was already recognized by H.Kelsen who in his *General Theory of Law and the State* (1961) arrived at the remarkable view that every legal system rests on a single norm (roughly of the form 'the laws of this system ought to be obeyed') which is presupposed in the operation of that legal system and in legal (as contrasted with sociological) study of that system. In effect Kelsen took the normativity of the law to be presupposed by the law. Hart's view, on the other hand, was that law was indeed normative but was nonetheless entirely constituted by the existence and acceptance of certain practices. Since to accept a rule is at least to treat it as a reason for action, it is not implausible that one's own acceptance of a legal system gives one reason to follow it but why the acceptance of such a system within your community should give you reason to follow it whether or not you accept it yourself is considerably more mysterious. In consequence at least one of the most notable of Hart's students, Joseph Raz, has been driven, in *The Authority of Law* (1979), to acknowledge that there is no general obligation to obey the law (in the sense of 'obligation' in which being under an obligation entails having a reason to act).

Contemporary jurisprudence is dominated by responses to Hart. Perhaps the most influential has been that by Ronald Dworkin. In a series of papers collected in *Taking Rights Seriously* (1977) Dworkin challenges key aspects of Hart's picture. First he argues that Hart has overemphasized the role of rules at law. Dworkin contrasts rules with what he calls 'principles'. They differ in that when a rule clearly applies to a case it dictates how the case is to be treated. Rules may conflict but such conflicts must be resolved by deciding which rule is to apply. Rules may be vague but such vagueness is resolved by deciding whether the rule applies. Hart had suggested that when such decisions are themselves not dictated by other rules a judge who makes them is simply legislating. Since conflict and vagueness seem inescapable in the law Hart thus recognized a realm of judicial discretion practically indistinguishable from legislation. Principles on the other hand have 'weight' for Dworkin. In *A Matter of Principle* (1985) he develops his earlier argument that different principles may clearly apply to a situation and may point in different directions. In such a case the

decision should take all of them into account. Principles are (or provide) reasons for action and like reasons can conflict, override and be overridden, and serve as guides to the interpretation of statute and of precedent cases.

Having argued for the category of principles Dworkin applies it in two striking ways. He uses it first to provide a new model of adjudication and second to argue for a very close relation between law and morality.

Dworkin illustrates his model of adjudication through the figure of Hercules, a judge who knows every statute and every case and suffers no limitations of memory or cognitive capacity. Dworkin suggests that what Hercules must do to settle a case before him is to come up with a theory of the law as a whole and apply it. To generate such a theory of the law Hercules will treat precedent cases and existing statutes as data and will be guided by his current stock of principles. His aim is a theory which accounts for as much of the data as possible and gives each principle the range and weight which seems appropriate. In constructing such a theory Hercules may be led to the view that there are implicit in the law principles not previously noticed. To construct a sufficiently general and coherent theory he may also be forced to conclude that some earlier cases (those which he cannot fit into a satisfactory theory) were wrongly decided. Once he has such a global legal theory Hercules will apply it to the case before him. This case then serves as a further data point. Dworkin suggests that in a well-developed legal system there will be enough cases, statutes and already recognized principles to make the construction of such a global theory possible. Thus he thinks it at least very unlikely that judicial discretion in Hart's sense is ever called for.

In his magisterial *Law's Empire* (1986) Dworkin re-phrased the project in which Hercules is engaged as a project of providing an interpretation of the law by analogy to the way in which a director might interpret a play by Shakespeare. Dworkin regards the project of interpreting as a project of discovering the intention behind something —even in those cases in which we cannot suppose that what is being interpreted is a product of anyone's actual intention. Thus we can interpret a social practice (Dworkin's example is the practice of doffing one's cap in the presence of certain others) by treating it 'as if it were the product of a decision to pursue one set of themes or visions or purposes, one "point" rather than another' ([11.7], 58–9). This move illuminates Dworkin's project but it also makes it more controversial because, by appealing to the concept of interpretation and to literary and dramatic examples of its use, Dworkin opens jurisprudence up to the debates about interpretation which have raged among literary critics and philosophers of literary criticism for much of this century. This has had the sociological effect of giving literary critics employment in law schools and the theoretical effect of embroiling legal theory in the debates around deconstruction.

In *Law's Empire* and his more recent papers Dworkin develops his account of how cases, statutes, rules, principles and other elements are to be interpreted around the slogan 'Law as Integrity'. The integrity of the law is a matter of its internal coherence and the systematic application of its fundamental principles. To conceive of the law as having integrity involves first taking it to be an ideal of political practice that legislators try to make the law morally and politically coherent and second taking there to be a requirement on the part of judges to try to interpret the law as morally and politically coherent. Dworkin takes this demand for coherence to be of one piece with the requirement that the law be just and both substantively and procedurally fair. He argues that interpretive practice of judges must attempt to treat the law as though it flowed from principles of justice, fairness and procedural due process. This has the consequence of placing a theory of political practice (a rather hopeful liberal theory of political practice) at the heart of the theory of adjudication. Not surprisingly this has been highly controversial.

Dworkin argues for a much closer relation between law and morality than Hart admits. He claims, for example, that the Constitution of the United States of America appeals directly to moral principles and moral rights which thus become part of the law and have a legal weight which must be respected in deciding cases. He argues that fundamental moral values, fairness for example, have legal force and can be used both

to determine what the law is and how it is to be applied. He has argued that in situations where it seems to a citizen that a statute violates a moral right for whose legal standing a substantial case can be made the citizen is under no obligation to obey the statute and that the state should take special care with such cases of civil disobedience and should be very reluctant to prosecute them.

Dworkin's relationship to the natural-law tradition is complex and subtle. His accounts of the legal force of moral principles and rights are put forward as claims about the best interpretation of the actual constitutional and legal systems of the North American and European democracies. He denies that what is to be properly called 'law' in any society at any time must respect even the fundamental aspects of morality as we conceive it—or even as that society at that time conceives it. He rejects, for example, the thought that Nazi law was not law at all. Nevertheless he also suggests that 'law' is what a Wittgensteinian might call a 'family-resemblance' concept and that Nazi law differs *as law* in significant ways from Anglo-American law —ways which might make it incapable of justifying coercion. He seems thus committed to the possibility that there might be valid law which did not provide anyone with a reason for acting.

Whether or not we count Dworkin as a natural-law theorist there has been a revival of natural-law theory in the work of philosophers and jurisprudents like Alan Donagan, John Finnis and Germain Grisez. At the centre of this movement has been Finnis's book *Natural Law and Natural Rights* (1980). Finnis begins with the claim that law is necessary for the provision of certain goods which are essential to human flourishing. Among those goods he counts life and health, knowledge, play, aesthetic experience, friendship and other forms of sociability, practical rationality and the contact with the larger order of things which he calls religion. Finnis claims that, properly understood, this is an exhaustive list and that the goods on it are each basic in the sense of being neither reducible to the others nor ranked with respect to them. They are incommensurable requirements for full human flourishing. What Finnis calls the 'common good' of a community is a complex of all these goods and their derivatives in the particular forms appropriate to the members of that community. It is, thus, itself very complex. Finnis reasons from this fact and from his reflections on the nature of the good of practical rationality itself to the conclusion that authority is necessary. Nor is authority necessary only to deal with those who put their own interests ahead of the common good. Even in a community of those striving to attain the common good there would be need for authoritative solutions to co-ordination problems. Such solutions can be found in custom, but, because custom is such an unwieldy instrument, are more likely to be provided by rulers and the legal systems they create. For Finnis the authority of a particular legal system is parasitic upon the fact that most of the community does in fact conform to the demands that legal system makes. This fact and the need for some legal system legitimize *(ceteris paribus)* the particular system in place. There is thus provided a reason for conforming to the demands of that legal system.

Whereas Dworkin conceives of law as an instrument of justice and Finnis conceives of it as an instrument of goodness, Richard Posner and the 'Law and Economies' movement of which he is a central figure conceive of it as an instrument of economic efficiency.

The Law and Economics movement began from Ronald H. Coase's paper 'The Problem of Social Cost' (1960). It received impetus through Guido Calabresi's analysis of the fault system in his *The Costs of Accidents* (1970 [11.30]) and through the analysis of entitlements in G.Calabresi and A.D.Melamed's 'Property Rules, Liability Rules and Inalienability: One View of the Cathedral' (1972 [11.31]). It achieved the status of a movement after the publication of Richard Posner's *Economic Analysis of Law* (1973). Posner agues that the basic aim of law is to alter incentives. For example the law deters activity by raising the expected costs of that activity above the gains to be anticipated from it. Posner suggests that the basic formal structure of law—features such as that compliance must be possible, that like cases are treated alike and that law must be public—can be explained if we suppose that the point of the law is to give people

incentives to do what is economically efficient and suppose that judges are implicitly attempting to determine what would promote that goal. He argues further that the descriptively most adequate theory of the common law treats it as a method for allocating responsibilities among interacting agents so as to maximize the joint value of their activity—that is so as to produce economic efficiency. In his seminal paper Coase showed that standard economic theory entails that if there are no costs to transactions among the interacting parties and if the parties are willing to bargain and trade then any assignment of entitlements among them will be efficient. If efficiency requires that one party have an entitlement it does not have then everyone would be better off if that party bought the entitlement from whoever does have it. If such buying and selling were costless and everyone was willing to buy or sell whenever it was in their interest, then the entitlements would end up wherever it was most efficient that they be. But these conditions are often not met. In particular transaction costs are often quite high. In such cases Posner argues that the law should 'mimic the market'. As he puts it 'Transaction costs are minimized *when the law (1) assigns the right to the party who would buy it…if it were assigned to the other party instead and transaction costs were zero, or (2) places liability on the party who, if he had the right and transaction costs were zero, would sell it'* ([11.12], 18).

Although Posner thinks that his theory gives a good account of the common law he admits that it gives a poorer account of statute law. He argues that this too is explicable on his approach because an economic theory of legislatures will show that they may be expected to be much less concerned with efficiency than are markets or appellate judges. Markets produce efficiency directly and only redistribute wealth incidentally. Legislatures on the other hand have powerful economic incentives to be concerned primarily with the distribution of wealth and only incidentally in efficiency.

Posner ends *Economic Analysis of Law* by leaving as an exercise to the reader the problem *'Can the idea of "justice" as it is used in discussions of law and legal rules and institutions, be deduced from the economist's idea of efficiency? If not are justice and efficiency incompatible?'* ([11.12], 395). Almost all the critical discussion of the Law and Economics movement has been concerned with precisely this question (cf. Coleman [11.2]).

All of the movements with which we have been concerned so far share the view that much, if not quite all, Anglo-American law is justifiable in some fairly full-blooded sense. This position is rejected by the Critical Legal Studies movement.

The Critical Legal Studies movement does not speak with one voice and both its supporters and its critics sometimes treat it rather as a political movement to which one does or does not belong than as a position to which one may or may not subscribe. One of the most central figures in the movement has been Roberto M.Unger, and I will focus on his formulation of its aims and methods. In *The Critical Legal Studies Movement* (1986) Unger describes the movement as having arisen out of a tradition concerned to criticize what he calls formalism and objectivism. Formalism is the view that legal decisions are not political decisions but can be justified by methods of legal reasoning which can be recognized as themselves justified from a standpoint within the law. Objectivism is the view that the legal system as a whole is not merely the resultant of power struggles among competing factions within the society but is justifiable as the embodiment of an objective order of some kind—usually conceived of as a moral or rational order. Unger argues that these two views are mutually supporting and suggests that once the idea that the law embodies objective morality or rationality has been rejected one can see clearly that the project of justifying particular legal decisions by uncontroversial methods must itself be rejected.

The Critical Legal Studies movement positions itself as the heir to the legal realism of Frank, Holmes and Llewellyn and the opponent of both the view which Dworkin represents (what Unger calls the 'rights and principles school') and the Law and Economics movement. Unger calls these watered-down versions of nineteenth-century jurisprudence motivated largely by the fear that if one accepted the critique of formalism

and objectivism then legal doctrine and perhaps even the possibility of normative argument would be undermined. It is understandable that the verbal (and institutional) clashes between the Critical Legal Studies movement and its opponents have been unusually bitter.

It is significant that Unger does not think that Critical Legal Studies undermines either legal doctrine or normative argument. What it does, he suggests, is to continue the legal-realist programme of expanding legal doctrine by bringing both empirical social theory and debate about the right and feasible structure of society explicitly to bear upon the law and legal justification. One consequence of this, he thinks, is to separate political and legal ideals—like that of equality or market rationality—from current conceptions of these ideals, conceptions which treat contingent institutional arrangements as part of the ideal itself. This is to be done partly through detailed historical studies which show how the law typically contains opposing conceptions (principles and 'counter-principles') and show in detail how through political struggles and political deals they came both to be present. This process is illustrated in the law of contract where two conceptions are very much in evidence—one which emphasizes the freedom to choose both with whom to bargain and what terms to accept and another which emphasizes that unfair contracts, no matter how voluntary, are not enforceable. Each of these conceptions can be generalized to a complete theory of contract and each will then treat the core examples of the other as isolated limiting cases. Neither conception by itself can give an adequate account of the existing law of contract and once one sees this one sees also that the concept of contract is not tied to either conception.

The Critical Legal Studies movement sees the law as essentially contested and thinks it highly unlikely that the kind of interpretive project Dworkin proposes—which would yield a theory of the law as a coherent whole—could be carried out for even a very small branch of the subject. The basic reason for this is that the law of a society reflects the history of that society. Since the history of all the larger societies is a history of political and social conflict it is very likely that the law of these societies will itself reproduce these conflicts in the history of precedent cases and the history of statute. At a more abstract level Unger wants to insist (specifically against traditional Marxism) that history is not the working out of a deterministic process but reflects significant choices that could have been made differently. Law will reflect this indeterminism and to attempt retrospectively to impose on these legal choices an explanatory structure which treats the development of law as the unfolding of a single theory is deeply misguided.

It is at this point that the Critical Legal Studies movement intersects currents in contemporary literary theory and contemporary general philosophy. In developing his account of legal interpretation Dworkin appeals to the hermeneutical work of H.-G.Gadamer. In response his critics appeal to other parts of nineteenth- and twentieth-century German and French philosophy—to Hegel, Marx and Nietzsche, to Foucault and Derrida, and sometimes to Heidegger. Dworkin's analogy between legal and literary interpretation has been taken up by deconstructionist critics, lawyers and philosophers who argue that the best picture of texts is not one which treats them as though they were the product of a single coherent authorial intention but regards them instead as more like the field on which various forces and purposes play themselves out. If this is how it is with texts then if Dworkin's analogy holds it will be so with law, and rather than seeking a coherent theory of the law the jurisprudent should recognize its incoherence and its frankly political character. This will involve abandoning legal science as someone like Dworkin conceives it for something more like Unger's expanded doctrine. Philosophical support for these moves is found in Hegel's account of contradictions, in Nietzsche's genealogical account of morality, in Foucault's archaeology of concepts and in Derrida's deconstruction of text (cf. Cornell, Rosenfeld and Gray [11.3]).

THE ENFORCEMENT OF MORALITY

Excepting Law and Economics all of the schools of jurisprudence discussed above agree that there is a deep connection between morality and the sources of law.[1] They disagree fiercely over what that connection is. But morality can also enter the law in quite another way. The law can be called upon to apply legal sanctions to what are perceived to be immoral activities even when no issue of justice or fairness seems to be at stake. The issues involved here are not entirely distinct from the debates in fundamental jurisprudence canvassed above but they have given rise to another literature and another set of connections between law and philosophy.

The contemporary debate about the enforcement of morals at law began with Patrick Lord Devlin's 1958 Maccabean lecture to the British Academy which criticized the recommendation in the 1957 Wolfenden Committee Report that homosexual relations between consenting adults be de-criminalized. The Wolfenden Committee offered the ground that sexual relations between adults were a matter of private morality and that the state had no business regulating private morality. This recommendation echoed the views of the drafters of the Model Penal Code published just two years before in the United States and suggested a trend in Anglo-American jurisprudence. Against this line of thought Devlin argued that the distinction between private and public morality which it presupposed could not be sustained. In 1963 Hart entered the debate with his lectures published as *Law, Liberty and Morality*. Devlin replied in 1965 with his *The Enforcement of Morals*.

Hart's defence of the Wolfenden Report rested on an appeal to and defence of a principle which he found in Mill's *On Liberty* and which has become known as the 'harm principle'. In Mill's formulation it is that 'the only purpose for which power can be rightfully exercised over any member of a civilized community, against his will, is to prevent harm to others' (Mill [11.21]). Mill understood this principle as grounding both liberty of conscience and expression and liberty of tastes and pursuits. Hart agreed and argued that something very like the harm principle lay at the core of a liberal-democratic conception of law. Devlin, on the other hand, argued that such a principle neither could be found in the law as it stood (which criminalized not only homosexuality but also suicide and other self-regarding acts pretty clearly excluded by the principle) nor should be imported into it. At the core of Devlin's argument lay the view that whatever else it may be the law is a means whereby a community exhibits its shared values. Devlin argued that a society is justified in ensuring its own preservation (which is after all why treason is a criminal act). Therefore if the spread of immoral or offensive activity threatens the continued existence of the society the society may prohibit it even if no member of the society is harmed by such acts. An activity can threaten a society's existence in several ways. It can, for example, open a society to conquest or bring it to the brink of civil war. It can also threaten to transform the society in ways which would make it a different society sharing and exhibiting quite different values. A society has a right to protect itself against its destruction in any of these ways. Hart replied that the right of a society to preserve itself against being transformed into another society was much more limited than Devlin admitted. A society had the right to prevent its violent destruction but not the right to prevent its evolution by persuasion.

The Devlin/Hart debate not only reprised the debate between Mill and Stephen (as Hart himself made clear) but also brought into sharp focus the contrast between the liberal conception of the state (which both Mill and Hart accept) and the conception of the state which Hegel espouses in his *Philosophy of Right* and which Devlin and later conservative writers like Roger Scruton (in *The Meaning of Conservatism*) accept.

The debate next moved to the United States. The US Supreme Court, in a series of decisions from *Griswold* vs *Connecticut* (1965) (which struck down a Connecticut ban on contraceptives which extended to married couples) to *Roe* vs *Wade* (1973) (which found that a woman had the right to an abortion in the second trimester of a pregnancy), found in the US Constitution a previously unrecognized right to privacy,

just the sort of right Hart had argued was essential to liberal democracy. Despite this line of cases courts in the US (and elsewhere) steadfastly maintained that the state was under no obligation to permit marriages between same-sex couples (which it was widely recognized were prohibited precisely because they were found immoral and offensive by a large segment of the population). Meanwhile debate over the banning of materials deemed obscene or pornographic continued to grow and to attract the attention of higher courts and controversy arose within some jurisdictions (notably the United States) about whether someone could be prohibited the use of a means to express views because those means were deeply offensive to some person or group (Nazi groups marching through public streets in Jewish neighbourhoods for example) and in other jurisdictions (notably Canada) about whether the dissemination of views which could not be reasonably held to be true and which would incite hatred could be prohibited. In all these issues the adequacy of the harm principle was directly at stake.

At the level of theory there was also considerable development. Eugene Rostow came to Devlin's defence in his *The Sovereign Prerogative* (1962). Dworkin entered the fray in 1966, arguing that there was no right held by a society to enforce a consensus of opinion no matter how deeply held unless that consensus could be defended as a moral consensus, and to be so defended it would have to be shown to be reasonable by the standards of rationality and reasonableness the society and its courts were willing to apply elsewhere. Mere unanimity of feeling did not, he claimed, amount to moral argument. But the most detailed work on this subject has been by Joel Feinberg and is systematically presented in his four-volume *The Moral Limits of the Criminal Law* (1984–8). Feinberg focuses on four principles which have been supposed to provide reasons for criminalizing behaviour. The first is the harm principle. The second is what Feinberg calls the offence principle—that an act's seriously offending others can be a reason to prohibit it. The third is legal paternalism—that an act's harming the agent can be a reason to prohibit it—and the fourth is legal moralism —that an act's profound immorality can be (by itself) a reason to prohibit it. Feinberg accepts both the harm principle and the offence principle but rejects both legal paternalism and legal moralism. In the case of legal moralism he thinks that there is no essential connection between something's moral status and someone's welfare in even the widest sense and so the mere fact that an act is morally reprehensible is no ground for prohibition. Feinberg wants to reject legal paternalism but admits that a person can, even voluntarily, undermine her own interests. This consideration is trumped he argues, by the interference with personal autonomy the prohibition of such acts would require. By accepting the offence principle Feinberg distances himself from Mill. He motivates this distance by having us imagine a 'ride on the bus' during which a remarkable set of very unpleasant incidents occur, all of them quite intentionally produced by others without any concern for their obvious unpleasantness to you. Feinberg argues that these are clearly evils for you, though evils of a sort he thinks different from harms, and that you are wronged by them. Hence the state may prohibit them.

Dworkin, Feinberg and Hart consider themselves to be articulating the attitude liberalism should take to the enforcement of morals but it is hard to find a principle which distinguishes them all from Lord Devlin. Dworkin's disagreement with Devlin is not about whether the community's morality counts but about what counts as the community's morality. Hart's disagreement with Devlin is about whether it is the community's morality as distinguished from 'such universal values as individual freedom, safety of life and protection from deliberately inflicted harm' (Hart [11.19], 70) which licenses prohibition. Feinberg's disagreement with Devlin is over whether anything which does not count as a harm or offence to another person could ground prohibition. These are such different grounds for argument that one is led to wonder whether they are unified by more than the conclusion that certain kinds of sexual conduct should not be criminal.

In recent years the discussion of the enforcement of morality has focused in the United States on whether pornography should be banned. Among the theoretical issues involved has been whether the harm principle justifies such prohibition. Some of this discussion has turned on whether pornography harms individual women or women as a class by increasing the incidence of violent sexual crimes but there have also been several attempts to argue for new categories of wrong and to extend the 'traditional' harm principle to them. For example Andrea Dworkin and Catherine MacKinnon [11.17] have argued that pornography harms women not by (or at least not simply) by causing acts of sexual violence but by creating a climate of values in which it is more difficult than it should be to see such acts as having the scope and gravity they should be seen to have. In more recent work MacKinnon [11.20] has argued that pornographic depictions should be conceived not merely as semantic vehicles but as acts with the power to harm.

PUNISHMENT

Perhaps the most basic question in the criminal law is what justifies punishment. This question can be understood either as asking for a justification of a penal system or as asking what explains how a society is justified in treating a criminal very differently from either a tortfeaser or someone who has innocently caused a harm.

Contemporary discussion of the first reading of the question begins from Calabresi and Melamed in 'Property Rules, Liability Rules and Inalienability' [11.31]. Calabresi and Melamed distinguish between a system of property rules and a system of liability rules. A system of property rules recognizes rights or entitlements which holders can transfer at will but of which they may not be deprived without their consent. A system of liability rules recognizes rights or entitlements may be taken from the holders provided the holders are fully compensated. Calabresi and Melamed point out that when the cost of obtaining a holder's consent is high it may be more efficient to have a system of liability rules than a system of property rules. Reflecting on this issue Robert Nozick (in *Anarchy, State and Utopia* [11.28]) raises the question why not simply have a system of liability rules. Since no one would take an entitlement and fully compensate the holder unless it improved their own situation and since the compensation guarantees that the holder is not made worse off any taking would be a Paretoefficient move. Why not then encourage such takings?

Nozick points out that in economic terms such a system would be one which sets the price of every entitlement at the minimum the holder would take for it. It thus solves the problem of setting a 'just price' in a way that is systematically advantageous to the buyer. He suggests that this is unfair to the holders of goods —who could reasonably hope to do better if their consent were required and who, Nozick argues, have a natural right not to have their goods taken without that consent. (Except in unusual situations: Nozick seems uncertain about the rights of holders when the transaction costs are indeed prohibitively high.) Nozick's conclusion is that a system of property rights is necessary, not for the sake of efficiency but to protect the natural rights of holders. If 'thieves' were only required to compensate their victims they would have no incentive not to take first and compensate later so without punishment in addition to compensation a system of property rights would collapse into a system of liability rules. Hence a society which endorses property rights has an incentive to have punishments as well as compensation.

This ingenious argument does not immediately justify punishment in the sense of the second reading of our question. Even if a system of punishment is a necessary condition for a system of property another argument is required to show that this is not a *reductio* of the view that property rights are themselves justified. This argument has been surprisingly difficult to produce. The argument is required because punishment involves doing to the guilty what it would be impermissible to do to the innocent—depriving

them of life or liberty or some of the means they might otherwise use to pursue happiness. But it is far from clear exactly how the mere fact that someone is guilty could justify such deprivation.

Contemporary justifications of punishment are usually classified as consequentialist, retributive or communicative—though these labels are ill-fitting Among consequentialist theories most focus on the uses of punishment either as a deterrent to crime or as a way of rehabilitating the criminal while others focus on such effects as the greater security punishment yields the innocent. Retributivist theories argue that punishment is deserved by the criminal and communicative or educative theories hold that a crime makes it appropriate to send the criminal a moral message and that punishment does this.

Theoretical work in the first part of this century was largely consequentialist and emphasized the benefits of criminal rehabilitation. In the early 1970s the influence of this approach began to wane. On the one hand behavioural psychologists argued that punishment was less effective than reward as a method of behaviour-modification and on the other rising crime rates and statistics which indicated that existing rehabilitation programmes were a failure combined to suggest that rehabilitation could not justify the existing penal system. At a more theoretical level there was increasing concern that some practices involved in rehabilitation, notably that of indeterminate sentencing, were unjust.

More recent discussions of consequentialist theory have focused on deterrence and on the benefits of keeping criminals off the streets. Here again there has been little clear evidence that the punishments Anglo-American jurisdictions apply deter crime (especially murder and other very serious crimes) and increasing evidence that the societies cannot afford to incarcerate (or legally execute) enough of those whom their policies classify as criminals to induce a sense of security in their cities. Moreover deterrence-based theories of punishment conflict as badly as do rehabilitative theories with the strong intuition that there should be some proportion between the crime and its punishment. If deterrence requires that the expected value of the crime be lower than the expected value of not committing it then one could anticipate that the punishment required for deterrence would vary inversely with the likelihood that the criminal would be caught. Since this likelihood seems to have no necessary connection to the seriousness of the crime then the punishment required for deterrence will have no such connection either.

Perhaps the most interesting recent theoretical work on deterrence theories of punishment has grown out of reflection on the general structure of deterrence. One deters an agent by instilling in that agent a fear of the consequences of his act. One way of doing that is to threaten the agent with harm. When then is one justified in threatening an agent with harm? Several authors (notably Warren Quinn and Dan Farrell) have seen a connection between such cases and cases of selfdefence. Farrell has suggested that the right to self-defence can itself be grounded in a moral permission to distribute harms in such a way that they fall upon the agent who is acting wrongfully rather than upon her innocent victim. He suggests further that one has a moral permission to undertake a plan of action which would so redistribute the harms and therefore that one has a moral permission to undertake a plan of action which would threaten to redistribute the harms. But a plan of action which involved such threats but did not involve carrying them out would not be a credible plan and so would not redistribute the harms. Hence one has a moral permission to a plan of action which involves threatening to redistribute harm which would be wrongfully done one so that it falls on the wrong-doer instead and involves carrying out that threat. Just as I may knock out a thief who attempts to steal my purse so I may threaten to knock him out if he does steal my purse and I may carry out my threat. Such a theory has the advantage over other deterrence theories that it supplies a natural way of setting limits upon punishment parasitic upon the acceptable limits on the force one may use in self-defence. This approach to punishment builds upon a lively recent debate about deterrence sparked by work of Gregory Kavka.

Most of the theoretical work on the theory of punishment in the past quarter-century has been within the broad framework of retributivism theories. Retributive theories argue that by committing her crime the

criminal deserves punishment. Most of the recent work on such theories has been done within rights-based ethical frameworks and so has had to face the question of how it is that the criminal no longer has the rights one ordinarily has within a system of property rules not to be killed, incarcerated or deprived of one's property without one's consent. Contractarians about morality have been tempted to the view that by his crime the criminal voids society's contract with him and so relieves others of their usual moral and legal obligations to him. This approach seems to share the difficulties traditional consequentialists have had in explaining why punishment should be proportional to the gravity of the crime. If something no longer has moral or legal standing then it would seem the issue of proportionality should not arise. But it seems clear that in criminal cases it does arise. Those among retributivists who hold that rights are natural have been less tempted to think that criminals forfeit them than that they are overridden by other considerations. The difficulty here has been to reconcile this with the idea that rights are in some sense absolute and cannot be balanced by other considerations.

Among the most interesting recent work on punishment has been the communicative theories advocated by R.A.Duff and J.Hampton. These theories owe something to Plato and Hegel and something also to Nozick. Hampton [11.26] argues that punishment is justified because a society has a moral right, and perhaps even a moral duty, to convey basic moral and legal principles to its members. Sometimes this can only be done or can be best done by a vehicle which will make a deeper impression than mere words would and perhaps especially conveying to them what it is like to be the victim of a crime. Punishment then is a kind of 'act speech' which communicates values in a striking way. Moreover, Hampton argues that it is the only kind of communication which is necessarily connected with the goal of moral education because it is the only kind of communication which shows the criminal both that her behaviour is wrong and what is wrong about it. Hampton's view is that the state may not use these methods upon all its citizens because the value of autonomy is a strong one which cannot be lightly overridden. The presumption has to be that a citizen understands the basics of morality and law and has the ability to apply them unless she shows otherwise by her behaviour. The latter is precisely what the criminal does. Hampton is insistent that this theory holds punishment to be education and not conditioning and must respect the autonomy of the criminal to the extent this is compatible with communicating the message. Thus she thinks the theory has the resources to explain the intuitive limits on punishment (related presumably to how morally blind and incapable the criminal, as evidenced by the crime, has shown himself to be). Hampton's is a general theory of punishment and her illustrations focus on the ways in which parents educate their children morally through punishment.

Part of what fuels both classical retributivist and communicative theories of punishment is the conviction that consequentialist theories are incapable of treating a criminal as someone who has voluntarily done wrong rather than as something more like a mechanism which has malfunctioned. Thus both retributive and communicative theories insist that the criminal's free choice in the commission of the crime must play a role in the account of punishment. The communicative theorists, for example, regard the criminal as a participant in a communicative situation who has herself spoken and who is being pressed to listen to a reply which she may or may not accept. This emphasis on the criminal's free choice plays an essential role in another theory of punishment which seems to escape the classifications offered above. John Finnis suggests (in *Natural Law and Natural Rights* [11.8]) that we can provide a satisfactory account of the justification of punishment by regarding it as a means to restore the balance of advantages between the criminal and the law-abiding which the criminal has disturbed by his crime. Part of this balance is restored by the ordinary methods of compensation and restitution but, Finnis argues, the criminal has stolen another advantage which is precisely that of exercising his free choice without regard for the consequences to others. To deprive the criminal of this advantage his free choice must be (at least temporarily) restricted beyond the

scope permitted the law-abiding. Finnis thinks that it is this that punishment does and its doing so explains why it usually takes the forms of incarceration and deprivation of resources needed to exercise choice.

CAUSATION, RESPONSIBILITY AND TORT

The classic among contemporary works on causation and responsibility at law is H.L.A.Hart and Tony Honoré's *Causation in the Law* (1959). Hart and Honoré painstakingly analyse the concept of cause as that is used both by philosophers and by lawyers and apply their analysis to issues of legal responsibility. Hart and Honoré are concerned to chart a careful path between those whom they term 'causal minimalists' who in the extreme deny that the question of who caused a harm or loss is at all relevant to the issue of who should be held liable and 'causal maximalists' who argue in the extreme that issues of liability should be settled entirely by reference to causal criteria. Their own view is that the paradigm cases of liability are those in which that liability falls on the party which caused the harm or loss but that these cases by no means exhaust the subject. There are, they point out, clear cases in which a party may be liable though having no causal connection whatever to the act for which they are held liable—an insurer or guarantor may be liable for acts caused by the insured for example. There are also a variety of cases in which a party is liable though their conduct was not the cause of the harm in the ordinary sense of cause but at most an occasion or what lawyers and medieval theologians call a *sine qua non* cause. And there are cases, notably in the law of negligence, where an agent is merely an occasion but is held liable.

The connection between responsibility and causation is an issue in moral as well as legal theory and practice and has received considerable attention in both quarters since the publication of *Causation in the Law*. The entire contemporary debate has been conditioned by the difficulty of giving an adequate analysis of causation. Two recent philosophical analyses have received special attention. One is J.L.Mackie's treatment (in *The Cement of the Universe,* [11.37]) of a cause as an insufficient but necessary member of a minimal set of conditions jointly sufficient (but not necessary) to produce the effect. The other is David K.Lewis's analysis of 'A is a cause of B' as 'A and B and if it were not the case that A it would not be the case that B' [11.36]. Neither of these accounts distinguishes between what Hart and Honoré would consider causes and what they would consider occasions or *sine qua non* causes. Given that the most influential philosophical accounts of causation do not make that distinction it is not surprising that much legal theory has refused to do so. Since in a typical case of tort both parties will be *sine qua non* causes of the harm done and in a typical crime the behaviour of both criminal and victim will be *sine qua non* causes of the crime, then if the best analysis of causation cannot distinguish *sine qua non* causes from other causes, there will be no causal principle which will distinguish the roles of the parties. In that case the law will have to rely in general on something other than causation to settle liability. This position has long been advocated by Leon Green but has received important impetus on the one hand from the recent general willingness to treat 'factual' issues (like questions of who caused what) as being themselves partly normative issues, and on the other from the rise of the Law and Economics movement which claims that tort law (and the common law more generally) can be adequately interpreted as pursuing the goal of economic efficiency—a goal which does not require settling causal issues between the parties. One can then reconstruct the reasoning of Hart and Honoré's causal minimalists as follows: 'In almost any situation in which a harm occurs that harm would have been avoided by a different behaviour on the part of any of the parties. Thus the behaviour of each of the parties is a cause of the harm. We should then regard the harm as a joint product of the activity of the parties and treat the question before us as that of dividing the joint product between them. Since our best theories of causation give us no grounds for distinguishing the contribution of the parties to the joint product we must look for a non-causal (legal or moral) principle which does.' At this point we should expect

causal minimalists to begin to disagree as they propose different normative bases on which to divide liability, and they do.

Although little of the recent work on causation would make one sanguine about using causal principles from outside law and morality to settle issues of liability or blame the revival of moral and legal theories which emphasize individual autonomy and agency points in a different direction. For example Alan Donagan's *The Theory of Morality* (1973) takes it as the standard case that one is morally responsible for exactly that for which one is causally responsible and then proceeds to discuss deviations from this standard case. R.A.Epstein maintains that one should be held liable for exactly what one causes according to a number of paradigmatic causal scenarios. Such theories presuppose an account of causation adequate to their needs.

OTHER SUBJECTS

The areas discussed above have been the most central and most active parts of the philosophy of law in recent years but they do not exhaust the subject. In particular there is the issue of group or collective rights. In several common-law countries (notably Canada and New Zealand) questions about the existence of collective moral and legal rights are of immediate legal and political importance and if the apparent trend towards multicultural and multilingual societies in the common-law countries continues these issues will become more widely pressing. At the theoretical level the philosophical issues involved have been recently explored by Will Kymlicka in *Liberalism, Community and Culture* (1994) and some of the legal issues involved have been treated in a special issue of *The Canadian Journal of Law and Jurisprudence* (1991 [11.38]) devoted to collective rights. There is every indication that this will be an increasingly important area of the philosophy of law in the near future.

NOTE

1 And one could argue that Law and Economics should not be excepted because economic efficency could be understood as a moral ideal.

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CHAPTER 12
Applied ethics

Justin Oakley

INTRODUCTION

Applied ethics is a branch of philosophy which employs ethical theory and the methods of philosophical reasoning to illuminate and resolve important practical problems. In so doing, applied ethics addresses issues which go beyond purely theoretical ethical concerns with the systematic justification of moral judgements, dealt with by normative ethics, and questions about the nature of moral statements, which is the province of meta-ethics. Instead of focusing on those theoretical issues, applied ethics takes as its subject matter the more immediate problems confronted in our lives and in the lives of those with whom we share the world. It does so by bringing the distinctive strengths of philosophical analysis and argument to bear on a variety of practical issues such as abortion, euthanasia, warfare and environmental pollution. These are the kinds of issues which feature prominently in our popular press, but the deeper ethical questions they raise receive scant if any attention there.

After many decades of neglect, applied ethics has flourished in the latter half of the twentieth century, and in fact, has probably undergone more growth during this time than has any other area of philosophy in the same period. It would be a mistake, however, to assume that philosophical activity in applied ethics is only a recent phenomenon, for many of our philosophical forebears were actively engaged with practical ethical questions in their writings. Indeed, the distinctions among meta-ethics, normative ethics and applied ethics reflect recent trends towards specialization, and earlier philosophers writing on ethics would have regarded themselves as addressing questions from all three of those domains. Many of the ancient Greek philosophers shared Aristotle's view that ethics is pre-eminently a *practical* enterprise, and this is clearly reflected in their discussions of the ethics of friendship, death and justice in public life. Medieval scholastics such as St Thomas Aquinas wrote dissertations on war and human sexuality, while several centuries later, David Hume, Immanuel Kant and Voltaire dealt with topics such as suicide and world peace. In the late eighteenth century, Jeremy Bentham applied his revisionary utilitarianism to the ethics of capital punishment, and in the nineteenth century John Stuart Mill developed his influential views on liberalism and on equality between the sexes. We can see, then, that representatives of the three main traditions in normative ethics—Aristotelian virtue ethics, Kantian deontology and utilitarianism—all believed it important to consider the ramifications of their theories for the ways we live our lives. This also gives some idea of the diversity of issues examined in applied ethics, and it illustrates the variety of approaches to ethics through which philosophers have attempted to cast light on important practical problems.

In view of this historical background, it is somewhat surprising that philosophers writing on ethics in the first half of the twentieth century did not share this belief in its practical importance and value. Influenced

by the dominant positivist school of thought, according to which all inquiry was modelled on the empiricist methods of science, philosophers regarded normative ethics as speculative and unscientific, because ethics was thought not to be grounded in facts, and hence to be unphilosophical. The proper task of philosophy, it was argued, is to examine meta-ethical questions about the nature of moral judgements, and about how such judgements are to be classified. So in 1936 A.J.Ayer proclaimed that 'A strictly philosophical treatise on ethics should…make no ethical pronouncements', and that 'ethics, as a branch of knowledge, is nothing more than a department of psychology and sociology' (Ayer [12.1], 103, 112). Thus was dispatched normative ethical theory from the province of true philosophy, and its companion, applied ethics, shared the same fate.

The reign of meta-ethics and the antagonism towards normative ethical theory set the agenda for philosophers until the late 1960s, when normative and applied ethics underwent something of a renaissance. The resurgence of applied ethics was a natural consequence of the renewed activity in normative ethics during the late 1950s, which itself grew out of increasing dissatisfaction with the sterility and insularity of the dominant concerns of meta-ethics. This disenchantment with an inward-looking meta-ethics, and the return of philosophers to an examination of substantive questions of normative ethics, was essentially stimulated by the profound and widespread social changes which began in the west in the 1960s. There was enormous questioning of the dominant moral codes of behaviour, and the study of substantive ethical questions began to be viewed as directly relevant to the broader concerns about equality and racial discrimination raised by the American civil-rights movement, and to issues about civil disobedience, pacifism and international justice, raised by the widespread student protests against US involvement in the Vietnam War. Normative ethics, as practised by academic philosophers, began to be seen as offering an important and distinctive perspective on these social developments, and philosophers started moving away from their preoccupation with metaethics and again engaged with substantive issues of broader public concern. Scholarly institutes devoted to the philosophical study of applied ethics began to be set up, pioneered by the establishment of the Hastings Center in New York State in 1969. The motivation for this renewed activity in applied ethics was the recognition of the value of ethics both in identifying the crucial issues at hand, and in lending the rigour of philosophical argument to the burgeoning discussions of those issues.

One of the earliest areas where dominant social values began to be widely questioned in this period was sexuality and personal relations, and here philosophers contributed articles challenging received views on the ethics of contraception, monogamous relationships and homosexuality. These debates fed into others which were beginning in related areas, such as the morality of the law, punishment and civil disobedience. For example, in the United Kingdom in the late 1950s, the Wolfenden Committee's influential report recommending the decriminalization of homosexuality stimulated a lively debate between Lord Patrick Devlin and Oxford philosopher H.L.A.Hart on whether the law should aim to uphold our shared moral beliefs, or to prevent harm to others. Also, Pope Paul VI's 1968 condemnation of contraception, after an earlier papal commission had already supported the use of contraception in marriage, aroused much controversy among moral theologians. Around the same time, many states began to look afresh at whether or not to retain capital punishment, and ethicists discussed whether punishment should seek to exact retribution, or to deter future offenders—a question which had been addressed by philosophers since Bentham. Civil disobedience arose as a major issue in the civil rights debates of the early 1960s, and with the entry of the United States into the Vietnam War in 1961. Although the civil-rights movement made some headway with the introduction in 1964 of the US Civil Rights Act, continuing concerns about widespread discrimination, along with the activation of legislative provisions for civil conscription during

the Vietnam War maintained the focus of many citizens on the issue of whether it is morally permissible to disobey the law, and philosophers began to take up these concerns in their writings.

The Vietnam War and the massive bombing raids which were thereby undertaken also raised renewed concerns about our treatment of the environment, which had been simmering since the Hiroshima and Nagasaki bombings of 1945, and had reached into new areas in 1962 with Rachel Carson's expose in *Silent Spring* of the effects of widespread use of insecticides such as DDT on delicate ecosystems. During the late 1960s and early 1970s, ethicists joined with biologists and anthropologists to protest against our unrestrained pollution and depletion of the world's natural resources, where the earth was regarded as an object to be plundered for our own purposes, rather than as worthy of respect in its own right. This led to discussions of questions of international justice raised by concerns about overpopulation and Third World poverty. What moral obligations, philosophers began to ask, do we owe to the victims of famine? To what degree are we morally responsible for these catastrophes?

Some philosophers and political scientists argued that a major factor in the occurrence of these tragedies was the single-minded drive of western transnational corporations towards profit, at the expense of human welfare of the citizens of the host countries. This led to a major upsurge of activity in an area which came to be known as business ethics. Philosophers began discussing whether, as economist Milton Friedman argued in 1962, the social responsibility of a business corporation was to concentrate single-mindedly on maximizing its profits, or whether private corporations could also be held accountable for the social and environmental consequences of their actions. Spurred on by these developments, ethicists began to reflect on the nature of professional ethics and their relation to ordinary ethical standards.

The relation of ordinary ethical standards of conduct to professional ethics also arose as a question within medical ethics, where doctors were beginning to deal with the novel and difficult ethical issues brought about by developments in modern medical technology. In this context, ethicists turned their attention to issues about death and dying, and about whether doctors and other health professionals have the right to override a patient's request for the withdrawal of medical treatment. These discussions took up older debates about the nature and moral significance of death and the morality of suicide.

The movement supporting equal rights for women raised new areas of debate about equality of employment opportunities and the justifiability of preferential hiring policies. The women's movement also brought questions about the morality of abortion out of the churches and into the public consciousness, where access to abortion became an issue of bitter public debate.

As this brief introduction indicates, the term 'applied ethics' encompasses a broad range of areas in public and private life. There is the ethics of national and international justice, environmental ethics, ethics of health care, reproduction and genetics, ethics in public policy, business ethics, police ethics, engineering ethics, media ethics and the ethics of the legal profession. Three areas of enduring interest in applied ethics are bioethics, environmental ethics and business ethics, and I shall discuss developments in each of these fields in detail. These areas have become more distinct as the study of applied ethics has flourished; however after an initial divergence, there has been something of a confluence of various sub-disciplines under the heading of 'professional ethics'. This has occurred because of the recognition that each field addresses certain common issues, such as whistle-blowing, conscientious objection and the limits of professional responsibility.

BIOETHICS

One of the earliest areas of resurgence in applied ethics was bioethics. Originally coined as a term describing the ethics of population and the environment, bioethics has come to refer to the study of ethical issues in health care, reproduction, biology and genetics. As such, it includes in its ambit medical ethics,

nursing ethics and ethical issues raised in the other paramedical and welfare professions, such as psychiatric care and social work. Bioethics was at the forefront of the renaissance of applied ethics for several reasons. To begin with, advancements in disease control and the development of new medical technologies such as artificial respirators—which could prolong almost indefinitely the life of a comatose patient—led to a re-examination of received views about death, withdrawal of life-support, and the allocation of expensive medical resources. But the rise of bioethics *was* the result of social as well as scientific and technological factors, for in the 1960s there was an increasing move towards the recognition of patients' rights to due care and adequately informed consent. This movement began to broaden its agenda from initial concerns about experimentation on human subjects, which had been an issue since the Nuremberg Trials of 1947 and the subsequent ethical code of practice issued in 1949, to more general consumerist matters of informed consent and patients' rights to treatment without discrimination.

This consumerist movement towards greater recognition of patient rights intersected with the increasingly vocal women's movement of the late 1960s on the issue of access to abortion. After the de-criminalization of abortion by Britain in 1967, and by New York State in 1970, the most significant event for the pro-choice movement was the 1973 US Supreme Court decision in *Roe* vs *Wade,* which held that women have a constitutional right to an abortion in the first six months of pregnancy. Against this social and legislative background, philosophers turned their attention to the morality of abortion with renewed vigour, and this became one of the earliest issues in applied ethics to attain prominence. Before 1970, most twentieth-century discussions of the morality of abortion focused on whether a fetus has a right to life.[1] If this right could be established, it was argued, then abortion is immoral. However, the first issue of the pioneering journal *Philosophy and Public Affairs,* published in September 1971, carried a ground-breaking article on abortion by the American philosopher Judith Jarvis Thomson, which not only changed the face of the abortion debate, but became one of the most widely known and influential articles in applied ethics ever written.

Thomson rejected the premise that the morality of abortion revolves around the right to life of the fetus. By means of an ingenious analogy, Thomson convincingly demonstrated that granting a fetus a right to life does not entail that abortion is immoral. Thomson asks us to imagine that we awake after being kidnapped by the Society of Music Lovers to find our circulatory system connected to a famous concert violinist, who because of his defective kidneys requires the use of our kidneys for nine months in order to stay alive. In this case we would think, and quite correctly Thomson argues, that the concert violinist has no right to the use of our kidneys for that period, and that we could permissibly disconnect ourselves from him immediately, even knowing that this will result in his death. Having secured our assent to this claim, Thomson goes on to argue that the situation with pregnancy (at least when pregnancy is unchosen) is similar in the relevant respects. That is, the fetus, like the violinist, may well have a right to life, but a pregnant woman can nevertheless justifiably abort the fetus, just as we could justifiably unplug ourselves from the concert violinist (Thomson [12.28]).[2] The effect of Thomson's article was to shift the focus of the abortion debate away from the moral status of the fetus and onto he question of the extent of a pregnant woman's right to control her own body, which Thomson herself saw as the fundamental issue.

Thomson's article was seen as providing a solid philosophical basis for the growing pro-choice movement in favour of abortion on demand, and it spawned a whole industry of books and papers devoted to assessing her argument and its implications for the morality of abortion. One issue arising out of Thomson's argument which has been receiving increasing attention is whether a woman's right to bodily autonomy also gives her the right to fetal destruction. This has become important in the wake of advancements in life-supporting technologies for extremely premature infants, whereby progressively younger infants can be saved, for this means that abortion, at increasingly earlier stages of pregnancy, need not entail the death of

the fetus. Also, the legalization of abortion itself raised new ethical questions about research on the aborted fetus.

Another early issue which continues to receive attention was the question of infanticide, especially in the case of severely disabled newborn infants. The most radical view on the morality of infanticide was advanced by Michael Tooley in a highly controversial paper published in *Philosophy and Public Affairs* in 1972. In this paper, Tooley argued that it is not only fetuses which lack a right to life, but new-born infants possess no such right either, and so infanticide shortly after birth is morally permissible. Tooley's argument for this extreme position is based on his contention that it is only persons, rather than human beings as such, which have a right to life. Tooley's central claim is that personhood requires the capacity for self-awareness, which new-born infants lack. The argument for this claim is premised on certain ideas about the nature of rights. Tooley begins by arguing that conferring rights on a being entails that we are obliged to treat that being in certain ways. The next (and most questionable) step in the argument is that we have obligations towards a being in regard to a certain feature only if it is capable of *desiring* that feature, and this in turn requires that it must be able to have a concept of that feature. Tooley then argues that no being can desire that it *continue* existing as a subject of experiences and mental states unless it believes that it is *now* such a subject. However, since infants are apparently incapable of conceiving of themselves as continuing subjects of experiences until at least three months after birth, Tooley concludes that it is not in itself wrong to kill them before they acquire such a capacity for self-awareness (Tooley [12.29]). For a variety of reasons, many rejected Tooley's specific conclusions about infanticide, although many philosophers found his distinction between the moral standing of humans and that of persons persuasive, and went on to apply it to arguments about severely disabled new-born infants, the elderly and ethical issues in our treatment of animals. For example, utilitarians such as Peter Singer and Helga Kuhse have appealed to Tooley's notion of personhood as a morally significant boundary which can be invoked in making non-treatment decisions about seriously disabled new-born infants (Kuhse and Singer [12.19]). However, others have argued that the moral significance of potentiality and parents' duties towards their offspring would rule out infanticide as immoral.

Moving from the beginning to the end of the life cycle, ethical issues in death and dying have been a major focus of discussion in bioethics from the very beginning of its resurgence in the late 1960s. Improvements in dealing with infectious diseases, in organ transplantation and in life-support systems at that time led philosophers and others to reflect anew on the meaning and moral significance of death, and on the ethics of care for the terminally ill. A question which has aroused great controversy is whether it is ever morally justifiable to bring about, by act or omission, the death of a patient at their request, when this is done for humane reasons. Advocates of voluntary euthanasia support the idea that bringing about the death of a patient in these circumstances is morally justifiable, given that the patient was competent when the request was made. Indeed, to hold otherwise, many argue, is to deny a person their right to 'die with dignity'. This position is put forward by both utilitarians (see Rachels [12.24]), who seek to maximize preference-satisfaction, and by some Kantians, who champion the importance of respect for patient autonomy. However, those opposed to voluntary euthanasia argue that a request to bring about death is an admission of defeat, and, moreover, involves usurping the will of God, who alone can decide when a person's time has come.

These debates re-engaged those discussions of the ethics of suicide which were prominent in the writings of some pre-twentieth-century philosophers, but modern medicine's unprecedented ability to sustain life brought hitherto unforeseen issues into the arena. One of the key events upon which much of the contemporary debate has focused is the 1976 New Jersey Supreme Court ruling on Karen Ann Quinlan, who had been lying comatose with respirator support since April 1975. The court supported Karen's

parents' right to withdraw artificial lifesupport, so that Karen could die in peace. Even though after removal of the respirator, Karen actually survived in a persistent vegetative state until 1985, the court's decision provoked great controversy about the implications it was perceived as having for the obligations of healthcare professionals to maintain life-sustaining treatment, especially in cases where the benefits of such treatment to the patient appeared to be negligible. Some ethicists have thought that the justification of voluntary euthanasia centres on whether death is brought about actively or rather by an omission to provide treatment, and they have argued that euthanasia is sometimes justifiable in the latter case, especially where the treatment withheld would be regarded as 'extraordinary means'. Others have argued that actions which bring about death as a foreseen but unintended consequence are morally permissible (see Steinbeck [12.27]). Many utilitarians have responded that these arguments rely on morally irrelevant distinctions, and that the real issue is whether death would be on balance a benefit rather than a harm (see Glover [12.15]; Kuhse [12.18]), although some (e.g. Beauchamp [12.7]) have defended the moral relevance of the active/passive euthanasia distinction on utilitarian grounds.

The Quinlan case and others involving terminal care for conscious patients gave new momentum to the movement to legalize voluntary euthanasia, which had originated in Britain in the 1930s, to press for legal recognition of competent patients' refusals of medical treatment. Indeed, following the 1973 decision by the courts in the Netherlands not to prosecute doctors who provide voluntary euthanasia, ethicists have discussed at length the implications which such liberalization has for the common objection that such a legalized euthanasia leads inexorably down a slippery slope towards a Nazi-style systematic eradication of the 'socially undesirable'. Those who hold such a view also point to the recent advent of self-administered 'suicide machines' and manuals, which have received much media coverage, as further evidence for their claims. The Quinlan case also reopened an old debate about the definition of death, and contributed to a gradual shift away from the traditional heart-lung notion to the now widely accepted brain-death criterion.

The ethics of abortion and euthanasia were at the forefront of the rapidly emerging field of bioethics during the 1970s, but important scientific advances in new reproductive technologies in the late 1970s and early 1980s sparked a second wave of activity in bioethics, which dealt with the novel and fundamental ethical issues raised by those advances. Foremost among these developments was the birth in 1978 of the first baby from *in vitro* fertilization (IVF), where conception occurs in a test tube rather than inside a woman's body. Initial concerns about IVF surrounded the question of whether it is permissible to 'tamper with nature' in this way, or to usurp God's power to create human life (as arose in the euthanasia debate regarding the taking of human life). However, with the enormous growth in IVF programmes in many countries, later issues focused on whether public expenditure on this new procedure could be justified, against the competing claims of preventive health care, which arguably was far more cost-effective (see Singer and Wells [12.26]).

Early feminists such as Shulamith Firestone, who in 1970 proclaimed that 'pregnancy is barbaric', had eagerly anticipated new reproductive technologies like IVF, for their potential to emancipate women from the burden of reproduction (Firestone [12.13], 198). But the advent of these new technologies met with substantial opposition from many feminist ethicists, who argued that such procedures, carried out mainly by males, merely reinforced existing structures of oppression against women, and bring a range of serious risks which are often undisclosed to the women who participate in them. However, some feminist ethicists have recently come out in support of these technologies on the grounds that, when properly conducted, they actually enhance rather than undermine the autonomy of women (see Birke *et al.* [12.9]).

The apparent success of these reproductive technologies gave added impetus to biological and genetic research into embryo development, and the expertise of bioethicists was called on by government bodies in Australia, the UK and the USA to help draft legislation to regulate such research. This research and its

obvious demonstrable benefits raised new questions about the permissible limits of embryo experimentation, and bioethicists turned their attention to discussions about the moral status of the early embryo.

Embryo research and advances in our knowledge about gene sequences also provided new opportunities for pre-natal screening of embryos for genetic diseases and other characteristics, such as sex. This, combined with progress in the Human Genome Project's attempt to map the entire human genome, has brought manipulation of human characteristics through genetic therapy and genetic engineering from the realms of fantasy into reality. These developments raise questions at the frontiers of applied ethics, and bioethicists have only just begun to respond to the call for further discussion of these unprecedented ethical issues. For example, bioethicists are turning their attention to questions about when genetic manipulation for therapeutic purposes might be justified, and whether eugenic genetic engineering is ever morally permissible. Also, the massive genetic data bank being created by the Human Genome Project has raised interesting new questions about the patenting and ownership of genetic sequences and life forms, and about confidentiality in relation to human genetic information.

This brief survey amply illustrates the diversity of issues addressed in bioethics, and indicates how, like many areas of applied ethics, discussions in bioethics draw on knowledge from a range of disciplines outside ethics and philosophy. However, underneath this apparent variety of topics yielded by the spreading branches of bioethics are some common fundamental questions which remain unresolved. For example, the debates on abortion, infanticide and euthanasia have all placed the traditional Christian notion of the sanctity of human life under critical scrutiny, and adherents of this view have been challenged to give an account of the extent, if any, to which quality-of-life considerations may be permitted to influence decisions to bring about the death of a human being. This challenge has been issued by writers who believe, contrary to the sanctity-of-life view, that different human lives may vary in value, as is suggested by our sense that death at certain stages of life may be significantly more tragic than it would be at other stages. For instance, dying just prior to the fulfilment of one's major goals is arguably more tragic than dying before the 'journey' of one's life has begun, or after it has been completed (see Singer [12.25]). Given that our greater technological capacity to sustain human life often comes at great expense, the question of justice in the allocation of health-care resources is also beginning to assume centre stage, especially in the wake of the widespread influence of economic rationalism in the late twentieth century. A range of bioethicists writing on justice in health care have drawn on the work of political philosophers such as John Rawls, in the Kantian tradition (see Veatch [12.30]; Daniels [12.11]), and Robert Nozick, in the libertarian tradition (see Engelhardt [12.12]), in order to provide the moral grounds of a system of healthcare resource allocation, and this is an area where much work can be expected to be done in the future. Among other unresolved issues which arise in several contexts are questions about the value of privacy, and its implications for determining when the confidentiality of patients with HIV and other infectious diseases might justifiably be breached. Also, the increasing use of advance directives in health care raises questions about personal identity over time, and about the conditions under which paternalistic intervention in patient care may be justified, and further work remains to be done in this area.

A feature of the bioethics movement, however, is its capacity to reach consensus on certain fundamental points. Most notably, there is widespread agreement on the importance of personal autonomy for justifying decisions in patient care, and this concept plays a major role in the arguments of many writers in such areas as the ethics of reproductive decisions, medical experimentation and the permissibility of euthanasia. In particular, the rise of informed consent from a specific doctrine in medical experimentation to a general and virtually inviolable principle in patient care, is testimony to the priority given by bioethicists to the value of autonomy, upon which this principle is based. Indeed, the principle of informed consent has been supported by bioethicists from both the utilitarian and Kantian traditions (see Beauchamp and Childress [12.8]). There

is also a significant degree of agreement on the point that the citizens of a just state have a right to a certain minimal level of health care, and that this care ought to be distributed at least partly according to the needs of the potential recipients.

We can see, then, that bioethics has been quite successful in identifying, examining and in some cases resolving a variety of practical issues; however, bioethics is not simply the mechanical application of ethical theories to practical problems in health care. For the discussion of these practical issues has led in turn to a certain reorientation and re-examination of various aspects of ethical theory itself. This reflexive focus on theory has taken two different forms. First, there has been some adjustment in what are perceived to be the paradigmatic problems of moral practice against which any adequate ethical theory is to be tested. So, for example, the concept of personal autonomy has been accorded a great deal of moral weight in justifying decisions in health care, and so any ethical theory which seeks to be action-guiding in bioethics must be able to account for the importance of personal autonomy. The value of autonomy is naturally explained in Kantian ethics, with its emphasis on right action being determined by humans as self-legislating moral agents. Utilitarianism, however, has traditionally had difficulty in adequately capturing the moral value of individual autonomy, given utilitarianism's single-minded concern with maximization of overall well-being, although recent utilitarians have been making concerted attempts to give autonomy due recognition. Another case where practical issues have redirected the focus of ethical theory is in the renewed attention being paid to the nature and moral significance of personal identity, in light of debates about brain death.

The second way in which attention to issues in bioethics has influenced ethical theory is more fundamental. That is, the very concepts in terms of which these theories are defined and articulated have changed in some instances, as a result of difficulties in applying them to practical problems. For example, Bentham and Mill's classical formulations of utilitarianism in terms of maximizing subjective experiences of pleasure and happiness are regarded as vague by many modern utilitarians, and later writers cast utilitarian theory in terms of maximizing the satisfaction of interests or preferences (e.g. see Hare [12.16], [12.17]). This move has been made partly as a way of broadening the moral sphere to allow consideration to be given to the interests of beings who may not at that time be undergoing any experiences, such as future generations and the comatose, and it has also been influenced by applications of economic theory. Another example of such theoretical modification is the way in which modern Kantians such as Onora O'Neill have focused on the immorality of deceptive and coercive institutions, rather than on the direct application of Kant's categorical-imperative procedure itself (see O'Neill [12.21–3]). And finally, the initial move to subsume professional ethics within broader-based universalist ethical theories has provoked a contrary trend to revive a distinctive medical ethic, grounded in the particularities of the doctor-patient relationship, which modern formulations of virtue ethics and feminist ethics of caring have been thought by some as especially able to capture.

Thus, there is to some extent a dialectical relationship emerging between applied ethics and ethical theory, with each challenging and forcing amendments to the other, in response to their application to the kinds of practical problems discussed above. Also, there is some overlap in the underlying issues addressed by bioethics, on the one hand, and environmental ethics and business ethics, as we shall see.

ENVIRONMENTAL ETHICS

Turning from bioethics to environmental ethics, one may initially be struck by the differences between the kinds of issues addressed by these two fields of applied ethics. However, both these movements share common roots in the widespread challenges to popular consciousness during the 1960s, and both raise certain common underlying ethical issues which are difficult to resolve. Broadly speaking, environmental

ethics deals with questions of rightness and value regarding our relationship with the rest of the natural world. As such, environmental ethicists discuss issues which arise in relation to pollution, the exploitation of natural resources, overpopulation, our attitudes towards and treatment of animals, and the value of ecosystems themselves. In doing so, discussions in environmental ethics often proceed by identifying the kinds of values or features which are at issue, and by attempting to determine, in light of those values or features, what various ethical theories or principles would have us do.

The beginnings of environmental ethics in the twentieth century can be traced back as early as 1915, when Albert Schweitzer began to develop an ethics based on 'reverence for life', in which he included animals, insects and plants as well as human beings. This expansion of the realm of value was quite explicitly taken further during the 1930s and 1940s by the American ecologist Aldo Leopold, in his book *A Sand County Almanac* (1949), which promulgated a holistic 'land ethic', whereby value was attributed to the whole integrated biosphere of landscapes and ecosystems, rather than merely to individual life forms (Leopold [12.37]). This was a precursor to the 'deep-ecology' movement of later decades, which, as we shall see, developed a quasi-spiritual view of the intrinsic value of the biosphere.

However, activity in environmental ethics took a quantum leap during the 1960s, with mounting concerns about pollution, resource depletion and overpopulation. The watershed of the environmentalist movement was Rachel Carson's revelations in *Silent Spring* of widespread land degradation resulting from the use of chemical insecticides such as DDT (Carson [12.32]). The exposure by Carson of the poisoning and fracturing of fragile ecosystems broadened existing public concerns about toxins in food and the environmental effects of nuclear fall-out. Carson's highly influential book, which she dedicated to Albert Schweitzer, forced many to reconsider their instrumentalist attitude to the natural world as an inexhaustible 'resource' which could be unthinkingly used for human edification.

This reassessment led to the formation of broad environmentalist movements, which began to gain a great deal of exposure through public events such as 'Earth Day' in 1970, where American Senator Gaylord Nelson called for every American's 'inalienable right to a decent environment' to be enshrined in the constitution.[3] The word 'green' began to be used as a verb to denote the development of a commitment to environmental concerns. There was also discussion about whether pollution and overutilization of land violated the rights or interests of future generations to inherit a world which was still livable. Some ethicists argued that, as with spatial distance, temporal distance between populations is irrelevant to setting our moral obligations, and so decisions about the utilization of non-renewable resources must make allowance for our duties towards future inhabitants of Earth. This argument draws on intuitions shared by many about our duties to generations in the not-too-distant future, such as our children, but some philosophers objected to this argument because of the epistemic difficulties in foreseeing what the interests of generations in the distant future will actually be.

These concerns about environmental degradation took on a new urgency with the so-called 'energy crisis' in the 1970s, where many became aware that the known reserves of oil and other fossil fuels, on which much of the world's economy depends, were diminishing at an alarming rate. The recognition of the finiteness of these conventional energy sources inspired developments in alternative energies such as nuclear power, but these carried environmental problems of their own. Concerns about resource depletion also gave rise to a variety of theories which sought to explain this phenomenon. A controversial explanation, tracing the problem to demographics, was offered by Paul Ehrlich in his 1968 book *The Population Bomb.* Echoing Malthus's eighteenthcentury views, Ehrlich argued that the environmental crisis was due to the burgeoning world population, which was doubling in size approximately every forty years, and to the resulting exponential increase in the consumption of non-renewable resources (Ehrlich [12.33]). Ehrlich's argument, which pointed to the increased consumption arising from the desire for higher living standards, also raised

questions about the ethics of private corporations deriving profits from meeting desires induced by increasingly sophisticated methods of advertising, which I shall discuss later under business ethics. Ehrlich's claims also intensified the debate about the ethics of contraception, discussed in the previous section, for the widespread availability and use of contraception was championed by many as an answer to the dangers of overpopulation. The overpopulation argument also raised some fundamental questions about the extent of the western world's moral responsibility for and duties regarding the plight of populous but underdeveloped Third World countries stricken by famine and poverty.

The question of moral responsibility also arose in relation to scientists whose research had the potential for application in areas which carried hazards of environmental degradation and pollution, such as agriculture, genetics and weapons research. Here ethicists challenged the appeal to ignorance of consequences, or the attempt to diffuse responsibility over the research organization, which scientists often invoked as a way of excusing themselves from the burden of responsibility for the harmful environmental applications of their research. This led to increased attention being paid to questions about foreseeability, culpability and collective responsibility.

However, during the 1970s the early focus on the human impact of environmental destruction began to be regarded as too narrow and 'anthropocentric', and started to be supplanted by an ever increasing expansion of the ethical sphere to include animals, plants and eventually all life forms. This move was being driven largely by philosophers, whose concerns about the environment led them to reconsider traditional assumptions about the boundaries of moral value and moral recognition, and it was really only with the advent of systematic reflection on these deeper considerations that a distinctive and recognizable movement in environmental ethics began to take shape. An indication of this coalescing of concerns was the appearance in 1979 of the first issue of the international journal, *Environmental Ethics*.

One of the earliest issues in this expansionist movement, which bore clear philosophical roots in ethical theory, was the call to include animals in the moral domain. Thus, drawing on the civil-rights movement's rationale for extending proper moral consideration to blacks and women, Australian philosopher Peter Singer's 1975 book *Animal Liberation* presented a powerful argument in favour of granting adequate recognition to the moral status of animals. Condemning common practices in animal farming and experimentation, Singer argued in favour of vegetarianism on utilitarian grounds, and in doing so brought applied ethics to the dinner table, where our eating habits became a matter of ethics rather than simply of etiquette. Singer argued that the principle of equal consideration of interests underlying arguments against racism and sexism entails that discrimination against beings solely on the basis of their species, or *speciesism,* is also unjustifiable. For any being which has the capacity to suffer thereby has interests which, opponents of racism and sexism must in all consistency agree, ought to be given equal consideration. Therefore, since all animals (except perhaps molluscs and some other invertebrates) have the capacity to suffer, and to experience suffering in much the same ways as humans (given the physiological similarity and common evolutionary origin of their respective nervous systems), all such animals are entitled to equal moral consideration. And if we accept that causing such suffering is morally wrong, then we ought to reform our attitudes towards and treatment of animals (Singer [12.46]). *Animal Liberation* touched the lives of many people, and lit the candle of the animal-liberation movement. Some ethicists extended Singer's arguments to campaign in their writings against zoos and animal blood sports, and began to investigate different approaches to establishing why and to what extent animals can justifiably be included in the moral sphere.

With the rapid diminution and extinction of plant as well as animal species occurring during the 1970s due to industrial, transportation and urban-land developments, the environmental movement lobbied successfully for legislative changes to protect endangered species, which resulted in the Endangered Species

Act being passed in the United States in 1973. These popular and legislative moves led some ethicists to fix their gaze more broadly, and they began to focus on the difficult question of why, if at all, we ought to preserve diversity of species. This broke new ground in applied ethics in two ways. First, the variety-of-species question was taken up in a *general* way, without giving the human species undue priority, and it took the preservation of orchids and other plant species to be an ethical issue. But second, and more fundamentally, the *reasons* which environmental ethicists began to offer for the importance of maintaining species diversity went beyond the value of species to us as humans. That is, while some ethicists argued for preserving biological diversity by appealing to the value of natural variety in enhancing our understanding and appreciation of nature, others argued that whole ecosystems themselves have intrinsic value, and that the value of a particular species could be seen in terms of its importance for maintaining the integrity of that ecosystem (see Norton [12.42]).

This embracing of ethical value in aspects of nature itself found inspiration in the earlier ethics of Schweitzer and Leopold, and was taken even further in the 'deep-ecology' movement, which began in 1972 with a landmark article by Norwegian philosopher Arne Naess, who drew a distinction between shallow and deep approaches to ecological ethics. Naess argued that environmental movements which were motivated by 'shallow' ecological concerns were inadequate, since they operated within the traditional anthropocentric framework, whereby the environment had value because of its contribution to human wellbeing. A 'deep' ecological movement, on the other hand, was committed to maintaining the intrinsic value of the whole biosphere for its own sake, rather than simply for our human edification (Naess [12.39]). There are several varieties of deep ecological theories, grounded in a range of different metaphysics. Some deep ecologists, who regard nature as an extension of themselves, have been criticized as chauvinistic by writers such as Richard Sylvan, who argues that such approaches fail to recognize the otherness of nature and its profoundly non-personal character (Sylvan [12.48]).

This notion of an environmental ethic grounded in the intrinsic value of all nature inspired many writers to go on and develop their own variants of a life-centred or biocentric ethics, and some went beyond this by arguing that even *inanimate* nature has its own independent standing or its own intrinsic value. For example, in a highly influential 1972 paper, legal philosopher Christopher Stone argued that trees, forests, rivers and oceans ought to be recognized as having legal rights. Stone's argument for this claim begins by making explicit the criteria for an entity to have legal rights, which include the provision that legal actions can be instituted *on its own behalf,* having injuries *to it* taken into account by the courts in determining legal relief, and having compensation awarded *to its own benefit* (and not merely to a guardian). Stone then offers a systematic critique of the prevailing legal position on the environment, arguing that there are no good reasons for holding that natural objects cannot fulfil these criteria. Stone suggests that the legal problems of a natural object can be handled by appointing a guardian to act as an advocate for its needs and interests, as is done with persons who have become legally incompetent, and he argues that the cost of 'making the environment whole' (e.g. through reseeding a logged forest, repairing its watersheds and restocking its wildlife) should be the guiding principle in determining the amount of compensation awarded to it (Stone [12.47]). In the early 1980s the philosophical foundations of this approach were further developed by Kantian philosopher Paul Taylor, who argued for a kind of egalitarian environmental ethics, whereby every living thing is entitled to equal respect as a member of the 'community of life' (Taylor [12.49], [12.50]).

However, other ethicists, such as J.Baird Callicott and Holmes Rolston III, rejected the individualism or atomism prevalent in many theories of environmental ethics. In contrast to these approaches, which emphasized the flourishing of individual members of species, Callicott and Rolston were inspired by the earlier ethics of Leopold to attribute value to the entire community of life forms, land forms and ecosystems as an integrated whole, which was given greater weight than any of its component parts. Thus, in Callicott's

ethics, oceans and lakes, mountains, forests and wetlands are assigned a greater value than individual animals, and even viruses and bacteria are included in the realm of value (see Callicott [12.31]). Indeed, Rolston argued that entities such as stalactites, crystals and even entire planetary systems have intrinsic value (Rolston [12.45]). However, some philosophers, such as animal-rights advocate Tom Regan, have argued that this holistic ecocentrism is really just a form of 'environmental fascism', in its indefensible requirement that the rights of individuals must sometimes be sacrificed to the good of the ecosystem as a whole.

Certain writers have recently sought to give this holistic approach to environmental ethics a metaphysical basis. For example, the Australian philosopher Freya Mathews argues for a Spinozistic 'ethic of interconnectedness', whereby the apparently different features of the natural world are regarded as attributes of the same underlying substance. Mathews endorses English biochemist James Lovelock's claim, in his influential book *Gaia: A New Look at Life on Earth,* that the biosphere consists in systems of self-realizing beings. Recalling Spinoza's notion of *conatus* (or the drive to self-realization), Mathews goes on to argue that these self-realizing beings have equal intrinsic value, although she does allow that some degree of species loyalty is morally permissible. Further, in developing our commitment to our own self-realization, Mathews argues that we come to identify with this *conatus* in other beings, and so become properly disposed both emotionally and practically to safeguard Nature in all its manifestations. (Mathews [12.38]).

The move by ethicists towards a larger picture has also been reflected in a shift in the environmental movement during the 1980s away from an exclusive focus on narrower local issues, such as the preservation of a particular species, towards a more global outlook, with the advent of problems in ozone-layer depletion, the 'greenhouse effect' and consequent global warming. This broader perspective has raised new and challenging ethical issues about international environmental justice, and has brought out interesting tensions between environmental values and the claims of social justice. One example of this tension between competing values which is beginning to receive attention concerns the question of the extent to which it is justifiable for affluent western nations to compel impoverished Third World states to preserve wilderness areas, when the economies of those states are so dependent on exploitation of the land for farming and other activities. The question of moral responsibility for this potential conflict also arises, since some writers argue that western nations have helped to bring about a situation of Third World dependence such that wilderness areas in those countries are now under threat.

In summary then, the movements in the intellectual landscape of environmental ethics can be portrayed as a progressive broadening of our concern for different life forms, corresponding to a gradual deepening in our views of what is valuable. But exactly how far we must extend our ethical concerns in these directions remains a hotly debated issue, and the boundaries between the diverse camps in environmental ethics can by and large be drawn according to the different answers they give to this question.

However, it should not be thought that the proper limits to extending the moral domain can be found simply by rigorously applying the particular ethical theory one is already committed to. For as we saw with bioethics, environmental ethics also has a reflexive aspect, where the application of ethical theory to practice has led to new issues and problems for ethical theory itself. For example, ethicists who had adopted the discourse of rights have had some difficulty in capturing the moral status of animals, plants and landscapes in those terms, and some have subsequently abandoned rights talk in favour of the broader notion of 'interests', which they think is better able to accommodate environmental values (on rights and interests, see Feinberg [12.36]). Others, such as John Rodman [12.44], have reformulated Kant's well-known categorical imperative urging us to treat people as ends in themselves, rather than using them as mere means, and have argued that this principle applies to all living things and natural systems which have ends of their own. More fundamentally, the application of ethical theory to environmental issues has also

cast debates about the nature and importance of intrinsic and instrumental values into a new arena, and has led to some clarification of how candidates for intrinsically valuable entities, such as ecosytems, are related to our valuing them. These debates have connected in interesting ways with other, broader, debates in meta-ethics, such as that between Humean projectivism and moral realism.

Another way in which discussions in environmental ethics have raised deeper issues is in the ecofeminist critique of the very idea of an environmental ethic based on a 'theory' at all. Ecofeminists reject the need for theory as a masculinist prejudice which ignores the reality and plurality of experience, and especially of women's experience. In support of this approach, some writers point to the similarities between man's quest for domination over nature, and his attempts to subordinate women (see Warren [12.52]). Other writers argue that historically, women have experienced a close emotional identification with nature (see Ortner [12.43]), and that women are characteristically more sensitized than men to the particularities and the contextual features of situations. While such large claims cannot be evaluated here, we can nevertheless see that issues similar to those raised in feminist critiques of new reproductive technologies and of abstract ethics, which we noted above in discussing bioethics, are beginning to receive much attention in environmental ethics also.

BUSINESS ETHICS

A third area which has emerged as a distinct and active sub-discipline of applied ethics is business ethics. Generally speaking, business ethics is the study of ethical issues in private enterprise and the conduct of commercial affairs. A variety of ethical issues arises in those contexts, but the attention of ethicists has centred mainly on questions concerning the social responsibilities of private corporations, collective responsibility for environmental pollution and other harms, the morality of bribery and extortion, and the justifiability of whistleblowing against one's colleagues. The orientation of business ethics differs from those of both bioethics and environmental ethics in several respects. To begin with, since business ethics is really a sub-division of professional ethics, it is comparable to such fields as medical ethics and legal ethics. For like those fields, business ethics deals with issues which are somewhat narrower than those addressed in bioethics and environmental ethics, which raise fundamental questions about the moral status of human beings and the value of life itself. Also, unlike philosophers engaged in bioethics and environmental ethics, philosophers writing on business ethics have on the whole not made deliberate attempts to formulate unified theories or world-views within which to explain and resolve the distinctive problems which arise in studying the activities of private corporations. Of course, discussions in business ethics do involve applications and examinations of traditional utilitarian, Kantian, and Aristotelian ethical theories, and there is also some scrutiny of broad political and economic theories such as liberalism, capitalism and socialism. However, philosophers have not by and large tried to develop a distinctive 'business ethic', in any sense analogous to either a philosophical medical ethic, or an environmental ethic such as deep ecology. Indeed, the absence of attempts to articulate an overall business ethic is not surprising, given the variety of different commercial enterprises which business ethicists take as their cases in point, and the absence in business of any general traditional professional ethic, akin to the Hippocratic Oath of the medical profession.

The ethics of business and commerce have been discussed by philosophers since the ancient Greeks and Romans, and such concerns also figure prominently in the Christian tradition of moral theology. But the groundwork for many modern discussions of ethical issues in business was laid by the eighteenth-century Scottish philosopher-economist Adam Smith in his classic text on political economy, *The Wealth of Nations* (1776), which argued that a nation's wealth is maximized by permitting individuals to pursue their own interests, rather than through political intervention to secure some notion of the common good. Despite

these historical antecedents however, it was really only in the late 1970s that the somewhat disparate range of concerns addressed in business ethics were brought together as a unified field of study. The seeds of this emerging field were planted in America during the late 1950s and early 1960s, when the behaviour of private corporations came under closer public and government scrutiny. This increased attention was due to a number of factors, such as the growing consumerist and civil-rights movements during that period, but there was also a significant move within certain corporations themselves to examine conventional business practices, in response to their desire to remain competitive with the resurgent economies of Japan and Germany. These movements raised concerns about such issues as industrial pollution, unjust discrimination, corrupt business practices and the extent to which weapons manufacturers gave impetus to US involvement in the Vietnam War.

It is common to distinguish between three levels of analysis in business ethics. The first and most fundamental level deals with the values arising out of the broad social, cultural, political and economic environment in which the activities of corporations are set, and addresses underlying questions about issues such as the compatibility of the free market with considerations of justice and general welfare. The second level of analysis examines the ethics of corporate behaviour directly, in light of certain background assumptions about the distinctive institutional norms of private corporations, while the third level concentrates on the rights and obligations of individuals within a particular business organization.

Following the concerns raised by the environmental and civilrights movements in the early 1960s, one of the first debates in business ethics concentrated on the fundamental question of whether private corporations have any broader social responsibilities, such as maintaining the environment, or alleviating poverty and suffering, or whether it is morally permissible for corporations to focus exclusively on maximizing returns to their shareholders. One of the principal proponents of the latter view was the well-known American economist Milton Friedman, in his 1962 book *Capitalism and Freedom.* Reacting against what he saw as the rising tide of support for the idea that private corporations have greater social responsibilities, Friedman argued that a corporation is purely an instrument of the shareholders who own it, and so its obligations are owed exclusively to them, rather than to the members of society at large, who have no legitimate claims on it. In Friedman's view, the responsibility for dealing with broader social problems falls into the hands of governments themselves, who already exact contributions from private corporations for broader social purposes in the form of corporate taxation. Friedman also supported his position by invoking Adam Smith's argument that social welfare is in any case often best promoted by allowing private corporations to pursue their own interests, since such activity will be indirectly led by an 'invisible hand' to promote social welfare in ways which are often more effective than any corporate activity which aims more directly at this goal (see Friedman [12.61]).

However, this Friedmanesque plea for laissez-faire capitalism and free-market corporate behaviour was hotly contested on a variety of grounds. Many argued that this approach took a far too narrow and atomistic view of private corporations, since their activities affected not only their company shareholders, but also what are sometimes called their 'stakeholders', such as their employees, clients, consumers and the broader community who live near them (see Solomon [12.68]). This raised the question of whether the realm of interests which must be considered in evaluating the activities of businesses can be justifiably expanded in such ways, and this has become one of the central issues of business ethics. Others expressed scepticism about Friedman's empirical claim regarding the effects of the invisible hand on social welfare, and argued instead that an unregulated laissez-faire market would often have significant undesirable consequences for social welfare.

Another branch of opposition to Friedman's view focused not so much on the general question of whether a corporation's neglect of broader social obligations in concentrating on maximizing profits is

wrong in itself, but instead challenged a specific implication of that view in regard to environmental and other public harms, in cases where a clear causal link could be established between a corporation's activities and those broader ill-effects. This kind of criticism arose largely in response to widespread public concerns about the environmental effects of industrial pollution, and about the safety of food additives and pharmaceuticals, especially with the emergence of the devastating sideeffects of certain drugs, such as Thalidomide. Philosophers started to take up these public concerns, and began to debate conceptual and ethical questions about corporate moral responsibility, and about the extent, if any, to which a body of people (a corporation) could meaningfully be held responsible for wrongdoing. Many argued that where social and environmental harms could be shown to be the direct result of business activities, as in industrial pollution and the manufacture of hazardous products, there is a clear case for holding corporations accountable for those consequences (see Arrow [12.55]). However, other writers, influenced by sociological and legal views of the nature of organizations and their limited liability, argued that the idea of a corporation being held morally responsible for harmful outcomes is incoherent, and contended that the notion of moral responsibility is properly applicable only to individuals.

This debate led to discussions among business ethicists and philosophers about the kinds of entities which moral responsibility can be legitimately attributed to, and they examined whether the organizational decision-making structures involving corporate reasons for actions are sufficiently analogous to those of individual persons to treat corporations as accountable moral agents (see French [12.60]). Some have conceded that corporations can bear *collective* moral responsibility for wrongdoing and be liable to sanctions as a result, but have insisted that they cannot be allocated *distributive* moral responsibility for such consequences, and so responsibility and blame cannot be meted out to individual employees. However, others have argued that in the process of incorporating and co-ordinating the disparate actions of individual employees into a structure of power and responsibility, corporations themselves often have a relatively clear idea of how responsibility is distributed over the organization. Indeed, some have pointed out that a refusal to make these structures explicit has enabled corporations to 'shield' guilty parties from appropriate legal and moral sanctions for their contribution to great human and environmental disasters (see Wells [12.70]). One widely supported suggestion often made in this context is that corporations should develop clearer organizational structures so that individual employees can know what they are and what they will be held responsible for. Many corporations are beginning to take such measures, and this suggestion has also had an impact on professional business-ethics education. However, questions remain about what share of moral responsibility it is justifiable to allocate to individual members of large corporations, in cases where social and environmental harms are clearly the result of the activities of the corporation which employs them. This also raises issues about conscientious objection, conflicting loyalties and whistle-blowing, which we shall turn to later.

The publicity surrounding the harmful social and environmental effects of certain corporate activities also raised deeper questions about the relationship between ordinary and professional standards of mora-lity, which we saw also arose in the context of medical ethics. On the Friedman view, the appropriate guiding norms of business are given content entirely by reference to its overriding single goal of maximizing profits for shareholders. In response to protests from those who sought to demonstrate the wider moral responsibilities of business in a democratic pluralist society, supporters of the Friedman approach drew on the common analogy between business and sports, which have their own internal systems of rules, and where ordinary moral standards are somewhat attenuated. The rejoinder to this, however, has been to point out that even in those seemingly extra-moral enclaves, ordinary moral and legal requirements are not suspended altogether. So, for example, a footballer who uses excessive violence during a match can still be charged with assault. Thus, neither a sportsman nor a businessman can properly be regarded as 'a law unto themselves'. Indeed,

some writers, such as environmental lawyer and ethicist Christopher Stone (familiar from the previous section for his argument that trees should have legal rights), turned Friedman's question around, and asked instead why there is any reason to believe that corporations ought to be *exempted* from the ordinary moral obligations of non-maleficence and beneficence which apply to all members of our society. How can a corporate executive, just in virtue of the role he or she occupies, properly regard himself as immune from ordinary moral obligations in respect to his behaviour in his corporate capacity (Stone [12.69])? This kind of argument drew on interesting work in the morality of roles and their attendant obligations, which some philosophers have argued offers a framework better able to capture the distinctive moral position of a company employee than is provided by analyses in terms of the dichotomy between individual and corporate responsibility. For, as R.S.Downie argued, 'an individual person can act in a public or official capacity…[and] in accepting the role he adds to his share of rights and duties those which go with the role' (Downie [12.59]). This also raised questions about the concept and moral basis of professionalism, and about the limits of professional autonomy, which also arise in medical, legal and other areas of professional ethics.

Another early issue which has received much attention by business ethicists is the ethics of advertising, which became prominent as a result of the massive spread of television and its enormous expansion of markets during the 1950s. An initial skirmish in the early 1960s between influential American economists J.K.Galbraith and F.A.Hayek, on the relationship between advertising and consumer demand, brought out one of the key issues in the debate. Galbraith argued that the effects of television advertising confounded traditional justifications of the free market based on its alleged efficiency in meeting existing consumer demand, because of what he called 'the dependence effect'. This is the phenomenon whereby increases in an individual's wants are directly responsive to increases in the levels of production and consumption, since the production which satisfies existing consumer demand itself often results in the creation of new wants (see Galbraith [12.62]). In other words, as a society becomes better off and more productive, and corporations acquire greater access to advertising, individuals come to develop new desires for material goods, through the influence of advertising and their desire to emulate the affluence of others. James Joyce was aware of this long ago: 'Mass seems to be over. Could hear them all at it. Pray for us. And pray for us. And pray for us. Good idea the repetition. Same thing with ads. Buy from us. And buy from us.'[4] Galbraith argued that the creation of these artificial wants, which could be met only through acquiring more goods, simply increased the spiral of consumption, and he argued that we should concentrate instead on meeting those wants which individuals would experience in the absence of those seductive influences. The creation of wants by advertising illustrated another dimension to the social responsibilities of corporations, and aroused important debates in ethical theory about the moral status of different kinds of preferences.

In response to this, Hayek contended that Galbraith's emphasis on meeting original desires uninfluenced by the existence of products which society makes available is a fruitless search for a chimera, since most of our desires, including those for literature, music and other cultural pursuits, are influenced in some way by socialization. Hayek also argued that the producers of goods are not themselves able to determine what consumers will come to want, since people are able to make free choices about such matters for themselves (Hayek [12.64]), and indeed, advertising arguably performs a useful function in informing people of what products are available. However, as others have pointed out, advertising can properly perform this informative function only if it is honest about the products it promotes, but this may well not be the case, since lying or concealing the truth may often serve the company's interests in selling its products and maximizing its profits. This has led to debates about what level of honesty advertisers are morally obliged to uphold, and whether there ought to be legislative provisions against false advertising to protect the rights of consumers (see Goldman [12.63]).

All these issues have been discussed since the early 1960s by a variety of groups, such as economists, political theorists, corporate executives and the public at large. However, it was not really until the late 1970s that philosophers began to engage in sustained discussions of these ethical issues, and this upsurge of activity is evident in the many anthologies on business ethics which began to appear then (see Bibliography, p. 396). With the publication of the inaugural issue of the *Journal of Business Ethics* in 1982, business ethics became the latest of the three main fields of applied ethics to emerge as a recognizably distinct area of study.

Since becoming involved in business ethics, philosophers have developed the early discussions of broad questions much further, and they have also written extensively on specific issues which arise in the context of the individual employee's relationship with his or her corporation. There has been much recent discussion of the morality of various forms of corruption, such as bribery, extortion and insider trading, and also of the moral responsibilities of individual employees who become aware of such activities within their organization.

Business ethicists have taken an interesting approach to discussing the morality of bribery and extortion. Instead of simply issuing blanket condemnations of these practices, business ethicists have argued that there are various circumstances where such practices may be justified. For instance, since bribery is aimed at influencing a person to violate his or her institutional duties or expected roles, one situation where bribery has been claimed to be morally justified is where the institutional duties or roles of the person bribed are themselves already morally unjustifiable. Some writers also argue that the distinction between bribery and extortion is morally significant, since bribery takes the form of inducements for the provision of special favours, whereas extortion (or, as it is more commonly called, blackmail) involves receiving payment for something one is already supposed to do, but which one threatens not to do unless one receives a certain payoff (see Philips [12.67]). Since bribery involves an inducement to violate impartiality, it has been regarded by many as much more difficult to justify than extortion, which does not involve such a violation, and which utilitarians argue is justifiable in cases where such action would prevent great harm. Another kind of situation where bribery and extortion have been defended is where such practices are an integral part of the customs of a particular country in which one is a guest. This has raised interesting meta-ethical questions about the validity of cultural relativism, but many ethicists reject the relativist position, and so argue that it cannot be used to justify acts of bribery and extortion.

With the enormous profits being made during the stock-market boom of the 1980s, and the equally large losses incurred in the stockmarket collapse of 1987, business ethicists turned their attention to questions about whether practices such as 'insider trading' in company shares are ever morally justifiable. Insider trading involves buying large numbers of shares in a company which one knows through 'inside' information is about to be the target of a takeover bid, and then selling these shares at an inflated price to the company making the takeover bid. Insider trading raises ethical issues because it is a practice whereby employees make a personal profit from confidential information about their company's intentions which they have been entrusted with. Insider trading has been portrayed by some as ethically unobjectionable, on the grounds that it is just another example of the spirit of entrepreneurship upon which the business world is built. Nevertheless, ethicists have argued that insider trading is immoral, for a variety of reasons. For example, Gary Lawson argues that the shareholders of the target company are being deceived into making an unfair trade, since they are selling their shares without knowledge of the impending takeover, and so without knowledge of their true market value. Lawson also argues that insider trading may be thought wrong on the grounds that employees are thereby breaking their promise to their employers not to use their position to seek undeserved personal advantage, and that it may be tantamount to stealing information which rightly belongs to their employers (see Lawson [12.66]).

However, since these practices clearly do take place within the modern corporate world, what have business ethicists advised an employee to do where he is aware of such practices occurring, or is being told to participate in these or other immoral practices himself? These situations are extremely difficult for individuals, especially since the burgeoning numbers of unemployed are likely to make many reluctant to take any action. One course open to employees asked to participate in the immoral actions of a corporation which is, say, causing serious environmental damage, would be to refuse on conscientious grounds to carry out their duties. This kind of situation also occurs in the context of nursing and patient care, and it raises important questions about the moral significance of personal integrity, which has received much recent attention in debates about ethical theory. However, where an employee is aware of wrongdoing within their organization but is not themselves participating in it, under what circumstances would they be morally obliged to 'blow the whistle' on their colleagues? This question about the justifiability of whistle-blowing arises in many areas of professional ethics, and ethicists have given different reasons in support of such action being taken. Kantians argue that whistle-blowing is justified because one's duties to prevent harm and injustice to others override one's institutional duties, while utilitarians have defended such action in cases where the harms one is calling attention to are worse than the harms which occur as a result of one's blowing the whistle (see James [12.65]). These kinds of situations often raise difficult questions about conflicting loyalties, and their resolution may well weigh heavily on the individual who has carried out the whistle-blowing (see Wren [12.71]).

We can see then, that business ethics often brings out vexed questions which require deeper analysis in terms of ethical theory before they can be resolved. Nevertheless, business ethics does not generally raise ultimate questions about the nature and value of life itself, and so the reflexive focus back on issues of theory has been less apparent in this field than it is in bioethics and environmental ethics. Nonetheless, the rise of international business and the variations in customs regarding gifts, payments and bribes has led to some revival in discussions of cultural relativism, which had been dismissed by many earlier philosophers. And more importantly, the recognition of the role which the profit motive plays in business affairs has led some business ethicists to raise interesting questions about moral motivation, and about their implications for professional business-ethics education.

CONCLUSION

In this broad sweep over the terrain of applied ethics I have sought to demonstrate both the diversity of issues which have been discussed within its various sub-disciplines, and also how the application of different ethical theories allows some progress to be made in resolving these issues. There are many smaller fields within applied ethics which have made significant progress during the period we have been dealing with, but it is beyond the scope of this chapter to discuss these in any detail. Some of these, such as legal ethics, and computer ethics, may well go on to become highly active fields in their own right. In any case, as we approach the end of the twentieth century, what emerges from this brief survey is that the field of applied ethics has transcended its origins in the popular movements of the late 1950s and early 1960s, and has gone on to become perhaps the most flourishing of all branches of philosophy. In doing so, it has added depth and rigour to popular debates about the most pressing issues in our lives, and has set new challenges for ethical theory. It has also developed the interdisciplinary aspect of ethics, which has always been one of philosophy's great strengths. Let me say a little in closing about what I believe the future directions and issues in applied ethics are likely to be.

In environmental ethics, the rise of globalism and the move towards a new world order in the 1990s seems likely to usher in a greater interventionist role for the United Nations in environmental protection,

and since environmental values may diverge from what social justice requires of us in regard to the survival of those in underdeveloped countries, we can expect further discussion of what kinds of trade-offs between justice and environmental values might be justifiable. This issue also looks likely to arise in regard to the international behaviour of transnational corporations. In bioethics, new advances in reproductive technologies may lead to a questioning of women's responsibilities with regard to child-bearing, and the continued march of the patient-rights movement will intensify debates over both the morality of voluntary euthanasia and its possible legalisation. Justice in health-care resource allocation and its implications for patients' rights to adequate access to and delivery of care will be another subject of continued debate, especially in the wake of our ageing populations, and the widespread moves by many governments to further ration healthcare expenditure. Also, progress in gene-mapping coupled with increasing sophistication in pre-symptomatic genetic screening techniques will raise new questions about the desirability and use of such measures both in reproduction and in the workplace. In business ethics, affirmative-action programmes for increasing the participation of women in the workforce will ensure further discussions of justice and fairness in employment policies, and there seems likely to be a greater focus on the moral responsibilities of individual employees in cases where they are acting in an official capacity.

On a deeper level, there are already signs that the renaissance of applied ethics is spawning a satellite industry of philosophers and others engaged in a reflexive critique of the very enterprise of applied ethics, its influences, its methodology and its relation to ethical theory.[5] For example, some writers have recently argued that bioethics is overly dominated by an ideology of individualism, where the value of personal autonomy has too often been allowed to reign supreme over values of beneficence and community (see Callahan [12.10]). There also promises to be further discussion of the distinction between professional and ordinary morality, and of the special rights and duties which an employee's role confers on him. This might have implications for ethical theory, for it might suggest that there are important limitations on the capacity of the traditional partiality/impartiality framework to capture role-based values and obligations (see Blum [12.2]). The focus on professional roles might also pave the way for stronger connections between applied ethics and moral psychology, where questions about the importance of psychological notions such as 'identification' may arise in relation to the concept of a profession as a 'vocation'. Thus, we may begin to see the development of fields such as applied moral psychology.

The importance of psychology for applied ethics may also become apparent in the context of professional ethics education, where after more than a decade of teaching such courses, philosophers are beginning to ask deeper questions about what the aims of such courses are. For example, ought we to be trying to teach doctors and businessmen just to be good reasoners, ought we be trying to develop their sense of conscience, or ought we be aiming to bring about fundamental changes in their characters? These questions cannot be adequately answered without returning to the nature of ethical theory itself, and the role which different theories give to the importance of character development in acting rightly. This has also raised the question of whether there can be any 'moral experts', which some writers regard as an oxymoron, and on which we can expect to see a good deal of further debate in the future.

John Dewey once said that philosophy should be judged by its capacity to meet the challenge of the very conditions which give rise to it. Applied ethics has helped rescue moral philosophy from the intellectual doldrums of the earlier twentieth century, and it is vital to the future of the discipline, for the disengagement of philosophy from practice can only abet the case for the prosecution.[6]

NOTES

1 The idea that the immorality of abortion follows from the moral status of the fetus is largely a twentieth-century phenomenon. Prior to that, purposes was widely regarded as morally permissible, unless sought for certain purposes, such as convenience or sex selection (see Luker [12.20]).
2 This article has probably been more widely anthologized in applied-ethics collections than any other single article, and that alone indicates a measure of its influence.
3 See *Newsweek,* 4 May 1970:76.
4 James Joyce, *Ulysses,* (London: Bodley Head, 1960), p. 492. (Originally published in 1922.)
5 For example, on the implications of applied ethics for ethical theory, see Rosenthal and Shehadi [12.4], Winkler and Coombs [12.6]; and on major influences on American bioethics, see Fox [12.14].
6 I would like to thank Lynn Gillam, Peter Singer, Chin Liew Ten and, especially, Robert Elliot, for helpful discussions and comments on previous drafts of this chapter.

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CHAPTER 13
Aesthetics

George Dickie

INTRODUCTORY REMARK

Aesthetics in the English-speaking world during the twentieth century, with regard to its central problems, falls into three relatively distinct periods: the psychological, the analytic and the contextual.

Until the 1950s, philosophers attempted to resolve aesthetics' central questions—the nature of the experience of art and the nature of art—by using notions of *individual psychology,* notions of what persons do or undergo as individuals. The attempt to define 'art' as the expression of emotion is an example of the use of such a concept. These notions of individual psychology contrast with social notions of what persons do or undergo as members of groups, for example, a person scoring during a game or receiving a degree from a university.

During the 1950s and 1960s aesthetics was impacted by the two strains of analytic philosophy. One strain is of a formal and stipulative sort. The principal figures in this tradition, Monroe Beardsley and Nelson Goodman, have much in common with the philosophers of the psychological period.

The second strain of influence from analytic philosophy derives from Wittgenstein and the ordinary-language philosophers. Philosophers in this tradition deny that 'art' can be defined and generally advocate a non-essentialist approach in aesthetics. These philosophers, unlike Beardsley and Goodman, break sharply with the methods of the psychological period.

From the early 1960s, a number of philosophers have attempted to resolve the central problems of aesthetics with *contextual* theories. Philosophers during this most recent period have done three things. One, they attacked the use of the notions of individual psychology. Two, they ignored or attacked the anti-essentialist approach of the Wittgensteinians. Three, they attempted to describe the experience of art and/or to define 'art' in terms of artworks' contexts.

I shall discuss relatively few philosophers in order to give more complete accounts of their views. Even so, the accounts may not be complete enough to give a full sense of why the theories of these philosophers were so persuasive and influential at the times they were set forth. The Bibliography, structured with the headings used in the text, lists other works related to the views discussed.

THE PSYCHOLOGICAL PERIOD

Aesthetic experience

Edward Bullough

Schopenhauer, in the nineteenth century, was the first to present a full-blown aesthetic-attitude theory, a theory that places disinterested cognition and a detached state of mind at the centre of aesthetic theorizing. This way of theorizing has been enormously influential. Bullough's article on psychical distance (1912 [13.1]) presents the earliest of the well-known, twentieth-century, aesthetic-attitude theories. Bullough, following Schopenhauer, seeks to allay the philosophical fear that people, unless psychologically restrained, will behave practically towards natural scenes and behave towards art in the practical way they behave towards reality.

Bullough claims that to appreciate aesthetic qualities, one must be psychically distanced, a state that puts one 'out of gear with practical needs and ends' and blocks practical thoughts and actions. This state detaches the experience of aesthetic qualities from the rest of experience. Ethel Puffer, Bullough's contemporary with a similar theory, claims that the description of aesthetic detachment 'constitute[s] a theory and a definition of hypnotism'.

Bullough illustrates psychical distance with two cases: someone in a fog at sea and a jealous husband at *Othello*. Supposedly, a distanced person would be able to appreciate aesthetic features because his state of being distanced would prevent him in the one case from being consumed with thoughts of dangers at sea or in the other case with thoughts of an unfaithful spouse. Bullough generalizes from such cases and concludes that all appreciation of aesthetic features requires being psychically distanced. He even claims that being psychically distanced makes stage characters fictional for audience members; gallant, undistanced spectators will attempt to rescue stage actresses from stage villains.

There is a certain plausibility to the view that persons in desperate straits, say, in a fog at sea, must be psychologically restrained in order to appreciate aesthetic features. Most aesthetic situations—looking at a still-life in a museum, for example—are not desperate and do not suggest the need for psychological restraint. It is a mistake to generalize from desperate cases to non-desperate ones. Even in the desperate cases there is no reason to think that psychological restraint occurs or is needed. Worrying about dangers at sea or a wife's suspicious behaviour are just ways of being distracted from the aesthetic qualities of the fog or the action of the play, not ways of being free of psychological restraint. If one's fear or suspicion are allayed, one can attend to aesthetic qualities or a play's action.

That the experience of art requires a detached state has led to the condemnation of certain artistic techniques. One Bullough follower (Dawson [13.2]) condemned Peter Pan's appeal for applause to save Tinker Bell's life because it would supposedly destroy psychical distance and make children unhappy. Should these imaginary, theoretical children be taken seriously? Multitudes of children over the years have responded enthusiastically to the appeal! Incidentally, an actor addressing the audience is an old and common device.

Aesthetic-attitude theorists think that threatening situations, certain theatrical devices, and (if attended to) the intellectual, moral and referential content of art can destroy the detached state that makes aesthetic experience possible. They believe, however, that being psychically distanced can block attention to art's content and allow it to be properly experienced—as the object of aesthetic experience.

David Prall

In *Aesthetic Judgment* (1929), Prall continued the aesthetic-attitude tradition. He begins by declaring that art and the experience of it 'do not contribute to the interested practical and social activities of men' [13.4]. The proper experience of art is of its 'aesthetic surface', colour, sound, spatial order, rhythm, and the like, features that are appreciated independently of anything they are related to. If one attends to the intellectual, moral or referential content of art rather than merely to its aesthetic surface, one 'depart(s) from the… aesthetic attitude'. Prall devotes much space to detailed discussions of aesthetic surfaces. Late in his book, he has second thoughts about art's content. Of literature, he says we experience 'the vast possibilities of life, of human passion and emotion,…and all the thousand relations that men bear to each other'. He then tries to link aesthetic surface to content by 'thickening' aesthetic surface to encompass art's intellectual, moral, and referential content. He first defined aesthetic surface as a perceptual quality experienced as *unrelated* to anything else, but now he wants to *relate* it to what it can represent, describe, state and refer to. Prall ends in a contradiction, trying to give both the content of art and aesthetic surface the weight they deserve.

Jerome Stolnitz

The staying power of the aesthetic-attitude tradition is shown by the fact that Stolnitz claims in 1960 [13.5] that *attending disinterestedly* detaches aesthetic experience from the rest of experience. Stolnitz contrasts disinterested attention with interested attention. He claims, for example, that a critic attending a concert to write a review attends to music *interestedly,* while a person with no such ulterior motive attends *disinterestedly* and has an *aesthetic* experience. The difference between the critic and the non-critic is, however, one of motives, not attention. Motives can affect attention—distract it, focus it—but if the critic and the non-critic attend to the music, despite their motives, their attentions will not be of different kinds. Attending in order to write a review is not a kind of attending, although the prospect of writing a review might focus attention sharply. The critic case and other cases that Stolnitz calls 'attending interestedly' do not involve a kind of attending but simply attending with a particular motive. Some of his cases of 'attending interestedly' turn out to be cases of inattention.

John Dewey

Dewey's theory of aesthetic experience is discussed out of chronological order because it acts as a corrective for the highly influential aestheticattitude theories. Dewey begins *An as Experience* (1934 [13.3]) with a promising account of the experience of art, focusing on the experience of an organism within its environment. In speaking of art *as experience,* he is emphasizing the distinction between what he calls 'the art product', for example, a canvas covered with paint and what he calls 'art', the art product when properly experienced. Dewey understands the experience of art to be a development out of ordinary experience, and it is not seen as detached from life.

Dewey envisages the experience of art as aesthetic experience, which he sees as a development out of the aesthetic experience of natural things. He explicitly rejects the conception of aesthetic experience that flows from Schopenhauer through Bullough to Prall. He sees aesthetic experience not as detached and contemplative but simply as experience with a substantial degree of internal coherence; it is for him the kind of thing we note as being '*an* experience', experience in which the elements cohere into a consummately unity and stand out from the flow of experience.

Dewey does not say much about the referential aspects of art. Reference is troublesome for aesthetic-attitude theorists because features of art that refer from *inside* a supposedly detached and self-contained

aesthetic experience to something outside it are thought of as disruptive of aesthetic experience. Referential features of art are not a problem for Dewey. The elements of aesthetic experience, for him, cluster together but they are not detached and isolated from the rest of experience.

The philosophy of art

George Santayana

While Santayana's *Reason in Art* (1905 [13.11]) is perhaps the earliest of the twentieth-century philosophies of art in English, its philosophical theses are neither developed nor argued for. The book is largely devoted to art criticism.

Santayana begins with a discussion of the place of art within his philosophical naturalism. By 'art' he means technology. Santayana then moves to the *fine* arts, defining them as 'productions in which an aesthetic value is or is supposed to be prominent'. He notes that fine art 'has many non-aesthetic functions and values', a thesis that recurs frequently to emphasize the continuity of art with life. Santayana's definition and his repeated thesis are never defended, and the holders of opposing views are not mentioned. The philosophical topics appear merely to be prologue to the art criticism.

Clive Bell

Bell's *Art* (1914 [13.6]) presents what is generally regarded as a formalist philosophy of visual art. The foundation of Bell's theory is 'the aesthetic emotion', an emotion distinct from the ordinary emotions of life such as pity and fear. All *sensitive* persons, he says, can experience and identify this emotion. He then asserts, 'The objects that provoke this emotion we call "works of art".' The next step is to discover what works of art have in common as their essential quality. He assumes that only *one* thing causes aesthetic emotion. His answer is that the essential quality of art is *significant form*. He means by 'form' the relations of line and colours in visual art, and by 'significant form' he means the sub-set of these forms that evoke aesthetic emotion. Bell denies that representation as such in art has any artistic value.

Bell's view is not really a philosophy of art because it excludes many objects ordinarily viewed as works of art. He asserts that the great bulk of paintings, statues and the like are not works of art; they do not provoke aesthetic emotion. Another reason his theory is not a philosophy of art is that he says significant form, art's essential quality, sometimes occurs in natural objects—he cites a butterfly wing. Bell's class of works of art includes objects that no one regards as art!

Bell's theory is really an instrumentalist theory for the *evaluation* of visual art, that is, a theory about what in visual art is instrumental in producing valuable experience (aesthetic emotion). It seems unlikely that there are aesthetic emotions, although valuable experiences are produced by art. The psychological content of Bell's theory is suspect, but as an evaluational theory, its instrumentalist structure is promising.

John Dewey

The expressionist theory of art arose in the nineteenth century and remained a powerful influence well into the present century. In *Art As Experience* (1934 [13.8]), Dewey presents one of the earliest of the twentieth-century expressionist theories. He launches into an account of art as the expression of emotion without any argument, seeming to regard it as obviously true, as did many others of the time. Dewey distinguishes the mere

venting of emotion from the expression of emotion, the latter requiring the conscious ordering of a medium. This distinction allows him to exclude some emotional behaviour (venting) from the domain of art.

Although he writes at length about expression and expressive objects, it is not clear whether he identifies the expression of emotion with art, or whether he thinks expression is just a necessary condition of art.

Art frequently has expressive qualities, but affirming the expression theory of art is another matter entirely. The expression theory has received effective criticism in recent years; few today believe that every work of art is an expression of emotion of its creator or that every expressive quality of a work of art is an actual expression of an emotion.

Dewey claims that the expressiveness of art entails that each art form is a language for a kind of communication. Whether every art form is a language and a means of communication is very doubtful and that this follows from being expressive is even more doubtful.

Despite the difficulties of Dewey's theory of art, much of what he has to say about expression and expressive qualities is quite sound. He also shows a very considerable knowledge of the arts, especially the visual arts.

R.G.Collingwood

In *Principles of Art* (1938 [13.7]), Collingwood, also following the expressionist tradition, claims that what he designates 'art proper' is *identical* with the expression of emotion. He gives an argument of sorts to support his claim: he is making clear how words are used in English. The meanings of 'art (proper)' and 'craft' are completely distinct. A craft object is a preconceived product produced by the application of a skill to a raw material, while art is a completely spontaneous, unplanned thing. Crafts may be involved in the conveying of art to its audience, but art and craft are distinct.

Collingwood asserts without argument that 'Art has something to do with emotion', i.e. that art and emotion are necessarily connected. He assumes two possibilities: something can express emotion or something may be designed to evoke emotion. The latter would involve a preconceived end (the evoking of emotion) and would, therefore, be a craft product. Expressing emotion is spontaneous. He concludes that art, which he believes to be spontaneous and unplanned, is identical with the spontaneous phenomenon of expressing of emotion. Even if his premises were granted and it were agreed that art is necessarily connected to the expression of emotion, it does not follow that art is *identical with* the expression of emotion.

Collingwood's conclusion appears to make rages and the like into art. He tries to avoid this difficulty by saying that such behaviours are not art because they are betrayals rather than expressions of emotion, which, he claims, are controlled actions. This move narrows the ordinary meaning of 'expression of emotion'.

Collingwood claims people sometimes confuse art proper with the crafts he calls 'magical art' and 'amusement art'. Magical art, for example, patriotic and religious art, is craft because it is designed to evoke emotions to sustain certain life activities, and amusement art is craft because it is designed to evoke emotion for enjoyment. He suggests that because they were designed to evoke emotion in Elizabethan audiences, Shakespeare's plays are not art!

The expression of emotion is an act of the imagination in that it brings something into consciousness. Collingwood takes this to mean that an act of expression, i.e. art, is imaginary and takes place in the mind only and is purely mental. Thus, for Collingwood, paintings, statues and the 'noises' musicians make are not art; they are craft objects that enable others to re-create art in their own minds. This means that what are ordinarily understood to be artworks are understood by Collingwood to be craft objects, and that what are

ordinarily understood to be the conceiving of and the understanding and appreciation of art are understood by Collingwood to be artworks.

There are several difficulties with Collingwood's theory. First, it excludes many things that almost everyone thinks of as art, namely works with no emotional content. His response is that a product of serious activity always retains an element of emotional expressiveness. He cites Eliot's *The Waste Land* as an example of art. This work is the result of serious activity and has emotional content, but it is not clear that a serious activity must always have an emotional element. It is also not clear that the creation of art is always a serious affair. Second, his theory is also flawed if, as he apparently thinks, it excludes Shakespeare's plays from the domain of art. The third difficulty is that his *identification* of art with the expression of emotion would turn into an many things that no one thinks are an. When a parent says in a controlled but exasperated tone, 'Turn off the television and do your homework', that parent is expressing emotion but not thereby creating a work of an.

Suzanne Langer

In *Feeling and Form* (1953 [13.9]), Langer, continuing the focus on emotion, defines 'Art' as 'the creation of forms symbolic of human feeling'. She is claiming that every artwork *as a whole* is a symbol. She explains that art symbolizes by abstraction; for example, 'Music is a tonal analogue of emotive life.' Art symbolizes by abstract resemblances. She is not talking about the resemblance involved in representation; both non-objective and representational art allegedly symbolize. Art for Langer is an iconic symbol, i.e. a symbol that resembles what it symbolizes. The main difficulty with her account is that it ignores the *conventional* basis of symbols. Iconic symbols do not function merely in virtue of a resemblance; as all symbols must, they have to be *established* as signifying what they do. In *Problems of Art* (1957 [13.10]), Langer accepted this criticism which reduces her theory to the view that art is the creation of forms that resemble human feeling.

Does every work of art resemble human feeling? Some music is a tonal analogue of emotive life and some visual art does resemble human feeling. Many works of art—non-objective and representational —however, just do not resemble human feeling; Langer overgeneralizes from what is true of some cases.

General Comment

The central ideas of all the foregoing theories are notions of individual psychology. Psychical distance and disinterested attending would both be phenomena that individuals do or undergo as individuals. Aesthetic surface, aesthetic qualities and significant form are or would be objects of perception, and perceptual discrimination is an ability that individuals exercise as individuals. Dewey's conception of the aesthetic experience as *an* experience of consummatory unity is something an individual undergoes as an individual. The expression of emotion *is* something an individual does as an individual, and aesthetic emotion *would be* a kind of thing that an individual would do as an individual. Langer's basic notion—noting resemblance—is something individuals do as individuals. Two of these notions fall under the category of awareness, two fall under the category of affect, and six fall under the category of perception.

THE ANALYTIC PERIOD

The experience of art

Monroe Beardsley

Beardsley's *Aesthetics* (1958 [13.12]) describes its subject as 'metacriticism', the analysis of concepts involved in describing, interpreting and evaluating art. Beardsley begins by trying to characterize the proper objects of criticism, which he calls 'aesthetic objects' (the aesthetic aspects of artworks). His focusing on *aesthetic* objects shows that he is continuing the earlier tradition of focusing on the aesthetic aspects of art. His first step is to argue that artists' intentions are distinct from artworks and, thus, not aspects of their aesthetic objects. His second step is to distinguish between the *perceptual* aspects of art (those perceptible *under the normal conditions for experiencing art*) and the *physical* aspects of art (those aspects not perceptible under normal conditions). This second step is supposed to eliminate certain aspects of art that are not proper objects of criticism—(1) physical aspects such as sound waves and light waves that are not experienced at all and (2) aspects such as the colour of the back of a painting and the actions of unseen stage-hands that are not experienced under normal conditions. The second step does not eliminate perceptible things such as print marks used to inscribe a poem and the colour of a painting's frame, but Beardsley's third step is supposed to do this. This third step—the consideration of the properties of various perceptual domains—concludes with the definitions of 'visual design', 'musical composition' and 'literary work', which are supposed to eliminate the remaining improper elements. I shall consider only 'visual design', which is defined as 'a bounded visual area containing some heterogeneity'. The colour of a painting's frame is *not,* however, eliminated by the third step; it is perceptible and is part of *a* bounded, heterogeneous visual area, and there are analogous problems in other visual-art cases. Moreover, the perceptual/physical distinction would eliminate important aspects of some aesthetic objects—the non-perceptible meaning of literary works, for example. The second and third steps of Beardsley's account of aesthetic objects both fail; his understanding of the objects of criticism throughout his book is not, however, hampered by this. The initial question of whether artists' intentions are relevant to interpretation is still a hotly debated topic.

Beardsley concludes that *the* function of aesthetic objects is the production of aesthetic experience, and he works out an account of such experience that owes something to Dewey and something to Bullough and others. According to Beardsley, every aesthetic quality (gracefulness, delicacy, and the like) of an aesthetic object is an instance of one of three primary aesthetic properties: unity, intensity or complexity. These three primary properties when perceived can supposedly *cause* a person's experience to have certain affects, namely, to be unified, intense and complex. Aesthetic experience, thus conceived, consists of (1) the experience of the three primary perceptual properties of aesthetic objects and (2) the affects (felt unity, intensity and complexity) that are caused by these primary perceptual properties. In addition, he alleges that aesthetic experience has a *detached* nature deriving from its unity which supposedly insulates and detaches the experience from things outside it. Beardsley agrees with Dewey that aesthetic experience is highly unified. He, however, accepts Bullough's contention that aesthetic experience is detached, a view Dewey explicitly rejects.

Beardsley concludes that any content of art that refers to something outside the aesthetic experience—say, its cognitive or moral content—is nullified by the *detached* nature of aesthetic experience. On his view, only the non-referential aspects of art—the aesthetic qualities of unity, intensity and complexity—contribute to aesthetic experience. Because Beardsley conceives of aesthetic experience as detached, his theory has no

way to account for the functioning of whatever referential content art has. This signals that the notion of the experience of art as detached is flawed; Beardsley should have followed Dewey more closely.

Nelson Goodman

In *Languages of Art* (1968 [13.16]), Goodman agrees with Beardsley that the function of art is to produce aesthetic experience, but his conception of such experience is radically different. Goodman claims that the aesthetic experience of art is not a matter of the appreciation of aesthetic qualities, is not detached and is cognitive in nature. He, thus, breaks sharply with the tradition followed by Bullough, Prall, Stolnitz and Beardsley.

Goodman claims that every work of art is a symbol that symbolizes by description, representation, expression, exemplification or some combination of the four. He asserts that the purpose of symbols and, hence, art, is cognition and that art is to be evaluated by how well it serves its cognitive purpose. Art's cognitive purpose is served by 'the delicacy of its discriminations…the way it works in grasping, exploring, and informing the world…how it participates in the making, manipulation, retention, and transformation of knowledge'.

Many works of art are symbolic, but are they all? In the section on the evaluation of art at the end of this article (pp. 421–5), it will be argued that some artworks (most non-objective art and instrumental music) are not symbolic.

Frank Sibley

Sibley's 'Aesthetic Concepts' (1959 [13.17]) began an important discussion of aesthetic qualities and has generated a large literature. He begins his article by distinguishing aesthetic terms, concepts and qualities from non-aesthetic terms, concepts and qualities. 'Red' and 'square' are examples of non-aesthetic terms, and redness and squareness are examples of non-aesthetic qualities. The application of non-aesthetic terms and the discernment of non-aesthetic qualities requires only 'normal eyes, ears, and intelligence'. 'Fiery' and 'delicate' are examples of aesthetic terms and fieriness and delicacy are examples of aesthetic qualities. The application of aesthetic terms and the discernment of aesthetic qualities requires more than normal perception and intelligence, they require 'the exercise of taste, perceptiveness, sensitivity'. For Sibley, an aesthetic term is *identified* as one whose application requires an exercise of taste, and an aesthetic quality is *identified* as one whose discernment requires an exercise of taste. For Sibley, terms are not aesthetic or non-aesthetic as such; some terms may always be used aesthetically, but some may be used aesthetically and non-aesthetically, depending on context. Thus, for Sibley, taste is the most basic category; taste identifies which use of a term is an aesthetic use and identifies which features are aesthetic features.

Aesthetic qualities, he claims, depend on non-aesthetic features. What is the nature of this dependence relation? Non-aesthetic qualities such as squareness have necessary and sufficient conditions, in this case, having four equal sides and four right angles. Sibley denies that aesthetic qualities have necessary and sufficient conditions because, for example, one object is delicate because of one set of non-aesthetic features and another object is delicate because of a different set of non-aesthetic features. In addition, he also denies there are *logically sufficient* conditions for aesthetic qualities. In a particular case of, say, delicacy, its non-aesthetic conditions do suffice to produce delicacy, but the occurrence elsewhere of those same non-aesthetic conditions is not, he claims, always sufficient to produce the occurrence of delicacy. It is true that certain non-aesthetic features may count only towards and not against the occurrence of a certain aesthetic quality, but the occurrence of such non-aesthetic features cannot guarantee the occurrence of a

particular aesthetic quality. Also, some aesthetic qualities may be governed *negatively* by non-aesthetic conditions; for example, a painting consisting only of pale pastel colours could not be garish. Sibley's view is that aesthetic qualities depend on non-aesthetic features but that they are not positively condition-governed and that, consequently, the applications of aesthetic terms are not rule-governed.

That there are aesthetic qualities and that they depend on non-aesthetic qualities is widely accepted. Many also accept Sibley's contention that aesthetic qualities are not condition-governed. The chief difficulty with Sibley's view is his notion of taste and its use in identifying what counts as an aesthetic quality. This difficulty is brought out by Ted Cohen (1973 [13.14]) who focuses on the perception of aesthetic qualities in simple cases. Consider the perception of *gracefulness* in a female ballet dancer's movements or the *awkwardness* in the walking of a year-old child. Cohen asks, does it take anything other than normal eyes and intelligence to note these two aesthetic qualities? He answers in the negative, and if that is so, then taste does not identify what counts as an aesthetic quality in simple cases. Perhaps to try to forestall this argument, Sibley claimed in 'Aesthetic Concepts' that virtually everyone can exercise taste to some degree in some domains. But if normal sense faculties and intelligence *and* taste are almost always present at the same time, how can we know in simple cases whether it is normal perceptive capacities or taste that discerns aesthetic qualities. Or, consider complicated cases in which one person discerns and another person fails to discern an aesthetic quality. Perhaps the person who fails to perceive does so because his normal perceptive capacities are a bit limited and the person who does perceive has slightly greater normal perceptive capacities. It does not seem that we can be assured in either simple or complicated cases that there is taste in Sibley's sense, and, hence, we cannot be assured that Sibley has a way of identifying what counts as an aesthetic quality.

The philosophy of art

Paul Ziff

Ziff in 'The Task of Defining a Work of Art' (1953 [13.25]) was the first to apply the anti-essentialism that began sweeping through philosophy in the 1950s to the philosophy of art. He claims usage of the expression 'work of art' shows there is no necessary condition for being art, not even being an artifact. A naturally formed stone that looks like a sculpture and is worth contemplating can, for example, be said to be a work of art. This is supposedly so because the stone *sufficiently* resembles a characteristic case of art. The many different usages of 'work of art' supposedly show that many different sufficiency definitions are possible. Each such definition has a characteristic case, say, Rembrandt's *Night Watch,* and anything that sufficiently resembles it is a work of art. Even if a characteristic case is an artifact, members of the class of objects it generates do not need to be artifacts, they need only to resemble the characteristic case sufficiently. No rule can be given, he says, as to what constitutes sufficient similarity. Ziff says that novels, poems and musical compositions are so different from paintings that they cannot be included in the class of objects that sufficiently resembles *Night Watch*. They can, however, be called works of art because they sufficiently resemble other characteristic cases. On Ziff's view, there are as many different definitions of 'work of art' as there are different uses of the term.

Morris Weitz (1956 [13.24]) and William Kennick (1958 [13.23]), influenced by the anti-essentialism of the period, drew similar conclusions about the definition of 'art'. These three articles brought attempts to define 'art' to a virtual halt during the analytic period. Sibley's claim that aesthetic qualities are not condition-governed is in the same anti-essentialistic tradition that Ziff is in.

A naturally formed stone *can* be said to be a work of art and a class *can* be constructed that includes sculptures plus such a stone. Should these two facts cause philosophers to abandon the traditional claim that artifactuality is a necessary condition for art? I think not. Philosophers of art need take no interest in such usage or in a class so constructed, because they have always theorized about a class of human artifacts. Artifactuality is a built-in feature of their activity; their real problem has always been to discover the other defining feature or features of these artifacts. Moreover, there is solid agreement about which artifacts belong to the class of objects they theorize about— paintings, poems, plays, and so on.

Nelson Goodman and Monroe Beardsley

Because of the powerful influence of anti-essentialism, theorizing about art was not a popular activity among philosophers in the analytic period. Whether Goodman's claim that all works of art symbolize is put forth as a partial definition of 'art' or simply as a universal generalization is unclear; either way his claim fails because of his theory's inability to deal with non-objective art and instrumental music.

Beardsley did not turn his attention to the definition of 'art' until 1979. He writes then, 'an artwork can be usefully defined as an intentional arrangement of conditions for affording experiences with marked aesthetic character' [13.21]. This definition, which continues Beardsley's emphasis on aesthetic features, was put forth in explicit opposition to contextual theories of the late 1960s and the 1970s that take the domain of art to include Duchamp's *Fountain,* dadaist works generally and similar artworld creations—works that have little or no capacity to afford aesthetic experience as Beardsley conceives it. Beardsley's ruling out of such avant-garde works in order to make aesthetic considerations *necessary* is a stipulatory move characteristic of his wing of analytic philosophy. Also, since Beardsley's definition of 'artwork' depends on his notion of detached aesthetic experience, his definition inherits all the difficulties involved in the idea of detachment.

General Comment

Many philosophers of the analytic period continued to try to solve the problems of aesthetics with concepts of individual psychology. Beardsley's use of *perceptibility* and the *properties of perceptible domains* to try to distinguish aesthetic objects are uses of such concepts. Perception is an activity a person does as an individual. Similarly, his notion of aesthetic *experience* with its content of aesthetic qualities and their affects and its detachedness is something a person undergoes as an individual. Goodman's claim that the aesthetic experience of art is an *experience* of the reference of symbols involves something persons undergo as individuals. Ziff's notion of *noting sufficient resemblance* is a notion of something that a person does as an individual. Finally, Sibley's attempt to distinguish aesthetic from non-aesthetic features on the basis of what *normal eyes, ears and intelligence* can discern and what *taste* can discern is clearly the use of notions of capacities persons exercise as individuals.

THE CONTEXTUAL PERIOD

Introductory Remark

Contextualist theorists break sharply with the traditions of the two earlier periods. One or more of the three hallmarks of the contextual period—the rejection of concepts of individual psychology, the rejection or ignoring of the prevalent anti-essentialism and the use of the contexts in which artworks are embedded—were

enunciated independently in five articles by four philosophers during the period 1962–5. In 'Is Psychology Relevant to Aesthetic?' (1962 [13.27]), I claimed that the thought and behaviour of art's audiences are not controlled by the psychological phenomenon of psychical distance but by rules of artwork contexts. In 'Aesthetic Essence' (1965 [13.26]), Marshall Cohen attacked a number of individual psychology notions, including psychical distance as a controller of spectator behaviour. Concerning the contextual control of behaviour, Cohen mentioned the *learning* of how artworks are to be experienced. In 'The Myth of the Aesthetic Attitude' (1964 [13.28]), I attacked Bullough and the aesthetic-attitude theories of Jerome Stolnitz and Eliseo Vivas. In 'The Artworld' (1964 [13.37]), Arthur Danto, ignoring the prevalent anti-essentialism, set forth the first contextualist account of the nature of art. In 'Family Resemblances and Generalization concerning the Arts' (1965 [13.48]), Maurice Mandelbaum directly attacked the anti-essentialism of Ziff and Weitz. Mandelbaum also recommended a contextual approach to generalizing about art without attempting to work out the details.

The positive insights of these five articles were developed along two lines: accounts of the contextual control of experiences of art and accounts of the contextual nature of art.

The experience of art

Marshall Cohen and George Dickie

The criticisms Cohen and I made of the mechanisms of individual psychology supposedly involved in the proper experience of art were incorporated into my earlier criticisms of aesthetic-attitude theories and of Beardsley's account of aesthetic object and require no further comment.

Aesthetic-attitude theorists claimed that a particular psychological state (variously described) controls the thought and behaviour of the experiencers of an; jealous husbands can attend to *Othello* if psychically distanced, children are disturbed by Peter Pan's request for applause because it destroys their psychical distance, and gallant spectators do not attack stage villains if they are psychically distanced. If, however, there are no such psychological states, what does control thought and behaviour in the face of artistic phenomena?

Samuel Johnson's eighteenth-century answer was 'The truth is, that the spectators are always in their senses, and know, from the first act to the last, that the stage is only a stage, and that the players are only players' [13.30]. One's knowledge of the nature of an artistic activity, alluded to by Cohen [13.26] and myself [13.27], is what controls spectator's thoughts and actions.

A more extensive, if somewhat piecemeal, account of the contextual control of the experience of art is found in my *Art and the Aesthetic* (1974 [13.29]). Consider the cases of the attacker-spectator and Peter Pan's appeal. There is a general *rule* or *convention,* understood by all, that audience members do not interact with a play's action. A gallant spectator who attacked a stage villain would be someone who flouts this convention out of ignorance of theatre art or because of insanity. Such a spectator would not be someone who had lost the aesthetic attitude, although he could be someone who had lost his mind. When Peter Pan appeals for applause, it signals that the usual convention is being set aside and that a different convention is being put in place. Children catch on right away that there has been a convention shift, even if some aestheticians don't. A convention is by definition something that can be done in more than one way, and different plays have different conventions governing spectator participation. Reflection will reveal that there are many conventions involved in the presentation of the arts to their publics. Although the jealous-husband-at-*Othello* case does not involve being in or losing the aesthetic attitude any more than the other two cases

do, it does not directly involve theatre convention either; the husband is just someone whose thoughts of his wife may cause him not to pay attention to the play.

Aesthetic-attitude theorists claim that being in the aesthetic attitude reveals which characteristics of art belong to the aesthetic object of works, i.e. which characteristics are to be appreciated and criticized. Beardsley makes a similar claim for perceptibility and other criteria. Both claims fail. What does direct attention to aesthetic objects of works of art? It is the background knowledge of theatre—its nature and conventions—that isolates the aesthetic objects of plays. The situation is the same in the other arts; it is the background knowledge of painting, literature, and the like, not the functioning of mechanisms of individual psychology, that guides people to the characteristics of art that are to be appreciated and criticized.

Kendall Walton

I turn from the question of what controls those who experience art to the consideration of the aesthetic content of art. Sibley concluded that aesthetic qualities depend on non-aesthetic qualities. In 'Categories of Art' (1970 [13.31]), Kendall Walton, Sibley's student, goes a step further, concluding that the aesthetic qualities of *artworks* depend also on the historical contexts of the artworks. He challenges the view that artworks' aesthetic qualities can be discovered by *merely* perceiving them. Walton notes that artworks are perceived as members of categories — as statues, as paintings, as cubist paintings. Each category has *standard* features, those features that make for belonging to that category. Flatness, motionlessness and the use of shapes are among the standard features for the category of painting. Flatness, motionlessness and use of *multiple squarish* shapes are standard features for the category of cubist painting. Being the colour of marble and not representing the body from a point just below the shoulders are standard features for Roman marble busts. Each category also has *variable* features, features that may be different in different works of the category and which have nothing to do with works belonging to a category. *Particular* shapes and colours are variable for the category of paintings, and *particular* colours are variable for the category of cubist paintings. A feature is *contra-standard* for a category if its presence tends to disqualify a work with that feature from the category. A protruding, three-dimensional object would be contra-standard for the category of paintings.

Categories are involved in visual representation. Standard features are ordinarily irrelevant to representation. A painting's being flat and motionless does not prevent it from representing a three-dimensional object in motion. A Roman bust's being made of white marble and not representing the body from just below the shoulders does not make it portray a very pale person who has been severed at the chest. In contrast, variable features *are* involved in representation—the particular shapes and colours of a painting and the particular shapes of a Roman bust represent by means of resemblance.

Categories are involved in determining the *aesthetic* qualities of artworks. A person unfamiliar with the category of cubist painting might find a cubist painting to have the aesthetic quality of jumbledness. He would be looking at the painting under the category of ordinary representational painting, taking its multiple squarish shapes to be variable and representative of, say, a rather chopped-up looking man. A person looking at the painting under the category of cubist painting, taking its multiple squarish shapes to be standard, would see the painting to be just a representation of a man and not jumbled. Moreover, when the repeated squarish shapes are taken as standard and not as representative, their repeatedness may impart an aesthetic quality of orderliness to the surface of the painting.

An artwork can thus have one set of aesthetic properties when viewed as a work in one category and another set when viewed as a work in another category. An artwork's *actual* aesthetic properties are the

ones it is perceived to have when it is perceived *correctly*. How is correctness determined? Walton cites four considerations that count towards determining correct categories.

1 An artwork's having a relatively large number of features standard and few or no contra-standard features for a category make for that category's being correct for the artwork. This condition alone does not suffice; certain works of Cézanne would appear to fit into the category of cubist paintings, but they are not cubist paintings.
2 An artwork's being better when perceived in a particular category rather than in others makes for that category's being correct. The two conditions do not suffice; given a mediocre work that obviously fits into a particular category, it would always be possible to invent a new, outlandish category in which the work would be better.
3 An artwork's fitting into a well-established category makes for that category's being correct. This historical condition will not resolve every problem; important, new works and categories are sometimes invented—Walton cites Schoenberg's twelve-tone music.
4 An artwork's being intended by its maker to be perceived in a category makes for that category's being correct. This historical condition will not resolve every case; artists' intentions are frequently unknown or unclear.

These conditions establish the correct category for many cases but leave undecidable cases. Walton cites Giacometti's sculptures. If they are seen as sculptures, their limbs look frail and wispy. If they are seen as thin metal sculptures, their limbs do not look frail but just expressive. It is not incorrect to perceive the sculptures either way, and thus it cannot be said what the actual aesthetic properties of the works are. Walton does not regard the existence of undecidable cases to be a bad thing.

The philosophy of art

Arthur Danto

Danto followed 'The Artworld' [13.37] with a series of publications. In these publications, Danto begins by conceiving of an artwork and a non-an object that are visually indistinguishable: Duchamp's *Fountain* and a urinal that looks exactly like it, Rembrandt's *The Polish Rider* and a randomly produced non-art object that looks exactly like it, and so on. Such pairs show that it is not its exhibited, perceptible properties that make something art but a context in which it is embedded.

What was new for twentieth-century aesthetics is that the context that Danto envisaged involves *cultural* concepts rather than notions of individual psychology. In contrast, the expression theory envisaged artworks embedded in a context involving the expressing of an emotion.

Danto gives two different accounts of the cultural context that makes something an artwork. In 'The Artworld' he claims that the prevailing *art theory* provides the context that enables artifacts to be works of art. Once the prevailing, enabling theory was the 'Imitation Theory of Art', and now it is what he calls the 'Real Theory of Art'. In 'Artworks and Real Things' (1973 [13.38]), Danto claims *being a statement* makes something an artwork—this alleged art-making context is a linguistic one rather than an art-theory one. In 'The Transfiguration of the Commonplace' (1974 [13.39]) and in his book of the same name (1981 [13.40]), he continues to speak of a linguistic context, claiming that being *about* something and therefore being *subject to interpretation* is what makes something an artwork.

At the beginning of his third article [13.39] he makes a less than universal claim about aboutness. Danto conceives of an artist who exhibits a square of primed canvas he entitles *Untitled* and who declares that it is not about anything. Danto then says,

> Our artist has produced something which is of the right sort to be about something, but in consequence of artistic fiat it happens only not to be about anything…. Artworks may indeed reject interpretation, but are of the right sort to receive them.

Danto is saying that artworks are the sorts of thing that are typically about something but that it is possible for artworks not to be about anything and thus not interpretable. Aboutness is not, therefore, a universal property of artworks. However, at the end of this article, Danto writes,

> As for the somewhat empty works [including presumably *Untitled*] with which I launched this discussion, I have this to say, what they are about is aboutness, and their content is the concept of art. [13–39]

Danto originally claimed that the artist's declaration that *Untitled* was not about anything made it not about anything. Is *Untitled* about aboutness or is it merely 'the right sort to be about something'? In any event, there is no reason to think that many present-day non-objective paintings are about anything, even if some non-objective paintings such as *Untitled* are about something. Retreating to an earlier time, a typical piece of eighteenth-century instrumental music is not about anything either. There appear to be counter-examples to Danto's claim, if it is the claim that all artworks are about something. He may, however, be making the weaker claim that artworks are the sort of thing that *can be* about something.

Even if all artworks were about something and subject to interpretation, Danto would not have a theory that picks out only the class of works of art. Statute laws, directions for assembling a bicycle and many other non-artworks are about something and are subject to interpretation.

Danto appears to claim that artworks are about something and subject to interpretation; these two ways of talking about *meaning* point in different directions. Saying that an artwork is about something points to an artist who creates an object. Saying that an artwork is subject to interpretation implies that its meaning can be understood by members of an artworld *public*. Although some earlier philosophies of art have referred to art's audience as necessary, Danto's was one of the first to indicate that the necessary audience is an artworld public—a cultural phenomenon. Danto is right that artworks are bearers of meaning embedded in a context or framework between artist and public; he is not right if he thinks the meaning borne is always aboutness.

Maurice Mandelbaum

In 'Family Resemblances and Generalization concerning the Arts' [13.48], Mandelbaum criticizes the view of Weitz and others that 'art' cannot be defined. These philosophers had claimed that artworks have no common characteristic, just overlapping similarities; they called the concept of such a class a 'family-resemblance' concept. Mandelbaum notes that *family* resemblances literally occur among persons with a genetic tie; no one of the overlapping visible resemblances exhibited by family members may be shared by all, but all *family* members share an underlying genetic connection. He suggests that the defining features of art may be discoverable, if instead of looking at the perceptible characteristics exhibited by art, one looks

for underlying relational features, namely, relationships that can be discovered among art object, artist and contemplator. Mandelbaum does not attempt such a theory.

George Dickie

Danto revealed art's cultural context and implied that artists and publics are necessary. Mandelbaum recommended attention to the relationships among art object, artist and contemplator. Guided by these ideas, beginning with 'Defining Art' (1969 [13.42]) and concluding with *Art and the Aesthetic* (1974 [13.29]), I worked out the earlier of the two versions of the *institutional* theory of art. In both versions 'institutional' refers to a cultural *practice*—the set of practices involved in producing the various arts—not an organization of persons that has meetings and acts as a group. In the earlier version, an artwork is defined as an artifact that has had candidacy for appreciation conferred on some of its features (its aesthetic object) by some person or persons who act on behalf of the artworld. I maintained that artifactuality could be achieved in the usual way by working with artistic media. I, however, also maintained it could be conferred on an object; I argued that *Fountain* and such works had had artifactuality conferred on them. According to this earlier version of the theory, to be an artwork is to have acquired a status within a rather formally described institutional structure as the result of an artist's or artists' action.

Ten years later in response to the criticism of Beardsley and others, I presented in *The Art Circle* (1984 [13.43]) a greatly revised and more informal institutional theory. I dropped the formal terminology—*acting on behalf of* the artworld and *conferring* of candidacy and artifactuality —and spoke instead of artists working with their materials against the background of the artworld. Also, in *The Art Circle,* instead of defining just 'art', I gave five interrelated definitions, which provide the leanest possible account of the new version.

> An artist is a person who participates with understanding in the making of a work of art.
>
> A work of art is an artifact of a kind created to be presented to an artworld public.
>
> A public is a set of persons the members of which are prepared in some degree to understand an object which is presented to them.
>
> The artworld is the totality of all artworld systems.
>
> An artworld system is a framework for the presentation of a work of art by an artist to an artworld public.

Note that the last definition makes use of the key terms of the other definitions. The definitions are obviously circular—but not viciously so. Circularity is vicious if one is confronted with a circular account of an alien phenomenon of which one is ignorant. The making and appreciating of art, however, is a cultural phenomenon people are involved with from early childhood; the meanings of the key terms of this interconnected system are well known to everyone. We learn about the concepts of this circular set at the same time; one cannot be taught what a work of art is without being taught what an artist, an artworld public and an artworld system (painting, theatre, and the like) are. None of the key notions serves as a foundation for the rest. (By the way, new artworld systems—for example, happenings—are introduced from time to time.)

The institutional definition of 'work of art' is value-neutral—it covers good, bad and indifferent art. The definition of 'art' has to be about all art, not just valuable art or any other sub-set. What artworks have in common is not value but a *status* within the artworld. By the way, the definition of 'work of art' refers to

the basic or primary items presented to artworld publics, not things like playbills, programme notes, and the like which are parasitic on the primary items.

The notion of *understanding* is used in the definitions of 'artist' and 'public'. What both an artist and a member of an artworld public understand is the general idea of art, i.e. that they are engaged in a certain, specific kind of activity. What in addition an artist must also understand is the particular medium in which he is working. Also, the definition of 'work of art' speaks of an artifact *of a kind* created to be presented to an artworld public. The 'of a kind' qualification is made in order not to exclude works of art that are created but, for whatever reason, are never presented.

The institutional theory does not mention certain highly valued features of art—representational, expressive, symbolic and aesthetic features. Important as such features are, when they occur in art, they are not universal features of art and, hence, cannot be defining characteristics. Art is a cultural invention that can incorporate all these features and others, but it does not have to involve any of them.

In *Definitions of Art* (1991 [13.41]), Stephen Davies surveys and analyses theories of art presented since the 1950s; he distinguishes between functional and procedural accounts of art. Functional accounts see art as having a specific function—to express emotion, to produce aesthetic experience, to be about something. The institutional account of art is procedural, i.e. defines 'art' in terms of certain cultural procedures. A procedural theory places no limits on what artworks can function to do, but it claims that none of the functions is universal and defining. Davies also discusses a number of recent definitions of 'art' which in one way or another resemble the institutional theory; he characterizes these theories as *historical, narrative* or *intentional*. Works on these theories and on theories not discussed by Davies are listed in the Bibliography: see T.Diffey [13.44]; J.Margolis [13.49]; T.Binkley [13.32–3]; J.Levison [13.47]; M.Eaton [13.45]; L.Krukowski [13.46]; and N.Carroll [13.34].

INTERPRETING AND EVALUATING ART

Interpretation

Monroe Beardsley

Beardsley argues that to interpret an artwork is to understand its meaning. Interpreting the words, sentences, representations, motives of characters, and the like in artworks is not different from understanding parallel things in real life.

Suppose in a conversation about where people are from, someone says, 'He was born in a small town in the state of New Jersey, USA.' The hearer will easily understand (i.e. correctly interpret) the remark. Similarly, there are cases in which it is understood without a doubt what someone's motive is. Some statements and actions are easy to interpret. If someone utters a truly ambiguous sentence, the hearer can not understand it because it does not have *a* meaning, although it suggests two or more meanings; the remark will not be interpretable. If someone utters a garbled string of words, the utterance cannot be interpreted either. Similarly, sometimes we have no idea what motivates a person's action.

The interpretation of artworks, on Beardsley's view, parallels interpretation in real-life situations. A novel that begins 'He was born in a small town in New Jersey, USA' and continues with sentences that are just as straightforward could be easily understood, i.e. easily interpreted. Critics and philosophers, however, are not usually concerned with simple and easily interpreted works but with questions about complicated cases such as 'Is there a hint of pantheism in "A Slumber did My Spirit Seal"?', 'Are the ghosts in "The

Turn of the Screw" real or imaginary?', 'Is Lear senile or sane?' and 'Is the woman in *American Gothic* the farmer's wife or daughter?' On Beardsley's view, in simple and complicated cases alike, there are three possibilities: a correct interpretation that takes account of everything in an unambiguous work, a misinterpretation that does not take account of everything in a work, or no interpretation at all. There may be different reasons why an interpretation cannot be given—for example, a poem may exhibit no clear evidence for or against, say, pantheism, a play may exhibit some evidence, say, for a character's sanity and some for his senility and be inconclusive, and so on. For Beardsley, an artwork may be misinterpreted because something in the work is missed or misunderstood or because someone reads something into the work that is not there.

Joseph Margolis

Margolis and others hold a view of interpretation that seems opposed to Beardsley's. Margolis claims that incompatible interpretations of an artwork can be jointly confirmed as plausible, that is, that a person can justifiably accept incompatible interpretations of an artwork as jointly plausible.

Notice that Margolis's account, unlike Beardsley's, is cast in terms of plausibility. Even so, there seem to be problems. Could it ever be jointly confirmed as plausible that Lear is senile *and* plausible that he is sane? The closest that one could come to this would be if the evidence in the play for Lear's senility and his sanity were equal. We would then say that it is just as plausible that Lear is senile as it is that he is sane, but this is very different from saying that it is plausible that Lear is senile *and* sane.

As it turns out, Beardsley and Margolis are not talking about the same thing. Beardsley is talking about the interpretation of the meaning of words, sentences, representations, motives of characters, and the like in artworks. He is concerned, for example, with the questions of whether word order in a poem hints at a pantheistic or mechanistic universe and whether Lear's words and actions are evidence of senility. Margolis is not talking about the discovery *in* artworks of subtle or difficult meanings, he is talking about what Beardsley calls the 'superimposition' of grand schemes such as Marxism and Freudianism onto artworks. Beardsley agrees that artworks—his example is 'Jack and the Beanstalk'—can be read in the light of, or taken as illustrating elements of, Marxism, Freudianism, and the like. Such viewings, however, do not reveal meaning *in* artworks, although they may impose meanings on them. Incompatible superimpositions of an artwork may perhaps be jointly acceptable as plausible, if they can be fitted onto the artwork.

Deconstruction

If Margolis's view is not inconsistent with Beardsley's, the position of the deconstructionists is. This theory did not orginate in the English-speaking world but its influence has certainly reached it. The deconstructionists maintain that because of the nature of signs and language, correct interpretations of artworks are not possible. The deconstructionists conclude that since correct interpretations of artworks (and even of ordinary communications) are not possible, one is free to put any interpretation on artworks that one wishes; indeed one's only option is to understand in this 'free' way.

It is true that even simple communications sometimes fail. But simple communications are not *always* not possible or language would not exist. Language use would never have evolved if communication always were not possible. Cities, airplanes and anything more advanced than a mud hut would not have come into existence if communication were not possible. The fact is that we know how to communicate; we know how to remove ambiguities and obscurities by asking questions and offering clarifications and the like.

Artworks are of course not simple communications. We misinterpret or fail to interpret artworks with some frequency because they are complicated and because some artworks are ambiguous or intractably obscure. Artworks, however, like simple communications, would not exist if the understanding or interpretation of them were not generally possible. The fact is that we know how to interpret artworks and correctly do so with considerable frequency.

If the deconstructionists are right, it is hard to see how they could have been so successful in communicating their view among themselves and to others. The philosophical conclusion that correct understanding or interpretation is not possible is a curious and paradoxical affirmation.

Evaluation

J.O.Urmson

It is most promising to evaluate art instrumentally, i.e. according to its capacity to produce valuable or valued experience. Urmson's 'On Grading' (1950 [13.64]), although not focused on art, is an early account of instrumental evaluation. Urmson's example of grading Red Delicious apples is instructive. There are agreed-on criteria: dark-redness, lack of wormholes, firmness, sweetness, etc. The best apples are dark-red, unblemished, firm and quite sweet, and the remainder sort out below the best. Dark-redness is an aesthetic criterion, firmness and sweetness are taste criteria, and lack of wormholes is indicative of taste quality and is aesthetic as well. All the criteria involve capacity to produce valued experiences—aesthetic or taste.

Applying instrumentalist grading to artworks involves several questions. Are there agreed-on criteria so that relativism can be avoided? How many criteria are there? Are there evaluational principles, and if so, how are they formulated?

Monroe Beardsley

Beardsley believes that *the* function of artworks is to produce aesthetic experience. Since aesthetic experience is valuable, his instrumentalist conclusion is that artworks are to be evaluated according to their capacity to produce this valuable kind of experience.

Beardsley believes that aesthetic experience is detached from the remainder of experience. He, therefore, concludes that the referential aspects of art (those aspects that relate art to the world outside aesthetic experience) are irrelevant to the evaluation of art as art. On his view, only art's aesthetic characteristics are relevant to its value.

As noted earlier, Beardsley thinks all aesthetic qualities are subsumable under unity, intensity and complexity, and he sees these three as the criteria of artistic value. There are, according to him, three corresponding evaluative principles: each principle has one of the three criteria as its subject: for example, 'Unity in an artwork is always valuable (for producing aesthetic experience).' Beardsley's three principles plus complete information about an artwork's unity, intensity and complexity can never logically entail specifie, narrowly focused evaluations such as 'This artwork is *good*' or 'This artwork is *excellent*.' In fact, his three principles can entail only unspecific evaluations such as 'This artwork is *valuable to some degree*.'

Beardsley failed to see that on his theory there are principles that have aesthetic experience as their subjects that *would* logically entail specific, narrowly focused evaluations. An example of such a principle is 'Aesthetic experiences of a fairly great magnitude are always good.' This principle, together with the information that an artwork can produce an aesthetic experience of fairly great magnitude, entails that the

artwork can produce a *good* aesthetic experience. If an artwork can produce a *good* aesthetic experience, then the artwork itself is *instrumentally* good.

Beardsley avoids relativism because, on his theory, there can be no disagreement over whether an artwork's characteristics produce one kind of value experience in one person and a different kind in another person. For Beardsley, an artwork can produce instrumentally valuable aesthetic experience which in turn is instrumentally valuable for producing mental health, and whether aesthetic experience produces mental health is an empirical matter.

If Beardsley's theory were correct, there would be evaluational criteria and corresponding evaluational principles. The question of *agreeing on* criteria would not arise because unity, intensity and complexity are just properties that produce aesthetic experience. Furthermore, the value of every artwork could be compared with that of every other work because artworks' values are determined by their capacity to produce one kind of thing—aesthetic experience.

Unfortunately, there is good reason to think that Beardsley's conception of aesthetic experience is defective and that the valued experiences that are relevant to the instrumental evaluation of art are more complicated than he envisaged. Relativism is still a possiblity.

Frank Sibley

According to Sibley in 'General Criteria and Reasons in Aesthetics' (1983 [13.63]), Beardsley desires to require that the presence in an artwork of any one of his criteria—unity, intensity, complexity—must always contribute positively to an artwork's overall value. Thus, for Beardsley, a critical principle must have the form: '——in an artwork is always valuable' with 'valuable' being understood to entail 'contributes to overall value'. Sibley argues that Beardsley's desired requirement cannot be maintained because *interactions* among his three criteria are possible; for example a work's complexity may cause a work to be disunified. The presence of a valuable property *a* in a particular degree in a given work may interfere with achievement of a particular degree of another valuable property *b* in that work and cause the work's overall value to be less than it would be if the degree of *a* were of some other magnitude.

Sibley also maintains that there are many aesthetic properties of artworks that are not subsumable under unity, intensity and complexity. He claims there are *positive* aesthetic properties besides unity, intensity and complexity—for example gracefulness, delicacy. He also claims that there are many negative aesthetic properties—garishness, insipidness, and the like.

On Sibley's view, there will be as many critical principles as there are aesthetic properties—positive and negative. Since any one of the aesthetic properties can interact with non-aesthetic or other aesthetic properties in an artwork to reduce (or enhance) overall value, critical principles must be formulated in a way that reflect this fact. Principles of the kind Sibley has in mind would have to have the form: '——in an artwork, in isolation from the other properties of the work, is always valuable.' This says that, for example, gracefulness is a valuable property but that it cannot be fitted in everywhere. The application of such principles to artworks always requires qualifications about interactions among the various properties of artworks. Sibley's principles can entail only unspecific evaluations of artworks such as 'This artwork is valuable to some degree.'

For Sibley, artworks are instrumentally valuable because they can produce valuable experiences, but he does not claim, as Beardsley does, that artworks produce a single kind of instrumentally valuable experience. Thus, on his view, it is possible that persons can derive different value-experiences from an artwork and relativism is not ruled out.

Nelson Goodman

Goodman disagrees with Beardsley (and Sibley) that it is the possession of aesthetic qualities that makes art valuable, claiming that art's value is a function of the symbolizing or reference of its cognitive aspects. He agrees that art is to be evaluated by its capacity to produce aesthetic experience, but he claims that aesthetic experience is cognitive in nature and not a matter of aesthetic qualities.

The cognitive aspects of art are frequently valuable. The crucial cases for Goodman, however, are non-objective paintings and instrumental music. He claims such works are valuable because their dominant characteristics symbolize themselves (by *exemplification*), that is, that the characteristics are valuable because they are *samples* of themselves, like paint chips at a paint store.

Consider a non-objective painting entitled *#3* that is uniformly painted a brilliant red. Does it function like a paint chip? One could use it as an example of the colour one desires for a car, but this is not the typical way we use such paintings. Non-objective paintings as they are typically experienced do not exemplify. (So, all artworks do not symbolize.) Paint chips *are* valuable because they are samples, but the colours they exemplify are or can be non-referentially valuable. Valuable non-objective paintings are typically valuable in a similar non-referential way.

Similarily, the brilliant red of a sunset is a paradigm of aesthetic value and of course it does not typically exemplify anything. Assume *#3* to be the same shade of red as this sunset; typically such a painting will be valuable in the way that the sunset's colour is even if it were valuable because it is a sample.

Goodman is right that the cognitive content of art can have artistic value, but Beardsley is right that the possession of aesthetic qualities can have artistic value. Both neglect a valuable aspect of art.

Bruce Vermazen

Beardsley and Goodman attempt to evaluate artworks on the basis of *one* complex property, namely an artwork's capacity to produce a particular kind of valuable experience. This would make the values of artworks the function of a single property and make every artwork's value comparable to that of every other. Unfortunately, their conclusions are not proven.

Vermazen in 'Comparing Evaluations of Works of Art' (1975 [13.65]) claims persuasively that artworks' values are a function of multiple independently valuable properties. If two artworks have different independently valuable properties, it will be impossible to compare their value—it is an apples-and-oranges situation. If two artworks each have the same independently valuable property and only that one valuable property, then their values can be compared and ranked. Vermazen then shows that if two artworks have the same independently valuable properties but have two or more such properties, it will be possible to compare and rank the values of the two artworks if the values of the properties are of a certain sort but that it will not be *generally* possible to compare and rank the values of all such pairs of artworks. Vermazen's article shows that the kind of evaluational programme Beardsley and Goodman have in mind will not work.

For a more extensive discussion of the evaluation of art, see my *Evaluating Art* (1988 [13.60]).

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CHAPTER 14
Philosophy of religion

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Philosophy of religion is critical reflection on philosophical issues that arise in religion. Sources of such issues include religious *claims* (for example, that God exists, about which it can be asked what it means, whether it is true or whether it is reasonable to accept), *concepts* (for example, omniscience or immutability, about which it may be asked how they are to be analysed or whether they are compatible with each other) and *practices* (for example, prayer, about which it may be asked whether it is sensible to express a thought or desire that God already knows one to have). Although all religions suggest topics for philosophical scrutiny, philosophers writing in English in the twentieth century have focused their attention primarily on philosophical issues raised by theism, no doubt because Christianity was the religion with which the majority were most familiar. Theism may be defined, as it was by Robert Flint in his book of that name [14.3], as 'the doctrine that the universe owes its existence, and continuation in existence, to the reason and will of a self-existent Being, who is infinitely powerful, wise, and good'. Philosophy that considers the existence and attributes of such an infinitely powerful, wise and good being, that is, God, is often called philosophical theology. Other topics that philosophers of religion have addressed include mysticism and the nature of religious experience, the relation between religion and science, religious language, the nature of religion and immortality. In addition, in the final decades of the century some philosophers of religion have begun again to work on more specifically theological topics, such as the Christian doctrines of the incarnation, atonement and original sin.

There is perhaps no other specialty of philosophy that is so closely intertwined with work in other areas of philosophy. Philosophy of religion reflects, reacts to, and borrows from the rest of philosophy. In the early years of the century, when idealism and metaphysical system-building were fashionable, philosophers of religion attempted to incorporate such religious claims as were amenable into a comprehensive metaphysical framework. In the middle years of the century philosophers of religion attempted to respond to the logical-positivist attack on metaphysics and religion. Philosophers party to these disputes debated not about whether religious claims are true or justified but about whether they are so much as meaningful. In the final third of the century philosophy of religion has become more technical and specialized, borrowing insights from work in philosophical logic, for example, and applying them to some of the traditional arguments for and against God's existence.

IDEALISM

Many of the most distinguished philosophers of religion have been invited to give the Gifford lectures, a series of lectures held each year at one of the Scottish universities (Aberdeen, Edinburgh or Glasgow) to promote 'the study of Natural Theology in the widest sense of the term—in other words, the knowledge of God'. In

1900 those lectures were given for the first time by an American, Josiah Royce, of Harvard University. Royce was the foremost American exponent of absolute idealism, a speculative philosophical view according to which there is one spiritual, self-conscious being—the Absolute—and everything that is real is so by virtue of its participation in the Absolute. Royce himself seems to have come to this view through the influence of the German idealists, in particular, Hermann Lotze. However, absolute idealism was also the dominant doctrine in British philosophy at the beginning of the century, represented by such defenders as Edward and John Caird, as well as by T.H.Green.

Royce's Gifford lectures, published as *The World and the Individual* [14.7], employed an argument that Royce developed in several places, namely, that the possibility of error can be used to show the existence of the Absolute. Royce held that the 'external meaning' of an idea depends upon what it is intended to mean. Furthermore, that an idea fails to correspond to what is intended—that an idea is in error —therefore depends on there being an intelligence that grasps both the idea and its intended object. Finally, since there are infinitely many possibilities for error, there must be an infinite intelligence—the Absolute—that understands them all.

Andrew Seth Pringle-Pattison, in his Gifford lectures of 1912–13, *The Idea of God in the Light of Recent Philosophy* [14.4], agreed with Royce's idealism, holding that 'self-conscious life [is] organic to the world', but he denied that all consciousness is unified into a single self. God is thus not to be identified with the Absolute. This personal idealism was also defended by Hastings Rashdall in his *Philosophy and Religion* [14.5].

WILLIAM JAMES AND PRAGMATISM

An alternative to the speculative metaphysics and grand system-building of the absolute idealists (and of the later Whiteheadians) was the problem-driven, piecemeal approach to philosophy practised by William James and other pragmatists. In 'The Will to believe' [14.9] James took up the challenge of W K.Clifford [14.58] that 'it is wrong always, everywhere, and for every one, to believe anything upon insufficient evidence'. Conceding that there was insufficient evidence in favour of religious belief, James attempted to provide a justification of faith. He distinguished between the intellectual duty to believe truths and the duty to avoid falsehoods, noting that emphasizing the latter obligation would encourage one to withhold assent to a proposition when the evidence for it was not compelling. James urged allegiance instead to the more venturesome obligation to acquire true beliefs. He thought that this provided a justification for choosing to believe a proposition in cases in which one was forced to make a choice, in which the choice made a difference to one's life, and in which the choice could not be decided on intellectual grounds. James held, in particular, that accepting the religious hypothesis, believing that God exists, is permitted by this principle.

In 1901 and 1902 James delivered his *The Varieties of Religious Experience* [14.10] as the Gifford lectures. James defined religion as 'the feelings, acts and experiences of individual men in their solitude, so far as they apprehend themselves to stand in relation to whatever they may consider the divine'. James went on to discuss repentance, conversion and saintliness, but, given the primacy he attached to experience, it is natural that he focused on mysticism. Drawing on the writing of mystics, James characterized mystical experience as ineffable, that is, it defies expression, as having noetic quality, that is, as seeming to its subjects as states of insight into truth, and as transient and passive. James concluded that such states were authoritative for those who had them but they had no evidential value for those who do not have them beyond pointing to the 'possibility of other orders of truth'.

James inaugurated a tradition of investigating the phenomenology and evidential value of mystical experience which continued throughout the century, with the work of W.T.Stace and Nelson Pike being especially noteworthy.

ALFRED NORTH WHITEHEAD AND PROCESS PHILOSOPHY

In 1927–8 the Gifford lectures were delivered by Alfred North Whitehead. Whitehead had begun his career as a mathematician, co-authoring in 1910–13 with Bertrand Russell the monumental *Principia Mathematica*. By the 19203 Whitehead had moved to America and was attempting to develop a speculative metaphysical system inspired by scientific cosmology. The notoriously obscure language of his Gifford lectures, published as *Process and Reality* [14.15], makes them difficult to interpret. Whitehead elaborated a 'dipolar' concept of God. In his 'primordial nature', God is part of the process of the natural world— not the creator and devoid of consciousness—who nevertheless contributes to the order of the world. By contrast, the 'consequent nature' of God is a consciousness that grows as it incorporates the values that arise as things continually change. Whitehead summarized these apparently conflicting strains with a series of aphorisms such as, 'It is as true to say that God creates the World, as that the World creates God.'

Whitehead's rejection of the classical conception of God as immutable, eternal, absolute, omnipotent, and so forth, was found congenial by others who developed his views. Charles Hartshorne, for example, defended a dipolar view of God, and such 'process theologians' as John Cobb attempted to give an explicitly Christian development of Whitehead's thought.

THEOLOGICAL LANGUAGE: VERIFIABILITY AND MEANING

Interest in developing speculative metaphysical systems declined under the influence of logical positivism. This was a school of philosophy developed by Morris Schlick, Rudolf Carnap and other members of the Vienna Circle. It was introduced to English-speaking philosophers by A.J.Ayer in his *Language, Truth, and Logic* [14.16]. The centrepiece of logical positivism was the verifiability criterion of meaning. According to this view a sentence is meaningful only if it is either analytic or empirically verifiable. A satisfactory statement of what was required for a sentence to be verifiable was never found; roughly, however, the idea was that a sentence is verifiable just in case it could at least in principle be established or falsified by empirical observation. Ayer wielded the principle of verification to yield the conclusion that the sentences of traditional metaphysics, of ethics, and of religion are all meaningless. He held that such claims were not analytically true and that there was no conceivable observation that would confirm or refute them. Accordingly, Ayer concluded that these sentences were neither true nor false but meaningless, in particular, 'no sentence which purports to describe the nature of a transcendent god can possess any literal significance'.

Ayer's case was bolstered by a famous example published in the mid-1940s, around the same time that *Language, Truth, and Logic* came out in a second edition. In his essay, 'Gods' [14.20], John Wisdom described an example of two people who observe an apparently untended garden. One thinks that there is a gardener; the other does not. All attempts to detect the gardener fail, yet the one person continues to believe that there exists an unseen and unheard gardener who is manifested only in his works. Although Wisdom held merely that the difference between the two observers 'has ceased to be experimental', other philosophers drew the conclusion that, since no observation would falsify the believer's claim, that claim, that there is an unseen and unheard gardener, is meaningless. Antony Flew, for example, claimed that 'if there is nothing which a putative assertion denies then there is nothing which it asserts either: and so it is not really an assertion' [14.18]. Flew then suggested, with respect to a version of Wisdom's story he elaborated, that

'when the Sceptic in the parable asked the Believer, "Just how does what you call an invisible, intangible, eternally elusive gardener differ from an imaginary gardener or even from no gardener at all?" he was suggesting that the Believer's earlier statement had been so eroded by qualification that it was no longer an assertion at all.' Flew held that theological utterances generally, since they cannot be falsified, are similarly vacuous.

This idea, that the central challenge to religious belief was not that such beliefs are false but that they are not even meaningful, continued to dominate the philosophy of religion into the 1950s. It was shared by most of the contributors to what was the leading collection of essays in philosophy of religion of the decade, *New Essays in Philosophical Theology,* a volume that included, in addition to Flew's piece, essays by R.M.Hare, Basil Mitchell, P.H.Nowell-Smith, and others.

The verificationist challenge to the meaningfulness of religious belief was so widely accepted that even many theistic philosophers and theologians felt compelled to offer reinterpretations of traditional religious assertions that would permit them to pass the verifiability test of meaningfulness. A typical and well-known example of such a response is R.B.Braithwaite's *An Empiricist's View of the Nature of Religious Belief* [14.17]. According to Braithwaite, the Christian's apparent claim that God is love is not a claim about a supernatural reality, but is rather merely an expression of the believer's intention to follow an agapeistic way of life. Other religious utterances are to be understood similarly as expressions of emotion or as declarations of an intention to act in a certain way.

As long as the very meaningfulness of religious utterances was in question relatively little attention was given to other issues in the philosophy of religion. Eventually, however, commitment to the verifiability criterion of meaning waned. This was due primarily to the problems, first, of saying why the criterion should not be applied to itself—for it seemed to be unverifiable—and, second, to the problem of formulating the principle in a way that ruled out sentences of metaphysics and religion without also ruling out clearly meaningful sentences such as sentences of science. The history of this latter problem is detailed by Carl Hempel in 'Problems and Changes in the Empiricist Criterion of Meaning' [14.19].

WITTGENSTEINIAN FIDEISM

A similar preoccupation with religious language was channelled in a somewhat different direction by Ludwig Wittgenstein and his followers. Wittgenstein's most explicit discussion of religion is to be found in his *Lectures and Conversations* [14.25], student notes of lectures he gave in 1938. There he held that the religious believer's use of language is so different from that of the non-believer that the non-believer is unable to contradict the believer. Wittgenstein does not draw the conclusion, however, that the believer's assertions are meaningless. Rather, what the believer means is determined by a 'picture' or way of looking at life that the non-believer does not share.

Employing locutions that Wittgenstein used elsewhere, we can put this view as the claim that the meaning of religious terms depends upon their role in a 'language-game' or in a 'form of life'. Thus, terms such as 'God' or 'judgement day' have a meaning for a believer that depends upon their use in a range of practices in which the believer participates. It does not make sense, then, to attempt to find evidence or justification for religious assertions, for that inquiry is outside the religious form of life in which such assertions have a meaning. Followers of Wittgenstein such as Norman Malcolm and D.Z.Phillips emphasized versions of fideism according to which it is misguided to seek rational grounds for religious belief. On their view, religious belief is groundless; within religious practice it is not a hypothesis for which evidence may be sought, but there is no external perspective from which the religious form of life may be evaluated. Critics, such as Kai Nielsen, have objected that a single conceptual structure may include both

science and religion, in which case the demand for evidence is in order, and, in any event, whole forms of life (e.g. witchcraft) are open to appraisal.

THE PROBLEM OF EVIL

An exception to the prevailing philosophical climate in the 1950s, according to which religious claims were either meaningless or logically isolated to the language-game in which they were used, came in the form of an attack on the truth of theism. In 1955 J.L.Mackie inaugurated a period of intense interest in the problem of evil by presenting a forceful challenge to theism. H.D.Aiken, Antony Flew and H.J. McCloskey also published versions of this objection. According to Mackie, theism is not merely false, but inconsistent, because its central tenets could not possibly all be true. Theists hold that (1) *God is omnipotent,* (2) *God is wholly good* and (3) *There is evil.* According to Mackie, these propositions are contradictory in the sense that if any two are true, the remaining one would have to be false. This is what has since become known as the *logical problem of evil*. Mackie noted that in order to demonstrate that the theistic beliefs are contradictory one would have to find some necessarily true propositions—he called them 'quasi-logical rules'—connecting the concepts of omnipotence, goodness and evil in such a way that in conjunction with the theistic beliefs an explicit contradiction is deducible. Mackie's candidates for the requisite necessary truths were (4) *There are no limits to what an omnipotent being can do* and (5) *A good being eliminates evil as far as it can.* Critics such as Nelson Pike and Alvin Plantinga pointed out that, since a good person could permit evil if the person had a good reason, (5) is not a necessary truth. Subsequent attempts to substantiate Mackie's charge failed to uncover variants of (4) and (5) with the twin features of being necessarily true and of entailing, in conjunction with the theistic beliefs, an explicit contradiction. That leaves it open, however, that the theistic beliefs are inconsistent, even if it has not been shown that they are. Accordingly, a sizeable body of literature has been produced in the attempt to show that theism is consistent.

Plantinga defined a *defence* against evil as the attempt to show that the existence of God and the existence of evil are logically consistent with each other. By contrast, a *theodicy* is the attempt to say what the real reason or correct explanation for evil is. A defence, therefore, can succeed if it provides a logically possible scenario in which God and evil co-exist. The free-will defence was supported in a short reply to Mackie by S.A.Grave and developed with great ingenuity by Alvin Plantinga. Its main idea is that it is possible that God valued having free creatures but was unable, despite his omnipotence, to create such creatures who only do what is right; since, if God causes someone to do what is right, that person does not do it freely. If this scenario is possibly true, then it is possible both that God exists and that there is evil.

The free-will defence explicitly addresses so-called moral evil, that is, evil that results from the free actions of created agents. Critics have noted that there is also the question of the compatibility of God's existence with natural or physical evil, such as suffering due to earthquakes or floods. Plantinga's response is that it is possible that all evil is moral evil, since it is possible that apparently physical evil is caused by non-human agents. Despite this being only a claim of possibility, it has been controversial. Other philosophers, for example Richard Swinburne and Peter van Inwagen, have suggested that natural evil is due to the regular operation of physical laws and that the value of having physical laws outweighs the resulting evil.

An alternative to the free-will defence, promoted by John Hick, emphasizes the value of evil for the growth of people's characters. According to Hick, evil provides an opportunity for 'soul-making' or spiritual development, which is required for people to become fit for a relationship with God; evil is thus not simply an unfortunate consequence of having creatures with free will. Hick derived this view from Irenaeus (120–202), and Hick regarded it a virtue of this account that it avoids the Augustinian doctrine of the Fall and the

consequent problem of explaining how the good creation of a perfect God could become evil. Hick clearly intended his account to be a theodicy, but, if it is possibly right, it also provides a defence against the logical problem of evil.

Thus far the discussion focused on the logical problem of evil, but as philosophers became convinced that an adequate defence could be made against it, a second problem, *the evidential problem of evil,* began to attract attention. According to William Rowe, among others, the existence of evil, while not logically incompatible with the existence of God, is nevertheless evidence against God's existence; given the evil that there is in the world, the reasonable conclusion is that God does not exist. One response, defended by William Alston, is to hold that we are not in a position to know whether evil that appears to be gratuitous or unjustified really is; if there were a God he would likely have reasons for permitting evil that human beings could not even grasp. A second response, developed by Plantinga, concedes that *God exists* is improbable given *There is evil* but holds that *God exists* need not be improbable on a theist's total body of evidence. The issues here have to do with religious epistemology, to be discussed below.

THE ONTOLOGICAL ARGUMENT

A period of intense activity in philosophy of religion was inaugurated in 1960 when the *Philosophical Review* published an article by Norman Malcolm [14.41] in which Malcolm claimed to have found a sound version of Anselm's ontological argument for God's existence. Anselm (1033–1109) had held that God, understood as the being than which nothing greater can be conceived, must exist; for the assumption that God does not exist leads to the absurdity that it is conceivable that there is something which is greater than the being than which nothing greater can be conceived. Malcolm was willing to concede, as most philosophers at the time thought, that this version of the argument was refuted somehow by Immanuel Kant's (1724–1804) claim that 'existence is not a predicate'. Malcolm held, however, that there was a second argument in Anselm's *Proslogion,* one according to which *the logical impossibility of non-existence* is a perfection. Thus, if God is a being than which a greater cannot be conceived, he must exist necessarily, if at all. So either God's existence is necessary or it is impossible. According to Malcolm, God's existence is impossible only if the concept of God is self-contradictory or nonsensical. Malcolm denied that the concept of God is in this way impossible; accordingly, God exists necessarily.

Charles Hartshorne had presented a similar argument twenty years earlier, but his work had not attracted the same attention. By contrast, more than a hundred articles were submitted to the *Philosophical Review* in response to Malcolm's piece, of which the journal published a handful before enforcing a moratorium on the topic. Work on the argument continued, nevertheless. David Lewis applied insights derived from possible-world semantics for modal logic—an interpretation of claims about necessity and possibility in terms of logically possible worlds—to a version of Anselm's argument, a version that Lewis claimed to be defective. Alvin Plantinga proposed another modal version, which, though he claimed it to be sound, he conceded did not succeed as a proof. Nevertheless, Plantinga insisted that such an argument could demonstrate the rationality of belief in God, since someone could rationally believe its premise and rationally recognize that the conclusion that God exists follows from it.

ANALYTIC PHILOSOPHY OF RELIGION

Just as discussion of the ontological argument ushered in a period of renewed interest in the philosophy of religion, it also marked the introduction of greater rigour and more technical methods into the field. Signs of interest in the field included the founding of several journals devoted to the philosophy of religion. *Sophia,*

committed to discussion of philosophical theology, was inaugurated by the University of Melbourne in 1962; *Religious Studies,* published by Cambridge University Press, began in 1965; and the *International Journal for Philosophy of Religion,* edited in the United States and published in the Netherlands, commenced in 1970. Increased rigour resulted in part from a more careful attention to arguments. It was due, in addition, to the fact that philosophers of religion appealed to insights from other areas of philosophy, which were also becoming more technical. Thus, as noted above, work on the ontological argument drew on work in modal logic. Other areas of philosophical logic, for example, theories of counter-factual conditionals, came to figure in treatments of the problem of evil; metaphysical doctrines about the fixity of the past were applied to the topic of foreknowledge and free will; and probability theory was applied to arguments for and against God's existence.

The most influential work in analytic philosophy of religion in the 1960s was Alvin Plantinga's *God and Other Minds* [14.48]. In it Plantinga applied the techniques of analytic philosophy to the traditional arguments for God's existence as well as to arguments against God's existence, notably the problem of evil. Plantinga claimed that these arguments are all unsuccessful. However, he then examined the analogical argument for the existence of other minds—an argument for the conclusion that other people have mental states that appeals to the premise that their behaviour is analogous to one's own behaviour when one is in certain mental states. Plantinga held that this argument, though unsuccessful, is the best argument we have for the existence of other minds. He claimed, furthermore, that its defect is the same as the defect he had uncovered in the argument from design for God's existence. He concluded that since it is nevertheless rational to believe in other minds, it is also rational to believe in God.

Another topic to attract attention was that of the attributes of God. In his Wilde Lectures in 1970–2, later revised as *The God of the Philosophers* [14.44], Anthony Kenny took up such topics as divine omniscience, omnipotence, and immutability. Drawing on the work of Arthur Prior and Norman Kretzmann, he argued that if God is omniscient then he is not immutable. He further claimed if God has infallible knowledge then determinism is true and God is responsible for human wickedness. Kenny concluded that 'there cannot…be a timeless, immutable, omniscient, omnipotent, all-good being'. By contrast, Richard Swinburne in *The Coherence of Theism* [14.52], the first volume of his important trilogy in philosophical theology, attempted to describe 'what it means to claim that there exists eternally an omni-present spirit, free, creator of the universe, omnipotent, omniscient, perfectly good, and a source of moral obligation', and he endeavoured to show that this central claim of theism is 'coherent'. Swinburne's presentation involved attenuating certain of the attributes somewhat. For example, on the assumption that God is contingent, omniscience requires, not knowledge of all truths, but, at any given time, knowledge of every true proposition about that time or an earlier one and knowledge of only those propositions about future times that report events that are physically necessitated at the earlier time. And for Swinburne divine eternity meant being everlasting, rather than the more traditional, Boethian, idea of a simultaneous, timeless grasp of an illimitable life. On the other hand, if God is a necessary being, then, according to Swinburne, the theist needs to use some predicates of God *analogically* rather than literally.

In the decade following the publication of these seminal works, Edward Wierenga attempted in *The Nature of God* [14.54] to provide philosophically defensible accounts of several of the divine attributes, accounts that he claimed were adequate to the demands of classical theism as well as immune to the kinds of objections raised by Kenny. The question of whether divine foreknowledge is compatible with human free action attracted considerable attention. Many philosophers felt compelled to point out, as Aquinas had done much earlier, that a certain simple argument for incompatibility is fallacious. That argument is: (1) If God knows in advance that a person will perform a certain action, then the person must perform it. (2) If a person must perform a certain action, then the person does not do so freely. Therefore, (3) if God knows in

advance that a person will perform a certain action, then the person does not do so freely. The first premise is ambiguous. It can be taken as the truth (1) Necessarily, if God knows that a person will perform a certain action, then the person will do so; but so taken the conclusion does not follow. The conclusion does follow if the premise is understood as (1) If God knows that a person will perform a certain action, then the proposition that the person will perform that action is necessarily true; but under this interpretation the premise is false.

A considerably more vexing argument for the incompatibility of divine foreknowledge and human free action appeals to the apparent fixity or necessity of the past. According to this argument, what God in the past believed about the future is now part of the past and thus fixed or unalterable. Also, what follows of necessity from what is thus fixed is itself fixed or unalterable. But it follows of necessity, given God's (essential) omniscience, that if he knew in the past that someone would perform a certain action tomorrow that that person will perform the action. So the proposition that the person will perform that action is fixed or unalterable. Then, however, it is not up to the person whether he or she performs the action; so the action is not free. A version of this argument was presented by Nelson Pike in *God and Timelessness* [14.47]. In *God, Time, and Knowledge* [14.43] William Hasker argued that the standard defences of the compatibility of divine foreknowledge fail. In particular he objected to the Ockhamist response, which holds that propositions about God's past foreknowledge are not strictly about the past, and he objected to the eternalist response, according to which God is outside time. Hasker claimed that solutions to the problem require that we have a power over the past that in fact no one has. Linda Zagzebski also took up this topic in *The Dilemma of Freedom and Foreknowledge* [14.55]. Although sharing Hasker's scepticism with respect to the traditional responses, she argued that two assumptions of the above argument, namely that fixity is transferred by entailment and that actions fixed in the relevant sense are not free, may both be rejected.

In addition to the ontological argument, discussed above, analytic philosophers of religion have discussed other arguments for God's existence. In *The Cosmological Argument* [14.50], William Rowe examined versions of the argument that derives from the assumption that contingent things exist now the conclusion that there was a first cause, namely God, of what exists. Rowe claimed that this argument failed as a proof of theism but concluded that it may show the reasonableness of theistic belief. Richard Swinburne considered a variety of theistic arguments in *The Existence of God* [14.53]. Swinburne emphasized the explanatory power of the theistic hypothesis and claimed that the cumulative case of several arguments taken together renders the proposition that God exists more probable than not. In this conclusion, if not in the detailed way he arrived at it, Swinburne's position resembled that of Basil Mitchell, his predecessor as Nolloth Professor of Philosophy of the Christian Religion at Oxford University.

RELIGIOUS EPISTEMOLOGY

Just as at the beginning of the century William James had responded to W.K.Clifford's dictum that it is always wrong to believe a proposition on insufficient evidence, so in the final third of the century was interest in religious epistemology rekindled by the evidentialist challenge to the rationality of theistic belief. As Antony Flew put it,

> If it is to be established that there is a God, then we have to have good grounds for believing that this is indeed so. Until or unless some such grounds are produced we have literally no reason at all for believing; and in that situation the only reasonable posture must be that of either the negative atheist or the agnostic.
>
> ([14.59], p. 22)

This objection may be put as an argument: (1) It is rational to believe that God exists only if there is sufficient evidence for God's existence. (2) There is not sufficient evidence for God's existence. Therefore, (3) it is not rational to believe that God exists.

Alvin Plantinga suggested that this demand for sufficient evidence appeals to classical foundationalism. According to the latter doctrine, some propositions may be rationally believed without being based on other beliefs. Such 'properly basic propositions', according to Plantinga's construal of classical foundationalism, either are self-evidently true, are ones that a person could not possibly believe without their being true, or are evident to the senses. Any other proposition may be rationally believed only if it is justified by, supported by or evident with respect to properly basic propositions. The evidentialist objection may then be reformulated as: (1) It is rational to believe that God exists only if the proposition that God exists is properly basic or evident with respect to propositions that are properly basic, (2 a) The proposition that God exists is not properly basic, (2 b) The proposition that God exists is not evident with respect to propositions that are properly basic. Therefore, (3) it is not rational to believe that God exists. Plantinga claimed, first, that it is at least dubious that the proposition that God exists is not properly basic—perhaps classical foundationalism's standards for what counts as properly basic are mistaken. Second, however, if those criteria for what it takes to be properly basic are correct, then it is not rational to believe the first premise of the argument; for (1), itself, is neither properly basic nor evident with respect to propositions that are. The argument is therefore defective: if the second premise is false, the argument is unsound, but if the second premise is true, then it is not rational to accept its first premise.

Not content with merely rebutting the evidentialist objection to theistic belief, philosophers turned their attention to providing epistemological theories according to which theism was justified. Plantinga himself defended a view according to which a person's belief in a proposition is justified just in case the belief is produced by that person's epistemic faculties functioning properly (in circumstances for which they were designed). Plantinga's preferred account of a person's faculties functioning properly is that they function in the way God intended them to function. A theist, furthermore, might think that God would design people in such a way that they came to hold a belief in his existence; if so, such a belief would be justified.

William Alston claimed that beliefs should be evaluated by reference to the epistemic practice within which they arise. He then noted the difficulty of justifying, in the sense of providing good evidence in favour of, the perceptual epistemic practice in which our ordinary beliefs about the world arise. Alston suggested that our perceptual practice is justified only in a weaker sense according to which there are no good objections to it or it is not irrational to participate in it. Finally, Alston argued that what he called Christian mystical practice, which yields beliefs about God in the presence of religious experience, is in striking respects analogous to perceptual practice. In particular, it is 'rationally engaged in since it is a socially established doxastic practice that is not demonstrably unreliable or otherwise disqualified for rational acceptance'.

THEOLOGICAL TOPICS

At the close of the twentieth century, two trends appeared to emerge in the philosophy of religion. One was an expansion of the field to include or at least border on any philosophical work that takes an explicitly theistic perspective. For example, the divine-command theory of ethics, a meta-ethical theory which holds that God's commands determine the moral status of actions, came to be treated in the textbook anthologies of philosophy of religion. In addition, philosophers of religion took notice of such work as that of the authors collected in *Christian Theism and the Problems of Philosophy* [14.62], philosophers who appealed to tenets of theism in their work in metaphysics and epistemology.

A second trend was for philosophers of religion to direct their attention, often sympathetically, to explicitly theological topics, especially to the doctrines of Christian theism. For example, in *The Logic of God Incarnate* Thomas Morris used the tools of analytic philosophy to defend the doctrine of the incarnation, the belief that Jesus was both fully God and fully human. Morris was particularly concerned to rebut such critics as John Hick, who objected that this doctrine was incoherent by claiming that the properties essential to divinity and the properties essential to humanity are incompatible with each other. Other topics to attract attention were the Christian doctrines of the Trinity—that God is three persons in one —and of the atonement —that Christ's sacrifice restores sinful people to a right relationship with God. Philip Quinn wrote a series of papers detailing and criticizing the theories of the atonement proposed by Aquinas, Abelard and Kant. Richard Swinburne took up the topic in the first volume of a series on theological issues; the second volume, on revelation, addressed another issue of theological interest.

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Glossary

absolute idealism —a school of philosophy in both Britain and the United States in the late nineteenth and early twentieth centuries. Influenced by Hegel, F.H.Bradley was its main exponent. It stressed the unreality of space, time and physical objects and held that reality was indivisible and spiritual. There is one spiritual, self-conscious being—the Absolute—and everything that is real is so by virtue of participation in the Absolute.

accident —a property that does not apply to an object necessarily, to be contrasted with essential properties.

actual world —the possible world at which all actual truths obtain.

actuality —the feature that distinguishes our possible world from the others and real things from those which are merely possible.

analytic —see analytic truth.

analytic truth —a statement that is true just in virtue of the meanings of its constituent terms. Contrasts with 'synthetic truth'.

anti-realism —a metaphysical position which denies realism, the view that there is a mind-independent world with which assertions must correspond in order to be true.

***a posteriori* knowledge** —knowledge that depends on a specific sensory or perceptual experience.

***a priori* knowledge** —knowledge that does not depend on any specific sensory or perceptual experience.

argument from design —an argument for the existence of God that appeals to the evidence of design in the universe as a reason for thinking that there is a designer.

Äusserungen —a term of art in Wittgenstein for certain first-person psychological utterances such as 'I am afraid.' Their characteristic feature is that they are not *descriptions,* and in particular not descriptions of the inner. *Äusserungen* have the same function as more primitive reactions or expressions which they replace; for example 'I am afraid' may be functionally equivalent to a groan of fear.

being —in Meinong's theory, the widest category of objects, only some of which have the property of existence.

binary function —a function relating two arguments to a value (the way, for example, addition is a function of two numbers having their sum as the value of the function for those arguments). Gottlob Frege interpreted relations between objects as binary functions with truth values, the true or the false, as their values.

brain in a vat —a thought experiment described by Hilary Putnam, according to which we might just be brains kept alive by a mad scientist in a vat of nutrients.

causal theory of names —what a name refers to on some occasion is determined by the causal chain between that use and previous uses of the name to refer to some object.

common law —a system of law originating in England after the Norman conquest consisting of decisions made by courts in cases where there is no controlling legislation. One of its fundamental principles is that courts have an obligation to follow precedent and treat like cases alike and so earlier decisions become a source of law for later ones. Today common law is usually divided into three branches—contract, property, and tort. Although many jurisdictions now have codes of criminal law important aspects of criminal law remain common law. The common law spread to many parts of the British Empire and forms the basis of law in such countries as Australia, Canada and the United States.

common-sense view of the world —a view, espoused by G.E.Moore in his 'Defence of Common Sense' (1925). It rejected any philosophical proposition that conflicted with certain common beliefs of ordinary life.

consequentialism —at their simplest, consequentialist theories of right and wrong locate these moral characteristics of acts in the comparative goodness or badness of their consequences: the better or worse its consequences, the more right or wrong the act. In more complicated forms of consequentialist theory, the connection between actions and morally significant consequences is indirect. Acts are not right or wrong according to the relative merit of their own immediate consequences, but rather, according to the more general consequences of those moral practices or aspects of moral character to which actions of the kind in question might be attached. An act which by itself produces good consequences might thus be a very bad way of acting. Moore's view that for epistemological reasons we ought to abide by the dictates of the rules of common sense is one form of indirect consequentialism.

cosmological argument —an argument for the existence of God that derives from the assumption that contingent beings exist the conclusion that there is a First Cause, namely, God.

counterpart —in David Lewis's modal theory objects do not exist in more than one possible world. Statements attributing an essential property to an object really attribute it to the object and all of its counterparts in other worlds, the objects in those worlds most similar to the original.

criterion —in the later Wittgenstein a criterion is a test, holding in virtue of a rule of language, for the truth of a judgement. So the criterion for being an international grandmaster in chess is that one have such and such a numerical rating gained in such and such a way, as dictated by an explicit rule.

de dicto necessity —necessity of the *dictum* or proposition, a general necessary truth, contrasted with those that attribute a property necessarily to an object. (*See de re* necessity.)

_de re_ necessity —necessity of the thing. (*See de dicto* necessity.)

definite description —a phrase that begins with the word 'the' followed by a noun or noun phrase, for example, 'the present King of France' and 'the oak table with the Limoge vase'.

deontological ethics —deontological theories take right and wrong, rather than good and bad, as the primary notions of morality. Etymologically, 'deontology' comes from the Greek words *deon* (duty) and *logos* (science). Deontological approaches to ethics are non-consequentialist in denying that questions of duty, or of the right, are necessarily parasitic on questions of the good. What one ought to do is not simply a matter of what will produce the best consequences, but primarily a question about what kinds of acts one ought or ought not perform.

domain —in logic, the range of interpretation of the quantifiers, 'there are' and 'for all'. The domain of a possible world is the class of objects which exist at, or according to, that world.

doxastic —belief-oriented. A psychological state is doxastic if and only if it includes belief as an essential component.

Duhem, Pierre —a prominent French physicist and philosopher of science (1861–1916). He is best known among philosophers of science for his version of epistemic holism according to which a scientific hypothesis is always tested on the basis of other hypotheses, so that confirmation and falsification are conditional on accepted hypotheses.

emotivism —a kind of non-cognitivism, emotivism holds that moral claims, such as 'lying is wrong', merely serve to vent a speaker's emotional reaction to his or her subject matter, or perhaps evoke a similar emotional reaction in the speaker's audience. On this view of moral discourse, moral claims do not make statements about anything at all, not even the speaker's own emotional state; instead, they function as actual expressions of a particular emotional response to whatever it is they purport to be about.

empiricism —the evidence of the senses—e.g. visual, auditory, tactile or gustatory experiences—is a sort of evidence appropriate to genuine knowledge. (Strict empiricism: *only* the evidence of the senses is appropriate to genuine knowledge.)

epistemic coherentism —all justification is inferential and systematic in virtue of coherence relations among beliefs.

epistemic contextualism —justification has a two-tier structure in that some beliefs are 'contextually basic'—i.e. taken for granted in a context of inquiry — and all inferentially justified beliefs depend on such contextually basic beliefs.

epistemic foundationalism —justification has a two-tier structure in that some instances of justification are non-inferential, or foundational, and all other instances

of justification are inferential, deriving ultimately from foundational justification.

epistemic holism —*see* epistemic coherentism.

epistemic infinitism —regresses of inferential epistemic justification are endless, or infinite.

epistemology —the theory of knowledge, the philosophical study of the nature, origin and scope of knowledge.

essential property —a property an object has necessarily, that is, in every possible world.

essentiality of origin —the thesis that the origins of an object, what it is originally made from, for example, in the case of an artifact, is an essential property of it.

ethical intuitionism —ethical intuitionism supposes that the human mind includes a cognitive faculty that enables it to apprehend, in a direct sort of way, the presence or absence of moral properties as they actually exist in the objects of moral thought. Although intuitionism is, strictly speaking, an epistemological theory, it is often presented as a form of ethical objectivism.

ethical naturalism —ethical naturalism, a kind of objectivism, holds that moral claims are true or false depending on the way in which the natural world is actually configured. It should not be confused with naturalized ethics, which represents a more contemporary, positivistic effort to account for ethical thought and behaviour on the basis of certain natural aspects of human psychology and social interaction. Unlike the earlier naturalism of Dewey or Perry, which is also based on natural facts related to human psychology and society, naturalized ethics is typically advanced as a form of ethical subjectivism or non-cognitivism. For representative examples of each see Harman [5.26] and Gibbard [5.21].

ethical non-cognitivism —ethical non-cognitivism comprises those metaethical theories which hold that moral claims are not prepositional: moral claims do not express statements which are either true or false, depending on the way the world is. Loosely put, there are no moral properties, subjective or objective, of which the human mind might enjoy any sort of cognitive awareness.

ethical non-naturalism —ethical non-naturalism, a kind of objectivism, holds that moral claims are true or false depending on the way in which certain non-natural aspects of the world are actually configured. Advanced by G.E. Moore in 1903, this view has remained an historical anomaly.

ethical objectivism —objectivists about morality hold that moral claims express propositions, and that what makes these propositions true or false are features of the world that exist independently of human beliefs about morality.

ethical subjectivism —subjectivists about morality also hold that moral claims express propositions, but think that what makes these propositions true or false are the moral responses of the speaker or his or her community to whatever it is that the claims are about. In saying that lying is wrong, for example, I make a statement about my own moral beliefs, or perhaps my community's moral beliefs.

extension —the set of objects of which a predicate is true is its extension. Properties are also said to have as an extension the set of their instances.

fallibilism about justification —there can be false justified beliefs.

family resemblance —Wittgenstein holds that the items belonging to the extension of a given term such as 'game' may fail to share necessary and sufficient features in virtue of which they fall under the term. Rather properties may be distributed among the class of items in a way analogous to the manner in which features are allocated among the various members of a family. A and B may share the family hair colour but not the family nose, B and C the family nose but not the hair colour, and so on.

first-order logic —logic where quantifiers 'all' and 'some' range only over individuals and not higher-order entities such as properties or predicates.

free-will defence —the attempt to show that God's existence is compatible with the existence of evil by appealing to the value of creatures with free will.

functionalism —theory in the philosophy of mind by which mental notions such as pain are to be defined by the causal role or function they perform mediating between sensation and action.

Gettier problem —the problem of finding a modification of, or an alternative to, the standard justified-true-belief analysis of knowledge that avoids difficulties from counter-examples to that analysis inspired by Edmund Gettier in 1963.

grue —Goodman's fabricated predicate, true of those things that are examined before the year 2000 and found to be green, otherwise blue things.

haecceitism —the thesis that one object can occur in different possible worlds, without requiring that they have any distinctive individual essence that grounds that identity.

haecceity —the non-qualitative ground of identity of an object across possible worlds, as a 'thisness' contrasted with a qualitative quiddity, or 'suchness'.

historical theory of names –*see* causal theory of names.

idealism about something , *x*—the existence of *x* depends on the intellectual or perceptual processes of a conceiver.

immanent universals —the view that universals are located (wholly) in each of their instances, and depend on them ontologically. Thus there can be no uninstantiated immanent universals.

indexical —an expression such as 'I', 'now', 'here', 'this' and 'that' which depends for its interpretation on the context of utterance.

individual —entity of basic ontological category. Concrete particulars, spatiotemporally located physical objects are model individuals, although other sorts, including abstract entities, may be included. Defined in logic as objects of the lowest logical type.

individual essence —essential property had by at most one object.

individuation —process by which an entity is distinguished from its environment at one time and through time.

inferential justification —the justification of one belief depends on another belief or set of beliefs.

inherence —variously, relation or non-relational tie between a property or universal and its instances.

intensionality —semantic characterization of an expression in which expressions with the same reference or same extension cannot be substituted for each other. Contrasts with extensionality.

internal relations, doctrine of —a metaphysical principle, espoused by F.H. Bradley, which held that relational properties are reducible to intrinsic properties and, ultimately, unreal.

intrinsic —property internal to an object, independent of its relations with any other object.

lambda-operator —the lower-case Greek letter *lambda* used as a variable-binding operator for generating function-expressions from other expressions. It was used in this way to characterize the notion of an algorithm (recursive function) by Alonzo Church in his *The Calculi of Lambda-Conversion,* and also in his simple type theory to generate complex expressions for functions (including concepts as functions from objects to truth values). Rudolf Carnap, Richard Montague and others followed Church in this use of the lambda-operator.

language-game —a term from Wittgenstein's later philosophy denoting a custom-regulated pattern of interaction in which words play a role. For instance in the language-game of the builders in §2 of the *Philosophical Investigations* the role of the word 'slab' is to indicate the type of building block the helper is to bring in response to the call 'Slab!'

legal positivism —the view that no moral judgement need be involved in determining what the law is. It is usually contrasted with natural law theory (q.v.). It is especially associated with John Austin (1790–1859) who spoke of law as the command of a sovereign to that sovereign's subjects backed up by a threat sanction. Modern legal positivism speaks of the acceptance of law by a community rather than the command of a sovereign.

logical atomism —a philosophy defended by Bertrand Russell in his 'The Philosophy of Logical Atomism'. It held that all meaningful propositions were truth-functions of elementary or atomic propositions which, in turn, characterized metaphysically basic facts.

logical constructionism —a philosophical strategy, developed by Bertrand Russell, which treated philosophically troublesome entities (e.g. numbers, physical objects) as analysable in terms of—or 'logically constructed out of'—less troublesome entities (e.g. sets, sense data).

logical empiricism –*see* logical positivism.

logical positivism —the view of the Vienna Circle that philosophy should use modern logic (deriving from Frege and Russell), various analytical techniques and the verification principle to restrict philosophical pursuits to the

advancement of 'scientific' knowledge, thereby banishing metaphysical concerns from philosophy.

logical type —classification of logical expressions into objects, predicates, etc., depending on their logical category.

mass terms —terms such as 'water' or 'food' that stand for quantities of stuff, rather than distinct individuals.

Meinongian —view characteristic of Alexius Meinong, chiefly the view that there is a distinction between what there is (what has 'being') and what exists.

mereological sum —object that has arbitrary other objects as its parts. Defined formally as the object that overlaps exactly those other objects.

mereology —study of the part-whole relationship.

meta-ethics —while substantive ethics concerns itself with theories of right and wrong and good and bad, meta-ethics concerns itself with the more general question of what, exactly, ethical theories are theories of. Answers range from that simple, undefinable, non-natural object of thought, goodness, to nothing at all.

meta-language —a language used to talk about another, 'object-' language.

metaphysical realism —generally, the view that a particular class of entities, such as universals, exists. More recently identified as the view that truth consists of a correspondence with a mind-independent reality and that truth is 'non-epistemic', that is, is independent of our knowledge.

modal logic —that branch of logic that deals with the concepts of necessity and possibility.

modal operator —expression such as 'necessarily' or 'possibly' that expresses a modality, or mode of truth.

modal realism —the view that possible worlds and possible but non-actual entities exist. Contrasted with actualism.

naive realism —things are just as they seem to be in ordinary perceptual experience.

naming theory of meaning —the meaning of a name is the object it directly denotes or picks out.

natural kind —class of objects that share a common essence, or genuine property.

naturalism —project to reduce the notions and ontology of a field of study to those necessary for the study of the natural world, that is those of science.

naturalistic fallacy —specifically, the naturalistic fallacy refers to a logical error that Moore believed himself to have discovered in the work of those earlier moral philosophers whom he believed to have defined goodness in terms of some other, natural property, something which Moore thought could be logically ruled out by appeal to the open question argument. More generally, the naturalistic fallacy has come to refer to the questionable legitimacy of any move to base claims about what ought to be on claims about what naturally is.

natural-law theory —the view that there are principles or values which are independent of any human institution and to which any human legislation or decision must conform if it is to have the force of law

neutral monism —a metaphysical view, first expressed by William James, and later by Bertrand Russell. It viewed both minds and physical objects as

metaphysically secondary entities, holding that both should be regarded as constructions out of immediate experience—which, in turn, was viewed as the ultimate 'stuff' of reality.

nominalism —thesis that all that exists is particular, there are not general or universal entities. Also identified with the rejection of abstract entities such as sets and numbers.

norm —a standard which guides action by making it appropriate to claim that that action ought to be done. Ordinarily, at least, the acceptance of a norm involves recognizing that one thereby has a reason to conform to it

object theory —term used by Meinong for the most general study of objects, existent and not.

ontological argument —an argument for the existence of God which derives the conclusion that God exists just from the concept of God as 'that than which nothing greater can be conceived' or as the greatest possible being.

ontological commitment —relation of a theory to those objects that one asserting the theory believes to exist.

ontology —the philosophical study of existence in general, e.g. of the kinds of things that exist.

opacity, referential —a grammatical context occurring in a sentence and containing a nominal expression (a name, definite description or quantifier phrase) is said to be referentially opaque if the substitution of a co-referring expression, in the case of a name or definite description, or the exportation of a quantifier phrase, can change the truth value of the sentence. Thus, the fact that 'Jones believes that Cicero denounced Cataline' can be true and 'Jones believes Tully denounced Cataline' can be false, even though 'Cicero' and 'Tully' are co-referring nominal expressions (a fact that Jones does not know), indicates that the grammatical context following 'believe' is referentially opaque. Similarly, the fact that 'Jones seeks a unicorn' can be true even though the result of exporting the quantifier phrase, 'a unicorn', as in 'A unicorn is such that Jones seeks it', is false (because there are no unicorns) indicates that the grammatical context following 'seek' is referentially opaque.

open question argument —by means of the open question argument, Moore thought that he could prove that 'good' was undefinable. If we substitute any proposed definition, *x,* into 'but is *x* good?', the question is an open one, which shows, according to Moore, that *'x'* and 'good' can't mean the same thing.

ostensive definition —conveying the meaning or referent of a term by pointing out one of its exemplars, as in: 'That *[pointing]* is [what we count as] red.' In the later Wittgenstein ostensive definition is distinguished from what he calls ostensive teaching. In the latter case a learner is encouraged to call out the right name when a certain type of object is pointed to; but the learner has not yet mastered the use of the expression 'What is that

called?' In the former case the learner has mastered a language-game for asking what a given thing is called.

Pareto efficiency —one situation *a* Pareto-dominates another *b* if it is possible to move from *b* to *a*. making at least one party better off and no parties worse off. A situation is Pareto-efficient if no situation Pareto-dominates it. The concept is named after the late nineteenth-century social theorist Vilfredo Pareto.

phenomenalism —the philosophical view which attempts to analyse the physical world as a construction out of immediate experience or phenomena.

picture theory of meaning —the view, expressed by Ludwig Wittgenstein in *Tractates Logico-Philosophicus,* that the basic or atomic propositions of language function as pictures of basic facts, which, in turn, were viewed as arrangements of absolutely simple objects.

platonic realism —view that abstract entities, in particular, universals, exist and do not depend on concrete instances for that existence.

possibilia –merely possible individuals distinct from any actual thing.

possible world —way things might have been, either an abstract or concrete entity in different theories.

pragmatism —a school of philosophical thought, originally formulated by C.S. Peirce in the late nineteenth and early twentieth centuries, and developed in various ways by William James, John Dewey, and others. The Pragmatists agreed that every meaningful thought or proposition must have practical— and, therefore, observable—consequences in human life.

problem of evil —the problem of reconciling the existence of God with the existence of evil. The logical problem of evil is the claim that the existence of an omnipotent, omniscient, perfectly good being is logically incompatible with the existence of evil. The evidential problem of evil is the claim that the existence of evil is good evidence against the existence of God.

proper name —a word that names or denotes an individual object; Russell distinguished between ordinary proper names, such as 'Socrates' and 'Fido', which are disguised or abbreviated definite descriptions, from logically proper names, such as 'this' and 'that', which denote their object without any mediating descriptive content. Other philosophers, such as Donnellan and Kripke, have argued that ordinary proper names actually function the way that Russell thought logically proper names do.

quiddity —'suchness', qualitative individual essence.

radical interpretation —determining the conditions under which a speaker's utterance is true without relying upon previous knowledge about what the speaker believes or what language he or she speaks.

rationalism —some knowledge does not depend on the evidence of the senses. (Strict rationalism: no knowledge depends on the evidence of the senses, and genuine knowledge does exist.)

realism about something, *x* —the existence of x does not depend on the intellectual or perceptual processes of a conceiver.

rigid designator —expression that designates the same entity in every possible world. Contrasted with definite descriptions which may not be rigid.

scientific realism —thesis that the entities and properties postulated by science are real.

scientism —perjorative term for the excessive veneration or respect for science.

semantic holism —the meaning of any statement depends on the meaning of some other statement(s).

set —a group or collection of individuals itself viewed as an individual.

ship of Theseus —a legendary ship which was replaced plank by plank until it had no plank in common with its original constitution.

singular term —a proper name, definite description, singular personal pronoun, or demonstrative pronoun.

situational ethics —situational ethics is the view that no theories of ethics are possible because any action's rightness or wrongness depends entirely on the situation in which it is performed, and all situations are unique.

sortal term —a general term for a sort or kind of individual thing, e.g. 'table', 'lion' or 'number', as opposed to mass terms like 'water', or adjectives like 'blue'.

statutory law —a statute is an act of a legislature commanding or forbidding something. Unlike common law which consists of decisions of courts, statutory law consists of statutes.

substantive ethics —in the early twentieth century, this branch of philosophy concerned itself with the general question of what makes actions right or wrong. Some answers to this question proposed a single, general principle, such as 'those acts are right which produce the best consequences', while others proposed a number of such principles, such as Ross's list of *prima facie* duties. But according to the situational view of ethics espoused by Carritt, substantive ethics was, strictly speaking, impossible; there simply was no general answer to the question of what it is that makes acts right or wrong.

synthetic truth —a statement that is true in virtue of considerations other than the meanings of the constituent terms.

temporal part —an object at a moment or through an interval seen as an individual in its own right.

theodicy —the attempt to explain what justifies evil or what is the reason for evil.

token/type —a distinction between particular occurrences of a kind and the kind itself. The distinction is usually applied to linguistic entities. Thus in the sentence 'The man bit the dog' there are two tokens of the type *the;* on the other hand there are only four word types in the sentence. So if we ask how many words there are in the sentence we will get a different answer depending on whether we mean word types or word tokens.

truth-function —a given proposition, *p,* is a truth-function of the propositions which make up a certain set, *s,* if and only if the truth-value (i.e. the truth or

falsity) of *p* is completely determined by the truth-values of the propositions in *s*. Russell and Wittgenstein were attracted to the view that all of the propositions of language are truth-functions of a set of elementary propositions about elementary facts. Russell never embraced this view without reservation, but Wittgenstein defended it in the *Tractatus Logico-Philosophicus*.

utilitarianism —a kind of consequentialism, utilitarianism ties the rightness of acts to the maximization of utility; 'utility' may simply refer to pleasure, or it may include such goods as personal affection and knowledge, as in Moore's ideal version of the theory. In more current usage, however, 'utility' is usually confined to either pleasurable mental states or satisfied preferences, and so Moore's theory would now be designated as a non-utilitarian form of consequentialism.

variable, bound —in symbolic logic, a variable such as *x* or *y* that is preceded by a quantifier 'For all *x*,…' or 'For some *y*,…', as opposed to a free variable, which is not.

verification principle —a principle espoused by the members of the Vienna Circle which held that a meaningful non-logical proposition must be capable, in principle, of empirical verification. Various formulations of the principle were offered with none winning general acceptance. The principle was used to discredit traditional metaphysics.

Vienna Circle —a group of philosophers, many with scientific or mathematical training, who came together in Vienna under the leadership of Moritz Schlick during the 1920s. The group espoused the philosophy of logical positivism, which proved to be both influential and controversial for two decades both on the European continent and in the English-speaking world.

Zeno (of Elea) —a pre-Socratic Greek philosopher (born about 490 BC) who is best known for formulating what have come to be known as 'Zeno's paradoxes'. These are arguments, still objects of respectful scrutiny in the twentieth century, designed to prove that change, in the form of physical motion, is impossible. Zeno also argued that the concepts of plurality and spatial location are deeply incoherent and so have no application to reality. He believed that reality, properly understood, is an unchanging, undivided whole. As such, there are interesting parallels between Zeno's thought and that of the absolute idealists of the late nineteenth and early twentieth centuries.

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